Airport Comprehensive Land Use Plan for

VENTURA COUNTY

Final Report

SANTA PAULA AIRPORT

CAMARILLO AIRPORT

OXNARD AIRPORT

NAWS POINT MUGU

VENTURA

OXNARD

THOUSAND OAKS

SIMI VALLEY

VENTURA COUNTY
AIRPORT LAND USE COMMISSION

AIRPORT COMPREHENSIVE LAND USE PLAN UPDATE FOR VENTURA COUNTY

FINAL

Prepared for
Ventura County Airport Land Use Commission
by
Coffman Associates, Inc.

Adopted July 7, 2000

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Comprehensive Airport
Land Use Plan

FINAL

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Chapter One
INTRODUCTION

Chapter One
INTRODUCTION

1.1 BACKGROUND

In November 1991, the Ventura County Airport Land Use Commission approved an *Airports Comprehensive Land Use Plan* (1991 CLUP) for the three public use airports and one military airport in the County (P & D Aviation 1991). That document replaced an interim CLUP prepared in 1989. The current study is an update of the 1991 CLUP.

A combination of events caused the Airport Land Use Commission to decide to update the 1991 CLUP. First, a new Air Installation Compatible Use Zone (AICUZ) study had been prepared for Naval Air Weapons Station (NAWS) Point Mugu in 1992 (Dames & Moore 1992). The 1992 AICUZ study reflected changes in the use of the facility since the previous AICUZ study was done in 1986. Second, the State Department of Transportation, Aeronautics Program, published an updated *Airport Land Use Planning Handbook* in 1993, reflecting updated information about aircraft accidents and experience with the administration of CLUPs throughout the State (Hodges & Shutt 1993). Third, an updated master plan for Camarillo Airports was prepared and approved in 1996 (Coffman Associates). Fourth, the Ventura County Department of Airports had committed to undertake Noise Compatibility Studies for Oxnard and Camarillo Airports in 1997-1998 (Coffman Associates 1997a and 1997b). The updated CLUP is to take into consideration these developments.

1.2 PURPOSE AND SCOPE

The *Airport Comprehensive Land Use Plan for Ventura County* is intended to protect and promote the safety and

welfare of residents near the military and public use airports in the County, as well as airport users, while promoting the continued operation of those airports. 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 encroach upon or adversely affect the use of navigable airspace.

Implementation of this plan will promote compatible urban development and restrict incompatible development in the vicinity of the County's airports, thus allowing for the continued operation of those airports. Three areas of compatibility are considered in the Plan:

- Compatibility of surrounding land uses with airport noise levels;
- Compatibility of surrounding land uses with respect to the safety of persons on the ground and persons on board aircraft making controlled crash landings;
- Protection of airspace needed for safe air navigation near airports.

The Plan applies to four airports in the County: Camarillo and Oxnard Airports, operated by the Ventura County Department of Airports; Santa Paula Airport, a privately owned airport open for public use; and NAWS Point Mugu. The location of these airports within the County is shown on **Exhibit 1A**.

1.3 LEGAL AUTHORITY

The Public Utilities Code of the State of California, Sections 21670 et seq., requires the County Board of Supervisors to establish an Airport Land Use Commission (ALUC) in each county with an airport operated for the benefit of the general public. The Code also sets forth the range of responsibilities, duties, and powers of the Commission.

Instead of creating a new body to serve as the ALUC, State law allows the county board of supervisors to authorize an appropriately designated body to fulfill ALUC responsibilities. (See Section 21670.1.) In Ventura County, the Board of Supervisors has designated the Ventura County Transportation Commission to act as the ALUC for the County.

1.4 RESPONSIBILITIES OF AIRPORT LAND USE COMMISSION

Section 21675 requires the Airport Land Use Commission to formulate a comprehensive land use plan for the area surrounding each public use airport. The Commission may also formulate a plan for the area surrounding any federal military airport located in the County.

Section 21675 specifies that the comprehensive land use plans shall:

97SP12-1A-12/18/97

Exhibit 1A
LOCATION MAP

> (a) . . . 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 a long-range master plan or an airport layout plan ... 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.
>
> (b) The Commission may include, within its plan formulated pursuant to subdivision (a), the area within the jurisdiction of the Commission surrounding any federal military airport for all the purposes specified in subdivision (a) . . .

Section 21676, part of which is quoted below, requires that local general plans conform with the ALUC's comprehensive airport land use plan and grants the ALUC the authority to review amendments to general plans, specific plans, and zoning ordinances and building regulations applying within the airport planning boundary.

> (b) Prior to the amendment of a general plan or 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 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 of this article . . .
>
> (c) 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 such 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 of this article . . .

(d) Each commission determination pursuant to subdivision (b) or (c) 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.

1.5 ABOUT THE PLAN

Chapters Two through Five provide background information about each airport and the surrounding area. This information includes a discussion of existing and planned airport facilities, existing and forecast airport operations (takeoffs and landings), existing and planned future land use in the airport vicinity, and airport noise exposure in each area.

Chapter Six provides the updated airport land use compatibility policies.

Three appendices present important background information. Appendix A is a reference document providing interested readers with important background information relevant to the establishment of airport compatibility policies. It reviews the airport compatibility policies of the 1991 CLUP. It also discusses Federal and State regulations and guidelines relating to airport compatibility. Finally, Appendix A includes a discussion of CLUP policies in selected other California counties.

Appendix B discusses in some detail the policies in local general plans that relate to the four airports in the County.

Appendix C includes a detailed discussion of the methodology and assumptions used in developing noise contours for Santa Paula Airport. (Noise contours for the other airports were taken from other recent studies.)

Appendix D provides sample documents for an avigation easement, fair disclosure statement, and F.A.R. Part 77 requirements.

Appendix E provides a policy discussion of airport land use compatibility based on the information in Chapters Two through Five and Appendix A.

REFERENCES

Coffman Associates, 1996a. *Airport Master Plan for Camarillo Airport, Camarillo, California*. Prepared for Ventura County, November 1996.

Coffman Associates, 1996b. *Airport Master Plan for Oxnard Airport, Oxnard, California*. Prepared for Ventura County, November 1996.

Coffman Associates, 1997a. *Camarillo Airport: F.A.R. Part 150 Noise Compatibility Study*. Prepared for Ventura County Department of Airports.

Coffman Associates, 1997b. *Oxnard Airport: F.A.R. Part 150 Noise Compatibility Study*. Prepared for Ventura County Department of Airports.

Dames & Moore 1992. *NAWS Point Mugu AICUZ Update*. Submitted to Western Division, Naval Facilities Engineering Command, San Bruno, California, July 1992.

Hodges & Shutt 1993. *Airport Land Use Planning Handbook*. Prepared for CALTRANS Division of Aeronautics, by Hodges & Shutt in association with Flight Safety Institute, Chris Hunter & Associates, and University of California, Berkeley, Institute of Transportation Studies. December 1993.

P&D Aviation 1991. *Airports Comprehensive Land Use Plan Update for Ventura County*. Prepared for Ventura County Airport Land Use Commission and Ventura County Transportation Commission, November 1991.

Chapter Two
CAMARILLO AIRPORT AND ENVIRONS

Chapter Two
CAMARILLO AIRPORT AND ENVIRONS

This chapter presents an overview of Camarillo Airport and the surrounding area. The background information in this chapter is as follows:

- A description of the study area and existing land uses in the area.
- A discussion of the local land use planning and regulatory framework in the study area.
- A description of key airport facilities and navigational aids.
- A discussion of noise abatement procedures, airport activity, and flight tracks.
- A description of current and forecast noise exposure around the airport.

2.1 AIRPORT SETTING

Camarillo Airport is classified in the *National Plan of Integrated Airport Systems* (NPIAS) as a general aviation reliever airport for the Los Angeles metropolitan area (FAA 1995, p. A-15). Reliever airports play a key role in the nation's aviation system by providing an alternative to general aviation users in major metropolitan areas.

Camarillo Airport is within the corporate limits of the City of Camarillo, three miles southwest of the city's central business district (CBD). The airport is situated less than one mile south of Ventura Freeway (Highway 101) and seven miles west of the Pacific Ocean coastline. Access to the airport is provided by Pleasant Valley Road immediately south of the

airport. The airport is bordered to the east by Las Posas Road which links the airport to the Ventura Freeway and the City of Camarillo to the north as well as Naval Air Weapons Station (NAWS) Point Mugu and the Pacific Coast Highway (State Highway 1) to the south.

2.2 STUDY AREA

Exhibit 2A, Camarillo Airport Study Area and Jurisdictional Boundaries, shows an area of 40.5 square miles. The area is generally rectangular with the western boundary following Rose Avenue. The southern boundary extends east from the Rose Avenue and Highway 1 intersection along the extension of Channel Islands Boulevard to Lewis Road. The eastern border follows Lewis Road north to U.S. 101 (the Ventura Freeway), continuing north in an irregular pattern following Arneill Road and Anacapa Drive. The northern border is an east-west line running from the extension of Anacapa Drive west to Rose Avenue.

The study area is primarily for convenience in mapping existing land uses and general plan land use designations. The area was designed to be large enough to contain the bulk of the imaginary airspace protection surfaces in the airport vicinity. Specifically, it was designed to accommodate the F.A.R. Part 77 conical surface.

2.3 EXISTING LAND USE

Exhibit 2B, Generalized Existing Land Use in Camarillo Airport Area, shows existing land use in the study area. The land use classification system, shown in **Table 2A**, has been designed to fit the requirements of airport noise compatibility planning. Residential land uses and noise-sensitive institutions are identified. The other land use categories, which are generally considered to be compatible with aircraft noise, include commercial, industrial, transportation, and utilities; agriculture; parks and open space; and undeveloped land.

Most of the study area is in agricultural use. The northeast quadrant of the study area is developed land in the City of Camarillo and primarily includes residential areas. Commercial and industrial development is concentrated along the Ventura Freeway (U.S. 101). Some residential development is south of the Ventura Freeway east of the airport and directly along the extended runway centerline.

The City of Oxnard lies west of the airport. Most of the Oxnard part of the study area is a large industrial/ business area which is only partially developed. Some residential development is on the west edge of the study area.

Noise-sensitive institutions, including schools, places of worship, and one community center are scattered through the study area.

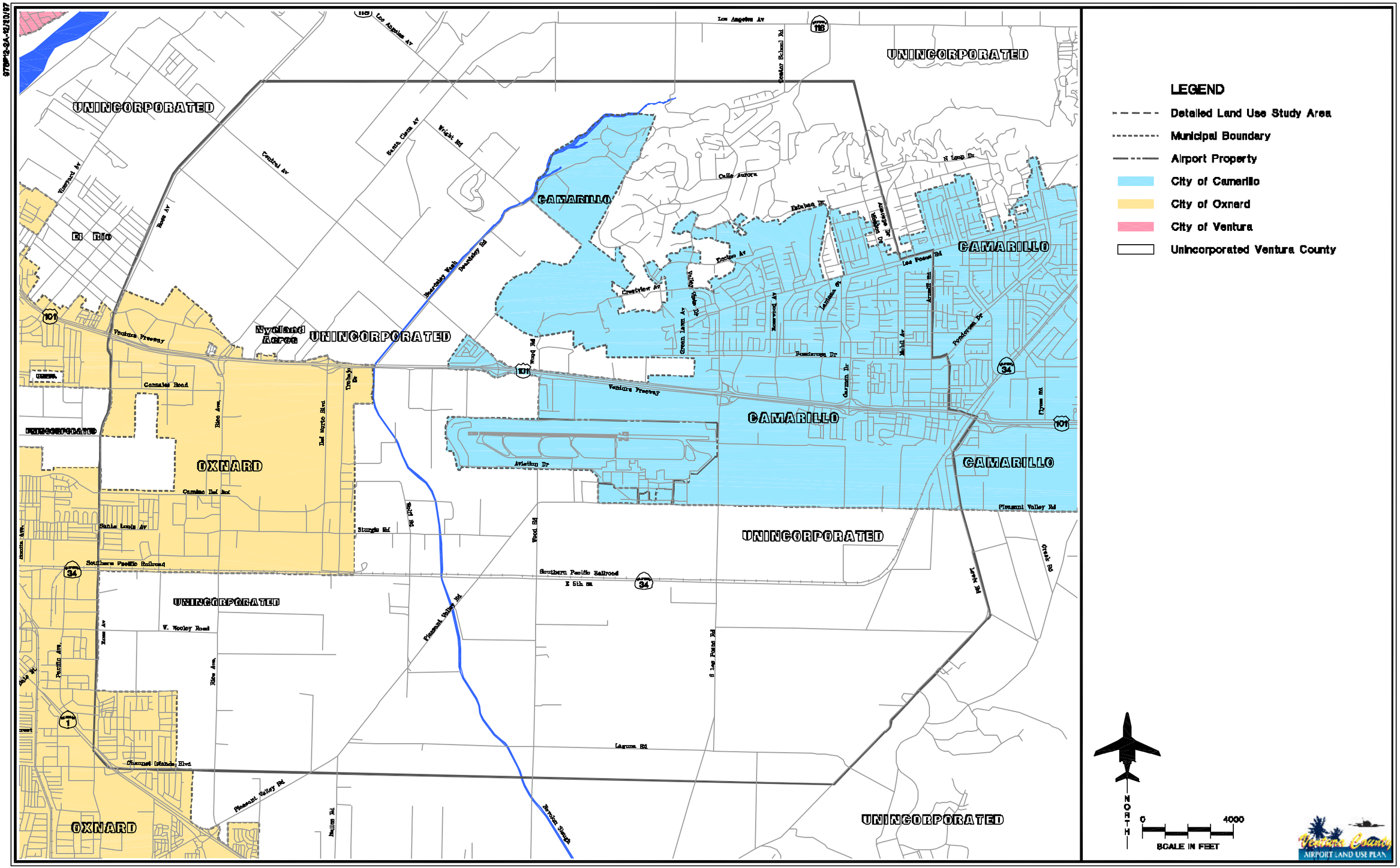


Exhibit 2A
CAMARILLO AIRPORT STUDY AREA
AND JURISDICTIONAL BOUNDARIES

UNINCORPORATED
CAMARILLO
OXNARD
El Rio
Nyeland Acres
Los Angeles Av
Center School Rd
Wright Rd
Santa Clara Av
Central Av
Vineyard Av
Rose Av
Boundary Rock
Boundary Rd
Calle Aurora
Dahlen Dr
N Loop Dr
Lewis Rd
Leisure Dr
Exchange Av
Crestview Av
Daily Dr
Green Lawn Av
Zaneboni Av
Lantana St
Arnold Rd
Mohl Av
Pondersosa Dr
Lee Pond Rd
Ventura Freeway
Gonzales Road
Rice Ave.
Del Norte Blvd.
Ustado Dr
Wood Rd
Aviation Dr
Camino Del Sol
Sonia Lopis Av
Sturgis Rd
Pleasant Valley Rd
Oxnard Blvd
Southern Pacific Railroad
E 5th St
W. Wooley Road
Zone Av
Pacific Ave.
Alta St
Channel Islands Blvd
Pleasant Valley Rd
Dallas Rd
Las Posas Rd
Laguna Rd
Arnold Rd
Flynn Rd
Pleasant Valley Rd
Oxnard Rd
Revolon Slough
101
34
1

LEGEND

- Detailed Land Use Study Area
- Municipal Boundary
- Airport Property
- Single-Family Residential
- Multi-Family Residential
- Mobile Home
- Commercial, Industrial, Transportation, and Utilities
- Agriculture
- Parks and Open Space
- Undeveloped
- Noise-Sensitive Institutions
- Places of Worship
- Schools
- City Auditorium/Community Center
- Retirement Center
- Hospital

Source: Aerial Photographs, January 8, 1996, Consultant Field Survey, Fall 1997.

NORTH

0 4000

SCALE IN FEET

Ventura County AIRPORT LAND USE PLAN

Exhibit 2B
GENERALIZED EXISTING LAND USE
IN CAMARILLO AIRPORT AREA

TABLE 2A
Land Use Categories Shown on Existing Land Use Map

Category	Land Uses Included
Single-family Residential	Single-family homes.
Multi-family Residential	Duplexes; Townhouses; Apartment and condominium buildings.
Mobile Homes	Mobile and manufactured homes.
Commercial, Industrial, Transportation, Utilities	Businesses; Offices; Industrial uses; Utilities; Transportation facilities; Intensively developed commercial agriculture areas including equipment storage areas and greenhouses.
Noise-Sensitive Institutions	Places of worship; Schools; Nursing homes; Residential group quarters; Hospitals; Community centers.
Agriculture	Orchards; Cultivated fields.
Parks and Open Space	Parks; Golf courses; Cemeteries; Ponds; Nature preserves.
Undeveloped	Vacant lots; Open parcels of uncultivated land.

The Regional Information Center for the California Historic Resources Inventory was contacted for information about any sites in the study area determined to be of historical significance. No sites in the study area are listed on the National Register of Historic Places, nor are any sites listed as California Historical Landmarks or California Points of Historical Interest.

2.4 LAND USE PLANNING POLICIES AND REGULATIONS

The State of California requires all local governments to enact a "general plan" establishing framework policies for future development of the city or county. (See Government Code, Sections 65300, *et seq*.) The local general plan is the most important land use regulatory instrument in California. It establishes overall development policy and provides the legal foundation for all other kinds of land use and development regulation in the community. According to California law, the general plan must contain at least seven elements: land use, circulation, housing, conservation, open space, noise, and safety (Curtin 1996, pp. 9-10). Other elements may be prepared as needed and desired.

The policies of the general plan are implemented through specific ordinances regulating development. Chief among these is the zoning ordinance. Zoning regulates the use of land, the density of development, and the height and bulk of buildings. Subdivision regulations are another important land use regulatory tool, regulating the platting of land. Local communities also regulate development through building codes which set detailed standards for construction.

This section briefly summarizes the land use elements of the general plans of the study area jurisdictions. **Exhibit 2C**, **Future Land Use Plan in Camarillo Airport Area**, shows the land use designations of the general plans in the study area. A more detailed discussion of each jurisdiction's general plan is in Appendix B.

2.4.1 CAMARILLO GENERAL PLAN

The Land Use Element of the Camarillo General Plan establishes the basic pattern for future development of the City (City of Camarillo 1996, p. 28). The main theme of the Land Use Element is the desire to preserve the quality of life that exists through much of the area and specifically to "promote Camarillo as a rural suburban community that has a quality, small town, family atmosphere." It includes sets of principles, standards, and proposals for each of seven land use categories: agricultural, residential, commercial, industrial, urban reserve, public uses, and quasi-public uses.

The General Plan Map designates proposed land uses throughout the City's sphere of influence. The "sphere of influence" is an area defined by the Local Agency Formation Commission (LAFCO) which delineates the limits beyond which a city cannot annex territory. It includes the land within the city limits and unincorporated land within the City's service area.

Exhibit 2C shows the Camarillo General Plan land use designations within the Camarillo Airport study area. Land in the north part of the study area, north of Ponderosa Drive, is designated for residential use of varying densities. Land at the interchanges of the Ventura Freeway and Las Posas

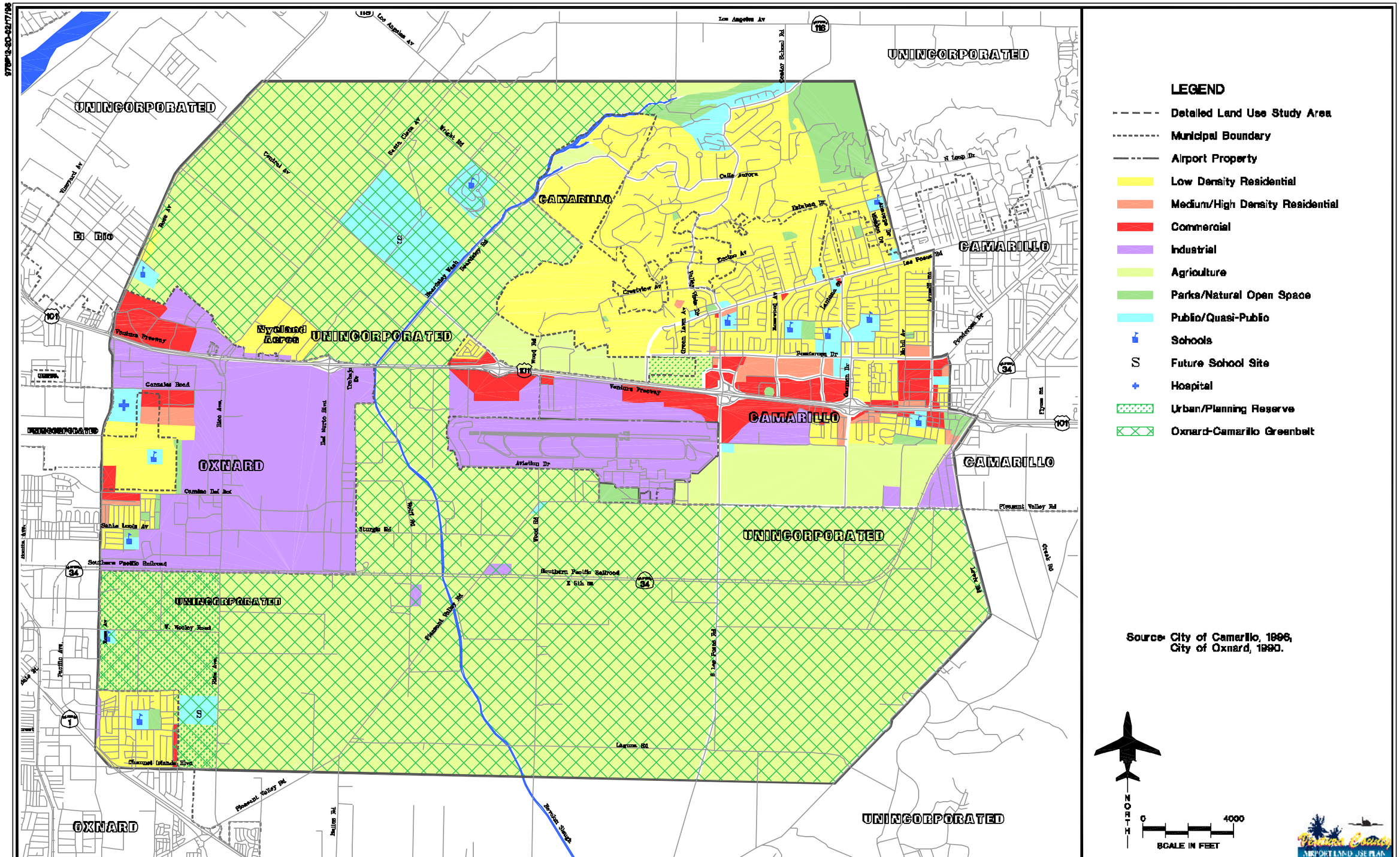


Exhibit 2C
FUTURE LAND USE PLAN IN
CAMARILLO AIRPORT AREA

Road and Central Avenue show commercial development. Land off the east end of the airport is designated for a combination of commercial, industrial (research and development), and agriculture.

2.4.2 OXNARD GENERAL PLAN

The Oxnard General Plan was adopted in 1990. It includes eleven planning elements: growth management, land use, circulation, public facilities, open space/conservation, safety, noise, economic development, community design, parks and recreation, and housing. The Noise Element includes several goals and policies related to airport compatibility planning (City of Oxnard 1990, p. IX-16). The most directly relevant says that "municipal policies shall be consistent with the Ventura County Airport Land Use Commission's adopted land use plan..."

Exhibit 2C shows the future land use plan for the Oxnard portion of the Camarillo Airport study area. Land northwest and southwest of the airport is designated for agriculture. This area is covered by the Oxnard-Camarillo Greenbelt Agreement. This agreement designates a large tract of land west of the airport for permanent agriculture and open space. The Growth Management Element specifically discusses the importance of maintaining this greenbelt agreement (City of Oxnard 1990, p. IV-19). A narrow strip of agriculturally designated land is west of the runway. Further west, the land is designated for industrial use. Much of the land west of Lombard along the extended runway centerline is designated for residential use.

2.4.3 VENTURA COUNTY GENERAL PLAN

The Ventura County General Plan was adopted in 1988 and has been amended several times since then. The Plan includes several documents. The overall framework of goals and policies is in a document called *Goals, Policies and Programs* (Ventura County 1996a.) Supporting documentation is in a series of technical appendices (Ventura County 1994a, 1994b, 1994c, 1996b). The General Plan also includes several area plans where local issues and concerns are dealt with in greater detail than in the framework document.

In the Camarillo Airport study area, the County's future land use designations in most of the unincorporated area outside the City's Sphere of Influence are primarily agricultural, a use that is compatible with aircraft noise. This is shown in **Exhibit 2C**.

Agriculture is a major industry in Ventura County. The County General Plan establishes policies to encourage the preservation of prime farmland. Among them is a policy to retain and expand existing Greenbelt Agreements in the County and to encourage the formation of additional agreements (Ventura County 1996a, p. 21). Greenbelt agreements have been formed between various cities in Ventura County. They delineate areas between the cities which are declared off limits to urban development and are

to be preserved for agriculture and open space. The cities of Oxnard and Camarillo have a greenbelt agreement for the area between the two cities, part of which is in the Camarillo Airport study area. This is shown in **Exhibit 2C**.

The County General Plan also includes policies relating to airport hazards and noise compatibility. Land in airport approach and departure zones is to be designated for agriculture or open space uses (Ventura County 1996a, p. 20). Noise-sensitive land uses are not permitted where airport noise exceeds 65 CNEL. These uses may be permitted in the 60 to 65 CNEL contour only if measures are taken to reduce interior noise levels to 45 CNEL or less.

2.5 AIRPORT FACILITIES

Existing and future proposed facilities at Camarillo Airport are shown on **Exhibit 2D**, **Camarillo Airport Layout Plan**.

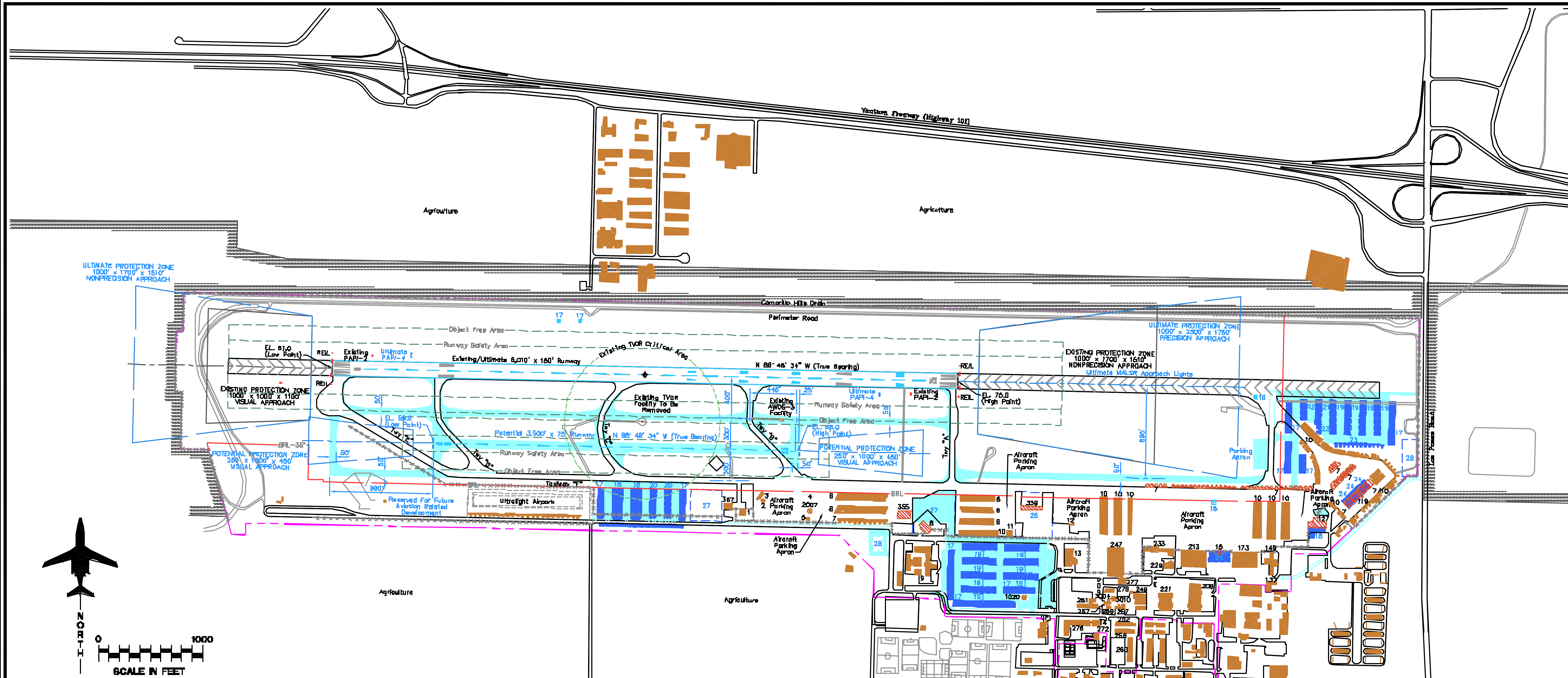
2.5.1 RUNWAYS

Camarillo Airport is served by Runway 8-26 which is 6,010 feet long by 150 feet wide and aligned in an east-west direction. The runway surface is asphalt and is in good condition. The current *Airport/Facility Directory* listing for Camarillo Airport indicates runway load bearing strength for Runway 8-26 as 48,000 pounds for single wheel loading, 65,000 pounds for dual wheel loading, and 110,000 pounds for dual tandem wheel loading (National Ocean Service 1997a, p. 46).

The original runway was 9,000 feet long with 1,000-foot paved overruns at each end. The full runway length was used by the military when the airport served as Oxnard Air Force Base. The present runway length was established through an agreement between Ventura County and the City of Camarillo after the County acquired the abandoned Base. The same agreement limits the pavement strength to a maximum of 115,000 pounds for dual wheel loading (DWL). **Table 2B** summarizes runway data for Camarillo Airport.

As indicated on **Exhibit 2D**, improvements to the runway system are planned. The existing runway is planned to remain at its current length and width, however, the pavement strength has been planned to increase from 65,000 pounds DWL to 70,000 pounds DWL to better accommodate corporate aircraft currently utilizing the airport.

To accommodate future operations without significant delays on landing and takeoff, a potential parallel runway location for small general aviation aircraft is being reserved. As indicated on **Exhibit 2D,** this reserved potential runway lies between the existing runway and Taxiway F. The potential runway is planned to be 3,500 feet long for use by aircraft weighing less than 12,500 pounds. It would be a visual runway used primarily by touch-and-go traffic. It should be noted, however, that construction of this runway would require further study including an environmental impact report (EIR) to determine its feasibility.



BUILDINGS/FACILITIES

EXISTING	ULTIMATE	DESCRIPTION
1		HANGAR
2		AIR TRAFFIC CONTROL TOWER (ATCT)
3		FAA OFFICES
4		SELF-SERVICE FUEL ISLAND
5		PUBLIC RESTROOMS
6		T-HANGAR (Nested)
7		T-HANGAR
8		FIRE DEPARTMENT (Maintenance Facility)
9		ANIMAL CONTROL FACILITY
10		BOX HANGAR
11		EXPERIMENTAL AIRCRAFT HANGAR
12		SELF-MAINTENANCE HANGAR
13		SHERIFF ACADEMY
14		WORK FURLOUGH
15		FUEL FARM
118		ALERT HANGARS/CAMARILLO AVIATION
127		COUNTY STORAGE/PUBLIC RESTROOMS
137		AIRPORT MAINTENANCE
149		FIRE DEPARTMENT (Headquarters)
173		HANGAR 1 (Western Cardinal)
209		AIRPORT ADMINISTRATION/CAMARCO
213		HANGAR 2 (Channel Islands Aviation)
221		ENGINEERING MANAGEMENT CONCEPTS
229		OFFICE SPACE
233		WAY POINT CAFE/CHANNEL ISLANDS AVIATION
247		HANGAR 3 (Camarillo Aircraft/Search & Rescue)
249		OFFICE SPACE
252		CORRECTIONAL SERVICES
256		CORRECTIONAL SERVICES
257		MCL BUILDERS
260		OFFICE SPACE

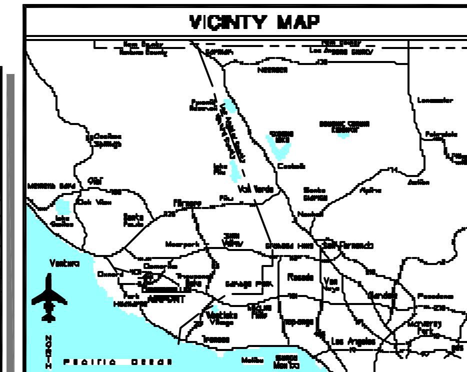
BUILDINGS/FACILITIES

EXISTING	ULTIMATE	DESCRIPTION
267		GENERATOR BUILDING
269		WATER PUMP BUILDING
272		CORRECTIONAL SERVICES
276		WORK FURLOUGH
277		FIRE DISPATCH
279		OFFICE SPACE
281		OFFICE SPACE
339		CONFEDERATE AIR FORCE
355		FIRE DEPARTMENT (Station 50)
357		GTE
1020		STORAGE TANK
2007		STANDBY GENERATOR/STORAGE
3004		STORAGE TANK
3010		STORAGE TANK
16	16	HELIPAD
	17	EXECUTIVE HANGAR (60' x 60')
	18	EXECUTIVE HANGAR (60' x 60')
	19	T-HANGAR (Nested, 14 Unit)
	20	T-HANGAR (Nested, 12 Unit)
	21	T-HANGAR (Nested, 10 Unit)
	22	T-HANGAR (Nested, 8 Unit)
	23	RELOCATED T-HANGAR
	24	CONVENTIONAL HANGAR (100' x 100')
	25	GENERAL AVIATION TERMINAL/ADMINISTRATION
	26	CONFEDERATE AIR FORCE PARCEL
	27	AVIATION DEVELOPMENT PARCEL
	28	CONSOLIDATED FUEL FARM
	29	FIRE STATION/ARFF PARCEL

LEGEND

EXISTING	ULTIMATE	DESCRIPTION
		ABANDONED PAVEMENT
		AIRPORT PROPERTY LINE
		AIRPORT REFERENCE POINT (ARP)
		AIRPORT ROTATING BEACON
		AVIGATION EASEMENT
		BUILDING TO BE REMOVED OR RELOCATED
		BUILDING
	BRL	BUILDING RESTRICTION LINE (BRL)
		PAVEMENT
		FENCING
VASI-4	PAPI-4	NAVIGATIONAL AID INSTALLATION
		RUNWAY END IDENTIFICATION LIGHTS (REIL)
		RUNWAY THRESHOLD LIGHTS
		SEGMENTED CIRCLE/WIND INDICATOR
		TOPOGRAPHY
		WIND INDICATOR (Lighted)

VICINITY MAP



LOCATION MAP

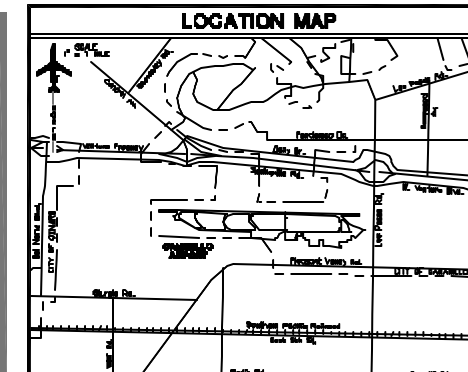


Exhibit 2D
CAMARILLO AIRPORT LAYOUT PLAN

The adopted Camarillo Airport Master Plan not only describes the parallel runway as only a "potential" runway, it further states that "it will not be developed without a feasibility study/ environmental impact report (EIR) that proves the runway will benefit the community without significant environmental impact. The feasibility study/EIR will include a noise analysis and a complete public review process involving the community and airport users. Actual construction would be subject to approval by the Camarillo Airport Authority and the Ventura County Board of Supervisors." As such, the potential parallel runway will be considered within its own review process which will in all likelihood, if approved, culminate in a Master Plan Amendment. And according to State law, all Airport Master Plans and amendments must be reviewed by the ALUC.

Therefore, the parallel runway is being included in the CLUP for information only at this time. The safety zones shown on the map in Exhibit 7A are also included for information only, and the land use compatibility standards in Table 7B do not apply to those zones. As virtually all of the property within those zones is on airport property, the County of Ventura, as the owner of the airport, is encouraged to the greatest extent possible to plan and develop its facilities in a manner consistent with these potential zones in the event the parallel runway is considered and approved in the future.

TABLE 2B
Runway Data
Camarillo Airport

	RUNWAYS	
	8	26
Length (ft.)	6,010	
Width (ft.)	150	
Surface Material	Asphalt	
Pavement Strength (lbs.)		
Single Wheel Loading	48,000	
Dual Wheel Loading	65,000	
Dual Tandem Wheel Loading	110,000	
Approach Slope Ratio	20:1	34:1
Approach Aids		
ILS	No	No
VOR/DME	No	Yes
GPS	No	Yes
PAPI	P2L	P2L
REIL	Yes	Yes
Runway Lighting	MIRL	
Runway Marking	Nonprecision	
Weather Observation	AWOS-3	

Source: *Airport/Facility Directory*, National Ocean Service 1997a, p. 46.

2.5.2 TAXIWAYS

Runway 8-26 is served by a full length parallel taxiway (Taxiway F) on the south side of the runway as well as five entrance/exit taxiways which run between the parallel taxiway and the runway. Taxiway A is a 90-degree exit/entrance taxiway located at the Runway 26 threshold. Taxiways B, C, D, and E are curved and serve as entrance/exit taxiways from the

runway. **Exhibit 2D** shows future taxiway improvements. The most significant taxiway improvements include the construction of a parallel taxiway located 400 feet south of the Runway 8-26 threshold and a parallel taxiway north of the terminal area. These would provide for two-way circulation, improving operational safety and efficiency. Other taxiway improvements indicated on the exhibit would be necessary only if the construction of the potential parallel runway is necessary.

2.5.3 FIXED BASE AND SPECIALTY OPERATORS

Terminal services are provided by several fixed base operators (FBOs) located in the terminal area at the airport. Channel Islands Aviation is a full service fixed base operator (FBO) located on the eastern portion of the airport. Services include a flight school, aircraft charter, aircraft rental, major aircraft maintenance, aircraft sales, line services, and fuel sales. The FBO operates two facilities on the airport. One accommodates aircraft maintenance and storage and includes office space. The other building consists of office and classroom space. The FBO owns 17 fixed wing aircraft and maintains 21 tie-down positions on the apron. Channel Islands Aviation provides both Jet A and 100 low lead (Avgas) fueling.

Western Cardinal, Inc. is another full service FBO on the airport. It operates out of a conventional hangar and offers flight training, aircraft rental, aircraft sales (Piper Dealer), aircraft maintenance, and fuel sales. Western Cardinal, Inc. provides both Jet A and Avgas fueling services.

Sun Air Aviation is another FBO located in the northeastern corner of the airport. This FBO provides aircraft rental, charter services, pilot instruction, and aircraft maintenance. Sun Air owns and operates nine aircraft.

Other specialty operators at the airport include Avex and Camarillo Aircraft which provide aircraft sales and maintenance, respectively. The Confederate Air Force (CAF) operates out of a large conventional hangar east of Taxiway A. The CAF restores and maintains vintage military aircraft and participates in air shows across the country.

2.5.4 OTHER FACILITIES

An ultralight flight park is on the west side of the airport immediately south of parallel Taxiway F and is situated on a piece of property 1,200 feet long by 200 feet wide. The flight park is served by a gravel and oil runway of indeterminate length oriented in an east-west direction nearly parallel Runway 8-26.

Besides the aviation facilities, the Ventura County Department of Airports has developed an industrial/business park on the non-aviation portions of the deactivated air base property. Some tenants lease buildings dating back to the Air Base, while others have developed new facilities on the property leased from the airport. The

development of the industrial/business park has not only become a viable source of income to support airport operations at both Camarillo and Oxnard Airports, but it is also a significant employment base for the community.

Ventura County also maintains several public safety facilities on the airport. The Ventura County Fire Department has a fire station located next to the airfield, southwest of Taxiway A. The fire station serves the needs of the surrounding community as well as the airport. The station is within the airport secure area. Vehicles responding to off-airport emergencies exit the secure area through a motorized gate just southwest of the fire station. The Fire Department also leases space in the industrial/business park for a dispatch center and administration.

The Ventura County Sheriff's Department utilizes hangar and apron space for its search and rescue helicopter unit. A Sheriff's training academy is also located on the airport. Located in the southwestern corner of airport property is a bermed pistol range used by the Sheriff's Department for firearms training.

2.6 TYPICAL FLIGHT PROCEDURES

2.6.1 INSTRUMENT APPROACHES

Instrument approaches are defined using electronic and visual navigational aids to assist pilots in landing when visibility is reduced below specified minimums. Instrument approaches are classified as precision and nonprecision. Both provide runway alignment and course guidance, while precision approaches also provide glide slope information for the descent to the runway.

Utilizing the Camarillo VOR/DME or the global positioning system (GPS), one published nonprecision approach is available at Camarillo (National Ocean Service 1997b, p. 42). The VOR or GPS Runway 26 approach provides for either a straight-in or circling approach. The straight-in approach can be flown when cloud ceilings are 700 feet above ground level (AGL) or greater and visibility is one mile for aircraft with approach speeds of up to 121 knots and 1-3/4 miles for aircraft with approach speeds between 121 and 141 knots. The circling approach requires a cloud ceiling of 700 feet AGL and one mile visibility for aircraft with approach speeds up to 141 knots. The visibility minimums increase to 800 feet and 2-1/4 miles for aircraft with approach speeds greater than 121 knots but less than 141 knots.

Aircraft equipped with DME have two other options provided by the VOR or GPS approach to Runway 26. Utilizing the DME, straight-in approaches can be flown when cloud ceilings are 600 feet AGL or greater and visibility is one mile for aircraft with approach speeds of up to 121 knots and 1-1/2 miles for aircraft with approach speeds between 121 and 141 knots. Circling approaches utilizing DME require 700-foot cloud ceilings and one mile visibility for aircraft with approach speeds up to 121 knots. For aircraft with approach

speeds between 121 and 141 knots, the DME aided circling approach can be flown with cloud ceilings of 800 feet and visibility of 2 1/4 miles.

2.6.2 NOISE ABATEMENT PROCEDURES

The Ventura County Department of Aviation has developed and published, in consultation with the Airport Traffic Control Tower (ATCT) and airport users, noise abatement procedures for VFR operations at Camarillo Airport. Instructions are outlined regarding departures, arrivals, and pattern procedures at the airport which are aimed at minimizing noise exposure over noise-sensitive areas without compromising safety. Pilots are requested to follow the published procedures unless circumstances render them unsafe, weather conditions do not allow, or they are otherwise instructed to deviate by the Airport Traffic Control Tower. The procedures are described below:

- No aircraft departures between 0000-0500 without prior approval of the Airport Administrator.
- Aircraft are instructed to stay as high as practical over residential areas during overflight, approaches, and departures.
- Use best rate of climb when departing any runway.
- No formation take-offs or landings without prior written approval of the Airport Administrator.
- Utilize low energy approaches.
- Avoid residential overflights, fly quietly and safely.
- North traffic fly downwind over Ventura Freeway (Highway 101).
- Runway 26 traffic pattern - Published traffic pattern altitude (TPA) is established as 875 MSL feet for single engine aircraft and 1,075 MSL feet for twin engine/turbine aircraft. Utilize the best rate of climb, conditions permitting, turn crosswind when reaching 700 feet AGL or the airport boundary, whichever comes first. Maintain pattern altitude until turning base leg.
- Runway 26 Departure - When departing the airport traffic area use best rate of climb, remain on runway heading until beyond the departure end of the runway and 700 feet AGL before proceeding on course.
- Runway 26 Arrival - Straight-in VFR approaches are prohibited. Right or left traffic during those hours the ATCT is in operation should commence with a 45-degree entry to the downwind and a base leg turn at or before reaching Las Posas Road.
- Runway 8 traffic pattern - Published traffic pattern altitude (TPA) is established as 875 MSL feet for single engine aircraft and 1,075 MSL feet for twin engine/ turbine aircraft. Utilize the best rate of climb, conditions permitting, turn crosswind before reaching Los Posas

Road. Maintain pattern altitude until turning base leg.

- Runway 8 Departure - When departing the airport traffic area use best rate of climb and when altitude permits turn so as to avoid residential overflight before proceeding on course. Exercise extreme caution due to opposite direction instrument approach traffic.

- Runway 8 Arrival - Avoid overflight of the City of Camarillo when entering downwind.

- When the ATCT is closed, make left turns to Runway 26 and right turns to Runway 8.

2.6.3 OPERATIONAL LETTERS OF AGREEMENT

The Camarillo ATCT has entered into several letters of agreement with local aircraft operators to define specific operational procedures. The letters of agreement serve both the ATCT personnel and the aircraft operators by establishing procedures to promote efficient use of the airfield and airspace and to minimize operational conflicts.

The Camarillo ATCT and ultralight aircraft operators have entered into an operational letter of agreement. As illustrated on **Exhibit 2D**, an ultralight airpark is located in the southwest corner of the airfield. The ultralight airpark has a paved runway nearly parallel to Runway 8-26. Because of its proximity to the airfield, the potential exists for airspace conflicts between the slower ultralight aircraft and higher performance aircraft utilizing the airport. The letter of agreement details departure and arrival procedures that ultralight aircraft are to follow, some of which are mandatory. Mandatory requirements include a traffic pattern south of the runway and the need for specific approval of requests for a pattern which is opposite of runway traffic.

Another letter of agreement is established between the Oxnard and Camarillo ATCT, NAWS Point Mugu Radar Air Traffic Control Facility (RATCF), Aspen Helicopters, and Sinton Helicopters. It defines operational procedures for agriculture helicopters requesting special visual flight rules (SVFR) operations during IFR weather conditions. Helicopter pilots are to maintain contact with the appropriate ATC facility and maintain adequate separation as assigned by the controlling ATC facility. This letter of agreement also designates SVFR routes for arrivals and departures to and from Oxnard and Camarillo Airports. For Camarillo, two routes have been established: Aspen/Sinton Ag Routes Foxtrot and Tango. Route Foxtrot runs from the Camarillo Airport to Fifth Street, then east via Fifth Street to the shoreline at or below 500 feet. Route Tango runs from the western end of Runway 8-26, then northwest over the Saticoy Bridge at or below 500 feet.

Another letter of agreement has been established between the Camarillo ATCT and the Ventura County Sheriff's Department. It establishes procedures for VFR operations to and from Camarillo Airport and establishes

arrival and departure routes. These defined procedures and routes are for the use of the Sheriff's Department helicopters or other helicopters authorized by the Sheriff's Department while operating in Camarillo Class D Airspace. The letter of agreement stipulates that arrivals and departures shall be in accordance with the established routes and altitudes and shall begin and terminate at the Hangar 3 ramp unless otherwise coordinated. The established routes are as follows:

- Central Departure, West/Northwest -- Cross Taxiway Echo and proceed westbound, remaining south of the runway centerline to Revolon Slough, then northbound to Highway 101, then on course. Traffic permitting, the tower will call an early northbound turn.

- City Departure, Northeast over the City of Camarillo -- Proceed eastbound, remaining south of the runway until instructed by the tower to cross the extended centerline to Camarillo.

- 3M Departure, Northeast/Southeast -- Proceed eastbound over Pleasant Valley Road until abeam the 3M plant in southeast Camarillo, then on course.

- Bean Barn Departure, South/ Southwest -- Proceed to the Bean Barn Fix (gray barn at Fifth Street and Pleasant Valley Road), then on course.

- Central Arrival, West/Northwest -- Proceed to the Central Fix (intersection of Central Avenue and Highway 101), then eastbound, remaining north of the airport until instructed by the tower to cross the runway.

- City Arrival, Northeast over the City of Camarillo -- Proceed to the City Fix (old Navy housing at Las Posas and Crestview), south to Highway 101, then westbound, remaining north of the airport until instructed by the tower to cross the runway.

- 3M Arrival, Northeast/Southeast -- Proceed to the 3M Fix, then westbound, direct to Hangar 3, remaining south of the runway centerline.

- Hospital Arrival, South/Southeast -- Proceed to the Hospital Fix (intersection of Fifth Street and Las Posas Road), then direct to Hangar 3.

- Bean Barn Arrival, South/Southeast -- Proceed to the Bean Barn Fix, then direct to Hangar 3.

The letter stipulates that all routes shall be flown at or below 500 feet above ground level (AGL) except:

- Central Departure -- Remain at or below 200 feet AGL until north of the runway centerline, then at or below 300 feet AGL until north of Highway 101.

- City Departure -- Climb as required for noise abatement when approved by the tower.

- All other operations within one mile of the runway shall be at or below 300 feet AGL.

2.7 AIRPORT ACTIVITY DATA

Detailed airport activity data are needed for noise modeling and for establishing airport safety zones and standards. Among the most important information is the number of aircraft operations (takeoffs and landings), the mix of aircraft types using the airport, runway use percentages, and flight tracks.

This section summarizes key airport activity data. This information was used in developing airport noise contours in the F.A.R. Part 150 Noise Compatibility Study for Camarillo Airport (Coffman Associates 1997, pp. 2-2 to 2-9). More detailed information is available in that study.

2.7.1 OPERATIONS

Air traffic statistics at Camarillo Airport are recorded by airport management from information supplied by the Federal Aviation Administration (FAA). The FAA's airport traffic control tower (ATCT) located on the airport collects and reports aircraft operations (takeoffs and landings). Aircraft operations have been recorded by the ATCT since the tower opened in July, 1989. **Table 2C** presents a summary of annual operations from 1990 through 1997. As indicated on the table, operations at Camarillo fluctuated between 1990 and 1994, then reached a low of 167,116 in 1995. Over the last two years, operations have increased, reaching 178,344 for the twelve-month period between November 1996 and October 1997.

TABLE 2C
Annual Operations (Takeoffs and Landings) History
Camarillo Airport

		General Aviation			
Year	**Air Taxi**	**Local**	**Itinerant**	**Military**	**Total**
1990	5,799	115,285	91,346	1,243	213,673
1991	3,469	132,132	78,492	913	215,006
1992	1,744	99,030	83,295	1,412	185,481
1993	1,721	98,857	77,474	973	179,025
1994	2,025	103,567	82,661	2,597	190,850
1995	1,366	90,737	74,179	834	167,116
1996	2,031	86,885	83,860	129	172,905
1997*	1,835	86,758	89,708	43	178,344

Note: 1997 operational data is for the twelve-month period from November 1996 through October 1997.

Source: FAA Air Traffic Control Statistical Reports.

2.7.2 FLEET MIX

The selection of individual aircraft types is important to the modeling process because different aircraft types generate different noise levels. The business jet and turboprop fleet mix at Camarillo Airport was developed based on airport landing fee reports for aircraft weighing more than 12,500 pounds. The fleet mix of smaller prop aircraft was developed using a based aircraft list provided by airport staff. **Table 2D** summarizes the fleet mix data input into the noise analysis by annual aircraft operations.

Operations for the 1998 study year are based on the data recorded for the 12-month period from November 1996 through October 1997. Note that the data include an extra 10,000 operations than were recorded by the ATCT. This is an estimate of ultralight operations at the airport. This estimate was developed by the Consultant after interviews with air traffic control personnel and ultralight users. (Ultralight operations are not recorded by ATCT.)

Table 2D also presents forecasts for 2003 and 2018. These were taken from the F.A.R. Part 150 Noise Compatibility Study (Coffman Associates 1997, p. 2-4). Total operations are projected to increase to 224,800 in 2003 and 315,800 in 2018.

2.7.3 RUNWAY USE

In interviews with the Consultant, ATCT staff indicated that approximately 85 percent of the aircraft arrive and depart on Runway 26. Arrivals and departures on Runway 8, approximately 15 percent of the total, usually occur in Santa Ana wind conditions (strong winds from the north) or if requested by the pilot.

2.7.4 FLIGHT TRACKS

Flight track data was derived from discussions with air traffic controllers, airport management, and airport users. These discussions were used to develop consolidated flight tracks which describe the average flight route corridors to and from Camarillo Airport.

Although the consolidated flight tracks appear as distinct paths, they actually represent average flight routes and illustrate the areas of the surrounding community where aircraft operations can be expected most often. At a busy general aviation airport such as Camarillo Airport, aircraft traffic is expected over most areas around the airport. Air traffic density generally increases nearer the airport as it is funneled to and dispersed from the runway system. The consolidated tracks were developed to reflect these common patterns and to account for the inevitable flight track dispersions around the airport.

Exhibit 2E, Camarillo Airport Departure Tracks, illustrates the consolidated departure flight tracks used for modeling noise exposure at Camarillo. Typically, aircraft departing Camarillo Airport desire a north/ northwest, east/northeast, or south/ southeast departure route.

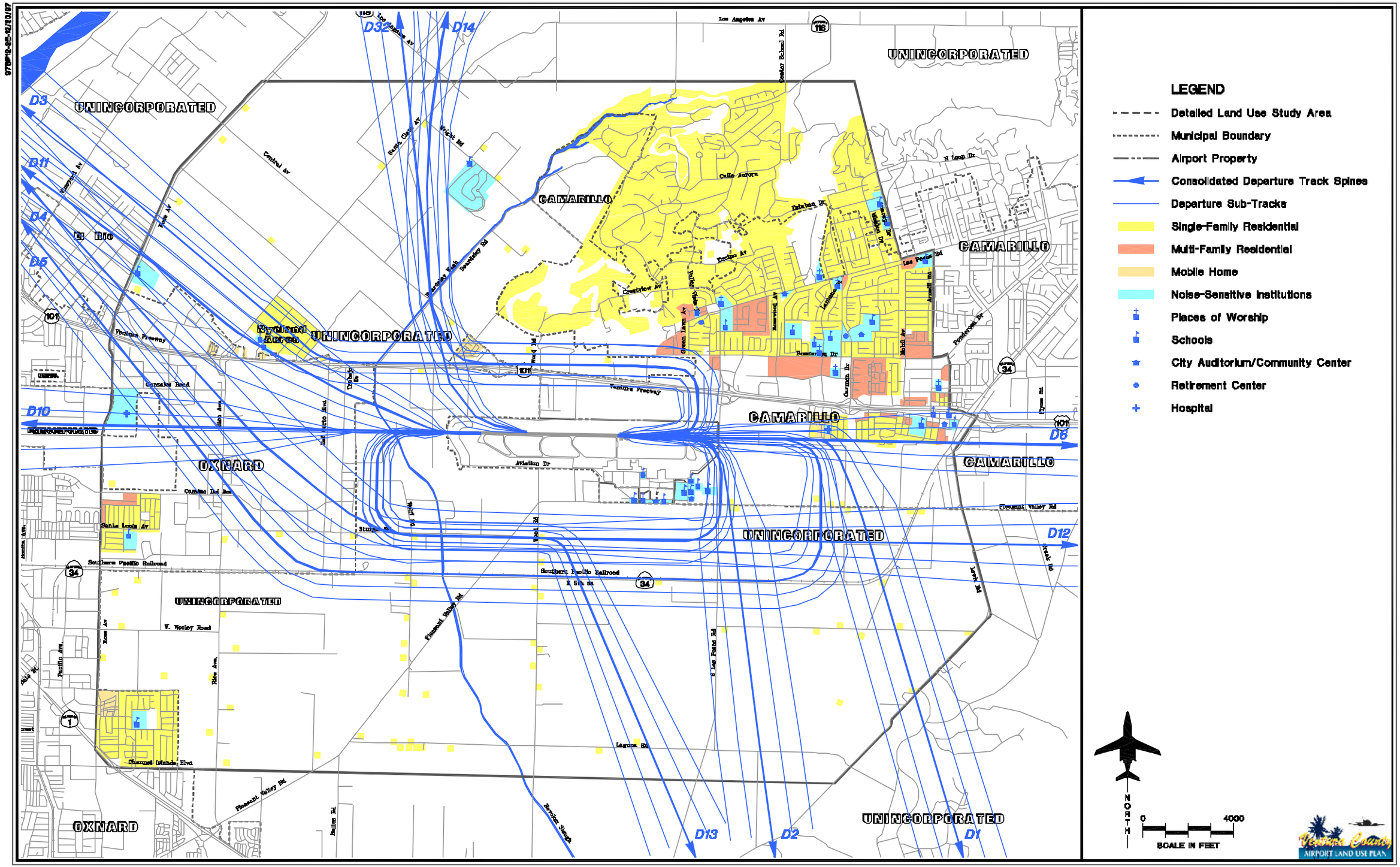


Exhibit 2B
CAMMARILLO AIRPORT DEPARTURE TRACKS

TABLE 2D
Annual Operations by Aircraft Type
Camarillo Airport

	Existing 1998	Forecast 2003	Forecast 2018
Itinerant Operations			
Air Taxi			
Beech Super King Air	1,000	1,200	1,500
Twin Engine Turboprop	535	600	1,000
Twin Engine	300	400	800
General Aviation			
Lear-25	179	213	0
Gulfstream III	179	213	0
Lear-35	179	213	1,061
Citation 500 Series	179	213	1,061
Gulfstream IV	179	213	772
DC-6 (Constellation)	179	194	138
DC-3	718	774	552
Beech Super King Air	795	930	2,358
Twin Engine Turboprop	5,729	5,854	10,540
Twin Engine	14,965	16,850	22,543
Light Single -Variable Pitch Propeller	30,529	30,579	41,381
Light Single - Fixed Pitch Propeller	30,529	30,579	41,381
Bell-206 Helicopter	2,154	2,210	4,185
Robinson-22 Helicopter	2,135	2,710	4,685
UH-1 Helicopter	1,080	1,355	2,343
Military			
Twin Engine Turboprop	18	1,000	1,000
Bell-206 Helicopter	19	500	500
Subtotal -- Itinerant	91,580	96,800	137,800
Local Operations			
General Aviation			
Light Twin	4,486	6,088	8,668
Light Single - Variable Pitch Propeller	35,139	47,696	67,906
Light Single - Fixed Pitch Propeller	35,139	47,696	67,906
Bell-206 Helicopter	6,000	7,260	10,760
Robinson-22 Helicopter	5,994	8,260	11,760
Ultralight[1]	10,000	10,000	10,000
Military			
Bell-206 Helicopter	6	1,000	1,000
Subtotal -- Local	96,764	128,000	178,000
TOTAL OPERATIONS	188,344	224,800	315,800

[1] Ultralight operations are not recorded by the Airport Traffic Control Tower. These estimates were developed by Coffman Associates based on interviews with ultralight operators and air traffic controllers.

Source: Coffman Associates 1997, p. 2-4.

As depicted on the exhibit, aircraft departing Runway 8 with a north/ northwest destination have various alternative routes. Some aircraft turn right after departure, gain altitude and maintain the airport traffic pattern through the downwind leg. Once the downwind leg is completed and the aircraft is traveling west past the Runway 8 threshold, the aircraft turns to the north/northwest. The exhibit also depicts a similar but expanded track for use by larger business jet and turboprop aircraft. Small aircraft with a north/ northwesterly destination from Runway 8 also turn left near Las Posas Road, circling back to the west then ultimately turning to the north/ northwest. Aircraft departing Runway 8 with an east/northeast destination depart straight out according to their instructed heading. Aircraft with south/ southeasterly destinations depart Runway 8 then turn to the south.

Aircraft departing Runway 26 with a west, north, or westerly destination depart the runway and turn to their instructed heading. Aircraft with an easterly destination, especially larger aircraft, may elect to depart the runway, turn to the northwest, and turn back to the east in the vicinity of the Saticoy Bridge. South, southeast, and easterly departures are generally accomplished with a left turn after departing Runway 26 and maintaining the airport traffic pattern. Aircraft then elect to depart from the airport traffic pattern at a desirable location.

The consolidated arrival flight tracks for Camarillo Airport are presented on **Exhibit 2F, Camarillo Airport Arrival Tracks**. Generally, the arrival tracks mirror the departing tracks with few exceptions. Aircraft arriving on Runway 8 can approach straight-in from the north/northwest or west, or enter in the traffic pattern from the east, south, or southeast.

Aircraft arriving on Runway 26 from the northwest travel into a traffic pattern north or south of the runway. Aircraft approaching from the east arrive via the published VOR or GPS approach or make an approach over the runway making a descending left turn into the airport traffic pattern.

Illustrated on **Exhibit 2G, Camarillo Airport Helicopter and Touch-and-Go Tracks**, are the helicopter arrival and departure tracks as well as the touch-and-go pattern tracks. Helicopters operated by the Ventura County Sheriff's Department follow departure and arrival tracks delineated in the letter of agreement. In general, these helicopters depart from Hangar 3 to one of the following four visual checkpoints, or fixes: Bean Barn Fix (west, south, southwest), Hospital Fix (south/southeast), 3M Fix (east/ southeast), or Central Fix (west, north, northeast, or northwest).

Helicopters equipped for aerial agricultural pesticide/fertilizer application are based at the airport. They arrive and depart an area immediately north and east of the triangular hangar configuration on the east side of the airport. These rotorcraft typically depart/arrive the airport to/ from farm fields to the south/ southeast, west/southwest, and north/northwest.

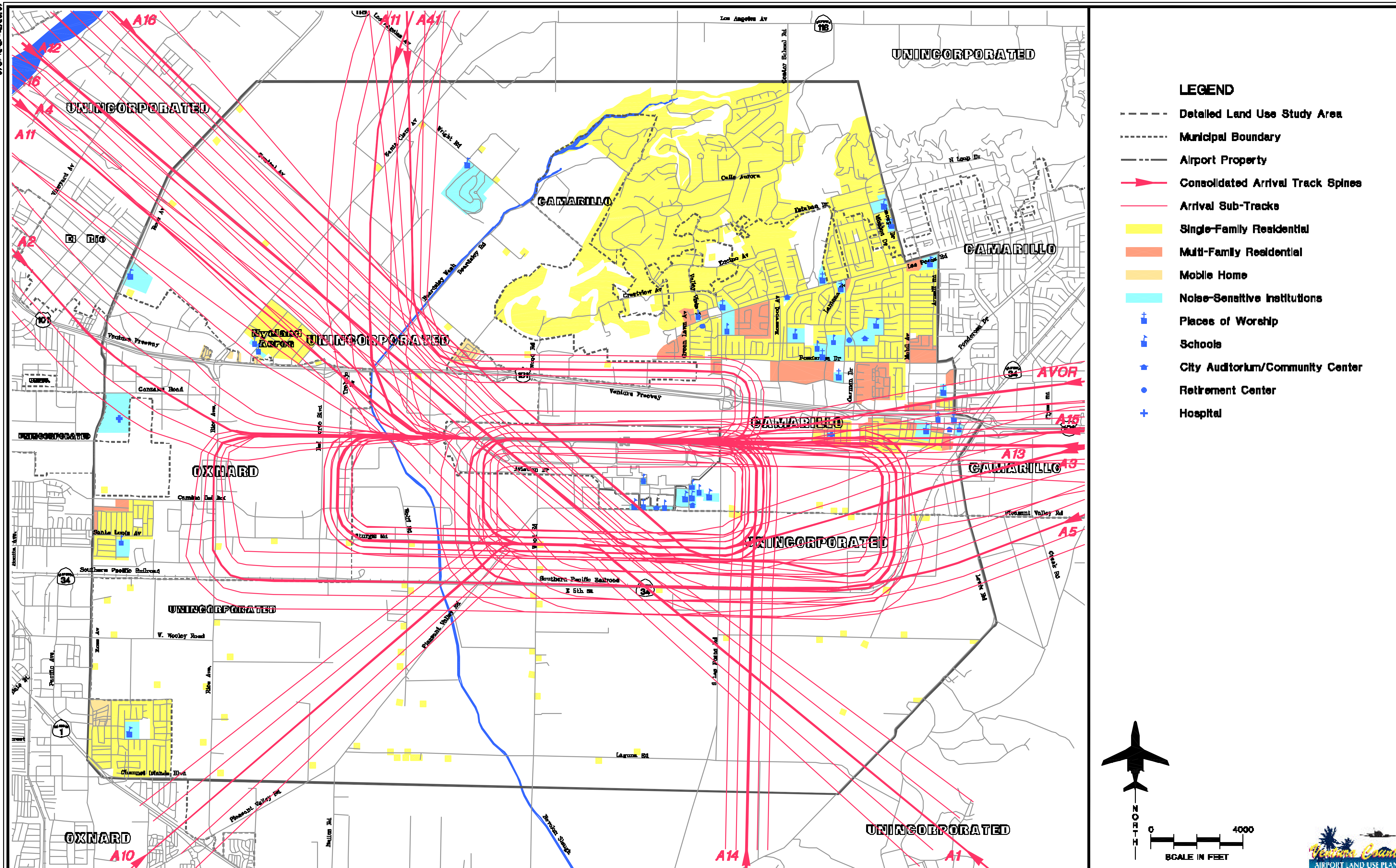


Exhibit 2F
CAMARILLO AIRPORT ARRIVAL TRACKS

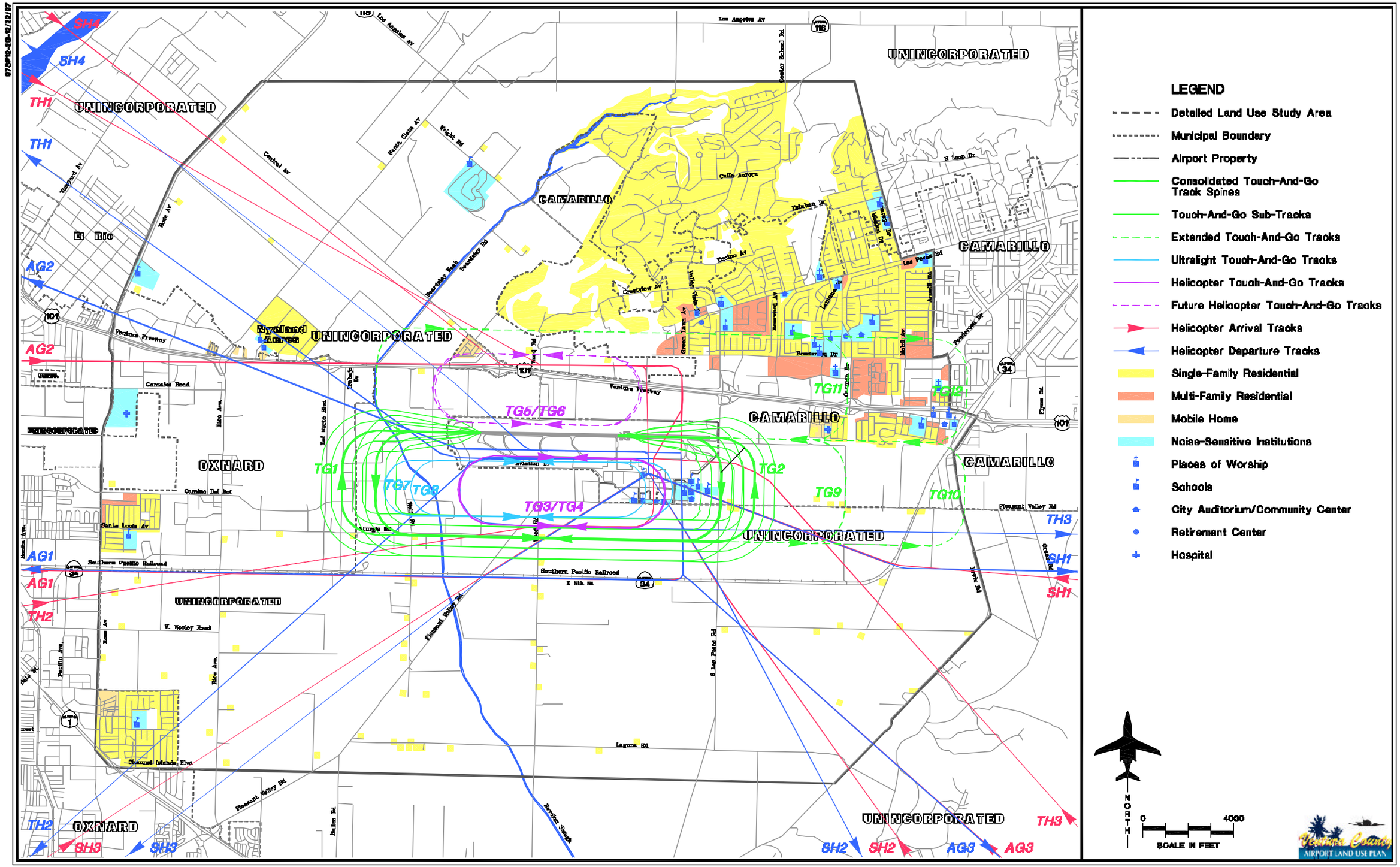


Exhibit 2G
CAMARILLO AIRPORT HELICOPTER AND TOUCH-AND-GO TRACKS

Transient helicopters generally depart/ arrive the airport from the northwest, east, and south. These rotorcraft operate to/from a designated helipad immediately north of the parallel taxiway and west of the T-hangars lining the north side of the parallel taxiway.

As depicted on **Exhibit 2G**, the touch-and-go tracks for Runway 8 and 26 both follow a pattern south of the runway. Helicopters currently utilize an area on the parallel taxiway west of the airport traffic control tower for touch-and-go training. Helicopter training patterns are also maintained to the south of the runway, inside of the fixed-wing aircraft traffic pattern. It should be noted that the 20-year scenario depicts helicopter training on the northwest side of Runway 8-26. This area was selected as the best location for helicopter training operations in the Airport Master Plan Study (Coffman Associates 1996). The traffic pattern for the proposed helicopter training pads would be north of Runway 8-26.

2.8 AIRPORT NOISE EXPOSURE

2.8.1 1998 NOISE CONTOURS

Exhibit 2H, 1998 Noise Exposure - Camarillo Airport, shows the 1998 CNEL noise contours for the airport developed in the F.A.R. Part 150 Noise Compatibility Study (Coffman Associates 1997, p. 2-9). The overall shape of the noise pattern around the airport reflects the prevalence of departures on Runway 26. The contours are longer and wider to the west reflecting the higher proportion of departures in this direction. A small extension of the 60 CNEL noise contour is present to the south reflecting the helicopter activity. A small node in the 65 CNEL noise contour is caused by the ultralight aircraft operating from a small strip of pavement south of the parallel taxiway.

To the south and east, the 60 CNEL contour remains on airport property. The 60 CNEL extends approximately 3,000 feet west of the airport. The 60 CNEL contour bows out approximately 1,000 feet from airport property on the north.

The 65 CNEL noise contour has a similar shape to the 60 CNEL contour. Small portions of the 65 CNEL noise contour extend off airport property to the north and west

The 70 and 75 CNEL noise contours remain close to the runway and are elongated about the runway centerline. These contours remain on airport property.

2.8.2 2003 NOISE CONTOURS

Exhibit 2J, 2003 Noise Exposure - Camarillo Airport, shows the CNEL noise contours for 2003 forecast conditions (Coffman Associates 1997, p. 2-10). These projections assume the forecast increase in airport operations with no change in operational procedures or airport facilities. The 2003 contours are similar in shape to the 1998 contours, although they are slightly larger due to the forecast increase in operations.

2.8.3 2018 NOISE CONTOURS

Exhibit 2K, 2018 Noise Exposure - Camarillo Airport, shows the CNEL noise contours for 2018 forecast conditions (Coffman Associates 1997, p. 2-10). These represent the projected noise conditions based on the forecasts of future operations with one change in operational procedures. Helicopter pads for training activity proposed in the Airport Master Plan are located north of the runway. This extends the 60 CNEL noise contour approximately 1,500 feet north of airport property. The 65 CNEL extends approximately 500 feet north of airport property. The 70 CNEL is wider than the 1998 and 2003 noise contour counterparts off the sides of the runway due to the presence of helicopter activity north of the runway. The 75 CNEL is similar in shape to the 1998 and 2003 noise contours.

The contours are slightly larger than the 1998 contours due to the forecast increase in operations. However, the 2018 noise contours are slightly smaller than the 2003 noise contours. This is due to the retirement of older Stage 2 business jets from the fleet by the year 2018.

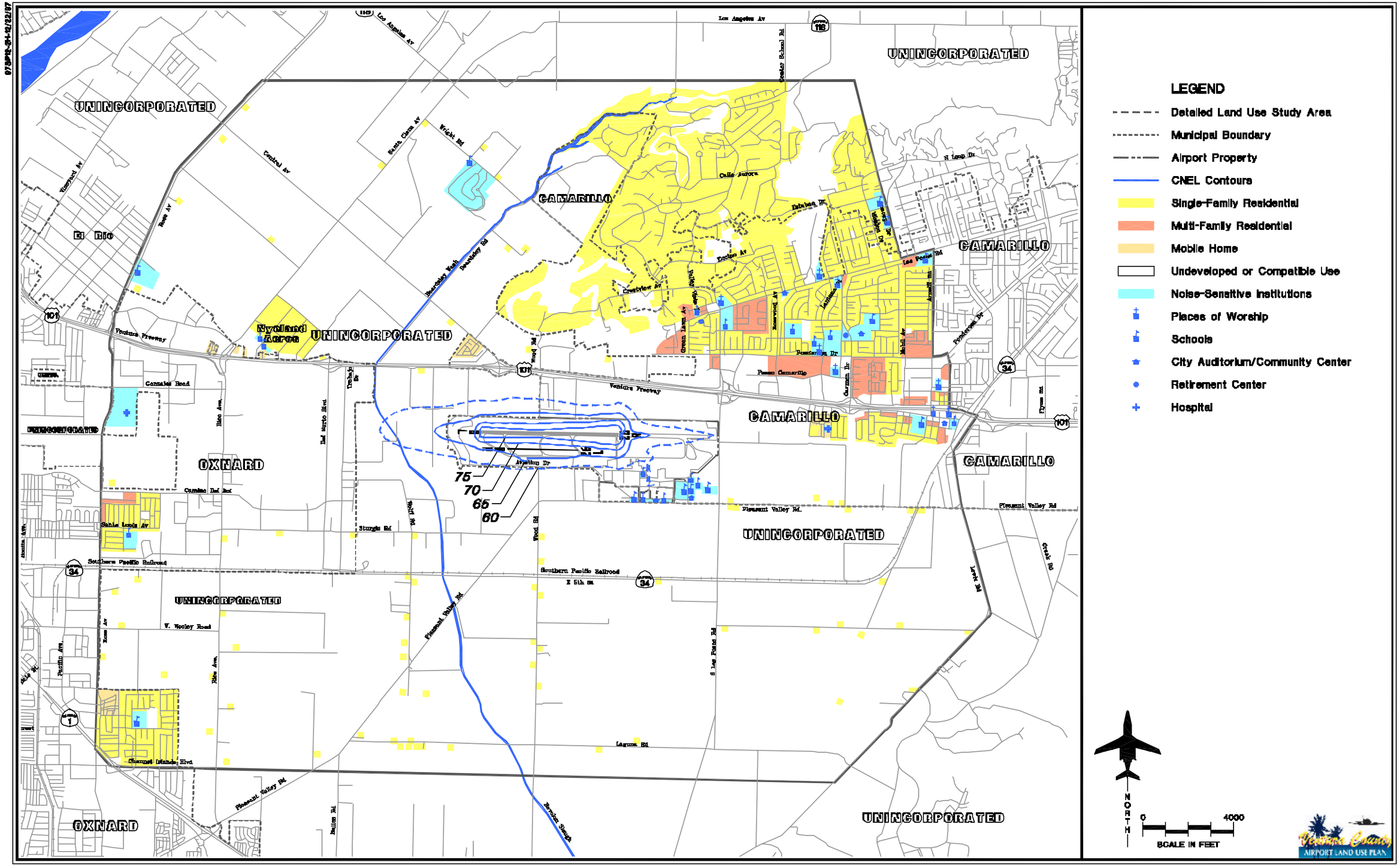


Exhibit 2H
CAMARILLO AIRPORT 1998 NOISE EXPOSURE

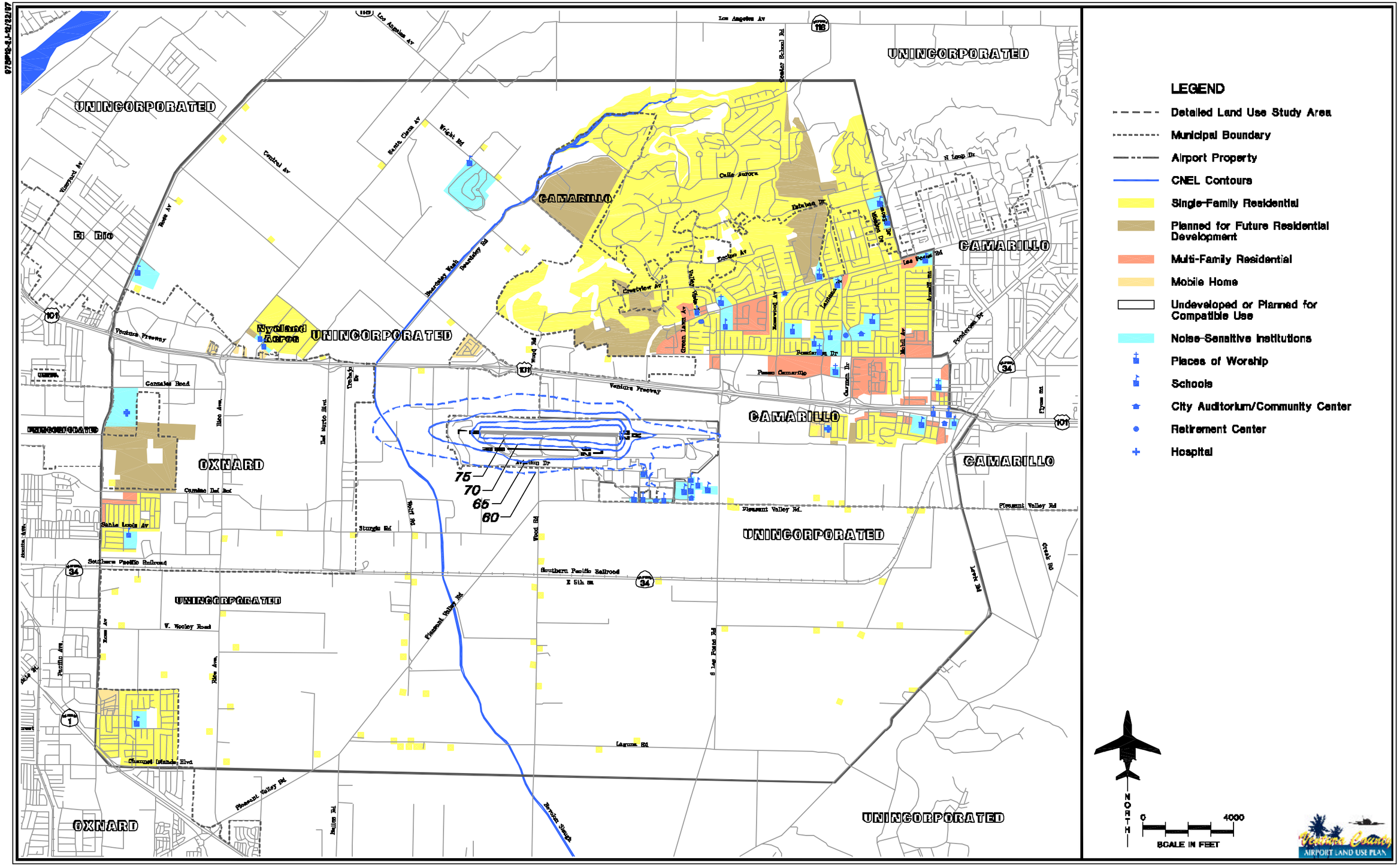


Exhibit 2J
CAMARILLO AIRPORT 2003 NOISE EXPOSURE

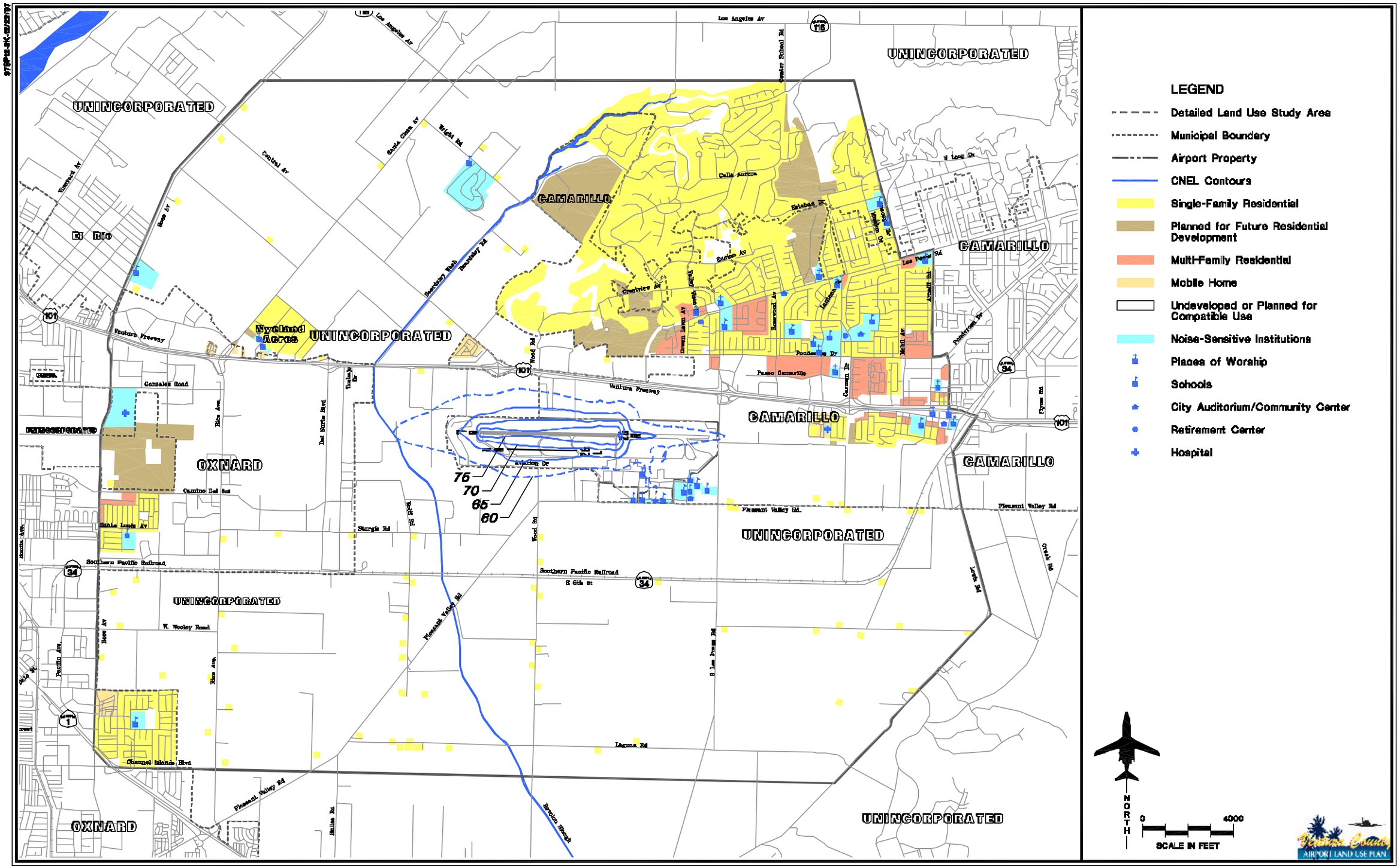


Exhibit 2K
CAMARILLO AIRPORT 2018 NOISE EXPOSURE

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Chapter Three
OXNARD AIRPORT AND ENVIRONS

Chapter Three
OXNARD AIRPORT AND ENVIRONS

This chapter presents an overview of Oxnard Airport and the surrounding area. The background information in this chapter is as follows:

- A description of the study area and existing land uses in the area.
- A discussion of the local land use planning and regulatory framework in the study area.
- A description of key airport facilities and navigational aids.
- A description of noise abatement procedures, airport activity, and flight tracks.
- A description of current and forecast noise exposure around the airport.

3.1 AIRPORT SETTING

Oxnard Airport is classified in the *National Plan of Integrated Airport Systems* (NPIAS) as a primary commercial service airport (FAA 1995, p. A-14). Oxnard is also considered a non-hub commercial airport because it enplanes less than 0.05 percent of U.S. domestic passengers.

Oxnard Airport lies one and one-half miles east of the Pacific Ocean coastline on approximately 216 acres of land. The airport is bordered on three sides by major arterial roadways. Ventura Road and Victoria Avenue run north-south along the eastern and western edges of airport property, respectively. Fifth Avenue, running east-west along the southern edge of airport property between Ventura Road and Victoria

Avenue, provides primary airport access. The airport is afforded regional access by the Ventura Freeway (U.S. Highway 101) located four miles north of the airport and the Pacific Coast Highway (State Highway 1) located approximately one mile east of the airport.

Situated along the coastal edge of the 200-square mile Oxnard Plain, the City of Oxnard lies equidistant between Santa Barbara to the northwest and Los Angeles to the southeast. Immediately adjacent to the City of Oxnard is the City of Port Hueneme which operates the largest deep sea port between San Francisco and Los Angeles.

3.2 STUDY AREA

Exhibit 3A, Oxnard Airport Study Area and Jurisdictional Boundaries, shows an area ranging from Bard Road on the south, approximately one-half mile west of Rice Road on the east, to the Olivas Park and Buenaventura Municipal golf courses to the north, and the Pacific Ocean coastline on the west. It includes parts of the cities of Oxnard, Port Hueneme, Ventura, and parts of unincorporated Ventura County.

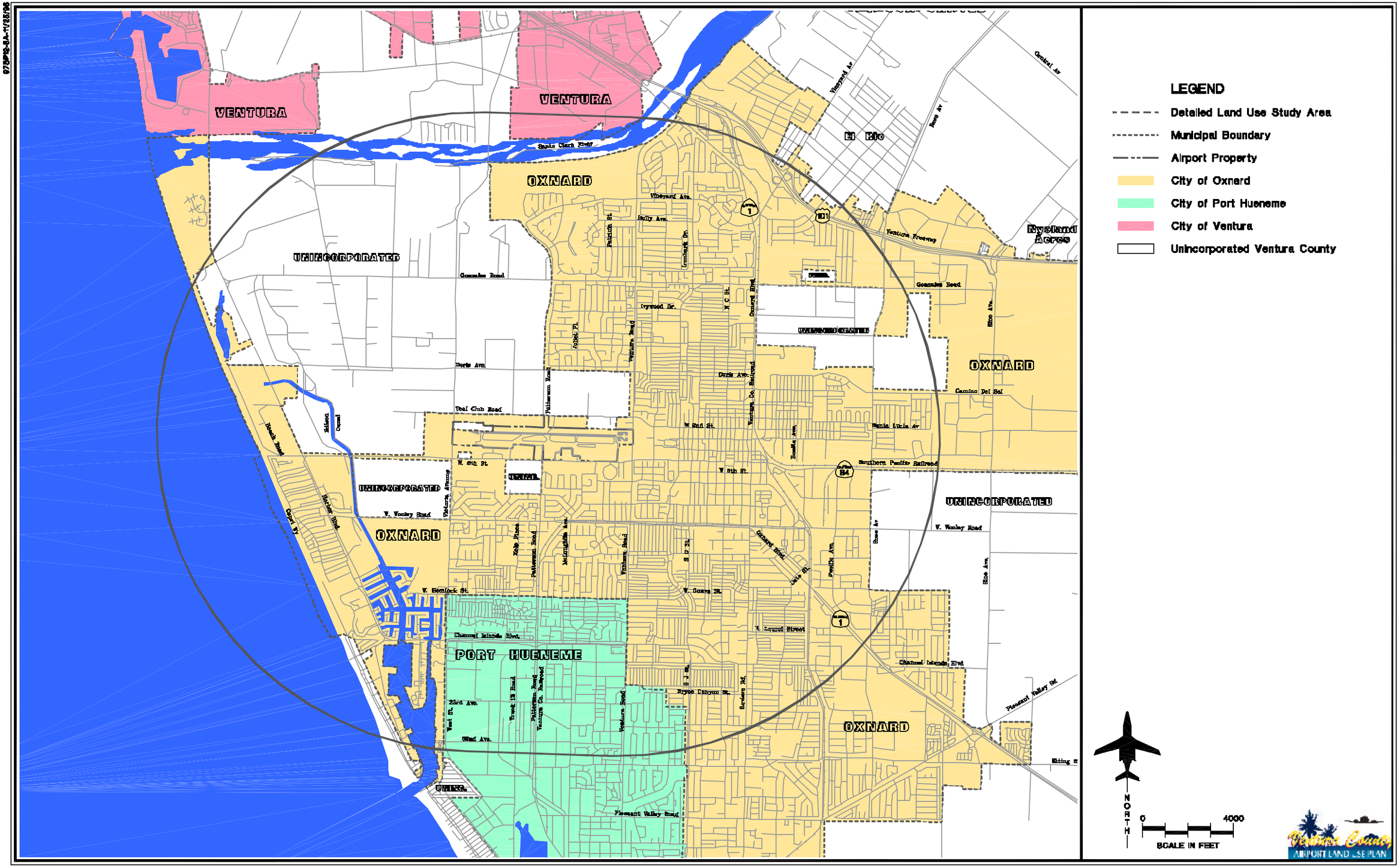
An oval-shaped area, designated the detailed land use study area, is in the middle of the map. It corresponds to the outer boundary of the F.A.R. Part 77 conical surface around the airport. Existing and future land use designations will be mapped in this area. It is anticipated that primary areas of airport compatibility concern will be directed to the detailed land use study area.

3.3 EXISTING LAND USE

Exhibit 3B, Generalized Existing Land Use in the Oxnard Airport Area, shows existing land use in the study area. The land use classification system, shown in **Table 3A**, has been designed to fit the requirements of airport noise compatibility planning. Residential land use and noise-sensitive institutions are identified. The other land use categories, which are generally considered to be compatible with aircraft noise, include commercial, industrial, transportation, and utilities; agriculture; parks and open space; and undeveloped land.

Most of the south and east part of the study area is urbanized. Residential neighborhoods in Oxnard lie southwest, south, east, and north of the airport. Commercial and industrial development is concentrated near the airport, in downtown Oxnard just east of the airport, along Vineyard Avenue between the Ventura Freeway and State Highway 1, and in Port Hueneme south of the airport.

Most of the northwest quadrant of the study area is in agricultural use. A large park and open space area is at the north edge of the study area along the Santa Clara River. Noise-sensitive institutions, including schools, places of worship, one hospital, and one library are scattered through the east and south parts of the study area.



LEGEND

- Detailed Land Use Study Area
- Municipal Boundary
- Airport Property
- City of Oxnard
- City of Port Hueneme
- City of Ventura
- Unincorporated Ventura County

Exhibit 3A
OXNARD AIRPORT STUDY AREA
AND JURISDICTIONAL BOUNDARIES

VENTURA
VENTURA
OXNARD
UNINCORPORATED
El Rio
Rydland Acres
Santa Clara River
Vineyard Ave.
Rose Av
Central Av
Ventura Freeway
Gonzales Road
Ivywood Dr.
Oxnard Blvd
Ventura Road
Patterson Road
Rice Ave.
Camino Del Sol
Teal Club Road
Hueneme Road
Harbor Blvd
Edison Canal
W. 5th St.
W. Wooley Road
W. Hemlock St.
W. Gonzales Rd.
Channel Islands Blvd.
PORT HUENEME
23rd Ave.
Wooley Road
Pleasant Valley Road
Pleasant Valley Rd
Santa Lucia Av
Southern Pacific Railroad
Boundary Rd.
Bryce Canyon Dr.
Elling Ct
Fwy 101
Fwy 1
Fwy 34

LEGEND

- Detailed Land Use Study Area
- Municipal Boundary
- Airport Property
- Single-Family Residential
- Multi-Family Residential
- Mobile Home
- Commercial, Industrial, Transportation, and Utilities
- Agriculture
- Parks and Open Space
- Undeveloped
- Noise-Sensitive Institutions
- Places of Worship
- Schools
- Hospital
- City Auditorium/Community Center
- Museum
- Historic Structure

Sources: Aerial Photograph, January 8, 1997;
Consultant Field Survey, Fall 1997.

NORTH

0 4000

SCALE IN FEET

Ventura County
AIRPORT LAND USE PLAN

Exhibit 3B
GENERALIZED EXISTING LAND USE
IN OXNARD AIRPORT AREA

TABLE 3C
Land Use Categories Shown on Existing Land Use Map

Category	Land Uses Included
Single-family Residential	Single-family homes.
Multi-family Residential	Duplexes; Townhouses; Apartment and condominium buildings.
Mobile Homes	Mobile and manufactured homes.
Commercial, Industrial, Transportation, Utilities	Businesses; Offices; Industrial uses; Utilities; Transportation facilities; Intensively developed commercial agriculture areas including equipment storage areas and greenhouses.
Noise-Sensitive Institutions	Places of worship; Schools; Nursing homes; Residential group quarters; Hospitals; Community centers.
Agriculture	Orchards; Cultivated fields.
Parks and Open Space	Parks; Golf courses; Cemeteries; Ponds; Nature preserves.
Undeveloped	Vacant lots; Open parcels of uncultivated land.

The Regional Information Center for the California Historic Resources Inventory was contacted for information about any sites in the study area determined to be of historical significance. One building, the former Oxnard Public Library at 424 South C Street, is listed on the National Register of Historic Places. This building now houses the Carnegie Cultural Arts Center. No sites are listed as California Historical Landmarks or California Points of Historical Interest.

3.4 LAND USE PLANNING POLICIES AND REGULATIONS

The State of California requires all local governments to enact a "general plan" establishing framework policies for future development of the city or county. (See Government Code, Sections 65300, *et seq*.) The local general plan is the most important land use regulatory instrument in California. It establishes overall development policy and provides the legal foundation for all other kinds of land use and development regulation in the community. According to California law, the general plan must contain at least seven elements: land use, circulation, housing, conservation, open space, noise, and safety (Curtin 1996, pp. 9-10). Other elements may be prepared as needed and desired.

The policies of the general plan are implemented through specific ordinances regulating development. Chief among these is the zoning ordinance. Zoning regulates the use of land, the density of development, and the height and bulk of buildings. Subdivision regulations are another important land use regulatory tool, regulating the platting of land. Local communities also regulate development through building codes which set detailed standards for construction.

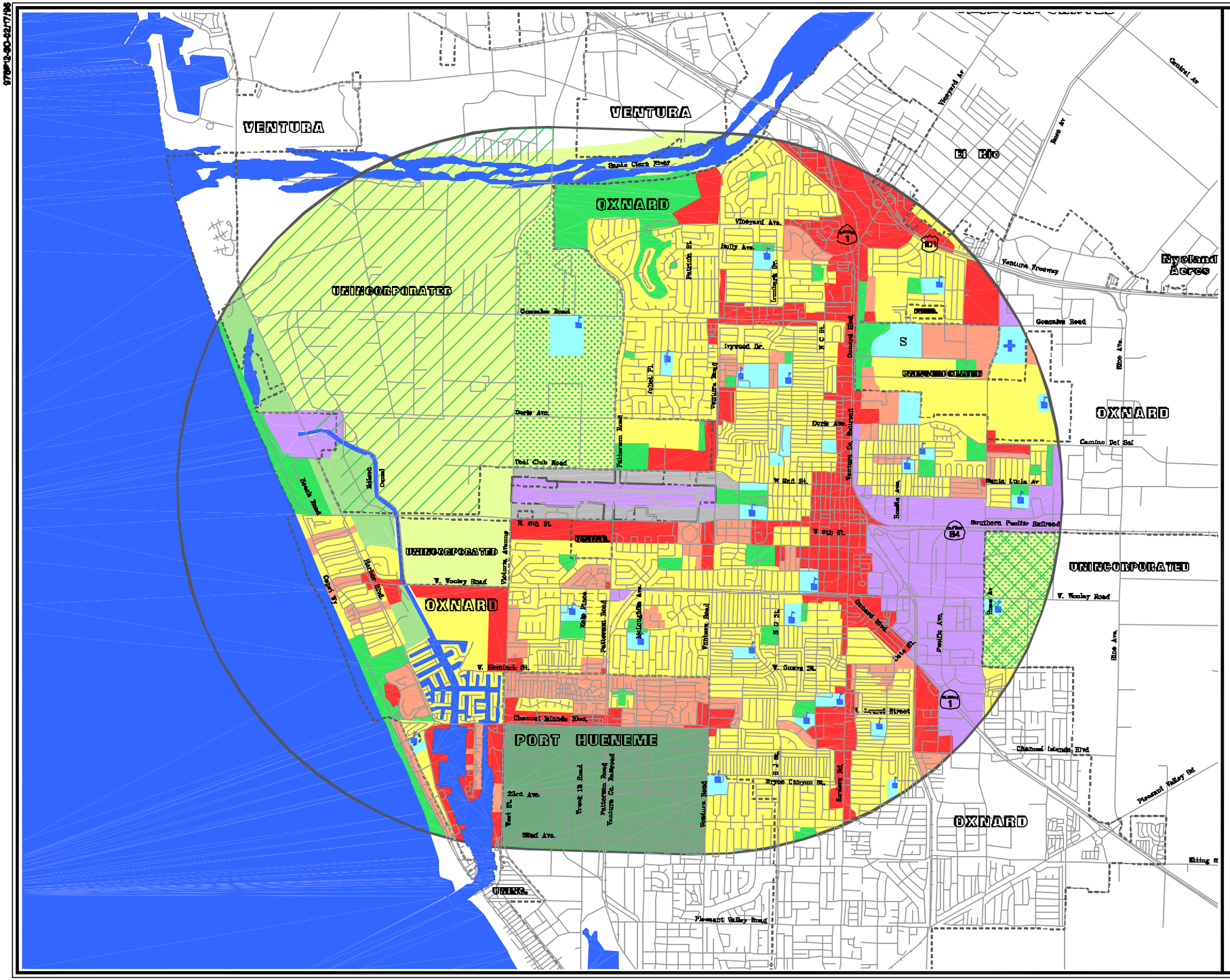
This section briefly summarizes the land use elements of the general plans of the study area jurisdictions. **Exhibit 3C, Future Land Use Plan in Oxnard Airport Area**, shows the land use designations of the general plans in the study area. A more detailed discussion of each jurisdiction's general plan is in Appendix B.

3.4.1 OXNARD GENERAL PLAN

The Oxnard General Plan was adopted in 1990. It includes eleven planning elements: growth management, land use, circulation, public facilities, open space/conservation, safety, noise, economic development, community design, parks and recreation, and housing. The Noise Element includes several goals and policies related to airport compatibility planning (City of Oxnard 1990, p. IX-16). The most directly relevant says that "municipal policies shall be consistent with the Ventura County Airport Comprehensive Land Use Commission's adopted land use plan . . ."

The City also has developed a Coastal Land Use Plan for the coastal zone (City of Oxnard 1982.) Policies and land use designations of the Coastal Land Use Plan have been incorporated into the City's General Plan.

Exhibit 3C shows the future land use plan for the Oxnard portion of the Oxnard Airport study area. Land west and northwest of the airport is designated for agriculture. Most of this area is covered by the San Buenaventura-Oxnard Greenbelt Agreement. This area has been designated for permanent agriculture and open space in accordance with a proposal made in the Open Space/Conservation Element of the General Plan (City of Oxnard 1990,



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LEGEND

- Detailed Land Use Study Area
- Municipal Boundary
- Airport Property
- 🟨 Low Density Residential
- 🟧 Medium/High Density Residential
- 🟥 Commercial
- 🟪 Industrial/Airport
- 🟨 Agriculture
- 🟩 Parks
- 🟩 Natural Open Space
- 🟦 Public/Semi-Public
- Schools
- S Future Schools
- ✚ Hospital
- 🟩 Military
- ⬜ Airport Compatible
- ▨ Urban/Planning Reserve
- ▨ Oxnard-Camarillo Greenbelt
- ▨ San Buenaventura-Oxnard Greenbelt

Sources: General Plans of Oxnard, Port Hueneme, Ventura County.

Exhibit 3C

FUTURE LAND USE PLAN IN OXNARD AIRPORT AREA

p.VII-71). Most of the land north and south of the airport is designated for low-density residential development. Due east of the airport the land is designated for commercial and industrial use and includes the Oxnard central business district and the central industrial area.

3.4.2 PORT HUENEME GENERAL PLAN

The Port Hueneme General Plan was adopted in 1997 and establishes policies for a planning period through the year 2015 (Cotton/Beland/Associates, Inc., 1997). It includes seven elements: land use, circulation/infrastructure, housing, conservation/open space/environmental resources, noise, public safety and facilities, and economic development. The Land Use Element is the only element that is directly relevant to compatibility planning in the vicinity of Oxnard Airport. Port Hueneme also has a Local Coastal Program certified by the California Coastal Commission. The updated General Plan reflects the policies of the Local Coastal Program.

The City of Port Hueneme has very little undeveloped land. Much of the Land Use Element, therefore, is devoted to neighborhood preservation and redevelopment to strengthen the City's economic base.

Exhibit 3C shows the future land use designations in the Oxnard Airport Study Area which includes the northern edge of Port Hueneme. Most of the area north of Channel Islands Boulevard is designated for a mix of residential uses. Commercial use is designated along most of Channel Islands Boulevard. Land south of Channel Islands Boulevard and west of Ventura Road is designated for military use.

3.4.3 VENTURA COUNTY GENERAL PLAN

The Ventura County General Plan was adopted in 1988 and has been amended several times since then. The Plan includes several documents. The overall framework of goals and policies is in a document called *Goals, Policies and Programs* (Ventura County 1996a.) Supporting documentation is in a series of technical appendices (Ventura County 1994a, 1994b, 1994c, 1996b). The General Plan also includes several area plans where local issues and concerns are dealt with in greater detail than in the framework document. Ventura County also has *Coastal Area Plan* (Ventura County 1996c). It establishes various land use and conservation policies in the coastal zone.

As shown in **Exhibit 3C**, most of the area within the County's jurisdiction in the Oxnard Airport Study Area is designated as agriculture. Smaller areas are designated as open space, including the McGrath Lake area and the beach west of Channel Islands Harbor.

Agriculture is a major industry in Ventura County. The County General Plan establishes policies to encourage the preservation of prime farmland. Among them is a policy to retain and

expand existing Greenbelt Agreements in the County and to encourage the formation of additional agreements (Ventura County 1996a, p. 21). Greenbelt agreements have been formed between various cities in Ventura County. They delineate areas between the cities which are declared off limits to urban development and are to be preserved for agriculture and open space. The cities of Oxnard and Ventura have a greenbelt agreement for much of the area between the two cities, part of which is in the Oxnard Airport study area. This is shown in **Exhibit 2C**.

The County General Plan also includes policies relating to airport hazards and noise compatibility. Land in airport approach and departure zones is to be designated for agriculture or open space uses (Ventura County 1996a, p. 20). Noise-sensitive land uses are not permitted where airport noise exceeds 65 CNEL. These uses may be permitted in the 60 to 65 CNEL contour only if measures are taken to reduce interior noise levels to 45 CNEL or less.

3.5 AIRPORT FACILITIES

Existing and proposed future facilities at Oxnard Airport are shown in **Exhibit 3D, Oxnard Airport Layout Plan**.

3.5.1 RUNWAYS

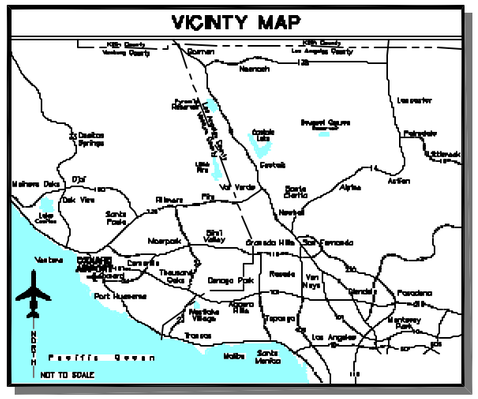
Oxnard Airport is served by Runway 7-25 which is 5,950 feet long by 100 feet wide, aligned in an east-west direction. The Runway 25 threshold is displaced 1,372 feet for obstacle clearance safety. The runway surface is asphalt and is in good condition. The current *Airport/Facility Directory* listing for Oxnard Airport indicates the following runway load bearing strength for Runway 7-25: 30,000 pounds for single wheel loading and 60,000 pounds for dual wheel loading (National Ocean Service 1997a, p. 90). No changes to the runway system are planned. Runway data for the airport is summarized in **Table 3B**.

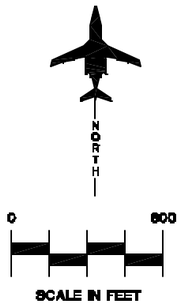
3.5.2 TAXIWAYS

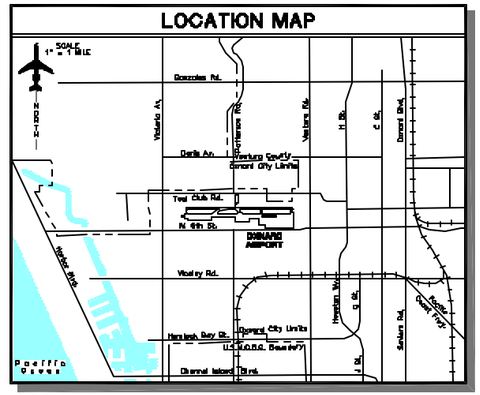
Runway 7-25 is served by a full length parallel taxiway (Taxiway A) on the south side of the runway. The runway is also served by five entrance/exit taxiways which run between the parallel taxiway and the runway. Taxiway B is an exit/entrance taxiway located just west of the Runway 25 displaced threshold. Taxiways C and D are high speed exits from the runway. **Exhibit 3D** shows the construction of two exit taxiways in the future (one near each runway end). The additional exits will improve airfield capacity by giving aircraft additional options for exiting the runway.

3.5.3 PASSENGER TERMINAL

The passenger terminal at Oxnard is located on the south side, approximately midfield of Runway 7-25. The terminal building provides space for United Express Airlines, rental car and travel agencies, and a restaurant. The terminal building is afforded automobile access via Fifth Street. **Exhibit 3D** indicates that the terminal is planned to be expanded in the future.







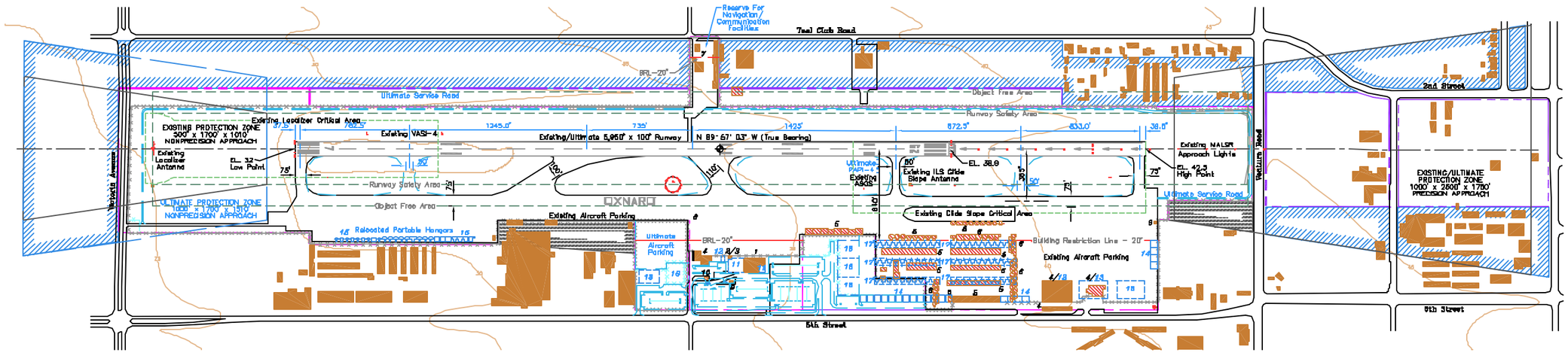
LEGEND

EXISTING	ULTIMATE	DESCRIPTION
		ABANDONED PAVEMENT
		AIRPORT PROPERTY LINE
		AIRPORT REFERENCE POINT (ARP)
		AIRPORT ROTATING BEACON
		AVIGATION EASEMENT
		BUILDING TO BE REMOVED OR RELOCATED
		BUILDING
		BUILDING RESTRICTION LINE (BRL)
		PAVEMENT
		FENCING
VASI-4	PAPI-4	NAVIGATIONAL AID INSTALLATION
		RUNWAY END IDENTIFICATION LIGHTS (REIL)
		RUNWAY THRESHOLD LIGHTS
		SEGMENTED CIRCLE/WIND INDICATOR
		TOPOGRAPHY (USCS Maps)
		WIND INDICATOR (Lighted)

BUILDINGS/FACILITIES

EXISTING	ULTIMATE	DESCRIPTION
1	11	TERMINAL BUILDING
2		AIR TRAFFIC CONTROL TOWER (ATCT)
3	12	AIRPORT RESCUE and FIREFIGHTING (ARFF)
4	13	FIXED BASE OPERATION HANGAR
5	14	CONVENTIONAL HANGAR
6	15	PORTABLE HANGARS
7		AIRPORT MAINTENANCE
8	16	FUEL FACILITY
9		ELECTRICAL VAULT
10		WELL
	17	T-HANGAR (80 Unit Nested)
	18	CORPORATE PARCEL

Source: Coffman Associates 1996, p. 6-12.



Ventura County AIRPORT LAND USE PLAN

Exhibit 3D
OXNARD AIRPORT LAYOUT PLAN

The actual expansion of the building will not be considered until warranted by increasing passenger enplanement levels.

TABLE 3B
Runway Data
Oxnard Airport

	RUNWAYS	
	7	**25**
Length (ft.)	6,032	
Width (ft.)	150	
Surface Material	Asphalt	
Pavement Strength (lbs.)		
Single Wheel Loading	30,000	
Dual Wheel Loading	60,000	
Approach Slope Ratio	34:1	34:1
Approach Aids		
ILS	No	Yes
VOR/DME	Yes	Yes
GPS	Yes	Yes
VASI	V4L	V4L
MALSR	No	Yes
Runway Lighting	MIRL	
Runway Marking	Nonprecision	Precision

Source: *Airport/ Facility Directory*, National Ocean Service 1997a, p. 90.

3.5.4 GENERAL AVIATION COMPLEX

Two master tenants provide services or sublease to tenants who provide services at Oxnard Airport. Aeroflight Flight Academy and Sam's Aircraft Service are both located on the southeast side of Runway 7-25. These FBO's provide a full range of general aviation services including aircraft maintenance, fueling, and pilot training.

3.5.5 OTHER FACILITIES

Aspen Helicopters is a specialty business operator located immediately west of the ATCT. This operator maintains 17 aircraft (12 helicopters) for commercial charter and flight training operations.

3.6 TYPICAL FLIGHT PROCEDURES

3.6.1 INSTRUMENT APPROACHES

Instrument approaches are defined using electronic and visual navigational aids to assist pilots in landing when visibility is reduced below specified minimums. Instrument approaches are classified as precision and nonprecision. Both provide runway alignment and course guidance, while precision approaches also provide glide slope information for the descent to the runway.

3.6.1.a Precision Instrument Approaches

Oxnard Airport has one published precision approach to Runway 25 (National Ocean Service 1997b, p. 250). Runway 25 is equipped with an instrument landing system (ILS) consisting of a localizer , glide slope , and a medium intensity approach lighting system with runway alignment lights (MALSR) in addition to middle and outer marker beacons. The precision ILS approach to Runway 25 at Oxnard uses a standard 3.0 degree glide slope.

Typically, a precision ILS approach aided by a localizer, glideslope, and MALSR will provide Category I minimums (one-half mile visibility and 200-foot cloud ceiling). For Oxnard, however, obstructions located in the approach require weather minimums for the ILS Runway 25 approach to be at or above one mile visibility and 300-foot cloud ceilings.

3.6.1.b Nonprecision Approaches

Utilizing the Camarillo VOR/DME or the global positioning system (GPS), two nonprecision approaches are available at Oxnard (National Ocean Service 1997b, pp. 251-252). The VOR or GPS Runway 25 approach can be flown when cloud ceilings are 500 feet above ground level (AGL) or greater and visibility is one mile for aircraft with approach speeds of up to 121 knots, 1-1/4 miles for aircraft with approach speeds less than 141 knots, and 1-1/2 miles for aircraft with approach speeds less than 166 knots. The VOR or GPS Runway 25 approach also provides for a circling approach. The circling approach also requires a cloud ceiling of 500 feet AGL for aircraft with approach speeds less than 141 knots. Visibility requirements are the same for aircraft with approach speeds less than 121 knots, but increase to 1-1/2 miles for aircraft with approach speeds less than 141 knots. For aircraft with approach speeds greater than 141 knots but less than 166 knots, the circling approach minimums increase to 700 feet AGL cloud ceilings and 2-1/4 mile visibility.

The VOR/DME or GPS approach to Runway 7 is the second published nonprecision approach at Oxnard. VOR signals used with DME fixes ensure adequate terrain and obstruction clearances during final approach to the runway. The VOR/DME or GPS approach to Runway 7 can be flown when cloud ceilings are 500 feet AGL or greater and visibility is one mile for aircraft with approach speeds of less than 121 knots, 1-1/4 miles for aircraft with approach speeds greater than 121

but less than 141 knots, and 1-1/2 miles for aircraft with approach speeds greater than 141 knots but less than 166 knots. The VOR/DME or GPS Runway 7 approach also allows a circling approach. The minimums for the circling approach are the same as the circling VOR or GPS approach to Runway 25.

3.6.2 STANDARD INSTRUMENT DEPARTURES

Currently, two standard instrument departure (SID) procedures are published for Oxnard Airport -- the Skiff Four and the Camarillo Three SID (National Ocean Service 1997b, pp. 253-254).

Aircraft departing Runway 7 utilizing the Skiff Four SID are directed to turn left after take-off and intercept the Camarillo VOR/DME radial 249. Aircraft are to continue climbing westbound to the Skiff intersection then via a transition or assigned route. Aircraft departing Runway 25 climb via the Camarillo VOR/DME radial 249 to the Skiff intersection. Once at the Skiff intersection, aircraft continue via a published transition route or other route assigned by air traffic control.

Aircraft departing Runway 7 utilizing the Camarillo Three SID climb to the Camarillo VOR/DME thence via an assigned or published transition route. Aircraft utilizing the Camarillo Three SID departing Runway 25 turn right after take-off and intercept the Camarillo VOR/DME radial 249 thence via an assigned or transition route.

Discussions with Oxnard ATCT staff indicate that the SIDs are not often used. For noise abatement purposes, radar vectors are given to aircraft in order to avoid noise-sensitive areas. ATCT staff indicate that aircraft departing Runway 25 are assigned a heading of 270 degrees between 7:00 and 8:00 a.m. and 255 degrees between 8:00 a.m. and 9:00 p.m.

3.6.3 NOISE ABATEMENT PROCEDURES

The Ventura County Department of Aviation has developed and published, in consultation with the Airport Traffic Control Tower (ATCT) and airport users, noise abatement procedures for VFR operations at Oxnard Airport. Instructions are outlined regarding departures, arrivals, and pattern procedures at the airport which are aimed at minimizing noise exposure over noise-sensitive areas without compromising safety. Pilots are requested to follow the published procedures unless circumstances render them unsafe, weather conditions do not allow, or they are otherwise instructed to deviate by the airport traffic control tower. The procedures are described below:

- Aircraft are instructed to stay as high as practical over residential areas during overflight, approaches, and departures.

- Use best rate of climb when departing any runway.

- No formation take-offs or landings without prior written approval of the Airport Administrator.

- Touch-and-go/stop-and-go operations are prohibited between the hours of 8:00 p.m. and 7:00 a.m.

- Full stop/taxi back operations will be permitted only if the aircraft plans to depart the airport traffic area.

- No high power engine runups for maintenance between 7:00 p.m. and 7:00 a.m. the following day.

- Runway 7-25 traffic pattern - Published traffic pattern altitude (TPA) is established as 1,043 MSL feet for single engine aircraft and 1,443 MSL feet for twin engine/turbine aircraft. Utilize the best rate of climb, conditions permitting, turn crosswind when reaching the departure end of the runway and an altitude within 300 feet of pattern altitude. Maintain pattern altitude until turning base leg.

- Runway 25 Departure - When departing the airport traffic area use best rate of climb, remain on runway heading until beyond the departure end of the runway and 700 feet AGL before proceeding on course.

- Runway 25 Arrival - Straight-in cross the Camarillo Airport at or above 2,000 feet and remain as high as practical over the city until commencing final descent. Exercise extreme caution due to Camarillo traffic and instrument approaches being conducted to OXR Runway 25.

- Runway 7 Departure - Departures from the mid-field intersection (Taxiway C) are prohibited. When departing the airport traffic area use best rate of climb and remain on runway heading until reaching the airport boundary (Ventura Road) before proceeding on course. Exercise extreme caution due to opposite direction instrument approach traffic.

- A left-hand traffic pattern is in effect when the airport traffic control tower is closed.

3.6.4 OPERATIONAL LETTERS OF AGREEMENT

The Oxnard ATCT has entered into several letters of agreement with local aircraft operators. These serve both the ATCT personnel and the aircraft operators in establishing specific procedures to minimize operational conflicts and promote efficient use of the airfield and airspace.

One letter of agreement has been established between the Oxnard and Camarillo ATCT, NAWS Point Mugu Radar Air Traffic Control Facility (RATCF), Aspen Helicopters, and Sinton Helicopters. It defines operational procedures for agriculture helicopters requesting special visual flight rules (SVFR) operations during instrument flight rule (IFR) weather conditions. Helicopter pilots are to maintain contact with the appropriate ATC facility and maintain adequate separation as assigned by the controlling ATC facility. The letter of agreement also designates SVFR routes

for arrivals and departures to and from Oxnard and Camarillo Airports. For Oxnard, four routes have been established: SVFR Routes Victor, Romeo, Foxtrot, and Papa. Route Victor directs aircraft from the western boundary of Oxnard Airport direct to the Ventura Marina at or below 500 feet. Route Romeo directs aircraft from the eastern boundary of the Oxnard Airport direct to the Financial Plaza to remain west of the Saticoy Bridge, and clear of the Camarillo Surface Area at or below 500 feet. Route Foxtrot runs from the airport via Fifth Street westward to the shoreline at or below 500 feet. Route Papa directs southwest bound aircraft via Victoria Road to the Port Hueneme Harbor at of below 500 feet.

The Oxnard ATCT has also entered into an agreement with Aspen and Petroleum Helicopters for VFR helicopter arrival and departure procedures. These procedures apply to VFR conditions during ATCT operational hours only.

- Helicopters shall operate at or below 500 feet AGL unless otherwise instructed.

- Helicopters shall avoid the following noise sensitive areas: Deckside Villas, just south/southwest of Wooley Road; Oxnard Shores area south of Fifth Street along the shoreline; housing development just south/southeast of the airport in the vicinity of Ventura Road and Wooley Road; directly over the homes just north of the east end of Runway 7-25.

Specific arrival routes include:

- Fifth Street Arrival, from east or west -- proceed via Fifth Street to the Airport

- Teal Club Arrival, from east or west -- proceed via Teal Club Road to the Airport (note: an imaginary line extends Teal Club Road to the shoreline on the west or Rice Road on the east).

- Victoria Road Arrival, from north or south -- proceed via Victoria Road to the Airport remaining north or south of runway/taxiway. If crossing is desired, advise controller on initial contract.

Departure routes have been established as follows:

- Fifth Street Departure, east or west -- proceed via Fifth Street either west to the shoreline or east to Rice Road.

- Teal Club Road Departure, east or west -- proceed via Teal Club Road west to the shoreline or east to Rice Road.

- Victoria Street Departure, south -- proceed westbound via Fifth Street to Victoria Road then south to southwest bound to beach area.

- Victoria Street Departure, north -- proceed westbound via Teal Club Road to Victoria Road then north bound out of the Class D Surface Area.

3.7 AIRPORT ACTIVITY AND NOISE EXPOSURE DATA

This CLUP Update does not include updated activity and noise exposure data for the Oxnard Airport. At the time this plan was prepared, the Oxnard Airport Master Plan had not yet been adopted. Therefore, the activity and noise exposure information in the 1991 CLUP has not yet been updated and thus represents the most recent adopted information available. As such, the 1991 CLUP activity data, noise contours, and safety zone boundaries at Oxnard Airport are incorporated unchanged into this update.

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Chapter Four
SANTA PAULA AIRPORT AND ENVIRONS

Chapter Four
SANTA PAULA AIRPORT AND ENVIRONS

This chapter presents an overview of Santa Paula Airport and the surrounding area. The information in this chapter includes:

- A description of the study area and existing land uses in the area.
- A discussion of the local land use planning and regulatory framework in the study area.
- A description of key airport facilities.
- A discussion of noise abatement procedures, airport activity, and flight tracks.
- A description of noise exposure around the airport.

4.1 AIRPORT SETTING

Santa Paula Airport is classified in the *National Plan of Integrated Airport Systems* (NPIAS) as a general aviation airport (FAA 1995, p. A-17). The airport is within the corporate limits of the City of Santa Paula between State Route 126 and the Santa Clara River. Access to the airport is provided by Santa Maria Street.

4.2 STUDY AREA

Exhibit 4A, Santa Paula Airport Study Area and Jurisdictional Boundaries, shows a rectangular area of 24.5 square miles. At the center of the map is an oval-shaped area centered on the airport. This is the "detailed

land use study area". Within this area, detailed information on existing land use and planned future land use will be mapped. The study area boundary corresponds with the F.A.R. Part 77 conical surface and defines the area within which airport compatibility concerns are most likely to apply.

4.3 EXISTING LAND USE

Exhibit 4B, Generalized Existing Land Use in Santa Paula Airport Area, shows existing land use in the study area. The land use classification system, shown in **Table 4A**, has been designed to fit the requirements of airport noise compatibility planning. Residential land uses and noise-sensitive institutions are identified. The other land use categories, which are generally considered to be compatible with aircraft noise, include commercial, industrial, transportation, and utilities; agriculture; parks and open space; and undeveloped land.

The northern half of the study area lies within the City of Santa Paula and is developed for urban use. Most of the area south of the airport is farmland or undeveloped land. Most of the developed area involves housing. Farmland rings the City in areas which can be cultivated. Undeveloped open space lies in the hillier areas around the City. Commercial and industrial development is concentrated along Main Street, the Southern Pacific Railroad, the east edge of the City along the Santa Paula Freeway (S.R. 126), and near the airport.

Noise-sensitive institutions, including schools, places of worship, community centers, and a hospital are scattered across the city.

4.4 LAND USE PLANNING POLICIES AND REGULATIONS

The State of California requires all local governments to enact a "general plan" establishing framework policies for future development of the city or county. (See Government Code, Sections 65300, *et seq*.) The local general plan is the most important land use regulatory instrument in California. It establishes overall development policy and provides the legal foundation for all other kinds of land use and development regulation in the community. According to California law, the general plan must contain at least seven elements: land use, circulation, housing, conservation, open space, noise, and safety (Curtin 1996, pp. 9-10). Other elements may be prepared as needed and desired.

The policies of the general plan are implemented through ordinances regulating development. Chief among these is the zoning ordinance. Zoning regulates the use of land, the density of development, and the height and bulk of buildings. Subdivision regulations are another important land use regulatory tool, regulating the platting of land. Local communities also regulate development through building codes which set detailed standards for construction.

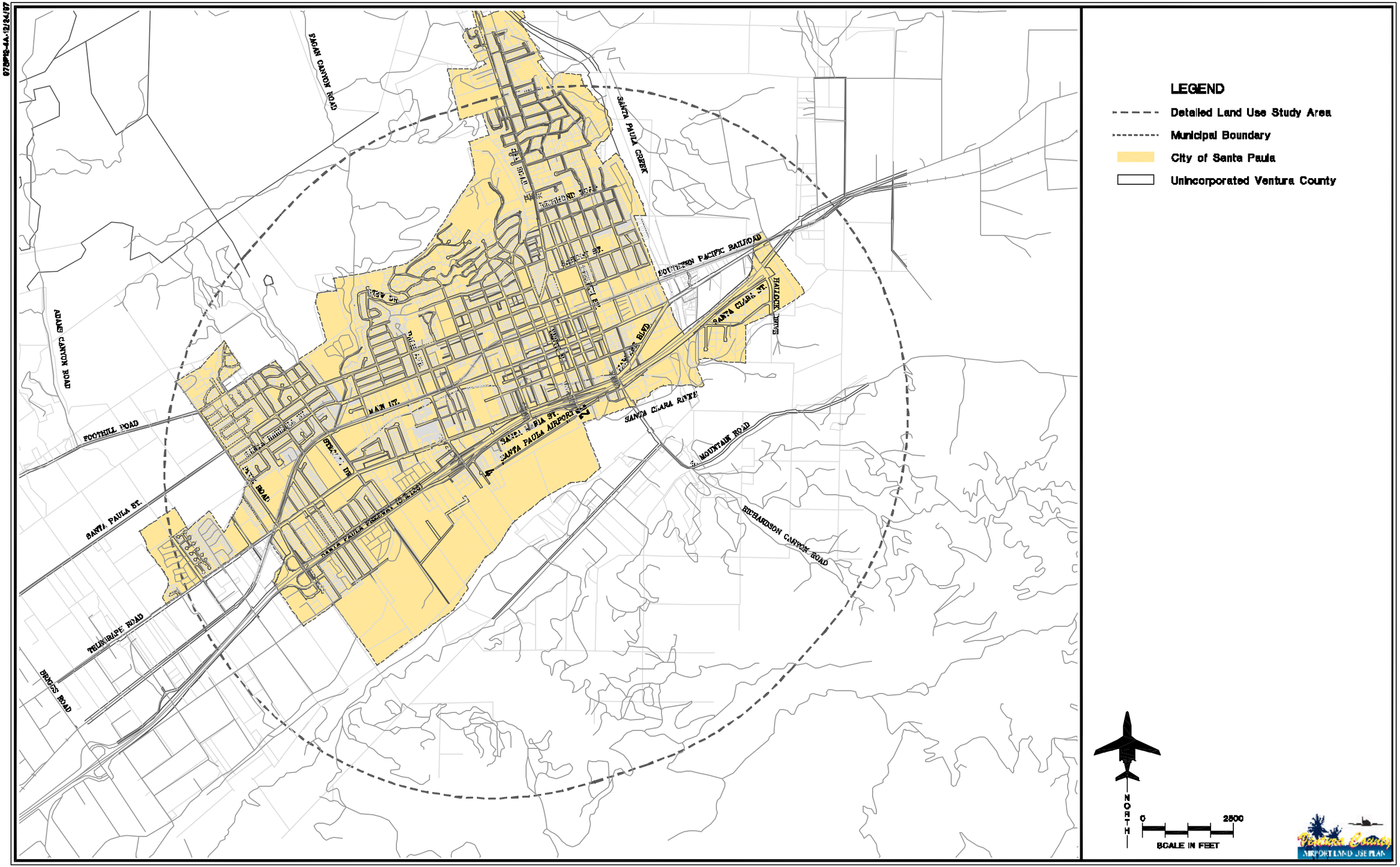


Exhibit 4A
SANTA PAULA AIRPORT STUDY AREA
AND JURISDITIONAL BOUNDARIES

Exhibit 4B
GENERALIZED EXISTING LAND USE
IN SANTA PAULA AIRPORT AREA

TABLE 4A
Land Use Categories Shown on Existing Land Use Map

Category	Land Uses Included
Residential	Single-family homes; Duplexes; Townhouses; Apartment and condominium buildings..
Mobile Homes	Mobile and manufactured homes.
Commercial, Industrial, Transportation, Utilities	Businesses; Offices; Industrial uses; Utilities; Transportation facilities; Intensively developed commercial agriculture areas including equipment storage areas and greenhouses.
Noise-Sensitive Institutions	Places of worship; Schools; Nursing homes; Residential group quarters; Hospitals; Community centers.
Agriculture	Orchards; Cultivated fields.
Parks and Open Space	Parks; Golf courses; Cemeteries; Ponds; Nature preserves.
Undeveloped	Vacant lots; Open parcels of uncultivated land.

This section briefly summarizes the general plans of the study area jurisdictions -- Santa Paula and Ventura County. **Exhibit 4C**, **Future Land Use Plan in Santa Paula Airport Area**, shows the land use designations of the general plans in the study area. A more detailed discussion of each jurisdiction's general plan is in Appendix B.

4.4.1 SANTA PAULA GENERAL PLAN

The Santa Paula General Plan was recently updated and adopted in mid-1998. The Plan includes a Land Use Element, a Housing Element, a Circulation Element, a Conservation and Open Space Element, a Safety Element, and a Noise Element. Four elements (land use, circulation, safety, and noise) have objectives and policies relating to Santa Paula Airport. Those policies are discussed in this section.

4.4.1.a Land Use Element

The Land Use Element identifies the policies that lay the foundation for mapping future land use designations throughout the City and its planning area. An updated future land use plan map, however, was not yet ready when this document was drafted.

The land use goals, objectives, and policies are classified into several different subject areas. The airport is addressed in two subject areas: land use distribution and land use compatibility (City of Santa Paula 1997b, pp. LU-43 to LU-54). The policies state that the land use plan should provide for the continuance and enhancement of the airport and airport-related uses. The policies note that development near the airport should be compatible with the airport and the County's Airport Comprehensive Land Use Plan.

4.4.1.b Circulation Element

The circulation goals, objectives, and policies are classified into several different subject areas, including aviation, which addresses Santa Paula Airport (City of Santa Paula 1997a, pp. CI-41 to CI-42). The Plan calls for the preservation and enhancement of the airport, noting that only compatible uses should be permitted in the airport vicinity. It also calls for the acquisition of the "clear zones" (now known as runway protection zones) and the extension of runway overruns to promote increased safety.

4.4.1.c Noise Element

The noise goals, objectives, and policies are tied to specific noise sources, including the airport (City of Santa Paula 1997c, pp. N-17). The policies note that new development near the airport should comply with the noise compatibility standards set forth in the Plan. (Those standards are shown in Exhibit B1 in Appendix B.) The policies also call for City officials to coordinate with the airport operators to minimize the effect of airport noise on nearby residents.

4.4.1.d Safety Element

The goals, objectives, and policies of the Safety Element are tied to specific kinds of hazards, including the risk of aircraft accidents (City of Santa Paula 1997d,

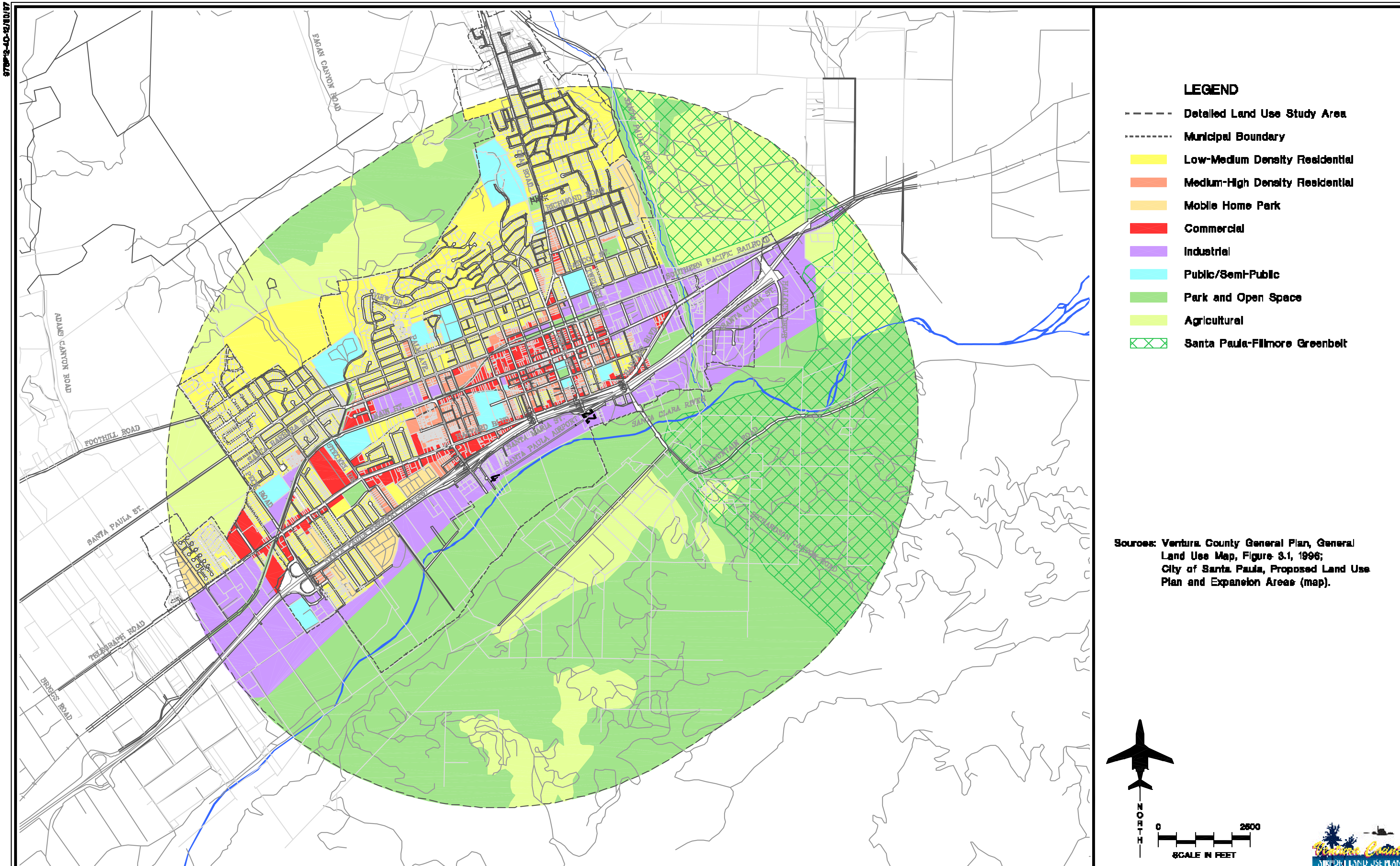

97SP12-4C-12/10/97
FAGAN CANYON ROAD
ADAMS CANYON ROAD
FOOTHILL ROAD
SANTA PAULA ST.
TELEGRAPH ROAD
BRIGGS ROAD
RICHMOND ROAD
SOUTHERN PACIFIC RAILROAD
SANTA CLARA RIVER
RICHARDSON CANYON ROAD
LEGEND
Detailed Land Use Study Area
Municipal Boundary
Low-Medium Density Residential
Medium-High Density Residential
Mobile Home Park
Commercial
Industrial
Public/Semi-Public
Park and Open Space
Agricultural
Santa Paula-Fillmore Greenbelt
Sources: Ventura County General Plan, General Land Use Map, Figure 3.1, 1996; City of Santa Paula, Proposed Land Use Plan and Expansion Areas (map).
NORTH
0
2500
SCALE IN FEET
Ventura County
AIRPORT LAND USE PLAN

Exhibit 4C
FUTURE LAND USE PLAN
IN SANTA PAULA AIRPORT AREA

pp. S-43 to S-44). The Plan proposes that development near the airport should comply with the County's Airport Comprehensive Land Use Plan. The Safety Element also reiterates the need to purchase the "clear zones" (runway protection zones) and to extend the runway overruns.

Two implementation measures relating to these goals, objectives, and policies are called out in the Safety Element (City of Santa Paula 1997d, p. S-54).

61. The City of Santa Paula should change the land use designations in the Inner Safety Zone at both ends of the Santa Paula Airport runway to agricultural or other conforming uses.

62. The City should pass legislation which would allow funding by the State for purchase of the property in the Inner Safety Zone.

4.4.2 VENTURA COUNTY GENERAL PLAN

The Ventura County General Plan was adopted in 1988 and has been amended several times since then. The Plan includes several documents. The overall framework of goals and policies is in a document called *Goals, Policies and Programs* (Ventura County 1996a.) Supporting documentation is in a series of technical appendices (Ventura County 1994a, 1994b, 1994c, 1996b). The General Plan also includes several area plans where local issues and concerns are dealt with in greater detail than in the framework document.

In the Santa Paula Airport study area, the County's future land use designations in the unincorporated area outside the City's Sphere of Influence are agricultural and open space, both of which are compatible with aircraft noise. This is shown in **Exhibit 4C, Future Land Use Plan**.

Agriculture is a major industry in Ventura County. The County General Plan establishes policies to encourage the preservation of prime farmland. Among them is a policy to retain and expand existing Greenbelt Agreements in the County and to encourage the formation of additional agreements (Ventura County 1996a, p. 21). Greenbelt agreements have been formed between various cities in Ventura County. They delineate areas between the cities which are declared off limits to urban development and are to be preserved for agriculture and open space. Santa Paula is a party to two greenbelt agreements. One is with the City of Ventura and concerns land west of the City, just outside the study area. The other agreement is with the City of Fillmore and is east of the City. A small part of this area lies within the Santa Paula Airport study area. The Santa Paula General Plan proposes an increase in its sphere of influence in this area. That would require an amendment in the Santa Paula-Fillmore Agreement to remove the affected area (City of Santa Paula 1997b, p. LU-27).

The County General Plan also includes policies relating to airport hazards and noise compatibility. Land in airport approach and departure zones is to be designated for agriculture or open space uses (Ventura County 1996a, p. 20). Noise-sensitive land uses are not permitted where airport noise exceeds 65 CNEL. These uses may be permitted in the 60 to 65 CNEL contour only if measures are taken to reduce interior noise levels to 45 CNEL or less.

4.5 AIRPORT FACILITIES

Existing facilities at Santa Paula Airport are shown on **Exhibit 4D**, **Santa Paula Airport Layout**.

4.5.1 RUNWAYS AND TAXIWAYS

Santa Paula Airport is served by Runway 4-22 which is 2,650 feet long by 40 feet wide and aligned in a northeast-southwest direction. The runway surface is asphalt. The current *Airport/Facility Directory* listing for Santa Paula Airport indicates runway load bearing strength as 8,000 pounds for single wheel loading (National Ocean Service 1997a, p. 114). The threshold of Runway 4 is displaced 130 feet, and Runway 22 is displaced 233 feet. This is for obstacle clearance.

The only taxiways on the airport provide access to the hangars and entrance and exit to the runway. The runway lacks a system of parallel taxiways.

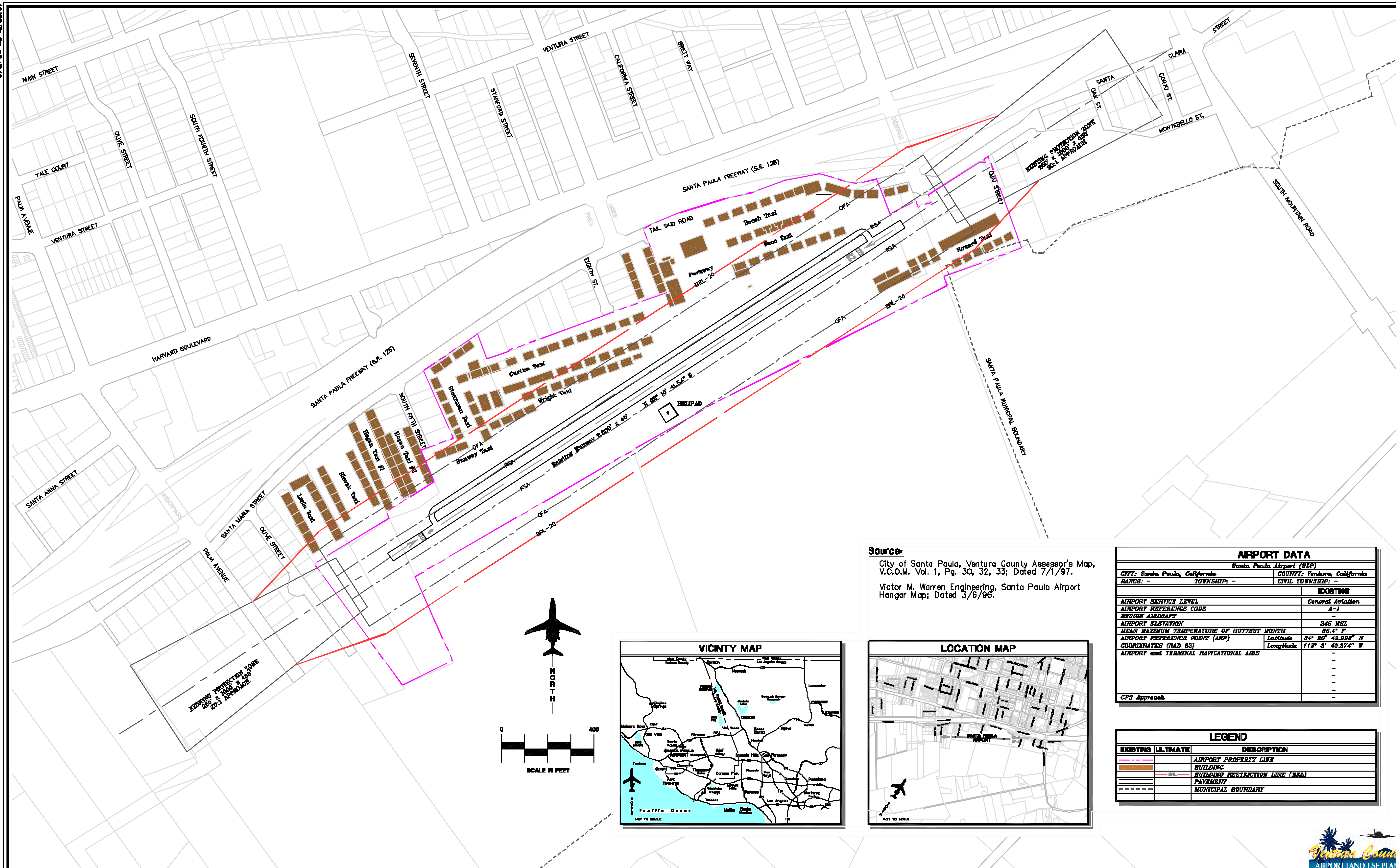
4.5.2 FIXED BASE OPERATORS

Terminal services are provided by several fixed base operators (FBOs). Aerobatic Safety Unlimited, CP Aviation, Krybus Aviation, and Screaming Eagle Aviation all provide 80 and 100 low lead fueling. Other FBOs include Santa Paula Flight Center and Santa Paula Flight Services (AOPA 1996, p. 3-95).

4.6 TYPICAL FLIGHT PROCEDURES

Since it lacks an airport traffic control tower, the airport operates according to Federal regulations governing flight at non-towered airports (F.A.R. Part 91, Section 91.126). Federal regulations establishing visual flight rules (VFR) must also be complied with (F.A.R. Part 91, Sections 91.151 *et seq*.).

A pilot guide has been published for Santa Paula Airport. (See "Welcome to Santa Paula Airport", published June 1996.) It notes several noise abatement and other operating procedures. The developed part of the City north of the freeway and a mobile home park west of the airport are specifically called out as noise-sensitive areas. Runway 22 is designated the calm wind runway. Pilots are instructed to use a left-hand pattern on this runway. A right-hand pattern has been established for Runway 4. This keeps the traffic pattern south of the airport and off the City. Pilots are instructed to maintain an altitude of 1,500 feet MSL on the



Source:

City of Santa Paula, Ventura County Assessor's Map, V.C.O.M. Vol. 1, Pg. 30, 32, 33; Dated 7/1/97.

Victor M. Warren Engineering, Santa Paula Airport Hangar Map; Dated 3/6/96.

AIRPORT DATA

Santa Paula Airport (SZP)

CITY: Santa Paula, California		COUNTY: Ventura, California
RANGE: – TOWNSHIP: –		CIVIL TOWNSHIP: –

		EXISTING
AIRPORT SERVICE LEVEL		General Aviation
AIRPORT REFERENCE CODE		A-1
DESIGN AIRCRAFT		–
AIRPORT ELEVATION		245 MSL
MEAN MAXIMUM TEMPERATURE OF HOTTEST MONTH		85.4° F
AIRPORT REFERENCE POINT (ARP) COORDINATES (NAD 83)	Latitude	34° 20' 49.998" N
	Longitude	119° 3' 40.374" W
AIRPORT and TERMINAL NAVIGATIONAL AIDS		– – – – – –
GPS Approach		–

LEGEND

EXISTING	ULTIMATE	DESCRIPTION
(magenta dashed line)		AIRPORT PROPERTY LINE
(brown fill)		BUILDING
	(red line) BRL	BUILDING RESTRICTION LINE (BRL)
(double line)		PAVEMENT
(dashed line)		MUNICIPAL BOUNDARY

Exhibit 4D
SANTA PAULA AIRPORT LAYOUT

upwind leg over the city and to enter the pattern with a 90-degree turn from the upwind to the crosswind leg. Forty-five degree pattern entries are discouraged.

Other noise abatement procedures are as follows:

- Long straight-in approaches are discouraged.
- Overhead approaches are discouraged.
- Helicopters need prior written permission to operate at the airport.
- All helicopter arrivals and departures must be south of the runway and are not to cross over the runway.
- Touch-and-goes are not permitted on weekends.
- Night operations are not permitted. (The airport is unlighted.)

4.7 AIRPORT ACTIVITY DATA

Detailed airport activity data are needed for noise modeling and for establishing airport safety zones and standards. Among the most important information is the number of aircraft operations (takeoffs and landings), the mix of aircraft types using the airport, runway use percentages, and flight tracks. This section summarizes key airport activity data.

4.7.1 OPERATIONS

Air traffic statistics at Santa Paula Airport are not regularly recorded since the airport does not have an airport traffic control tower. Aircraft operations (takeoffs and landings) are currently estimated by airport management at approximately 52,000 per year. It is estimated that 14,000 are itinerant operations with origins and destinations away from the immediate airport area. The remaining 38,000 are estimated to be local operations, primarily touch-and-goes. This is summarized in **Table 4B**.

Operations forecasts used by the California Department of Transportation Aeronautics Program indicate that total operations at Santa Paula Airport will remain relatively constant through the year 2015. Working from a 1993 base year estimate of 50,090 operations, the 2015 forecast shows 51,192 operations (SCAG 1996, p. XI-24).

For purposes of the noise analysis undertaken in this study, operations at Santa Paula Airport are anticipated to remain constant at 52,000 per year.

4.7.2 FLEET MIX

An estimate of the mix of aircraft using the airport was developed by the consultant based on the proportions of aircraft based at the airport. (In 1997, 255 aircraft were reported to be based at the airport, including 248 single engine aircraft, six multi-engine aircraft, and one helicopter.) The estimated operational fleet mix is shown in **Table 4C**. Most operations are conducted by light single engine aircraft. Only about 2,500 operations per year are by twin-engine aircraft. An estimated 800 annual operations are by helicopters.

TABLE 4B
Estimated Current and Forecast Operations
Santa Paula Airport

Operations	1997 and 2015
Itinerant	
General Aviation/ Fixed Wing	13,200
Helicopter	800
Local	
General Aviation/ Fixed Wing	38,000
Total	52,000

Source: AirNav information from the World Wide Web, www.airnav.com/cgi-bin/airport.info?SZP, and interview with airport manager.

For purposes of the noise analysis, it was assumed that the current fleet mix would be a reasonable projection of the forecast fleet mix since no growth in operations is projected nor are any significant changes to the airfield.

4.7.3 RUNWAY USE

The airport manager estimates that 90 percent of arrivals and departures are on Runway 22. This is because of the prevailing westerly winds and the designation of the runway as the calm wind runway.

4.7.4 FLIGHT TRACKS

Exhibit 4E, Santa Paula Airport Generalized Flight Tracks, shows the prevailing flight tracks at the airport. The tracks designating the traffic pattern are based on the published pilot guide.

4.8 AIRPORT NOISE EXPOSURE

Exhibit 4F, 2015 Noise Exposure -- Santa Paula Airport, shows noise contours for the airport based on both current and projected future conditions in the year 2015. The 60 CNEL noise contour is cigar shaped with a small arrival spike to the northeast of the airport. It extends 3,000 feet west of the runway end and 600 feet east of the runway end. At its widest point, the 60 CNEL contour spans 1,800 feet., centered on the runway. The 65 CNEL contour has a similar shape as the 60 CNEL but without the arrival spike on the east side. It extends 1,500 feet off the west end of the runway. The 70 and 75 CNEL noise contours remain close to Runway 4-22 and are elongated about the runway centerline.

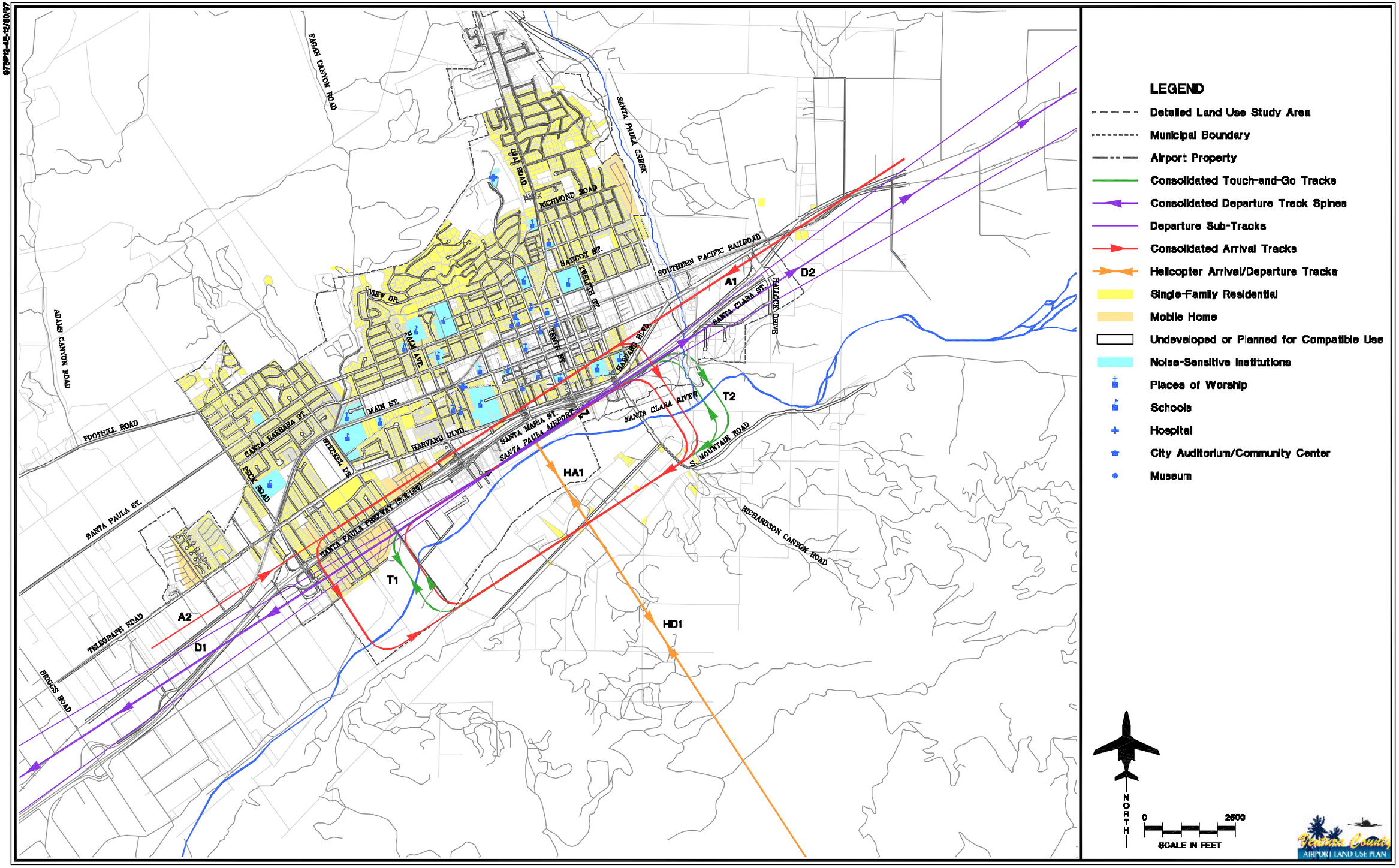


Exhibit 4E
SANTA PAULA AIRPORT
GENERALIZED FLIGHT TRACKS

Exhibit 4F
2015 NOISE EXPOSURE
SANTA PAULA AIRPORT

TABLE 4C
Annual Operations by Aircraft Type
Santa Paula Airport

	1997 and 2015
Itinerant Operations	
General Aviation	
Twin Engine	660
Light Single-Variable Pitch Prop.	6,270
Light Single-Fixed Pitch Propeller	6,270
Bell 206 Helicopter	800
Subtotal -- Itinerant	14,000
Local Operations	
GENERAL AVIATION	
Light Twin	1,900
Light Single-Variable Pitch Prop.	18,050
Light Single-Fixed Pitch Propeller	18,050
Subtotal -- Local	38,000
Total	52,000

Source: Estimates by Coffman Associates based on AirNav information (www.airnav.com/cgi-bin/airport.info?SZP) and interview with airport manager.

The shape of the contours reflects the prevailing runway use. Most departures are to the southwest on Runway 22. Since departures are generally louder than arrivals, the noise contours are larger to the southwest.

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Chapter Five
NAS POINT MUGU AND ENVIRONS

Chapter Five
NAS POINT MUGU AND ENVIRONS

This chapter presents an overview of Naval Air Station (NAS) Point Mugu and the surrounding area. The information in this chapter includes:

- A description of the study area and existing land uses in the area.
- A discussion of the local land use planning and regulatory framework in the study area.
- A description of key aviation facilities and navigational aids.
- A description of noise abatement procedures, airport activity, and flight tracks.
- A description of noise exposure around the airport.

5.1 AIRPORT SETTING

NAS Point Mugu lies approximately six and one-half miles southeast of Oxnard on the Pacific coast. Access to the facility is provided by State Route 1 which defines the eastern boundary of the base.

5.2 STUDY AREA

Exhibit 5A, NAS Point Mugu Study Area and Jurisdictional Boundaries, shows an area of nearly 88 square miles around Point Mugu. It includes most o the City of Port Hueneme, much of the City of Oxnard, the south part of the City of Camarillo, and a small part of the City of Thousand Oaks. Much of the area on the map is unincorporated Ventura County.

In the middle of the map is an irregular shaped area designated the "detailed land use study area." The size and shape of the area accommodates the outer boundary of the F.A.R. Part 77 conical surface and the 60 CNEL noise contour around the airport. Existing and future land use designations will be mapped in this area. It is anticipated that airport compatibility concerns will be concentrated within the detailed land use study area.

5.3 EXISTING LAND USE

Exhibit 5B, Generalized Existing Land Use in Point Mugu Area, shows existing land use in the study area. The land use classification system, shown in **Table 5A**, has been designed to fit the requirements of airport noise compatibility planning. Residential land use and noise-sensitive institutions are identified. The other land use categories, which are generally considered to be compatible with aircraft noise, include commercial, industrial, transportation, and utilities; agriculture; parks and open space; and undeveloped land.

Most of the study area is farmland. Commercial, industrial, transportation, and utilities uses are concentrated at NAS Point Mugu and along the coast to the west. The commercial-industrial uses dotting the study area are agriculture-related uses such as greenhouses and storage and processing buildings. Residential areas lie to the west in Oxnard, to the north in Camarillo, and at the Point Mugu facility itself. Three noise-sensitive uses are in the study area, including two schools in Oxnard and the sprawling campus of the Camarillo State Hospital directly northeast of NAS Point Mugu.

5.4 LAND USE PLANNING POLICIES AND REGULATIONS

The State of California requires all local governments to enact a "general plan" establishing framework policies for future development of the city or county. (See Government Code, Sections 65300, *et seq*.) The local general plan is the most important land use regulatory instrument in California. It establishes overall development policy and provides the legal foundation for all other kinds of land use and development regulation in the community. According to California law, the general plan must contain at least seven elements: land use, circulation, housing, conservation, open space, noise, and safety (Curtin 1996, pp. 9-10). Other elements may be prepared as needed and desired.

The policies of the general plan are implemented through ordinances regulating development. Chief among these is the zoning ordinance. Zoning regulates the use of land, the density of development, and the height and bulk of buildings. Subdivision regulations are another important land use regulatory tool, regulating the platting of land. Local communities also regulate development through building codes which set detailed standards for construction.

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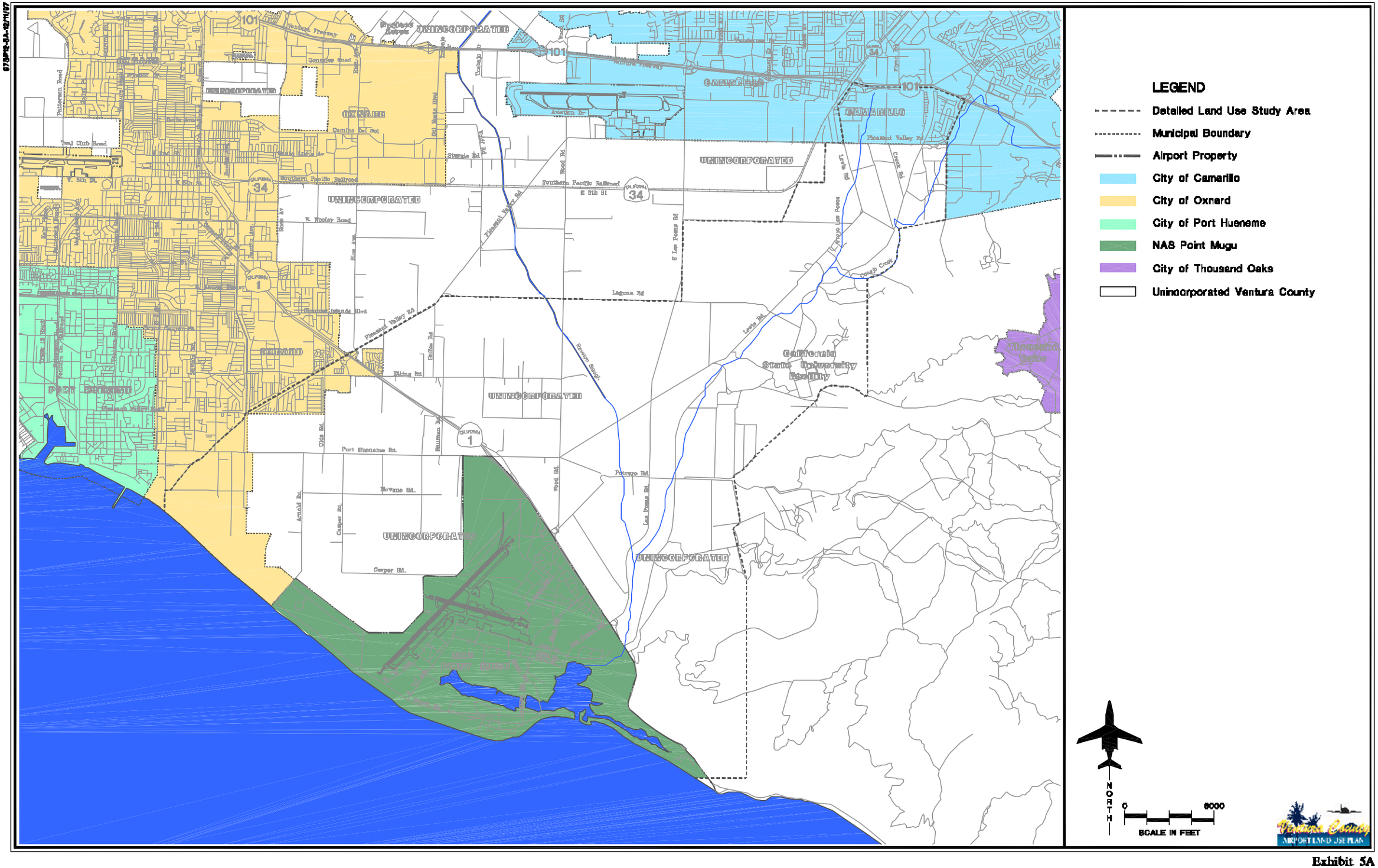

Exhibit 5A
NAS POINT MUGU STUDY AREA
AND JURISDICTIONAL BOUNDARIES

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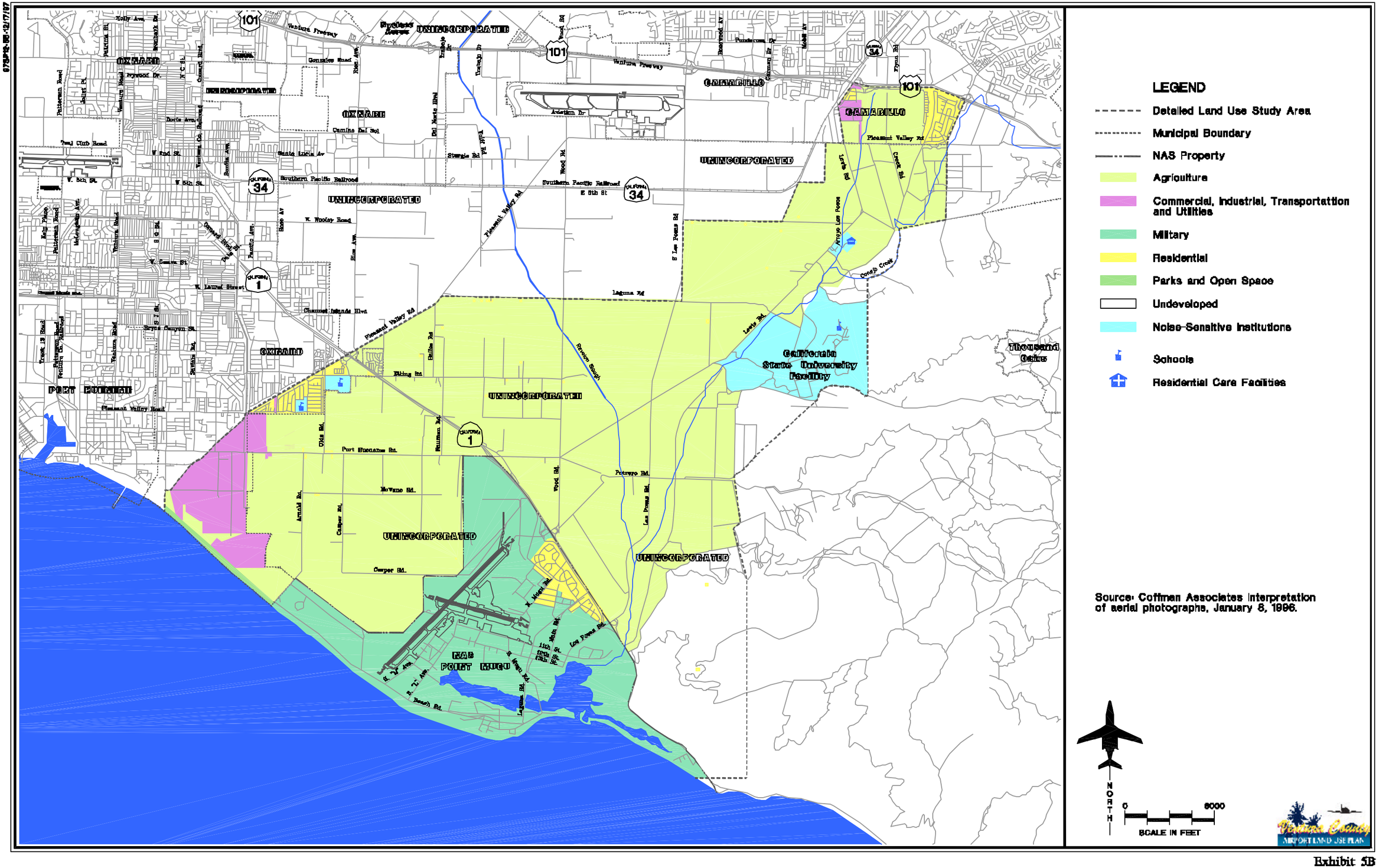

Exhibit 5B
GENERALIZED EXISTING LAND USE
IN POINT MUGU AREA

TABLE 5A
Land Use Categories Shown on Existing Land Use Map

Category	Land Uses Included
Residential	Single-family homes; Duplexes; Townhouses; Apartment and condominium buildings; Mobile and manufactured homes.
Commercial, Industrial, Transportation, Utilities	Businesses; Offices; Industrial uses; Utilities; Transportation facilities; Intensively developed commercial agriculture areas including equipment storage areas and greenhouses.
Noise-Sensitive Institutions	Places of worship; Schools; Nursing homes; Residential group quarters; Hospitals; Community centers.
Agriculture	Orchards; Cultivated fields.
Parks and Open Space	Parks; Golf courses; Cemeteries; Ponds; Nature preserves.
Undeveloped	Vacant lots; Open parcels of uncultivated land.

Exhibit 5C, Future Land Use Plan in Point Mugu Area, shows the land use designations of the general plans in the study area. This section briefly summarizes the general plans of the study area jurisdictions. A more detailed discussion of each jurisdiction's general plan is in Appendix B.

5.4.1 CAMARILLO GENERAL PLAN

The Land Use Element of the Camarillo General Plan establishes the basic pattern for future development of the City (City of Camarillo 1996, p. 28). The main theme of the Land Use

Element is the desire to preserve the quality of life that exists through much of the area and specifically to "promote Camarillo as a rural suburban community that has a quality, small town, family atmosphere." It includes sets of principles, standards, and proposals for each of seven land use categories: agricultural, residential, commercial, industrial, urban reserve, public uses, and quasi-public uses.

The Noise Element of the General Plan establishes policies that promote compatible land uses within areas exposed to high noise levels. Exhibit B1 in Appendix B shows guidelines used in Camarillo to assess the compatibility of proposed land uses with noise of various magnitudes. The policies also require developers of proposed residential and noise-sensitive uses within a 60 CNEL contour to submit noise study reports for both exterior and interior living spaces. Interiors must be sound-insulated to achieve an indoor noise level of 45 CNEL or less (City of Camarillo 1996, p. 420).

The General Plan Map designates proposed land uses throughout the City's sphere of influence. The "sphere of influence" is an area defined by the Local Agency Formation Commission (LAFCO) which delineates the limits beyond which a city cannot annex territory. It includes the land within the city limits and unincorporated land within the City's service area.

Exhibit 5C shows the Camarillo General Plan land use designations within the NAS Point Mugu study area. Only a small area at the extreme northern end of the study area, generally lying between the Ventura Freeway (U.S. 101) and Pleasant Valley Road, is covered by the Camarillo General Plan. It shows a combination of residential, agricultural, and industrial land use

5.4.2 OXNARD GENERAL PLAN

The Oxnard General Plan was adopted in 1990. It includes eleven planning elements: growth management, land use, circulation, public facilities, open space/conservation, safety, noise, economic development, community design, parks and recreation, and housing. The Noise Element includes several goals and policies related to airport compatibility planning (City of Oxnard 1990, p. IX-16). The most directly relevant says that "municipal policies shall be consistent with the Ventura County Airport Comprehensive Land Use Commission's adopted land use plan. . ."

The City also has developed a Coastal Land Use Plan for the coastal zone (City of Oxnard 1982.) Policies and land use designations of the Coastal Land Use Plan have been incorporated into the City's General Plan.

Exhibit 5C shows the future land use plan for the Oxnard portion of the Oxnard Airport study area. Land west and northwest of Point Mugu in the Oxnard planning area is designated for a combination of commercial-industrial, medium to high density residential, and low density residential uses.

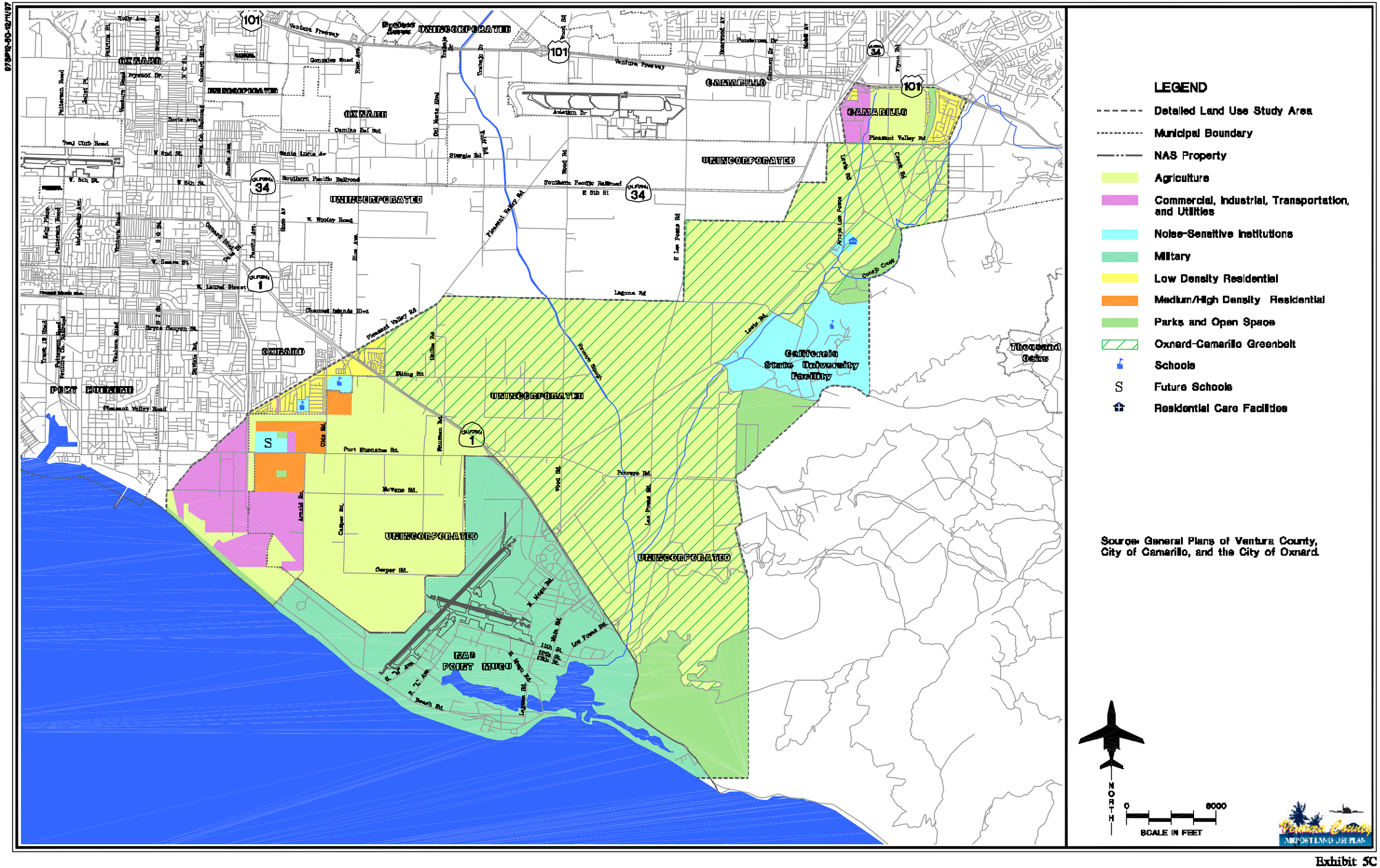

Exhibit 5C
FUTURE LAND USE PLAN
IN POINT MUGU AREA

5.4.3 VENTURA COUNTY GENERAL PLAN

The Ventura County General Plan was adopted in 1988 and has been amended several times since then. The Plan includes several documents. The overall framework of goals and policies is in a document called *Goals, Policies and Programs* (Ventura County 1996a.) Supporting documentation is in a series of technical appendices (Ventura County 1994a, 1994b, 1994c, 1996b). The General Plan also includes several area plans where local issues and concerns are dealt with in greater detail than in the framework document. Ventura County also has *Coastal Area Plan* (Ventura County 1996c). It establishes various land use and conservation policies in the coastal zone.

As shown in **Exhibit 5C**, most of the area within the County's jurisdiction in the NAS Point Mugu Study Area is designated as agriculture. Agriculture is a major industry in Ventura County. The County General Plan establishes policies to encourage the preservation of prime farmland. Among them is a policy to retain and expand existing Greenbelt Agreements in the County and to encourage the formation of additional agreements (Ventura County 1996a, p. 21). Greenbelt agreements have been formed between various cities in Ventura County. They delineate areas between the cities which are declared off limits to urban development and are to be preserved for agriculture and open space. The cities of Oxnard and Camarillo have a greenbelt agreement for much of the area between the two cities, part of which is in the Point Mugu study area.

Other land uses designated in the Ventura County General Plan include the Camarillo State Hospital and small amounts of open space along the east edges of the study area.

The County General Plan also includes policies relating to airport hazards and noise compatibility. Land in airport approach and departure zones is to be designated for agriculture or open space uses (Ventura County 1996a, p. 20). Noise-sensitive land uses are not permitted where airport noise exceeds 65 CNEL. These uses may be permitted in the 60 to 65 CNEL contour only if measures are taken to reduce interior noise levels to 45 CNEL or less.

5.5 AIRPORT FACILITIES

Existing facilities at NAS Point Mugu are shown in **Exhibit 5D, NAS Point Mugu Airport Layout Plan**.

5.5.1 RUNWAYS

NAS Point Mugu is served by two paved runways -- Runway 3-21 which is 11,100 feet long by 200 feet wide, and Runway 9-27 which is 5,500 feet long by 200 feet wide. Runway 3-21 is the main runway and serves most takeoffs and landings.

5.5.2 TAXIWAYS

Runway 3-21 is served by partial parallel taxiways on the east side in addition to four exit taxiways. Runway 9-27 is served by a full length parallel taxiway on the south side of the runway in addition to two exit taxiways. **Exhibit 5D** shows the location of the taxiways.

5.5.3 AIRCRAFT ACTIVITY AREAS

Aircraft parking ramps are located on both sides of Runway 9-27 and on the east side of Runway 3-21. Numerous hangars and aviation support buildings adjoin the ramps.

5.5.4 INSTRUMENT APPROACHES

Instrument approaches are defined using electronic and visual navigational aids to assist pilots in landing when visibility is reduced below specified minimums. Instrument approaches are classified as precision and nonprecision. Both provide runway alignment and course guidance, while precision approaches also provide glide slope information for the descent to the runway.

NAS Point Mugu has both precision and non-precision approaches to Runways 3 and 21. Runways 9 and 27 have only visual approaches.

5.6 AVIATION ACTIVITY

Airport activity data are needed for noise modeling and for establishing airport safety zones and standards. Among the most important information is the number of aircraft operations (takeoffs and landings), the mix of aircraft types using the airport, runway use percentages, and flight tracks. This section summarizes key airport activity data.

5.6.1 OPERATIONS

Air traffic activities at NAS Point Mugu are recorded by the Air Traffic Control Tower. **Table 5B** summarizes annual operations at Point Mugu for 1995 and 1996. They are classified as military, air carrier, and general aviation. The air carrier category includes special charter flights carrying military personnel. The general aviation category includes operations by contractors or rented aircraft.

In 1995, operations totaled 25,166. They increased by nearly 50 percent to 37,334 in 1996. Military activity increased by nearly 10,000 operations from 1995 to 1996.

97BP12-5D-12/11/97

Exhibit 5D
NAS POINT MUGU
AIRPORT LAYOUT PLAN

TABLE 5B
Annual Operations (Takeoffs and Landings) History -- 1995 and 1996
NAS Point Mugu

Year	Military	Air Carrier	General Aviation	Total
1995	19,866	1,183	4,117	25,166
1996	29,497	1,898	5,939	37,334

Source: Air Traffic Activity Reports from Point Mugu ATC.

5.6.2 FLEET MIX

In 1997, nine different military aviation units were based at NAS Point Mugu. The aircraft include 23 C-130s, 18 F-14s, 14 P-3s, 11 F-4s, and 8-HH-60 helicopters. The FBI has two light aircraft and two helicopters based at Point Mugu. Four other turboprop aircraft (one CV-340 and three CV-580) are used to shuttle personnel from base to base. In addition, F/A-18 aircraft based at China Lake frequently use Point Mugu for weapons systems operations. Transient and rental helicopters are often used at the facility for target retrieval and for transporting personnel (Norris 1997). A wide variety of transient aircraft use Point Mugu on occasion.

In 1990, an aircraft noise study was done for Point Mugu (HMMH 1990). The noise contours developed in that study were used in the 1992 AICUZ Study (Dames & Moore 1992). **Table 5C** shows the operational fleet mix used in developing that noise analysis. Helicopters (H-46, H-60, UH-1, and "transient") accounted for over 35 percent of operations (takeoffs and landings). The C-130 was the next most frequently used aircraft at 14.9 percent, followed by the F-18 at 13.4 percent. The P-3 was next with 8.5 percent. F-14s and A-7s accounted for 6.6 and 6.5 percent of operations, respectively. All other aircraft types accounted for less than five percent each.

5.6.3 RUNWAY USE

According to the 1992 AICUZ study, Runway 21 was the most commonly used runway accounting for 57 percent of arrivals and departures. Runway 3 was used for 23 percent of arrivals and departures. Runway 27 was used for 17 percent, and Runway 9 was used for 3 percent of operations (Dames & Moore 1992, p. 13).

5.6.4 FLIGHT TRACKS

Flight tracks were developed for use in the 1990 *Aircraft Noise Survey* (HMMH 1990). Sketches of flight tracks were developed by individual squadrons and cross-checked with tracings taken from air traffic control radar scopes (Dames

& Moore 1992, p. 10). This process resulted in a dense network of flight tracks, as shown in **Exhibits 5E** through **5J**.

TABLE 5C
Average Busy Day Operations by Aircraft Type -- 1990
NAS Point Mugu

Aircraft	Percent of Total Operations
Based Types	
A-3	2.5
A-6	1.1
A-7	6.5
C-12	3.5
C-130	14.9
F-4	3.2
F-14	6.6
F-18	13.4
F-86	1.4
H-46	4.2
H-60 and UH-1	28.8
P-3	8.5
Transient	
T-38	0.8
Other Fixed Wing	2.2
Helicopters	2.4
TOTAL	100.0

Source: HMMH 1990. Cited in Dames & Moore 1992, p. 12.

These flight tracks are generalized for purposes of analysis. Each track indicates the center of a corridor where aircraft can most often be expected. Individual flight paths will vary from time to time depending on a wide variety of circumstances, including weather, winds, pilot technique, air traffic control instructions, and other air traffic in the area.

5.7 AIRPORT NOISE EXPOSURE

Exhibit 5L, 1990 Noise Exposure -- NAS Point Mugu, shows the CNEL noise contours for the facility as presented in the 1992 AICUZ study (Dames & Moore 1992, p. 21). These were developed in a study undertaken in 1990 (HMMH 1990). These were the

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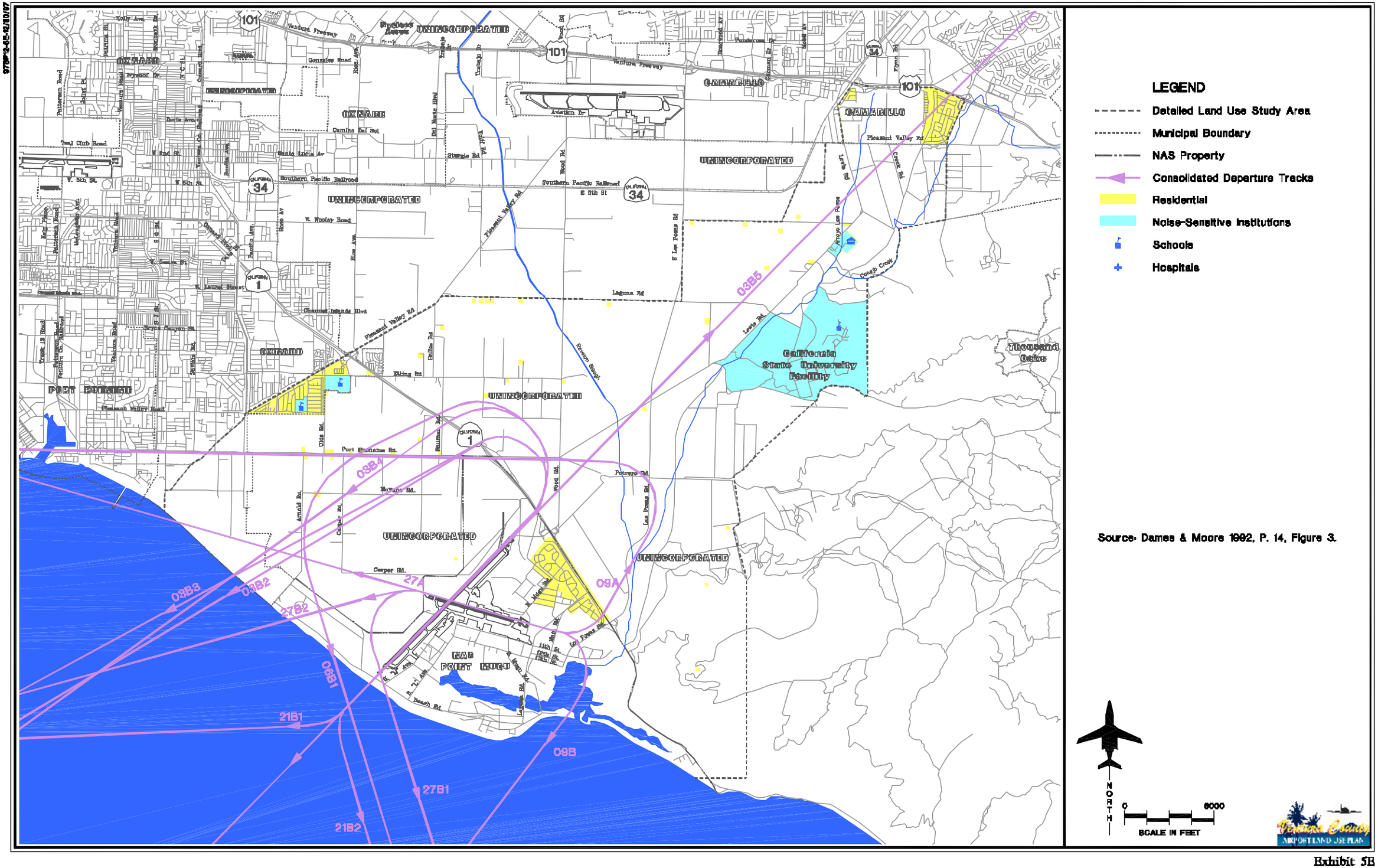

Source: Dames & Moore 1992, P. 14, Figure 3.

Exhibit 5E
NAS POINT MUGU
FIXED WING DEPARTURE TRACKS

Source: Dames & Moore 1992, P. 15, Figure 4.

Exhibit 5F
NAS POINT MUGU
OVERHEAD BREAK ARRIVAL TRACKS

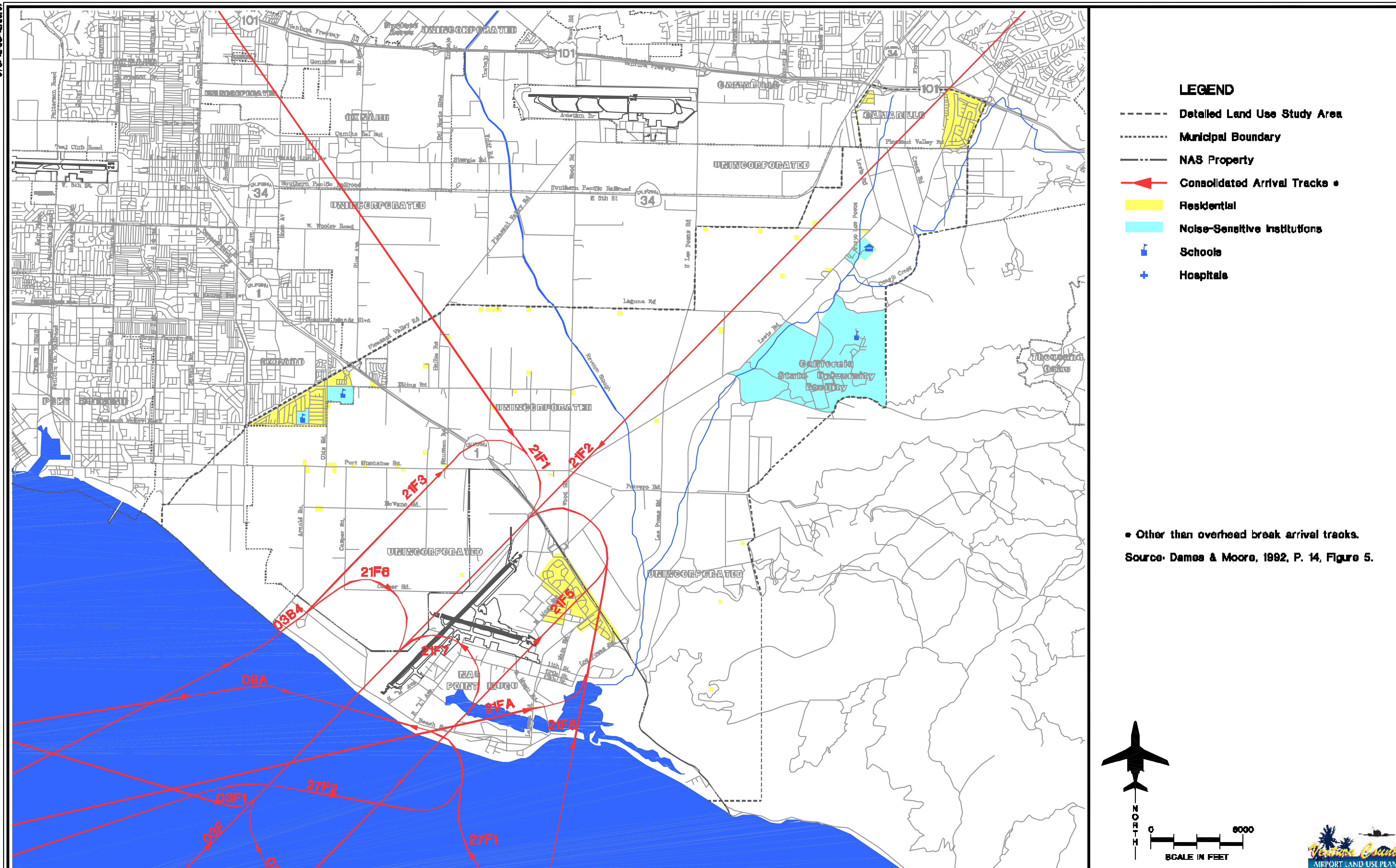
LEGEND
Detailed Land Use Study Area
Municipal Boundary
NAS Property
Consolidated Arrival Tracks *
Residential
Noise-Sensitive Institutions
Schools
Hospitals
* Other than overhead break arrival tracks.
Source: Dames & Moore, 1992, P. 14, Figure 5.
NORTH
0
6000
SCALE IN FEET
UNINCORPORATED
OXNARD
CAMARILLO
PORT HUENEME
California State University Facility
Thousand Oaks
NAS POINT MUGU
21F1
21F2
21F3
21F5
21F6
21F7
21FA
21F8
03B4
09A
27F2
03F1
27F1
03F
Ventura County Airport Land Use Plan

Exhibit 5G
NAS POINT MUGU
FIXED WING ARRIVAL TRACKS

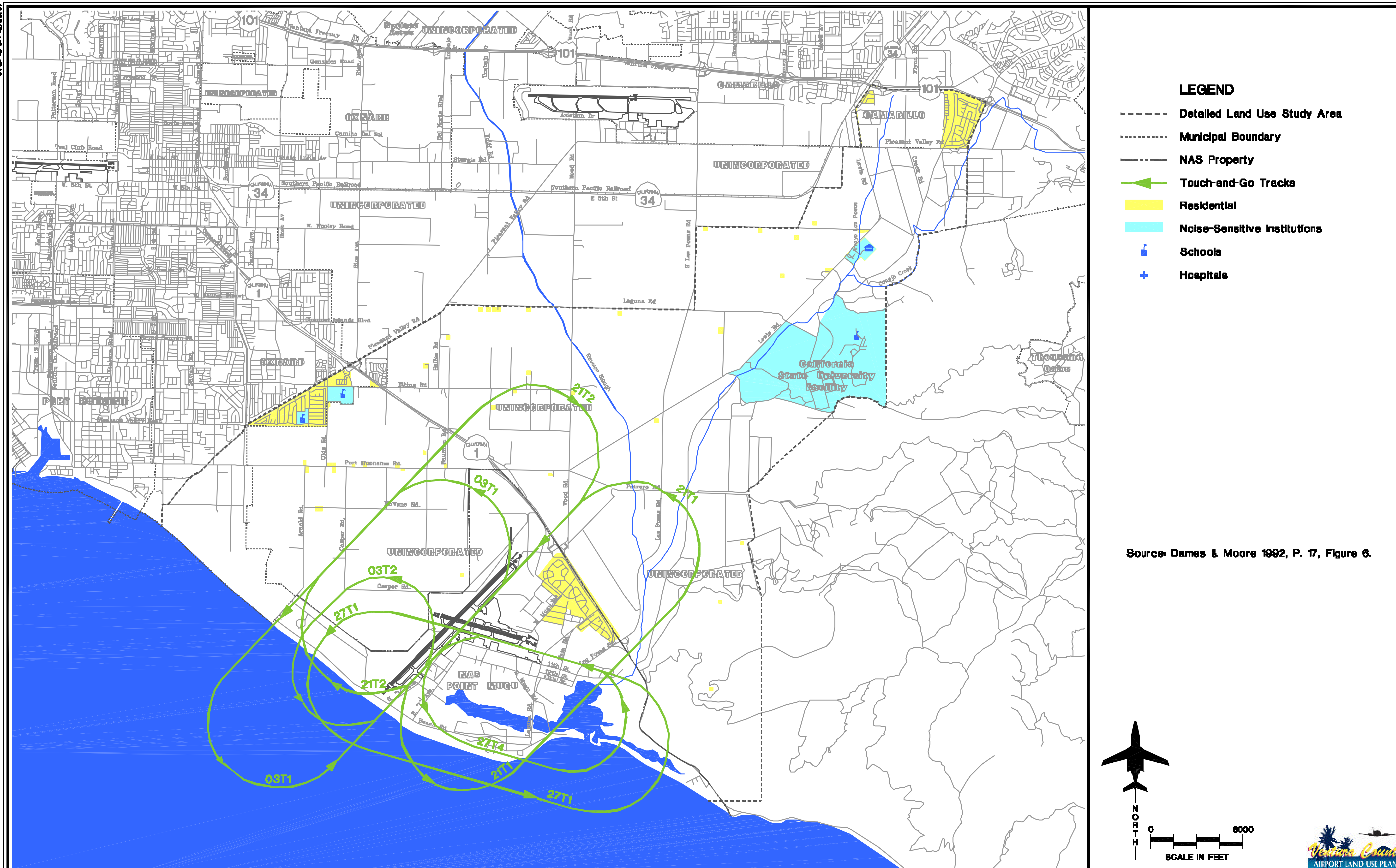

Exhibit 5H
NAS POINT MUGU
FIXED WING PATTERN TRACKS

97SP12-4-12/11/97

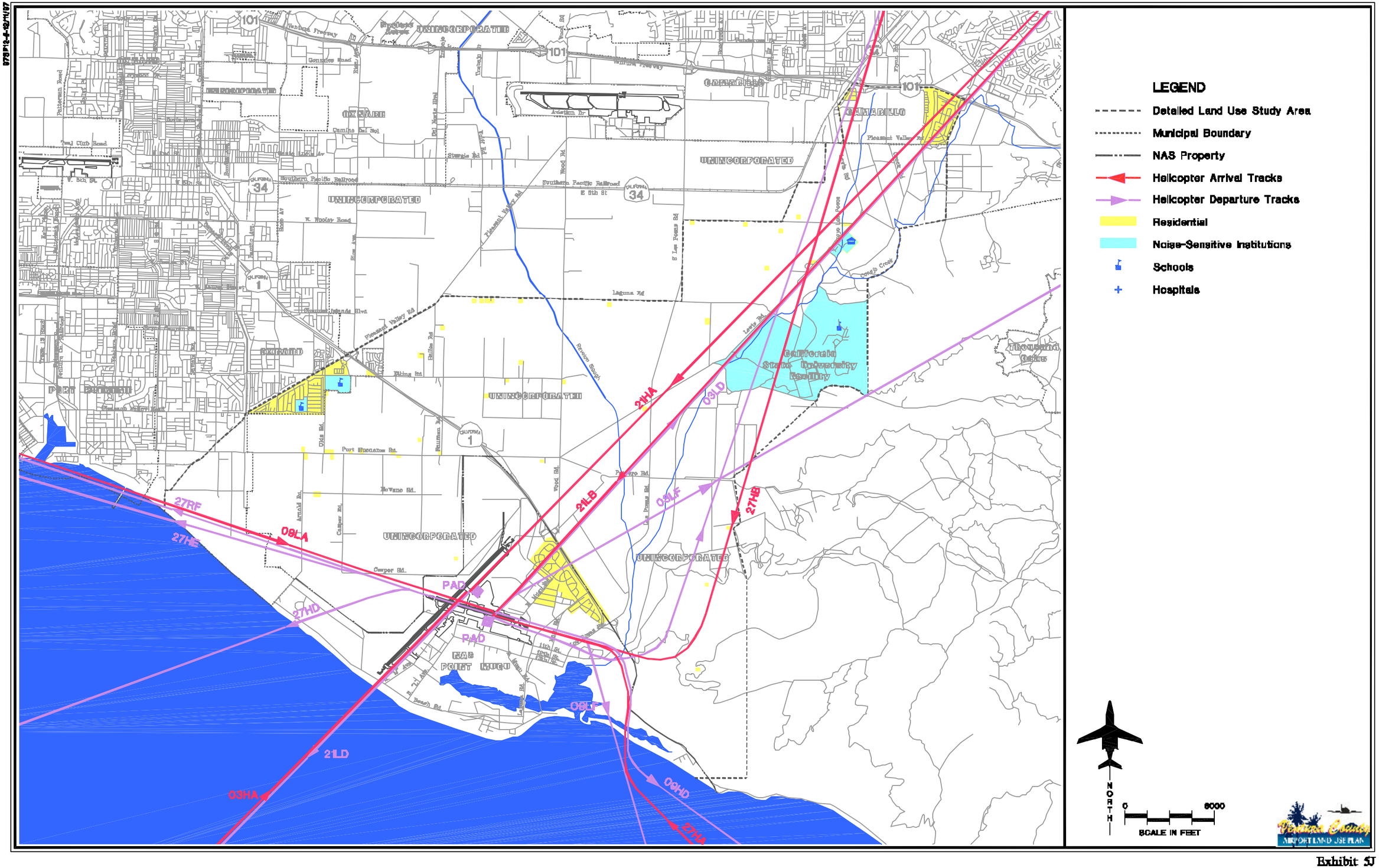

Exhibit 5J

NAS POINT MUGU ROTARY WING ARRIVAL AND DEPARTURE TRACKS

Source: Dames & Moore 1992, P. 19, Figure 8.

Exhibit 5K
NAS POINT MUGU
ROTARY WING PATTERN TRACKS

Source: Dames & Moore 1992, P. 23, Figure 9.

Exhibit 5L
1990 NOISE EXPOSURE
NAS POINT MUGU

only noise contours presented in the AICUZ study. These will be the contours used for planning purposes in the update of the Ventura County Comprehensive Land Use Plan.

The shape of the noise pattern reflects the prevalence of arrivals and departures on Runway 21. The contours are long and narrow to the northeast, reflecting the arrivals to Runway 21. Near the facility, the contours balloon out, reflecting the traffic patterns and overhead approach flight tracks. The 60 CNEL contour extends nearly 42,000 feet northeast of the runway end. At its widest point, it extends 28,000 feet across the airfield.

The 65 CNEL contour has a similar shape as the 60 CNEL contour. It extends 32,000 feet northeast of the runway end and has a width of 24,000 feet.

Most of the 75 CNEL contour is contained on the air station, although it crosses S.R. 1 northeast of Runway 3-21, and extends off the property on the west side of the facility.

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Chapter Six
ADOPTED AIRPORT COMPREHENSIVE LAND USE POLICIES

Chapter Six
ADOPTED AIRPORT COMPREHENSIVE LAND USE POLICIES

This chapter presents the adopted policy framework for noise and safety compatibility and airspace protection at all Ventura County airports.

6.1 NOISE COMPATIBILITY

6.1.1 NOISE COMPATIBILITY STANDARDS

The current noise compatibility standards remain substantially as they were in 1991. Some modifications have been adopted; they are reflected in **Table 6A**.

1. The current noise reduction measures should be revised to specify the noise level reduction (NLR) in terms of A-weighted decibels (dBA), rather than CNEL. This is a more standard way of expressing this concept.

2. For all conditionally acceptable land uses, the recording of a fair disclosure agreement and covenant shall be required. (A sample fair disclosure agreement is in Appendix D.)

3. The "recommendation" for noise disclosure covenants and avigation easements for residential uses outside the 60 CNEL but inside the Traffic Pattern Zone has been deleted from the noise compatibility standards table. This has been transferred to the table of safety compatibility standards since it is a requirement relating directly to a safety zone rather than a noise contour.

4. The former footnote "j" has been deleted. It had not been referenced in the original table and more properly relates to safety compatibility standards. (Footnote "j" read as follows: "Land uses involving concentrations of people are unacceptable.")

Table 6A shows the adopted land use compatibility standards related to noise.

TABLE 6A
Adopted Land Use Compatibility Standards
Related to Aircraft Noise for Ventura County Airports

	CNEL Range (dB)				
Land Use	**60-65**	**65-70**	**70-75**	**75-80**	**Over 80**
Residential [l]					
Single Family	C [a]	U	U	U	U
Multi-Family	C [a]	U	U	U	U
Mobile Home Parks	U	U	U	U	U
Public/Institutional					
Hospitals/Convalescent Homes	C [a]	C [b]	U	U	U
Schools	C [a]	C [b]	U	U	U
Churches/Synagogues	C [a]	C [b]	U	U	U
Auditoriums/Theaters	C [a]	C [b]	C [c]	U	U
Transportation Terminals	A	A	C [d]	C [e]	C [f]
Communication/Utilities	A	A	C [d]	C [e]	C [f]
Automobile Parking	A	A	C [d]	C [e]	C [f]
Commercial					
Hotels and Motels	C [a]	C [b]	C [c]	U	U
Offices and Business/ Professional Services	A	A	C [g]	C [h]	U
Wholesale	A	A	C [d]	C [e]	C [f]
Retail	A	A	C [g]	C [h]	U
Industrial					
Manufacturing - General/ Heavy	A	A	C [d]	C [e]	C [f]
Light Industrial	A	A	C [d]	C [e]	C [e]
Research and Development	A	A	C [d]	C [e]	C [e]
Business Parks/Corporate Offices	A	A	C [d]	C [e]	C [e]
Recreation/Open Space					
Outdoor Sports Arenas	A	C	C	U	U
Outdoor Amphitheaters	U	U	U	U	U
Parks	A	A	A	U	U
Outdoor Amusement	A	A	A	U	U
Resorts and Camps	A	A	A	U	U
Golf Courses and Water Recreation	A	A	A	U	U
Agriculture	A	A	A	A	A

TABLE 6A (Continued)
Adopted Land Use Compatibility Standards
Related To Aircraft Noise For Ventura County Airports

NOTES

A = Acceptable land use
C = Land use is conditional upon meeting compatibility criteria (see footnotes)
U = Unacceptable land use

A fair disclosure covenant shall be recorded for all conditionally acceptable land uses.

[a] New construction or development may be undertaken only after an analysis of noise reduction requirements and necessary noise insulation is included in the design.

[b] Noise level reduction [NLR] from outdoor to indoor of at least 25 A-weighted decibels (dBA) must be achieved by incorporation of noise attenuation into the design and construction of the structure.

[c] Noise level reduction [NLR] from outdoor to indoor of at least 30 dBA must be achieved by incorporation of noise attenuation into the design and construction of the structure.

[d] Measures to achieve NLR of 25 dBA 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.

[e] Measures to achieve NLR of 30 dBA 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.

[f] Measures to achieve NLR of 35 dBA 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.

[g] Noise level reduction [NLR] of 25 dBA is required.

[h] Noise level reduction [NLR] of 30 dBA is required.

[i] Noise level reduction [NLR] of 35 dBA is required.

6.1.2 REGULATORY NOISE CONTOURS

Noise contours for each airport have been updated to represent the latest information. The contours chosen as the basis for noise compatibility regulation represent the area of noise exposure risk now and into the future.

At Camarillo Airport, a composite set of noise contours are used based on the combination of the 2003 and 2018 forecasts developed in the latest F.A.R. Part 150 Noise Compatibility Study. (This is consistent with the methodology used in the 1991 CLUP.) The forecasts are similar to each other but differ in small ways in different areas. The contours for Camarillo Airport are shown in **Exhibits 6A.**

As the Oxnard Airport Master Plan has not yet been adopted, no changes are recommended for the Oxnard Airport. Therefore, noise contours for the Oxnard Airport will be the same as shown in the 1991 CLUP, which is shown in **Exhibit 6B**.

At Santa Paula Airport, the 2015 forecast contours developed for this study have been used as the regulatory noise contours. These are shown in **Exhibit 6C**.

At NAS Point Mugu, the 1990 contours presented in the most recent version of the Air Installation Compatible Use Zones (AICUZ) Study have been used. These are the most up-to-date noise contours available for that facility and are the same as those in the 1991 CLUP. The contours are shown in **Exhibit 6D**.

6.2 SAFETY COMPATIBILITY

6.2.1 SAFETY ZONES

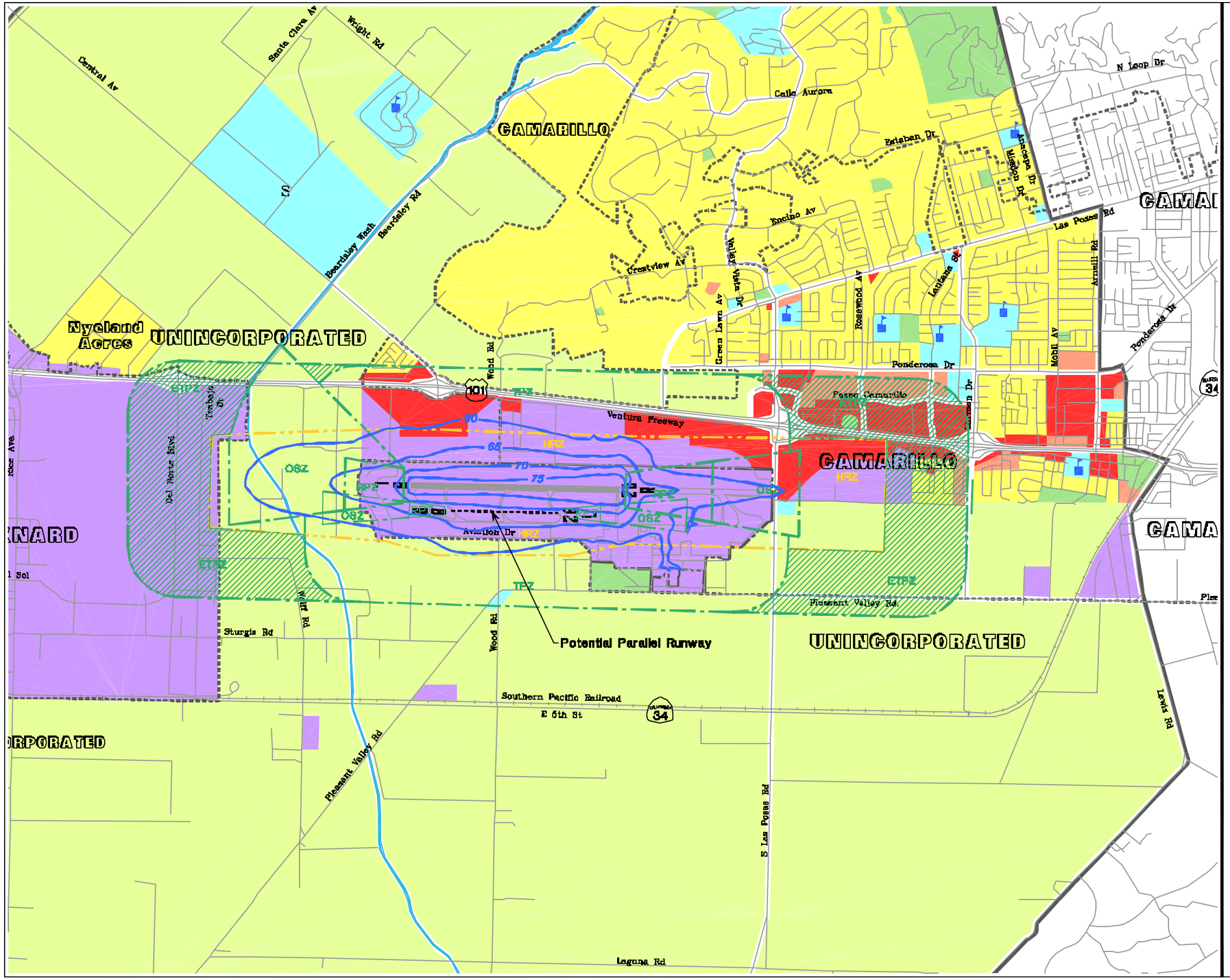
At NAS Point Mugu, a new safety zone has been added. The new zone is called the Traffic Pattern Zone (TPZ) and is based on the outer boundary of the F.A.R. Part 77 horizontal surface. The horizontal surface extends 7,500 feet off all runway ends. All other zones remain as shown in the latest version of the AICUZ study. The NAS Point Mugu safety zones are shown in **Exhibit 6D**.

At the civilian airports, several adjustments have been made.

1. The Inner Safety Zone (ISZ) has been renamed the Runway Protection Zone (RPZ) and corresponds with the RPZ as shown in the latest adopted Master Plan/Airport Layout Plan for each airport.

2. The Outer Safety Zones (OSZ) continues to be located immediately outside the RPZ and has been adjusted in width depending on any changes made in the RPZ. At Camarillo, they should continue to extend out 5,000 feet from the edge of the primary surface. At Santa Paula, they should extend out 3,500 feet from the edge of the primary surface. (The primary surface ends 200 feet off the runway end.)

3. At Camarillo, the OSZ off the west end of the runway has been adjusted to reflect the common right turns made by departing aircraft. The north boundary has been drawn at a 45-degree angle from the extended runway centerline, starting at the northeast corner of the RPZ. It should extend out 5,000 feet. (This is a small adjustment in the zone as formerly mapped. It had used an angle of approximately 41 degrees which appears to have been a mapping error.)



LEGEND

- Detailed Land Use Study Area
- Municipal Boundary
- Airport Property
- Potential Parallel Runway *
- Composite CNEL Contour (2003,2018)
- RPZ — Runway Protection Zone
- OSZ — Outer Safety Zone
- HRZ — Height Restriction Zone
- TPZ — Traffic Pattern Zone
- ETPZ — Extended Traffic Pattern Zone

Future Land Use Per General Plan

- Low Density Residential
- Medium/High Density Residential
- Commercial
- Industrial
- Agriculture
- Parks/Natural Open Space
- Public/Quasi-Public
- Schools
- S — Future School Site

Source: Future land use from City of Camarillo, 1996, City of Oxnard, 1990.

* The parallel runway is being included in the CLUP for information purposes only.

NORTH

0 3000

SCALE IN FEET

Ventura County Airport Land Use Plan

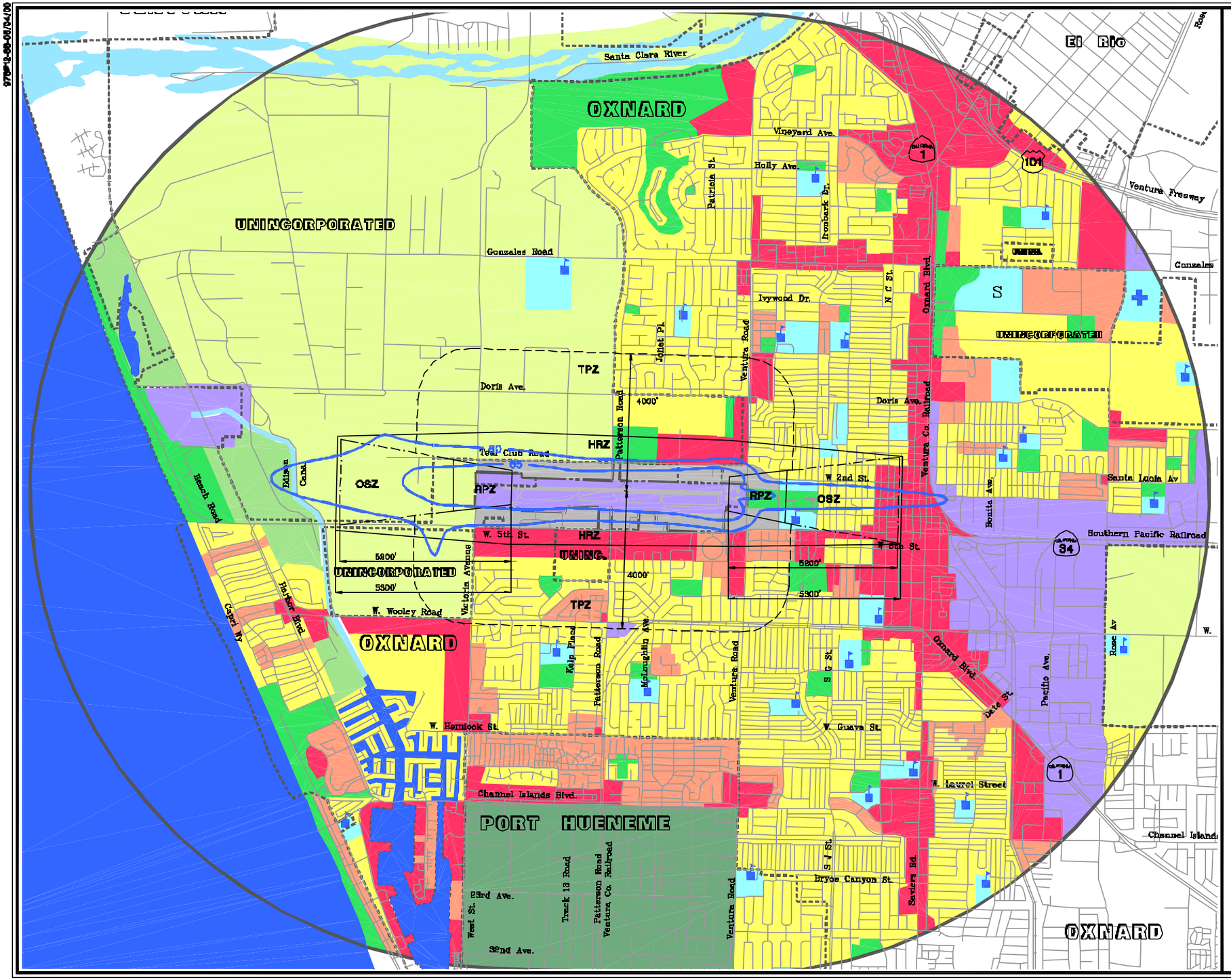


Exhibit 6B
1991 AIRPORT COMPREHENSIVE LAND USE PLAN
FOR OXNARD AIRPORT

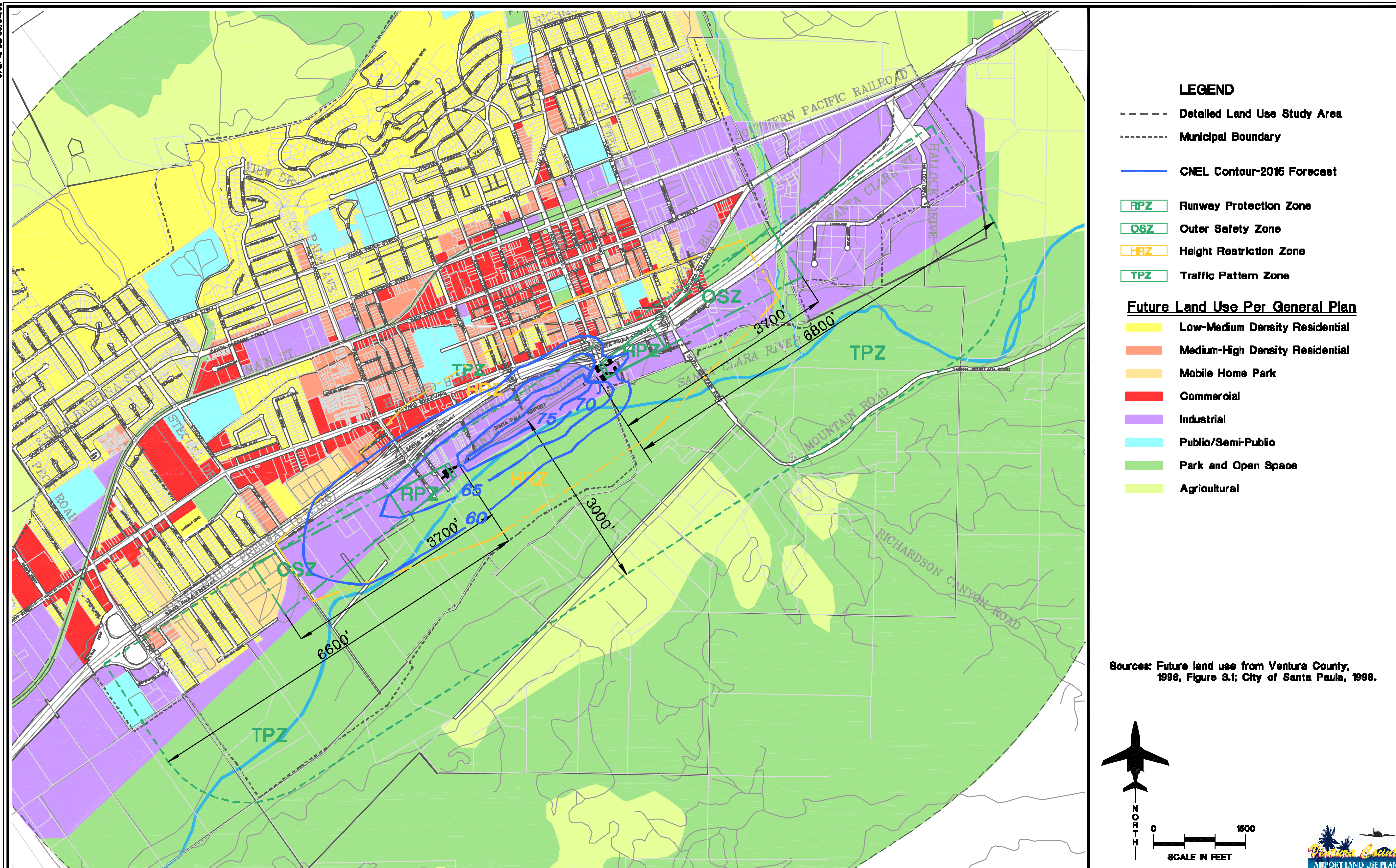
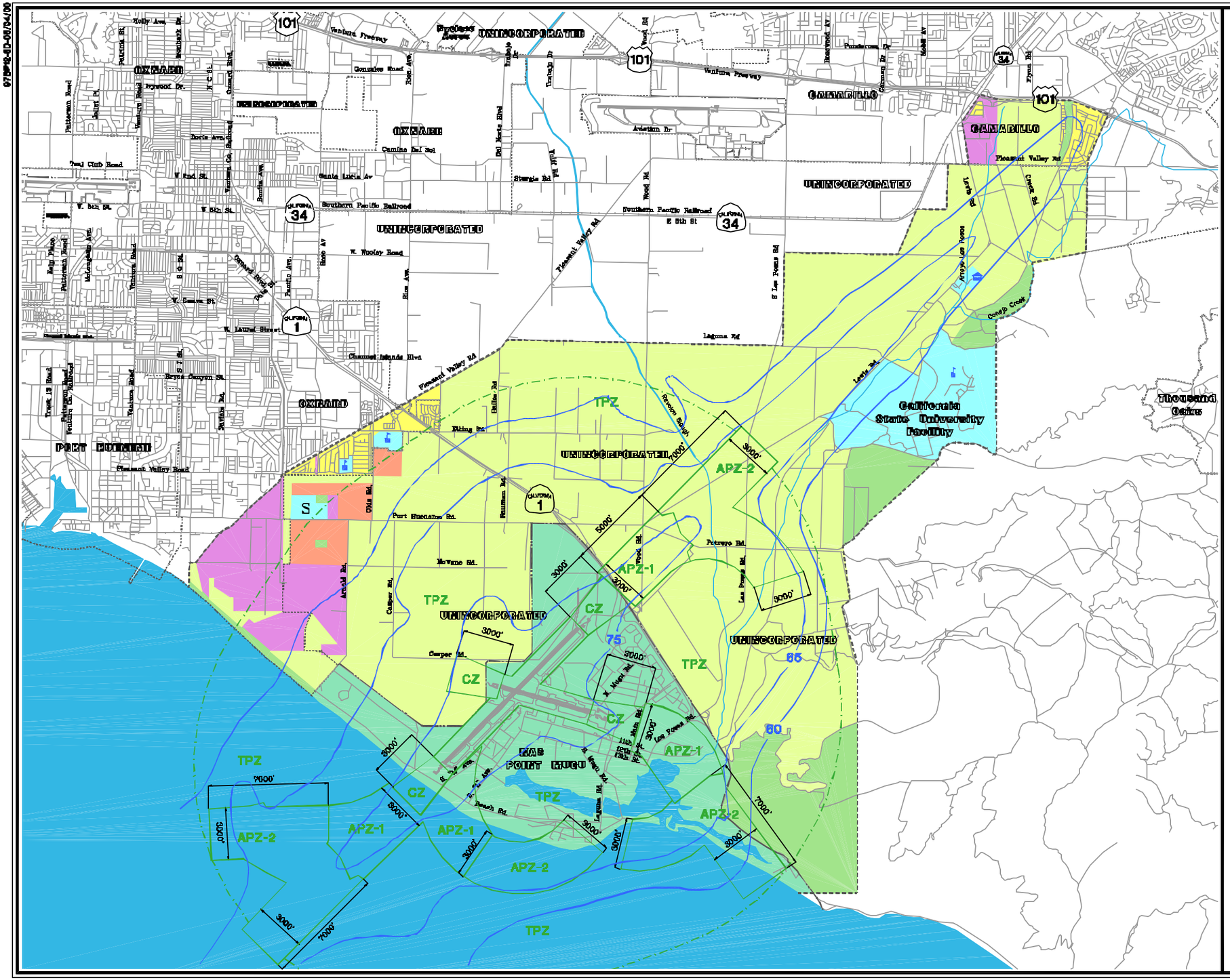

LEGEND
Detailed Land Use Study Area
Municipal Boundary
CNEL Contour-2015 Forecast
RPZ Runway Protection Zone
OSZ Outer Safety Zone
HRZ Height Restriction Zone
TPZ Traffic Pattern Zone
Future Land Use Per General Plan
Low-Medium Density Residential
Medium-High Density Residential
Mobile Home Park
Commercial
Industrial
Public/Semi-Public
Park and Open Space
Agricultural
Sources: Future land use from Ventura County, 1996, Figure 3.1; City of Santa Paula, 1998.
NORTH
0
1500
SCALE IN FEET
SOUTHERN PACIFIC RAILROAD
SANTA CLARA RIVER
MOUNTAIN ROAD
RICHARDSON CANYON ROAD
MAIN ST.
HALLOCK DRIVE
OSZ
RPZ
TPZ
HRZ
3700'
6800'
3000'
6600'
75
70
65
60

Exhibit 6C
ADOPTED AIRPORT COMPREHENSIVE LAND USE PLAN
FOR SANTA PAULA AIRPORT

97SP2-6D-05/04/00



LEGEND

- - - Detailed Land Use Study Area
······ Municipal Boundary
—·— Airport Property
— 1990 CNEL Contour

CZ	Clear Zone
APZ-1	Accident Potential Zone -1
APZ-2	Accident Potential Zone -2
TPZ	Traffic Pattern Zone

FUTURE LAND USE FROM GENERAL PLANS

🟨	Low Density Residential
🟧	Medium/High Density Residential
🟪	Commercial, Industrial, Transportation and Utilities
🟨	Agriculture
🟩	Parks and Open Space
🟦	Noise-Sensitive Institutions
	Schools
S	Future Schools
	Residential Care Facilities
🟩	Military

Sources: General Plans of Ventura County; Cities of Camarillo and Oxnard; Dames & Moore 1992, P. 23.

NORTH

0 6000
SCALE IN FEET

Ventura County AIRPORT LAND USE PLAN

Exhibit 6D
ADOPTED NOISE AND SAFETY AREAS
FOR NAS POINT MUGU

4. At Camarillo Airport, a new zone has been established known as the "Extended Traffic Pattern Zone." It is based on the area which is beneath the extended traffic pattern on a "typical or average" busy day.

The adopted safety zones for Camarillo Airport are shown in **Exhibit 6A**, for Oxnard Airport in **Exhibit 6B** (unchanged from 1991 CLUP), and for Santa Paula Airport in **Exhibit 6C** (unchanged from 1991 CLUP).

6.2.2 SAFETY COMPATIBILITY STANDARDS

Adopted safety compatibility standards for the civilian airports are shown in **Table 6B**. The safety zone headings indicate the addition of the new Extended Traffic Pattern Zone (TPZ). Within the new Extended TPZ, all land uses are acceptable. New residential and institutional uses (including resorts and camps) in the Extended TPZ are required to record fair disclosure agreements and covenants; it is further recommended that avigation easements be dedicated. Conditionally acceptable land uses in the OSZ and the TPZ are also recommended to dedicate avigation easements and required to record fair disclosure covenants.

Land use density is measured in terms of structural coverage. However, the land use classification system has been adjusted slightly. Transportation, communication, and utilities have been placed in the industrial category rather than the institutional category. This is a more typical land use classification convention. (This would move the "transportation terminals, communications/utilities, and automobile parking" land uses to the industrial category from the institutional category.)

TABLE 6B
Adopted Land Use Compatibility Standards in Safety Zones for Civilian Airports

Land Use	Runway Protection Zone	Outer Safety Zone	Traffic Pattern Zone	Extended Traffic Pattern Zone
Residential				
Single Family	U	U	C [a, e]	A [e]
Multi-Family	U	U	C [a, e]	A [e]
Mobile Home Parks	U	U	C [a, e]	A [e]
Public/Institutional				
Hospitals/Convalescent Homes	U	U	U	A [e]
Schools	U	U	U	A [e]
Churches/Synagogues	U	U	U	A [e]
Auditoriums/Theaters	U	U	U	A [e]
Commercial				
Hotels and Motels	U	U	C [c, e]	A [e]
Offices and Business/Professional	U	C [a, e]	C [c, e]	A
Services	U	C [a, e]	C [c, e]	A
Wholesale	U	C [a, e]	C [c, e]	A
Retail				
Industrial, Transportation, Communication, and Utilities				
Manufacturing - General/Heavy	U	C [a, e]	C [c, e]	A
Light Industrial	U	C [a, e]	C [c, e]	A
Research and Development	U	C [a, e]	C [c, e]	A
Business Parks/Corporate Offices	U	C [a, e]	C [c, e]	A
Transportation Terminals	U	U	A	A
Communication/Utilities	C [b]	A	A	A
Automobile Parking	C [b]	A	A	A
Recreation/Open Space				
Outdoor Sports Arenas	U	U	U	A
Outdoor Amphitheaters	U	U	U	A
Parks	U	C [a]	A	A
Outdoor Amusement	U	C [a, e]	A	A
Resorts and Camps	U	C [a, e]	A [e]	A [e]
Golf Courses and Water Recreation	C [d]	A	A	A
Agriculture	A	A	A	A

TABLE 6B (Continued)
Adopted Land Use Compatibility Standards in Safety Zones for Civilian Airports

NOTES

A = Acceptable land use.
C = Land use is conditionally acceptable upon meeting required criteria (see footnotes below).
U = Unacceptable land use.

[a] Maximum structural coverage must be no more than 25 percent. "Structural coverage" is defined as the percent of building footprint area to total land area, including streets and greenbelts.

[b] The placing of structures or buildings in the Runway Protection Zone is unacceptable. Above ground utility lines and parking are allowed only if approved by the Federal Aviation Administration (FAA) as not constituting a hazard to air navigation.

[c] Maximum structural coverage must not exceed 50 percent. "Structural coverage" is defined as the percent of building footprint area to total land area, including streets and greenbelts. Where development is proposed immediately adjacent to the airport property, structures should be located as far as practical from the runway.

[d] Clubhouse is unacceptable in this zone.

[e] An avigation easement is recommended and a fair disclosure agreement and covenant shall be recorded by the owner and developer of the property.

The adopted safety standards at NAS Point Mugu are shown in **Table 6C**. The standards in the CZ, the APZ-1, and the APZ-2 are the same as in the current CLUP. The standards in the TPZ zone are the same as in the civilian Extended TPZ zone. As was done in the civilian table, the land use classification system has been changed to add transportation, communication, and utilities to the industrial category.

TABLE 6C
Adopted Land Use Compatibility Standards In Safety Zones For NAS Point Mugu

Land Use	Clear Zone	APZ-1	APZ-2	Traffic Pattern Zone
Residential				
Single Family	U	U	C [a, [i]]	A [i]
Multi-Family	U	U	U	A [i]
Mobile Home Parks	U	U	U	A [i]
Public/Institutional				
Hospitals/Convalescent Homes	U	U	U	A [i]
Schools	U	U	U	A [i]
Churches/Synagogues	U	U	C [b, [i]]	A [i]]
Auditoriums/Theaters	U	U	U	A [i]
Commercial				
Hotels and Motels	U	U	U	A [i]
Offices and Business/Professional Services	U	U	C [e, [i]]	A
Wholesale	U	C [b, [i]]	A	A
Retail	U	C [b, [i]]	C [b, [i]]	A
Industrial				
Manufacturing - General/Heavy	U	C [b, [i]]	A	A
Light Industrial	U	C [b, [i]]	A	A
Research and Development	U	U	C [b, [i]]	A
Business Parks/Corporate Offices	U	U	C [b, [i]]	A
Transportation Terminals	U	U	A	A
Communication/Utilities	C [c]	C [d]	A	A
Automobile Parking	C [c]	A	A	A
Recreation/Open Space				
Outdoor Sports Arenas	U	U	U	A
Outdoor Amphitheaters	U	U	U	A
Parks	U	C [f]	C [f]	A
Outdoor Amusement	U	U	C [f]	A
Resorts and Camps	U	U	U	A [i]
Golf Courses and Water Recreation	U	C [f, g]	A	A
Agriculture	U	C [h]	A	A

TABLE 6C (Continued)
Adopted Land Use Compatibility Standards In
Safety Zones For NAS Point Mugu

NOTES

A = Acceptable land use.
C = Land use is conditionally acceptable upon meeting required criteria (see footnotes below).
U = Unacceptable land use.

[a] Maximum density must be 1-2 dwelling units per acre, possibly increased under a Planned Unit Development (PUD) where maximum lot coverage is less than 20 percent. "Lot coverage" is defined as the average percent of building footprint area to lot area.

[b] Uses must be evaluated separately due to the variation of densities of people and structures.

[c] The placing of structures or buildings in the Clear Zone is unacceptable. Above ground utility lines and parking area allowed only if approved by the DOD as not constituting a hazard to air navigation.

[d] Passenger terminals and major above-ground transmission lines are unacceptable in APZ-1.

[e] Low-intensity office uses only. Meeting places, etc. are unacceptable.

[f] Facilities must be low intensity.

[g] Clubhouse is unacceptable in this zone.

[h] Factors to be considered: labor intensity, structural coverage, explosive characteristics, air pollution.

[i] An avigation easement is recommended and a fair disclosure agreement and covenant shall be recorded by the owner and developer of the property.

6.3 AIRSPACE PROTECTION

The Height Restriction Zone (HRZ) remains essentially unchanged at all three civilian airports. The same methodology used in 1991 was used this time but the zone boundaries on the maps are slightly different in Camarillo and Santa Paula due to apparent mapping errors in 1991. The 1991 mapping was produced by hand drawings on USGS maps. The current mapping utilizes digital mapping. The outer boundary of the HRZ is the F.A.R. Part 77 Transitional Surface. It begins at ground level at the Primary Surface around each runway. It extends upward at a slope of 7:1 until it reaches the Horizontal Surface at an elevation 150 feet above the airport elevation. (**Exhibit 6E** describes the F.A.R. Part 77 imaginary surfaces at a hypothetical airport.) The following standard applies within the HRZ.

- Any structures proposed within the HRZ must remain below the Approach and Transitional Surface.

The HRZ zones at each civilian airport are shown in **Exhibits 6A** through **6C**.

F.A.R. Part 77 requires people proposing to construct certain tall structures (over 200 feet) or other structures near airports that would penetrate imaginary surfaces defined in Part 77 to notify the FAA of the proposed construction. The FAA will review the proposal and issue an acknowledgment stating that the proposal (1) would not exceed any airspace protection surfaces defined on the airport's F.A.R. Part 77 Airspace Plan; or (2) would exceed a standard of the F.A.R. Part 77 Airspace Plan but would not be a hazard to air navigation; or (3) would exceed a standard of the F.A.R. Part 77 Airspace Plan and may be a hazard to air navigation, pending a further aeronautical study. Within 30 days, the project sponsor may request the aeronautical study. Until an aeronautical study is completed, the proposed structure shall be presumed to be a hazard to air navigation. A copy of the reporting requirements of F.A.R. Part 77 is in Appendix D.

Despite the reporting and review requirements of F.A.R. Part 77, the FAA has no land use regulatory authority. The FAA cannot prevent the construction of hazards to air navigation. It can only require that they be marked. Where proposed structures are determined to be hazards to air navigation, the FAA notifies the local land use regulatory authority and requests that they use their authority to prohibit the structure or require it to be modified. As a national policy, the FAA has requested for many years that local governments enact F.A.R. Part 77 Height and Hazard Zoning to deal with these situations. The FAA has even promulgated a model Height and Hazard Zoning Ordinance. (See FAA Advisory Circular 150/5190-4A.)

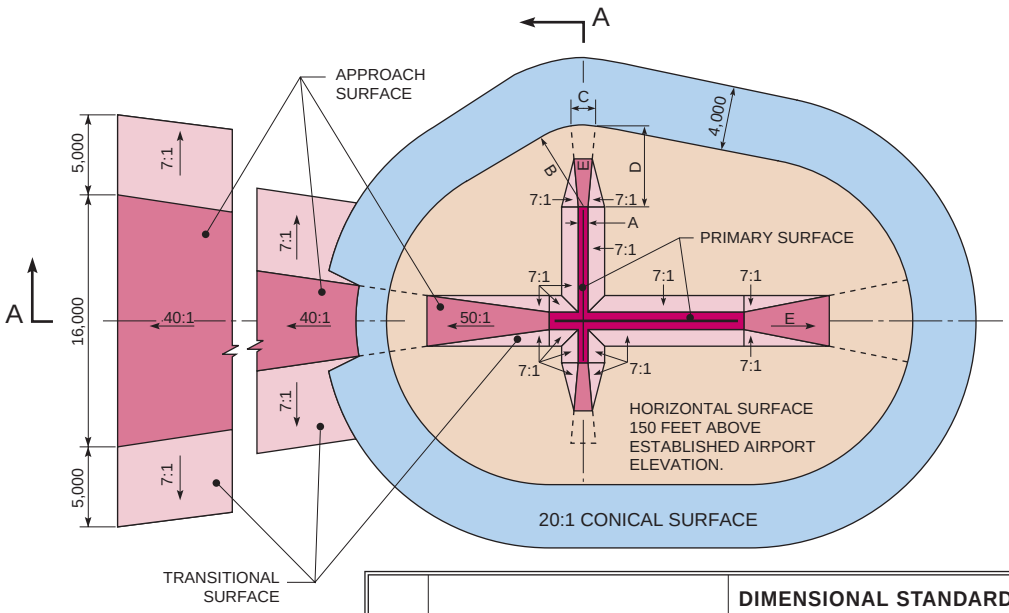
In view of the foregoing information, the following new airspace protection standards are adopted. It is anticipated that they would most often apply to proposed towers.

1. Any structures proposed within any part of the F.A.R. Part 77 Airspace Plan which require a variance, conditional use, or special use permit because they exceed the permitted height requirements of the zoning ordinance shall be reviewed by the Airport Land Use Commission if the height of the proposed structure would penetrate any F.A.R. Part 77 surface.

2. If the FAA reviews the proposed structure and finds that the structure would represent a hazard to air navigation, the proposal shall be disapproved. The proposal shall also be disapproved if the FAA finds that the structure would require the raising of approach minimums at any military or public use airport in the County.

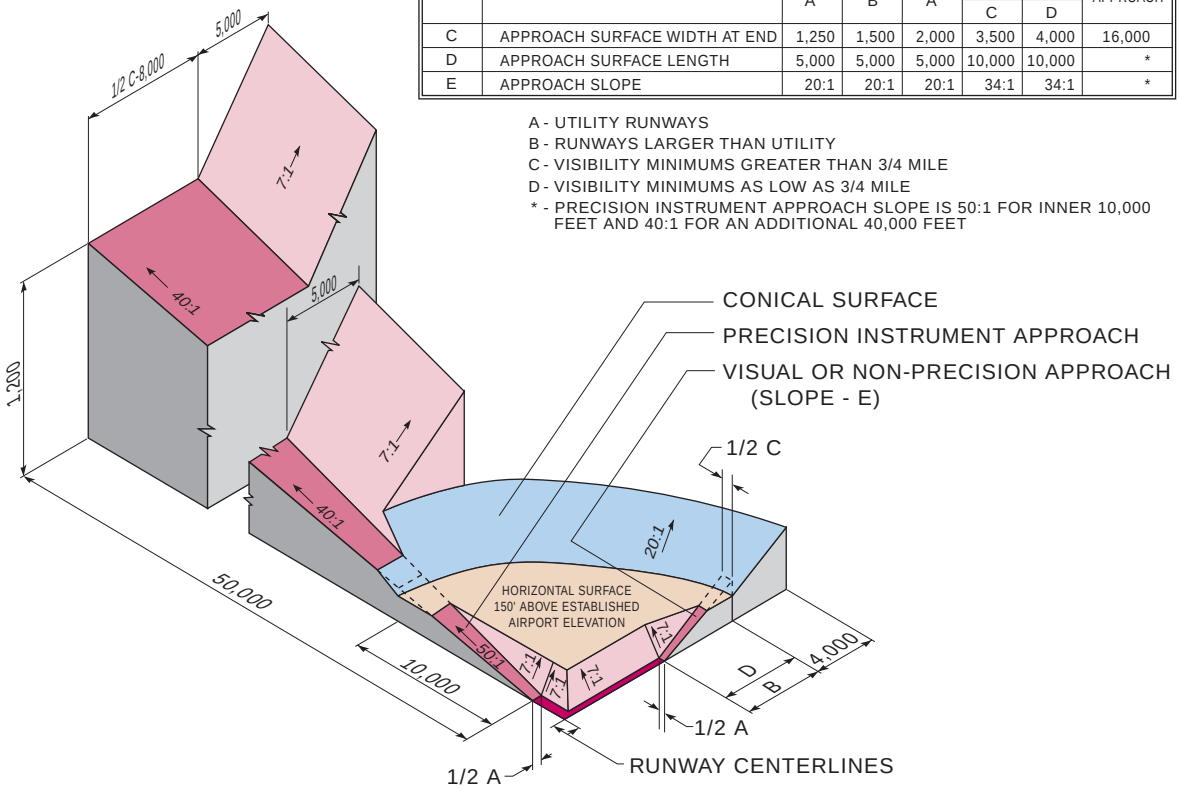
3. If the Federal Aviation Administration (FAA) reviews the proposed structure and makes a finding of "no hazard," the structure shall be permitted, provided that it shall be marked and lighted in accordance with the recommend-ations of the FAA.

97SP12-6E-8/11/00



DIM	ITEM	DIMENSIONAL STANDARDS (FEET)					
		VISUAL RUNWAY		NON-PRECISION INSTRUMENT RUNWAY			PRECISION INSTRUMENT RUNWAY
		A	B	A	B		
					C	D	
A	WIDTH OF PRIMARY SURFACE AND APPROACH SURFACE WIDTH AT INNER END	250	500	500	500	1,000	1,000
B	RADIUS OF HORIZONTAL SURFACE	5,000	5,000	5,000	10,000	10,000	10,000
		VISUAL APPROACH		NON-PRECISION INSTRUMENT APPROACH			PRECISION INSTRUMENT APPROACH
		A	B	A	B		
					C	D	
C	APPROACH SURFACE WIDTH AT END	1,250	1,500	2,000	3,500	4,000	16,000
D	APPROACH SURFACE LENGTH	5,000	5,000	5,000	10,000	10,000	*
E	APPROACH SLOPE	20:1	20:1	20:1	34:1	34:1	*

A - UTILITY RUNWAYS
B - RUNWAYS LARGER THAN UTILITY
C - VISIBILITY MINIMUMS GREATER THAN 3/4 MILE
D - VISIBILITY MINIMUMS AS LOW AS 3/4 MILE
* - PRECISION INSTRUMENT APPROACH SLOPE IS 50:1 FOR INNER 10,000 FEET AND 40:1 FOR AN ADDITIONAL 40,000 FEET



ISOMETRIC VIEW OF SECTION A-A

SOURCE: 14 CFR Part 77, Section 77.25, Civil Airport Imaginary Surfaces.

Ventura County AIRPORT LAND USE PLAN

Exhibit 6E
EXAMPLE OF F.A.R. PART 77 CRITERIA

4. F.A.R. Part 77 Airspace Plans for each airport are shown in **Exhibits 6F** through **6L**.

6.4 SUMMARY

This chapter has reviewed adopted policies for noise compatibility, safety compatibility, and height protection. Several revisions to the 1991 CLUP have been adopted.

The most significant change in the noise compatibility standards involves the use of updated noise contours at Camarillo and Santa Paula to define the area regulated for noise purposes. The noise contours for Oxnard and Point Mugu are unchanged At Camarillo the updated noise contours are generally smaller than the contours in the current CLUP. At Santa Paula, the contours are somewhat larger. The land use compatibility standards applying within the noise contours remain virtually unchanged.

The most important change in the safety compatibility standards is the establishment of a new zone at Camarillo and Point Mugu. These zones are the Traffic Pattern Zone (Pt. Mugu) and Extended Traffic Pattern Zone (Camarillo). Within these areas, new sensitive development are now required to record fair disclosure covenants and avigation easements are recommended. No other land use regulations would apply in the area. One other zone has been renamed, but the land use regulations would remain the same in those zones. The "Inner Safety Zone" has become the "Runway Protection Zone." In addition, some relatively small changes in safety zone boundaries have been made to reflect changes in the airport layout plans.

The only change adopted for the airspace protection standards is a requirement for the Airport Land Use Commission to review applications for tall structures requiring variances, conditional use, or special use permits because they exceed the height standards of the local zoning ordinances. The intent is to prohibit tall structures, most commonly expected to be towers and antennas, which would penetrate the F.A.R. Part 77 surfaces around the airports and create a hazard to air navigation.

REFERENCES

City of Camarillo, 1996. *City of Camarillo General Plan*. Includes amendments through August 28, 1996.

City of Oxnard, 1990. *City of Oxnard 2020 General Plan.* Adopted by City Council Resolutions 10050 and 10052, October 7 and 14, 1990.

City of Santa Paula, 1998. "Proposed Land Use Plan and Expansion Areas, Draft," (map).

Coffman Associates, 1997a. *Camarillo Airport: F.A.R. Part 150 Noise Compatibility Study*. Prepared for Ventura County Department of Airports.

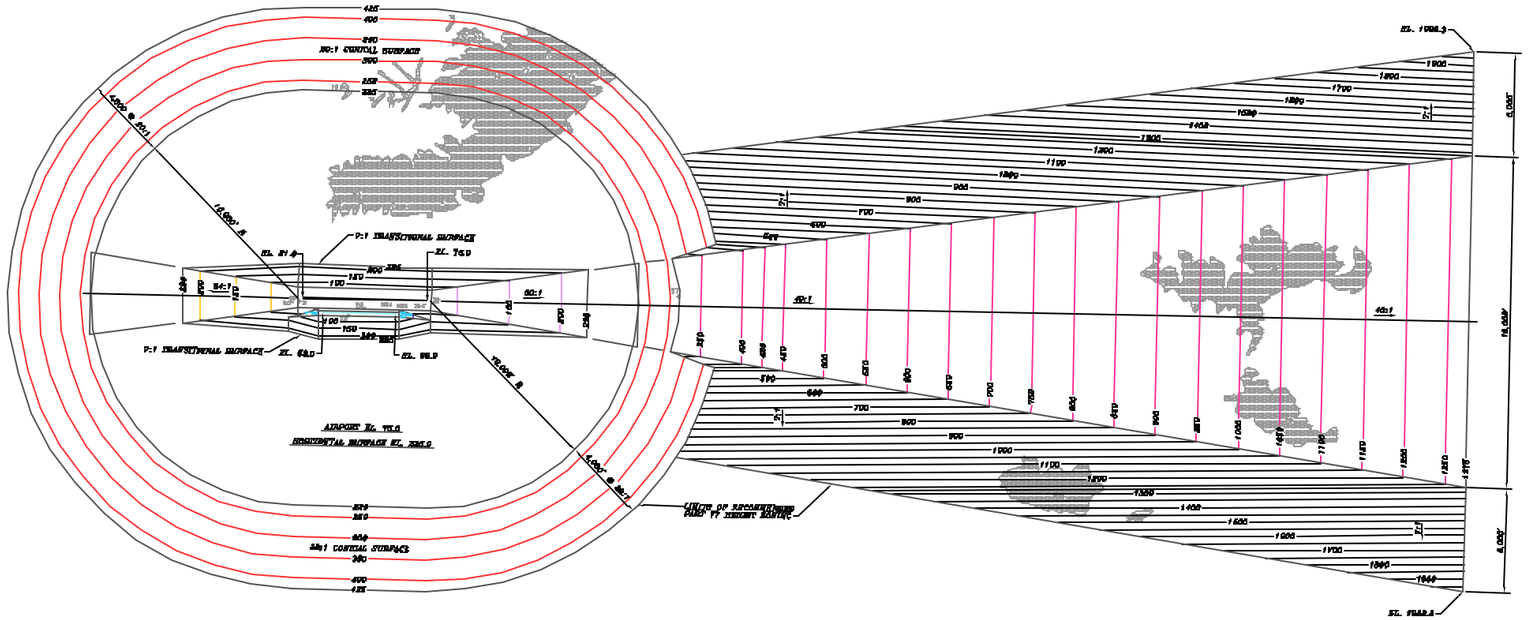
Coffman Associates, 1997b. *Oxnard Airport: F.A.R. Part 150 Noise Compatibility Study*. Prepared for Ventura County Department of Airports.

Cotton/Beland/Associates, Inc. 1997. *City of Port Hueneme General Plan*, hearing draft. Prepared by Cotton/Beland for the City of Port Hueneme, April 1997.

Dames & Moore, 1992. *Air Installation Compatible Use Zones (AICUZ) Study: NAWS Point Mugu*. Submitted to Western Division, Naval Facilities Engineering Command, San Bruno, California, July 1992.

Ventura County, 1996. *Ventura County General Plan: Goals, Policies and Programs*. Adopted by the Ventura County Board of Supervisors, May 24, 1988, with amendments through December 17, 1996.

370PE-6F-08/04/00



GENERAL NOTES:

1. Obstructions, clearances, and locations are calculated from ultimate runway end elevations and ultimate approach surfaces, unless otherwise noted.
2. Depiction of features and objects within the primary, transitional, and horizontal Part 77 surfaces, is illustrated on the PART 77 AIRSPACE PLAN, sheet 2 of these plans.
3. Depiction of features and objects within the outer portion of the approach surfaces, is illustrated on the APPROACH ZONES PROFILES, sheet 2 of these plans.
4. Depiction of features and objects within the inner portion of the approach surfaces, is illustrated on the PROTECTION ZONES PLAN, sheet 3 of these plans.
5. Additional obstruction data is illustrated on National Ocean Survey document OC 674, AIRPORT OBSTRUCTION CHART dated May 1991.
6. Existing and future height and hazard ordinances are to be amended and/or referenced upon approval of updated PART 77 AIRSPACE PLAN.

OBSTRUCTION LEGEND

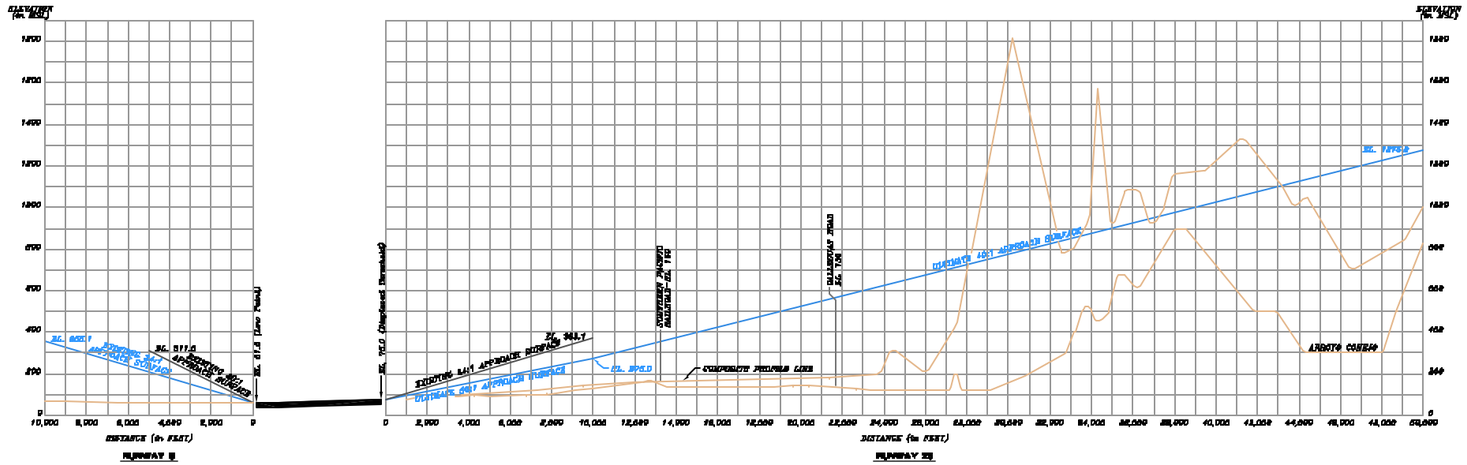
- ⌖ OBSTRUCTION
- ▨ GROUP or MULTIPLE OBSTRUCTIONS
- ▨ TOPOGRAPHIC OBSTRUCTION

0 3000 6000
SCALE IN FEET

NORTH

OBSTRUCTION TABLE

Object Description	Object Elevation	Obstructed Part 77 Surface	Surface Elevation	Object Penetration	Proposed Object Disposition
1. TOPOGRAPHIC	390 MSL	HORIZONTAL SURFACE	225 MSL	165'	REQUEST AERONAUTICAL STUDY
2. TREE	370 MSL	HORIZONTAL SURFACE	225 MSL	145'	REQUEST AERONAUTICAL STUDY
3. TREE	441 MSL	HORIZONTAL SURFACE	225 MSL	216'	REQUEST AERONAUTICAL STUDY
4. TREE	348 MSL	HORIZONTAL SURFACE	225 MSL	123'	REQUEST AERONAUTICAL STUDY
5. TREE	350 MSL	HORIZONTAL SURFACE	225 MSL	125'	REQUEST AERONAUTICAL STUDY
6. TREE	351 MSL	HORIZONTAL SURFACE	225 MSL	126'	REQUEST AERONAUTICAL STUDY
7. TREE	347 MSL	HORIZONTAL SURFACE	225 MSL	122'	REQUEST AERONAUTICAL STUDY
8. TREE	516 MSL	CONICAL SURFACE	238 MSL	278'	REQUEST AERONAUTICAL STUDY
9. TREE	518 MSL	HORIZONTAL SURFACE	225 MSL	293'	REQUEST AERONAUTICAL STUDY
10. TREE	614 MSL	CONICAL SURFACE	370 MSL	244'	REQUEST AERONAUTICAL STUDY
11. TREE	620 MSL	CONICAL SURFACE	386 MSL	234'	REQUEST AERONAUTICAL STUDY
12. TREE	586 MSL	CONICAL SURFACE	335 MSL	251'	REQUEST AERONAUTICAL STUDY
13. TREE	626 MSL	CONICAL SURFACE	399 MSL	227'	REQUEST AERONAUTICAL STUDY
14. TREE	442 MSL	CONICAL SURFACE	380 MSL	62'	REQUEST AERONAUTICAL STUDY
15. TREE	432 MSL	CONICAL SURFACE	380 MSL	52'	REQUEST AERONAUTICAL STUDY
16. TREE	431 MSL	CONICAL SURFACE	396 MSL	35'	REQUEST AERONAUTICAL STUDY
17. TREE	276 MSL	HORIZONTAL SURFACE	225 MSL	50'	REQUEST AERONAUTICAL STUDY
18. TREE	280 MSL	HORIZONTAL SURFACE	225 MSL	55'	REQUEST AERONAUTICAL STUDY
19. TREE	268 MSL	CONICAL SURFACE	233 MSL	35'	REQUEST AERONAUTICAL STUDY
20. WINDSOCK	71 MSL	34:1 APPROACH SURFACE	69 MSL	2'	FIX BY FUNCTIONAL PURPOSE
21. FENCE POST	64 MSL	PRIMARY SURFACE	61 MSL	3'	TO BE REMOVED
22. PIPE	70 MSL	PRIMARY SURFACE	62 MSL	8'	TO BE REMOVED
23. GL ON VOR/DME	86 MSL	PRIMARY SURFACE	68 MSL	18'	TO BE REMOVED
24. WINDSOCK	79 MSL	PRIMARY SURFACE	70 MSL	9'	FIX BY FUNCTIONAL PURPOSE
25. SWITCHBOX	72 MSL	PRIMARY SURFACE	71 MSL	1'	TO BE RELOCATED
26. WINDSOCK	90 MSL	PRIMARY SURFACE	74 MSL	16'	FIX BY FUNCTIONAL PURPOSE
27. POLE ON STANDPIPE	321 MSL	CONICAL SURFACE	225 MSL	96'	REQUEST AERONAUTICAL STUDY
28. TOPOGRAPHIC	1173 MSL	40:1 APPROACH SURFACE	1039 MSL	134'	REQUEST AERONAUTICAL STUDY
29. TOPOGRAPHIC	1338 MSL	40:1 APPROACH SURFACE	1064 MSL	284'	REQUEST AERONAUTICAL STUDY
30. TOPOGRAPHIC	1814 MSL	7:1 TRANSITIONAL SURFACE	1310 MSL	504'	REQUEST AERONAUTICAL STUDY
31. TOPOGRAPHIC	1571 MSL	7:1 TRANSITIONAL SURFACE	1475 MSL	96'	REQUEST AERONAUTICAL STUDY



RUNWAY 8-26 APPROACH ZONE PROFILES

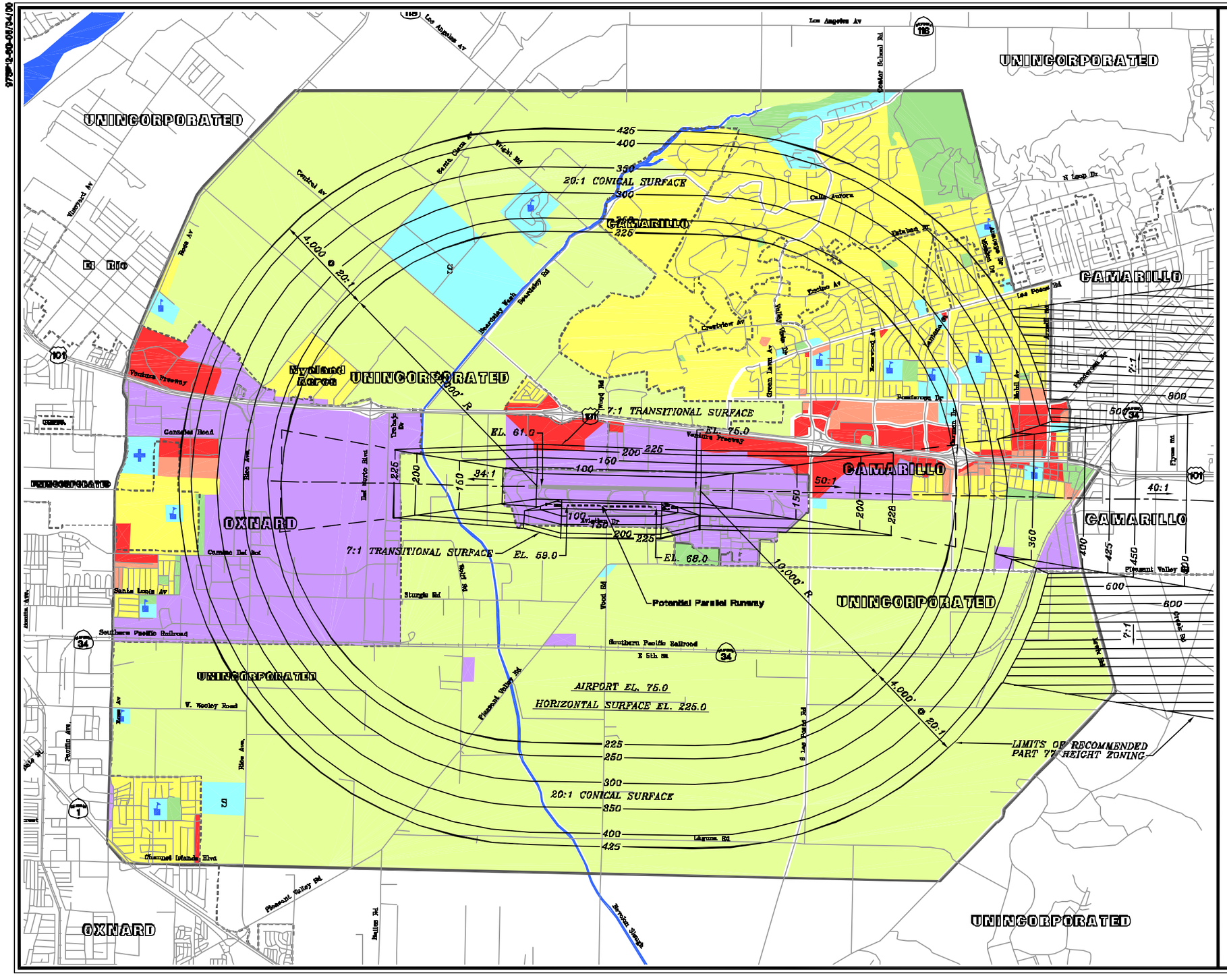
0 300 600
VERTICAL SCALE IN FEET

0 3000 6000
HORIZONTAL SCALE IN FEET

Source: Coffman Associates 1997a.

Ventura County
AIRPORT LAND USE PLAN

Exhibit 6F
F.A.R. PART 77 AIRSPACE PLAN
FOR CAMARILLO AIRPORT



LEGEND

- Detailed Land Use Study Area
- Municipal Boundary
- Airport Property
- Potential Parallel Runway *

Future Land Use Per General Plans

- Low Density Residential
- Medium/High Density Residential
- Commercial
- Industrial
- Agriculture
- Parks/Natural Open Space
- Public/Quasi-Public
- Schools
- S Future School Site
- Hospital

Source: City of Camarillo, 1996,
City of Oxnard, 1990.

* The parallel runway is being included in the CLUP for information purposes only.

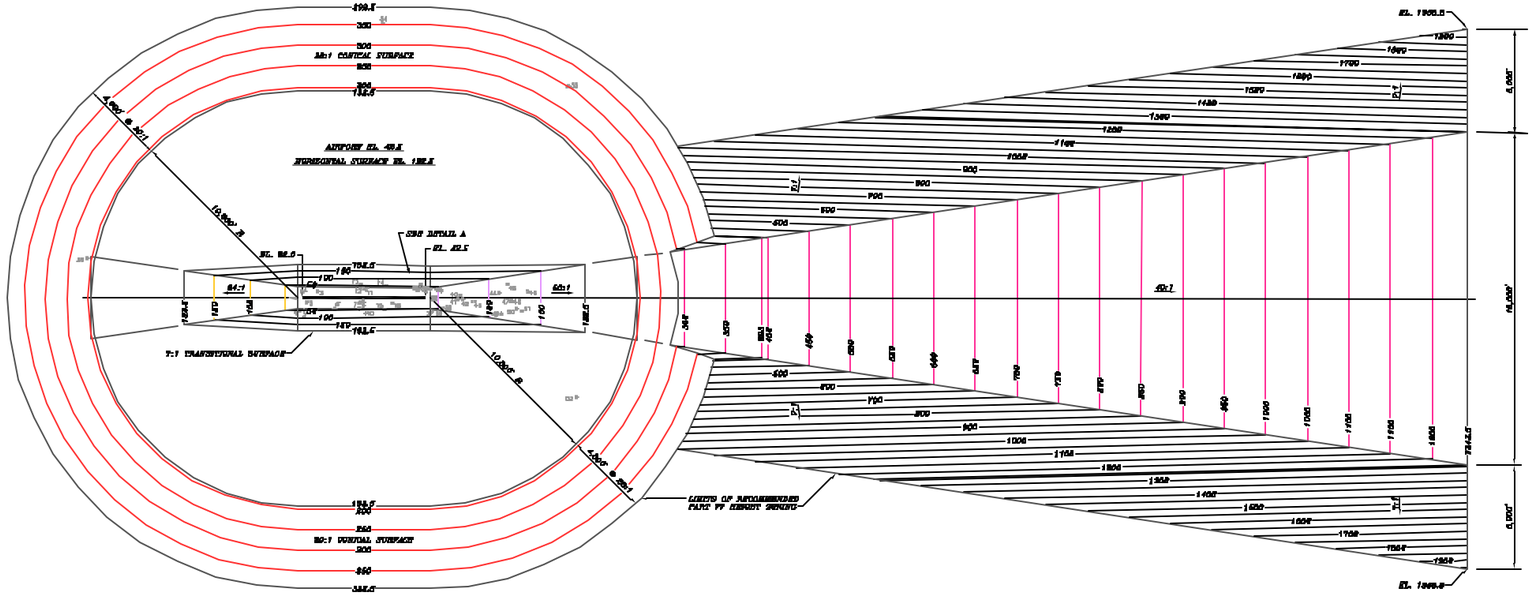
NORTH

0 4000

SCALE IN FEET

Ventura County AIRPORT LAND USE PLAN

Exhibit 6G
F.A.R. PART 77 AIRSPACE PLAN IN IMMEDIATE CAMARILLO AIRPORT AREA



1. Obstructions, clearances, and boardaze are calculated from ultimate runway and alterations and ultimate approach surfaces, unless otherwise noted.
2. Distance for road obstructions and clearances reflect a safety clearance of 15' for nonfreeway roads, 17' for freeways roads, and 23' for railroads.
3. Definition of features and objects within the primary, transitional, and horizontal Part 77 surfaces, is illustrated on the PART 77 AIRSPACE PLAN, sheet 2 of these plans.
4. Definition of features and objects within the outer portion of the approach surfaces, is illustrated on the APPROACH ZONES PROFILES, sheet 3 of these plans.
5. Definition of features and objects within the inner portion of the approach surfaces, is illustrated on the PROTECTION ZONES PLAN, sheet 4 of these plans.
6. Additional obstructive data is illustrated on National Ocean Survey document OC 674, AIRPORT OBSTRUCTION CHART dated May 1981.
7. Existing and future height and hazard determinations are to be amended and/or referenced upon approval of updated PART 77 AIRSPACE PLAN.

OBSTRUCTION LEGEND

- OBSTRUCTION
- GROUP of MULTIPLE OBSTRUCTIONS
- TOPOGRAPHIC OBSTRUCTION

DETAIL A

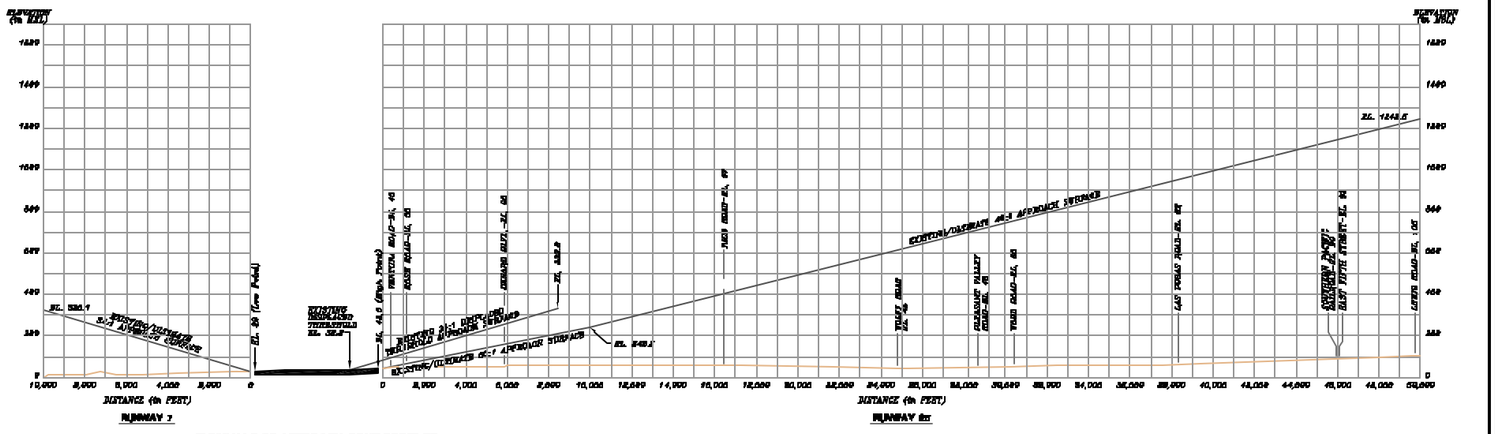
SCALE: 1" = 600'

0 3000 6000
SCALE OF FEET

TRUE NORTH

OBSTRUCTION TABLE

Object Description	Object Elevation	Obstructed Part 77 Surface	Surface Elevation	Object Penetration	Proposed Object Disposition
OL ON LIGHT STANDARD	58 MSL	7:1 TRANSITIONAL SURFACE	52 MSL	6'	TO REMAIN LIGHTED
OL ON LIGHT STANDARD	59 MSL	7:1 TRANSITIONAL SURFACE	49 MSL	10'	TO REMAIN LIGHTED
WINDSOCK	41 MSL	PRIMARY SURFACE	32 MSL	9'	TO BE RELOCATED
FENCE	34 MSL	PRIMARY SURFACE	32 MSL	2'	TO BE RELOCATED
FENCE	37 MSL	PRIMARY SURFACE	33 MSL	4'	TO BE RELOCATED
VENT ON BUILDING	51 MSL	7:1 TRANSITIONAL SURFACE	38 MSL	13'	TO BE LIGHTED
OL ANEMOMETER	57 MSL	PRIMARY SURFACE	36 MSL	21'	TO REMAIN LIGHTED
OL WINDSOCK	53 MSL	PRIMARY SURFACE	35 MSL	18'	TO REMAIN LIGHTED
FENCE	40 MSL	7:1 TRANSITIONAL SURFACE	38 MSL	2'	TO BE RELOCATED
ATCT	116 MSL	7:1 TRANSITIONAL SURFACE	76 MSL	40'	TO REMAIN LIGHTED
BUILDING	53 MSL	PRIMARY SURFACE	36 MSL	17'	REQUEST AERONAUTICAL STUDY
VENT ON BUILDING	60 MSL	PRIMARY SURFACE	36 MSL	24'	TO BE LIGHTED
ANTENNA	97 MSL	7:1 TRANSITIONAL SURFACE	55 MSL	42'	TO BE LIGHTED
OL HANGAR	83 MSL	7:1 TRANSITIONAL SURFACE	51 MSL	32'	TO REMAIN LIGHTED
WINDVANE ON HANGAR	63 MSL	7:1 TRANSITIONAL SURFACE	48 MSL	15'	TO BE LIGHTED
OL SLOPE STOPE	71 MSL	PRIMARY SURFACE	39 MSL	32'	TBX BY FUNCTIONAL PURPOSE
BUILDING	53 MSL	PRIMARY SURFACE	41 MSL	9'	REQUEST AERONAUTICAL STUDY
BUILDING	55 MSL	PRIMARY SURFACE	41 MSL	14'	REQUEST AERONAUTICAL STUDY
BUILDING	60 MSL	PRIMARY SURFACE	42 MSL	18'	REQUEST AERONAUTICAL STUDY
BUILDING	53 MSL	PRIMARY SURFACE	41 MSL	12'	REQUEST AERONAUTICAL STUDY
TREE	77 MSL	PRIMARY SURFACE	41 MSL	36'	TO BE REMOVED
BUILDING	52 MSL	PRIMARY SURFACE	41 MSL	11'	REQUEST AERONAUTICAL STUDY
TREE	102 MSL	7:1 TRANSITIONAL SURFACE	61 MSL	41'	TO BE REMOVED
TREE	109 MSL	7:1 TRANSITIONAL SURFACE	54 MSL	55'	TO BE REMOVED
BUILDING	50 MSL	PRIMARY SURFACE	43 MSL	7'	REQUEST AERONAUTICAL STUDY
BUILDING	61 MSL	PRIMARY SURFACE	43 MSL	18'	REQUEST AERONAUTICAL STUDY
BUILDING	52 MSL	PRIMARY SURFACE	43 MSL	9'	REQUEST AERONAUTICAL STUDY
BUILDING	52 MSL	PRIMARY SURFACE	43 MSL	9'	REQUEST AERONAUTICAL STUDY
BUILDING	52 MSL	PRIMARY SURFACE	43 MSL	9'	REQUEST AERONAUTICAL STUDY
BUILDING	52 MSL	PRIMARY SURFACE	43 MSL	9'	REQUEST AERONAUTICAL STUDY
SIGN/LIGHT	69 MSL	PRIMARY SURFACE	43 MSL	26'	TO BE REMOVED
TREE	109 MSL	50:1 APPROACH SURFACE	49 MSL	60'	DISPLACE THRESHOLD
BUILDING	56 MSL	PRIMARY SURFACE	49 MSL	7'	REQUEST AERONAUTICAL STUDY
BUILDING	56 MSL	PRIMARY SURFACE	51 MSL	5'	REQUEST AERONAUTICAL STUDY
BUILDING	56 MSL	PRIMARY SURFACE	53 MSL	3'	REQUEST AERONAUTICAL STUDY
TREE	92 MSL	50:1 APPROACH SURFACE	53 MSL	39'	DISPLACE THRESHOLD
SPIRE	73 MSL	7:1 TRANSITIONAL SURFACE	50 MSL	23'	REQUEST AERONAUTICAL STUDY
SPIRE	73 MSL	7:1 TRANSITIONAL SURFACE	50 MSL	23'	REQUEST AERONAUTICAL STUDY
LIGHT POLE	75 MSL	50:1 APPROACH SURFACE	50 MSL	21'	DISPLACE THRESHOLD
FLAG POLE	88 MSL	50:1 APPROACH SURFACE	71 MSL	17'	DISPLACE THRESHOLD
UTILITY POLE	87 MSL	50:1 APPROACH SURFACE	69 MSL	18'	DISPLACE THRESHOLD
UTILITY POLE	93 MSL	50:1 APPROACH SURFACE	74 MSL	19'	DISPLACE THRESHOLD
FLOODLIGHT	116 MSL	50:1 APPROACH SURFACE	84 MSL	32'	DISPLACE THRESHOLD
TREE	144 MSL	50:1 APPROACH SURFACE	109 MSL	35'	DISPLACE THRESHOLD
TREE	143 MSL	50:1 APPROACH SURFACE	117 MSL	26'	DISPLACE THRESHOLD
TREE	173 MSL	50:1 APPROACH SURFACE	139 MSL	34'	DISPLACE THRESHOLD
CHURCH SPIRE	154 MSL	50:1 APPROACH SURFACE	121 MSL	33'	DISPLACE THRESHOLD
TREE	163 MSL	50:1 APPROACH SURFACE	121 MSL	42'	DISPLACE THRESHOLD
TREE	132 MSL	50:1 APPROACH SURFACE	111 MSL	21'	DISPLACE THRESHOLD
TREE	150 MSL	50:1 APPROACH SURFACE	129 MSL	21'	DISPLACE THRESHOLD
TREE	140 MSL	50:1 APPROACH SURFACE	131 MSL	9'	DISPLACE THRESHOLD
OL RADIO TOWER	195 MSL	HORIZONTAL SURFACE	193 MSL	2'	TO REMAIN LIGHTED
OL BUILDING	381 MSL	CONICAL SURFACE	321 MSL	60'	TO REMAIN LIGHTED
OL RADIO MAST	366 MSL	CONICAL SURFACE	353 MSL	13'	TO REMAIN LIGHTED
OL ROD ON STACK	318 MSL	CONICAL SURFACE	309 MSL	9'	TO REMAIN LIGHTED



RUNWAY 7-25 APPROACH ZONE PROFILES

0 300 600
VERTICAL SCALE IN FEET

0 3000 6000
HORIZONTAL SCALE IN FEET

Source: Coffman Associates 1997b.

Ventura County AIRPORT LAND USE PLAN

Exhibit 6H
F.A.R. PART 77 AIRSPACE PLAN
FOR OXNARD AIRPORT

VENTURA

VENTURA

OXNARD

UNINCORPORATED

AIRPORT EL. 42.6

HORIZONTAL SURFACE EL. 192.5

20:1 CONICAL SURFACE

7:1 TRANSITIONAL SURFACE

10,000' R

4,000' @ 20:1

EL. 82.0

EL. 42.5

34:1

50:1

7:1

392.5
360
300
250
200
192.5
150
100
60

El Rio

Rydland Acres

PORT HUENEME

UNINCORPORATED

OXNARD

UNINCORPORATED

OXNARD

LIMITS OF RECOMMENDED PART 77 HEIGHT ZONING

OXNARD

UNINC.

Santa Clara River

Ventura Freeway

Vineyard Ave.

Gonzales Road

Pleasant Valley Road

Channel Islands Blvd.

Hueneme Road

Rice Ave.

Oxnard Blvd.

Victoria Ave.

Ventura Road

Patterson Road

Saviers Road

Harbor Blvd.

Port Hueneme Rd.

Southern Pacific Railroad

Blue Ave.

Camino Del Sol

Santa Lucia Av

Central Av

Wooley Ave

Bard Rd

Bryce Canyon St.

Pleasant Valley Rd.

Elkhorn Slough

Mugu Lagoon

LEGEND

- Detailed Land Use Study Area
- Municipal Boundary
- Airport Property

Future Land Use Per General Plans

- Low Density Residential
- Medium/High Density Residential
- Commercial
- Industrial/Airport
- Agriculture
- Parks
- Natural Open Space
- Public/Semi-Public
- Schools
- S Future Schools
- Hospital
- Military
- Airport Compatible

Sources: General Plans of Oxnard, Port Hueneme, Ventura County.

NORTH

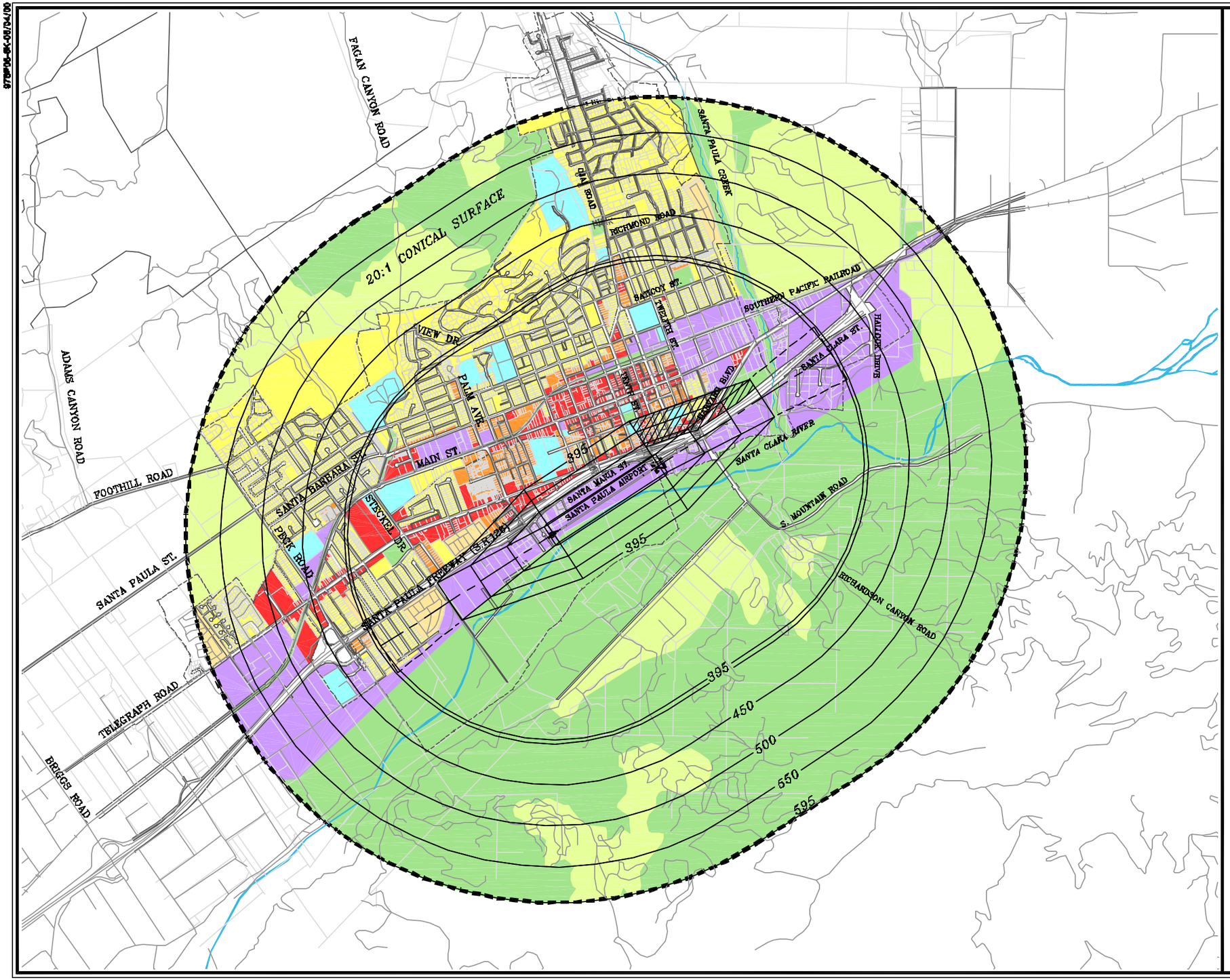
0 4000

SCALE IN FEET

Ventura County AIRPORT LAND USE PLAN

Exhibit 6J

F.A.R. PART 77 AIRSPACE PLAN IN IMMEDIATE OXNARD AIRPORT AREA



LEGEND

- Detailed Land Use Study Area
- Municipal Boundary

Future Land Use Per General Plans

- Low-Medium Density Residential
- Medium-High Density Residential
- Mobile Home Park
- Commercial
- Industrial
- Public/Semi-Public
- Santa Paula Open Space Greenbelt
- Agriculture
- Part 77 Obstruction Shadow

Sources: Ventura County General Plan, General Land Use Map, Figure 3.1, 1996;
City of Santa Paula, Proposed Land Use Plan and Expansion Areas (map).

NORTH

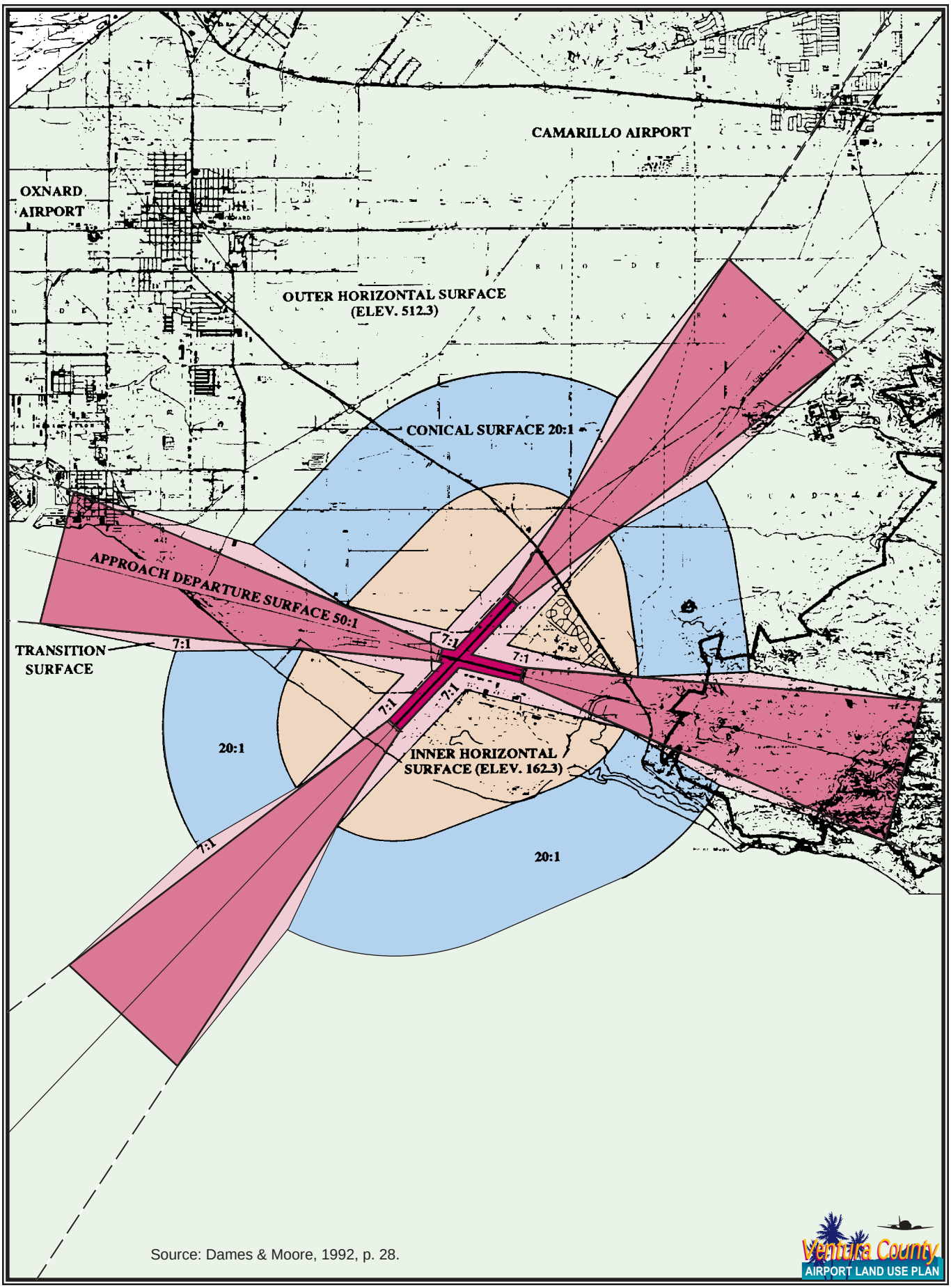
0 2500

SCALE IN FEET

Ventura County AIRPORT LAND USE PLAN

Exhibit 6K
F.A.R. PART 77 AIRSPACE PLAN
FOR SANTA PAULA AIRPORT

97SP12-6L-8/11/00



Source: Dames & Moore, 1992, p. 28.

Ventura County AIRPORT LAND USE PLAN

Exhibit 6L
F.A.R. PART 77 AIRSPACE PLAN
FOR NAS POINT MUGU

Ventura County
AIRPORT LAND USE PLAN

Appendix A
ALTERNATIVE APPROACHES FOR SETTING CLUP POLICIES

Appendix A:
ALTERNATIVE APPROACHES FOR SETTING CLUP POLICIES

EXECUTIVE SUMMARY

This discussion paper is intended as a reference document that was used by the Project Advisory Committee and the Airport Land Use Commission review the existing *Airports Comprehensive Land Use Plan for Ventura County* (the 1991 CLUP). While the document contains considerable detail, distinct trends and tendencies emerge. The discussion also sheds light on some of the issues deserving attention during the update of the Ventura County CLUP. These concerns and issues are described for each substantive policy area covered by the CLUP: noise compatibility, safety, and airspace protection.

NOISE COMPATIBILITY STANDARDS AND ISSUES

While there are many different sets of guidelines for noise and land use compatibility, there is reasonably good agreement among the various approaches. The definition of "noise-sensitive land uses", for example, is generally agreed to be housing, institutions with a residential component, and public gathering places where quiet is essential for the conduct of typical activities. The noise compatibility standards also agree on the use of a cumulative noise dosage metric to define areas of different noise exposure. In most of the United States, the DNL (day-night sound level) metric is used for this purpose, while California State law requires the use of the similar CNEL (community noise equivalent level) metric.

The major point on which various systems of noise compatibility standards differ is the threshold at which aircraft noise should be considered significant for purposes of compatible land use planning. While Federal standards are concerned only with noise exceeding 65 CNEL (or DNL), State guidelines and some local standards are concerned with noise down to 60 or even 55 CNEL (or DNL).

The current noise compatibility guidelines of the 1991 CLUP are reasonable in light of the California state guidelines. The current policies state that aircraft noise above 60 CNEL is a concern for housing and noise-sensitive institutions. Between 60 and 65 CNEL, new construction of these uses is permitted "only after an analysis of noise reduction requirements and necessary noise insulation is included in the design." Housing is not permitted in areas exposed to noise above 65 CNEL. Noise-sensitive institutions are not permitted in areas exposed to noise above 70 CNEL. Between 65 and 70 CNEL, noise-sensitive institutions must be sound-insulated to achieve an outdoor-to-indoor noise level reduction of 25 CNEL.

- While the CLUP's current noise compatibility guidelines are reasonable, they merit reconsideration. The 1993 *Airport Land Use Planning Handbook* recommends that no housing be allowed within the 60 CNEL in quiet communities. Other counties also use the 60 CNEL contour as the maximum permitted for housing and noise-sensitive institutions. The complaint history at the airports in the County indicates public concerns with aircraft noise at levels far below 65 CNEL, the current incompatibility threshold. This is a common situation in areas where a premium is placed on outdoor living. This also indicates the limited value of sound insulation as a noise mitigation technique in such areas.

- If the noise impact threshold is kept at the current level, it would be helpful to clarify the intent of the requirement for an "analysis of noise reduction requirements" within the 60 to 65 CNEL contour range. A target noise level or noise level reduction should be specified in the policy.

- At two of the four airports in the County, multiple noise contour maps are available, representing different operational levels. In selecting the regulatory noise contours at each airport, it would make sense to choose the largest set of contours, thus defining a reasonable worst case noise impact area. If different contours are larger in different areas, a composite set of contours should be created to define the noise exposure risk envelope.

- Are guidelines needed for determining the location of noise contours on the ground? In some communities, the contours are squared off to follow roads or natural features. In other communities, the location of noise contours on the ground is simply scaled off the maps as best as possible.

- The current noise compatibility policies attempt to promote "fair disclosure" of the aircraft noise and overflight situation outside the 60 CNEL contour and within the "traffic pattern zone". The policy requires a review of noise attenuation requirements, a disclosure covenant, and an avigation easement. Some refinements in this policy may be appropriate. First, the intent of the "review of noise attenuation requirements" and appropriate performance standards should be set or this policy should be discontinued. Second, this policy may be more appropriately placed in the section on safety policies tied to the traffic pattern zone.

SAFETY COMPATIBILITY STANDARDS AND ISSUES

There is considerable variation among safety compatibility standards and guidelines in California counties. This is to be expected since the safety standards necessarily require judgements to be made about the risk of rare events -- namely aircraft accidents.

Specific points of variability among safety area standards include the definition of safety area boundaries and the land use standards that should apply within various safety areas. These standards, however, all recognize the same basic principles. The risk of aircraft accidents increases as distance from the runway and extended runway centerline decreases. This gives rise to the common requirements that more open space should be preserved and less housing and population density should be permitted in areas near the runway and the extended runway centerline.

Different sets of safety compatibility standards vary in their clarity and ease of implementation. Some, for example, include only a very general list of land uses to which the standards apply. This forces ALUCs and their staffs to interpret whether the standards were meant to apply to various specific development proposals that will arise. Many other standards relate to the density of people permitted at any given land use. If this is to be practical, a clear method for unambiguously calculating this factor must be agreed upon.

The following issues deserve discussion in the Ventura County CLUP.

- In some counties, specific land uses that would be inherently hazardous or cause serious problems in disrupted community services in the event of an aircraft accident are specifically prohibited in various safety zones. (Examples include bulk storage of flammable materials and power substations.) Should the safety standards be revised to add these kinds of criteria?

- The CLUPs in some counties specify maximum occupancy levels for land uses in some close-in safety zones. Is there any interest in applying such standards in Ventura County? If so, guidelines for computing the occupancy rate of structures and land uses will be needed.

- Is there any interest in redrawing the safety areas to reflect the updated *Airport Land Use Planning Handbook*? One refinement that deserves consideration is to curve the "outer safety zone" to follow any common, close-in, turning tracks. In addition, the traffic pattern zone boundaries should be reconsidered to ensure that they encompass all areas typically overflown by aircraft in the traffic pattern. (In the 1991 CLUP, the traffic pattern zones at the three civilian airports appear to be too small.)

- The Point Mugu AICUZ study does not define a "traffic pattern zone". Should such an area be defined for purposes of the CLUP?

- Some of the land use criteria applying to the safety zones in the Point Mugu safety zones are vague. Terms such as "low intensity uses" must be defined in quantitative terms if the regulations are to be uniformly administered.

AIRSPACE PROTECTION STANDARDS AND ISSUES

The 1991 CLUP uses the F.A.R. Part 77 imaginary surfaces as the basis for its airspace protection standards. This approach is typical of other counties in California and elsewhere in the country. There is no reason to alter the thrust of the CLUP's approach to airspace protection. Minor refinements may be advisable depending on the ALUC's actual experience in implementing these standards. At this point, one change deserves consideration.

- The standards do not include any provision for building in areas where the terrain penetrates the Part 77 surfaces. In order to avoid claims of unconstitutional taking of property without just compensation, the ALUC should consider setting criteria providing for the construction of safe structures in such situations. At a minimum, these criteria should set a maximum building height, noting that issuance of a permit is conditioned on an FAA aeronautical study and a finding that the structure would not be a hazard to air navigation. The criteria should note that marking and lighting of the structure may be required.

Alternative Approaches for Setting CLUP Policies

A.1 INTRODUCTION

This discussion paper considers alternative ways of establishing airport compatibility policies. First, it reviews the policies in the 1991 *Airports Comprehensive Land Use Plan Update for Ventura County* (the 1991 CLUP). These are then compared with standards and planning criteria provided by the Federal government, the State of California, and the comprehensive land use plans of other selected counties. After considering this information, it is anticipated that the Project Advisory Committee will be able to reflect on the suitability of the County's existing CLUP policies and identify possible refinements to consider during the CLUP update process. The intent is to either reaffirm the existing policy framework or establish a refined policy framework which can be used in evaluating the particular land use compatibility planning situations at each airport.

A.2 POLICIES OF 1991 CLUP

The policies of the 1991 CLUP are categorized in terms of noise compatibility, safety, and height limitation. The comprehensive land use plans at each airport -- Camarillo, Oxnard, Santa Paula, and Naval Air Station (NAS) Point Mugu – are shown in **Exhibits A1** through **A4**.

A.2.1 NOISE

Noise contours were developed for the three civilian airports for estimated 1990 conditions and projected 2010 conditions. The largest set of contours was used to define the various noise compatibility zones. For Santa Paula, this was the 2010 forecast. For Oxnard and Camarillo, the 1990 contours were generally larger, although the 2010 contours were larger off the east ends of the airports. For these airports, composite sets of contours were developed by overlaying the 1990 and 2010 contours. The outermost boundary of each noise contour was used for establishing the noise compatibility boundaries.

For NAS Point Mugu, a 2010 noise forecast was used to define the noise compatibility zones.

The noise policies of the 1991 CLUP are summarized in **Table A1**. They were based on the State noise compatibility guidelines from the 1983 *Airport Land Use Planning Handbook* (Metropolitan Transportation Commission 1983), and guidelines of the U.S. Department of Defense. In most cases, the most restrictive of the two sets of standards was used.

In the 60 to 65 CNEL range, mobile home parks and outdoor amphitheaters are considered "unacceptable." Other residential uses, hotels and motels, and various noise-sensitive institutions (i.e., schools, hospitals, places of worship, auditoriums) are considered "conditionally acceptable." New construction of these uses is permitted only after an analysis of noise reduction requirements is made, although no specific criteria are stipulated. The intent may be to defer to State law which requires new multi-family and hotel construction within the 60 CNEL contour to be sound-insulated to achieve an interior sound level of 45 CNEL. Noise easements are also "recommended" for these uses within the 60 to 65 CNEL range.

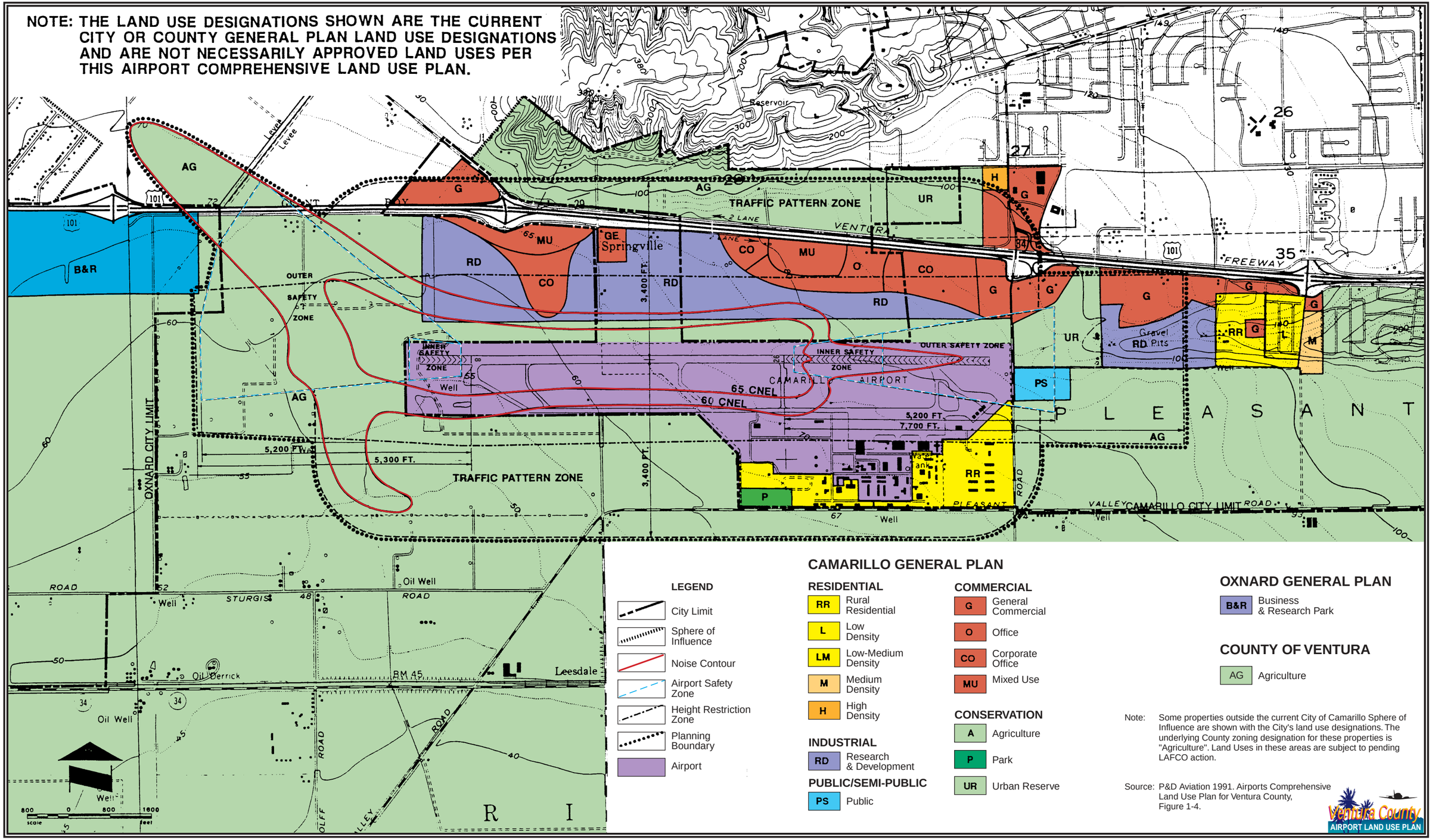
In the 65 to 70 CNEL range, all housing is considered unacceptable. Hotels and noise-sensitive institutions are required to be sound-insulated to achieve and outdoor to indoor noise level reduction of 25 decibels. Noise easements are also recommended for these uses.

In the 70 to 75 CNEL range, most noise-sensitive institutions are considered unacceptable. Auditoriums and hotels are required to be sound-insulated to achieve a noise level reduction of 30 decibels. Noise easements are recommended for these uses. Commercial and industrial uses are conditionally compatible if noise-sensitive areas are designed to achieve a noise level reduction of 25 decibels.

In the 75 to 80 CNEL range, auditoriums and hotels are unacceptable. Commercial and industrial uses must be designed to achieve a noise level reduction of 30 decibels.

97SP12-A1-9/4/97

NOTE: THE LAND USE DESIGNATIONS SHOWN ARE THE CURRENT CITY OR COUNTY GENERAL PLAN LAND USE DESIGNATIONS AND ARE NOT NECESSARILY APPROVED LAND USES PER THIS AIRPORT COMPREHENSIVE LAND USE PLAN.



LEGEND

- City Limit
- Sphere of Influence
- Noise Contour
- Airport Safety Zone
- Height Restriction Zone
- Planning Boundary
- Airport

CAMARILLO GENERAL PLAN

RESIDENTIAL

- RR Rural Residential
- L Low Density
- LM Low-Medium Density
- M Medium Density
- H High Density

INDUSTRIAL

- RD Research & Development

PUBLIC/SEMI-PUBLIC

- PS Public

COMMERCIAL

- G General Commercial
- O Office
- CO Corporate Office
- MU Mixed Use

CONSERVATION

- A Agriculture
- P Park
- UR Urban Reserve

OXNARD GENERAL PLAN

- B&R Business & Research Park

COUNTY OF VENTURA

- AG Agriculture

Note: Some properties outside the current City of Camarillo Sphere of Influence are shown with the City's land use designations. The underlying County zoning designation for these properties is "Agriculture". Land Uses in these areas are subject to pending LAFCO action.

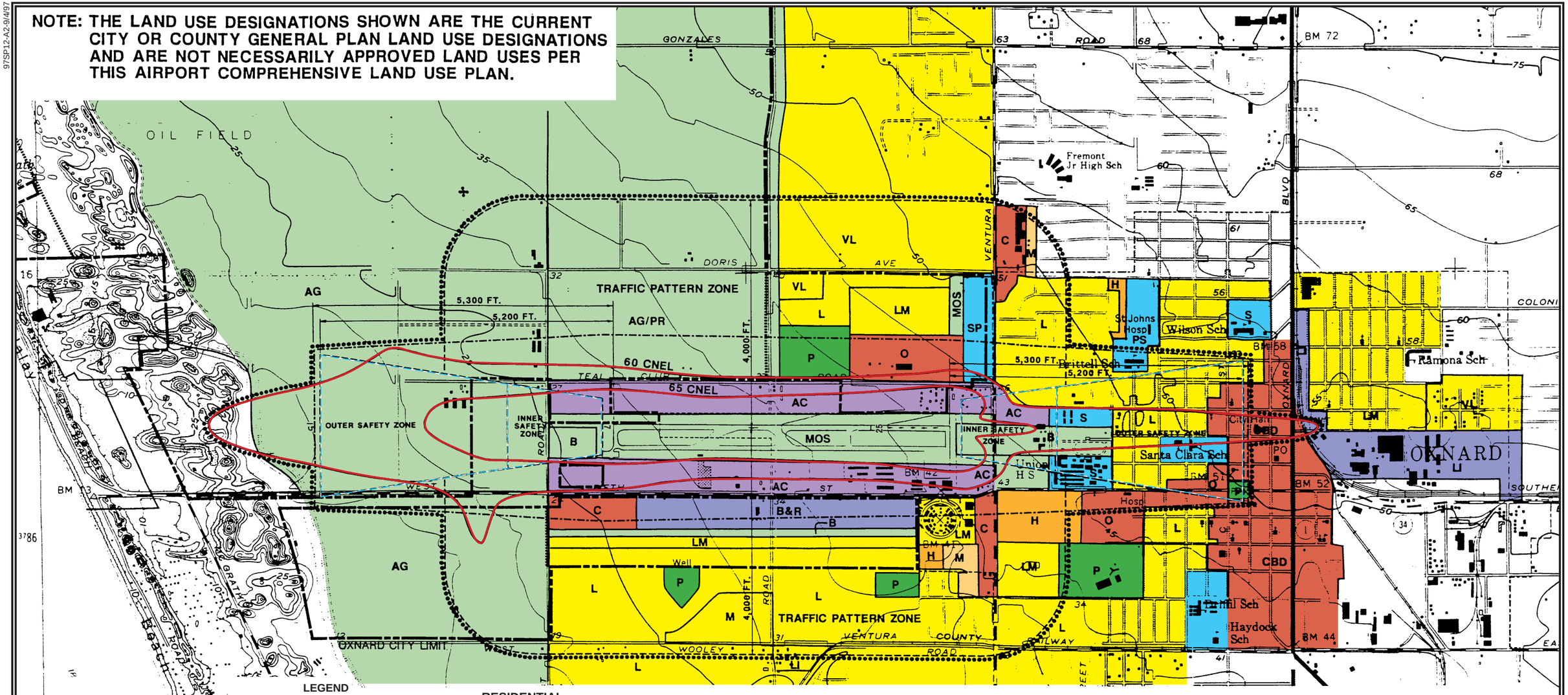
Source: P&D Aviation 1991. Airports Comprehensive Land Use Plan for Ventura County, Figure 1-4.

Ventura County AIRPORT LAND USE PLAN

Exhibit A1
1991 COMPREHENSIVE LAND USE PLAN
FOR CAMARILLO AIRPORT

97SP12-A2-9/4/97

NOTE: THE LAND USE DESIGNATIONS SHOWN ARE THE CURRENT CITY OR COUNTY GENERAL PLAN LAND USE DESIGNATIONS AND ARE NOT NECESSARILY APPROVED LAND USES PER THIS AIRPORT COMPREHENSIVE LAND USE PLAN.



LEGEND

- City Limit
- Sphere of Influence
- Noise Contour
- Airport Safety Zone
- Height Restriction Zone
- Planning Boundary

RESIDENTIAL

- VL — Very Low Density Residential
- L — Low Density Residential
- LM — Low Medium Density Residential
- M — Medium Density Residential
- H — High Density Residential

COMMERCIAL

- SP — Specialized Commercial
- O — Office
- C — Convenience
- CBD — Central Business District

INDUSTRIAL

- LI — Limited Industrial
- B&R — Business & Research

OPEN SPACE

- MCS — Miscellaneous Open Space
- P — Parks
- AG — Agriculture
- B — Buffer
- RPOS — Resource Protection Open Space
- PR — Planning Reserve

RESIDENTIAL

- S — Schools
- AC — Airport Compatible
- PS — Public/ Semi-Public

800 0 800 1600 scale feet

Note: Some properties outside the current City of Oxnard Sphere of Influence are shown with the City's land use designations. The underlying County zoning designation for these properties is "Agriculture". Land Uses in these areas are subject to pending LAFCO action.

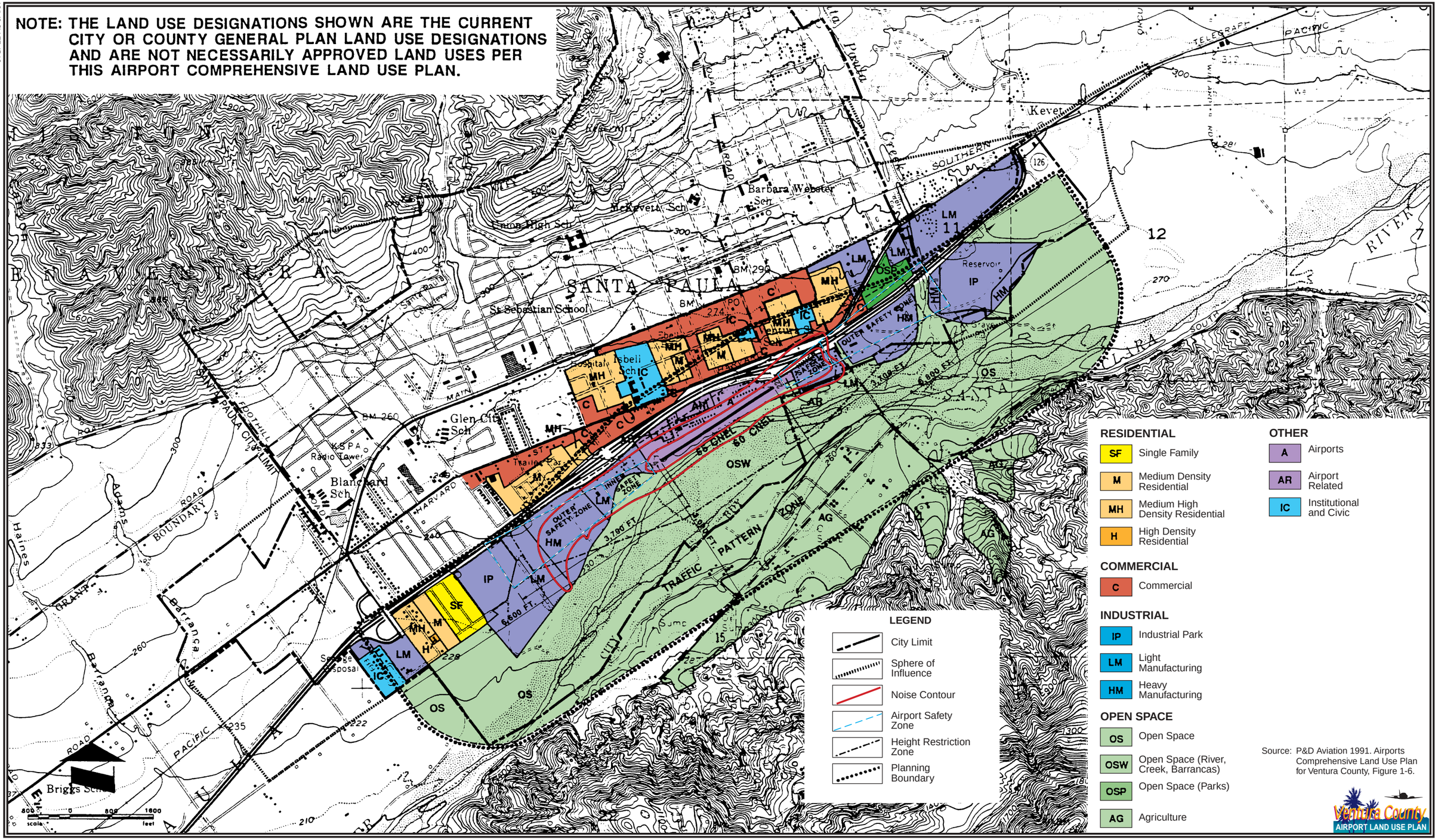
Source: P&D Aviation 1991. Airports Comprehensive Land Use Plan for Ventura County, Figure 1-5.

Ventura County AIRPORT LAND USE PLAN

Exhibit A2
1991 COMPREHENSIVE LAND USE PLAN
FOR OXNARD AIRPORT

97SP12-A3-9/4/97

NOTE: THE LAND USE DESIGNATIONS SHOWN ARE THE CURRENT CITY OR COUNTY GENERAL PLAN LAND USE DESIGNATIONS AND ARE NOT NECESSARILY APPROVED LAND USES PER THIS AIRPORT COMPREHENSIVE LAND USE PLAN.



LEGEND

- City Limit
- Sphere of Influence
- Noise Contour
- Airport Safety Zone
- Height Restriction Zone
- Planning Boundary

RESIDENTIAL

- SF — Single Family
- M — Medium Density Residential
- MH — Medium High Density Residential
- H — High Density Residential

COMMERCIAL

- C — Commercial

INDUSTRIAL

- IP — Industrial Park
- LM — Light Manufacturing
- HM — Heavy Manufacturing

OPEN SPACE

- OS — Open Space
- OSW — Open Space (River, Creek, Barrancas)
- OSP — Open Space (Parks)
- AG — Agriculture

OTHER

- A — Airports
- AR — Airport Related
- IC — Institutional and Civic

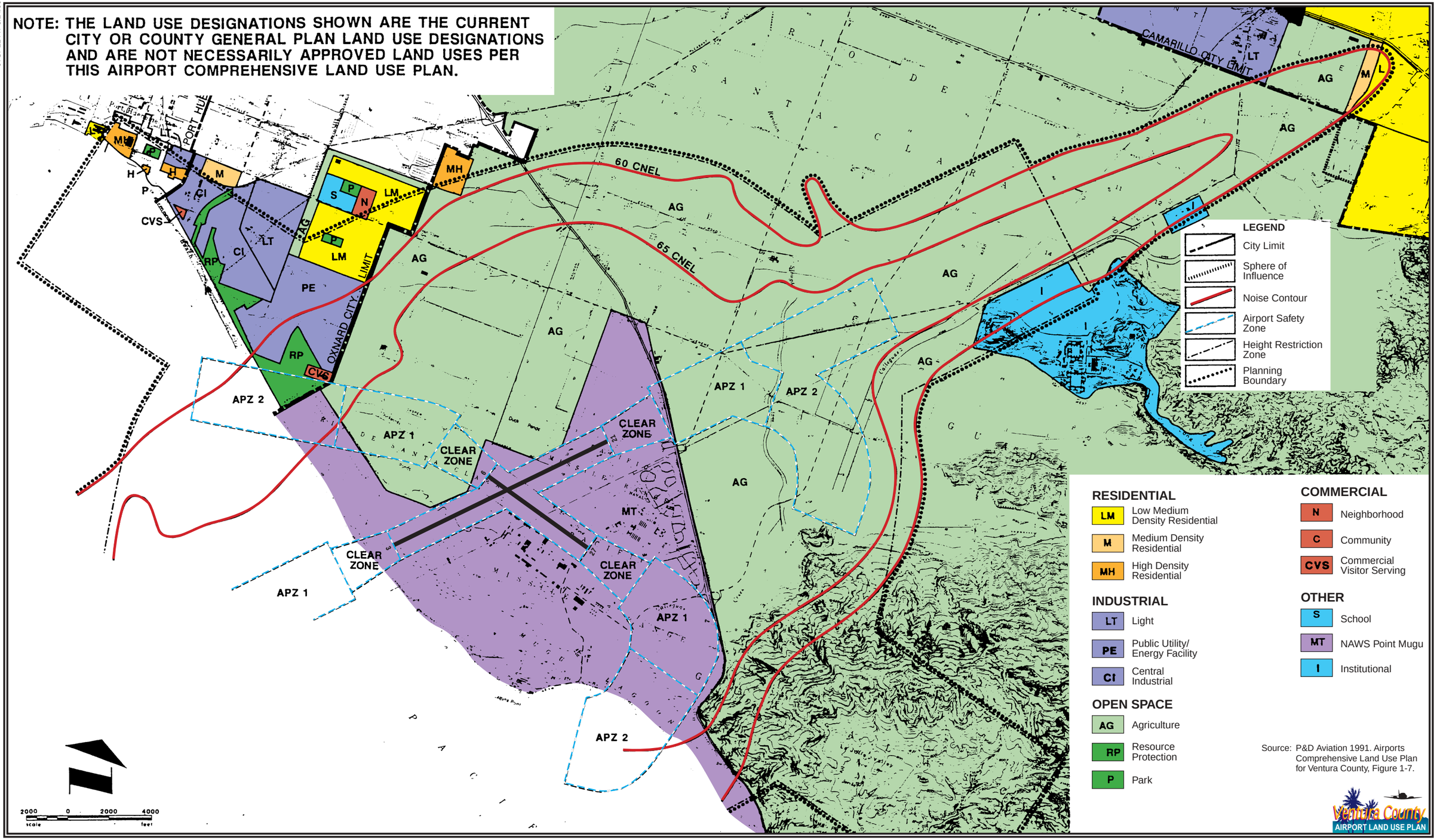
Source: P&D Aviation 1991. Airports Comprehensive Land Use Plan for Ventura County, Figure 1-6.

Ventura County AIRPORT LAND USE PLAN

Exhibit A3
1991 COMPREHENSIVE LAND USE PLAN
FOR SANTA PAULA AIRPORT

97SP12-A4-8/14/00

NOTE: THE LAND USE DESIGNATIONS SHOWN ARE THE CURRENT CITY OR COUNTY GENERAL PLAN LAND USE DESIGNATIONS AND ARE NOT NECESSARILY APPROVED LAND USES PER THIS AIRPORT COMPREHENSIVE LAND USE PLAN.



Source: P&D Aviation 1991. Airports Comprehensive Land Use Plan for Ventura County, Figure 1-7.

Ventura County AIRPORT LAND USE PLAN

Exhibit A4
1991 COMPREHENSIVE LAND USE PLAN
FOR NAS POINT MUGU

TABLE A1
Recommended Land Use Compatibility Guidelines
Related to Aircraft Noise for Ventura County Airports
Comprehensive Land Use Plan

	CNEL Range (dB)				
Land Use	**60-65**	**65-70**	**70-75**	**75-80**	**Over 80**
Residential [l]					
Single Family	C [a]	U	U	U	U
Multi-Family	C [a]	U	U	U	U
Mobile Home Parks	U	U	U	U	U
Public/Institutional					
Hospitals/Convalescent Homes	C [a]	C [b]	U	U	U
Schools	C [a]	C [b]	U	U	U
Churches/Synagogues	C [a]	C [b]	U	U	U
Auditoriums/Theaters	C [a]	C [b]	C [c]	U	U
Transportation Terminals	A	A	C [d]	C [e]	C [f]
Communication/Utilities	A	A	C [d]	C [e]	C [f]
Automobile Parking	A	A	C [d]	C [e]	C [f]
Commercial					
Hotels and Motels	C [a]	C [b]	C [c]	U	U
Offices and Business/ Professional Services	A	A	C [g]	C [h]	U
Wholesale	A	A	C [d]	C [e]	C [f]
Retail	A	A	C [g]	C [h]	U
Industrial					
Manufacturing - General/ Heavy	A	A	C [d]	C [e]	C [f]
Light Industrial	A	A	C [d]	C [e]	C [e]
Research and Development	A	A	C [d]	C [e]	C [e]
Business Parks/Corporate Offices	A	A	C [d]	C [e]	C [e]
Recreation/Open Space					
Outdoor Sports Arenas	A	C [k]	C [k]	U	U
Outdoor Amphitheaters	U	U	U	U	U
Parks	A	A	A	U	U
Outdoor Amusement	A	A	A	U	U
Resorts and Camps	A	A	A	U	U
Golf Courses and Water Recreation	A	A	A	U	U
Agriculture	A	A	A	A	A

TABLE A1 (Continued)
Recommended Land Use Compatibility Guidelines
Related To Aircraft Noise For Ventura County Airports
Comprehensive Land Use Plan

NOTES

A = Acceptable land use
C = Land use is conditional upon meeting compatibility criteria (see footnotes)
U = Unacceptable land use

[a] New construction or development may be undertaken only after an analysis of noise reduction requirements and necessary noise insulation is included in the design. Noise easements are recommended.

[b] Noise level reduction [NLR] from outdoor to indoor of at least 25 CNEL must be achieved by incorporation of noise attenuation into the design and construction of the structure. Noise easements are recommended.

[c] Noise level reduction [NLR] from outdoor to indoor of at least 30 CNEL must be achieved by incorporation of noise attenuation into the design and construction of the structure. Noise easements are recommended.

[d] 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.

[e] 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.

[f] Measures to achieve NLR of 35 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.

[g] Noise level reduction [NLR] of 25 CNEL is required.

[h] Noise level reduction [NLR] of 30 CNEL is required.

[i] Noise level reduction [NLR] of 35 CNEL is required.

[j] Land uses involving concentrations of people are unacceptable.

[k] Sound reinforcement system is required.

[l] For new residential uses in areas below 60 dB CNEL that are within the Traffic Pattern Zone, it is recommended that the local jurisdictions require a review of noise attenuation requirements, a disclosure covenant (notification of proximity to airport prior to sale of property), and an avigation easement.

Source: P&D Aviation 1991.

Finally, the noise standards recommend several measures for new residential uses outside the 60 CNEL contour but inside the "Traffic Pattern Zone." These include a review of noise attenuation requirements, an avigation easement, and a "disclosure covenant" notifying buyers of the proximity of the property to the airport.

A.2.2 SAFETY

A.2.2.a Civilian Airports

The 1991 CLUP establishes three safety zones at each civilian airport. These are the Inner Safety Zone, the Outer Safety Zone, and the Traffic Pattern Zone. The Inner Safety Zone corresponds to the runway protection zone (RPZ) off the runway ends. The Outer Safety Zone corresponds to the Part 77 approach surface extending between the RPZ and the base of the Part 77 horizontal surface. The size of these areas varies depending on the type of approach established or planned for each runway end. At Camarillo, the Outer Safety Zone has been enlarged to cover the area beneath a commonly used right turning flight track used by Runway 26 departures.

At Oxnard and Camarillo, the Traffic Pattern Zone (TPZ) is a roughly rectangular area centered on the airport. It is intended to cover the area subject to frequent low altitude overflights and touch-and-go traffic in the pattern. The dimensions of the TPZ were defined based on the outer edge of the assumed traffic pattern flight tracks. The TPZ extends 4,000 feet either side of the runway centerline at Oxnard and 3,400 feet either side of the runway at Camarillo.

At Santa Paula, the TPZ is asymmetrical. It extends only south of the runway. The TPZ extends 6,800 feet off the ends of the runway and 3,000 feet off the south side of the runway. The TPZ was not established on the north side of the airport because aircraft flying in this area over the city are at higher than typical pattern altitude.

Table A2 shows the land use compatibility standards for the three air safety zones established at the civilian airports in Ventura County. In the Inner Safety Zone, agriculture is the only acceptable land use. Golf courses and water recreation are conditionally acceptable, provided clubhouses are not allowed. Communication, utilities, and auto parking is conditionally acceptable although structures are not permitted. Above ground utility lines and parking are allowed only if approved by the FAA as not constituting a hazard to air navigation.

In the Outer Safety Zone, communications/utilities, auto parking, golf courses and water recreation and agriculture are all acceptable land uses. Most commercial and industrial uses are conditionally acceptable if the maximum structural coverage is limited to 25 percent of the gross lot area. (This includes land in streets and green belts.) All other uses, including residential, hotels and other gathering places are unacceptable.

In the Traffic Pattern Zone, acceptable land uses include resorts and camps, outdoor amusement, and parks. Residential, commercial, and industrial uses are conditionally acceptable if the maximum structural coverage is limited to 50 percent of the gross lot area. Large gathering places, including hospitals, schools, places of worship, auditoriums and theaters, transportation terminals, and outdoor sports arenas and amphitheaters are unacceptable.

A.2.2.b NAS Point Mugu

At NAS Point Mugu, three safety zones are established. These are taken directly from the 1977 AICUZ Study for the station. (An updated AICUZ Study was published in July 1992, and some of the zone boundaries have changed.) They include the Clear Zone, Accident Potential Zone 1 (APZ-1), and Accident Potential Zone 2 (APZ-2).

The clear zone is a trapezoid-shaped area extending 3,000 feet off the runway end. It is 1,500 feet wide at the runway end and 2,284 feet at the outside end. The APZ-1 is defined immediately beyond the clear zone under flight paths with 5,000 or more annual operations. Typically, the zone is 3,000 feet wide and 5,000 feet long. It may be curved to conform to flight paths. The APZ-2 is an area just beyond APZ-1 where there is a measurable potential for accidents. It is typically 3,000 feet wide and 7,000 feet wide. It may also be curved to follow flight paths. (The Department of Defense AICUZ standards do not define an area analogous to the Traffic Pattern Zone designated around the civilian airports in the County.)

TABLE A2
Recommended Land Use Compatibility Guidelines In
Air Safety Zones For Civilian Airports, Ventura County Airports
Comprehensive Land Use Plan

Land Use	Inner Safety Zone	Outer Safety Zone	Traffic Pattern Zone
Residential			
Single Family	U	U	C [a]
Multi-Family	U	U	C [a]
Mobile Home Parks	U	U	C [a]
Public/Institutional			
Hospitals/Convalescent Homes	U	U	U
Schools	U	U	U
Churches/Synagogues	U	U	U
Auditoriums/Theaters	U	U	U
Transportation Terminals	U	U	U
Communication/Utilities	C [b]	A	A
Automobile Parking	C [b]	A	A
Commercial			
Hotels and Motels	U	U	C [c]
Offices and Business/Professional Services	U	C [a]	C [c]
Wholesale	U	C [a]	C [c]
Retail	U	C [a]	C [c]
Industrial			
Manufacturing - General/Heavy	U	C [a]	C [c]
Light Industrial	U	C [a]	C [c]
Research and Development	U	C [a]	C [c]
Business Parks/Corporate Offices	U	C [a]	C [c]
Recreation/Open Space			
Outdoor Sports Arenas	U	U	U
Outdoor Amphitheaters	U	U	U
Parks	U	C [a]	A
Outdoor Amusement	U	C [a]	A
Resorts and Camps	U	C [a]	A
Golf Courses and Water Recreation	C [d]	A	A
Agriculture	A	A	A

TABLE A2 (Continued)
Recommended Land Use Compatibility Guidelines In
Air Safety Zones For Civilian Airports, Ventura County Airports
Comprehensive Land Use Plan

NOTES

A = Acceptable land use
C = Land use is conditional upon meeting established criteria (see footnotes)
U = Unacceptable land use

[a] Maximum structural coverage must be no more than 25 percent. "Structural coverage" is defined as the percent of building footprint area to total land area, including streets and greenbelts.

[b] The placing of structures or buildings in the Inner Safety Zone is unacceptable. Above ground utility lines and parking are allowed only if approved by the FAA as not constituting a hazard to air navigation.

[c] Maximum structural coverage must not exceed 50 percent. "Structural coverage" is defined as the percent of building footprint area to total land area, including streets and greenbelts. Where development is proposed immediately adjacent to the airport property, it is suggested that structures be located as far as practical from the runway.

[d] Clubhouse is unacceptable in this zone.

Source: P&D Aviation 1991.

Table A3 shows the land use compatibility standards for the three air safety zones established for NAS Point Mugu. In the Clear Zone, most uses are considered unacceptable. Communication/utilities and auto parking are conditionally acceptable, provided that no buildings are built. Above ground utility lines and auto parking are permitted only if approved by the Department of Defense as not constituting a hazard to air navigation.

In the APZ-1 zone, auto parking is the only acceptable land use. Several uses are conditionally acceptable, including communication/utilities, wholesale, retail, manufacturing, light industrial, parks, golf courses and water recreation, and agriculture. The conditions are somewhat vague. For example, the condition applying to wholesale, retail, and industrial uses requires that "uses must be evaluated separately due to the variation of densities of people and structures." No guidance is offered as to acceptable densities. One of the conditions applying to parks, golf courses, and water recreation is that "facilities must be low intensity." Again, no guidance or definition of "low intensity" is provided.

In the APZ-2 zone, several uses are considered acceptable, including transportation terminals, communication/utilities, auto parking, wholesale, manufacturing, light

industrial, golf courses and water recreation, and agriculture. Several other uses are conditionally acceptable, including single family homes, places of worship, offices, retail, research and development, parks, and outdoor amusement. Here again the conditions are vague. Only "low intensity" facilities are permitted, although the term low intensity is not defined. Homes are limited to a density of 1 to 2 dwelling per acre. This may possibly be increased under a Planned Unit Development provided the maximum lot coverage by the building footprint is limited to 20 percent or less.

TABLE A3
Recommended Land Use Compatibility Guidelines In
Air Safety Zones For PMTC Point Mugu, Ventura County Airports
Comprehensive Land Use Plan

Land Use	Clear Zone	APZ-1	APZ-2
Residential			
Single Family	U	U	C [a]
Multi-Family	U	U	U
Mobile Home Parks	U	U	U
Public/Institutional			
Hospitals/Convalescent Homes	U	U	U
Schools	U	U	U
Churches/Synagogues	U	U	C [b]
Auditoriums/Theaters	U	U	U
Transportation Terminals	U	U	A
Communication/Utilities	C [c]	C [d]	A
Automobile Parking	C [c]	A	A
Commercial			
Hotels and Motels	U	U	U
Offices and Business/Professional Services	U	U	C [e]
Wholesale	U	C [b]	A
Retail	U	C [b]	C [b]
Industrial			
Manufacturing - General/Heavy	U	C [b]	A
Light Industrial	U	C [b]	A
Research and Development	U	U	C [b]
Business Parks/Corporate Offices	U	U	C [b]
Recreation/Open Space			
Outdoor Sports Arenas	U	U	U
Outdoor Amphitheaters	U	U	U
Parks	U	C [f]	C [f]
Outdoor Amusement	U	U	C [f]
Resorts and Camps	U	U	U
Golf Courses and Water Recreation	U	C [f, g]	A
Agriculture	U	C [h]	A

TABLE A3 (Continued)
Recommended Land Use Compatibility Guidelines In
Air Safety Zones For PMTC Point Mugu, Ventura County Airports
Comprehensive Land Use Plan

NOTES

A = Acceptable land use
C = Land use is conditional upon meeting established criteria (see footnotes)
U = Unacceptable land use

[a] Maximum density must be 1-2 dwelling units per acre, possibly increased under a Planned Unit Development (PUD) where maximum lot coverage is less than 20 percent. "Lot coverage" is defined as the average percent of building footprint area to lot area.

[b] Uses must be evaluated separately due to the variation of densities of people and structures.

[c] The placing of structures or buildings in the Clear Zone is unacceptable. Above ground utility lines and parking area allowed only if approved by the DOD as not constituting a hazard to air navigation.

[d] Passenger terminals and major above-ground transmission lines are unacceptable in APZ-1.

[e} Low-intensity office uses only. Meeting places, etc. are unacceptable.

[f] Facilities must be low intensity.

[g] Clubhouse is unacceptable in this zone.

[h] Factors to be considered: labor intensity, structural coverage, explosive characteristics, air pollution.

Source: P&D Aviation 1991.

A.2.3 HEIGHT LIMITATION

Height limitations in the 1991 CLUP are based on the guidelines provided by Federal Aviation Regulation (F.A.R.) Part 77, *Objects Affecting Navigable Airspace*. These standards are used by the FAA in determining whether objects may obstruct safe air navigation. Part 77 defines a variety of imaginary surfaces around airports. Each surface is defined at a certain altitude around the airport. The dimensions of the Part 77 surfaces vary depending on the type of approach to the runways. Runways with nonprecision approaches have larger surfaces and flatter approach slopes than visual runways. Precision instrument runways have still larger surfaces and flatter approaches.

The FAA uses the Part 77 standards not as absolute height limits, but as elevations above which structures may constitute unsafe obstructions. Any penetrations of the Part 77 surfaces are subject to review by the FAA on a case by case basis. If a safety problem is found, the FAA issues a determination of a hazard to air navigation. The FAA does not have the authority to prevent the encroachment. It is up to the local authorities to implement the FAA's recommendation.

The 1991 CLUP uses the Part 77 guidelines as regulatory height limits that cannot be exceeded by new construction. The CLUP notes that terrain penetrates some of the Part 77 surfaces at Camarillo and Santa Paula Airports and NAS Point Mugu. In these areas, the height limitations would appear to completely prohibit any development above the ground. The CLUP provides no guidance as to whether, and under what conditions, variances should be allowed in these cases.

The 1991 CLUP notes one exception to the Part 77 height restrictions. This applies to Santa Paula Airport. Structures off the east end of the airport may be allowed to penetrate the approach and transitional surfaces "to the extent that such penetrations are 'masked' by the existing penetrations of the Santa Paula Freeway." The term 'masked' means that height penetrations of the Part 77 surface are allowed but only to the degree they are below the approach slope created by the Santa Paula Freeway and its required 17-foot clearance. The masked area consists of the land north of the freeway and east of the end of the primary surface (approximately 10th Street).

A.3 ALTERNATIVE NOISE COMPATIBILITY POLICIES

This section discusses possible alternative noise compatibility policies based on a variety of sources, including Federal guidelines, the State's updated *Airport Land Use Planning Handbook* (Hodges & Shutt 1993), and the CLUPs of other counties in California.

A.3.1 FEDERAL NOISE COMPATIBILITY GUIDELINES

Since the 1960s, many different sets of Federal noise and land use compatibility guidelines have been proposed and used. This section reviews some of the more well known guidelines. These Federal guidelines are based on the DNL metric -- day-night sound level. (In mathematical equations, DNL is referred to as Ldn.) The DNL metric is very similar to the CNEL metric used in California. The only difference is that DNL does not include the weighting penalty for evening noise between 7 and 10 p.m.

A.3.1.a FAA-DOD Guidelines

In 1964, the Federal Aviation Administration (FAA) and the U.S. Department of Defense (DOD) published similar documents setting forth guidelines to assist land use planning in areas subjected to aircraft noise from nearby airports. These are presented in **Table A4**. The guidelines establish three zones, describing the expected responses to aircraft noise from residents of each zone. In Zone 1, corresponding to areas exposed to noise below 65 DNL, essentially no complaints would be expected, although noise could be an occasional nuisance. In Zone 2, corresponding to 65 to 80 DNL, individuals may complain, perhaps vigorously. In Zone 3, corresponding to 80 DNL and above, vigorous complaints would be likely and concerted group action could be expected.

TABLE A4
Chart for Estimating Response of Communities Exposed to Aircraft Noise
1964 FAA-DOD Guidelines

Noise Rating	Zone	Description of Expected Response
Less than 65 Ldn 100 CNR	1	Essentially no complaints would be expected. The noise may, however, interfere occasionally with certain activities of the residents.
65 to 80 Ldn 100 to 115 CNR	2	Individuals may complain, perhaps vigorously. Concerted group action is possible.
Greater than 80 Ldn 115 CNR	3	Individual reactions would likely include repeated, vigorous complaints. Concerted group action might be expected.

Notes: Ldn is the mathematical notation for DNL – day-night sound level. DNL is similar to CNEL except that evening noise (7 to 10 p.m.) is not assigned a weighting penalty.

CNR stands for "community noise rating", a cumulative noise descriptor similar to Ldn which is no longer in general use.

Source: U.S. DOD 1964. Cited in Kryter 1984, p. 616.

A.3.1.b HUD Guidelines

In 1971, the U.S. Department of Housing and Urban Development published noise assessment guidelines for evaluating the acceptability of sites for housing assistance. The guidelines, shown in **Table A5**, establish four classes of noise impact. The first two categories refer to areas outside the 65 DNL contour, the first at a distance exceeding the distance between the 65 and 75 DNL contours, the second at a lesser distance. Housing is considered clearly acceptable in the first category and "normally acceptable" in the second. Housing is considered "normally unacceptable" in the 65 to 75 DNL range and clearly unacceptable inside the 75 DNL contour.

TABLE A5
Site Exposure to Aircraft Noise
1971 HUD Guidelines

Distance from site to the center of the area covered by the principal runways	Acceptability category
Outside the Ldn = 65 (NEF = 30, CNR = 100) contour at a distance greater than or equal to the distance between the contours Ldn = 65 and Ldn = 75	Clearly acceptable
Outside the Ldn = 65 contour, at a distance less than the distance between the Ldn = 65 and Ldn = 75	Normally acceptable
Between the Ldn = 65 and Ldn = 75 contours	Normally unacceptable
Within the Ldn = 75 contour	Clearly unacceptable

Note: CNR and NEF stand for "community noise rating", and "noise exposure forecast", cumulative noise descriptors which are no longer in general use.

Source: Schultz and McMahon 1971. Cited in Kryter 1984, p. 617.

A.3.1.c EPA Guidelines

The U.S. Environmental Protection Agency published a document in 1974 suggesting maximum noise exposure levels to protect public health with an adequate margin of safety. These are shown in **Table A6**. They note that the risk of hearing loss may become a concern with exposure to noise above 74 DNL. Interference with outdoor activities may become a problem with noise levels above 55 DNL. Interference with indoor residential activities may become a problem with interior noise levels above 45 DNL. If we assume that standard construction attenuates noise by about 20 decibels, with doors and windows closed, a standard estimate, this corresponds to an exterior noise level of 65 DNL.

TABLE A6
Summary of Noise Levels Identified as Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety 1974 EPA Guidelines

Effect	Level	Area
Hearing Loss	74 Ldn +	All areas
Outdoor activity interference and annoyance	55 Ldn +	Outdoors in residential areas and farms and other outdoor areas where people spend widely varying amounts of time and other places in which quiet is a basis for use.
	59 Ldn +	Outdoor areas where people spend limited amounts of time, such as school yards, playgrounds, etc.
Indoor activity interference and annoyance	45 Ldn +	Indoor residential areas
	49 Ldn +	Other indoor areas with human activities such as schools, etc.

Note: All Leq values from EPA document converted by FAA to Ldn for ease of comparison (Ldn = Leq (24) + 4 dB).

Source: U.S. EPA 1974. Cited in FAA 1977a, p. 26.

A.3.1.d FAA Land Use Guidance System

In 1977, FAA issued an advisory circular on airport land use compatibility planning (FAA 1977b). It describes land use guidance (LUG) zones corresponding to aircraft noise of varying levels as measured by four different noise metrics (**Exhibit A5**). It also includes suggested land use noise sensitivity guidelines (**Exhibit A6**).

In **Exhibit A5**, LUG Chart I, four land use guidance zones are described, corresponding to DNL levels of 55 or less (A), 55 to 65 (B), 65 to 75 (C), and 75 and over (D). LUG Zone A is described as minimal exposure, normally requiring no special noise control considerations. LUG Zone B is described as moderate exposure where land use controls should be considered. LUG Zone C is subject to significant exposure, and various land use controls are recommended. In LUG Zone D, severe exposure, containment of the area within airport property, or other positive control measures, are suggested.

In LUG Chart II, **Exhibit A6**, most noise-sensitive uses are suggested as appropriate only within LUG Zone A. These include single-family and two-family dwellings, mobile homes, cultural activities, places of public assembly, and resorts and group camps. Uses suggested for Zones A and B include multi-family dwellings and group quarters;

LAND USE GUIDANCE ZONES (LUG)	NOISE EXPOSURE CLASS	INPUTS: AIRCRAFT NOISE ESTIMATING METHODOLOGIES				HUD NOISE ASSESSMENT GUIDELINES (1977)	SUGGESTED NOISE CONTROLS
		Ldn DAY-NIGHT AVERAGE SOUND LEVEL	**NEF** NOISE EXPOSURE FORECAST	**CNR** COMPOSITE NOISE RATING	**CNEL** COMMUNITY NOISE EQUIVALENT LEVEL		
A	MINIMAL EXPOSURE	0 TO 55	0 TO 20	0 TO 90	0 TO 55	"CLEARLY ACCEPTABLE"	NORMALLY REQUIRES NO SPECIAL CONSIDERATIONS
B	MODERATE EXPOSURE	55 TO 65	20 TO 30	90 TO 100	55 TO 65	"NORMALLY ACCEPTABLE"	LAND USE CONTROLS SHOULD BE CONSIDERED
C	SIGNIFICANT EXPOSURE	65 TO 75	30 TO 40	100 TO 115	65 TO 75	"NORMALLY UNACCEPTABLE"	NOISE EASEMENTS, LAND USE, AND OTHER COMPATIBILITY CONTROLS RECOMMENDED
D	SEVERE EXPOSURE	75 & HIGHER	40 & HIGHER	115 & HIGHER	75 & HIGHER	"CLEARLY UNACCEPTABLE"	CONTAINMENT WITHIN AIRPORT BOUNDARY OR USE OF POSITIVE COMPATIBILITY CONTROLS RECOMMENDED

Source: FAA 1977b, p. 12.

Ventura County
AIRPORT LAND USE PLAN

Exhibit A5
LAND USE GUIDANCE CHART I:
AIRPORT NOISE INTERPOLATION

financial, personal, business, governmental, and educational services; and manufacturing of precision instruments. In Zones C and D, various manufacturing, trade, service, resource production, and open space uses are suggested.

A.3.1.e Federal Interagency Committee on Urban Noise

In 1979, the Federal Interagency Committee on Urban Noise (FICUN), including representatives of the Environmental Protection Agency, the Department of Transportation, the Housing and Urban Development Department, the Department of Defense, and the Veterans Administration, was established to coordinate various federal programs relating to the promotion of noise-compatible development. In 1980, the Committee published a report which contained detailed land use compatibility guidelines for varying DNL noise levels (FICUN 1980). These are presented in **Table A7**. The work of the Interagency Committee was very important as it brought together for the first time all federal agencies with a direct involvement in noise compatibility issues and forged a general consensus on land use compatibility for noise analysis on federal projects.

The Interagency guidelines describe the 65 DNL contour as the threshold of significant impact for residential land uses and a variety of noise-sensitive institutions (such as hospitals, nursing homes, schools, cultural activities, auditoriums, and outdoor music shells). Within the 55 to 65 DNL contour range, the guidelines note that cost and feasibility factors were considered in defining residential development and several of the institutions as compatible. In other words, the guidelines are based not solely on the effects of noise. They also consider the cost and feasibility of noise control.

LAND USE		LUG ZONE[1]		LAND USE		LUG ZONE[1]	
SLUCM NO.	NAME	SUG-GESTED	STUDY	SLUCM NO.	NAME	SUG-GESTED	STUDY
10	Residential.	A-B		50	Trade.[4]		
11	Household units.			51	Wholesale trade.	C-D	
11,11	Single units--detached.	A		52	Retail trade--building materials, hardware, and farm equipment.	C	
11,12	Single units--semiattached.	A		53	Retail trade--general merchandise.	C	
11,13	Single units--attached row.	B		54	Retail trade--food.	C	
11,21	Two units--side-by-side.	A		55	Retail trade--automotive, marine craft, aircraft, and accessories.	C	
11,22	Two units--one above the other.	A		56	Retail trade--apparel and accessories.	C	
11,31	Apartments--walk up.	B		57	Retail trade--furniture, home furnishings, and equipment.	C	
11,32	Apartments--elevator.	B-C		59	Retail trade--eating and drinking.	C-D	
12	Group quarters.	A-B			Other retail trade.		
13	Residential hotels.	B		60	Services.[4]		
14	Mobile home parks or courts.	A		61	Finance, insurance, and real estate services.	B	
15	Transient lodgings.	C		62	Personal services.	B	
19	Other residential.	A-C		63	Business services.	B	
20	Manufacturing.[2]	C-D		64	Repair services.	C	
21	Food and kindred products--manufacturing.			65	Professional services.	B-C	
22	Textile mill products--manufacturing.	C-D		66	Contract construction services.	C	
23	Apparel and other finished products made from fabrics, leather, and similar materials--manufacturing.	C-D		67	Governmental services.	B	
24	Lumber and wood products (except furniture)--manufacturing.	C-D		68	Educational services.	A-B	
25	Furniture and fixtures--manufacturing.	C-D		69	Miscellaneous services.	A-C	
26	Paper and allied products--manufacturing.	C-D		70	Cultural, entertainment, and recreational.		
27	Printing, publishing, and allied industries.	C-D		71	Cultural activities and nature exhibitions.	A	
28	Chemicals and allied products--manufacturing.	C-D		72	Public assembly.	A	
29	Petroleum refining and related industries.[3]	C-D		73	Amusements.	C	
30	Manufacturing (Continued).[2]			74	Recreational activities.[5]	B-C	
31	Rubber and miscellaneous plastic products--manufacturing.	C-D		75	Resorts and group camps.	A	
32	Stone, clay, and glass products--manufacturing.	C-D		76	Parks.	A-C	
33	Primary metal industries.	D		79	Other cultural, entertainment, and recreational.[5]	A-B	
34	Fabricated metal products--manufacturing.	D		80	Resource production and extraction.		
35	Professional, scientific, and controlling instruments: photographic and optical goods; watches and clocks--manufacturing.	B		81	Agriculture.	C-D	
39	Miscellaneous manufacturing.	C-D		82	Agricultural related activities.	C-D	
40	Transportation, communication, and utilities.			83	Forestry activities and related services.	D	
41	Railroad, rapid rail transit, and street railway transportation.	D		84	Fishing activities and related services.	D	
42	Motor vehicle transportation.	D		85	Mining activities and related services.	D	
43	Aircraft transportation.	D		89	Other resource production and extraction.	C-D	
44	Marine craft transportation.	D		90	Undeveloped land and water areas.		
45	Highway and street right-of-way.	D		91	Undeveloped and unused land area (excluding noncommercial forest development).	D	
46	Automobile parking.	D		92	Noncommercial forest development.	D	
47	Communication.	A-D		93	Water areas.	A-D	
48	Utilities.	D		94	Vacant floor area.	A-D	
49	Other transportation communication and utilities.	A-D		95	Under construction.	A-D	
				99	Other undeveloped land and water areas.	A-D	

1. Refer to Land Use Guidance Chart I, Exhibit C-1.
2. Zone "C" suggested maximum except where exceeded by self generated noise.
3. Zone "D" for noise purposes; observe normal hazard precautions.
4. If activity is not in substantial, air-conditioned building, go to next higher zone.
5. Requirements likely to vary - individual appraisal recommended.

SLUCM: *Standard Land Use Coding Manual*, U.S. Urban Renewal Administration and Bureau of Public Roads, 1965.

Source: FAA 1977b, p. 14.

Exhibit A6
LAND USE GUIDANCE CHART II:
LAND USE NOISE SENSITIVITY INTERPOLATION

TABLE A7
Suggested Land Use Compatibility Guidelines
1980 Federal Interagency Committee on Urban Noise

SLUCM No.	Land Use Name	Noise Zones/DNL Levels in Ldn						
		A 0-55	B 55-65	C-1 65-70	C-2 70-75	D-1 75-80	D-2 80-85	D-3 85+
10	**Residential**							
11	Household Units							
11.11	Single Units - detached	Y	Y*	25[1]	30[1]	N	N	N
11.12	Single Units - semi-detached	Y	Y*	25[1]	30[1]	N	N	N
11.13	Single Units - attached row	Y	Y*	25[1]	30[1]	N	N	N
11.21	Two Units - side by side	Y	Y*	25[1]	30[1]	N	N	N
11.22	Two Units - one above the other	Y	Y*	25[1]	30[1]	N	N	N
11.31	Apartments - walk up	Y	Y*	25[1]	30[1]	N	N	N
11.32	Apartments - elevator	Y	Y*	25[1]	30[1]	N	N	N
12	Group Quarters	Y	Y*	25[1]	30[1]	N	N	N
13	Residential Hotels	Y	Y*	25[1]	30[1]	N	N	N
14	Mobile Home Park or Courts	Y	Y*	N	N	N	N	N
15	Transient Lodgings	Y	Y*	25[1]	30[1]	35[1]	N	N
16	Other Residential	Y	Y*	25[1]	30[1]	N	N	N
20	**Manufacturing**	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
21	Food and kindred products -	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
22	manufacturing	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
23	Textile mill products - manufacturing	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
24	Apparel and other finished products made from fabrics, leather, and similar materials - manufacturing	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
25	Lumber and wood products (except furniture) - manufacturing	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
26	Furniture and fixtures - manufacturing	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
27	Paper and allied products - manufacturing	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
28	Printing, publishing, and allied industries	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
29	Chemicals and allied products manufacturing	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
30	Petroleum refining and related industries							
31	**Manufacturing (Continued)**	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
32	Rubber and misc. plastic products - manufacturing	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
33	Stone, clay, and glass products -	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
34	manufacturing	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
35	Primary metal industries	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
39	Fabricated metal products - manufacturing Professional, scientific, and controlling instruments; photographic and optical goods; watches and clocks - manufacturing Miscellaneous manufacturing	Y	Y	Y	25	30	N	N
40	**Transportation, communication, and utilities**							
41	Railroad, rapid rail transit, transit and street railway transportation	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
42	Motor vehicle transportation	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
43	Aircraft transportation	Y	Y	Y	Y[2]	Y[3]	Y[4]	N

TABLE A7 (Continued)
Suggested Land Use Compatibility Guidelines
1980 Federal Interagency Committee on Urban Noise

SLUCM No.	Land Use Name	Noise Zones/DNL Levels in Ldn						
		A 0-55	B 55-65	C-1 65-70	C-2 70-75	D-1 75-80	D-2 80-85	D-3 85+
44	Marine craft transportation	Y	Y	Y	Y[2]	Y[3]	Y[4]	Y
45	Highway and street right-of-way	Y	Y	Y	Y[2]	Y[3]	Y[4]	Y
46	Automobile parking	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
47	Communication	Y	Y	Y	25[5]	30[5]	N	N
48	Utilities	Y	Y	Y	Y[2]	Y[3]	Y[4]	Y
49	Other transportation, communication, and utilities	Y	Y	Y	25[5]	30[5]	N	N
50	**Trade**							
51	Wholesale trade	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
52	Retail trade - building materials, hardware and farm equipment	Y	Y	Y	Y[2]	Y[3]	N	N
53	Retail trade - general merchandise	Y	Y	Y	25	30	N	N
54	Retail trade - food	Y	Y	Y	25	30	N	N
55	Retail trade - automotive, marine craft, aircraft and accessories	Y	Y	Y	25	30	N	N
56	Retail trade - apparel and accessories	Y	Y	Y	25	30	N	N
57	Retail trade - furniture, home furnishings, and equipment	Y	Y	Y	25	30	N	N
58	Retail trade - eating and drinking establishments	Y	Y	Y	25	30	N	N
59	Other retail trade	Y	Y	Y	25	30	N	N
60	**Services**							
61	Finance, insurance, and real estate services	Y	Y	Y	25	30	N	N
62	Personal services	Y	Y	Y	25	30	N	N
62.4	Cemeteries	Y	Y	Y	Y[2]	Y[3]	Y[4,11]	Y[6,11]
63	Business services	Y	Y	Y	25	30	N	N
64	Repair services	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
65	Professional services	Y	Y	Y	25	30	N	N
65.1	Hospitals, nursing homes	Y	Y*	25*	30*	N	N	N
65.2	Other medical facilities	Y	Y	Y	25	30	N	N
66	Contract construction services	Y	Y	Y	25	30	N	N
67	Governmental services	Y	Y*	Y*	25*	30*	N	N
68	Educational services	Y	Y*	25*	30*	N	N	N
69	Miscellaneous	Y	Y	Y	25	30	N	N
70	**Cultural, entertainment, and recreational**							
71	Cultural activities (including churches)	Y	Y*	25*	30*	N	N	N
71.2	Nature exhibits	Y	Y*	Y*	N	N	N	N
72	Public assembly	Y	Y	Y	N	N	N	N
72.1	Auditoriums, concert halls	Y	Y	25	30	N	N	N
72.11	Outdoor music shells, amphitheaters	Y	Y*	N	N	N	N	N
72.2	Outdoor sports arenas, spectator sports	Y	Y	Y[7]	Y[7]	N	N	N
73	Amusements	Y	Y	Y	N	N	N	N
74	Recreational activities (including golf courses, riding stables, water recreation)	Y	Y*	Y*	25*	30*	N	N
75	Resorts and group camps	Y	Y*	Y*	Y*	N	N	N
76	Parks	Y	Y*	Y*	Y*	N	N	N
79	Other cultural, entertainment	Y	Y*	Y*	Y*	N	N	N

TABLE A7 (Continued)
Suggested Land Use Compatibility Guidelines
1980 Federal Interagency Committee on Urban Noise

SLUCM No.	Land Use Name	Noise Zones/DNL Levels in Ldn						
		A 0-55	B 55-65	C-1 65-70	C-2 70-75	D-1 75-80	D-2 80-85	D-3 85+
80	**Resource Production and extraction**							
81	Agriculture (except livestock)	Y	Y	Y[8]	Y[9]	Y[10]	Y[10,11]	Y[10,11]
81.5 to 81.7	Livestock farming and animal breeding	Y	Y	Y[8]	Y[9]	N	N	N
82		Y	Y	Y[8]	Y[9]	Y[10]	Y[10,11]	Y[10,11]
83	Agricultural-related activities	Y	Y	Y[8]	Y[9]	Y[10]	Y[10,11]	Y[10,11]
84	Forestry activities and related services	Y	Y	Y	Y	Y	Y	Y
85	Fishing activities and related services	Y	Y	Y	Y	Y	Y	Y
89	Mining activities and related services	Y	Y	Y	Y	Y	Y	Y
	Other source production and extraction							

NOTES

[1]a) Although local conditions may require residential use, it is discouraged in C-1 and strongly discouraged in C-2. The absence of viable alternative development options should be determined and an evaluation indicating that a demonstrated community need for residential use would not be met if development were prohibited in these zones should be conducted prior to approvals.

b) Where the community determines that residential uses must be allowed measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB (Zone C-1) and 30 dB (Zone C-2) should be incorporated into building codes and be considered in individual approvals. Normal construction can be expected to provide a NLR of 20 dB, thus the reduction requirements are often stated as 5, 10, 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. Additional consideration should be given to modifying NLR levels based on peak noise levels.

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

[2] Measures to achieve NLR of 25 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.

[3] Measures to achieve NLR of 30 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.

[4] Measures to achieve NLR of 35 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas or where the normal noise level is low.

[5] If noise sensitive use indicated NLR; if not use is compatible.

[6] No buildings.

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

[8] Residential buildings require a NLR of 25.

[9] Residential buildings require a NLR of 30.

[10] Residential buildings not permitted.

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

TABLE A7 (Continued)
Suggested Land Use Compatibility Guidelines
1980 Federal Interagency Committee on Urban Noise

KEY	
SLUCM	**Standard Land Use Coding Manual**, (U.S. Urban Renewal Administration and Bureau of Public Roads, 1965).
Y(Yes)	Land Use and related structures compatible without restrictions.
N(No)	Land Use and related structures are not compatible and should be prohibited.
NLR (Noise Level Reduction)	Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
Y[s](Yes with restrictions)	Land Use and related structures generally compatible; see notes 2 through 4.
25, 30, or 35	Land Use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 must be incorporated into design and construction of structure.
25*, 30*, or 35*	Land Use generally compatible with NLR; however, measures to achieve an overall noise reduction do not necessarily solve noise difficulties and additional evaluation is warranted.
Y*	The designation of these uses as "compatible" in this zone reflects individual Federal agencies' consideration of general cost and feasibility factors as well as past community experiences and program objectives. Localities, when evaluating the application of these guidelines to specific situations, may have different concerns or goals to consider....

Source: *Guidelines For Considering Noise In Land Use Planning and Control*, Federal Interagency Committee on Urban Noise, June 1980, p.6.

A.3.1.f ANSI Guidelines

In 1980, the American National Standards Institute (ANSI) published recommendations for land use compatibility with respect to noise (ANSI 1980). Kryter (1984, p. 621) notes that no supporting data for the recommended standard is provided.

The ANSI guidelines are shown in **Exhibit A7**. While generally similar to the Federal Interagency guidelines, there are some important differences. First, ANSI's land use classification system is less detailed. Second, the ANSI standard acknowledges the potential for noise effects below the 65 DNL level, describing several uses as "marginally compatible" with noise below 65 DNL. These include single-family residential (from 55 to 65 DNL), multi-family residential, schools, hospitals, and auditoriums (60 to 65 DNL), and music shells (50 to 65 DNL). Other outdoor activities, such as parks, playgrounds, cemeteries, and sports arenas, are described as marginally compatible with noise levels as low as 55 or 60 DNL.

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LAND USE	Yearly Day-Night Average Sound Level (DNL) in Decibels			
	50-60	60-70	70-80	80-90
Residential - Single Family, Extensive Outdoor Use				
Residential - Multiple Family, Moderate Outdoor Use				
Residential - Multi Story, Limited Outdoor Use				
Transient Lodging				
School Classrooms, Libraries, Religious Facilities				
Hospitals, Clinics, Nursing Homes, Health Related Facilities				
Auditoriums, Concert Halls				
Music Shells				
Sports Arenas, Outdoor Spectator Sports				
Neighborhood Parks				
Playgrounds, Golf Courses, Riding Stables, Water Rec., Cemeteries				
Office Buildings, Personal Services, Business and Professional				
Commercial - Retail, Movie Theaters, Restaurants				
Commercial - Wholesale, Some Retail, Ind., Mfg., Utilities				
Livestock Farming, Animal Breeding				
Agriculture (Except Livestock)				
Extensive Natural Wiildlife and Recreation Areas				

COMPATIBLE

MARGINALLY COMPATIBLE

WITH INSULATION

INCOMPATIBLE

Source: ANSI 1980. Cited in Kryter 1984, p. 624.

Ventura County
AIRPORT LAND USE PLAN

Exhibit A7

LAND USE COMPATIBILITY WITH YEARLY DAY-NIGHT AVERAGE SOUND LEVEL AT A SITE FOR BUILDINGS AS COMMONLY CONSTRUCTED

A.3.1.g F.A.R. Part 150 Guidelines

The FAA adopted a revised and simplified version of the Federal Interagency guidelines when it promulgated F.A.R. Part 150 in the early 1980s. (The Interim Rule was adopted on January 19, 1981. The final rule was adopted on December 13, 1984, published in the Federal Register on December 18, and became effective on January 18, 1985.) Among the changes made by FAA were the use of a coarser land use classification system and the deletion of any reference to any potential for noise impacts below the 65 DNL level. The determination of the compatibility of various land uses with various noise levels, however, is very similar to the Interagency determinations (FICUN 1980).

Exhibit A8 lists the F.A.R. Part 150 land use compatibility guidelines. These are only guidelines. Part 150 explicitly states that determinations of noise compatibility and regulation of land use are purely local responsibilities. Lacking any specific guidance provided by State law or regulation, local airport sponsors around the country typically use the Part 150 land use guidelines as is when developing noise compatibility studies under F.A.R. Part 150.

A.3.2 CALIFORNIA NOISE COMPATIBILITY REGULATIONS AND GUIDELINES

In California, the CNEL (community noise equivalent level) metric is used instead of the DNL metric. They are actually very similar. DNL accumulates the total noise occurring during a 24-hour period, with a 10 decibel penalty applied to noise occurring between 10:00 p.m. and 7:00 a.m. The CNEL metric is the same except that it also adds a 4.8 decibel penalty for noise occurring between 7:00 p.m. and 10:00 p.m. There is little actual difference between the two metrics in practice. Calculations of CNEL and DNL from the same data generally yield values with less than a 0.7 decibels difference (Caltrans 1983, p. 37).

California law sets the standard for the acceptable level of aircraft noise for persons residing near airports as 65 CNEL (California Code of Regulations, Title 21, Chapter 2.5, Subchapter 6, Sections 5000 et seq.). Four types of land uses are defined as incompatible with noise above 65 CNEL: residences, schools, hospitals and convalescent homes, and places of worship. These land uses are regarded as compatible if they have been insulated to assure an interior sound level, from aircraft noise, of 45 CNEL. They are also to be considered compatible if an avigation easement over the property has been obtained by the airport operator.

California noise insulation standards apply to new hotels, motels, apartment buildings and other dwellings not including detached single family homes. They require that "interior noise levels attributable to outdoor sources shall not exceed 45 decibels (based

on the DNL or CNEL metric) in any habitable room." In addition, any of these residential structures proposed within a 60 CNEL noise contour require an acoustical analysis to show that the proposed design will meet the allowable interior noise level standard. (California Code of Regulations, Title 24, Part 2, Appendix Chapter 35.)

In the *1993 Airport Land Use Planning Handbook* (Hodges & Shutt 1993, p. 3-3) land use compatibility guidelines are suggested for use in the preparation of comprehensive airport land use plans. The guidelines suggest that no residential uses should be permitted within the 65 CNEL noise contour. In quiet communities, it is recommended that the 60 CNEL should be used as the maximum permissible noise level for residential uses. At rural airports, it is noted that 55 CNEL may be suitable as a maximum permissible noise level for residential uses.

These guidelines are similar to those proposed in an earlier edition of the *Airport Land Use Planning Handbook* (Metropolitan Transportation Commission 1983, p. 50). The older guidelines had a more detailed list of land use compatibility criteria, although the recommended lowest thresholds for residential land use compatibility were essentially the same.

A.3.3 NOISE COMPATIBILITY STANDARDS IN OTHER COUNTIES

A.3.3.a Imperial County

The noise compatibility standards used by the Imperial County ALUC are shown in **Table A8**. They consider all land uses at least marginally acceptable with noise levels below 60 CNEL. Between 55 and 60 CNEL, single family homes, nursing homes, schools, churches, amphitheaters and similar uses are considered marginally acceptable. The standards note that outdoor activities may be disturbed as will indoor activities with windows open. The standards require that buildings include adequate noise attenuation and be designed to allow windows to remain closed.

Several noise-sensitive uses, including single family homes, nursing homes, schools, and amphitheaters, are considered unacceptable in areas exposed to noise above 60 CNEL. Churches, auditoriums, and concert halls are unacceptable above 65 CNEL. Several other uses, including offices, retail trade, livestock breeding, parks, and outdoor spectator sports are considered unacceptable with noise above 70 CNEL.

A.3.3.b Riverside County

The Riverside County noise compatibility standards are shown in **Table A9**. These were taken directly from the 1983 *Airport Land Use Planning Handbook* (Metropolitan Transportation Commission 1983, p. 50.) With respect to residential compatibility, the County establishes different standards for air carrier/military airports and general aviation airports. The County's concern for land use compatibility begins at the 60 CNEL level.

LAND USE	Yearly Day-Night Average Sound Level (DNL) in Decibels					
	Below 65	65-70	70-75	75-80	80-85	Over 85
RESIDENTIAL						
Residential, other than mobile homes and transient lodgings	Y	N[1]	N[1]	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings	Y	N[1]	N[1]	N[1]	N	N
PUBLIC USE						
Schools	Y	N[1]	N[1]	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Government services	Y	Y	25	30	N	N
Transportation	Y	Y	Y[2]	Y[3]	Y[4]	Y[4]
Parking	Y	Y	Y[2]	Y[3]	Y[4]	N
COMMERCIAL USE						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail-building materials, hardware and farm equipment	Y	Y	Y[2]	Y[3]	Y[4]	N
Retail trade-general	Y	Y	25	30	N	N
Utilities	Y	Y	Y[2]	Y[3]	Y[4]	N
Communication	Y	Y	25	30	N	N
MANUFACTURING AND PRODUCTION						
Manufacturing, general	Y	Y	Y[2]	Y[3]	Y[4]	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y[6]	Y[7]	Y[8]	Y[8]	Y[8]
Livestock farming and breeding	Y	Y[6]	Y[7]	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
RECREATIONAL						
Outdoor sports arenas and spectator sports	Y	Y[5]	Y[5]	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts, and camps	Y	Y	Y	N	N	N
Golf courses, riding stables, and water recreation	Y	Y	25	30	N	N

The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable under Federal, State, or local law. The responsbility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

See other side for notes and key to table.

Ventura County AIRPORT LAND USE PLAN

Exhibit A8
F.A.R. PART 150 LAND USE
COMPATIBILITY GUIDELINES

KEY

Y (Yes)	Land Use and related structures compatible without restrictions.
N (No)	Land Use and related structures are not compatible and should be prohibited.
NLR	Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
25, 30, 35	Land Use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into design and construction of structure.

NOTES

1 Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR)of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.

2 Measures to achieve NLR of 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.

3 Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.

4 Measures to achieve NLR of 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.

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

6 Residential buildings require a NLR of 25.

7 Residential buildings require a NLR of 30.

8 Residential buildings not permitted.

Source: ***F.A.R. Part 150,*** *Appendix A, Table 1.*

Ventura County
AIRPORT LAND USE PLAN

Exhibit A8 (Continued)
F.A.R. PART 150 LAND USE
COMPATIBILITY GUIDELINES

TABLE A8
Noise Compatibility Criteria
Imperial County Airport Land Use Compatibility Plan

	CNEL, dBA				
LAND USE CATEGORY	**50-55**	**55-60**	**60-65**	**65-70**	**70-75**
Residential					
single family, nursing homes, mobile homes	+	o	-	--	--
multi-family, apartments, condominiums	++	+	o	--	--
Public					
schools, libraries, hospitals	+	o	-	--	--
churches, auditoriums, concert halls	+	o	o	-	--
transportation, parking, cemeteries	++	++	++	+	o
Commercial and Industrial					
offices, retail trade	++	+	o	o	-
service commercial, wholesale trade, warehousing, light industrial	++	++	+	o	o
general manufacturing, utilities, extractive industry	++	++	++	+	+
Agricultural and Recreational					
cropland	++	++	++	++	+
livestock breeding	++	+	o	o	-
parks, playgrounds, zoos	++	+	+	o	-
golf courses, riding stables, water recreation	++	++	+	o	o
outdoor spectator sports	++	+	+	o	-
amphitheaters	+	o	-	--	--

LAND USE AVAILABILITY		INTERPRETATION/COMMENTS
++	Clearly Acceptable	The activities associated with the specified land use can be carried out with essentially no interference from the noise exposure.
+	Normally Acceptable	Noise is a factor to be considered in that slight interference with outdoor activities may occur. Conventional construction methods will eliminated most noise intrusions upon indoor activities.
o	Marginally Acceptable	The indicated noise exposure will cause moderate interference with outdoor activities and with indoor activities when windows are open. The land use is acceptable on the conditions that outdoor activities are minimal and construction features which provide sufficient noise attenuation are used (e.g., installation of air conditioning so that windows can be kept closed). Under other circumstances, the land use should be discouraged.
-	Normally Unacceptable	Noise will create substantial interference with both outdoor and indoor activities. Noise intrusion upon indoor activities can be mitigated by requiring special noise insulation construction. Land uses which have conventionally constructed structures and/or involve outdoor activities which would be disrupted by noise should generally be avoided.
--	Clearly Unacceptable	Unacceptable noise intrusion upon land use activities will occur. Adequate structural noise insulation is not practical under most circumstances. The indicated land use should be avoided unless strong overriding factors prevail and it should be prohibited if outdoor activities are involved.

Source: Hodges & Shutt 1991, p. 2-15.

At air carrier and military airports, new housing is permitted in the 60 to 65 CNEL area, but acoustical reports and noise easements are required. New housing is to be discouraged in the 65 to 70 CNEL range. When permitted, homes should be sound-insulated and noise easements should be required. Mobile homes are prohibited in the 65-70 CNEL area. New homes are prohibited in areas exposed to noise above 70 CNEL. Hotels and motels may be permitted if needed noise insulation is included.

At general aviation airports, the noise compatibility criteria used at air carrier/military airports apply at the next lower CNEL levels. Single family homes are discouraged in the 60 to 65 CNEL area and mobile homes are prohibited. When permitted inside the 60 CNEL contour, homes should be sound-insulated.

At all airports, institutional uses are discouraged in areas exposed to noise above 60 CNEL. Outdoor amphitheaters are prohibited in areas above 65 CNEL. Commercial uses within the 70 CNEL range, and industrial uses within the 75 CNEL range, are permitted only after an analysis of noise reduction requirements.

A.3.3.c San Mateo County

San Mateo County has different noise compatibility criteria at general aviation airports than at its air carrier airport (San Francisco International). At the general aviation airports, the 55 CNEL contour is set as the noise impact boundary, while the 65 CNEL contour is the noise impact boundary at San Francisco International.

At general aviation airports, new housing and institutional development is permitted within the 55 to 60 CNEL contours only after an acoustical analysis is done and needed noise insulation features are included in the building design. New housing and institutions are not permitted within the 60 CNEL contour.

At San Francisco International Airport, housing and institutional uses are considered compatible with noise below 65 CNEL. These uses are not permitted in areas exposed to noise above 70 CNEL. Between 65 and 70 CNEL, these uses are permitted only after an acoustical analysis is conducted and needed noise insulation incorporated into the building design.

At both general aviation airports and San Francisco International, commercial uses, hotels, and outdoor recreational uses are compatible with noise below 70 CNEL. Industrial uses are compatible with noise below 75 CNEL.

A.3.3.d Santa Barbara County

The Santa Barbara County noise compatibility standards address only a few types of land use and are not as comprehensive as the standards in the other counties (Santa

TABLE A9
Land Use Guidelines For Noise Compatibility
Riverside County, California

Type of Airport/ Land Use	60-65 CNEL	65-70 CNEL	70-75 CNEL	75-80 CNEL	80 + CNEL
Air Carrier and Military					
Residential/Lodgings	Potential for annoyance exists; identify high complaint areas Determine whether sound insulation requirements should be established for these areas. Require acoustical reports for all new construction. Noise easements should be required for new construction.	Discourage new single family dwellings. Prohibit mobile homes New construction or development should be undertaken only after an analysis of noise reduction requirements is made and needed noise insulation is included in the design. Noise easements should be required for new construction. Development policies for "infill".	New construction or development of residential uses should not be undertaken. New hotels and motels may be permitted after an analysis of noise reduction requirements is made and needed noise insulation is included in the design	New hotels and motels should be discouraged.	
General Aviation					
Residential/Lodgings	Discourage new single family dwellings Prohibit mobile homes. New construction or development should be undertaken only after an analysis of noise reduction requirements is made and needed noise insulation is included in the design. Noise easements should be required. Develop policies for "infill".	New construction or development of residential uses should not be undertaken. New hotels and motels may be permitted after an analysis of noise reduction requirements is made and needed noise insulation is included in the design.	New hotels and motels should be discouraged.		
All Airports					
Public/Institutional	Satisfactory with little noise impact and requiring no special noise insulation requirements for new construction.	Discourage institutional uses. If no other alternative location is available, new construction or development should be undertaken only after an analysis of noise reduction requirements is made and needed noise insulation is included in the design.	No new institutional uses should be undertaken.		
Commercial		Satisfactory, with little noise impact and requiring no special noise insulation for new construction.	New construction or development should be undertaken only after an analysis of noise reduction requirements is made and needed noise insulation features included in the design. Noise reduction levels of 25-30 dB will be required.	Same as 70-75 CNEL	New construction or development should not be undertaken unless related to airport activities or services. Conventional construction will generally be inadequate and special noise insulation features should be included in the construction.
Industrial			Satisfactory, with little noise impact and requiring no special noise insulation requirements for new construction.	New construction or development should be undertaken only after an analysis of noise reduction requirements is made and needed noise insulation features included in the design. Measures to achieve noise reduction of 25-35 dB must be incorporated in portions of building where the public is received and in office areas.	New construction or development should not be undertaken unless related to airport activities or services. Conventional construction will generally be inadequate and special noise insulation features should be included in the construction.
Recreation/Open Space		Satisfactory, with little noise impact and requiring no special noise insulation requirements for new construction. Outdoor music shells and amphitheater should not be permitted.	Parks, spectator sports, golf courses and agricultural generally satisfactory with little noise impact. Nature areas for wildlife and zoos should not be permitted.	Land uses involving concentrations of people (spectator sports and some recreational facilities) or of animals (livestock farming and animal breeding) should not be permitted.	

Source: Coffman Associates 1992. Reproduced from *Airport Use Planning Handbook: A Reference Guide for Local Agencies*, prepared for California Department of Transportation, Division of Aeronautics by Metropolitan Transportation Commission and Association of Bay Area Governments, 1983, p. 50.

Barbara County ALUC 1993, p. 42). The County prohibits new institutional land uses such as schools, hospitals, convalescent homes, and other in-patient health care facilities within the 65 CNEL noise contour. Multi-family residential development is permitted in areas exposed to noise above 65 CNEL subject to an acoustical analysis showing that structures have been designed to limit interior noise levels to 45 CNEL. In the area between 60 and 65 CNEL, residential uses are permitted subject to an acoustical analysis showing that all structures have been designed to limit interior noise levels to 45 CNEL.

A.4 ALTERNATIVE SAFETY COMPATIBILITY POLICIES

A.4.1 FEDERAL SAFETY STANDARDS AND GUIDELINES

The Federal Aviation Administration has defined areas in the immediate runway environment which must be kept free of obstructions. The largest is the runway protection zone (RPZ), a trapezoidal area off the runway end. The size of the RPZ varies depending on the type of approach to the runway. It is smallest for visual approaches and largest for precision instrument approaches. **Exhibit A9** shows the basic configuration of the RPZ. FAA recommends that the area within the RPZ be kept free of structures and people and advises airport proprietors to secure title to the area.

Exhibit A9 also shows the runway approach area. Within this area, FAA is concerned only that objects not be allowed to penetrate an imaginary surface sloping upward from the runway end. FAA has no official policies regarding the use of the land beneath the approaches, although its policies permit the use of Airport Improvement Program funds for property acquisition up to 5,000 feet off the end of the runway (FAA 1989, Par. 602.b(2), p.70). This is a clear, although implicit, acknowledgment of the need for compatible use of this property to protect the interests of the airport and the general public.

A.4.2 SAFETY GUIDELINES IN OTHER STATES

This section briefly summarizes safety standards and guidelines used in selected states.

A.4.2.a Arizona -- Pima County

Pima County Arizona has adopted airport environs zoning establishing compatible use zones around each airport within its jurisdiction. (See Pima County Code, Chapter 18.57.) The ordinance establishes three zones based on safety concerns: the RSZ runway safety zone, the CUZ-1 compatible use zone, and the CUZ-2 compatible use zone.

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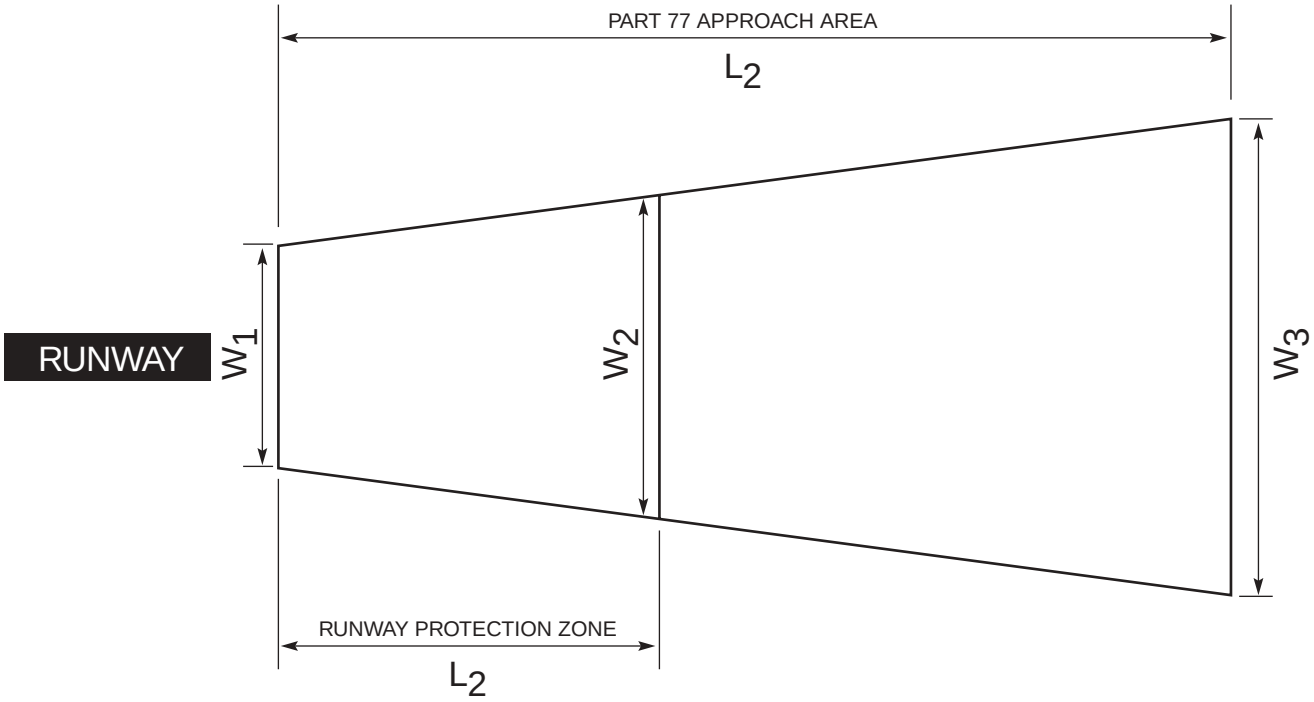

CATEGORY	W_1	W_2	W_3	L_1	L_2
1. Precision instrument	1,000	1,750	16,000	2,500	50,000
2. Nonprecision instrument for larger than utility with visibility minimums as low as 3/4 mi.	1,000	1,510	4,000	1,700	10,000
3. Nonprecision instrument for larger than utility with visibility minimums greater than 3/4 mi.	1,000	1,425	3,500	1,700	10,000
4. Visual approach for larger than utility	1,000	1,100	1,500	1,000	5,000
5. Nonprecision approach for utility	500	800	2,000	1,000	5,000
6. Visual approach utility	250	450	1,250	1,000	5,000

SOURCE: Federal Aviation Administration

Ventura County
AIRPORT LAND USE PLAN

Exhibit A9
RUNWAY PROTECTION ZONES AND
APPROACH AREAS

The RSZ zone is immediately off the runway ends. Development is strictly limited in this zone as the land must remain in open space. At general aviation airports, this area is typically 1,500 feet long and 1,500 feet wide.

The CUZ-1 zone is applied off the end of the RSZ zone at air carrier and military airports. Dimensions of the CUZ-1 zone at air carrier airports are 1,500 feet wide by 2,000 to 3,500 feet long, depending on the runway approach. At military airports, the zone is 3,000 feet wide by 5,000 feet long. Potentially hazardous land uses are prohibited as are uses attracting large numbers of people. Structures are not permitted to occupy over 35% of the lot area.

The CUZ-2 zone is applied off the end of the RSZ zone at smaller general aviation airports. It has similar use restrictions as the CUZ-1 zone, but permits structures to occupy up to 45% of the lot area. Off non-precision runways, it is 2,000 feet long and 1,500 feet wide. Off precision runways, it is 3,500 feet long and 1,500 feet wide.

A.4.2.b. Louisiana

The State of Louisiana has prepared a model airport hazard zoning ordinance for use at larger than utility airports in the state. The ordinance proposes height control standards generally based on F.A.R. Part 77. It also proposes standards for three land use safety zones.

Safety Zone A is defined as the area within the approach zone which extends outward from the primary surface a distance equal to two-thirds of the planned length of the runway. In this area only open space uses are permitted. Structures and above-ground obstructions are not permitted, nor are uses which would attract a group of persons.

Safety Zone B extends outward from the end of Zone A a distance equal to one-third of the planned length of the runway. Certain uses are specifically prohibited, including churches, hospitals, schools, theaters, stadiums, hotels and other places of public assembly. The building and population densities of other uses are restricted.

Safety Zone C is subject only to height limitations. It includes all that area within the horizontal zone. This corresponds to the F.A.R. Part 77 horizontal surface.

A.4.2.c Oregon

The State of Oregon has suggested that local communities use the inner part of the approach area, extending from 2,500 to 5,000 feet off the end of the primary surface, as an area within which land use controls should be considered. The State adds that

"local conditions may require additional areas of land use controls...", although it does not provide specific guidance (OrDOT 1981, p. 67).

A.4.2.d Wisconsin -- Brown County

Brown County has established airport protection zoning in the vicinity of Austin Straubel Airport near Green Bay (Coons 1989, p. 30). The ordinance establishes three overlay zones. Zone A is referred to as the "noise cone/crash hazard zone". It extends off the end of each runway and includes the 65 Ldn contour area. Residential development is not permitted in the area, nor are hospitals, churches, schools, theaters and other places of public assembly or uses attracting large populations of birds. Zone B is the overflight noise zone. Residential density limits are established and sound insulation is required. Zone C establishes only height limits.

A.4.3 CALIFORNIA SAFETY GUIDELINES

The 1993 *Airport Land Use Planning Handbook* includes suggested safety compatibility criteria (Hodges & Shutt 1993, p. 3-3). The document emphasizes that these are not to be considered state-mandated standards, but are suggestions for consideration by airport land use commissions. The suggested state criteria are listed in **Table A10**. The general configuration of the suggested safety zones is shown in **Exhibit A10**. Six safety zones are suggested: runway protection zones, inner safety zones, inner turning zones, outer safety zones, sideline zones, and a traffic pattern zone.

A.4.3.a Runway Protection Zone

The runway protection zones (RPZ) would correspond to the areas delineated by Federal criteria. According to the suggested guidelines, no structures and no assemblages of people would be permitted in these areas. Airports would be encouraged to own the property in the runway protection zone.

A.4.3.b Inner Safety Zones

The inner safety zone (ISZ) is suggested as a rectangular area centered on the extended runway centerline immediately beyond the runway protection zone. It would have a width of 500 to 1,000 feet and a length of 1,500 to 2,500 feet depending on the length of the runway.

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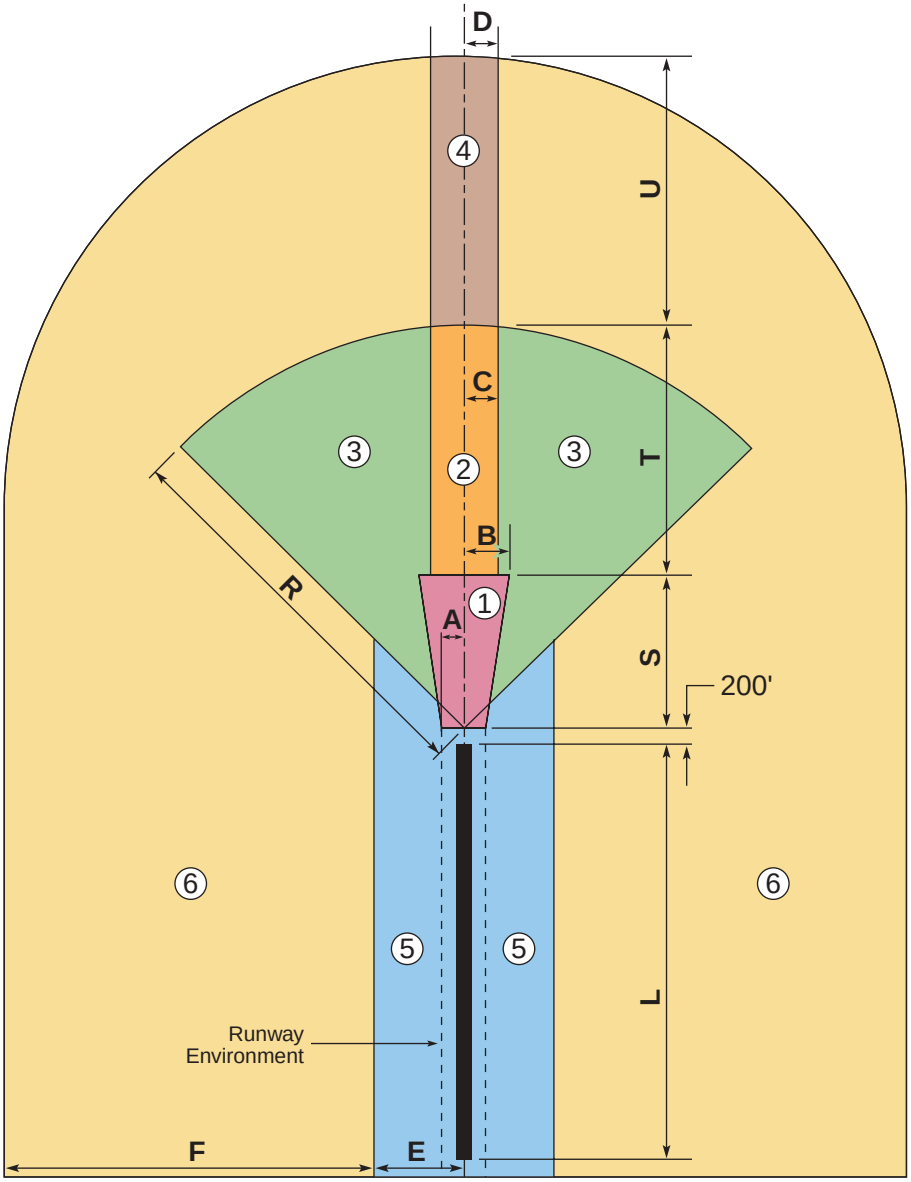

SAFETY ZONE NAMES

1	Runway Protection Zone
2	Inner Safety Zone
3	Inner Turning Zone
4	Outer Safety Zone
5	Sideline Safety Zone
6	Traffic Pattern Zone

SAFETY ZONE DIMENSIONS (Feet)

	Runway Length Group (L)		
	less than 4,000'	4,000' to 5,999'	6,000' or more
A	125	250	500
B	225	505	875
C	225	500	500
D	225	500	500
E	500	1,000	1,000
F	4,000	5,000	5,000
R	2,500	4,500	5,000
S	1,000	1,700	2,500
T	1,500	2,800	2,500
U	2,500	3,000	5,000

Note: These safety zone shapes and sizes are intended only to illustrate the concepts discussed in the text. They do not represent standards or recommendations.

Source: Hodges & Shutt, Airport Land Use Planning Handbook, Prepared for CALTRANS Division of Aeronautics, (December 1993)

Ventura County AIRPORT LAND USE PLAN

Exhibit A10
SAFETY ZONE
CONFIGURATION EXAMPLE

TABLE A10
Suggested Safety Compatibility Criteria
State of California

Compatibility Zone Delineation	Suggested Compatibility Criteria
• Up to 6 zones based upon relative risk of aircraft accidents in each area. [1] • Take into account typical flight tracks and areas overflown by aircraft at low altitude. • Consider instrument arrival and departure routes.	• Runway Protection Zones: -- No structures. -- No assemblages of people. -- Encourage airport to own the property. • Inner Safety Zones: -- Preferably no residential uses or, at most, very low density. -- Limit other uses to ones which attract relatively few people and leave substantial areas without structures. -- Prohibit bulk storage of flammable or hazardous materials. -- Prohibit schools, hospitals, nursing homes. -- Maintain as much open land as possible by clustering of development. • Inner Turning Zones: -- Residential uses only at very low density -- Restrictions on other uses similar to Inner Safety Zone. • Outer Safety Zones: -- No urban density residential subdivisions. -- Other uses limited to ones with moderate concentrations of people. -- Avoid schools, hospitals, nursing homes. -- Maintain as much open land as possible by clustering of development. • Sideline Zones (Areas Adjacent to Runways) -- All common aviation-related uses acceptable. -- Limit non-aviation uses, on- or off-airport, to low-intensity activities. -- Prohibit schools, hospital, nursing homes. • Traffic Pattern Zone: -- Avoid high-density residential unless clustered to leave open areas in between. -- Avoid activities with very high concentrations of people. -- Avoid schools, hospitals, nursing homes.

[1] See Exhibit A10 for suggestions regarding safety zone shapes and dimensions.

NOTE: These criteria should be treated as general suggestions for consideration by individual ALUCs, not as state-mandated standards. Economic and technical feasibility may need to be taken into account when setting criteria for individual airports.

Source: Hodges & Shutt 1993, p. 3-3.

Within this area housing would be prohibited if possible. At most, housing would be permitted at very low densities -- ten acres or more per dwelling. Permitted uses would be ones which attract relatively few people and leave substantial open space areas. Maximum concentrations of people should be limited to no more than 40 to 60 per acre. Schools, hospitals, and nursing homes would be prohibited as would bulk storage of flammable or hazardous materials.

Development should be clustered to allow for the preservation of as much open land as possible. At least 50 percent useable open space should be provided within an approximately 500-foot wide strip along the extended runway centerline. An average of 25 to 30 percent of useable open space should be provided throughout the entire ISZ. (Useable open space involves areas of land large enough to provide a possibility for a safe forced landing by an aircraft. Areas as small as 300 by 75 feet (0.5 acre) can be suitable for small aircraft. The areas must be relatively level and be free of objects such as large trees, overhead wires, and poles.)

A.4.3.c Inner Turning Zones

Inner turning zones (ITZ) would be roughly triangular areas on each side of the RPZ and ISZ. Their outside boundaries would be defined by lines drawn at 45-degree angles from the extended runway centerline beginning at the edge of the primary surface. (The primary surface extends 200 feet past the runway end.) They would have a length of 2,500 to 5,000 feet, depending on the length of the runway.

Within the ITZ, residential uses would be permitted only at very low densities, ranging from 2 to 10 acres per dwelling. Concentrations of people should be limited to 40 to 100 people per acre. Other uses would be restricted as suggested for the ISZ. At least 15 to 20 percent of the zone should remain as open space.

A.4.3.d Outer Safety Zones

The outer safety zone (OSZ) would be a rectangular area centered on the extended runway centerline. It would be 500 to 1,000 feet wide and would extend from 2,500 to 5,000 feet beyond the ISZ.

Residential development would be permitted, but only at less than "urban density." Minimum lot sizes should be limited to two to five acres. Other permitted uses would be those with moderate concentrations of people, ranging from 60 to 100 per acre. Schools, hospitals, and nursing homes would be avoided. As much open space as possible would be provided by clustering development. Approximately 25 to 30 percent useable open space would be provided within a 500-foot wide strip along the extended runway centerline, and 10 to 15 percent overall.

A.4.3.e Sideline Zones

Sideline zones (SZ) would be established along the sides of the runways. They would extend from 500 to 1,000 feet from the runway centerline and would terminate at the ITZ boundaries. Common aviation-related uses would be permissible in this area, but non-aviation uses would be limited to "low-intensity" activities. Schools, hospitals, and

nursing homes would be prohibited. In general, the criteria for the ITZ or OSZ would be suitable for this area. Adjacent to the runway ends and RPZs, 25 to 30 percent useable open space should be reserved.

A.4.3.f Traffic Pattern Zone

The traffic pattern zone (TPZ) would extend 4,000 to 5,000 feet beyond the sideline zones. Off the runway end, it would extend to the outer boundary of the OSZ. This is an area below the typical traffic patterns. Frequent low altitude overflights can be expected in this area.

Typical residential subdivision densities of 4 to 6 dwellings per acre are considered acceptable in the TPZ. In urban areas, higher density residential uses could be acceptable if the buildings are clustered to leave open space. It is suggested that 10 to 15 percent of the area be reserved as useable open space, or open areas should be provided approximately every 1/4 to 1/2 mile. Schools, hospitals, nursing homes and activities with very high concentrations of people (more than 150 people per acre) should be avoided in this area unless no other feasible alternatives are available.

A.4.4 SAFETY STANDARDS IN OTHER SELECTED CALIFORNIA COUNTIES

A.4.4.a Imperial County

Table A11 shows the safety standards applying at public use airports in Imperial County. The County's Comprehensive Airport Land Use Plan defined five safety zones, shown conceptually in **Exhibit A11**.

Zone A corresponds with the runway protection zone and land within the building restriction lines on the airfield. Only structures with the location set by aeronautical function are allowed in Zone A. As much open land as possible should be reserved in this area.

Zone B1 is the area in an approach/departure zone and includes land off the sides of the runway beyond Zone A. Residential densities are limited to 0.1 dwelling per acre. The maximum occupancy density should be limited to 60 people per acre in Zone B1. At the civilian airports, Zone B1 extends 3,500 feet from the end of the primary surface along the extended runway centerline and, at most airports, 45 degrees either side of the centerline. It also extends 500 feet beyond Zone A off the runway sidelines.

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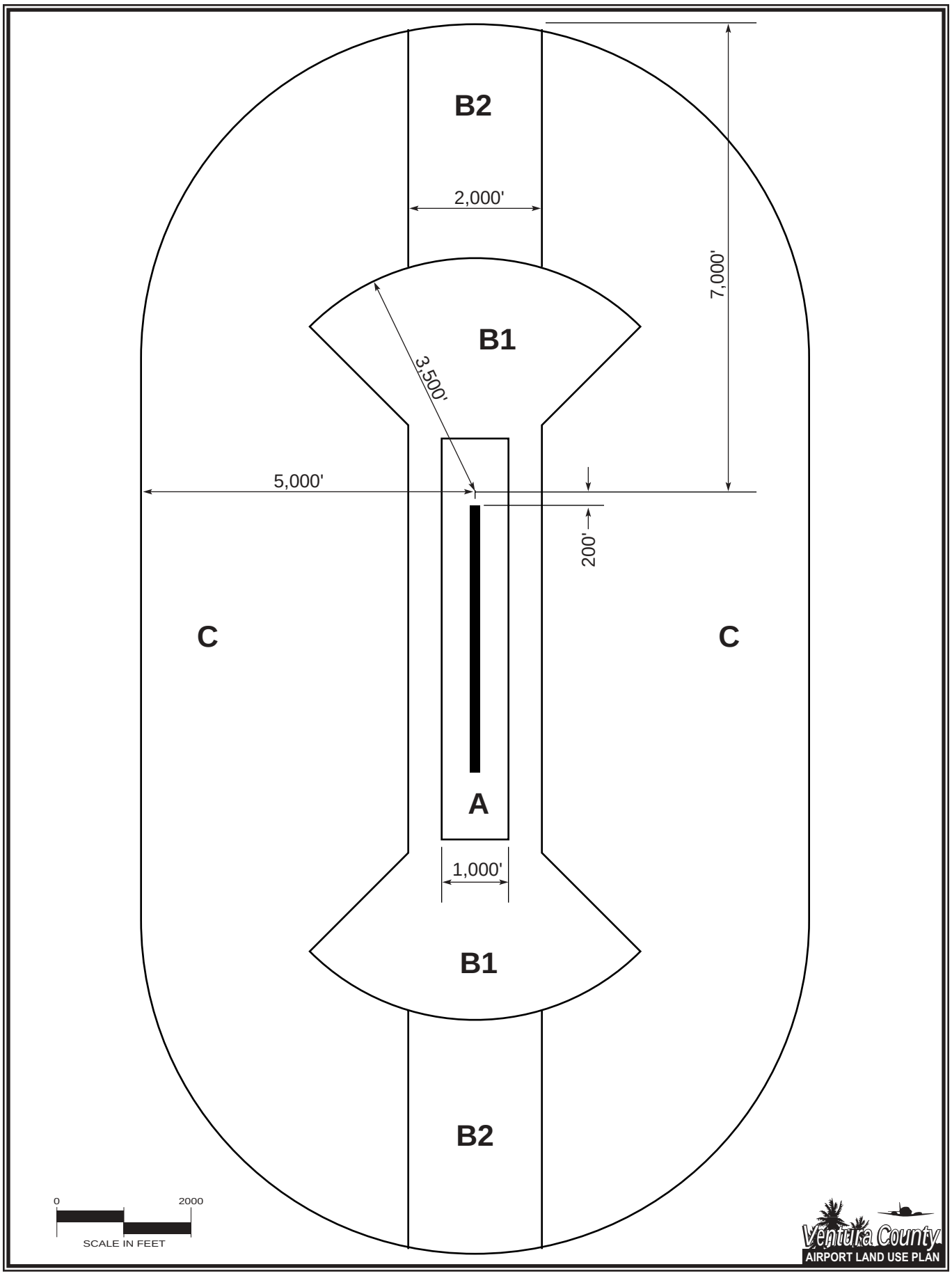

Exhibit A11
IMPERIAL COUNTY AIRPORT
SAFETY AREAS - EXAMPLE

TABLE A11
Safety Compatibility Criteria
Imperial County Airport Land Use Compatibility Plan

Zone	Location	Impact Elements	Maximum Densities		Required Open Land[3]
			Residential (du/ac)[1]	Other Uses (people/ac)[2]	
A	Runway Protection Zone or within Building Restriction Line	• High risk • High noise levels	0	10	All Remaining
B1	Approach/Departure Zone and Adjacent to Runway	• Substantial risk - aircraft commonly below 400 ft. AGL or within 1,000 ft. of runway • Substantial noise	0.1	60	30%
B2	Extended Approach/ Departure Zone	• Significant risk - aircraft commonly below 800 ft. AGL • Significant noise	0.5	60	30%
C	Common Traffic Pattern	• Limited risk - aircraft at or below 1,000 ft. AGL • Frequent noise intrusion	4	150	15%
D	Other Airport Environs	• Negligible risk • Potential for annoyance from overflights	No Limit	No Limit	No Requirement

Zone	Additional Criteria		Examples	
	Prohibited Uses	Other Development Conditions	Normally Acceptable Uses[4]	Uses Not Normally Acceptable[5]
A	• All structures except ones with location set by aeronautical function • Assemblages of people • Objects exceeding FAR Part 77 height limits • Hazards to flight[6]	• Dedication of aviation easement	• Aircraft tiedown apron • Pastures, field crops, vineyards • Automobile parking	• Heavy poles, signs, large trees, etc.
B1 and B2	• Schools, day care centers, libraries • Hospitals, nursing homes • Highly noise-sensitive uses • Storage of highly flammable materials • Hazards to flight[6]	• Locate structures maximum distance from extended runway centerline • Minimum NLR[7] of 25 dBA in residential and office buildings • Dedication of avigation easement	• Uses in Zone A • Any agricultural use except ones attracting bird flocks • Warehousing, truck terminals • Single-story offices	• Residential subdivisions • Intensive retail uses • Intensive manufacturing or food processing uses • Multiple story offices • Hotels and motels
C	• Schools • Hospitals, nursing homes • Hazards to flight[6]	• Dedication of overflight easement for residential uses	• Uses in Zone B • Parks, playgrounds • Low-intensity retail, offices, etc. • Low-intensity manufacturing, food processing • Two-story motels	• Large shopping malls • Theaters, auditoriums • Large sports stadiums • Hi-rise office buildings
D	• Hazards to flight[6]	• Deed notice required for residential development	• All except ones hazardous to flight	

Source: Hodges & Shutt 1991, p. 2-13.

TABLE A11 (Continued)
Safety Compatibility Criteria
Imperial County Airport Land Use Compatibility Plan

NOTES

[1] Residential development should not contain more than the indicated number of dwelling units per gross acre. Clustering of units is encouraged as a means of meeting the Required Open Land requirements.

[2] The land use should not attract more than the indicated number of people per acre at any time. This figure should include all individuals who may be on the property (e.g., employees, customers/visitors, etc.). These densities are intended as general planning guidelines to aid in determining the acceptability of proposed land uses.

[3] See Policy 3.2.5.

[4] These uses typically can be designed to meet the density requirements and other development conditions listed.

[5] These uses typically do not meet the density and other development conditions listed. They should be allowed only if a major community objective is served by their location in this zone and no feasible alternative location exists.

[6] See Policy 3.3.5.

[7] NLR = Noise Level Reduction; i.e., the attenuation of sound level from outside to inside provided by the structure.

BASIS FOR COMPATIBILITY ZONE BOUNDARIES

The following general guidelines are used in establishing the Compatibility Zone boundaries for each civilian airport depicted in Chapter 3. Modifications to the boundaries may be made to reflect specific local conditions such as existing roads, property lines, and land uses. Boundaries for NAF El Centro are modified in recognition of the differences between civilian and military aircraft characteristics and flight tracks.

A. The boundary of this zone for each airport is defined by the runway protection zones (formerly called runway clear zones) and the airfield building restriction lines.

Runway protection zone dimensions and locations are set in accordance with Federal Aviation Administration standards for the proposed future runway location, length, width, and approach type as indicated on an approved Airport Layout Plan. If no such plan exists, the existing runway location, length, width, and approach type are used.

The building restriction line location indicated on an approved Airport Layout Plan is used where such plans exist. For airports not having an approved Airport Layout Plan, the zone boundary is set at the following distance laterally from the runway centerline:

Visual runway for small airplanes	370 feet
Visual runway for large airplanes	500 feet
Nonprecision instrument runway for large airplanes	500 feet
Precision instrument runway	750 feet

B1 The outer boundary of the Approach/Departure Zone is defined as the area where aircraft are commonly below 400 feet above ground level (AGL). For visual runways, this location encompasses the base leg of the traffic pattern as commonly flown. For instrument runways, the altitudes established by approach procedures are used. Zone B1 also includes areas within 1,000 feet laterally from the runway centerline.

B2 The Extended Approach/Departure Zone includes areas where aircraft are commonly below 800 feet AGL on straight-in approach or straight-out departure. It applies to runways with more than 500 operations per year by large aircraft (over 12,500 pounds maximum gross takeoff weight) and/or runway ends with more than 10,000 total annual takeoffs.

C The outer boundary of the Common Traffic Pattern Zone is defined as the area where aircraft are commonly below 1,000 feet AGL (i.e., the traffic pattern and pattern entry points). This area is considered to extend 5,000 to 10,000 feet longitudinally from the end of the runway primary surface. The length depends upon the runway classification (visual versus instrument) and the type and volume of aircraft accommodated. For runways having an established traffic solely on one side, the shape of the zone is modified accordingly.

D The outer boundary of the Other Airport Environs Zone conforms with the adopted Planning Area for each airport.

Zone B2 is the extended approach/departure zone. This zone is defined only off the ends of runways with more than 10,000 annual takeoffs. Residential density in this area is limited to 0.5 dwellings per acre. The maximum occupancy density is 60 people per acre. Zone B2 is a rectangle extending 3,500 feet beyond Zone B1 along the extended runway centerline. It is 2,000 feet wide.

Zone C is the common traffic pattern. It is typically defined as an oval shape with the boundaries extending 5,000 feet off the sides of the runway and 7,000 feet off the end of the primary surface. Residential density in this area is limited to four units per acre. The maximum occupancy is limited to 150 people per acre. Fifteen percent of the area must be reserved as open land.

A.4.4.b Riverside County

Table A12 shows the safety standards applying in Riverside County. These are very similar to the guidelines presented in the State's 1983 *Airport Land Use Planning Handbook* (Metropolitan Transportation Commission 1983). Five safety zones are established. The four zones off the runway ends are shown in **Exhibit A12**.

The Inner Safety Zone (ISZ) is a rectangular area 1,500 feet wide and 1,320 to 2,500 feet long, depending on the classification of the runway approach. (The length is measured from the edge of the primary surface.) Development in this area is severely restricted. No structures and no occupancy of this area is permitted.

The Outer Safety Zone (OSZ) is a rectangular area extending 2,180 to 2,500 feet beyond the ISZ. It is also 1,500 feet wide. A number of land uses including residential and other uses involving large concentrations of people are prohibited in this area. Critical public facilities that could be disabled in the event of an aircraft accident are also prohibited. These include public utility stations and plants and public communication facilities. The maximum occupancy is limited to 25 persons per acre for uses in structures and 50 persons per acre for uses not in structures. Lot coverage by structures is limited to 25 percent of the net area.

The Emergency Touchdown Zone (ETZ) is a rectangular area, 500 feet wide, extending through the middle of the ISZ and the OSZ. Development is strictly limited in this area with no significant obstructions being permitted.

The Extended Runway Centerline Zone (ERC) is defined off the ends of runways with nonprecision or precision instrument approaches. It is 1,000 feet wide and extends 5,000 feet beyond the end of the ETZ and OSZ. Within this area uses involving hazardous materials are prohibited. Residential density is limited to three units per acre. The maximum occupancy for uses in structures is 100 persons per acre. Fifty percent of the gross area, or 65 percent of the net lot area, of the development must be kept in open space.

The Traffic Pattern Zone corresponds to the F.A.R. Part 77 horizontal surface. This area extends 5,000 feet off the sides and ends of the primary surface of runways designated as utility or visual. It extends 10,000 feet off the sides and ends of all other runways (including

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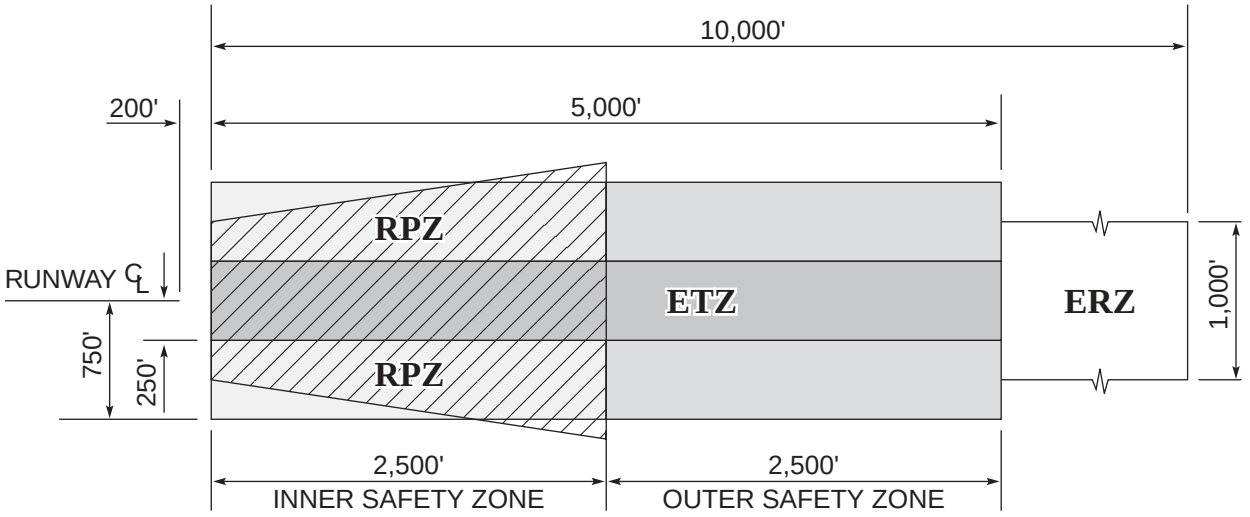
PRECISION AND NON-PRECISION INSTRUMENT RUNWAYS
JET AIRCRAFT



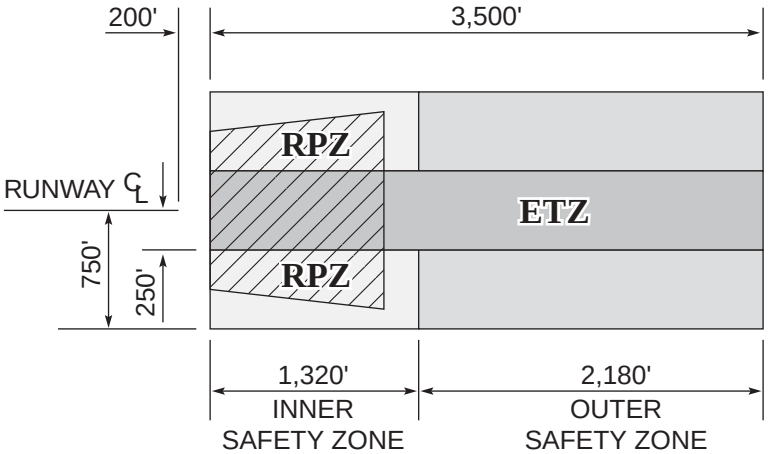
LEGEND

RPZ - Runway Protection Zone

ETZ - Emergency Touchdown Zone

ERC - Extended Runway Centerline

VISUAL APPROACH RUNWAYS
TWIN ENGINE AIRCRAFT



SOURCE: Coffman Associates, 1992. Reproduced from Airport Land Use Planning Handbook: A Reference and Guide for Local Agencies, prepared for California Department of Transportation, Division of Aeronautics, by Metropolitan Transportation Commission and Association of Bay Area Governments, 1983, p. 97.

Ventura County
AIRPORT LAND USE PLAN

Exhibit A12
AIRPORT SAFETY ZONES OFF RUNWAY ENDS
RIVERSIDE COUNTY, CALIFORNIA

TABLE A12
Land Use Compatibility Guidelines for Airport Safety Zones
Riverside County, California

Safety Zone	Dimensions (ft.)		Maximum Pop/DU Density[2]	Maximum Lot Coverage By Structures	Land Use
	Length	Width[7]			
ISZ - Inner Safety Zone	1,320 to 2,500[3]	1,500	0	0	No petroleum or explosives. No above-grade powerlines.
OSZ - Outer Safety Zones	2,180 to 2,500[4]	1,500	Uses in structures:[9] 25 persons/ac. Uses not in structures: 50 persons/ac.	25% of net area	No residential No hotels, motels No restaurants, bars No schools, hospitals, government services No concert halls, auditoriums No stadiums, arenas No public utility stations, plants No public communication facilities No uses involving, as the primary activity, manufacture, storage, or distribution of explosives or flammable materials
ETZ - Emergency Touchdown Zone	3,500 to 5,000[3]	500	0	0	No significant obstructions[5]
TPZ - Traffic Pattern Zone	F.A.R. Part 77 horizontal surface		----	50% of gross area or 65% of net area	Discourage schools, auditoriums, amphitheaters, stadiums Discourage uses involving, as the primary activity, manufacture, storage, or distribution of explosives or flammable materials[8]
ERC - Extended Runway	5,000[7]	1,000	3 du/net ac. Uses in structures:[9] 100 persons/ac.	50% of gross area or 65% of net area	No uses involving, as the primary activity, manufacture, storage, or distribution of explosives or flammable materials[8]

[1] Width of zones is centered on the extended runway centerline
[2] Pop/DU - population or dwelling unit.
[3] Length is measured from the primary surface. The shorter length is for visual runways serving twin or single engine propeller aircraft, the longer for precision and non-precision instrument runways or runways serving jets.
[4] Length is measured from the ISZ. The shorter length is for visual runways serving twin and single engine propeller aircraft, the longer for precision and non-precision instrument runways or runways serving jets.
[5] Significant obstructions include but are not limited to large trees, heavy fences and walls, tall and steep berms and retaining walls, non-frangible street light and sign standards, billboards.
[6] Applies only to runways with precision or non-precision approaches or serving jet aircraft.
[7] Length is measured from the OSZ.
[8] This does not apply to service stations involving retail sale of motor vehicle fuel if fuel storage tanks are installed underground.
[9] A "structure" includes fully enclosed buildings and other facilities with fixed seating and enclosures limiting the mobility of people, such as sports stadiums, outdoor arenas, and amphitheaters.

Source: Coffman Associates 1992, p. 3-4

those with nonprecision or precision instrument approaches). Within this area, maximum lot coverage is limited to 50 percent of the gross area or 65 percent of the net lot area. While no uses are specifically prohibited, schools, auditoriums, amphitheaters, stadiums, and uses involving explosives or flammable materials are discouraged.

A.4.4.c San Mateo County

San Mateo County establishes one safety area for general aviation airports. It is called an "approach zone" and is a rectangular area centered on the extended runway centerline beginning at the end of the primary surface or beginning 200 feet off the ends of displaced runway thresholds. It is 1,000 feet wide and 2,000 feet long. This area is to be kept free of structures. Nonstructural uses are permitted if they do not cause concentrations of people of more than 10 per net acre. Motor vehicle and opens storage uses that may, at times, cause concentrations of up to 25 persons per acre are also permitted.

In the vicinity of San Francisco International Airport, no specific safety zones are delineated. Certain types of land uses or activities, however, are considered hazardous to navigation. These include the following:

1. Any use that would direct a steady or flashing light of white, red, green, or amber color toward an aircraft engaged in an initial straight climb following takeoff or toward an aircraft engage in straight final approach toward a landing, other than an FAA approved navigation al signal light or visual approach landing aid.

2. Any use that would cause sunlight to be reflected toward an aircraft engaged in an initial straight climb following take-off or toward an aircraft engaged in a straight final approach toward a landing.

3. Any use that would generate smoke or rising columns or air.

4. Any use that would attract large concentrations of birds within approach-climbout areas.

5. Any use that would generate electrical interference that may interfere with aircraft communications or aircraft instrumentation.

A.4.4.d Santa Barbara County

The Santa Barbara County Comprehensive Airport Land Use Plan establishes three safety areas. Safety Area 1 is called the Clear Zone. Its boundaries coincide with the runway protection zone defined using Federal criteria. Safety Area 2 is the Approach Zone. This is a trapezoid-shaped area extending outward from the runway protection zone. The boundaries of this area correspond with the F.A.R. Part 77 approach surface lying between the runway protection zone and the outer edge of the F.A.R. Part 77 horizontal surface. Safety Area 3 is the Airport Traffic Pattern Zone. Its boundaries correspond with the F.A.R. Part 77 horizontal surface.

Table A13 lists the land use compatibility standards applying in each safety area. Within Safety Area 1, the Clear Zone, most development is prohibited. Certain open space uses are permitted. Any activities resulting in concentrations of people must not exceed a density of 25 persons per acre. Above-ground power transmission lines and gas and oil pipelines are prohibited.

TABLE A13
Land Use Guidelines For Safety Compatibility
Santa Barbara County

Land Use Category	Compatibility With Safety Areas		
	1 (Clear Zone)	2 (Approach Zone)	3 (General Traffic Pattern Area)
RESIDENTIAL			
Single Family	No	Yes 1	Yes
Multi-family dwelling	No	No 2	Yes 3
Mobile home parks or courts	No	No 2	Yes 3
Transient lodging, hotels, motels	No	No 2	Yes 3
INDUSTRIAL/MANUFACTURING			
Chemicals and allied products	No	No	Yes 3
Petroleum refining and related industries	No	No	Yes 3
Rubber and misc. plastic	No	No	Yes 3
Misc. manufacturing	No	Yes 3	Yes 3
Warehouse, storage of non-flammables	No 6	Yes 3	Yes
TRANSPORTATION, COMMUNICATIONS, AND UTILITIES			
Railroad, rapid rail transit	No 6	Yes	Yes
Highway and street	No 6	Yes	Yes
Auto parking lots	No 6	Yes	Yes 3
Utilities	Yes 4	Yes	Yes
Other trans, comm, and util.	No 6	Yes	Yes 3
COMMERCIAL/RETAIL TRADE			
Wholesale Trade	No 6	Yes 3	Yes 3
Building materials - retail	No 6	Yes 3	Yes 3
General merchandise - retail	No	No 2	Yes 3
Food - retail	No	No 2	Yes 3
Automotive	No	Yes 3	Yes 3
Eating and drinking	No	No 2	Yes 3
Other retail trade	No	No 2	Yes 3
PERSONAL AND BUSINESS SERVICES	No	Yes 3	Yes 3
PUBLIC AND QUASI-PUBLIC SERVICES			
Cemeteries	No	No	Yes 3
Other public and quasi-public services	No	No	Yes 3

TABLE A13 (Continued)
Land Use Guidelines For Safety Compatibility
Santa Barbara County

	Compatibility With Safety Areas		
Land Use Category	**1 (Clear Zone)**	**2 (Approach Zone)**	**3 (General Traffic Pattern Area)**
OUTDOOR RECREATION			
Playgrounds, neighborhood parks, camps	No	No	Yes 3
Nature exhibits	No	Yes 3	Yes 3
Spectator sports incl. arenas	No	No	Yes 3
Golf course, riding stables	No	Yes 3, 5	Yes 3, 5
Auditoriums, concert halls	No	No	Yes 3
Outdoor amphitheaters, music shells	No	No	Yes 3
RESOURCE PRODUCTION, EXTRACTION, AND OPEN SPACE			
Agriculture (except livestock)	Yes	Yes	Yes
Livestock farming, animal breeding	No	Yes	Yes
Forestry activities and related services	No	Yes	Yes
Mining activities	No	Yes	Yes
Permanent open space	Yes	Yes	Yes
Water areas	Yes	Yes	Yes

1. Single family residential is a compatible land use within the approach zone only if the population density is less than two single family residences per acre within one mile of the runway end.

2. Use not compatible in approach zone within one mile of the runway end. Use subject to ALUC review if more than one mile from the runway end.

3. Uses subject to ALUC review if they result in large concentrations of people underneath downwind and base legs or departure paths of frequently used airport traffic patterns. The Airport Planning Advisory Committee will provide assistance to the ALUC and its staff in this determination. Threshold for review of "large concentrations" is on the order of 25 people per acre for non-residential uses or more than four units per acre for residential use.

4. No above grade transmission lines, no on or above grade gas or oil pipelines.

5. Equestrian activity, including riding trails, is not compatible with areas overflown by low flying aircraft as horses may be frightened by aircraft.

6. Intensive development in the clear zone is prohibited. All specific development plans must be reviewed by the ALUC to assure that temporary or permanent concentrations of people greater than 25 people per acre are avoided, that storage of concentrations of hazardous materials will not occur, and that the local public safety agency will be able to effectively provide emergency services to the parcel.

In Safety Area 2, the Approach Zone, various uses involving high densities of people or hazardous materials are prohibited within one mile of the runway end. Outside that area, these uses are permitted "subject to ALUC review." (The CLUP does not set any standards

to guide the ALUC review.) In essence, Safety Area 2 is effectively divided into inner and outer approach zones with different standards applying to each. Among the uses prohibited in the Inner Approach Zone are apartments, mobile home parks, hotels, retail stores, restaurants, auditoriums, stadiums, and other uses. Single family homes are permitted in the Inner Approach Zone only if the density is less than two dwellings per acre. Some uses which would involve large concentrations of people in the Approach Zone would be subject to ALUC review. The threshold for "large concentrations" is 25 people per acre for non-residential uses and four dwellings per acre for residential uses. Again, the CLUP provides no standards or guidelines for the ALUC to use in its review of these uses.

Safety Area 3, the Traffic Pattern Zone, no uses are prohibited outright. Many uses are subject to ALUC review, however, if they would result in large concentrations of people -- more than 25 people per acre or four dwellings per acre.

A.5 CONCLUSION

This discussion paper presents considerable detail about noise and safety compatibility guidelines. While the detail may be bewildering, distinct trends and tendencies emerge. These are particularly clear with respect to noise compatibility standards. While there are many different sets of guidelines for noise and land use compatibility, there is reasonably good agreement among the various approaches. The definition of "noise-sensitive land uses", for example, is generally agreed to be housing, institutions with a residential component, and public gathering places where quiet is essential for the conduct of typical activities. The noise compatibility standards also agree on the use of a cumulative noise dosage metric to define areas of different noise exposure. In most of the United States, the DNL (day-night sound level) metric is used for this purpose, while California State law requires the use of the similar CNEL (community noise equivalent level) metric.

The major point on which various systems of noise compatibility standards differ is the threshold at which aircraft noise should be considered significant for purposes of compatible land use planning. While Federal standards are concerned only with noise exceeding 65 CNEL (or DNL), State guidelines and some local standards are concerned with noise down to 60 or even 55 CNEL (or DNL). This is an issue deserving discussion in the Ventura County CLUP update process.

While there is much agreement among different sets of noise compatibility standards, there is much more variation among safety compatibility standards and guidelines. This is to be expected since the safety standards necessarily require judgements to be made about the risk of rare events -- namely aircraft accidents. The noise standards, on the other hand, are designed to deal with a predictable situation that tends to recur daily.

Specific points of variability among safety area standards include the definition of safety area boundaries and the land use standards that should apply within various safety areas. These standards, however, all recognize the same basic principles. The risk of aircraft accidents becomes greater as distance from the runway and extended runway centerline decreases.

This gives rise to the common requirements that more open space should be preserved and less housing and population density should be permitted in areas near the runway and the extended runway centerline.

Different sets of safety compatibility standards vary in their clarity and ease of implementation. Some, for example, include only a very general list of land uses to which the standards apply. This forces ALUCs and their staffs to interpret whether the standards were meant to apply to various specific development proposals that will arise. Many other standards relate to the density of people permitted at any given land use. If this is to be practical, a clear method for unambiguously calculating this factor must be agreed upon.

One problem which must be addressed for both safety and noise standards is the need for a clear means of defining the boundaries of various noise and safety zones in the field.

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Appendix B
GENERAL PLAN PROVISIONS RELATED TO AIRPORT COMPATIBILITY

Appendix B:
GENERAL PLAN PROVISIONS RELATED TO AIRPORT COMPATIBILITY

The State of California requires all local governments to enact a "general plan" establishing framework policies for future development of the city or county. (See Government Code, Sections 65300, *et seq*.) The local general plan is the most important land use regulatory instrument in California. It establishes overall development policy and provides the legal foundation for all other kinds of land use and development regulation in the community. According to California law, the general plan must contain at least seven elements: land use, circulation, housing, conservation, open space, noise, and safety (Curtin 1996, pp. 9-10). Other elements may be prepared as needed and desired.

The policies of the general plan are implemented through specific ordinances regulating development. Chief among these is the zoning ordinance. Zoning regulates the use of land, the density of development, and the height and bulk of buildings. Subdivision regulations are another important land use regulatory tool, regulating the platting of land. Local communities also regulate development through building codes which set detailed standards for construction.

This appendix reviews the general plans of local jurisdictions in Ventura County as they relate to the airports in the County. These jurisdictions include Camarillo, Oxnard, Port Hueneme, Santa Paula, and Ventura County.

CAMARILLO GENERAL PLAN

NOISE ELEMENT

The Noise Element of Camarillo's General Plan was adopted in 1996 (City of Camarillo 1996). It includes a discussion and maps of transportation noise for existing conditions in 1995 and projected conditions for the year 2015. The noise contours for road and highway noise were developed especially for the Noise Element. Noise contours for Camarillo Airport were taken from the *Airports Comprehensive Land Use Plan Update for Ventura County* (P&D Aviation 1991). Noise contours for NAS Point Mugu were taken from the Air Installation Compatible Use Zoning (AICUZ) study (Dames & Moore 1992).

The major source of noise in the community was the Ventura Freeway (U.S. 101). Another significant source was the Southern Pacific Railroad/Fifth Avenue/Lewis Road corridor. Other sources included Camarillo Airport and, in the south part of the planning area, aircraft noise from Point Mugu.

The following goals and policies relating directly or indirectly to airport noise compatibility are included in the Noise Element (City of Camarillo 1996, pp. 417-418).

> **Goal 1:** The City of Camarillo should address the reduction of noise impacts as part of the land use planning process.
>
> *Policy 1.* The City adopt appropriate noise limits for the various land use classifications throughout the community. . . .
>
> *Policy 3.* The City require developers to submit noise assessment reports during the project planning process to identify potential noise impacts to their own developments and on nearby residential and noise sensitive land uses. New developments should be required to incorporate appropriate noise mitigation measures in their project designs, in order to meet the standards contained in this Element, whenever feasible.
>
> *Policy 4.* The City . . . will require that the State noise insulation standards for exterior-to-interior and for party walls and floor/ceiling noise control be applied to new single-family dwellings as well as multi-family structures.
>
> *Policy 5.* The City . . . will require that the State noise insulation standards for exterior-to-interior and for party walls and floor/ceiling noise control be applied where legally possible to the conversion of existing apartments into condominiums. . . .
>
> **Goal 2:** The City should require practical measures to reduce noise impacts from transportation system noise sources. . . .

Policy 10. The City should encourage a reduction of engine runups and flight operations for Camarillo Airport and PMTC Point Mugu which currently impact the community.

The Noise Element also includes several implementation program measures. Those that are related to airport compatibility are listed below (City of Camarillo 1996, p. 420).

Measure 1. The City shall utilize standards that specify acceptable noise compatibilities for various land uses throughout the City. **Exhibit B1** shows guidelines used to assess the compatibility of proposed land uses with the various noise environments.

Measure 2. The City shall require the developers of proposed residential and noise sensitive developments seeking to locate within any area of 60 dB CNEL or greater to submit noise study reports for both exterior and interior living spaces prepared by experienced persons with demonstrated expertise in noise assessment and control.

Measure 3. The City shall enforce the provisions of the State of California Uniform Building Code through the Building Department of the City which specifies that the indoor noise levels for multi-family residential living spaces not exceed 45 dB CNEL due to the combined effect of all exterior and adjacent unit noise sources. The State requires implementation of this standard when the outdoor noise levels exceed 60 dB CNEL. . . . The City should also, as a matter of policy, apply this standard to single-family dwellings.

LAND USE ELEMENT

The Land Use Element of the Camarillo General Plan establishes the basic pattern for future development of the City (City of Camarillo 1996, p. 28). The main theme of the Land Use Element is the desire to preserve the quality of life that exists through much of the area and specifically to "promote Camarillo as a rural suburban community that has a quality, small town, family atmosphere." It includes sets of principles, standards, and proposals for each of seven land use categories: agricultural, residential, commercial, industrial, urban reserve, public uses, and quasi-public uses. Principles, standards, and proposals that relate indirectly to airport compatibility are summarized in this section.

Agricultural Uses. "The General Plan proposes that the agricultural activities be encouraged to continue both as a source of economic substance to the community and the County and as a physical definition to the urban area of the City. . . . This land should be conserved but could be converted to other uses if there is a community need or benefit." (See City of Camarillo 1996, p. 33.)

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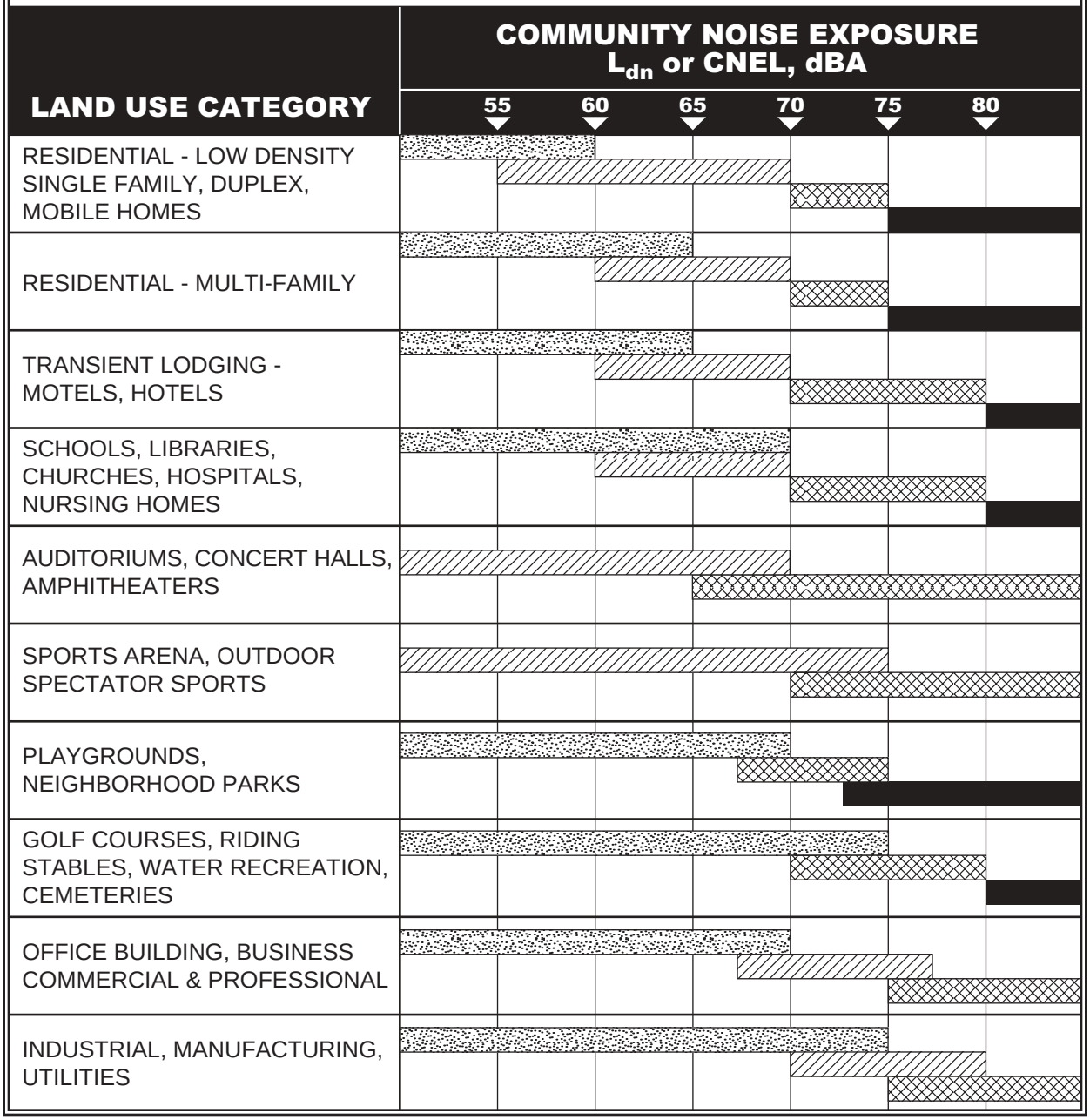
LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENTS



NORMALLY ACCEPTABLE

Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

CONDITIONALLY ACCEPTABLE

New construction or development should be undertaken only after a detailed analysis of the noise reduction requirement is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

NORMALLY UNACCEPTABLE

New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

CLEARLY UNACCEPTABLE

New construction or development should generally not be undertaken.

Source: California State Dept. of Health Services. Cited in City of Camarillo 1996, p. 413.

Ventura County AIRPORT LAND USE PLAN

Exhibit B1
CITY OF CAMARILLO'S LAND USE COMPATIBILITY MATRIX

Residential Uses. This section of the Land Use Element establishes basic residential density classifications that are mapped throughout the City's sphere of influence. The following residential land use objective is established: "To continually improve the areas as places for living by ensuring that those portions of the City which are best suited for residential use will be developed and preserved as healthful, safe, pleasant, attractive neighborhoods where all citizens are served by a full range of appropriate community facilities."

Commercial Uses. The commercial standards and proposals are designed to promote high standards of design for neighborhood and community commercial areas. Large-scale regional shopping centers are not envisioned, as the Plan notes that these needs are currently being met by regional shopping centers in nearby cities.

Industrial Uses. The principles, standards, and proposals for industrial land use emphasize the importance of promoting clean industries with an attractive character and design. For example, "industrial park development concepts" are encouraged. Extensive landscaping and architectural review are also promoted. The Plan notes that the high volume of pollutants which could be generated by certain large industrial operations and related automobile traffic are unacceptable and "cannot be justified by any positive economic benefits which might be enjoyed by the City of Camarillo." (See City of Camarillo 1996, p. 48.)

The Plan also discourages the designation of excessive amounts of industrial land. "This plan also recognizes the danger of premature or overzoning of land for industrial purposes (or other purposes, for that matter) leading to undesirable growth, imbalance and/or 'leapfrogging' which could cause economic hardship on the City." (See City of Camarillo 1996, p. 48.)

General Plan Map. The General Plan Map designates proposed land uses throughout the City's sphere of influence. The "sphere of influence" is an area defined by the Local Agency Formation Commission (LAFCO) which delineates the limits beyond which a city cannot annex territory. It includes the land within the city limits and unincorporated land within the service area of the city.

Exhibit 2C in Chapter Two shows the Camarillo General Plan land use designations within the Camarillo Airport study area. Land in the north part of the study area, north of Ponderosa Drive, is designated for residential use of varying densities. Land at the interchanges of the Ventura Freeway and Las Posas Road and Central Avenue

show commercial development. Land off the east end of the airport is designated for a combination of commercial, industrial (research and development), and agriculture.

OXNARD GENERAL PLAN

The Oxnard General Plan was adopted in 1990. It includes eleven planning elements: growth management, land use, circulation, public facilities, open space/conservation, safety, noise, economic development, community design, parks and recreation, and housing. The City also has developed a Coastal Land Use Plan for the coastal zone (City of Oxnard 1982.) Policies and land use designations of the Coastal Land Use Plan have been incorporated into the City's General Plan.

The plan discusses regional plans and policies of significance in the Oxnard planning area. Among the most important are the "Guidelines for Orderly Development." These regional policies were adopted by Ventura County, all municipalities in the County, and the Ventura County Local Agency Formation Commission. These guidelines clarify the relationship between the County and the cities in matters of urban planning and the provision of services. The primary intent of the guidelines is to see that urban development occurs within incorporated areas whenever practical (City of Oxnard 1990, p. III-6).

Growth Management Element. This element of the General Plan has some goals and objectives that indirectly relate to airport compatibility planning (City of Oxnard 1990, p. IV-19).

A. Goals

2. Maintain the quality of life desired by the residents of Oxnard.

B. Objectives

2. Insure that new development avoids or fully mitigates impacts on air quality, traffic congestion, noise and resource protection. . . .

5. Create an appropriate balance between urban development and preservation of agricultural uses within the Planning Area.

The Growth Management Element also includes a number of principles, policies, and implementation measures. The policy with the most direct relevance to the Oxnard Airport Noise Compatibility Study is to cooperate with the City of San Buenaventura (Ventura) and Ventura County in creating an Oxnard/Ventura Greenbelt that would designate land for permanent agriculture/open space. Since the plan was approved, a greenbelt agreement was enacted and the greenbelt established. It is west and northwest of Oxnard Airport as shown in Exhibit 3C in Chapter Three.

Land Use Element. This element includes the following goals and objectives which are indirectly relevant to the airport compatibility planning process (City of Oxnard 1990, p. V-24).

A. Goals

1. A balanced community meeting housing, commercial and employment needs consistent with the holding capacity of the City.

2. Preservation of scenic views, natural topography, natural physical amenities, and air quality.

B. Objectives

1. Limit the urbanized area of the City and facilitate a permanent greenbelt between Oxnard and neighboring cities. . . .

3. Preserve permanent agricultural land within the Oxnard Planning Area.

Exhibit 2C in Chapter Two shows the future land use plan for the Oxnard portion of the Camarillo Airport study area. Exhibit 3C in Chapter Three shows the future land use plan for the Oxnard portion of the Oxnard Airport study area. Exhibit 5C in Chapter Five shows the future land use plan for the NAS Point Mugu study area.

Open Space/Conservation Element. This element includes goal, objectives, and policies for open space for the preservation of natural resources, the managed production of resources, outdoor recreation, and public health and safety. Goals, objectives, and policies with a relationship to airport compatibility planning are quoted below (City of Oxnard 1990, pp. VII-60 to VII-72).

A. Goals

1. Maintenance and enhancement of natural resources and open space.

B. Objectives

3. Protect agricultural lands from premature and unnecessary urbanization. . . .

6. Manage urban development to protect open space areas that provide for public health and safety.

C. Policies

25. The City should provide a mechanism for approval of conservation easements and land banking to establish agricultural open space areas to be managed by either public or private conservation organizations or agencies.

26. The City shall continue the commitment of maintaining the existing Oxnard-Camarillo Greenbelt Agreement, as well as evaluating the possibility of expanding

that agreement and creating a new Greenbelt in the northwest portion of the Planning Area. [This area has since become the San Buenaventura-Oxnard Greenbelt.]

27. The City should encourage the use and formation of Land Conservation Act contracts and other related agreements to offset the costs to property owners of identified agricultural lands. . . .

29. The City should consider adopting a farmland protection program utilizing such land use planning tools as transfer of development rights, purchase of development rights or conservation easements, farmland trusts and greenbelt agreements. . . .

42. Land within the 100-year floodplain is to be designated permanent open space as shown on the Land Use Map.

43. Land within the airport hazard area is to be designated permanent open space as shown on the Land Use Map.

Open space areas are designated on the 2020 Land Use Map in the General Plan. This is shown for the Oxnard Airport study area in Exhibit 3C in Chapter Three. Open space is designated west and northwest of the airport. A narrow band of open space is designated immediately east of the airport.

Noise Element. The Noise Element includes several goals and policies related to noise and land use compatibility planning. Specific goals, objectives, and policies of interest are quoted below (City of Oxnard 1990, p. IX-16).

A. Goals

1. A quiet environment for the residents of Oxnard.

B. Objectives

1. Provide acceptable noise levels for residential and other noise-sensitive land uses consistent with State guidelines.

2. Protect noise sensitive uses from areas with high ambient noise levels.

3. Integrate noise considerations into the community planning process to prevent noise/land use conflicts.

C. Policies

5. Municipal policies shall be consistent with the Ventura County Airport Land Use Commission's adopted land use plan. . . .

7. The City shall prohibit the development of noise-sensitive land uses within the Oxnard Airport 65 dB(A) CNEL contour.

8. The City shall continue to enforce State Noise Insulation Standards for proposed projects in suspected high noise environments. The Planning Division shall notify prospective developers that, as a condition of permit issuance, they must comply with noise mitigation measures, which are designed by an acoustical engineer. No building permits will be issued without City staff approval of the acoustical report/design.

Circulation Element. The Circulation Element includes one goal and several policies relating to Oxnard Airport and the potential civilian use of NAS Pt. Mugu.

A. Goals

3. A regional airport in Ventura County capable of commercial air service. . . .

C. Policies

32. The City should support the location of a regional airport in Ventura County capable of air carrier service.

33. Oxnard Airport should remain as a general aviation facility (operated as a commuter service airport) and operating levels should not be increased.

34. Land uses adjacent to Oxnard Airport should be restricted as set forth in the Land Use Element in order to reduce potential noise and safety problems.

35. If the airport within the Pt. Mugu facility is declared surplus, or made available on a shared basis, the City should promote use of this facility as an air carrier airport.

PORT HUENEME GENERAL PLAN

The Port Hueneme General Plan was adopted in 1997 and establishes policies for a planning period through the year 2015 (Cotton/Beland/Associates, Inc., 1997). It includes seven elements: land use, circulation/infrastructure, housing, conservation/open space/environmental resources, noise, public safety and facilities, and economic development. The Land Use Element is the only element that is directly relevant to this F.A.R. Part 150 Noise Compatibility Study. (According to the Noise Element, the primary source of noise in the City is road noise. The City is not adversely affected by aircraft noise.)

Port Hueneme also has a Local Coastal Program certified by the California Coastal Commission. The updated General Plan reflects the policies of the Local Coastal Program.

"The Land Use Element and Land Use Policy Map are the two most important components of the General Plan. Together, these two parts of the Plan establish the overall policy direction for land use planning decisions in the City." (See Cotton/Beland/Associates, Inc. 1997, p. 1.)

The City of Port Hueneme has very little undeveloped land. Much of the Land Use Element, therefore, is devoted to neighborhood preservation and redevelopment to strengthen the City's economic base. The Land Use Element sets forth six goals:

Goal 1: Continued development of land uses which will create and sustain a strong, viable economic base for the city.

Goal 2: Creative utilization and responsible conservation of the City's major natural asset -- the beach and harbor environment.

Goal 3: Development and maintenance of a housing stock with a broader range of choice for local residents.

Goal 4: "Fair Share" payment for use of City services and facilities.

Goal 5: Protect the City's interests by continued participation with adjacent and regional jurisdictions to address common issues; including air quality, transportation, water quality and supply, and solid waste disposal.

Goal 6: Create an aesthetically pleasing and efficiently organized city.

Exhibit 3C in Chapter Three shows the future land use designations in the Oxnard Airport Study Area which includes the northern edge of Port Hueneme. Most of the area north of Channel Islands Boulevard is designated for a mix of residential uses. Commercial use is designated along most of Channel Islands Boulevard. Land south of Channel Islands Boulevard and west of Ventura Road is designated for military use.

SANTA PAULA GENERAL PLAN

The Santa Paula General Plan has recently been updated and all elements of the plan except the Housing Element were adopted on April 13, 1998. The updated Plan includes a Land Use Element, a Circulation Element, a Conservation and Open Space Element, a Safety Element, and a Noise Element. Four of these elements (land use, circulation, safety, and noise) have objectives and policies relating to Santa Paula Airport. Those policies are discussed in this section.

LAND USE ELEMENT

The land use goals, objectives, and policies are classified into several different subject areas, as noted below. The airport is addressed in two subject areas: land use distribution and land use compatibility (City of Santa Paula 1997b, pp. LU-43 to LU-54).

Land Use Distribution

Goals

3.1 A healthy balance of land uses and adequate land for all community needs should be provided.

Objectives

3(a) Adequate land should be provided for all needs and a healthy balance of land uses.

Policies

Airport Land Uses

3ggg. Include airport and airport related land uses in the City's land use plan.

3hhh. Provide for the enhancement of on-site airport facilities and services.

Land Use Compatibility

Goals

6.5 Development should mitigate undue generation of noise and light.

6.6 Development should mitigate undue exposure of citizens to existing noise and light sources.

6.7 Existing exposure of citizens to excessive noise and light sources should be reduced.

Objectives

6(I) Development of properties adjoining or near the airport should be compatible with airport operations and the airport land use plan.

6(j) Aviation related business and industry should be encouraged in the area of the airport.

Policies

6.d.d. Encourage land uses on vacant and underdeveloped land adjacent to the airport that is compatible with the airport as well as adjacent established conforming land uses.

6.e.e. The Santa Paula Airport should be preserved and enhanced as a valuable asset of the community.

6.f.f. Airport activity and its continuing operations should be encouraged.

6.g.g. All new development and uses shall be compatible with the Ventura County Airport Land Use Plan.

The following implementation measures relating to these goals, objectives, and policies are in the Land Use Element (City of Santa Paula 1997b, p. LU-67).

59. Review discretionary projects for consistency with the Airport Land Use Plan.

60. Purchase properties adjacent to the airport that are mapped as clear zones as soon as individual parcels and funds become available.

61. Airport runway overruns should be extended when land becomes available.

CIRCULATION ELEMENT

The circulation goals, objectives, and policies are classified into several different subject areas, including aviation, which addresses Santa Paula Airport (City of Santa Paula 1997a, pp. CI-41 to CI-42).

Goals

9.1 The Santa Paula Airport should be preserved and enhanced as a valuable asset of the community.

9.2 Appropriate uses and development should be maintained and allowed at the airport.

9.3 Existing risks from aviation should be reduced.

9.4 Development should be compatible with existing risks from aviation.

9.5 Existing pollution from aviation should be reduced.

Objectives

9(a) Development of properties adjoining or near the airport should be compatible with airport operations and the airport land use plan.

9(c) The mapped clear zones should be purchased as soon as individual parcels and funds become available.

9(d) Runway overruns should be extended when land becomes available.

9(e) Efforts should continue to reduce the potential for pollution from aircraft fueling and maintenance operations.

9(f) Work with the airport to provide for adequate ground access to the airport in its transportation planning and improvements.

Policies

9.a.a. Properties adjoining or near the airport should be zoned for compatible uses, and aviation related business and industry should be encouraged.

9.b.b. Uses within clear zones should be compatible.

9.c.c. Street system modification should not inhibit the provision for adequate ground access to the airport.

NOISE ELEMENT

The noise goals, objectives, and policies are tied to specific noise sources. Objectives and policies related to aircraft noise are noted below (City of Santa Paula 1997c, pp. N-17).

Objective

2(a) Minimize the effect of air traffic noise generated by the existing and future operations of the Santa Paula Airport on residences and other noise sensitive land uses.

Policies

2.a.a. Coordinate with airport officials to address operational noise as conflicts are identified.

2.a.b. Work with airport officials to address noise concerns from aerobatics and air shows on a case-by-case basis.

2.a.c. Consider the land use/noise compatibility matrix when determining the appropriateness of land uses in the airport vicinity. [Santa Paula's compatibility matrix is virtually identical to Camarillo's matrix shown in Exhibit B1.]

Two implementation measures relating to these objectives and policies are called out in the Noise Element (City of Santa Paula 1997c, pp. N-21 to N-23).

2. Establish exterior land use noise compatibility standards in the Development Code for all new development based on the guidelines shown on Figure N-1 [Exhibit B1] of this Noise Element.

14. The City shall work with the Santa Paula Airport to ensure that local ordinances and state and federal regulations regarding altitudes of departing and arriving aircraft are met.

SAFETY ELEMENT

The goals, objectives, and policies of the Safety Element are tied to specific kinds of hazards. Goals, objectives and policies related to aircraft safety are noted below (City of Santa Paula 1997d, pp. S-43 to S-44).

Goals

6.1 Existing risks from aviation should be reduced.

6.2 Development should be compatible with existing risks from aviation.

Objectives

6(a) Development of properties adjoining or near the airport should be compatible with airport operations and the airport land use plan.

6(b) The mapped clear zones should be purchased as soon as individual parcels and funds become available.

6(c) Runway overruns should be extended when land becomes available.

Policies

6.a.a. The City should work in conjunction with the privately owned Santa Paula Airport to follow the land use guidelines for safety compatibility outlined in the Ventura County Airports Comprehensive Land Use Plan Update.

6.b.b. The City should propose legislation to allow for the City to acquire the property(ies) in the Inner Safety Zones of the airport.

Two implementation measures relating to these goals, objectives, and policies are called out in the Safety Element (City of Santa Paula 1997d, p. S-54).

61. The City of Santa Paula should change the land use designations in the Inner Safety Zone at both ends of the Santa Paula Airport runway to agricultural or other conforming uses.

62. The City should pass legislation which would allow funding by the State for purchase of the property in the Inner Safety Zone.

VENTURA COUNTY GENERAL PLAN

The Ventura County General Plan was adopted in 1988 and has been amended several times since then. The Plan includes several documents. The overall framework of goals and policies is in a document called *Goals, Policies and Programs* (Ventura County 1996a.) Supporting documentation is in a series of technical appendices (Ventura County 1994a, 1994b, 1994c, 1996b). The General Plan also includes several area plans where local issues and concerns are dealt with in greater detail than in the framework document.

The *Goals, Policies and Programs* document is organized into four substantive chapters dealing with different planning issues: resources, hazards, land use, and public facilities and services. The goals, policies, and programs that directly or indirectly relate to airport land use compatibility issues are summarized below.

Resources -- Farmland. Agriculture is a major industry in Ventura County. The County General Plan establishes policies to encourage the preservation of prime farmland. Since agriculture is a land use that is compatible with airport noise, the farmland preservation policies can indirectly also promote airport compatibility objectives. Relevant goals and policies are quoted below (Ventura County 1996a, p. 21).

1.6.1 Goals

1. Preserve and protect irrigated agricultural lands as a nonrenewable resource to assure the continued availability of such lands for the production of food, fiber and ornamentals.

1.6.2 Policies

3. Land Conservation Act (LCA) contracts shall be encouraged on irrigated farmlands. . . .

5. The County shall preserve agricultural land by retaining and expanding the existing Greenbelt Agreements and encouraging the formation of additional Greenbelt Agreements.

The LCA (also known as the Williamson Act) was adopted by the State in 1966. It enabled Counties to set up programs allowing farmers to enter into contracts of at least ten years duration to keep their land exclusively in farm use in return for a reduced tax assessment based on the agricultural use of the property. Ventura County entered this program in 1969 (Ventura County 1994c, p. 73).

Greenbelt agreements have been formed between various cities in Ventura County. The agreements delineate areas between the cities which are declared to be off limits to urban development and preserved for agriculture and open space. The cities of Ventura and Oxnard have a greenbelt agreement for the area between the two cities northwest of Oxnard Airport. This is shown in Exhibit 3C in Chapter Three. Camarillo and Oxnard have a greenbelt agreement between their cities, as shown in Exhibit 2C in Chapter Two.

Airport Hazards. The County General Plan includes goals and policies applying to airport hazards, quoted below (Ventura County 1996a, p. 20).

> **2.10.1 Goal**
> Minimize the risk of loss of life, injury, damage to property, and economic and social dislocations resulting from airport hazards.
>
> **2.10.2 Policies**
> To avoid accidents, land in airport approach and departure zones shall be designated Agriculture or Open Space on the General Plan Land Use Map . . .

Hazards -- Flood. Ventura County's flood hazard goals and policies are intended to reduce risks of damage and injury due to floods (Ventura County 1996a, p. 43). In areas of greatest risk, only open space uses are to be permitted. In other areas of flood hazard, development is to be protected from a 100-year flood by being raised above the flood elevation. To the extent that flood hazard areas coincide with airport noise areas, these flood hazard policies also indirectly promote airport compatibility objectives.

Hazards -- Noise. The County General Plan declares that the County should attempt to eliminate or avoid the exposure of County residents to adverse noise impacts (Ventura County 1996a, p. 49). It notes that noise-sensitive land uses are considered to be residential, educational and health facilities, research institutions, certain recreational and entertainment facilities, and churches. The Plan sets forth the following policies with respect to development in areas exposed to aircraft noise (Ventura County 1996a, p. 50).

> **2.16.2 Policies**
> 1.(3) Noise sensitive uses proposed to be located near airports:
> a. Shall be prohibited if they are in a CNEL 65 or greater noise contour.

b. Shall be permitted in the CNEL 60 to CNEL 65 noise contour area only if means will be taken to ensure interior noise levels of CNEL 45 or less.

Land Use. The County General Plan includes general land use goals, policies, and programs and sets of specialized goals, policies, and programs in the following policy areas: land use map designations, population and housing, and employment and commerce/ industry. One general goal is specifically relevant to airport land use compatibility planning:

3.1.1 Goals

4. Ensure that land uses are appropriate and compatible with each other and guide development in a pattern that will minimize land use conflicts between adjacent land uses.

In the study areas around each airport in Ventura County, the County's future land use designations in most of the unincorporated area outside the city spheres of influence is agriculture, a use that is compatible with aircraft noise. This is shown in Exhibits 2C, 3C, 4C, and 5C in Chapters Two through Five.

Public Facilities and Services -- Transportation/Circulation. The Transportation/Circulation section of the General Plan has two policies related to airport land use compatibility.

4.2.2 Policies

11. Discretionary development which would endanger the efficient, safe operation of an airport or would result in significant land use incompatibility with an airport shall be prohibited.

12. The Ventura County General Plan shall remain consistent with the Ventura County Master Airport Plan for Camarillo Airport and Oxnard Airport, which includes the Airport Noise Control and Land Use Compatibility Study (ANCLUC), for the purpose of ensuring compatible land uses around the Camarillo and Oxnard Airports.

Coastal Area Plan. The County's Coastal Area Plan establishes different land use and conservation policies in the coastal zone (Ventura County 1996c). Most of the area within the County's jurisdiction in the Oxnard Airport study areas and NAS Point Mugu is designated as agriculture. This is reflected in Exhibit 3C in Chapter Three and Exhibit 5C in Chapter Five. Smaller areas are designated as open space, including the McGrath Lake area, the beach west of Channel Islands Harbor, and mountainous areas east of NAS Point Mugu.

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Appendix C
SANTA PAULA AIRPORT NOISE ANALYSIS

Appendix C:
SANTA PAULA AIRPORT NOISE ANALYSIS

AIRCRAFT NOISE ANALYSIS METHODOLOGY

The standard methodology for analyzing the prevailing noise conditions at airports involves the use of a computer simulation model. The Federal Aviation Administration (FAA) has approved two models for use in determining airport noise impacts -- NOISEMAP and the Integrated Noise Model (INM). NOISEMAP is used most often at military airports, while the INM is most commonly used at civilian airports.

Version 5.1 is the most current version of the INM at this time. It is the version used for the noise analysis. The INM works by defining a network of grid points at ground level around the airport. It then selects the shortest distance from each grid point to each flight track and computes the noise exposure for each aircraft operation, by aircraft type and engine thrust level, along each flight track. Corrections are applied for air-to-ground acoustical attenuation, acoustical shielding of the aircraft engines by the aircraft itself, and aircraft speed variations. The noise exposure levels for each aircraft are then summed at each grid location. The cumulative noise exposure levels at all grid points are then used to develop noise exposure contours for selected values (e.g., 65, 70, and 75 CNEL).

In addition to the mathematical procedures defined in the model, the INM has another very important element. This is a data base containing tables correlating noise, thrust settings, and flight profiles for most of the civilian aircraft, and many common military aircraft, operating in the United States. This data base, often referred to as the noise

curve data, has been developed under FAA guidance based on rigorous noise monitoring in controlled settings. In fact, the INM database was developed through more than a decade of research including extensive field measurements of more than 10,000 aircraft operations.

The database also includes performance data for each aircraft to allow for the computation of airport-specific flight profiles (rates of climb and descent).

INM INPUT

A variety of user-supplied input data is required to use the Integrated Noise Model. This includes the airport elevation, a mathematical definition of the airport runways, the mathematical description of ground tracks above which aircraft fly, and the assignment of specific aircraft with specific engine types at specific takeoff weights to individual flight tracks. In addition, aircraft not included in the model's data base may be defined for modeling, subject to FAA approval.

Activity Data

For this analysis, current aircraft operations (takeoffs and landings) data were used for noise modeling. CALTRANS operation forecasts from the Southern California Association of Governments General Aviation Study have the same level of operations for 2015. These are briefly summarized in **Table C1**.

TABLE C1
Operations Summary
Santa Paula Airport

Operations	1997[1]
Itinerant	
General Aviation/ Fixed Wing	13,200
Helicopter	800
Local	
General Aviation/ Fixed Wing	38,000
Total	52,000

[1] Southern California Association of Governments General Aviation Study and AirNav information from the world wide web.

Average daily aircraft operations were calculated by dividing total annual operations by 365 days. The distribution of these operations among various categories, users, and types of aircraft is critical to the development of the input model data.

The selection of individual aircraft types is important to the modeling process because different aircraft types generate different noise levels.

Fleet Mix And Database Selection

The aircraft fleet mix was provided by the airport manager. **Table C2** summarizes the fleet mix data input into the noise analysis by annual aircraft operations.

n order to select the proper aircraft from the INM database, a review of the current fleet mix for Santa Paula Airport was conducted.

The FAA's substitution list indicates that the general aviation single engine variable pitch propeller model, the GASEPV, represents a number of single engine general aviation aircraft. Among others these include the Beech Bonanza, Cessna 177 and 180, Piper Cherokee Arrow, Piper PA-32, and the Mooney. The general aviation single-engine fixed pitch propeller model, the GASEPF, also represents several single-engine general aviation aircraft. These include the Cessna 150 and 172, Piper Archer, Piper PA-28-140 and 180, and the Piper Tomahawk.

TABLE C2
Fleet Mix Data
Santa Paula Airport

	1997
Itinerant Operations	
General Aviation	
Twin Engine	660
Light Single-Variable Pitch Prop.	6,270
Light Single-Fixed Pitch Propeller	6,270
Bell 206 Helicopter	800
Subtotal Itinerant	14,000
Local Operations	
GENERAL AVIATION	
Light Twin	1,900
Light Single-Variable Pitch Prop.	18,050
Light Single-Fixed Pitch Propeller	18,050
Subtotal Itinerant	38,000
Total	52,000

The list recommends the BEC58P, the Beech Baron, to represent the light twin-engine aircraft such as the Piper Navajo, Beech Duke, Cessna 31, and others.

The most common helicopter in the Santa Paula fleet mix is the Bell 206 . Helicopter data for this aircraft was extracted from the FAA's Heliport Noise Model (HNM) to simulate the helicopter air taxi and general aviation activity.

These choices are in accordance with the Pre-Approved Substitution List published by the FAA Office of Environment and Energy (AEE) branch in Washington.

Time-Of-Day

The time-of-day at which operations occur is important as input to the INM due to the extra weighting of evening (7:00 p.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) flights. In calculating airport noise exposure, one evening operation has the same noise emission value as three daytime operations by the same aircraft (a weight of 4.8 extra decibels). One nighttime operation has the same noise emission value as 10 daytime operations (a weight of 10 extra decibels).

Evening and nighttime information was not available. Santa Paula Airport is closed during nighttime hours due to the lack of runway lighting. Based on experience at similar airports, ten percent of the itinerant general aviation operations were assumed to occur during evening hours.

Runway Use

Runway usage data is another essential input to the INM.. Runway use was provided by the airport manager. Approximately 90 percent of general aviation arrivals and departures are on Runway 22.

Flight Tracks

Flight track data was derived from the Santa Paula Airport brochure dated June 1996. Arrival, departures, and touch-and-go tracks are depicted on Exhibit 4E in Chapter Four.

INM OUTPUT

Output data selected for calculation by the INM were annual average noise contours in CNEL. The following sections presents the results of the contour analysis for the current condition, as developed from the Integrated Noise Model.

Noise Exposure Contours

Exhibit 4F in Chapter Four presents the plotted results of the INM contour analysis for current conditions using input data described in the preceding pages. These contours represent noise exposure both current conditions and the 2015 forecast. The surface areas within each contour are presented in **Table C3**.

The 60 CNEL noise contour is cigar shaped with a small arrival spike to the northeast of the airport. The 65 CNEL noise contour has a similar shape, but without the arrival spike. The 70 and 75 CNEL noise contours remain close to Runway 4-22 and are elongated about the runway centerline.

TABLE C3
Noise Exposure Area
Santa Paula Airport

	Area in Square Miles
CNEL Contour	**1997/2015**
60	0.34
65	0.13
70	0.05
75	0.02

SUMMARY

The information presented in this report defines the noise patterns for the Santa Paula Airport vicinity. It is stressed that CNEL contour lines drawn on a map do not represent absolute boundaries of acceptability or unacceptability in personal response to noise, nor do they represent the actual noise conditions present on any specific day, but rather the conditions of an average day derived from annual average information.

Appendix D
IMPLEMENTATION MATERIALS

Appendix D:
IMPLEMENTATION MATERIALS

The materials in this appendix are for use in implementing the updated Airport Comprehensive Land Use Plan for Ventura County.

- A model agreement for noise disclosure and fair disclosure statement;
- A model noise and avigation easement;
- An excerpt from F.A.R. Part 77 describing Federal requirements for notifying the FAA of proposed construction which may affect navigable airspace.

While care has been taken to ensure accuracy of the model easement and fair disclosure agreement and statement, the form and language of these instruments may need to be altered to conform with local laws and customs. They must be reviewed by attorneys representing local jurisdictions before their use or adoption.

MODEL AGREEMENT FOR NOISE DISCLOSURE

This Agreement made and entered into this _____ day of _____, 199__, by and between the Ventura County Airport Land Use Commission, hereinafter referred to as "ALUC", the ***[City of _____; OR Ventura County]***, hereinafter referred to as ***"City" [OR "County"]***, ***[Ventura County; OR the United States Navy; OR the Santa Paula Airport Association, Ltd.]***, as proprietor of _____ Airport, hereinafter referred to as "Airport Proprietor," and _____, herein referred to as "Developer."

WITNESS, that

WHEREAS, Developer has an interest in a tract of land generally located at _____ in Ventura County, California, more specifically described in Exhibit "A" which is attached hereto and incorporated herein by reference, to be platted as _____, and referred to herein as "Developer's Property"; and

WHEREAS, _____ owns and operates a certain airport known as _____ Airport located _____ of Developer's Property; and

WHEREAS, it is in the best interest of the ALUC, Airport Proprietor, ***[City OR County]***, and Developer to advise all future purchasers and lessees of the presence of the Airport and the potential for low-flying aircraft and noise attributable to aircraft operations at _____ Airport; and

WHEREAS, this Agreement is entered into for the purpose of advising said purchasers and lessees of the aircraft activity and potential for noise generation;

NOW, THEREFORE, for and in consideration of the mutual covenants and considerations herein contained, it is agreed as follows:

1. ALUC, ***[City OR County]***, Airport Proprietor, and Developer enter into this Agreement for the purpose of advising future purchasers and lessees of the activity and noise attributable to aircraft operations at _____ Airport.

2. Developer agrees that in the sales listing information for each lot or separately transferrable property, he will include a notice that the property is in the _____ Airport Influence Area. The information shall include copies of a map showing the Airport Influence Area and the safety zones and noise contours taken from the most recent version of the ALUC's Airport Comprehensive Land Use Plan.

3. Developer agrees that as a part of closing of any real estate transaction conveying a fee simple interest or any lesser estate including leasehold interest that Developer will provide the transferee copies of the aforementioned map and further that Developer shall secure the acknowledgment on six copies of the Fair Disclosure Statement as set forth in Exhibit "B" attached hereto and incorporated herein by reference.

4. The ALUC shall provide Developer with copies of the most recent, official Airport Influence Area Map for _____ Airport at the request of Developer. Any request for said Map shall be in writing to the Ventura County Airport Land Use Commission, in care of the Ventura County Transportation Commission, 950 County Square Drive, Ventura, California, 93003, and shall be made not less than thirty (30) days before the date thereof.

5. After the execution of the Fair Disclosure Statement (Exhibit "B"), Developer shall record one copy at the County Recorder's office, file one copy with the City ***[OR County]*** Planning Department, one copy with the Airport Proprietor, one copy with the ALUC, retain one copy, and deliver the remaining copy to the transferee.

6. Developer further agrees that all transferees shall take subject to the terms of this Agreement and require the execution of the Fair Disclosure Statement as a part of any subsequent conveyance.

7. This Agreement shall be considered a covenant running with the land and be binding on all future transferees, assigns and successors of Developer inasmuch as the potential affects of the Airport operation is associated with the use of the land and indiscriminate of ownership.

8. This Agreement shall not be amended, modified, canceled, or abrogated without the written consent of the parties.

9. Invalidation of any part or parts of this Agreement by judgment or other court action shall in no way affect any of the other provisions which shall remain in full force and effect.

10. This contract shall be construed and enforced in accordance with the laws of the State of California.

11. Upon the effective date of this Agreement, the Agreement shall be recorded in the Office of the Recorder of Deeds, Ventura County, California.

12. This Agreement shall be binding on the parties hereto only after all legal requirements relating to ALUC and ***[City OR County]*** entering into this Agreement have been satisfied.

_____ AIRPORT

By: _____
Its Airport Director

ATTESTED TO:

_____

Approved as to form and legality:

_____
Legal Counsel

DEVELOPER

By: _____

ATTEST:

_____
Secretary

NOTARY'S CERTIFICATION:

_____
Notary Public

[CITY OF _____ OR VENTURA COUNTY]

By: _____
Chief Executive Officer

ATTESTED TO:

_____

Approved as to form and legality

_____
Legal Counsel

AIRPORT LAND USE COMMISSION

By: _____
Chairman

ATTESTED TO:

_____

Approved as to form and legality

_____
Legal Counsel

"EXHIBIT B"
MODEL FAIR DISCLOSURE STATEMENT

NOTICE TO PROSPECTIVE BUYERS OF REAL PROPERTY OR LESSEES OF RESIDENTIAL PROPERTY WITHIN _____ AIRPORT INFLUENCE AREA.

1. An Airport Influence Area exists in the environs of _____ Airport (herein referred to as the Airport). All land within the area is or may be at a future date exposed to low and frequent aircraft overflights or aircraft noise levels of 60 CNEL or higher. Low and frequent aircraft overflights and noise levels of 60 CNEL can be annoying or disturbing.

2. No person who acquires property or an interest therein, or who leases property or an interest therein within the Airport Influence Area after the date on which this statement is signed, shall be entitled to recover damages from the Airport Proprietor, with respect to the noise or activity attributable to aircraft operations at the Airport unless, in addition to any other elements for recovery of damages, such person can show that said damage occurred as a result of one or more of the following, any one or all of which occurred after the date of the acquisition or lease of such property or interest therein:

   A. A major change in the approved Airport Layout Plan or interest therein.

   B. A significant change in flight patterns which were used in producing the noise contours in the attached Airport Influence Area map.

3. The undersigned acknowledges that he or she has been informed that the property being considered for ***[purchase OR lease]*** at:

_____
Address

_____
City State Zip Code

is within the Airport Influence Area for the Airport. He or she further acknowledges that he or she has been given copies of the Airport Influence Area map (a copy of which is attached hereto).

The undersigned has read and fully understands all of the provisions relating to this Fair Disclosure statement.

IN WITNESS WHEREOF, the parties have executed this Statement as of the day and year written below.

Date: _____, 19___.

_____	_____
PRINT NAME OF BUYER OR LESSEE	PRINT NAME OF SELLER, LESSOR, BROKER
_____	_____
Current Address	Company
_____	_____
City State Zip Code	Address
	_____
	City State Zip Code
_____	_____
Signature	Signature

State of _____)
) ss
County of _____)

BE IT REMEMBERED that on the _____ day of _____, 19___, before me, the undersigned notary public in and for the county and state aforesaid, came _____, to me personally known, who being by me duly sworn did say that he is the _____ _____ of _____, a corporation, and that the seal affixed to the foregoing instrument is the corporate seal of said corporation and that said instrument was signed and sealed on behalf of said corporation by authority of its board of directors and said _____ _____ acknowledged said instrument to be the free act and deed of said corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year last above written.

_____
Notary Public

My commission expires: _____

MODEL NOISE AND AVIGATION EASEMENT AND NON-SUIT COVENANT

WHEREAS the grantor is the owner in fee of a certain parcel of land in the [***City OR County***] of _____, State of California; and

WHEREAS Grantor has been advised and is of the opinion that the subject property is located in the Airport Influence Area for _____Airport; that this area is subject to low and frequent aircraft overflights and aircraft noise; that these present and future aircraft overflights and noise levels might be annoying to users of the land for its stated purpose and might interfere with the unrestricted use and enjoyment of the property in its intended use; that these aircraft overflights and noise levels might change over time by virtue of greater numbers of aircraft, louder aircraft, seasonal variations, and time-of-day variations; that changes in airport, aircraft, and air traffic control operating procedures or in airport layout could result in increased overflights and noise levels; and that the grantor's or user's own personal perceptions of the aircraft activity and noise could change and that his or her sensitivity to aircraft noise and overflights could increase;

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS:

That for a good and valuable consideration, the receipt of which is hereby acknowledged, that _____ does hereby grant a permanent noise and avigation easement to ***[Ventura County; OR the United States Navy; OR the Santa Paula Airport Association, Ltd.]***, owner and operator of_____ Airport, for the use of "Navigable Airspace" as defined by the Federal Aviation Act of 1958, over all of the following described real estate, to wit:

By virtue of this agreement, the grantor, for and on behalf of himself and all successors in interest to any and all of the real property above described, waives as to the airport owner and operator or any successor entity legally authorized to operate said airport, any and all claims for damage of any kind whatsoever incurred as a result of aircraft using the "Navigable Airspace" granted herein regardless of any future changes in volume or character of aircraft overflights, or changes in airport design and operating policies, or changes in air traffic control procedures.

The Grantor, for and on behalf of himself and all successors in interest to any and all of the real property above described, does further hereby covenant and agree with the Grantee that it will not from and after the effective date hereof, sue, prosecute, molest, or trouble the Grantee in respect to or on account of the flight of any and all aircraft over or near the said parcel of land or for any effects resulting therefrom including but not limited to noise, air pollution, or any and all other possible damages to or taking of said property resulting from such flights. This easement and non-suit covenant is granted solely to ***[Ventura County; OR the United States Navy; OR the Santa Paula Airport Association, Ltd.]*** as owner and operator of _____ Airport, and any successor entity, and does not grant any right to private persons or corporations.

"Navigable Airspace" means airspace above the minimum altitudes of flight prescribed by regulations issued under the Federal Aviation Act of 1958, Section 101 (24) 49 U.S. Code 1301, and shall include airspace needed to ensure safety in the takeoff and landing of aircraft.

To have and to hold said easement forever.

(Witness, signatures, and dates follow in customary local format.)

Appendix E
AIRPORT LAND USE COMPATIBILITY POLICIES ALTERNATIVES

Appendix E
AIRPORT LAND USE COMPATIBILITY POLICY ALTERNATIVES

This Appendix discusses airport compatibility framework policies at Ventura County airports. They are compared with the existing airport compatibility policies established in the existing Airports Comprehensive Land Use Plan (the 1991 CLUP). It was used by the Project Advisory Committee and the Airport Land Use Commission in developing the adopted policies in Chapter 6.

The policy alternatives are based on guidance provided by the updated *Airport Land Use Planning Handbook* (Hodges & Shutt 1993.)

E.1 SAFETY COMPATIBILITY

E.1.1 1991 CLUP STANDARDS AT CIVILIAN AIRPORTS

The 1991 safety compatibility standards for Ventura County civilian airports are shown in **Table E1**. Three zones are established: the Inner Safety Zone, the Outer Safety Zone, and the Traffic Pattern Zone. The standards become less restrictive as distance from the airport and runway centerline increases. The strictest standards are in the Inner Safety Zone, an area corresponding with the runway protection zone defined by FAA airport planning criteria. Less restrictive standards apply in the Outer Safety Zone. The least restrictive standards apply in the Traffic Pattern Zone, the area beneath the most commonly used traffic pattern.

TABLE E1
Land Use Compatibility Guidelines in
Air Safety Zones for Civilian Airports -- 1991 CLUP

Land Use	Inner Safety Zone	Outer Safety Zone	Traffic Pattern Zone
Residential			
Single Family	U	U	C [a]
Multi-Family	U	U	C [a]
Mobile Home Parks	U	U	C [a]
Public/Institutional			
Hospitals/Convalescent Homes	U	U	U
Schools	U	U	U
Churches/Synagogues	U	U	U
Auditoriums/Theaters	U	U	U
Transportation Terminals	U	U	U
Communication/Utilities	C [b]	A	A
Automobile Parking	C [b]	A	A
Commercial			
Hotels and Motels	U	U	C [c]
Offices and Business/Professional	U	C [a]	C [c]
Services	U	C [a]	C [c]
Wholesale	U	C [a]	C [c]
Retail			
Industrial			
Manufacturing - General/Heavy	U	C [a]	C [c]
Light Industrial	U	C [a]	C [c]
Research and Development	U	C [a]	C [c]
Business Parks/Corporate Offices	U	C [a]	C [c]
Recreation/Open Space			
Outdoor Sports Arenas	U	U	U
Outdoor Amphitheaters	U	U	U
Parks	U	C [a]	A
Outdoor Amusement	U	C [a]	A
Resorts and Camps	U	C [a]	A
Golf Courses and Water Recreation	C [d]	A	A
Agriculture	A	A	A

TABLE E1 (Continued)
Land Use Compatibility Guidelines in
Air Safety Zones for Civilian Airports -- 1991 CLUP

NOTES

A = Acceptable land use
C = Land use is conditional upon meeting established criteria (see footnotes)
U = Unacceptable land use

[a] Maximum structural coverage must be no more than 25 percent. "Structural coverage" is defined as the percent of building footprint area to total land area, including streets and greenbelts.

[b] The placing of structures or buildings in the Inner Safety Zone is unacceptable. Above ground utility lines and parking are allowed only if approved by the FAA as not constituting a hazard to air navigation.

[c] Maximum structural coverage must not exceed 50 percent. "Structural coverage" is defined as the percent of building footprint area to total land area, including streets and greenbelts. Where development is proposed immediately adjacent to the airport property, it is suggested that structures be located as far as practical from the runway.

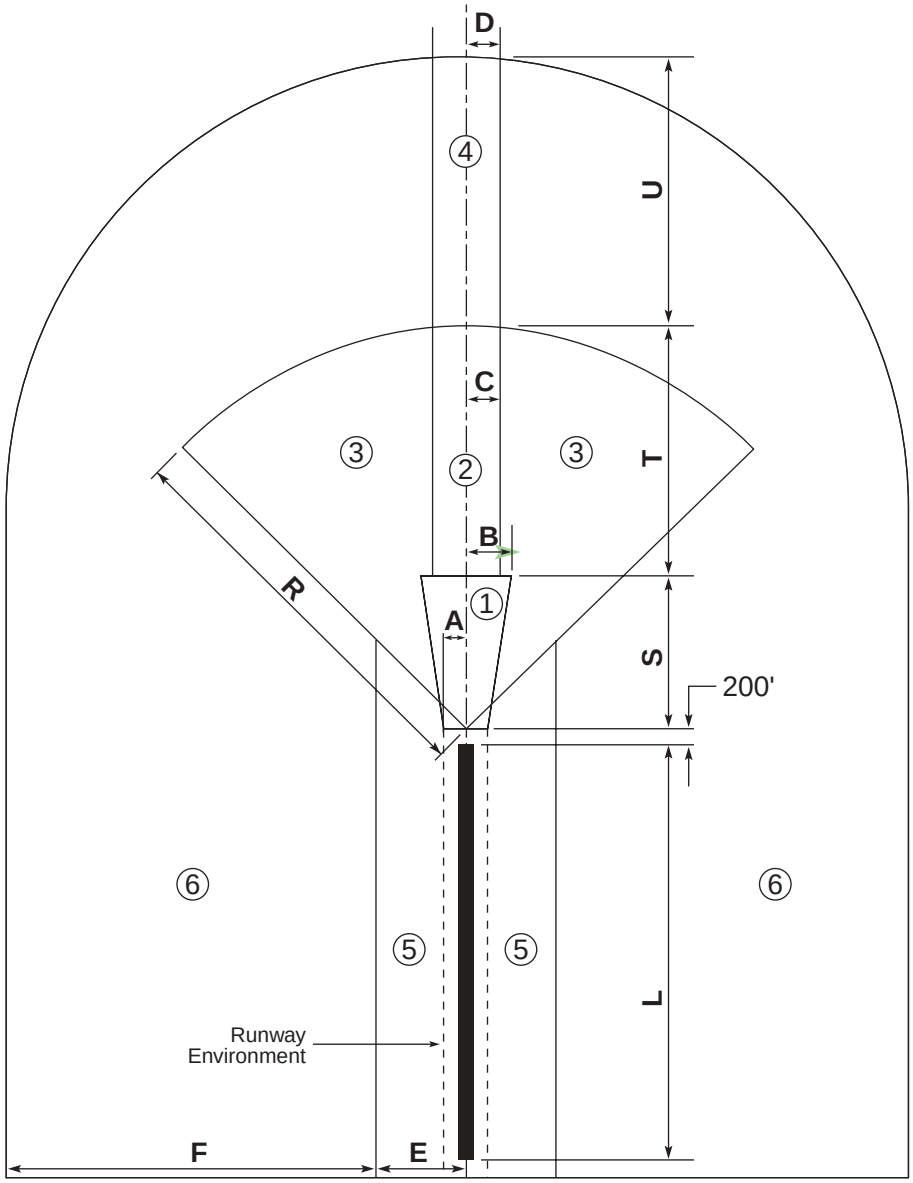
[d] Clubhouse is unacceptable in this zone.

Source: P&D Aviation 1991.

E.1.2 ALTERNATIVE SAFETY ZONES AT CIVILIAN AIRPORTS

Since the preparation of the 1991 CLUP, the State Aeronautics Program has released an updated version of the *Airport Land Use Planning Handbook* (Hodges & Shutt 1993). The Handbook does not provide standards or official recommendations, but it does suggest a reasonable configuration of safety zones, as shown in **Exhibit E1**. These differ from the safety zones in the 1991 CLUP in the following respects.

- The safety zone example from the Handbook establishes a runway sideline zone, recognizing the potential accident risks in this area.
- The example in the Handbook advises increasing attention along the extended runway centerline by designating two zones, the Inner and Outer Safety Zones.
- The Handbook also advises attention be given to departure turns by designating an Inner Turning Zone. (This concept was used in the 1991 CLUP at Camarillo Airport for the right departure turn off Runway 26.)



SAFETY ZONE NAMES	
①	Runway Protection Zone
②	Inner Safety Zone
③	Inner Turning Zone
④	Outer Safety Zone
⑤	Sideline Safety Zone
⑥	Traffic Pattern Zone

SAFETY ZONE DIMENSIONS (Feet)

	Runway Length Group (L)		
	less than 4,000'	4,000' to 5,999'	6,000' or more
A	125	250	500
B	225	505	875
C	225	500	500
D	225	500	500
E	500	1,000	1,000
F	4,000	5,000	5,000
R	2,500	4,500	5,000
S	1,000	1,700	2,500
T	1,500	2,800	2,500
U	2,500	3,000	5,000

Note: These safety zone shapes and sizes are intended only to illustrate the concepts discussed in the text. They do not represent standards or recommendations.

Source: Hodges & Shutt, *Airport Land Use Planning Handbook*, page 9-16. Prepared for CALTRANS Division of Aeronautics, (December 1993)

Ventura County AIRPORT LAND USE PLAN

Exhibit E1
SAFETY ZONE
CONFIGURATION EXAMPLE

Like the 1991 CLUP, the 1993 Handbook advises the establishment of a Traffic Pattern Zone. It provides dimensional criteria for drawing the boundaries of the zone. In actual airport settings, the traffic pattern can vary greatly in size depending on the type and volume of aircraft at any given time. It makes sense to define the size of a traffic pattern zone based on the actual experience at airports, provided that reasonably good data on traffic pattern flight tracks is available.

The safety zones in the 1993 *Handbook* could be considered at the civilian airports in Ventura County. In the next section, the 1991 CLUP safety zone boundaries at each civilian airport are compared with alternative boundaries that could be established based on the criteria in the 1993 *Handbook*.

E.1.3 SAFETY ZONE BOUNDARIES AT CIVILIAN AIRPORTS

E.1.3.a Camarillo Airport

Exhibit E2 shows the 1991 CLUP safety zones at Camarillo Airport. The Inner Safety Zone (ISZ) is a small trapezoid-shaped area off each runway end remaining on airport property. The Outer Safety Zone (OSZ) off the east end of the runway is a larger trapezoid which extends about 600 feet east of Las Posas Road off airport property. It extends into area designated in the General Plan for commercial, public and quasi-public, and agriculture. Off the west end of the airport, the OSZ has a large fan shape extending 5,000 feet off the end of the primary surface (which ends 200 feet past the runway end). It follows the approach surface and a nominal departure flight track.

The Traffic Pattern Zone extends about 3,400 feet north and south of the runway centerline and 3,000 feet off the west end of the runway and about 4,800 feet off the east runway end. The TPZ is rather misleadingly named since the actual traffic pattern at the airport often extends well outside the area.

Exhibit E3 shows potential alternative airport safety zones based on the criteria in the 1993 *Airport Land Use Planning Handbook*. The Runway Protection Zones (RPZ) are larger than the current ISZ boundaries because they are drawn based on the assumption of a future precision instrument approach at the airport. The "new" ISZ extends about as far off each runway end as the current OSZ shown in **Exhibit E2**. The new ISZ is rectangular, however, rather than trapezoid-shaped. The "new" OSZ is a rectangular area extending 10,000 feet off the primary surface at each runway end.

"The potential alternative safety zones in **Exhibit E3** include those for the potential parallel runway. They should be considered here as being for information only as the potential runway would not be developed until further feasibility studies/environmental analyses were completed and it was determined through a public review process that its construction would benefit the community."

Inner Turning Zones (ITZ) are designated off both runway ends covering areas where aircraft make departure turns. The "new" TPZ is considerably larger than the existing TPZ. It covers the area where the traffic pattern most frequently lies. (Compare this with Exhibits 2E, 2F, and 2G in Chapter Two of the Phase I Report.)

E.1.3.b Oxnard Airport

Exhibit E4 shows the 1991 CLUP safety zones at Oxnard Airport. The Inner Safety Zone (ISZ) is a trapezoid-shaped area off each runway end. The Outer Safety Zones (OSZ) are larger trapezoids extending 5,000 feet off the end of the primary surfaces at each runway end.

The Oxnard Master Plan has not been adopted yet, therefore, no new safety zones proposed as of this update. The safety zones in the 1991 CLUP, shown on **Exhibit E4**, shall remain in place as part of the CLUP update.

E.1.3.c Santa Paula Airport

Exhibit E5 shows the 1991 CLUP safety zones at Santa Paula Airport. The Inner Safety Zone (ISZ) is a small trapezoid-shaped area off each runway end. The Outer Safety Zone (OSZ) off the east end of the runway is a larger trapezoid which extends about 3,400 feet off the ends of the primary surface at each runway end. Most of the land within the ISZ and the OSZ is designated for industrial use. A small area at the west end is designated for residential (mobile home park).

The 1991 CLUP Traffic Pattern Zone (TPZ) is shown on the southeast side of the airport only. This is because the traffic pattern is confined to that side of the airport. It extends about 3,000 feet off the runway centerline and about 6,300 feet off each end of the primary surface.

Exhibit E6 shows potential alternative airport safety zones based on the criteria in the 1993 *Airport Land Use Planning Handbook*. The Runway Protection Zones (RPZ) are the same size as the current ISZ boundaries. The "new" ISZ extends 2,500 feet off the ends of the primary surface, covering less area than the current Outer Safety Zone. The new ISZ is also rectangular, so it covers significantly less area than the current OSZ.

The "new" OSZ is a rectangular area extending 5,000 feet off the primary surface at each runway end, well beyond the outside boundary of the current OSZ.

Inner Turning Zones (ITZ) are designated off both runway ends covering areas where aircraft make departure turns.

The "new" TPZ is similar in size to the existing TPZ. It extends about the same distance southeast of the runway end, and about 1,300 feet less off each runway end. It extends about 1,770 feet northwest of the runway centerline.

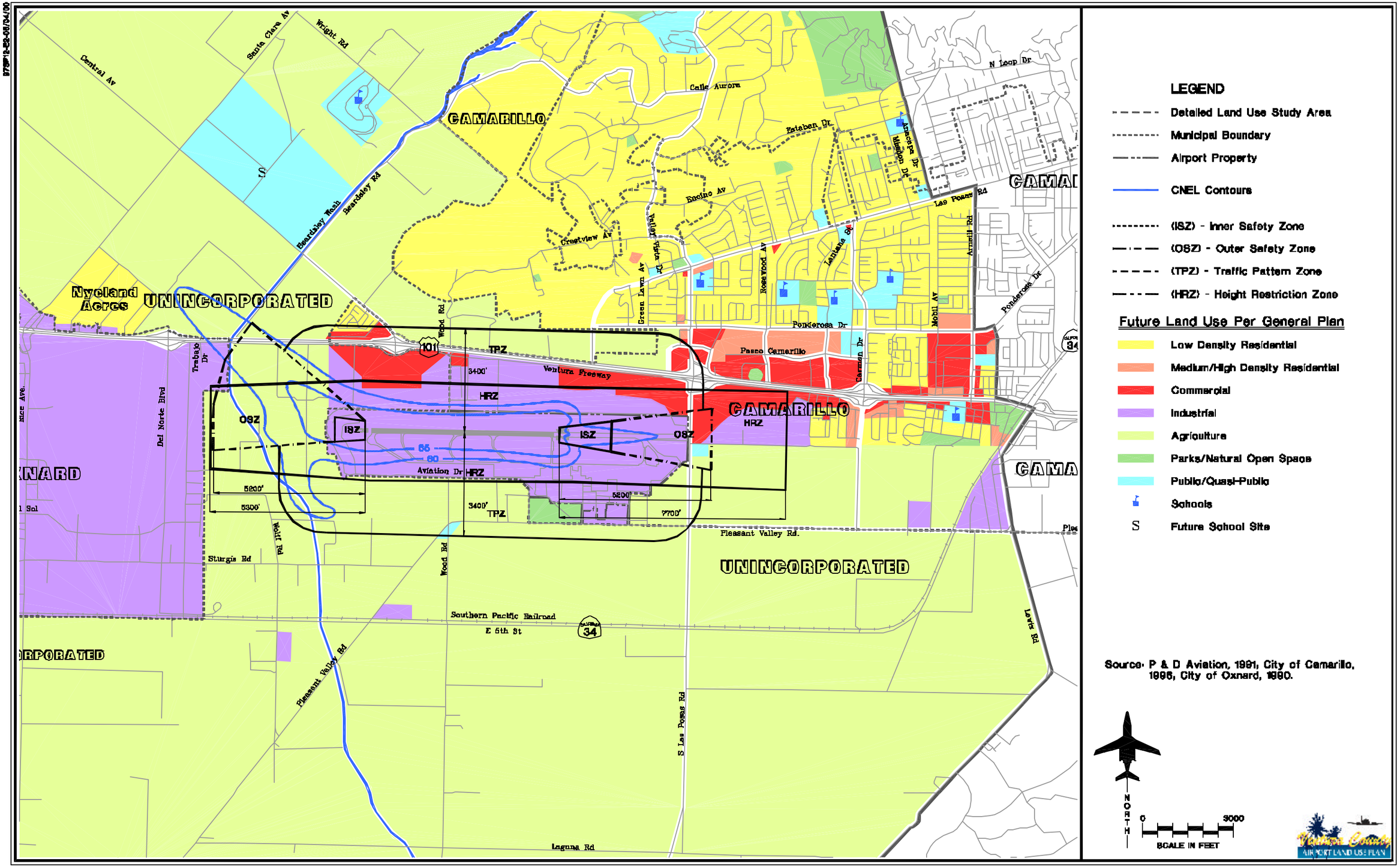


Exhibit E2
1991 AIRPORT COMPREHENSIVE LAND USE PLAN
FOR CAMARILLO AIRPORT

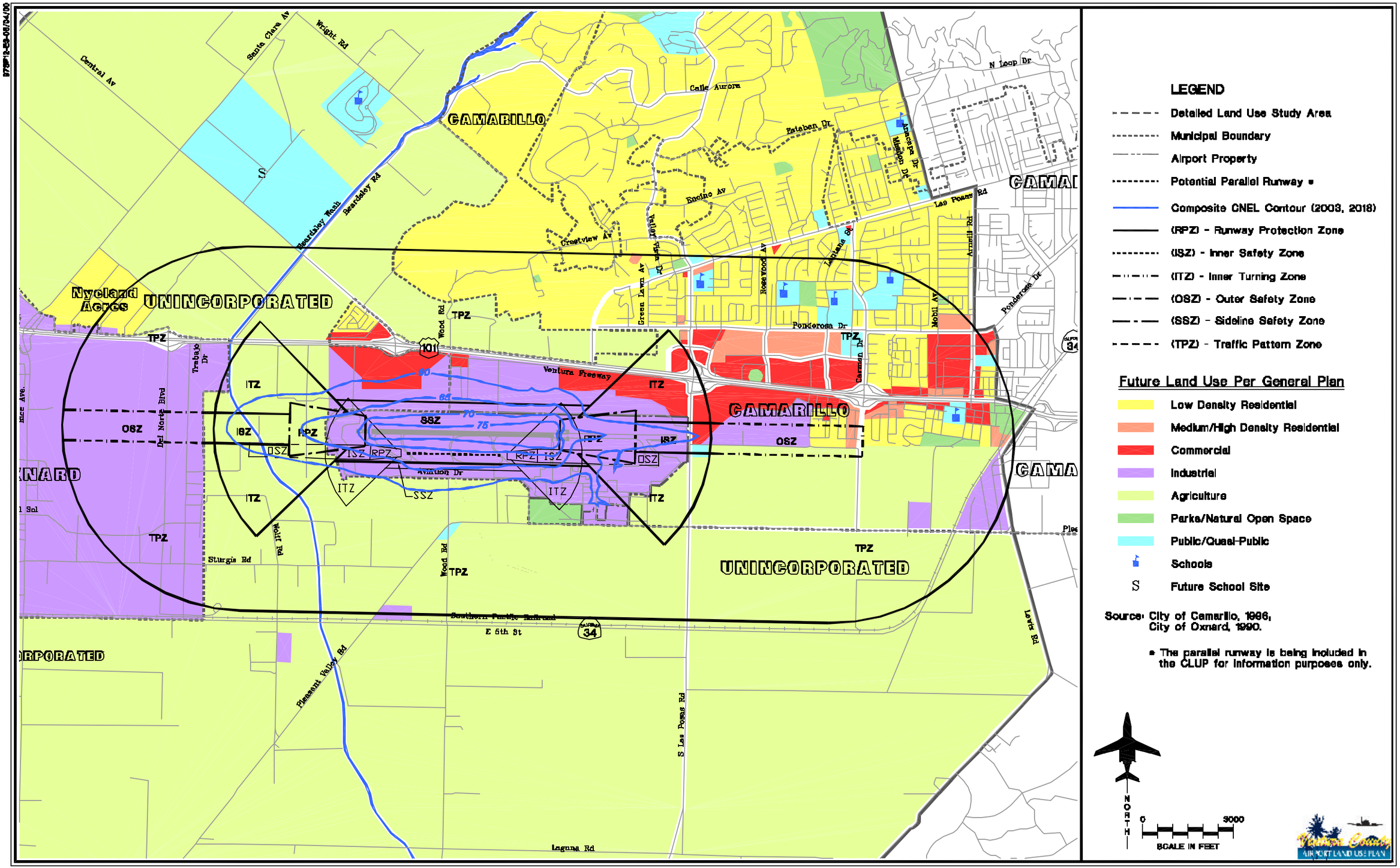


Exhibit B3
POTENTIAL NOISE AND SAFETY ZONES
FOR CAMARILLO AIRPORT

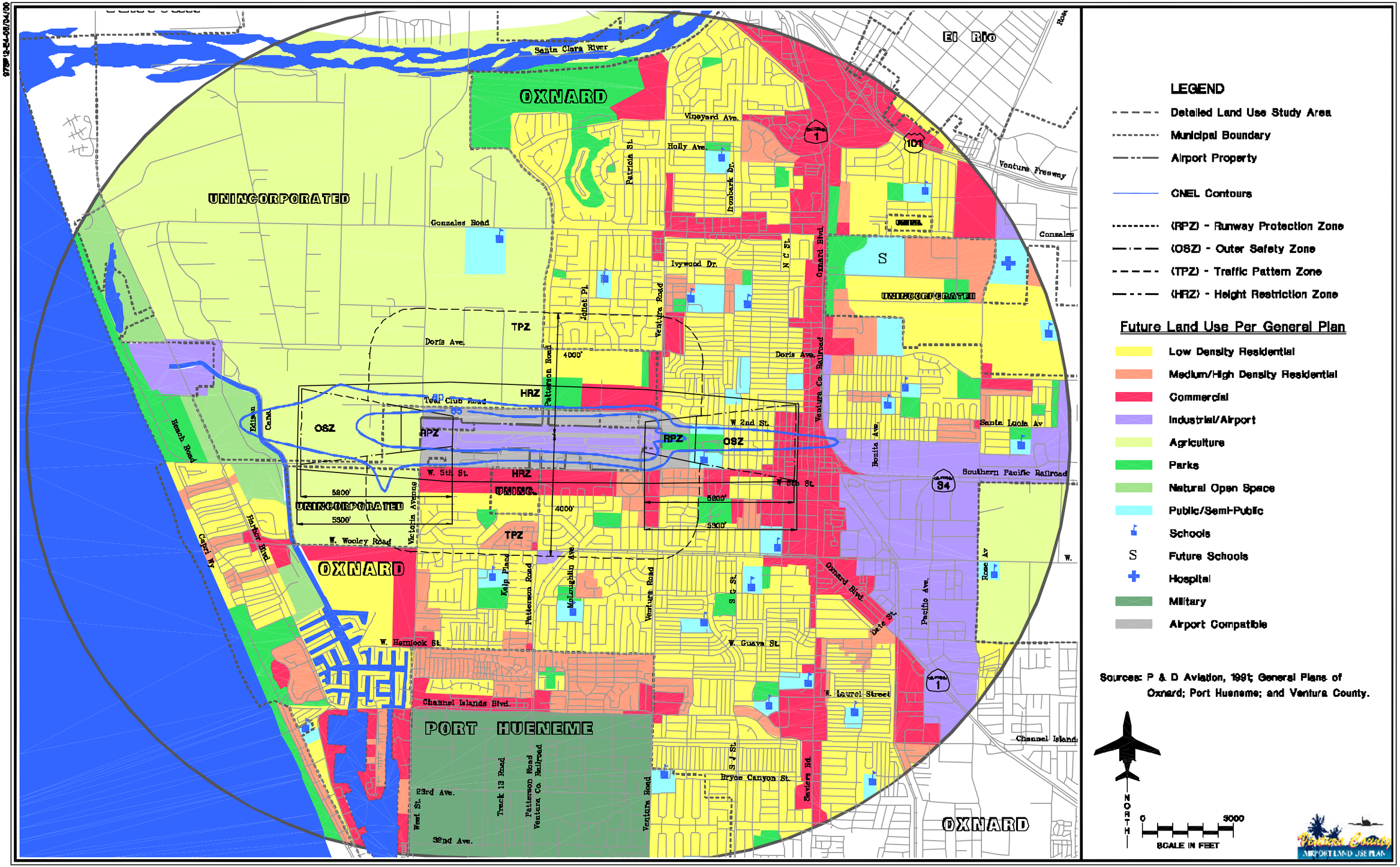
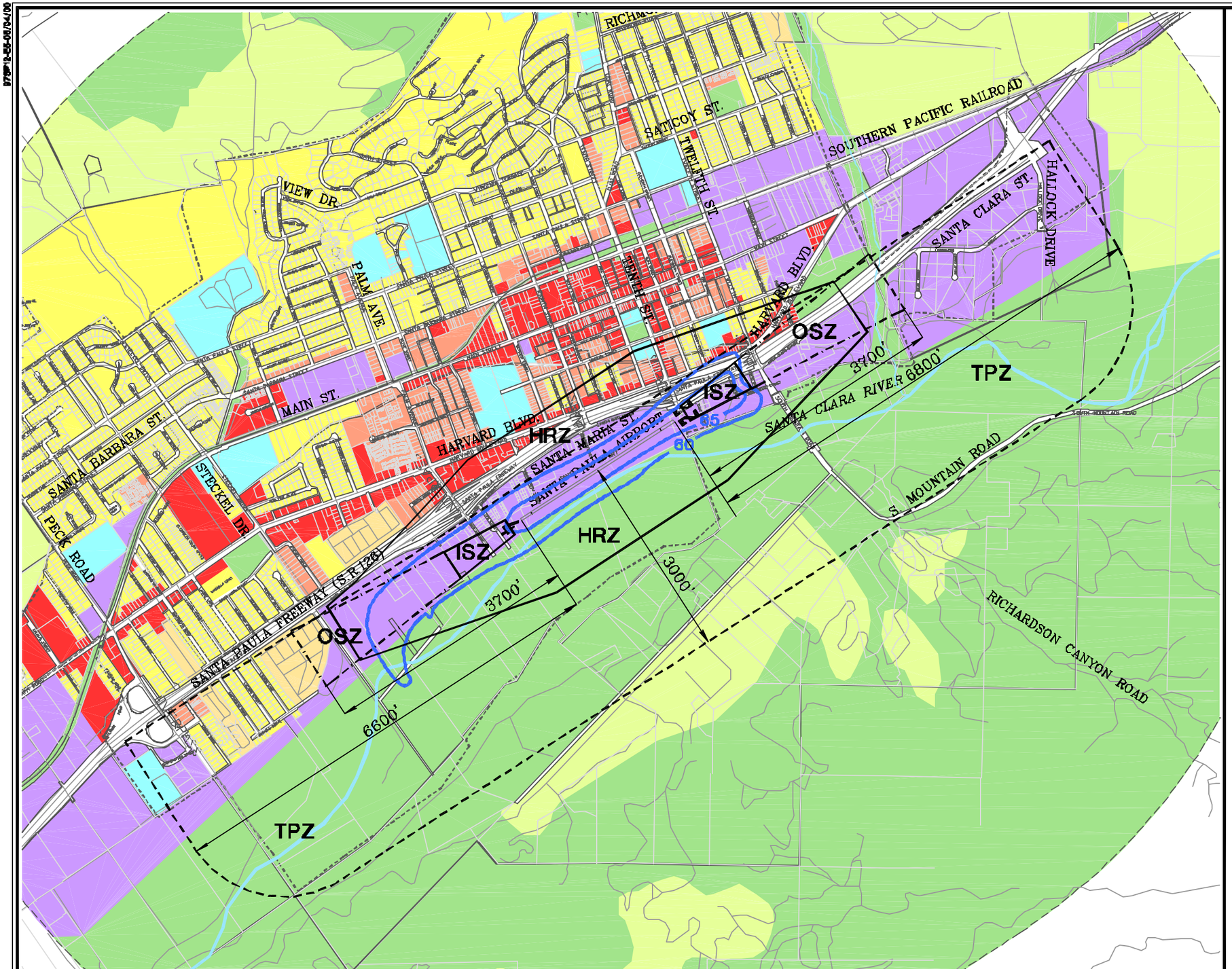


Exhibit B4
1991 AIRPORT COMPREHENSIVE LAND USE PLAN
FOR OXNARD AIRPORT



LEGEND

- Detailed Land Use Study Area
- Municipal Boundary
- CNEL Contours
- (ISZ) - Inner Safety Zone
- (OSZ) - Outer Safety Zone
- (TPZ) - Traffic Pattern Zone
- (HRZ) - Height Restriction Zone

Future Land Use Per General Plan

- Low-Medium Density Residential
- Medium-High Density Residential
- Mobile Home Park
- Commercial
- Industrial
- Public/Semi-Public
- Park and Open Space
- Agricultural

Sources: P & D Aviation, 1991; Ventura County General Plan; General Land Use Map, Figure 3.1, 1996; City of Santa Paula; Proposed Land Use Plan and Expansion Areas (map).

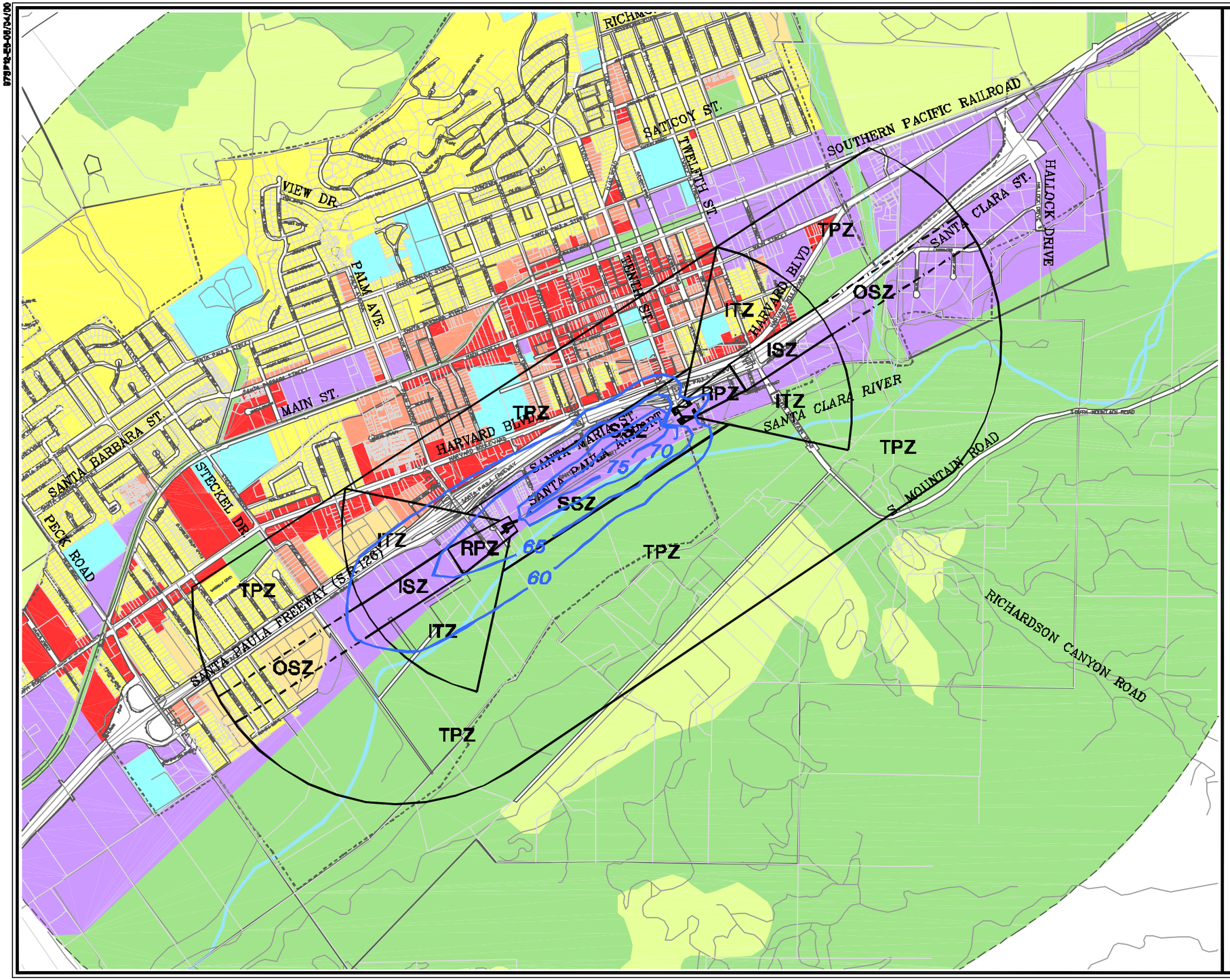
NORTH

0 1500

SCALE IN FEET

Ventura County AIRPORT LAND USE PLAN

Exhibit B5
1991 AIRPORT COMPREHENSIVE LAND USE PLAN
FOR SANTA PAULA AIRPORT



LEGEND

- Detailed Land Use Study Area
- Municipal Boundary
- CNEL Contour - 2015 Forecast
- (RPZ) - Runway Protection Zone
- (ISZ) - Inner Safety Zone
- (ITZ) - Inner Turning Zone
- (OSZ) - Outer Safety Zone
- (SSZ) - Sideline Safety Zone
- (TPZ) - Traffic Pattern Zone

Future Land Use Per General Plan

- Low-Medium Density Residential
- Medium-High Density Residential
- Mobile Home Park
- Commercial
- Industrial
- Public/Semi-Public
- Park and Open Space
- Agricultural

Sources: Ventura County General Plan, General Land Use Map, Figure 3.1, 1996;
City of Santa Paula, Proposed Land Use Plan and Expansion Areas (map).

NORTH

0 1500

SCALE IN FEET

Ventura County AIRPORT LAND USE PLAN

Exhibit E6
POTENTIAL NOISE AND SAFETY ZONES
FOR SANTA PAULA AIRPORT

It is important to note that most of the land northwest of the Santa Paula Freeway within the prospective new safety zones is developed, so any new land use compatibility standards would have no effect in that area.

E.1.4 ALTERNATIVE COMPATIBILITY STANDARDS

As shown previously in **Table E1**, the safety compatibility standards of the 1991 CLUP are presented in the form of a matrix of permitted, conditionally permitted, and prohibited land uses. In some CLUPs of other counties and in the 1993 Handbook, as noted in Appendix A of the Phase I Report, a different approach is taken. The prohibited uses are specifically called out as are the development conditions applying in each zone. This may be a fairly subtle difference, but it can provide more detail and potentially more precision in administering the regulations.

Table E2 presents a comparison of the 1991 CLUP safety compatibility standards with the criteria contained in the 1993 *Airport Land Use Planning Handbook*. The format of the table is based on the *Handbook* criteria. The current CLUP standards have been reformatted to fit the table. The table contains six sections, each corresponding to one of the *Handbook's* safety zones. The existing safety zone from the 1991 CLUP which most closely corresponds to the *Handbook's* zone is paired with it.

Table E2 shows that in the *Handbook's* RPZ, virtually no structures and no development would be permitted. If at all possible, these areas should be owned by the airport operator. These standards are very similar to the 1991 CLUP standards for the current Inner Safety Zone. Rather than setting a maximum population density as the *Handbook* does, the 1991 CLUP has a much more extensive list of prohibited land uses.

In the *Handbook's* ISZ, no residential uses or other high density uses would be permitted. A maximum population density of 40 to 60 persons per acre would be established for permitted uses in the area. (A formula for computing "population density" is provided in the 1983 State Handbook and could be used if this kind of standard is desired in Ventura County.) From 25 to 50 percent of the gross area involved in the project must be set aside for "useable open space." Useable open space is land of sufficient size and configuration to serve as an emergency crash landing site. The 1993 *Handbook* suggests that areas as small as 300 by 75 feet can be suitable for small aircraft (Hodges & Shutt 1993, p 3-3). In the ITZ, generally the same land use prohibitions would apply as in the ISZ, although very low density residential use could be allowed on minimum lot sizes of 10 acres.

The current Outer Safety Zone from the 1991 CLUP has similar land use standards as the 1993 *Handbook*. Residential use, however, is prohibited in the current OSZ. The current

standards have no provision for "useable open space", but they set a maximum structural coverage requirement of 25 percent of the gross development area.

In "new" OSZ from the 1983 *Handbook*, less stringent land use prohibitions would apply than in the current OSZ. Places of public assembly would be prohibited, but very low density residential uses would be allowed (0.2 to 0.5 units per net acre, corresponding to minimum lots sizes of two to five acres). The useable open space requirement would be from 10 to 30 percent of the gross area of the development project.

TABLE E2
Comparison of Compatibility Standards for Alternative Safety Zones
1993 State Handbook vs. 1991 Ventura County CLUP

Safety Zone	Maximum Population Density	Maximum Dwelling Unit (DU) Density	Minimum Amount of Useable Open Space	Maximum Structural Coverage	Prohibited Land Uses
RUNWAY PROTECTION ZONE					
1993 Handbook	0 to10 persons/ac.	0	100%	0	Residential, Schools, Hospitals, Nursing homes, Above ground storage of flammable materials or other hazardous substances.
"Inner Safety Zone" 1991 CLUP	N.A.	0	N.A.	0	Residential, Hospitals and convalescent homes, Schools, Churches, Auditoriums and theaters, Transportation terminals, Commercial, Industrial, Outdoor sports arenas, Amphitheaters, Parks, Outdoor amusement, Resorts and camps.

TABLE E2 (Continued)
Comparison of Compatibility Standards for Alternative Safety Zones
1993 State Handbook vs. 1991 Ventura County CLUP

Safety Zone	Maximum Population Density	Maximum Dwelling Unit (DU) Density	Minimum Amount of Useable Open Space	Maximum Structural Coverage	Prohibited Land Uses
INNER SAFETY ZONE					
1993 Handbook	40 to 60 persons/ac.	0 to 0.1 du/ac.	25 to 50% of gross area. (25% overall, 50% in 500-foot wide center strip.)	N.A.	Permit only uses which attract relatively few people. Prohibited examples include: Shopping centers; Eating establishments; Meeting halls; Multi-story office buildings; Labor-intensive manufacturing plants. Schools, hospitals, nursing homes. Uses involving, as the primary activity, manufacture, storage, or distribution of explosives or flammable materials.
"Outer Safety Zone" 1991 CLUP	N.A.	0	N.A.	25% of gross area	Residential, Hospitals and convalescent homes, Schools, Churches, Auditoriums and theaters, Transportation terminals, Hotels and motels, Outdoor sports arenas, Amphitheaters, Parks, Outdoor amusement, Resorts and camps.

TABLE E2 (Continued)
Comparison of Compatibility Standards for Alternative Safety Zones
1993 State Handbook vs. 1991 Ventura County CLUP

Safety Zone	Maximum Population Density	Maximum Dwelling Unit (DU) Density	Minimum Amount of Useable Open Space	Maximum Structural Coverage	Prohibited Land Uses
OUTER SAFETY ZONE					
1993 Handbook	60 to 100 persons/ac.	0.2 to 0.5 du/net ac.	10 to 30% of gross area. (10% overall, 30% in 500-foot wide center strip.)	N.A.	No schools, hospitals, nursing homes. No uses involving, as the primary activity, manufacture, storage, or distribution of explosives or flammable materials.
"Outer Safety Zone" 1991 CLUP	As noted above.	As noted above.	As noted above.	As noted above.	As noted above.
TRAFFIC PATTERN ZONE					
1993 Handbook	150 persons/ac.	4 to 6 du/ac.	10 to 15% of gross area	N.A.	Discourage schools, hospitals, nursing homes.
"Traffic Pattern Zone" 1991 CLUP	N.A.	no limit	N.A.	25 to 50% of gross area.	Prohibit: Hospitals and convalescent homes, Schools, Churches, Auditoriums and theaters, Transportation terminals, outdoor sports arenas, Amphitheaters.
INNER TURNING ZONE					
1993 Handbook	40 to 100 persons/ac.	0.1 to 0.5 du/ac.	15 to 20% of gross area	N.A.	Schools, Hospitals, Nursing homes.
"Traffic Pattern Zone" 1991 CLUP	As noted above.	As noted above.	As noted above.	As noted above.	As noted above.

TABLE E2 (Continued)
Comparison of Compatibility Standards for Alternative Safety Zones
1993 State Handbook vs. 1991 Ventura County CLUP

Safety Zone	Maximum Population Density	Maximum Dwelling Unit (DU) Density	Minimum Amount of Useable Open Space	Maximum Structural Coverage	Prohibited Land Uses
SIDELINE SAFETY ZONE					
1993 Handbook	Same as OSZ	0 to 0.5 du/net ac.	25 to 30% of gross area.	N.A.	Same as OSZ.
"Traffic Pattern Zone" 1991 CLUP	As noted above.	As noted above.	As noted above.	As noted above.	As noted above.

N.A. – not applicable.

In the "new" TPZ, a maximum population density of 150 persons per acre would be established. Housing would be limited to four to six units per acre. The useable open space requirement would be set at 10 to 15 percent of the gross development area. The 1991 CLUP TPZ has none of these requirements. The land use requirements of the "new" TPZ are much less stringent, however, than the requirements of the current TPZ. They would only "discourage" schools, hospitals and nursing homes. No land uses would be prohibited. (Briefly, for "discouraged" land uses, the developer would have to show that alternative sites were considered and found to be unacceptable.) In the current TPZ, various institutional uses and places of public assembly are prohibited.

The "new" Inner Turning Zone, which would primarily lie within area now covered by the current TPZ, much stricter standards would apply than at present. Population density would be limited to 40 to 100 persons per acre. Housing density would be limited to 0.1 to 0.5 units per acre (minimum lots sizes of two to ten acres). Fewer land use prohibitions, however, would apply within the "new" ITZ than now apply in the 1991 CLUP TPZ. Only schools, hospitals, and nursing homes would be prohibited.

In the "new" Sideline Safety Zone (SSZ), similar land use prohibitions and density restrictions would apply as in the "new" OSZ. Again, the population and residential density standards would be stricter than for the 1991 CLUP TPZ. The land use prohibitions, however, are somewhat less restrictive than the 1991 CLUP TPZ standards.

Rather than adopting or rejecting the criteria of the 1993 *Handbook* in total, it would be possible to blend some ideas from the *Handbook* with the currently established policies. Since the current standards have been in place for several years and are generally reasonable, there is a case to be made for keeping them.

Regardless of whether the existing safety zones are preserved, one potential revision needs serious consideration. That is the designation of Traffic Pattern Zones at Oxnard and Camarillo Airports. The current TPZs are far smaller than the actual areas covered by the traffic patterns. At the same time, considerable developed land lies beneath the enlarged TPZs which would be created if the criteria shown in **Exhibits E3** and **E5** were used. One option would be to rename the current TPZs and keep them in place. They could be labeled "sideline safety zones" or "inner overflight zones". A new Traffic Pattern Zone could be established based on the 1993 *Handbook* criteria as shown in **Exhibits E3** and **E5**. An important purpose of designating this enlarged TPZ would be to define an airport influence area for purposes of public disclosure. The safety risks are not necessarily great enough in this area to justify strict land use regulations. The presence of aircraft overflights in this area, however, will be enough to motivate concerns among some prospective residents of those areas.

E.1.5 SAFETY ZONE BOUNDARIES AT NAS POINT MUGU

The 1991 CLUP has a different set of safety standards for NAS Point Mugu than for the civilian airport. The Point Mugu standards were established for three safety zones as defined in the AICUZ Study for the facility. The three zones are called the Clear Zone, Accident Potential Zone-1 (APZ-1), and APZ-2. The Clear Zone corresponds with the civilian Inner Safety Zone. The APZ-1 zone roughly corresponds to the Outer Safety Zone. The APZ-2 zone has no direct equivalent in the civilian scheme. It is an area beneath commonly used flight tracks extending beyond the APZ-1 zone. The military safety zone system at Point Mugu has no equivalent for the Traffic Pattern Zone used at the civilian airports.

Since special studies and Defense Department policies were used in defining the safety areas around NAS Point Mugu, it is reasonable to continue using the AICUZ safety boundaries for safety compatibility around the facility. Up-to-date information, however, should be used. In 1992, the Navy updated the AICUZ Study for NAS Point Mugu. The updated study revised the location and configuration of some of the Accident Potential Zones. These changes should be reflected in the updated CLUP for Ventura County. The updated boundaries are shown in **Exhibit E7**.

E.1.5.a Potential Revisions to NAS Point Mugu Safety Standards

One potential shortcoming of the AICUZ system of safety zones, in light of State guidelines and Ventura County planning tradition, is the lack of a traffic pattern zone. It would be reasonable to consider defining a Traffic Pattern Zone around Point Mugu. The size and shape of the area should be based on the concentration of low altitude flight tracks around the airfield. An area based on the Part 77 horizontal surface, extending 7,500 feet from the edge of the primary surfaces

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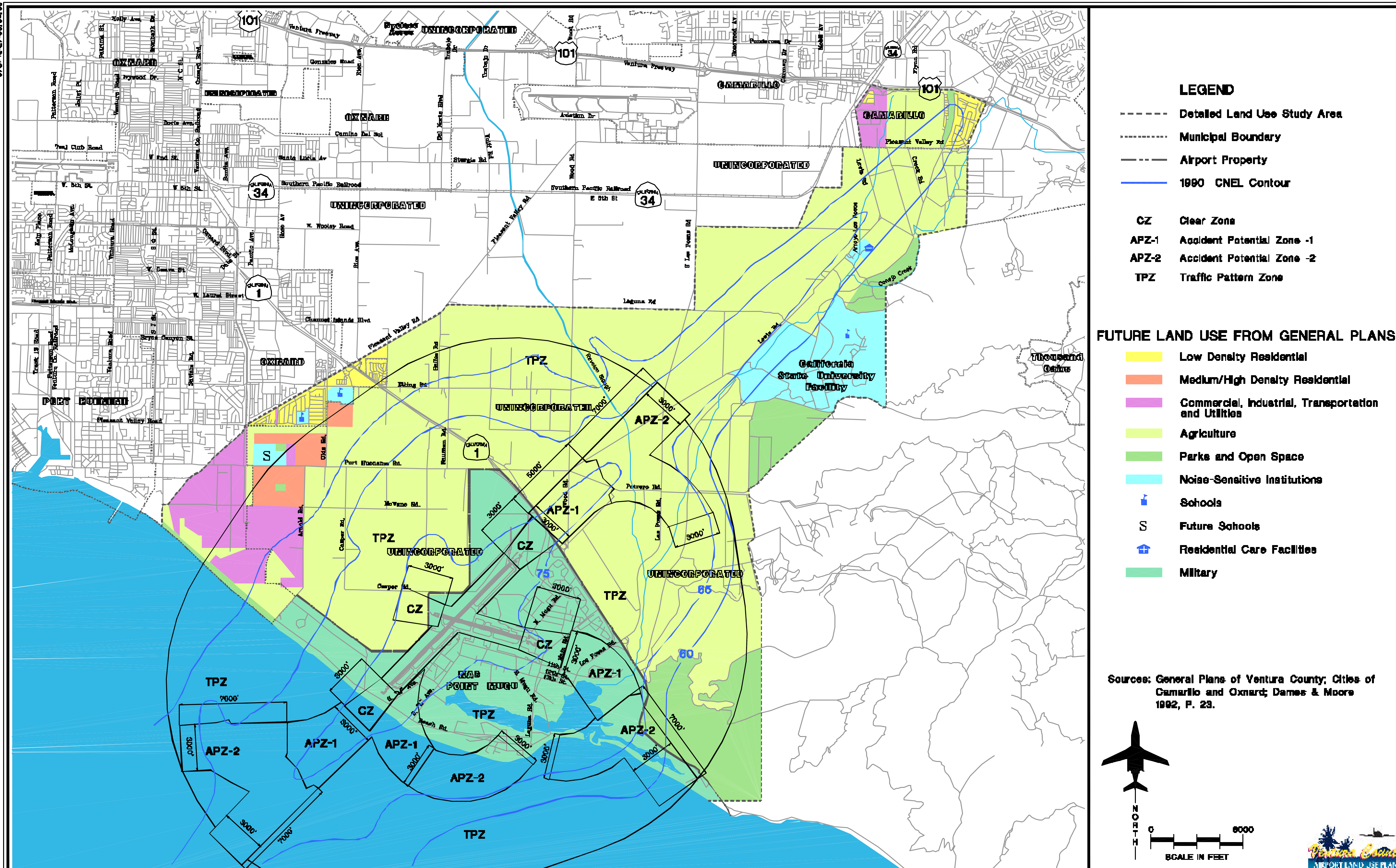
LEGEND
Detailed Land Use Study Area
Municipal Boundary
Airport Property
1990 CNEL Contour
CZ Clear Zone
APZ-1 Accident Potential Zone -1
APZ-2 Accident Potential Zone -2
TPZ Traffic Pattern Zone
FUTURE LAND USE FROM GENERAL PLANS
Low Density Residential
Medium/High Density Residential
Commercial, Industrial, Transportation and Utilities
Agriculture
Parks and Open Space
Noise-Sensitive Institutions
Schools
S Future Schools
Residential Care Facilities
Military
Sources: General Plans of Ventura County; Cities of Camarillo and Oxnard; Dames & Moore 1992, P. 23.
NORTH
0
6000
SCALE IN FEET
OXNARD
CAMARILLO
UNINCORPORATED
PORT HUENEME
Thousand Oaks
California State University Facility
NAS POINT MUGU
101
34
1
TPZ
CZ
APZ-1
APZ-2
75
65
60
3000'
5000'
7000'
Pleasant Valley Rd
Potrero Rd.
Hueneme Rd.
Las Posas Rd
Ventura Freeway
Southern Pacific Railroad
Laguna Rd
Conejo Creek

Exhibit E7
POTENTIAL NOISE AND SAFETY AREAS
FOR NAS POINT MUGU

around each runway, would be a reasonable boundary given the pattern of flight tracks around the airport. This area is shown as the TPZ in **Exhibit E7**.

As was suggested for the civilian airports, the "new" TPZ could be part of the basis for defining an airport influence area. It would be used to promote fair disclosure of potential airport impacts including loud single events and low aircraft overflights.

If the County ALUC desires to change its safety compatibility standards based on the criteria in the updated *Handbook*, it would be reasonable to use these within the corresponding Point Mugu safety zones. The following relationships would apply:

- In the CZ, Clear Zone - Same standards as RPZ.
- In the APZ-1 - Same standards as ISZ.
- In the APZ-2 - Same standards as OSZ.

E.2 NOISE COMPATIBILITY

E.2.1 1991 NOISE COMPATIBILITY STANDARDS

The noise compatibility standards in the 1991 CLUP establish 60 CNEL as the threshold above which aircraft noise becomes a consideration in land use planning. Outdoor amphitheaters and mobile homes are unacceptable in areas exposed to noise above 60 CNEL. Other types of housing, noise-sensitive institutions, and hotels are acceptable in the 60 to 65 CNEL range if an analysis of noise reduction requirements is undertaken and necessary sound insulation installed.

Within the 65 to 70 CNEL range, housing is prohibited and noise-sensitive institutions and hotels are required to be sound-insulated to achieve an outdoor to indoor noise level reduction of 25 CNEL. Within the 70 to 75 CNEL range, most noise-sensitive institutions are prohibited. Auditoriums, theaters and motels are permitted if a noise level reduction of 30 CNEL is incorporated into the structure.

The noise contours within which these requirements apply are shown for each airport in **Exhibit E2** (Camarillo), **Exhibit E4** (Oxnard), **Exhibit E6** (Santa Paula), and **Exhibit E7** (NAS Point Mugu).

E.2.2 POTENTIAL ALTERNATIVE NOISE COMPATIBILITY STANDARDS

E.2.2.a Set 60 CNEL as Compatibility Threshold

Potential revisions would prohibit all housing and noise-sensitive institutions in areas exposed to noise above 60 CNEL. Hotels would be permitted in areas exposed to noise up to 75 CNEL provided they incorporated noise attenuation to achieve a noise level reduction of 25 to 35 CNEL.

These potential policy revisions reflect guidance provided in the updated *Airport Land Use Planning Handbook* (Hodges & Shutt 1993, p. 3-3). Those guidelines recommend that, in quiet communities, 60 CNEL should be the maximum permissible noise level for residential uses. Based on the consultant's experience and the complaint history at the County's airports, noise concerns are frequently registered by people residing in areas far from the 65 CNEL noise contours. Structural sound insulation is of only a very limited benefit. However, state law and local ordinances and elements are based on a 65 CNEL threshold and a change in the CLUP would create an inconsistency and could create confusion in its application.

A comment frequently heard from Southern California residents is the value they place on outdoor living in this mild climate. For sound insulation to be effective, all windows and doors must be closed. This forces the need to use a mechanical ventilation system or air conditioning. If residential development is allowed in areas exposed to noise above 60 CNEL, serious concerns from residents can be expected.

If it is decided to use the 60 CNEL contour as the threshold for permitting residential uses, some special consideration should be given to the Point Mugu area. The 60 CNEL contour covers an enormous area around that facility. A special policy for existing lots of record may deserve consideration in that area. Such a policy could permit a dwelling to be built on a lot of record existing as of the date of adoption of the updated CLUP. Sound insulation and a noise easement could be required as conditions of granting a permit.

E.2.2.b Set 60 CNEL as Threshold for Small Airports Only

One option which has been used in some counties is to establish different noise compatibility threshold levels depending on the class of airport. This approach was suggested in the 1983 *Airport Land Use Planning Handbook* (Metropolitan Transportation Commission 1983). At large air carrier and military airports, the noise compatibility threshold would be set at 65 CNEL. At small airports, a lower threshold would be used. The thinking was that at small airports, many of the noise concerns registered by local residents relate to bothersome overflights and single events. One way of capturing the affected area would be to use a lower CNEL threshold. The lower threshold was variously suggested as 55 or 60 CNEL.

E.2.2c Noise Easements and Disclosure Covenants

Regardless of whether any changes are made in the CNEL threshold for noise compatibility, two other policy refinements deserve discussion.

These refined policies relate to the dedication of noise easements for any noise-sensitive land uses permitted within the 60 CNEL contour and the recording of a fair disclosure covenant

with the plat or deed. The covenant would require the property owner to disclose prospective buyers the location of the property with respect to the airport and the airport noise contours and safety zones.

The 1991 CLUP recommended the dedication of easements and the recordation of disclosure covenants. The option exists for requiring both or either of these. Concerns have been raised that VCTC, as the ALUC, does not have the authority, nor should it seek such authority, to require easements. However, no such concern has been raised with regard to disclosure covenants, and requiring recordation of such would afford some measure of additional protection to the current airports in Ventura County."

E.2.3 REGULATORY NOISE CONTOURS

The 1991 CLUP used sets of noise contours at each airport that represented a reasonable worst case of noise exposure over the long term future. The largest set of noise contours developed for each airport were used as the regulatory noise contours. At Santa Paula, the 2010 contours were the largest and were used for regulatory purposes (**Exhibit E5**). At NAS Point Mugu the current and forecast 2010 contours were the same. At Camarillo and Oxnard Airports, special composite sets of noise contours were produced by combining the 1990 and 2010 contours. (See **Exhibits E2** and **E4**.) This is because the 1990 contours were larger in some areas and the 2010 contours larger in other areas. This is a prudent way to approach the question of land use regulation based on a variable factor such as noise. The purpose is to designate an area exposed to long term noise exposure risk, not simply to define an area exposed by noise at any one point in time.

An alternative to continuing this approach would be to select as the regulatory noise contours an updated set of contours for a single year. It would be reasonable to use the generally largest set of updated contours for purposes of noise regulation. These would be either the 2003 or 2018 forecasts at Camarillo (Exhibits 2J and 2K in the Phase I Report), the 2018 forecast at Oxnard (Exhibit 3K in the Phase I Report), the 2015 forecast at Santa Paula (Exhibit 4F in the Phase I Report), and the 1990 contours at NAS Point Mugu (Exhibit 5L).

If the 1991 CLUP approach of defining a reasonable worst case noise exposure area is continued, composite noise contours would be defined for Camarillo and Oxnard Airports. The other two would use noise contours for a single year. The specific contours to use each airport would be as follows:

Camarillo Airport - a combination of the 2003 and 2018 contours developed in the F.A.R. Part 150 Noise Compatibility Study (Coffman Associates 1997a). See **Exhibit E3**.

Oxnard Airport - a combination of the 1990 and 2010 contours developed in the 1991 CLUP. See **Exhibit E4**.

Santa Paula Airport - 2015 noise contours developed in this CLUP update. See **Exhibit E6**.

NAS Point Mugu - 1990 noise contours developed for the 1992 AICUZ Study (Dames & Moore 1992). See **Exhibit E7**.

The rest of this section discusses the implications of these updated noise contours on noise compatibility planning at each airport.

E.2.3.a Camarillo Airport Noise Contours

The updated noise contours at Camarillo Airport, shown in **Exhibit E3** are broader than the contours used in the 1991 CLUP (**Exhibit E2**). The updated contours also extend further east. On the west side of the airport, the updated contours are generally smaller than the older contours. Most of the land within the updated 60 CNEL noise contour is designated in the General Plan for industrial use. Smaller areas are designated for agriculture and commercial use. All these land use designations are compatible with aircraft noise.

The updated 65 CNEL contour lies almost completely over industrial-designated land, most of which is on the airport property. The updated 65 CNEL contour extends off airport property to the west over an area designated for agricultural use. The updated 65 CNEL contour, however, is smaller in this area than the contour used in the 1991 CLUP.

If the 1991 CLUP noise compatibility standards are continued, use of the updated noise contours will generally reduce the size of the regulated area.

E.2.3.b Oxnard Airport Noise Contours

As noted earlier, because the Oxnard Master Plan has not yet been adopted, there are no new noise contours proposed as part of this update. The contours in the 1991 CLUP, shown on **Exhibit E4**, shall remain in place as part of the CLUP update.

E.2.3.c Santa Paula Airport Noise Contours

The updated noise contours at Santa Paula Airport, shown in **Exhibit E6** are much broader than the contours used in the 1991 CLUP (**Exhibit E7**). The updated contours also extend further west off the end of the airport. Most of the land within the updated 60 CNEL noise contour is designated in the General Plan for industrial or open space use, both of which are compatible with aircraft noise. The 60 CNEL noise contour just barely crosses the Santa Paula Freeway over areas designated for commercial and residential use.

The updated 65 CNEL contour lies almost completely over land designated as industrial. The rest of the area within the 65 CNEL contour is designated for open space.

It the current noise compatibility standards are continued, use of the

updated noise contours will generally reduce the size of the regulated area because the updated contours are larger than the old contours.

E.2.3.d NAS Point Mugu Noise Contours

The most recent set of noise contours at NAS Point Mugu are shown in **Exhibit E7**. Most of the land within the 60 CNEL contour is designated in the General Plans for agricultural use. Smaller areas are designated for industrial, and open space use. All these categories are considered noise-compatible. Small area are designated for residential and noise-sensitive institutions. These are existing developments. All of the area within the 65 CNEL contour and off the Point Mugu property is designated for agriculture.

It the current noise compatibility standards are continued, there would be no change in land use policies in the Point Mugu area.

If the noise compatibility standards are revised according to the guidance provided in the updated *Airport Land Use Planning Handbook*, as shown in **Table E1**, the area affected by the prohibition of housing and noise-sensitive land uses would increase. The area would be designated by the updated 60 CNEL contour rather than the 65 CNEL contour. According to the land use designations of the General Plan, most of the affected area is designated for compatible land use. Relatively small areas are designated for noise-sensitive uses. These include the old Camarillo State Hospital facility, now planned as a future University of California State University facility, a residential care facility on Lewis Road, and a residential neighborhood in Camarillo and the far end of the 60 CNEL contour.

E.3 CONCLUSION

This chapter has proposed various alternative airport compatibility policies for discussion by the Project Advisory Committee. Based on committee discussions, final, updated compatibility policies will be selected for purposes of preparing a draft Airport Compatibility Land Use Plan for each airport in the County.

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