

Camarillo, airport

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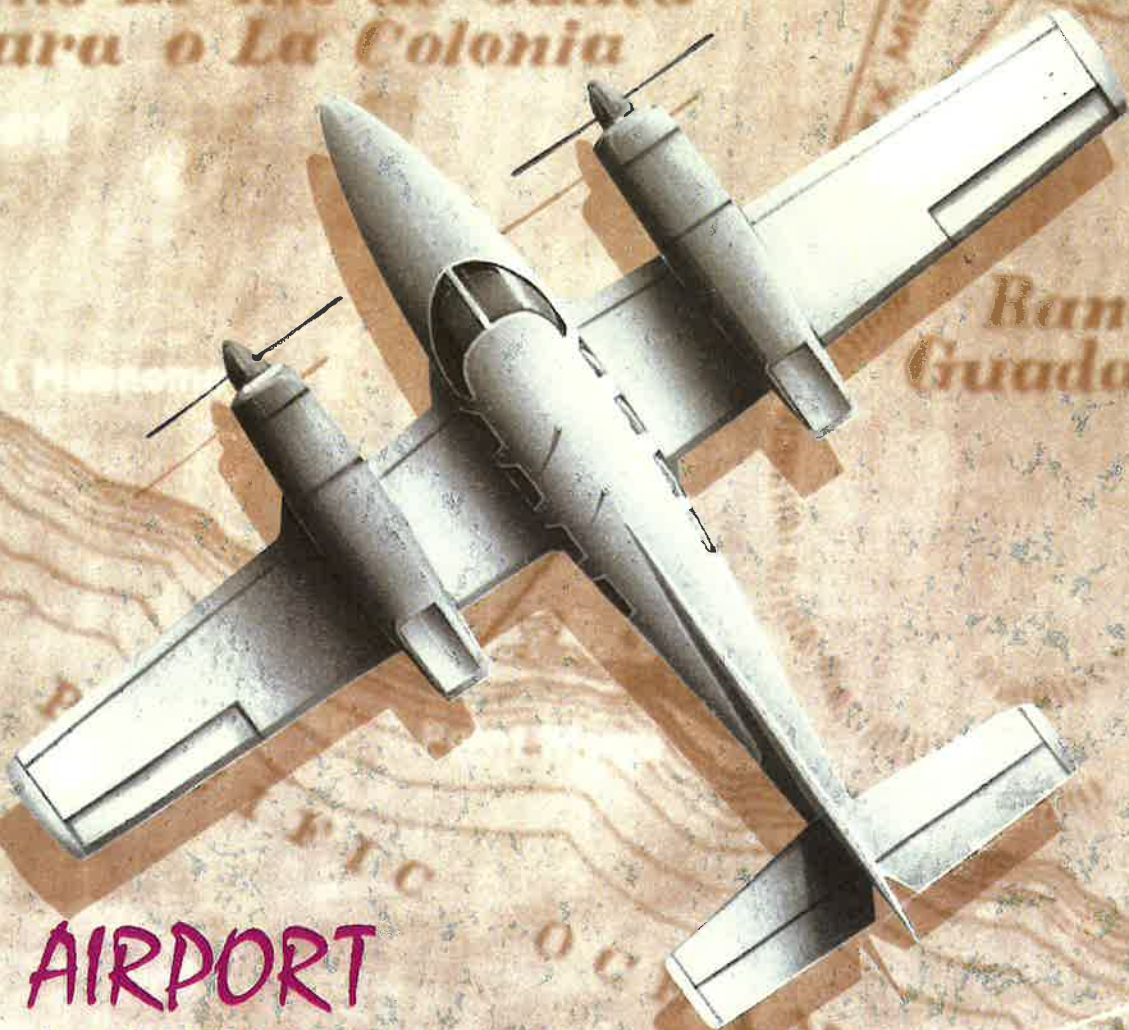
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AIRPORT
MASTER PLAN

COUNTY OF VENTURA

AIRPORT MASTER PLAN

FOR

CAMARILLO AIRPORT Camarillo, California

Prepared For
Ventura County

By
Coffman Associates, Inc.

November 1996

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This document has been approved and accepted by the Ventura County Board of Supervisors.

Approved by:

On the date of:



DEC 23 1996

Rod Murphy
Director of Airports
Ventura County, California



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INTRODUCTION AND SUMMARY

INTRODUCTION AND SUMMARY



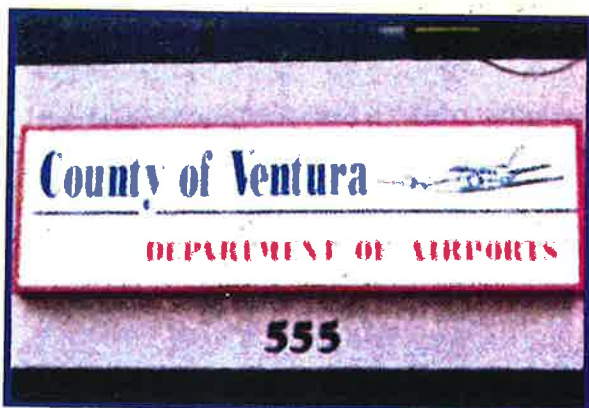
The Master Plans for Camarillo Airport and Oxnard Airport were undertaken by the County of Ventura to outline a long-range orderly direction for airport development which will maintain safe, efficient, economical, and environmentally acceptable air transportation facilities. The studies were funded jointly by the Federal Aviation Administration and the Ventura County Department of Airports. Technical work was conducted by Coffman Associates, Inc.

An important part of the process was the direct review and input of airport users, local planning officials, local government officials, airport staff, and citizens through a separate Planning Advisory Committee and public informational workshops for each airport. The Camarillo Airport Planning Advisory Committee met four times during the study to review working papers and discuss the findings and recommendations. This information was made available to



the general public at a series of three public information workshops held at various stages during the preparation of the Master Plan.

The draft Master Plan was then submitted to a public review process that included presentation for review and comment to the Camarillo City Council, the Ventura County Aviation Advisory Commission, the Camarillo Airport Authority, and the Ventura County Board of Supervisors. After a series of meetings and public hearings, modifications were made to the plan. Part of that process was the consideration of various alternatives for development. These development alternatives are described in Chapter Five. The summary on page 5-16 is particularly useful as it discusses some of the changes and issues that would be included in the final plan for development. Chapter Six, Airport Plans shows the ultimate development



plans approved for the planning period, based on future demand. As noted above, the final version of development plans is a melding of elements from various alternatives and recommendations through the review process. As revised, the Master Plan was recommended for approval by the Ventura County Aviation Advisory Commission and Camarillo Airport Authority to the Ventura County Board of Supervisors. The Board of Supervisors approved the Master Plan subject to environmental review and approvals.

METHODOLOGY

The Camarillo Airport Master Plan provides a step-by-step, or phased, outline for development and gives the County advance notice of pending needs to aid in future scheduling and budgeting. This allows for orderly and timely improvements. To accomplish this, the Master Plan was prepared in a systematic fashion as outlined in the chapters of this report:

Inventory - Inventories and analyzes data pertinent to the airport and its environs.

Forecasts - Examines existing and potential future aviation activity at the airport.

Demand/Capacity - Evaluates the operational capacity of the existing airfield layout to accommodate the takeoffs and landings expected in the planning horizon.

Facility Requirements - Relates existing and future activity as well as

safety and technological advancements to existing and future airport facility requirements.

Alternatives - Formulates and analyzes potential airport development alternatives.

Airport Plans - Proposes an airport layout plan which is compatible with aviation demands and the local environment.

Financial Plan - Schedules priorities and phases proposed development based upon actual demand and estimates development costs and funding sources to determine the financial viability of the proposed plan.

Economic Benefit Study - Appendix to the Master Plan reports on a study of the impact that Camarillo Airport has on the local economy in terms of revenues, product, wages, and employment.

PLANNING HORIZONS

The proper planning of a facility of any type must consider the demand that may occur in the future. For Camarillo Airport, this involved reviewing and updating forecasts to identify the potential future aviation demand. Because of the cyclical nature of the economy, it is virtually impossible to predict with certainty year-to-year fluctuations in activity when looking twenty years into the future.

Recognizing this, it was the intent of the Ventura County Department of Airports to develop a Master Plan that is demand-based as opposed to time-

based. As a result, reasonable levels of activity potential, derived from the forecasting effort, are related to planning horizon levels rather than points in time. These planning horizons were established as activity milestones that will call for consideration of implementing the next step in the master plan program.

By developing the airport to meet the

aviation demand levels instead of specific points in time, the airport will serve as a safe and efficient aviation facility which will meet the operational demands of the users while being developed in a cost efficient manner. This program allows the County to change specific development in response to unanticipated needs or demand. The forecast planning horizons are summarized in **Table I-1**.

TABLE I-1 Aviation Activity Planning Horizons Camarillo Airport				
		1999-2008	2008-2018	2018+
	Actual 1994	Short Term	Intermediate Term	Long Range
Annual Operations				
General Aviation				
Itinerant	82,661	92,000	106,000	132,000
Local	<u>103,567</u>	<u>118,000</u>	<u>134,000</u>	<u>168,000</u>
Total General Aviation	186,228	210,000	240,000	300,000
Air Taxi	2,025	2,300	2,600	3,300
Military	2,597	2,500	2,500	2,500
Total Operations	190,850	214,800	245,100	305,800
Based Aircraft	580	640	720	890

RECOMMENDED PLAN

A set of detailed Airport Layout Plans have also been prepared to act as a blueprint for everyday use by management, planners, programmers, and designers. These plans have been prepared on computer to help ensure their continued use as an everyday working tool for the Department of Airports. The major development items over the planning horizons include the following:

SHORT TERM

- ✓ • Prepare consolidated fuel farm site.
- Prepare central hangar development area
- Construct 63 T-hangars and relocate 35 port-a-ports
- Construct partial parallel taxiway for east ramp
- Construct partial parallel taxiway to Runway 8-26
- Construct central aircraft parking area
- Extend access road/fire protection west

- Replace rotating beacon
- Install perimeter security fencing, lighting, and signage
- Clear and rehabilitate storm drainage system
- Overlay/rehabilitate airside pavements and access roads

INTERMEDIATE TERM

- Improve Runway 8-26 safety area and drainage
- Construct administration/GA terminal building
- Extend partial parallel taxiway to Runway 8-26
- Install medium intensity approach light system (MALSR) on Runway 26
- Construct 24 T-hangars
- Slurry and mark runways and taxiways

LONG RANGE

- Pave perimeter service road
- Complete parallel taxiway to Runway 8-26
- Expand east hangar development area
- Construct 68 T-hangars and relocate 17 port-a-ports
- Construct west aircraft parking apron

* The master plan also reserves the capability to develop a parallel general aviation runway, 3,500 feet long and 75 feet wide, should it be needed to alleviate delay as demand increases. The potential parallel runway would be 700 feet south of the existing runway and would be designed for small aircraft weighing up to 12,500 pounds.

The potential runway will not be developed without a feasibility study/environmental impact report (EIR) that proves the runway will benefit the community without significant environmental impact. Actual construction would be subject to the approval by the Camarillo Airport Authority and the Ventura County Board of Supervisors.

The implementation of the Master Plan will take a financial commitment of over \$22.3 million dollars over the planning period (Table I-2). As much as 56 percent of the funding could come from grants-in-aid administered by the Federal Aviation Administration (FAA) and the California Transportation Commission (CTC). The source for these grants is the Aviation Trust Fund which is a depository for federal aviation taxes such as those from airline tickets, aviation fuel, aircraft registrations, and other aviation-related fees and the Aeronautics Account within the State of California Transportation Fund. Eligible projects can receive up to 90 percent funding from the FAA while state matching grants provide an additional five percent. The CTC has other grant and loan programs that can assist in development, particularly when FAA grants are not forthcoming.

Guidelines and worksheets are included at the end of Chapter Seven to aid airport management in the continuous evaluation of airport activity in order to program airport development in accordance with demand. Space on the worksheets is provided to literally update priorities year-by-year.

**TABLE I-2
Development Funding Summary
Camarillo Airport**

Planning Horizon	Total	FAA	State	Local
Short Term	\$10,037,000	\$6,748,900	\$281,870	\$3,006,230
Intermediate Term	7,712,000	3,333,700	149,185	4,229,115
Long Range	4,558,000	1,836,000	91,800	2,630,200
Total	\$22,307,000	\$11,918,600	\$522,855	\$9,865,545

***CAMARILLO AIRPORT'S
ECONOMIC IMPACT***

In conjunction with the Master Plan, the economic impact of Camarillo Airport was also evaluated. This study is included as **Appendix A**. The study measured economic benefits of the airport through four indicators:

Gross Revenues measure the total flow of dollars from aviation-related activity and include total sales of business firms and budgets of administrative agencies.

Value added is a measure of new output created within a region. Value added results when input materials are

processed by labor to produce a product for resale or a service.

Payroll is one component of value added, representing the payment for the labor used to create new output from aviation-related activity.

Employment is a measure of the number of jobs required to create the gross revenues and value added.

The economic benefits of Camarillo Airport for the year 1995 are summarized in **Table I-3**. The study concluded that airport has an annual economic impact of \$44.8 million and supports 575 jobs in the community.

**TABLE I-3
Total Economic Benefits (1995)
Camarillo Airport**

	Gross Revenues	Value Added	Payroll	Employees
Direct Benefits	\$30,561,626	\$20,728,346	\$6,804,791	219
Induced Benefits	24,087,800	24,087,970	10,366,992	356
Total Benefits	\$54,649,426	\$44,816,316	\$17,171,783	575



Chapter One
INVENTORY

INVENTORY



The inventory of existing conditions at Camarillo Airport will serve as an overview of the airport, its facilities, its role in regional and national aviation systems, and the relationship to development which has occurred around the airport over the years. The information delineated in this chapter attempts to provide a foundation, or starting point, for all subsequent evaluations.

The development of a master plan for Camarillo Airport requires the collection and evaluation of information relating to the airport and surrounding area. This information includes:

- Physical inventories and descriptions of facilities and services now provided at the airport.
- Background information pertaining to the Ventura County area and descrip-

tions of development which has taken place in the airport environs recently.

- Population and socioeconomic information which provides an indication of the market and possible future development in the Ventura County area.
- An overview of existing regional plans and studies to determine their potential influence on the development and implementation of the airport master plan.

An accurate and complete inventory is essential to the success of a master plan since the findings and assumptions made in this plan are dependent on collected information concerning conditions on and around the airport. This information was obtained through on-site investigations of the airport and interviews with the Ventura County Department of Airports

staff, airport tenants, representatives of the various city and county offices, and regional economic development agencies. Information was also obtained from available documents and studies concerning Camarillo Airport and the Ventura County area.

AIRPORT DEVELOPMENT HISTORY

The first landing strip at the Camarillo Airport was constructed in the spring of 1942 by the Public Roads Administration. In the fall of 1942, the facility was enlarged and upgraded for use by the Army Air Force and the Marine Corps. In 1947, the Flight Strip portion was returned to Ventura County and was used jointly by the Army, California National Guard, and the Navy. The government retained control in May of 1951 and used the airfield as an Air Force Base until it was ultimately phased out and closed.

In 1969, the Oxnard Air Force Base (Camarillo Airport) was declared surplus property by the Federal Government and was vacated by the Air Force. The facility, at that time valued at over \$40 million, was transferred without cost to the County of Ventura. However, the City of Camarillo opposed the acquisition and blocked the opening of the airport for seven years.

Finally, in 1976 a compromise was reached between the City of Camarillo and Ventura County in which aircraft operations were restricted so as to control noise and air pollution. In accordance to the agreement, the 9,000 foot runway was reduced to 6,010 feet.

This measure was taken to ensure adequate control over the aircraft utilizing the airport. The agreement also called for a five member Airport Authority to govern the airport and its operations.

The facility officially opened on October 21, 1976 as a general aviation airport. Within one year, the airport experienced significant growth. Fifty hangars were constructed to house the over 100 based aircraft. Aircraft were coming in from all over the western United States logging, on an average weekend, between 500 and 1,000 aircraft operations.

AIRPORT SETTING

Camarillo Airport is presently classified as a general aviation reliever airport for the Los Angeles metropolitan area. The airport is located in Ventura County within the corporate limits of the City of Camarillo, three miles southwest of the central business district (CBD). The airport is less than one mile south of Ventura Freeway (Highway 101). Airport access is gained from Pleasant Valley Road which is located immediately south of the airport. Exhibit 1A depicts the location of Camarillo Airport in its regional setting.

Annual precipitation in the Camarillo area averages 13.3 inches per year, approximately 87 percent of which falls from November through March. Average annual temperature is 65.8 degrees Fahrenheit. During summer months, the average temperature is 66.7 degrees, with an average daily maximum temperature of 73.3 degrees.

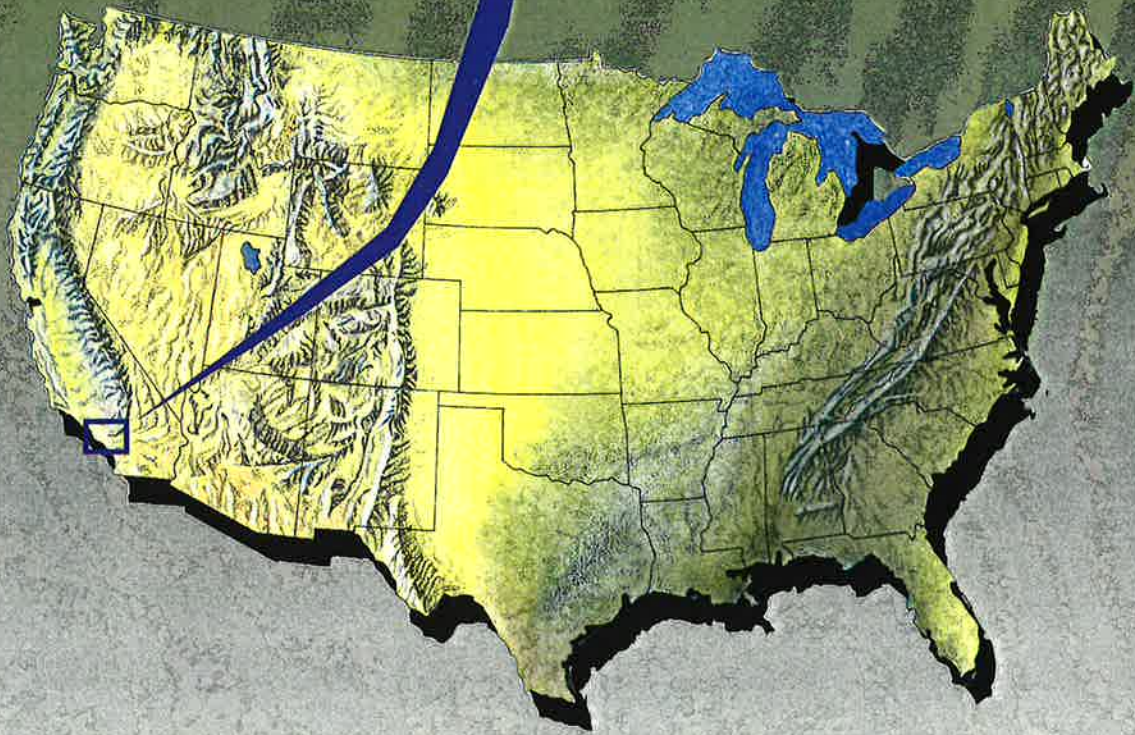


Exhibit 1A
LOCATION MAP

During winter months, the average temperature is 54.7 degrees, with an average daily minimum temperature of 43 degrees. Prevailing winds are from the southwest with a mean hourly speed of nine miles per hour at noon.

AIR TRAFFIC ACTIVITY

Air traffic statistics at Camarillo Airport are recorded by airport management from information supplied

by the Federal Aviation Administration (FAA), and other airport tenants. The FAA's air traffic control tower (ATCT) collects and reports aircraft operations (takeoffs and landings). Aircraft operations have been recorded by the ATCT since it opened in July, 1989. **Table 1A** presents a monthly summary of annual operations from 1990 through 1994, while **Exhibit 1B**, depicts the annual operations reported over the same time span.

	1990	1991	1992	1993	1994	5-year Average (%)
January	13,931	14,708	14,925	10,618	14,401	7.0%
February	13,850	14,024	12,856	12,142	14,412	6.8%
March	14,542	15,729	14,907	16,140	15,594	7.8%
April	15,747	20,947	18,021	16,751	14,764	8.8%
May	19,279	24,056	15,674	18,066	17,154	9.6%
June	18,947	21,542	17,174	16,224	18,057	9.3%
July	20,942	20,764	18,585	16,890	17,214	9.6%
August	19,869	19,361	17,399	16,888	19,305	9.4%
September	22,990	17,601	15,318	14,859	16,212	8.8%
October	20,668	16,075	12,457	13,944	15,722	8.0%
November	16,676	16,405	14,433	13,920	14,195	7.7%
December	15,692	13,805	13,732	12,583	13,820	7.1%
Total Annual Operations	213,133	215,017	185,481	179,025	190,850	100.0%

AIRPORT FACILITIES

This section presents in qualitative and quantitative terms, a description of the existing facilities at Camarillo Airport. For ease of reference, the section is presented as follows:

- Airfield Facilities
- Terminal Facilities
- Airport Support

AIRFIELD FACILITIES

Airfield facilities influencing the utilization of airspace and the airfield are important to the master planning process. These facilities include the runway and taxiway systems, airfield navigational aids, aircraft and terminal aircraft activity areas. **Exhibit 1C** depicts an overview of the airfield facilities at Camarillo Airport.

Runway

Camarillo Airport is served by a single runway oriented in an east/west direction. Runway 8-26 is 6,010 feet long and 150 feet wide. The runway is constructed of asphalt. According to a May 1994 pavement evaluation, the runway is strength-rated at 40,000 pounds for single wheel gear loading (SWL), 65,000 pounds for dual wheel gear loading (DWL), and 110,000

pounds for dual tandem wheel loading (DTW). As mentioned earlier, the original runway pavement and overruns extends over 11,000 feet but has been condensed into its present length. **Table 1B** presents a summary of runway data for Camarillo Airport. The County's agreement with the City of Camarillo limits the pavement strength of the airport to a maximum of 115,000 pounds DWL.

TABLE 1B Runway Data Camarillo Airport		
	RUNWAY	
	8	26
Length (feet)	6,010	
Width (feet)	150	
Surface Material	Asphalt	
Pavement Strength (lbs)		
Single Wheel (SWL)	48,000	
Dual Wheel (DWL)	65,000	
Dual Tandem Wheel (DTW)	110,000	
Approach Slope Ratio	20:1	34:1
Approach Aids		
ILS	No	No
VOR/GPS	No	Yes
VGSI	PAPI-2	PAPI-2
REIL	Yes	Yes
Lighting	MIRL	
Marking	NON-PRECISION	
Weather Observation	AWOS-3	

Taxiways

The existing taxiway system at Camarillo Airport consists of a full length, 50-foot wide, parallel taxiway with five exit taxiways. Exit taxiways B, C, D, and E run in a curved manner

between parallel Taxiway F and the runway. Taxiway A is oriented at a 90 degree angle to the runway, linking the Runway 26 threshold to Taxiway F. The exit taxiways are constructed of asphalt while Taxiway F is concrete. All taxiways are strength rated at

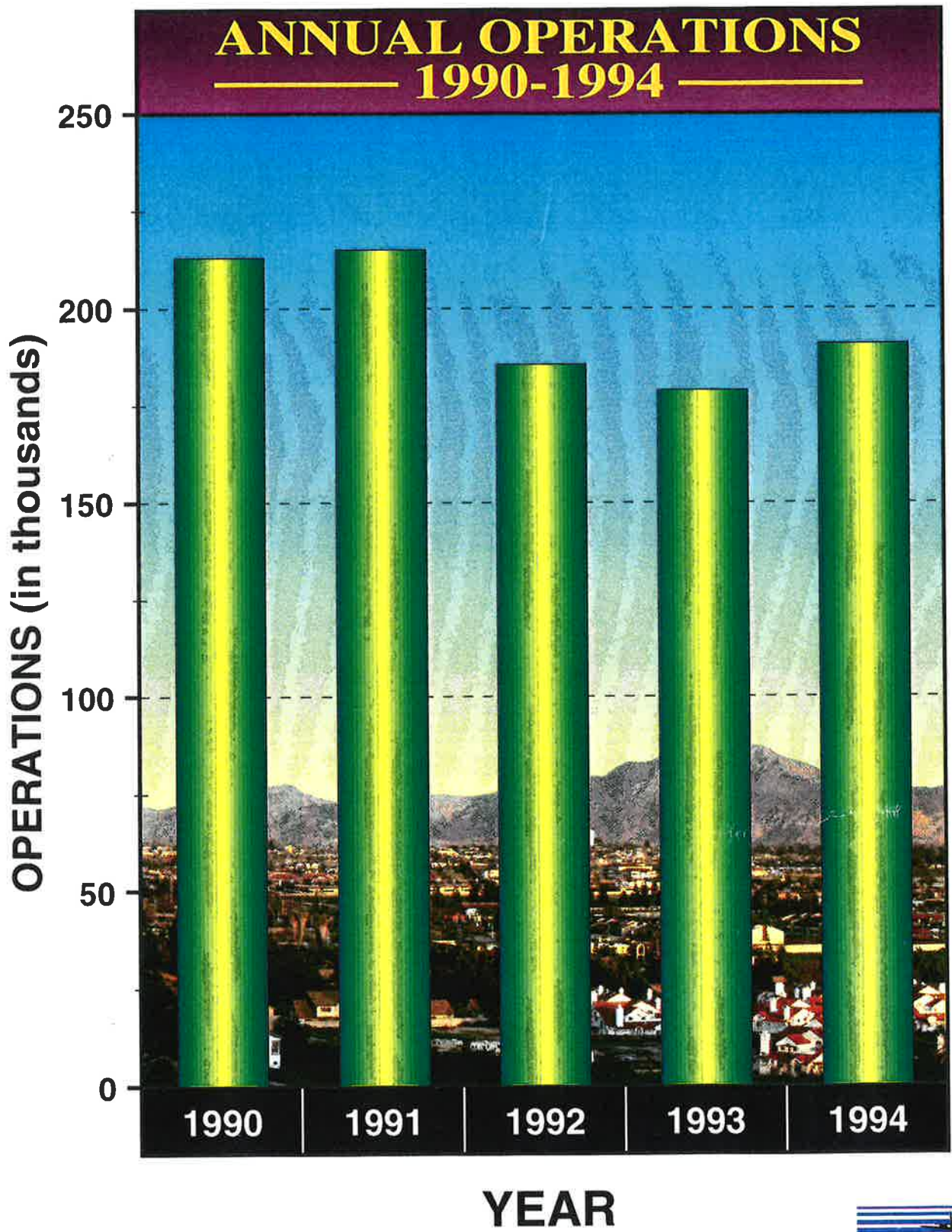
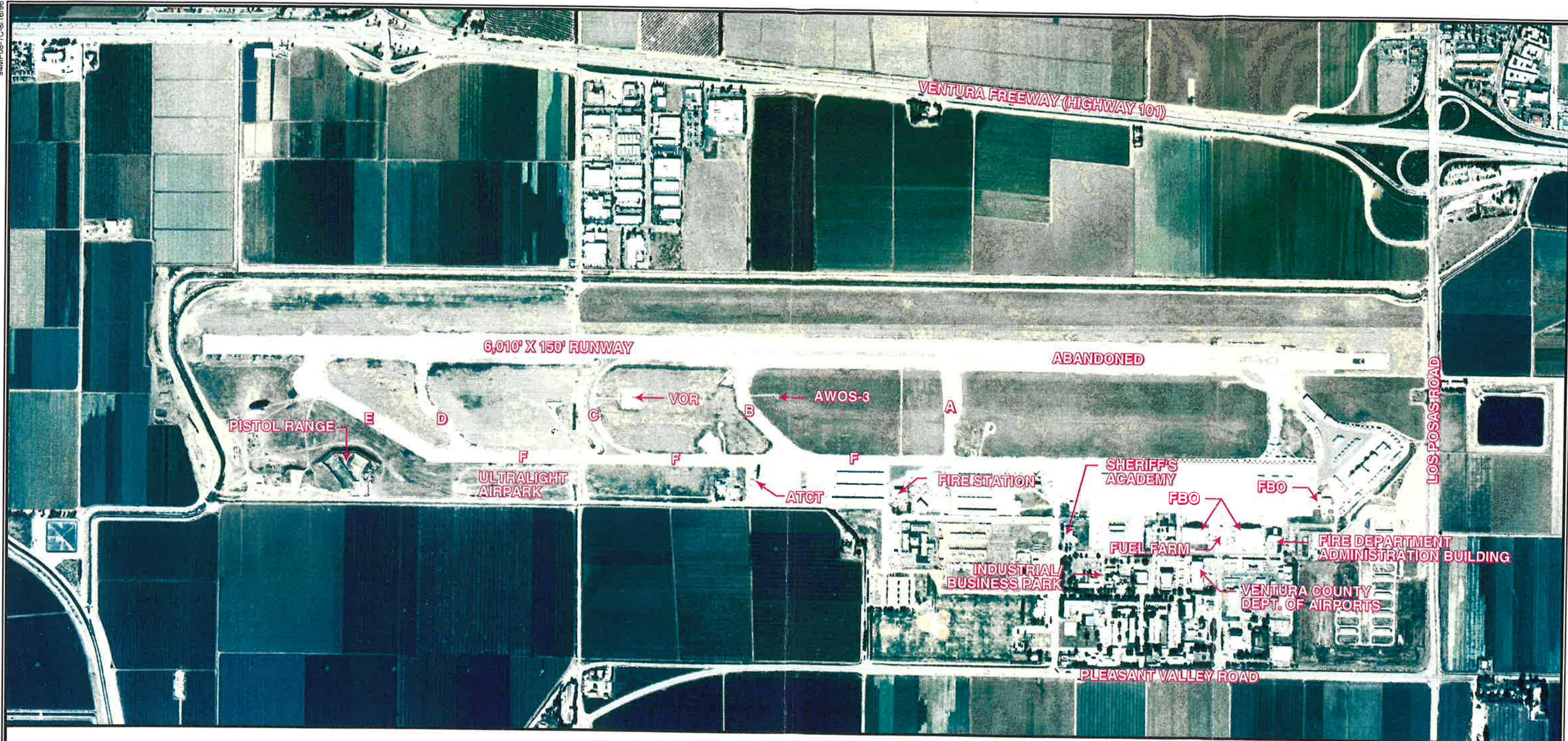


Exhibit 1B
ANNUAL OPERATIONS



40,000 pounds SWL and 55,000 pounds DWL.

Airfield Lighting and Marking

A variety of lighting aids and markings are available at Camarillo Airport to facilitate aircraft operations. These systems, categorized by function, are further described below.

Identification Lighting: The location and presence of an airport at night is universally indicated by an airport rotating beacon. At Camarillo Airport, the airport beacon is located near midfield on the south side of the airport, along Pleasant Valley Road. The rotating beacon has an optical system that alternatively projects two beams of light, one green and one white, 180 degrees apart. A lighted wind cone with a segmented circle is located mid-field of Runway 8-26. The wind cone is utilized by pilots for approximate wind direction and intensity before takeoffs and landings.

Approach Lighting: Runway 8-26 is equipped with precision approach path indicators (PAPI's) which are a system of colored lights arranged to provide visual descent guidance information during the approach to a runway. PAPI-2 is a system of two identical light units placed on the left side of the runway in a line perpendicular to the centerline. The boxes are positioned and aimed to produce a signal presentation of two red lights for a low approach, two white for a high approach, and a combination of red and white to indicate on the path.

Runway Lighting: Runway 8-26 at Camarillo Airport is equipped with

medium intensity runway lights (MIRL) which provide an outline of the runway for nighttime operations. The lighting system is radio controlled so pilots can turn them on and increase the light intensity by the number of times they click on the aircraft radio transmitter.

The runway is also equipped with runway end identifier lights (REIL's) on both ends. REIL's provide positive and rapid identification of the approach end of the runway, and are typically used on runways where approach lighting is not available. The REIL system consists of two synchronized stroboscopic flasher lights, one on each side of the runway threshold facing the approaching aircraft. Runway 8-26 is also equipped with non-precision runway marking.

Taxiway Lighting: The taxiway system is equipped with medium intensity taxiway edge lights (MITL). These lights illuminate the taxiway providing for safe ground operations.

Navigational Aids

Navigational aids include any visual or electronic devices, which provide point-to-point guidance information or position data to aircraft in flight. Various types of navaids are utilized at Camarillo Airport for enroute, terminal navigation, and landing. Air traffic control (ATC) services are provided by the Camarillo Airport ATC between the hours of 7:00 a.m. and 9:00 p.m. Approach control is provided for aircraft by Point Mugu Approach Control between the hours of 6:00 a.m. and 10:00 p.m. Between the hours of 10:00 p.m. and 6:00 a.m., approach

control service is provided by the Los Angeles Air Route Traffic Control Center (ARTCC).

Enroute Air Navigation Aids:

Ground-based electronic navigational aids that are located on or near Camarillo Airport may be functionally classified as enroute navigational aids and landing aids. Locational aids operating near Camarillo Airport for the purpose of enroute navigation permit aircraft in flight to navigate accurately to the airport. These use ground-based transmitting facilities and on-board receiving instruments. Enroute nav aids often serve navigation to more than just one area airport as well as aircraft simply traversing the area. The most common enroute nav aid is the very high frequency omnidirectional range (VOR) facility. The VOR transmits a radio signal every degree to provide 360 individual courses from the transmitting facility. As a VHF facility, the VOR is limited to line of sight transmissions with range affected by the altitude of the aircraft. The VORTAC (VOR/tactical air navigation) is similar to the VOR, but links the VOR to the Military TACAN to provide distance measuring information in nautical miles from the aircraft to the VORTAC.

Currently, Camarillo Airport is equipped with an on-site very high frequency omnidirectional range (VOR) facility accompanied with distance measuring equipment (DME). The **VOR/DME** broadcasts on VHF frequency 115.8, providing the pilot with directional and distance information to and from the airport. The beacon continuously transmits the three letter identifier "CMA".

Another VOR/DME used for navigation within the Camarillo Airport airspace is located at Van Nuys. The Van Nuys VOR/DME transmits on VHF frequency 113.1 and channel 78 and is located approximately thirty nautical miles east of Camarillo Airport. The beacon continuously broadcasts the three letter identifier code "VNY".

The Ventura VOR/DME is located approximately six nautical miles southeast of the Camarillo Airport and transmits on VHF frequency 108.2 MHz. The beacon transmits a continuous three-letter identifier code "VTU" using International Morse Code. The Fillmore VORTAC is the only VORTAC located in the vicinity of Camarillo Airport.

The Fillmore VORTAC is located approximately 15 nautical miles northeast of the airport. The VOR operates on a frequency of 112.5 MHz and the TACAN Channel 72. The beacon transmits a continuous three-letter identifier code "FIM". These navigational aids incorporate the VOR and DME to function as a single channelized VHF/UHF system. Operating in conjunction with the ground station, a properly equipped aircraft is able to translate the VORTAC signals into a visual display of both azimuth and distance.

Terminal Area Navigation and Landing Aids: VOR signals used in conjunction with DME fixes ensure adequate terrain and obstruction clearances during final approach to the runway. These approaches use on-board computers to set up way-points at any location within the reception range of the VOR/DME. The procedure

is designed to more efficiently use available airspace and reduce flight distances. In addition, the VOR/DME is used for a holding fix for missed approach procedures.

The VOR or GPS Runway 26 approach is the only published nonprecision approach listed in the U.S. Terminal Procedures for Camarillo Airport. An initial approach fix is defined by the intersection of Van Nuys VOR/DME radial 260, Fillmore VORTAC radial 132, and the Ventura VOR/DME radial 43 (COOGA intersection). After reaching the COOGA Intersection, the pilot continues toward the airport descending on a heading of 247 degrees, while utilizing the Camarillo VOR/DME until the airport is within visual range.

TERMINAL AREA FACILITIES

Terminal area facilities consist of supporting aviation related facilities which are essential to the aircraft and pilot/passenger handling functions of the airport. Terminal area facilities at Camarillo Airport include fixed base operator (FBO) facilities, aircraft hangars, aircraft parking apron and fuel storage and dispensing equipment. The existing terminal area facilities are illustrated in Exhibit 1C.

Administration

The Ventura County Department of Airports currently leases space in the second floor of a building located along Airport Way. The space houses the Director of Airports, the Camarillo airport manager, and support staff. The administrative office is responsible

for Camarillo Airport as well as the Oxnard Airport.

Fixed Based and Specialty Operators

Channel Islands Aviation is a full service FBO located on the eastern portion of the airport. The FBO's 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 facility measures 35,000 square feet with 15,000 square feet designated as office space while the remainder accommodates aircraft maintenance and storage. The second facility is a 6,000 square foot building consisting of office and classroom space. Channel Islands Aviation employs 30 full-time, and five part-time individuals. The FBO owns 17 fixed wing aircraft and maintains 21 tie-down positions on the apron. Their flight school employs eight flight instructors and instructs between 50 and 60 students at any given time. Channel Islands Aviation provides both Jet A and 100 low lead (Avgas) fueling. The FBO has access to two 25,000 gallon underground fuel storage tanks and operates four fuel trucks.

Western Cardinal, Inc. is another full service FBO situated on the airport. The FBO operates out of a conventional hanger similar in size to the one operated by Channel Islands Aviation. Services provided by the FBO include flight training, aircraft rental, aircraft sales (Piper Dealer), aircraft maintenance, and fuel sales. The FBO employs 15 individuals on a full-time basis. It also owns 10 aircraft and

immediately south of parallel Taxiway F, running between exit Taxiways C and D, and is situated on a 1,200 feet long by 200 feet wide piece of property. The flight park is served by a gravel and oil runway oriented in a northeast-southwest direction.

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 employer 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. There is also a

Sheriff's training academy located on the airport.

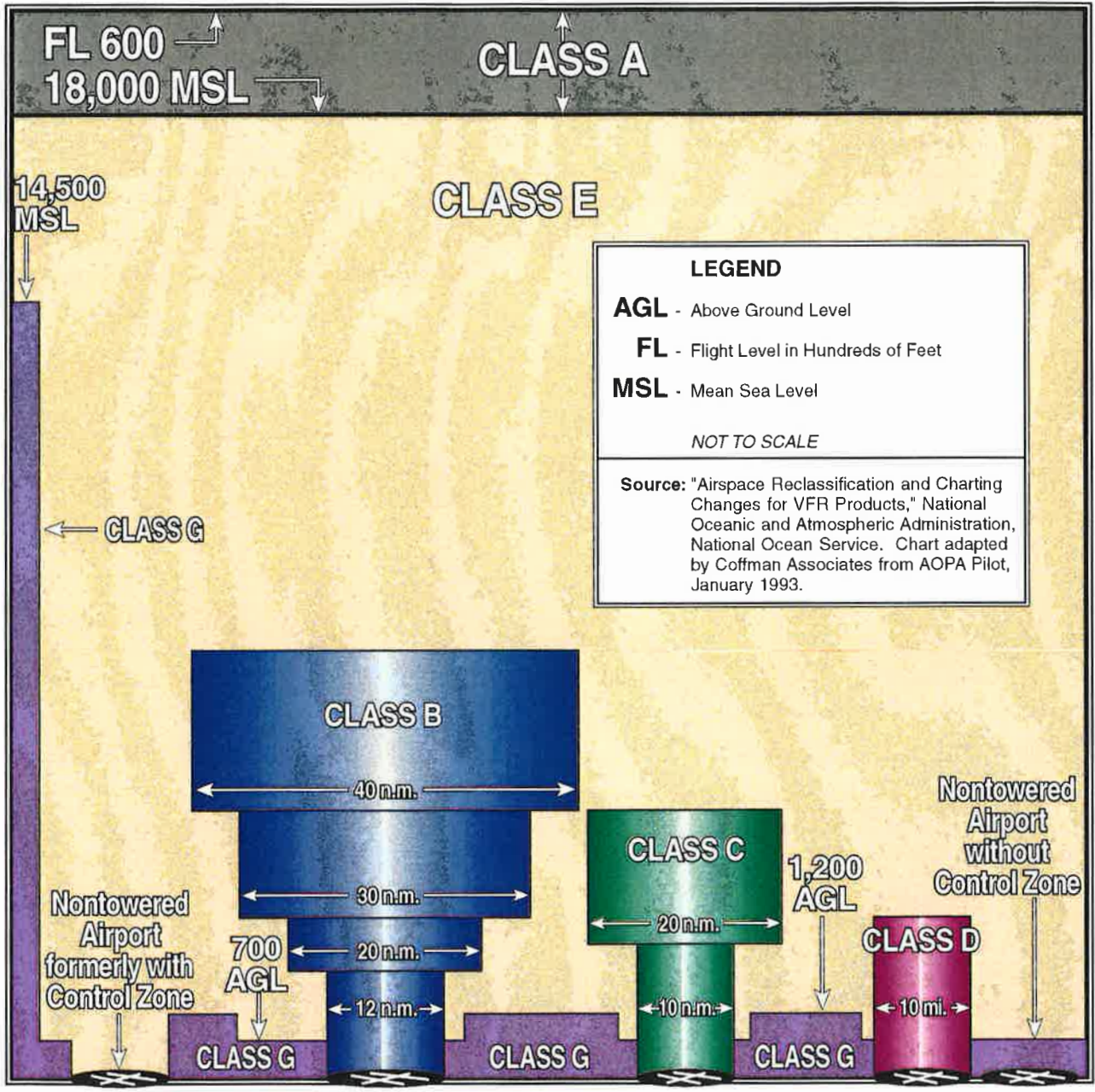
AIRSPACE AND AIR TRAFFIC CONTROL

The FAA Act of 1958 established the FAA as the responsible agency for the control and use of navigable airspace within the United States. Administratively, control of air traffic in California is assigned to the FAA Western-Pacific Regional office in Los Angeles, California.

The FAA has established the National Airspace System (NAS) to protect persons and property on the ground and to establish a safe and efficient airspace environment for civil, commercial, and military aviation. The NAS is defined as the common network of U.S. airspace, including air navigation facilities; airports and landing areas; aeronautical charts; associated rules, regulations and procedures; technical information; personnel and material. System components shared jointly with the military are also included.

AIRSPACE STRUCTURE

Airspace is currently classified as either controlled or uncontrolled. Controlled airspace is supported by ground to air communication, navigation aids, and air traffic services. FAA recently completed a major airspace reclassification. The new classification and terminology, and their relationship to the old system, are described in **Exhibit 1D**.



LEGEND

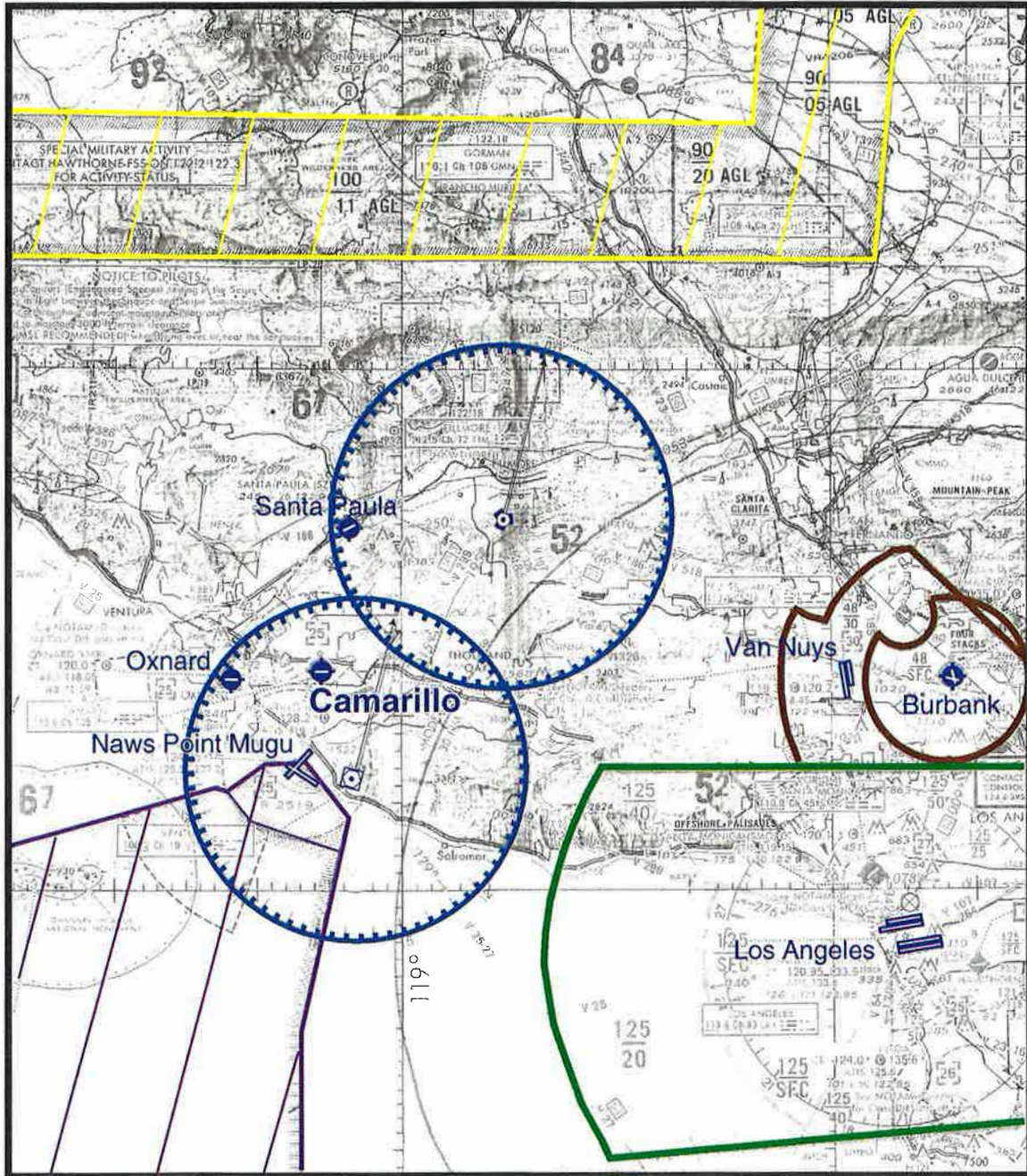
AGL - Above Ground Level
FL - Flight Level in Hundreds of Feet
MSL - Mean Sea Level

NOT TO SCALE









Source: "Airspace Reclassification and Charting Changes for VFR Products," National Oceanic and Atmospheric Administration, National Ocean Service. Chart adapted by Coffman Associates from AOPA Pilot, January 1993.

NEW CLASSIFICATION	OLD CLASSIFICATION
CLASS A	Positive Control Area, Continental Control Area (part)
CLASS B	Terminal Control Area (TCA)
CLASS C	Airport Radar Service Area (ARSA)
CLASS D	Control Zone with Tower, Airport Traffic Area
CLASS E	Continental Control Area (part), Transition Areas, Control Zones without Tower
CLASS G	Uncontrolled Airspace





LEGEND

-  VORTAC
 -  VOR/DME
 -  Hard surfaced runway
 -  Hard surface runway greater than 8069ft. or some multiple runways less than 8069 ft.
-  Class B Airspace
 -  Class C Airspace
 -  Special Military Activity
 -  Restricted / Warning Area



(Control Zones)

A control zone refers to the airspace under the jurisdiction of a local air traffic control tower. The new system describes a control zone as Class D airspace. The control zone includes that airspace within a horizontal radius of five statute miles of the airport, extending from the surface up to a designated vertical limit, typically set at approximately 2,500 feet above the airport elevation. If an airport has an instrument approach or departure, the control zone has an extension along the approach or departure path.

Class E Airspace (Control Zones)

A control zone for an airport without an operating control tower refers to the airspace extending upward from the surface to the overlying or the floor of the adjacent controlled airspace. This airspace will be designated Class E under the new system.

Class E Airspace (Transition Areas)

The transition area consists of controlled airspace designed to contain IFR operations during portions of the terminal operation and while transitioning between the terminal and enroute environments. The airspace extends upward from 700 feet above the surface when established in conjunction with an airport which has an instrument approach procedure, or from 1,200 feet above the surface when established in conjunction with airway route structures or segments. Unless otherwise specified, transition areas

terminate at the base of the overlying airspace. This airspace designation becomes Class E airspace under the new system.

Class G Airspace (Uncontrolled Airspace)

Uncontrolled airspace consists of airspace not designated in any other class. Air Traffic Control does not have the authority or responsibility to exercise control over aircraft within this airspace. The new system designates uncontrolled airspace as Class G airspace.

Special Use Airspace

Approximately 10 nautical miles due south from the Camarillo Airport is a warning area. In general, restricted and warning areas indicate the existence of unusual, often invisible, hazards to aircraft such as artillery firing, aerial gunnery, or guided missiles. The warning area extends from NAWS Point Mugu out toward the Pacific Ocean in a triangular shape. The warning area is used for weapons training by Navy and Marine high performance aircraft.

Approximately 20 nautical miles north, an eight-mile wide corridor, which runs in an east-west direction, is designated as special military use airspace. Flights in this area are not restricted, however, pilots must be aware of the potential airspace conflict in the area. The sectional chart lists the floors and ceilings of the operations, and instructs navigators to contact Hawthorne Flight Service Station (FSS) to receive activity

classified as Class B airspace and requires pilots to follow rigid procedures while flying in or near the area. Burbank-Glendale-Pasadena Airport is also located within a 45 miles radius, northeast of the Camarillo Airport. This airport lies within Class C airspace and is frequented by a range of large commercial jets.

The closest airport to Camarillo Airport is Oxnard Airport located approximately five miles to the west. Oxnard Airport is classified in the **National Plan of Integrated Systems (NPIAS)** as a primary, commercial service airport. Its facilities include a single Runway 7-25 that is constructed of asphalt and is 5,950 feet long and 100 feet wide. Oxnard Airport supports 15 daily commuter flights to LAX, and has 159 based aircraft.

The Oxnard Airport has three published approaches listed in the U.S. Terminal Procedures. These include a precision instrument landing system (ILS) approach to Runway 25 and non-precision VOR approaches to both ends.

Santa Paula Airport is a privately owned, public-use airport in the vicinity. The airfield's only runway, Runway 4-22 is 2,650 feet long and 40 feet wide. Both ends of the runway are displaced due to obstructions in the approaches. The latest FAA Form 5010 shows 256 based aircraft at the airport.

NAWS Point Mugu is located approximately eight miles to the south of Camarillo Airport. The air base serves military aircraft ranging from the large C-130 transport to the high performance F-18A fighter/attack jet

aircraft. Point Mugu's flight pattern does not directly conflict with Camarillo Airport's airspace.

Currently, a joint use study is underway at Point Mugu. The study is considering the feasibility of bringing commercial service and cargo operators into the Point Mugu facility.

NOISE ABATEMENT

The City of Camarillo is sensitive to the noise generated by aircraft operations within the immediate vicinity. In order to minimize the impact created by aircraft noise, the Camarillo ATCT, the Ventura County Department of Airports, and the airport users have developed and published noise abatement procedures concerning operations under VFR conditions. 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 required to follow the published procedures unless it is considered unsafe, the weather conditions do not allow, or otherwise instructed to deviate by the air traffic control tower. Highlights of the procedures include:

- 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 Director of Airports.

- Utilize low energy approaches.
- Avoid residential overflights.
- Straight-in approaches to Runway 26 are prohibited.
- Traffic pattern always south of airport.

AIRSPACE CONFLICTS

There are no significant airspace conflicts in the Ventura County area. However, an unlighted mountain reaching 1,173 feet mean sea level (MSL) is located approximately five miles east of Runway 26. Another peak reaching 1,814 feet is located to the southeast.

TRANSPORTATION NETWORK

The City of Camarillo is in close proximity to the interstate freeway system, rail system, major piers, bus lines, and transit systems. The Ventura Freeway provides access to other major routes within the area including the Pacific Coast Highway, U.S. Highway 6, San Diego Freeway, and Simi Freeway. The Ventura Freeway (Highway 101) provides direct access into Los Angeles, Burbank, and Santa Barbara.

The Camarillo Station of the Metrolink Train provides commuter-rail access to downtown Los Angeles. An Amtrak station is located in Oxnard. Amtrak has four daily departures from its Oxnard Station.

Several bus lines provide service throughout Ventura County. Camarillo Area Transit (CAT) provides passengers with connections to other Ventura County cities to the north and south of Camarillo. Great American Stagelines supplies daily connections to LAX and Greyhound Bus Lines provides interstate service.

The Port of Hueneme, the only deep water port between Los Angeles and San Francisco, is located 12 miles west of Camarillo. The commercial harbor facility provides service to domestic and foreign ports. The import and export of items such as automobiles, agricultural products, farm machinery, and oil cargo have vaulted the port ahead of San Diego in annual revenue tons.

SOCIOECONOMIC DATA

Socioeconomic information, consisting of demographic, economic, employment and governmental data, will provide a basis for determining air transportation service level requirements at Camarillo Airport. The strength of the local economy and the existing population base are important factors in assessing aviation facility needs over the planning period. Therefore, consideration and evaluation of these factors as part of this study is imperative.

POPULATION

The population growth trend is important when assessing the potential users of air transportation and forecasting future demands at an

airport. The size and structure of the local communities and the service area that the airport supports are important factors to consider when planning airport facilities. These factors provide an understanding of the economic base that is needed to determine future airport requirements.

Population statistics, shown in **Table 1C**, were obtained from the Southern California Association of Governments. The table depicts a comparison of population growth between the jurisdictions which make up Ventura County.

The City of Moorpark was not

incorporated before the 1980 census. Population estimates during these time periods were based on census tract data in the area and were prepared by the Southern California Association of Governments.

As seen in **Table 1C** the many areas in Ventura County, including the City of Camarillo, showed high growth numbers during the 1980s. Camarillo grew at an annual percentage rate of 3.3 percent during the 1980's while the neighboring City of Oxnard grew at an annual rate of 2.7 percent. Ventura County has also shown strong growth with a 27 percent increase in the 1980s.

Jurisdiction	Actual			Projection	
	1980	1987	1990	2000	2010
Camarillo	37,812	45,729	52,303	63,148	70,085
Fillmore	9,718	10,891	11,992	16,825	19,019
Moorpark City	4,942	17,581	25,494	39,663	51,444
Ojai	7,163	7,729	7,615	7,628	7,838
Oxnard	108,912	124,283	142,217	155,563	162,866
Port Hueneme	17,329	20,343	20,319	25,446	28,669
Ventura	74,505	87,678	92,575	100,818	127,660
Santa Paula	20,669	23,446	25,063	30,161	33,447
Simi Valley	77,513	94,572	100,219	118,673	135,711
Thousand Oaks	79,865	99,155	104,351	113,863	125,677
Unincorporated	87,390	89,230	86,862	102,098	109,130
TOTAL	525,818	620,637	669,010	773,886	871,546

Source: California Association of Governments.

Projections of the future population growth of Ventura County are depicted on **Table 1C**. Forecasts for Ventura County were prepared by the Southern California Association of Governments and are projected out to the year 2010.

EMPLOYMENT

A review of the employment for Ventura County, as depicted in **Exhibit 1F**, shows strong increases in employment occurring over the last two

decades. The numbers show that no one sector has experienced a reduction in the total number of employed, or total jobs during this period. However, as experienced in many other areas, the numbers do show a shift in the percentage share held by each sector.

As common with many other areas around the country, the service sector has produced the largest increase in employment over the past twenty years. In 1970, the service sector employed 21,792 people, while in 1990, the same sector employed 91,662 individuals, which correlates into a 420 percent increase. The sector increased from 16.2 percent of the total jobs available to 27.7 percent, far outgrowing any other sector.

As previously stated, no employment sector in Ventura County weathered a loss in the number of jobs. However, many have experienced a loss in percentage of total employment. The best and most dramatic example is provided by the government sector. In 1970, the government employed 36,734 people which represented 27.3 percent of the total number of jobs in the county. By the year 1990, the government provided 50,964 jobs to the area but maintained only 15.4 percent of the total job count. Total government jobs increased by 14,230, but the percentage of employment decreased by 11.9 percent.

INCOME

Per capita personal income (PCPI) information in **Exhibit 1G** was obtained from the United States Department of Commerce Economics and Statistics Administration. PCPI

information from 1980 to 1992 for Ventura County is compared to figures from the state of California and the United States.

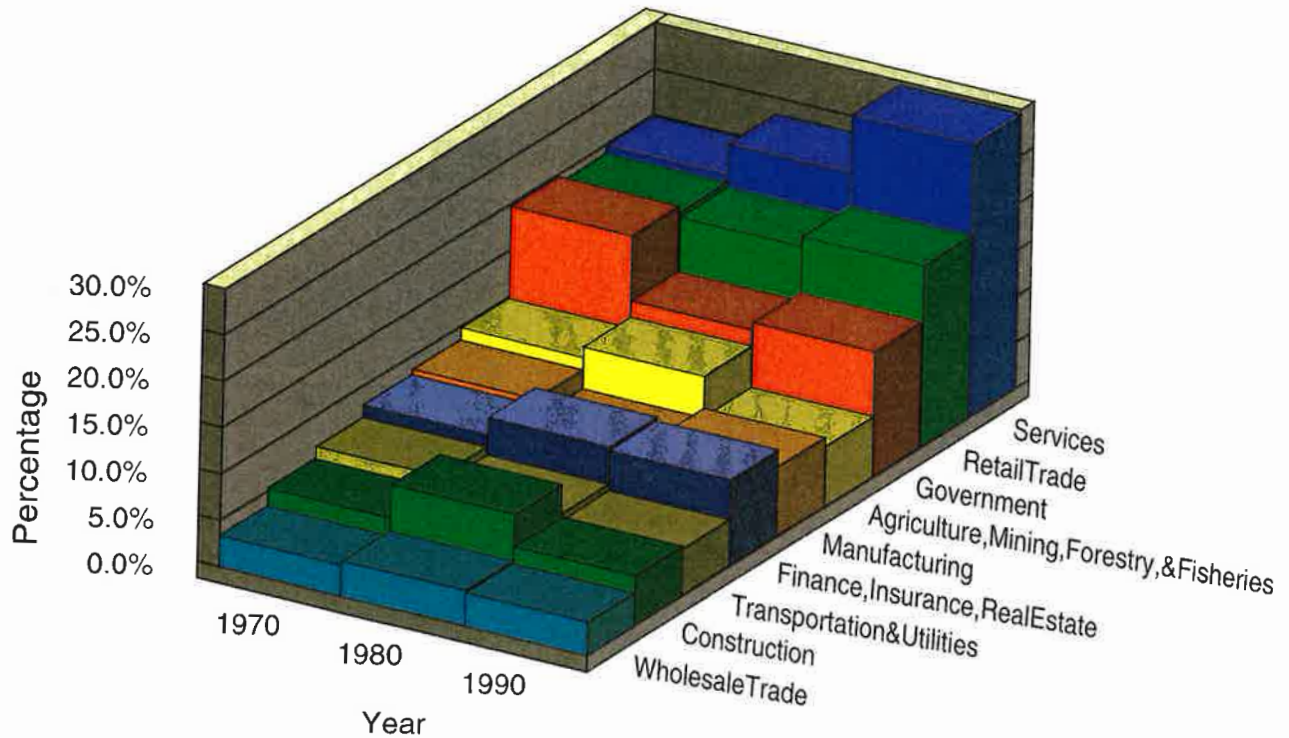
In 1992, California had a personal income (PCPI) of \$21,348 which ranked 12th in the country and was 106 percent of the national average (\$20,105). Ventura County had a PCPI of \$21,977 in 1992. This ranked 13th in the state and measured 106 percent of the states average and 109 percent of the country's average.

According to **Exhibit 1G**, California had the highest per capita income in 1980 with \$11,681. Ventura County was second in 1980 with \$11,133 and the United States third with \$9,940. Ventura County experienced a larger increase in PCPI than did the state or country during the 1980's increasing by 90 percent. California continued its growth trend throughout the 1980s with an 77 percent increase up to \$20,656. The United States per capita income increase slightly faster than California during the 1980s. The United States per capita income grew 87 percent to \$18,667.

SUMMARY

This chapter has provided an inventory of those facilities that would effect the future development of the Camarillo Airport. The data collected for this chapter provides the information necessary to perform subsequent analysis. It also provides the proper perspective from which to develop a realistic Master Plan that will meet the needs of both the County of Ventura and the City of Camarillo.

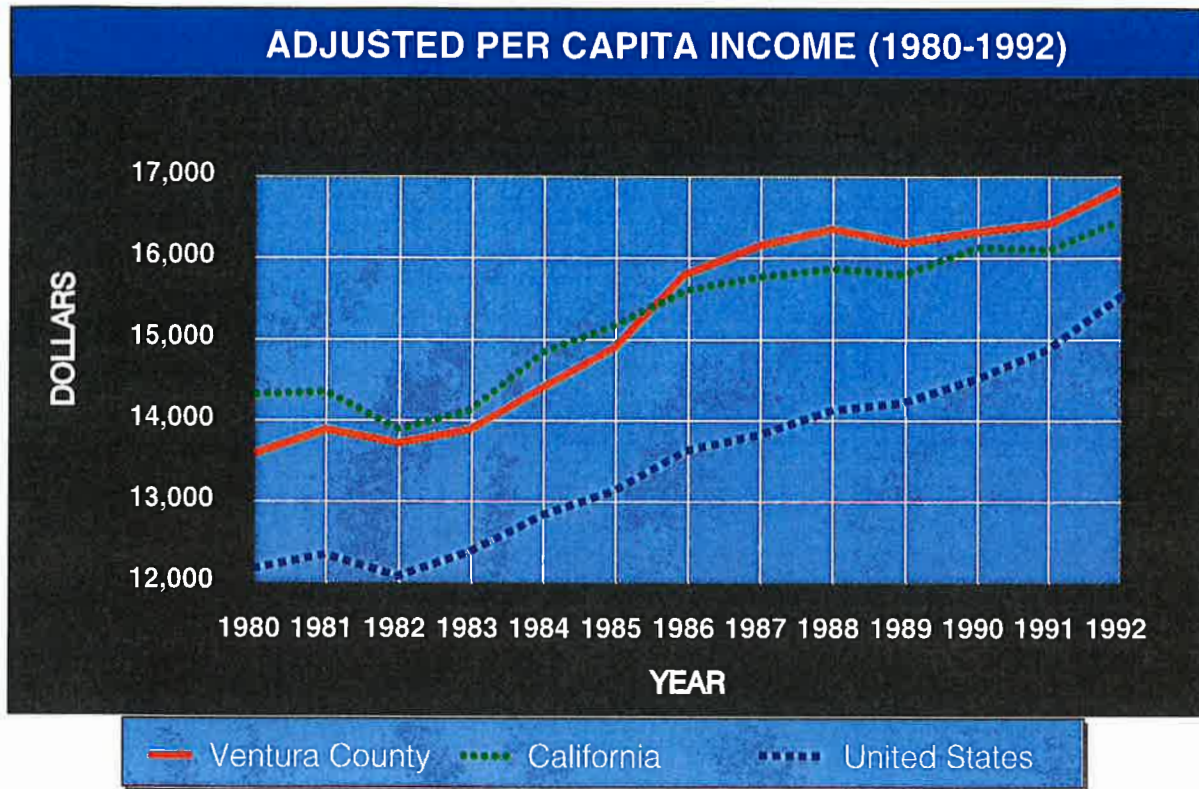
EMPLOYMENT PERCENTAGE OF TOTAL BY SECTOR 1970-1990



EMPLOYMENT BY SECTOR 1970-1990 VENTURA COUNTY

INDUSTRY	1970	1980	1990
Agriculture, Mining, Forestry & Fisheries	16,381	22,328	23,505
Construction	5,684	10,955	23,020
Manufacturing	14,065	24,932	35,568
Transportation & Public Utilities	4,516	7,392	13,392
Wholesale Trade	4,299	8,035	13,313
Retail Trade	21,873	35,297	54,832
Finance, Insurance, & Real Estate	9,223	18,682	24,947
Services	21,792	46,462	91,662
Government	36,734	45,695	50,964
TOTALS	23,040	43,535	49,992





PER CAPITA INCOME (1980-1992)

Year	Ventura County		California		United States	
	*(Inflation adjusted)	Ventura County	*(Inflation adjusted)	California	*(Inflation adjusted)	United States
1980	\$11,133	\$13,577	\$11,681	\$14,245	\$9,940	\$12,122
1981	12,377	13,752	12,838	14,264	11,009	12,232
1982	13,081	13,555	13,410	13,896	11,583	12,003
1983	13,788	13,843	14,109	14,166	12,223	12,272
1984	15,059	14,480	15,373	14,782	13,332	12,819
1985	16,077	14,491	16,313	15,161	14,155	13,155
1986	17,288	15,774	17,080	15,584	14,906	13,600
1987	18,338	16,143	17,828	15,694	15,638	13,766
1988	19,352	16,400	18,703	15,850	16,610	14,076
1989	20,236	16,319	19,620	15,823	17,690	14,266
1990	21,131	16,509	20,656	16,138	18,667	14,584
1991	21,351	16,551	20,748	16,084	19,163	14,855
1992	21,977	16,905	21,348	16,422	20,105	15,465

Source: U.S. Department of Commerce, Economic and Statistics Administration
 * Adjusted to 1983 dollars



The next chapter will examine the current demand for aviation facilities and how these demands can be expected to change in the future.

Projections of aviation activity through the year 2015 will be prepared in order to identify the necessary facilities required to meet this demand.



Chapter Two FORECASTS

Chapter 2

FORECASTS



The proper planning of a facility of any type must begin with a definition of the need that it can reasonably expect to serve over the specified planning period. At Camarillo Airport, this involves the development of a set of forecasts that best define the potential of future aviation demand. Forecasts of the airport can then be used as a basis for determining the types and sizes of aviation facilities required to accommodate the aviation needs of the Camarillo area through the year 2015.

Forecasts are applied to several phases of the master plan study. Initially, they are used to analyze the capacity of the airfield, the terminal areas, and the access system serving the airport. They are also used to evaluate the airport's role in regional, state, and national airport systems and from that, the need for new or improved navigational systems. They can also be used in the evaluation

of the financial feasibility of alternative development actions. In addition, they are applied to noise analysis to assist in developing recommendations for compatible land use around the airport.

The primary objective of a forecasting effort is to define the magnitude of change that can be expected over time. Because of the cyclical nature of the economy, it is virtually impossible to predict with certainty year-to-year fluctuations in activity when looking twenty years into the future. However, a trend can be established which delineates long-term growth potential. While a single line is often used to express the anticipated growth, it is important to remember that actual growth may fluctuate above and below this line. The point to remember about forecasts is that they serve only as guidelines, and planning must remain flexible to respond to unforeseen facility needs. This is because aviation activity

is affected by many external influences, as well as by the types of aircraft used and the nature of available facilities.

Recognizing this, it is intended to develop a master plan for Camarillo Airport that will be demand-based rather than time-based. As a result, the reasonable levels of activity potential that are derived from this forecasting effort will be related to the planning horizon levels rather than dates in time. These planning horizons will be established as levels of activity that will call for consideration of the implementation of the next step in the master plan program.

Aviation activity is affected by many outside influences, as well as by the equipment and facilities available. Few industries have seen the dynamic changes the aviation industry has seen since the first powered flight. Major technological breakthroughs, as well as regulatory and economic actions, have resulted in erratic growth patterns and have had significant impacts upon activity at most airports. The following sections attempt to define the historical trends and discuss how other influences may affect future trends in establishing forecasts of aviation activity for Camarillo Airport.

NATIONAL AND REGIONAL GENERAL AVIATION TRENDS

General aviation activity in the United States has not followed the national economic growth trend in the past decade. In most cases, those elements that make up general aviation activity (aircraft, pilots, operations, and flying

hours) have all been relatively stagnant or have declined.

Historically, the economic cycle of the general aviation industry closely paralleled that of the national economy. Theories abound as to why the decline in sales and pilots has not responded to recent economic growth. Some cite high aircraft costs, which have continued to increase even during periods of relatively modest inflation. Others cite high operating and increased product liability costs. In addition, the deregulation of the U.S. commercial airline industry has also affected general aviation by providing increased service and better connections by air carriers and regional commuters. This has likely reduced the desirability of using private general aviation aircraft when planning business or pleasure trips. It appears safe to say that the combination of these factors is surely responsible, and the negative impact of all of these factors has outweighed the positive effects of a growing economy. On the positive side, **use of general aviation aircraft by business has increased.** As a result, the character of the general aviation fleet continues to change. The more expensive and sophisticated turbine-powered component of the fixed-wing fleet is expected to grow while piston aircraft are projected to decline between 1994 and 2006. Single engine piston aircraft are projected to decline from 130,687 in 1994 to 122,400 in 2006 (down 6.3 percent), while the number of multi-engine piston aircraft is expected to decline from 16,406 aircraft to 16,000 in 2006 (down 2.4 percent).

Reflecting the increasing convenience of general aviation flying to businesses and their push for technology, turbine-

powered aircraft are projected to increase from 4,359 in 1994 to 5,800 in 2006, an annual growth rate of 2.5 percent. The turbine-powered rotorcraft fleet is projected to increase at an annual rate of 1.8 percent over the 12-year period, from 2,864 in 1994 to 4,100 in 2006. Exhibit 2A graphically depicts forecast of U.S. active general aviation aircraft as well as the changing make-up of the active general aviation aircraft fleet forecast as forecasted by the Federal Aviation Administration.

SOCIOECONOMIC FORECASTS

Local and regional forecasts developed for socioeconomic variables provide an indication of the potential for supporting growth in aviation activity. Three variables often found to be most valuable in evaluating local and regional traffic growth potential are population, employment, and income. Employment and per capita personal income can be particularly useful because they reflect swings in the economy and are usually available on an annual basis.

Two primary sources were utilized for socioeconomic information in the Camarillo area. The Southern California Association of Governments (SCAG) regularly updates forecasts of population and employment for the region, including the Ventura County and Camarillo areas. In addition, the U.S. Department of Commerce provides annual data for state and county population and employment.

Updated forecasts of employment prepared by SCAG were used in this

master plan. Annualized historical income for both Ventura County and the State of California were obtained from data available from the U.S. Department of Commerce. Table 2A presents historic and forecast socioeconomic information used for further analysis in this master plan. Per capita income presented in Table 2A and used in the forecast analysis was adjusted to 1983 dollars.

As can be seen, inflation-adjusted per capita income for Ventura County has grown at an annual average rate of 1.8 percent between 1980 and 1992, while population has grown at an annual rate of 2.1 percent. Total employment in Ventura County has increased at 3.5 percent annually over the same time period. Annual average growth of inflation-adjusted per capita income for the State of California grew slightly slower than that of Ventura County at 1.2 percent during the time span.

Projections of Ventura County per capita income and employment indicate slower annual increases for the next twenty years. Ventura County employment is expected to reach 543,624 in 2015, an annual average increase of 2.2 percent. Ventura County population is projected to increase to 923,642 by 2015, an average annual increase of 1.3%. The counties per capita income is projected to rise from \$16,905 in 1992 to \$23,619 in 2015. This rate of growth equates to an average annual increase of 1.5 percent. The State of California's per capita income is expected to grow at an annual rate of 1.0 percent, reaching \$20,734 by the end of the twenty year period.

TABLE 2A
Socioeconomic Variables
Camarillo Airport

Year	Ventura County			California Adjusted PCPI*
	Adjusted PCPI*	Total Employment	Population	
1980	\$13,577	219,778	532,700	\$14,245
1981	13,752	225,242	544,700	14,264
1982	13,555	230,219	559,100	13,896
1983	13,843	236,821	571,500	14,166
1984	14,480	249,289	583,200	14,782
1985	14,941	261,866	595,600	15,161
1986	15,774	272,055	606,700	15,584
1987	16,143	287,856	621,600	15,694
1988	16,400	306,656	638,500	15,850
1989	16,319	319,790	656,300	15,823
1990	16,509	331,203	670,200	16,138
1991	16,551	330,242	676,800	16,084
1992	16,905	332,643	686,600	16,422
FORECASTS				
2000	\$19,351	404,825	773,886	\$17,926
2005	20,774	446,959	820,145	18,862
2015	23,619	543,624	923,642	20,734

* Adjusted to 1983 Dollars

Notes: Historic information obtained from U.S. Commerce Department.

PCPI forecasts based on linear extrapolation of historic data.

Employment and population forecasts provided by Southern California Association of Governments.

GENERAL AVIATION FORECASTS

General aviation is defined as that portion of civil aviation which encompasses all facets of aircraft activity except commercial operations. To determine the types and sizes of facilities that should be planned, certain elements of this activity must be forecast. These indicators of general aviation demand include:

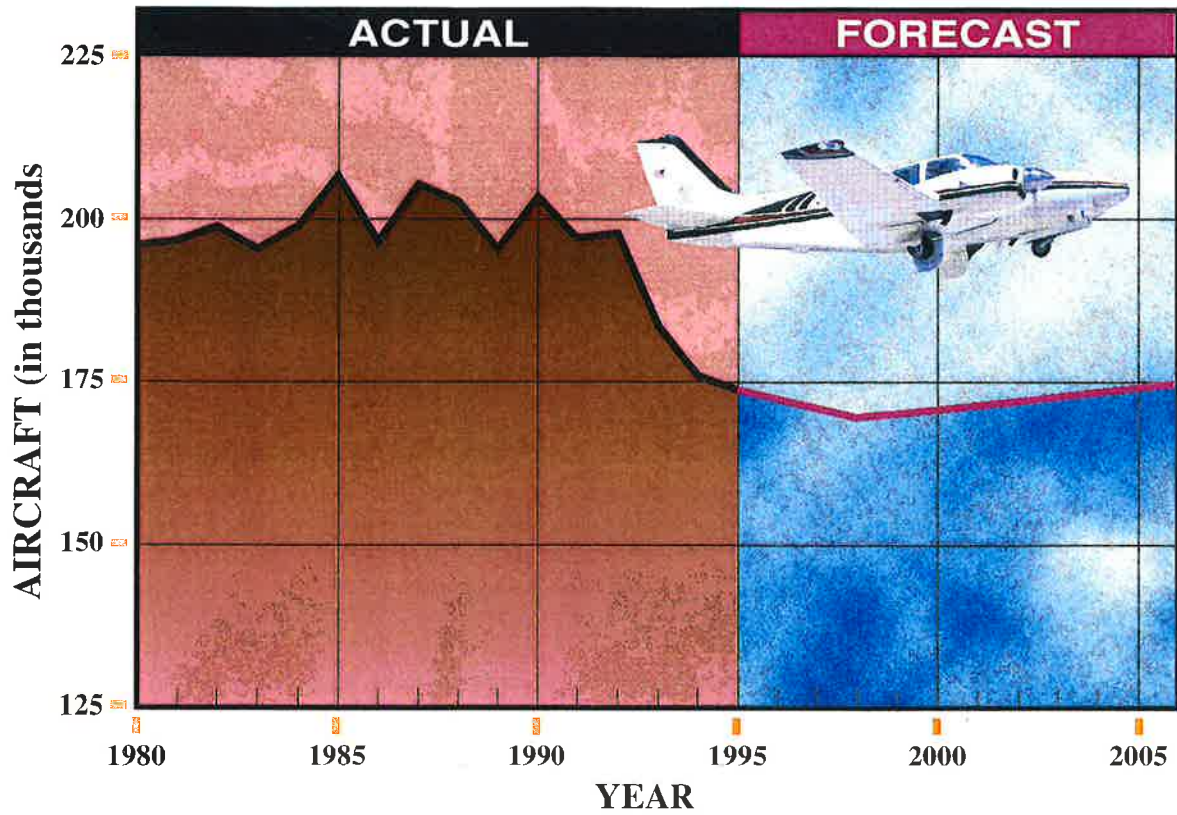
- Based Aircraft

- Based Aircraft Fleet Mix
- Annual Aircraft Operations

BASED AIRCRAFT

The number of aircraft based at an airport is, to some degree, dependent upon the nature and magnitude of aircraft ownership in the local service area. Therefore, the process of developing forecasts of based aircraft for Camarillo Airport was begun with a review of historical aircraft registrations in the area.

ACTIVE GENERAL AVIATION AIRCRAFT



U.S. ACTIVE GENERAL AVIATION AIRCRAFT (in thousands)

As of January 1	FIXED WING				ROTORCRAFT				Total
	PISTON		TURBINE		Piston	Turbine	Experimental	Other	
	Single-Engine	Multi-Engine	Turboprop	Turbojet					
1994	130.7	16.4	4.4	3.9	1.6	2.9	10.9	5.2	176.0
1997	123.6	15.8	4.9	4.4	1.5	3.2	11.5	5.5	170.4
2000	122.4	15.6	5.2	4.7	1.5	3.5	12.0	5.8	170.7
2003	122.4	15.8	5.5	5.0	1.5	3.8	12.6	6.1	172.7
2006	122.4	16.0	5.8	5.3	1.5	4.1	13.1	6.4	174.6

Source: FAA Aviation Forecasts, Fiscal Years 1995-2006.

Notes: Detail may not add to total because of independent rounding. An active aircraft must have a current registration and it must have been flown at least one hour during the previous calendar year.



Registered Aircraft Forecasts

Historical records of aircraft ownership in Ventura County were obtained from the **Census of U.S. Civil Aircraft**. **Table 2B** presents the Ventura County aircraft registrations since 1983 and compares them with active aircraft in the FAA Western Pacific Region. The Western-Pacific Region of the FAA consists of the states of California, Nevada, Arizona and Hawaii, and also includes the Trust Territory of the Pacific Islands, American Samoa, Guam, and the Commonwealth of Northern Marianas Islands. Registered aircraft in Ventura County have increased from 2.6 percent of the

active aircraft in the region in 1983 to 3.6 percent in 1994.

A trend line, or time series, forecast was analyzed, based on historical data from 1983 to 1994. Historical data within this time period provided a correlation coefficient of 0.809. The correlation coefficient (Pearson's "r") measures association between the changes in the dependent variable (the number of registered aircraft) and the independent variable (the year). An "r" value greater than 0.95 indicates a strong relationship between variables. This projection is depicted on **Exhibit 2B**.

TABLE 2B
Aircraft Registrations
Ventura County

Year	West Pac Region Active Aircraft*	Ventura County Aircraft Registrations	Percent Market Share
1983	32,000	822	2.6%
1984	32,600	886	2.7%
1985	35,000	940	2.7%
1986	34,300	994	2.9%
1987	36,100	1,001	2.8%
1988	35,300	1,037	2.9%
1989	34,200	1,037	3.0%
1990	35,100	1,050	3.0%
1991	34,700	1,059	3.1%
1992	36,500	1,019	2.8%
1993	31,400	1,011	3.2%
1994	29,600	1,059	3.6%
FORECAST			
2000	28,900	1,040	3.6%
2005	29,200	1,050	3.6%
2015	29,900	1,075	3.6%
* Source: FAA Aviation Forecasts, Fiscal Years 1995-2006.			
** Source: FAA Census of U.S. Civil Aircraft.			

Time Series

Next, several single-, and multiple-variable regression analyses were computed to examine the correlation between registered aircraft and the socioeconomic variables presented in **Table 2A**. A summary of the correlation coefficients is listed in **Table 2C**. Several of the single-variable analyses indicated good correlations. Ventura County adjusted per capita income had the highest correlation coefficient at 0.964. The second highest correlation was provided by historical data of the state of California with a correlation coefficient of 0.952.

The combination of Ventura County Employment and California PCPI had a correlation coefficient of .964 which equals the coefficient provided by Ventura County PCPI. The next highest multiple regression analysis correlation coefficient was provided by the combination of Ventura County PCPI and Ventura County Employment with an "r" value of 0.953.

The multiple regressions did not improve the correlations from the single variable tests. **Table 2D** and **Exhibit 2B** depict the projections resulting from the two regressions with the highest correlations. These projections depict up to a 50 percent increase in registered aircraft. Considering how active aircraft in the region and across the nation are forecast by the FAA to show little growth over the next twelve years, this would appear to be a very aggressive projection. Even though there was not a significant correlation between registered aircraft in Ventura County

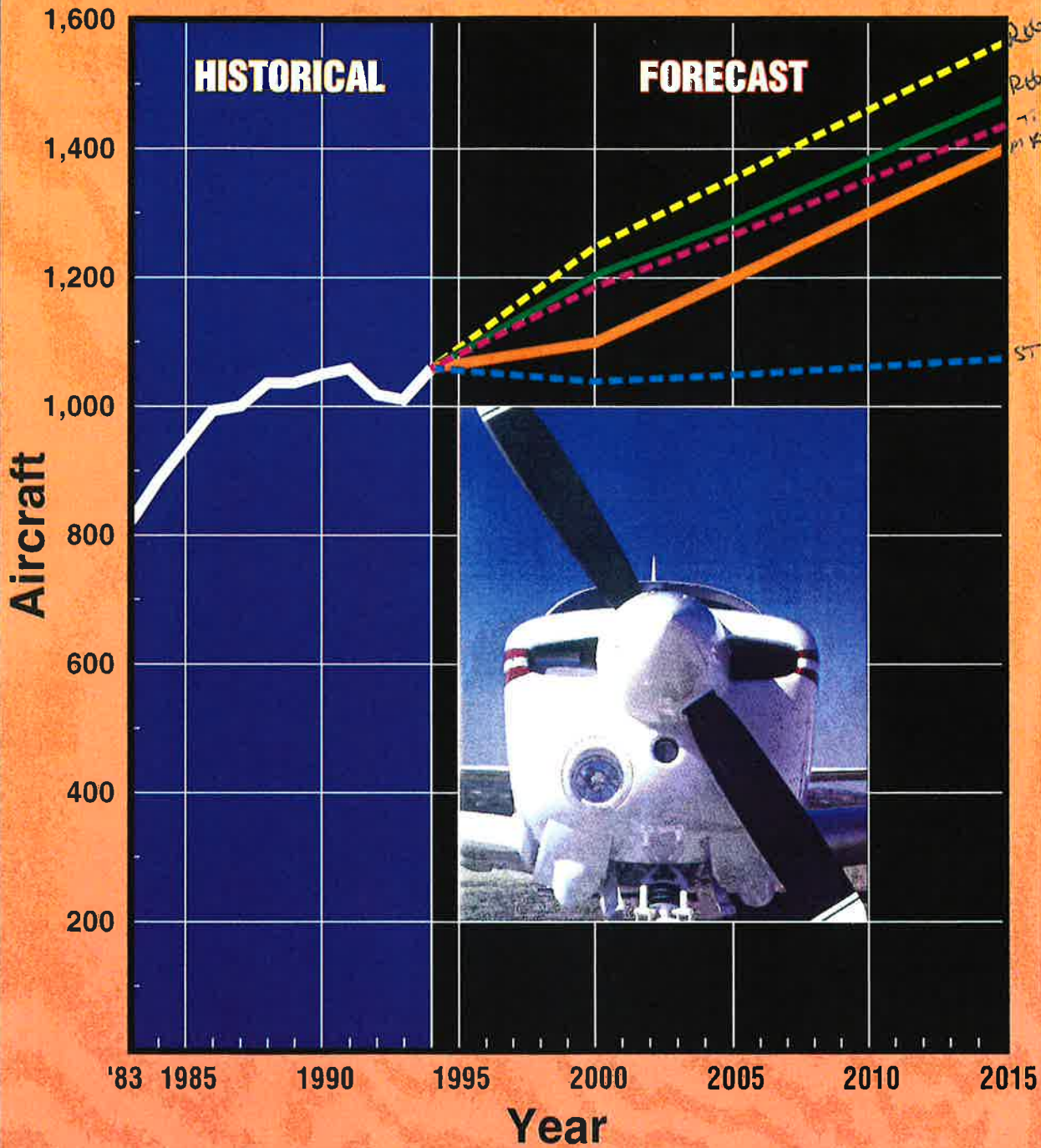
and active aircraft on a regional and national basis, consideration must be given to the minimal growth projected in the industry. Thus, a series of market share analyses were evaluated.

TABLE 2C	
Ventura County	
Registered Aircraft Regression Analysis	
	r-value
Time-Series Correlation, 1983-1994	0.809
Single Variable Correlations, 1983-1992	
vs. Ventura County Adjusted PCPI*	0.964
vs. Ventura County Population	0.872
vs. Ventura County Employment	0.914
vs. California Adjusted PCPI*	0.952
vs. California Population	0.869
vs. U.S. Active General Aviation Aircraft	0.006
vs. Western-Pacific Region Active General Aviation Aircraft	0.212
Multiple Variable Correlations, 1983-1992	
vs. Ventura County Adjusted PCPI & Ventura County Employment	0.953
vs. Ventura County Employment & California Adjusted PCPI*	0.964
* Adjusted to 1983 Dollars	

Ventura County aircraft were examined as a percentage of active aircraft in the Western-Pacific Region as previously presented in **Table 2B**. As indicated earlier, the Ventura County market share has been consistently increasing over the past decade. Given this consistent increase in market share and continued growth in area population and employment, maintaining a constant market share, as indicated in **Table 2B**, does not appear to be appropriate.

REGISTERED AIRCRAFT FORECAST

Ventura County



Regression
 Regression
 Time Series
 Increasing Market Share
 Static Market Share

LEGEND

- Regression Analysis (Registered Aircraft vs. Ventura County Adjusted PCPI)
- Regression Analysis (Registered Aircraft vs. Ventura County Employment)
- Time Series Analysis
- Increasing Market Share Analysis (Selected Forecast)
- Static Market Share Analysis



This projection is also included in **Table 2D** and **Exhibit 2B** for comparison to the regression analyses projections. The result is a high and low range of forecasts. An increasing market share was analyzed to consider both the local and national factors. The increasing market share

projections represents a gradual growth in market share to approximately 4.7 percent by the year 2015. This middle range projection is more in line with historic growth of registered aircraft while taking into account industry projections for general aviation.

	r-value	2000	2005	2015
Time-Series Analysis	0.809	1,184	1,267	1,434
Regression Analysis vs. Ventura Adjusted PCPI	0.964	1,248	1,353	1,564
vs. Ventura Total Employment	0.914	1,216	1,309	1,495
Market Share Analysis				
Static Share		1,040	1,050	1,075
Increasing Share		1,100	1,200	1,400
Select Forecast		1,100	1,200	1,400

Based Aircraft Forecasts

Historical data of based aircraft at Camarillo Airport dates back to 1985. **Table 2E** compares the aircraft based at Camarillo Airport as a percentage of the aircraft registered in Ventura County from 1989 to 1993. This Camarillo Airport share has shown a steady increase from 53.8 percent in 1985 up to 64.0 percent in 1993.

However, in 1994, the percentage share decreased to 54.8 percent. A market share analysis was then performed to identify potential demand at Camarillo Airport. A constant market share of 55.0 percent was utilized as a baseline projection indicating the growth that could be anticipated if Camarillo Airport's market share remains unchanged. This projection is presented in **Table 2E**.

TABLE 2E
Based General Aviation Forecast
Camarillo Airport

Year	Ventura County	Camarillo Airport	Percent of Registered		
1985	940	506	53.8%		
1986	994	528	53.1%		
1987	1,001	550	54.9%		
1988	1,037	612	59.0%		
1989	1,037	611	58.9%		
1990	1,050	665	63.0%		
1991	1,059	655	61.9%		
1992	1,019	613	60.2%		
1993	1,011	647	63.9%		
1994	1,059	580	54.8%		
Forecasts		Constant Share		Increasing Share	
2000	1,100	605	55.0%	638	58.0%
2005	1,200	660	55.0%	720	60.0%
2015	1,400	770	55.0%	882	63.0%

An increasing market share projection was developed considering the historical growth rate and the potential to attract a higher share of the market in the future. As a result, the Camarillo Airport market share was projected to increase to 58.0 percent by 2000 and reach 60.0 percent by the end of the planning period. This forecast is depicted in **Table 2E** and **Exhibit 2C**.

The future market share at Camarillo Airport will be somewhat dependent upon what happens at other airports in the Ventura County area. The congestion at other airports in the vicinity, such as the Los Angeles area airports, puts pressure on general aviation aircraft to relocate to outlying general aviation airports such as Camarillo Airport. The limited number of public use general aviation airports available will also increase the chance aircraft will base at Camarillo Airport.

Also, as stated in the Chapter One, there is a definite demand for more hangar space at the airport. If hangars were constructed and other airfield improvements made, more aircraft may choose to base at Camarillo Airport.

With this in mind, the time-based projections of anticipated growth should serve only as a guide. Actual activity may fluctuate above or below the line as depicted graphically on **Exhibit 2C**. In order to develop a master plan that is demand-based rather than time-based, a series of planning horizons have been established that take into consideration the based aircraft forecasts. The planning horizons for based aircraft that will be utilized in the remainder of this master plan are:

- Short Term - 640
- Intermediate term - 720
- Long range - 890

Camarillo Airport Based Aircraft

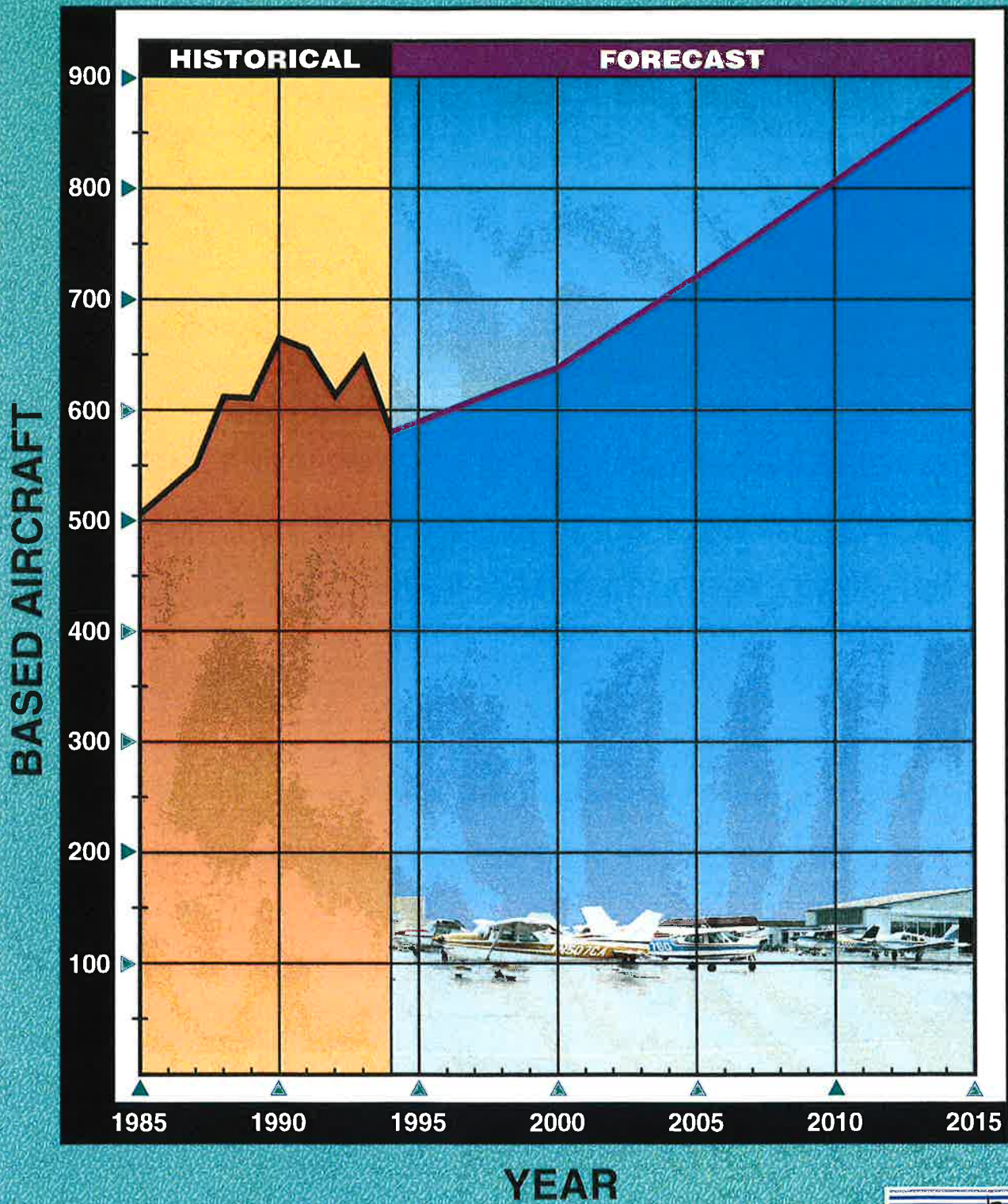


Exhibit 2C
BASED AIRCRAFT FORECASTS
CAMARILLO AIRPORT

BASED AIRCRAFT FLEET MIX

The aircraft fleet mix expected to use the airport is projected in order to reasonably size airport facilities. The existing mix of based aircraft was determined through lease records maintained by the Ventura County Department of Airports. Additional historic data from the FAA airport data base was incorporated into the analysis of based aircraft fleet mix. As indicated earlier, the overall trend nationally is towards a higher percentage of larger, more sophisticated aircraft.

In the past, Camarillo Airport's fleet mix has consisted of a majority share of single engine aircraft and a lower percentage of multi-engine piston aircraft than is evident in the national fleet. While nationally single engine piston aircraft account for roughly 77.8 percent of the national fleet, at Camarillo Airport they currently comprise over 90 percent of the based fleet. Multi-engine piston aircraft account for 10.7 percent of the national fleet, while at Camarillo Airport they comprise 8.6 percent of the based aircraft.

There is only one turboprop aircraft presently based at the Camarillo Airport. Currently the Camarillo Airport fleet mix consists of under one percent rotorcraft.

Due to the fact that historical fleet mix data is not readably available, latest available data in conjunction with the national forecast of general aviation fleet mix, was used as the basis of the based aircraft forecast for Camarillo Airport. The forecast fleet mix for Camarillo Airport is delineated in **Table 2F**. The based aircraft forecast indicates several trends at the airport. First, while the number of based single engine aircraft is forecast to increase, the percentage of single engine aircraft in the based aircraft fleet declines throughout the forecast period, consistent with national trends. The percentage of multi-engine piston aircraft remains slightly lower than the national average, which is consistent with the historic based aircraft data and historic data from the previous master plan. Based turboprop aircraft are forecast to comprise a higher percentage of the based aircraft than indicated in the FAA forecasts, while the forecast level of jets is anticipated to be relatively constant with the national trend data. Rotorcraft will also increase at a similar percentage as the national trend. The planning horizons for the Camarillo Airport fleet mix that will be utilized in the remainder of this master plan is listed in **Table 2F**.

Year	Piston		Turbine		Rotor	Total
	Single Engine	Multi-Engine	Turboprop	Jet		
Actual						
1994	528	45	1	0	6	580
Forecast						
Short Term	576	50	4	1	9	640
Intermediate Term	640	60	6	2	12	720
Long Range	785	75	10	4	16	890

GENERAL AVIATION OPERATIONS

General aviation operations are classified by air traffic control towers into two types: local and itinerant. A local operation is a take-off or landing performed by an aircraft that operates in the local traffic pattern within sight of the airport or which executes simulated approaches or touch-and-go operations at the airport. Local operations are typically training operations. Itinerant operations are those performed by an aircraft with a specific origin or destination away from the airport.

Table 2G and Exhibit 2D depict annual general aviation operations as counted by the air traffic control tower at Camarillo Airport since 1990. In 1990 there were 206,631 general aviation operations. 1991 had the highest count recorded of 210,634. The next two years operations declined to 176,331 in 1993. However, activity grew again in 1994 to 186,228. Because of the limited sample and annual fluctuations, statistical regression tests provided no reasonable correlations.

TABLE 2G General Aviation Operations Forecast Camarillo Airport						
Year	Local Operations	Total GA Operations <i>ITINERANT OPS</i>	TTL GA ops <i>ops</i>	Based Aircraft <i>BASED A/C</i>	Operations Per Based Aircraft <i>ops per BASED A/C</i>	Itinerant Operations
1990	91,346	115,285	206,631	665	311	
1991	78,492	132,132	210,624	655	322	
1992	83,295	99,030	182,325	613	297	
1993	77,474	98,857	176,331	647	273	
1994	82,661	103,567	186,228	580	321	
FORECASTS						
2000	91,000	116,000	207,000	638	325	
2005	105,000	133,000	238,000	720	330	
2015	132,000	168,000	300,000	882	340	

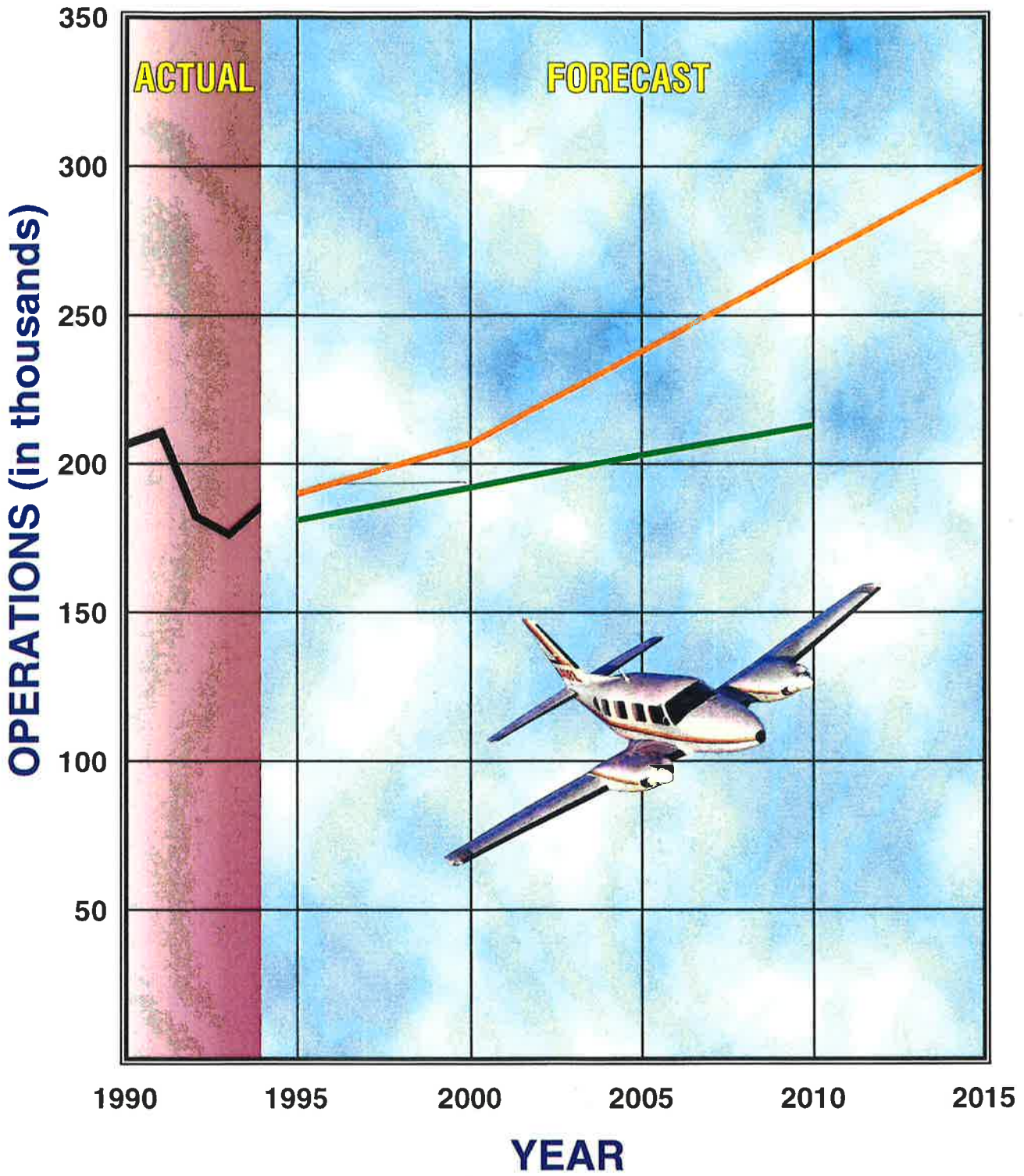
Aircraft operations as a ratio of based aircraft were examined. With 1994 an exception, the ratio has generally fluctuated around 310 annual operations per based aircraft.

As indicated earlier, the FAA forecasts for active general aviation aircraft indicate a decline over the next several years before growth in the next century. Over the same time general aviation operations at towered airports

are forecast to increase at annual rate of 1.1 percent. This equates to an increase in the number of operations per aircraft over the time period.

Based on this growth rate, general aviation operations per based aircraft at Camarillo Airport were forecast to increase over the planning period. Table 2G depicts the general aviation operations forecasts. Exhibit 2D compares the projection with the 1994

GENERAL AVIATION OPERATIONS



LEGEND

- Master Plan Forecast
- FAA Terminal Area Forecast (1994)



FAA Terminal Area Forecasts (TAF). The TAF projections were lower because the base year was a low period. In addition the top-down approach of the TAF does not take into account the strong potential that Camarillo Airport has to attract based aircraft in the future.

Local operation have typically fluctuated around 56 percent of the total general aviation operations at Camarillo Airport. FAA forecasts of local and itinerant operations at towered airports indicate both growing at similar rates. Therefore, the percentage split between local and itinerant operations at Camarillo Airport was forecast to remain constant throughout the planning period. **Table 2G** also depicts the local and itinerant operations forecasts.

As indicated previously the time-based projections of anticipated growth should serve only as a guide. Actual activity may fluctuate above or below the line as graphically depicted on **Exhibit 2D**. In order to develop a master plan that is demand-based rather than time-based the forecasts will be related to planning horizons as follows:

- Short term
 - 210,000 Total
 - 118,000 Local
 - 92,000 Itinerant
- Intermediate term
 - 240,000 Total
 - 134,000 Local
 - 106,000 Itinerant

- Long Range
 - 300,000 Total
 - 168,000 Local
 - 132,000 Itinerant

These milestones are based upon air traffic control tower counts. Because the tower is closed from 9:00 p.m. to 7:00 a.m., the statistics are lower than actual totals. From discussions with ATCT personnel and review of data from other general aviation airports, operations during the hours the tower is closed are estimated at five percent of the tower count. It will be important to consider these operations when evaluating the airport's operational capacity and noise exposure contours.

AIR TAXI

Air taxi activity has been independently reported by air traffic control towers since 1972 and was instituted to include commuter passenger and all-cargo airlines, as well as for-hire general aviation operations. At Camarillo, there are no commuter or cargo operations, therefore air taxi is comprised of for-hire general aviation operations. Air taxi operations were forecast to increase at a rate similar to general aviation itinerant operations. **Table 2H** depicts the air taxi forecasts. The planning horizon milestones for air taxi operations are included in the summary table at the end of this chapter.

**TABLE 2H
Air Taxi and Military Operations Forecasts
Camarillo Airport**

	1994	2000	2005	2015
Air Taxi	2,025	2,300	2,600	3,300
Military	2,597	2,500	2,500	2,500

MILITARY

Like air taxi operations, annual military operations have historically accounted for only a small portion of the total activity at Camarillo Airport. Between 1990 and 1994, the number of annual military operations at Camarillo has fluctuated between 913 in 1991 to 2,597 in 1994. This recent increase was primarily a result of a military fueling contract with one of the airport's fixed base operators.

As long as the fueling contract remains in effect, military operations can be expected to remain near the present levels. Therefore, military operations at Camarillo airport are forecast to remain around 2,500 annual operations through the planning period As indicated on **Table 2H**.

PEAKING CHARACTERISTICS

Many airport facility needs are related to the levels of activity during peak periods. The periods used in developing facility requirements for this study are as follows:

- **Peak Month** - The calendar month when peak aircraft operations occur.

- **Design Day** - The average day in the peak month. Normally this indicator is easily derived by dividing the peak month operations by the number of days in the month.
- **Busy Day** - The busy day of a typical week in the peak month. This descriptor is used primarily to determine general aviation ramp space requirements.
- **Design Hour** - The peak hour within the design day. This descriptor is used particularly in airfield demand/capacity analysis, as well as in determining terminal building and access road requirements.

It is important to note that only the peak month is an absolute peak within a given year. All the others will be exceeded at various times during the year. However, they do represent reasonable planning standards that can be applied without overbuilding or being too restrictive.

Using Camarillo Airport Air Traffic Control Tower (ATCT) records, the peak month for operations has been 10.1 percent of the yearly total for the last three years. The peak month for at Camarillo Airport can occur any time between May and September.

The peak month percentage was projected to remain at approximately 10 percent of annual general aviation operations in the future.

Projections of peak month activity have been developed by applying this percentage to forecast annual general aviation operations. The design day is then calculated by dividing the peak month by 31, resulting in the approximate amount of daily general aviation activity that can be expected on an average day during the peak month.

However, the determination of daily peak, or busy periods, provides important information about the adequacy of aircraft parking apron areas. Daily data provided by the Camarillo ATCT was used to determine

a busy day peaking factor for general aviation activity. During August of 1994, the peak day of each week for general aviation operations averaged 18 percent of the week. This equates to a busy day which is 26 percent higher than the average or design day. For planning purposes, this factor is expected to remain relatively constant over the planning period.

Using ATCT records for June 1994, the design hour was calculated as approximately 13 percent of the design day operations. As operations increase this percentage is expected to decline slightly. To forecast future peak hour operations, this percentage was applied to the projected design day operations. **Table 2J** summarizes the peak operations forecasts.

TABLE 2J				
Peak Operations Forecast				
Camarillo Airport				
	PLANNING HORIZONS			
	Actual 1994	Short Term	Intermediate Term	Long Range
Annual Operations	190,850	210,000	240,000	300,000
Peak Month	19,305	21,000	24,000	30,000
Design Day	623	680	770	1,000
Busy Day	785	860	970	1,260
Design Hour	81	87	96	115

**ANNUAL
INSTRUMENT APPROACHES**

Forecasts of annual instrument approaches (AIA's) provide guidance in determining an airport's requirements for navigational aid facilities. An instrument approach is defined by the FAA as "an approach to an airport with intent to land by an aircraft in accordance with an Instrument Flight

Rule (IFR) flight plan, when visibility is less than three miles and/or when the ceiling is at or below the minimum initial approach altitude".

At Camarillo Airport, historical data on instrument approaches was obtained from **FAA Air Traffic Activity** statistics. AIA's average approximately 2.2 percent of annual itinerant operations. As the general aviation

aircraft sophistication improves a larger proportion of aircraft and flights will utilize instrument capability. Therefore, the AIA percentage is

projected to increase slightly over the planning period. **Table 2K** summarizes the forecast AIA's.

TABLE 2K Annual Instrument Approaches Forecast Camarillo Airport				
	PLANNING HORIZONS			
	1994	Short Term	Intermediate Term	Long Range
Annual Itinerant Operations	87,187	96,800	111,100	137,800
Annual Instrument Approaches	1,918	2,300	2,900	4,100

SUMMARY

This chapter has outlined the various aviation demand levels anticipated over the planning period.

In summary, general aviation activity at Camarillo has not followed the national trends. The airport has good

growth potential in spite of the fact that the number of general aviation aircraft in the nation is not expected to begin to grow until after the turn of the century. Annual aircraft operations, or takeoffs and landings, can be anticipated to grow as based aircraft grow.

TABLE 2L Aviation Activity Planning Horizons Camarillo Airport				
	Actual 1994	Short Term	Intermediate Term	Long Range
ANNUAL OPERATIONS				
General Aviation				
Itinerant	82,661	92,000	106,000	132,000
Local	103,567	118,000	134,000	168,000
Total GA	186,228	210,000	240,000	300,000
Air Taxi	2,025	2,300	2,600	3,300
Military	2,597	2,500	2,500	2,500
Total Operations	190,850	214,800	245,100	305,800
BASED AIRCRAFT	580	640	720	890

Table 2L provides a summary of the aviation activity planning horizons for Camarillo Airport. Actual activity for 1994 is included in the table as a baseline reference. The planning

horizons are used to emphasize the master plan will be developed as a demand-based plan rather than a time-based plan.

The next step in the planning process is to assess the capacity of the existing facilities to determine what facilities

will be necessary to best meet the planning horizons. This will be examined in the next two chapters.



Chapter Three
AIRFIELD DEMAND CAPACITY

Chapter 3

AIRFIELD DEMAND CAPACITY



In the previous chapter, planning horizon levels of aviation demand were established for Camarillo Airport. These potential future activity levels included airport operations, peaking characteristics, and aircraft fleet mix. With this information the capability of the airfield can be evaluated to determine its ability to accommodate the planning horizon demand levels. Analysis of this relationship results in the identification of deficiencies that can be alleviated through planning and development activities.

METHODOLOGY

Capacity and delay will be examined in this master plan utilizing FAA Advisory Circular (AC) 150/5060-5, **Airport Capacity and Delay**. The methodology presented in this advisory circular and utilized here produces statements of airfield capacity in the major terms:

- **Hourly Capacity of Runways:** The maximum number of aircraft operations that can take place in one hour.
- **Weighted Hourly Capacity:** Average of hourly capacities for various runway use scenarios weighted according to percentage of use.
- **Annual Service Volume:** The annual capacity or a maximum level of aircraft operations that may be used as a reference in planning the runway system.
- **Annual Aircraft Delay:** Total delay incurred by all aircraft on the airfield in one year.

As indicated on Exhibit 3A, the capacity of an airport is affected by several factors including airfield layout, meteorological conditions, aircraft mix, runway use, percent arrivals, percent



touch-and-go's, and exit taxiway locations. These items are described below.

AIRFIELD LAYOUT

The airfield layout refers to the location and orientation of the runways, taxiways, and terminal area. **Exhibit 1C** depicted the existing layout of Camarillo Airport which is served by a single runway.

Runway 8-26 is 6,010 feet long and 150 feet wide with a pavement strength rating of 65,000 pounds dual wheel loading (DWL). This runway is designed primarily for general aviation operations, but it is also capable of handling most business jet aircraft.

Taxiway F is the full length parallel taxiway that serves Runway 8-26. There are currently five exit taxiways from Runway 8-26 which are well spaced along the length of the runway. Holding aprons are available on the exit taxiways located at each end of the runway.

METEOROLOGY

Weather conditions at Camarillo Airport can affect utilization of the runway, and subsequently, affect the capacity of the airside facilities. Runway utilization is normally dictated by wind conditions and cloud ceilings and visibilities. Since there is only one runway at Camarillo Airport, the direction of take-offs and landings is often determined by the direction of the prevailing winds.

Wind conditions are of primary importance in determining runway use

in a capacity analysis. It is generally safest for aircraft to operate into the wind, avoiding crosswind or tailwind components whenever possible. For runway selection in capacity analysis, a crosswind component is considered excessive at 10.5 knots for small aircraft weighing less than 12,500 pounds and 13 knots for aircraft weighing over 12,500 pounds. It is at these thresholds that an aircraft is likely to choose a more favorable runway orientation, if it is available.

The most current ten years of wind data available (covering the period of 1985 through 1994) at Point Mugu (the nearest reporting weather station) was examined. The primary runway orientation provides 97.53 percent wind coverage at 10.5 knots and 98.93 percent at 13 knots. **Exhibit 3B** depicts the all-weather windrose for Camarillo Airport.

The wind data collected from the area indicates that winds are from the west 80 percent of the time, thus, Runway 26 is the runway in use most often. Also, for noise abatement purposes, Runway 26 is designated as the calm wind runway. Because Runway 26 is equipped with a nonprecision approach, it is used for all arrivals and most departures during inclement weather conditions and periods of poor visibility.

The primary effect of cloud ceiling and flight visibility conditions on airport capacity is on required spacing between aircraft in a controlled environment. As these conditions deteriorate, the spacing of aircraft must increase to provide allowable margins of safety. The increased distance between aircraft reduce the number which can operate at the airport during any given period.

AIRFIELD CAPACITY

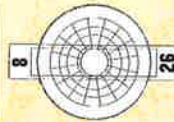
1 INPUT

Airport Layout Meteorology Aircraft Mix Percent Arrivals Touch & Go's Exit Taxiways

2 PROCESS

Wind & Weather

VFR



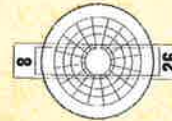
IFR



PVC



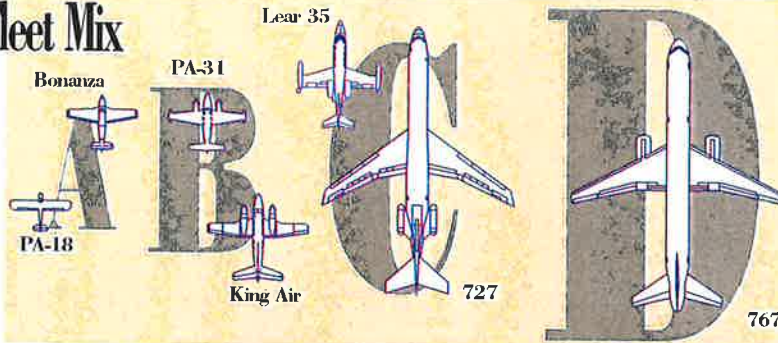
Runway Configuration



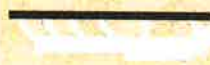
Touch & Go Factor



Fleet Mix



Exit Factor



Operations: Percent Arrivals



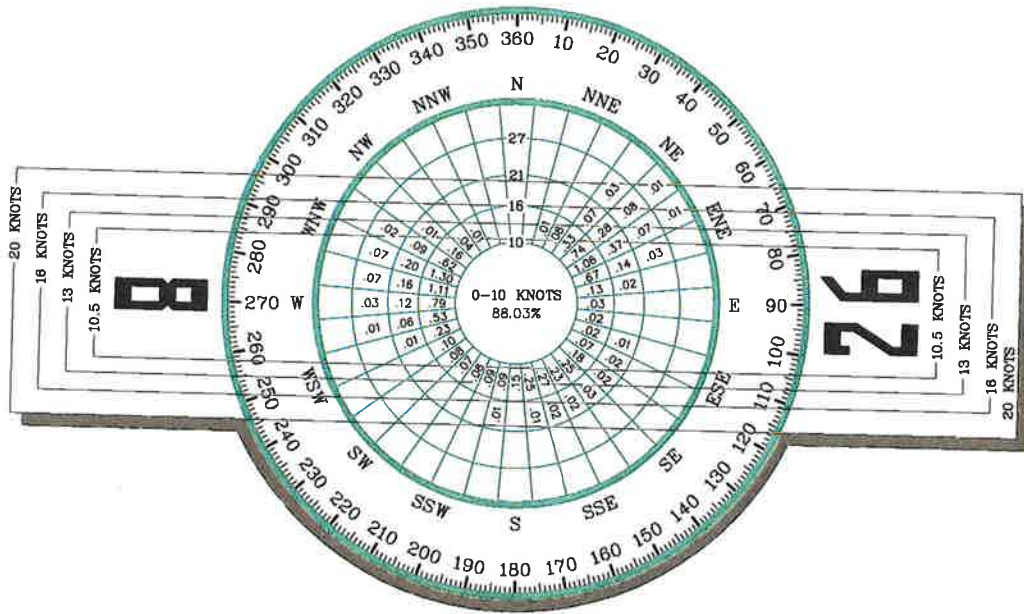
3 OUTPUT

Runway Hourly Capacity
Annual Aircraft Delay

ANNUAL SERVICE VOLUME



ALL WEATHER WIND COVERAGE				
Runways	10.5 Knots	13 Knots	16 Knots	20 Knots
Runway 8-26	97.53%	98.93%	99.79%	99.97%



SOURCE:
 NOAA National Climatic Center
 Asheville, North Carolina
 Point Mugu Naval Air Station
 Point Mugu, California

OBSERVATIONS:
 84,346 All Weather Observations
 1985 - 1994

14° 07' East (March 1995)
 Magnetic Variance



Exhibit 3B
 WIND ROSE

The FAA **Airfield Capacity and Delay Advisory Circular (AC 150/5060-5)**, recognizes three categories of ceiling and visibility minimums. At Camarillo Airport, aircraft operate under **Visual Flight Rule (VFR)** conditions whenever the reported ceiling is greater than 1,000 feet above ground level, and visibility is greater than three statute miles. **Instrument Flight Rule (IFR)** conditions occur when the reported ceiling is less than 1,000 feet and/or when visibility is less than three statute miles. **Poor Visibility and Ceiling (PVC)** conditions occur when the ceiling is less than IFR minimums prescribed by the instrument procedures for the airport. With the coastline climate, Camarillo Airport operates under VFR conditions approximately 84 percent of the time. IFR conditions occur 9.5 percent of the time; and the airport is below minimums because of poor

weather conditions approximately 6.5 percent of the time.

RUNWAY USE

Airfield capacity is affected by the runways in use. Runway use is expressed in terms of number, location, and orientation of active runways. It involves directions and kinds of operations using each runway. At Camarillo Airport, a westerly flow of traffic (Runway 26) is the preferred operational direction for noise abatement and is utilized the highest percentage of time because the prevailing winds are from the west. Runway 26 is the only runway available for nonprecision IFR approaches. **Table 3A** provides a breakdown of percentage use of the available runway scenarios, as utilized in determining the annual service volume.

Traffic Flow	Weather	Runways In Use	% Of The Year	Hourly Capacity
Westerly	VFR	Arrivals: 26 Departures: 26	67%	1994: 128 Short Term: 126 Intermediate Range: 125 Long Range: 123
Easterly	VFR	Arrivals: 8 Departures: 8	17%	1994: 128 Short Term: 126 Intermediate Range: 125 Long Range: 123
Westerly	IFR	Arrivals: 26 Departures: 26	9.5%	1994: 61 Short Term: 61 Intermediate Range: 60 Long Range: 60
None	Below Minimums	Runways Closed	6.5%	1994: Short Term: 0 Intermediate Range: 0 Long Range: 0

AIRCRAFT MIX

Aircraft mix for the capacity analysis is defined in terms of the four aircraft classes described in **Table 3B**. The aircraft mix at Camarillo Airport during both VFR and IFR conditions includes three of the four classes.

Classes A and B consist of small and medium-sized propeller aircraft and some jets, all weighing 12,500 pounds or less. These aircraft are associated primarily with general aviation activity, but do include some air taxi and commuter aircraft.

TABLE 3B Aircraft Operational Mix Camarillo Airport																									
Weather	Planning Horizons	A & B	C	D																					
VFR	Current (1994)	95.0%	5.0%	0.0%																					
	Short Term	94.0%	6.0%	0.0%																					
	Intermediate Range	93.0%	7.0%	0.0%																					
	Long Range	92.0%	8.0%	0.0%																					
IFR	Current (1994)	85.0%	15.0%	0.0%																					
	Short Term	85.0%	15.0%	0.0%																					
	Intermediate Range	85.0%	15.0%	0.0%																					
	Long Range	85.0%	15.0%	0.0%																					
Typical Aircraft By Classification																									
Class A: small single-engine, gross weight 12,500 pounds or less																									
<table border="0"> <tr> <td>Examples:</td> <td>Cessna 172/182</td> <td>Mooney 201</td> </tr> <tr> <td></td> <td>Beech Bonanza</td> <td>Piper Cherokee/Warrior</td> </tr> </table>					Examples:	Cessna 172/182	Mooney 201		Beech Bonanza	Piper Cherokee/Warrior															
Examples:	Cessna 172/182	Mooney 201																							
	Beech Bonanza	Piper Cherokee/Warrior																							
Class B: small twin-engine, gross weight 12,500 pounds or less																									
<table border="0"> <tr> <td>Examples:</td> <td>Beech Baron</td> <td>Mitsubishi MU-2</td> </tr> <tr> <td></td> <td>Cessna 402</td> <td>Piper Navajo</td> </tr> <tr> <td></td> <td>Cessna Citation I</td> <td>DeHavilland Twin Otter</td> </tr> <tr> <td></td> <td>Beech King-Air 100</td> <td>Lear 25</td> </tr> </table>					Examples:	Beech Baron	Mitsubishi MU-2		Cessna 402	Piper Navajo		Cessna Citation I	DeHavilland Twin Otter		Beech King-Air 100	Lear 25									
Examples:	Beech Baron	Mitsubishi MU-2																							
	Cessna 402	Piper Navajo																							
	Cessna Citation I	DeHavilland Twin Otter																							
	Beech King-Air 100	Lear 25																							
Class C: large aircraft, gross weight 12,500 pounds to 300,000 pounds																									
<table border="0"> <tr> <td>Examples:</td> <td>Beech King-Air 200</td> <td>Douglas DC-9</td> </tr> <tr> <td></td> <td>Beech 1900</td> <td>MD 80</td> </tr> <tr> <td></td> <td>Boeing 727</td> <td>Boeing 737</td> </tr> <tr> <td></td> <td>Boeing 757</td> <td>Gulfstream II, III, IV</td> </tr> <tr> <td></td> <td>Cessna Citation II, III</td> <td>Lear 35/55</td> </tr> <tr> <td></td> <td>DeHavilland DH-7</td> <td>A-7</td> </tr> <tr> <td></td> <td>Airbus A-320</td> <td>C-130</td> </tr> </table>					Examples:	Beech King-Air 200	Douglas DC-9		Beech 1900	MD 80		Boeing 727	Boeing 737		Boeing 757	Gulfstream II, III, IV		Cessna Citation II, III	Lear 35/55		DeHavilland DH-7	A-7		Airbus A-320	C-130
Examples:	Beech King-Air 200	Douglas DC-9																							
	Beech 1900	MD 80																							
	Boeing 727	Boeing 737																							
	Boeing 757	Gulfstream II, III, IV																							
	Cessna Citation II, III	Lear 35/55																							
	DeHavilland DH-7	A-7																							
	Airbus A-320	C-130																							
Class D: large aircraft, gross weight more than 300,000 pounds																									
<table border="0"> <tr> <td>Examples:</td> <td>Airbus A-300/A-310</td> <td>Douglas DC-10</td> </tr> <tr> <td></td> <td>Boeing 747</td> <td>Lockheed L-1011</td> </tr> <tr> <td></td> <td>Boeing 767</td> <td>KC-135</td> </tr> <tr> <td></td> <td>Douglas DC-8-60/70</td> <td>C-5A</td> </tr> </table>					Examples:	Airbus A-300/A-310	Douglas DC-10		Boeing 747	Lockheed L-1011		Boeing 767	KC-135		Douglas DC-8-60/70	C-5A									
Examples:	Airbus A-300/A-310	Douglas DC-10																							
	Boeing 747	Lockheed L-1011																							
	Boeing 767	KC-135																							
	Douglas DC-8-60/70	C-5A																							

Class C consists of large multi-engine aircraft and most jets weighing between 12,500 pounds and 300,000 pounds. These aircraft are associated primarily with airline activity, but do include most business jets as well as larger general aviation and commuter propeller aircraft. Class D aircraft consists of large aircraft weighing more than 300,000 pounds, and include wide-bodied and jumbo jets.

Based on air traffic forecasts prepared in the previous chapter, the current aircraft mix is projected to slightly increase its percentage of Class C aircraft throughout the planning period. The projected operational mix for Camarillo Airport is summarized in **Table 3B**. The percentage of Class C aircraft is significantly higher during IFR conditions because some general aviation operations are suspended. This is due to the fact that not all general aviation aircraft are instrument-equipped, nor are all general aviation pilots instrument-rated. In addition, some general aviation users may opt to cancel or delay a flight until more favorable weather conditions exist.

PERCENT ARRIVALS

The percentage of aircraft arrivals as they relate to the total operations of the airport is important in determining capacity. Under most circumstances, the lower the percentage of arrivals, the higher the hourly capacity. Except in unique circumstances, the aircraft arrival-departure split is typically 50-50. At Camarillo Airport, traffic information indicated no significant deviation from this pattern, and

arrivals were estimated to account for 50 percent of design period operations.

TOUCH-AND-GO OPERATIONS

A touch-and-go operation involves an aircraft making a landing and an immediate take-off without coming to a full stop or exiting the runway. These operations are normally associated with general aviation training and are included in local operations data recorded by the air traffic control tower. Touch-and-go activity is counted as two operations since there is an arrival and a departure involved. A high percentage of touch-and-go traffic normally results in a slightly higher operational capacity. At Camarillo Airport, touch-and-go operations currently account for roughly 41 percent of runway operations. This percentage is expected to remain relatively stable throughout the planning period.

EXIT TAXIWAYS

Exit taxiways have a significant effect on airfield capacity since their locations directly determine the occupancy time of an aircraft on the runway. As stated previously, Runway 8-26 has a total of five exit taxiways which can be used for aircraft operations. The capacity analysis gives credit to exits located within a prescribed range from a runway's threshold. This range is based upon the mix index of the aircraft that use the runway. Under this criteria, the exit range for Runway 8-26 is 2,000 to 4,000 feet. The exits must be at least 750 feet apart to be credited as separate exits. Runway 8-

26 can be credited for two exits in each direction.

CAPACITY ANALYSIS

The preceding information was used in conjunction with the airside capacity methodology developed by the FAA to determine airfield capacity for Camarillo Airport.

HOURLY RUNWAY CAPACITY

The first step in the analysis involved the computation of the runway hourly capacity. Wind direction, the percentage of IFR and PVC weather, and the number and locations of runway exits then become important factors in determining the weighted hourly capacity.

Considering the existing runway system, the existing and forecast

aircraft mix depicted in **Table 3B**, a touch-and-go factor of 41 percent, and the taxiway exit rating of the existing runway, the hourly capacity of each operational scenario was computed. The existing maximum hourly capacity during VFR weather conditions totaled 128 operations per hour. The maximum IFR hourly capacity involves Runway 26, and was found to be 61 operations per hour. The existing and forecast hourly capacities are compared to design hour operations in **Table 3C**. As indicated on **Table 3B**, the percentages of Class C aircraft are forecast to increase from five to eight percent for VFR in the long term. This factor contributes to a decline in the hourly capacity of the runway system. In the long term, the maximum VFR capacity of the current runway system will decline to 123 operations, and the maximum IFR capacity will remain relatively constant declining from 61 to 60 operations per hour.

TABLE 3C
Hourly Demand vs. Capacity
Camarillo Airport

Planning Horizons	VFR		IFR	
	Design Hour Demand	Maximum Hourly Capacity	Design Hour Demand	Maximum Hourly Capacity
Current (1994)	81	128	32	61
Short Term	87	126	35	61
Intermediate Range	96	125	38	60
Long Range	115	123	46	60

The future hourly VFR and IFR capacities are compared to forecast hourly demand in **Table 3C**. The capacity of the airfield will exceed design hour demand throughout the planning period. While airfield capacity is reduced during IFR

conditions, general aviation activity also decreases.

The weighted hourly capacity averages the hourly capacities of the runway in VFR, IFR, and PVC conditions. At Camarillo Airport, the present

weighted runway capacity was calculated to be 92 operations per hour. The slight increase in percentage of Class C aircraft over the planning period will decrease the weighted hourly capacity to 89 operations in the long term. The weighted hourly capacities are compared to forecast design hour volumes in **Table 3D**.

ANNUAL SERVICE VOLUME

Once the weighted hourly capacity is known, the annual service volume (ASV) can be determined. ASV is calculated by the following equation:

$ASV = C \times D \times H$
C = weighted hourly capacity
D = ratio of annual demand to average daily demand during the peak month
H = ratio of average daily demand to average peak hour demand during the peak month

The current ratio of annual demand to average daily demand (D) was computed to be 306. This is expected to rise to 310 and remain constant throughout the long range planning period. The ratio of average daily demand to average peak hour demand (H) was computed to be 7.7 in 1994. As operations increase, the percentage

of daily operations in the design hour will increase. This will result in an increase in H to 8.7 in the long term.

The current ASV for Camarillo Airport was determined to be 211,000 operations. As mentioned earlier, the average hourly demand ratio is expected to increase by one percent. As a result, the ASV will increase totaling 230,000 operations in the long term. With operations in 1994 totaling 190,850, the airport is currently at 90.0 percent of its annual service volume. It is evident from **Exhibit 3C** that the Camarillo Airport could exceed the airport's ASV if the intermediate planning horizon level of demand is reached.

ANNUAL DELAY

As an airport approaches capacity, it begins to experience increasing amounts of delay to aircraft operations. Delays occur to arriving and departing aircraft during both VFR and IFR conditions. Arriving aircraft delays result in aircraft holding in the airport traffic pattern (in VFR conditions) or in an IFR holding pattern. Departing aircraft delays result in aircraft holding on the taxiway or apron until released by through communication with the air traffic control tower.

TABLE 3D
Demand/Capacity summary
Camarillo Airport

Planning Horizons	Forecast Demand		Airfield Capacity		Delay	
	Annual Operations	Design Hour Operations	ASV	Weighted Hourly Capacity	Avg. Per Operations (min.)	Total Annual Hours
Current (1994)	190,850	81	211,000	92	0.6	1,909
Short Term	214,800	87	212,000	91	0.9	3,222
Intermediate Term	245,100	96	215,000	90	1.7	6,945
Long Range	305,800	115	230,000	89	5.5	28,032

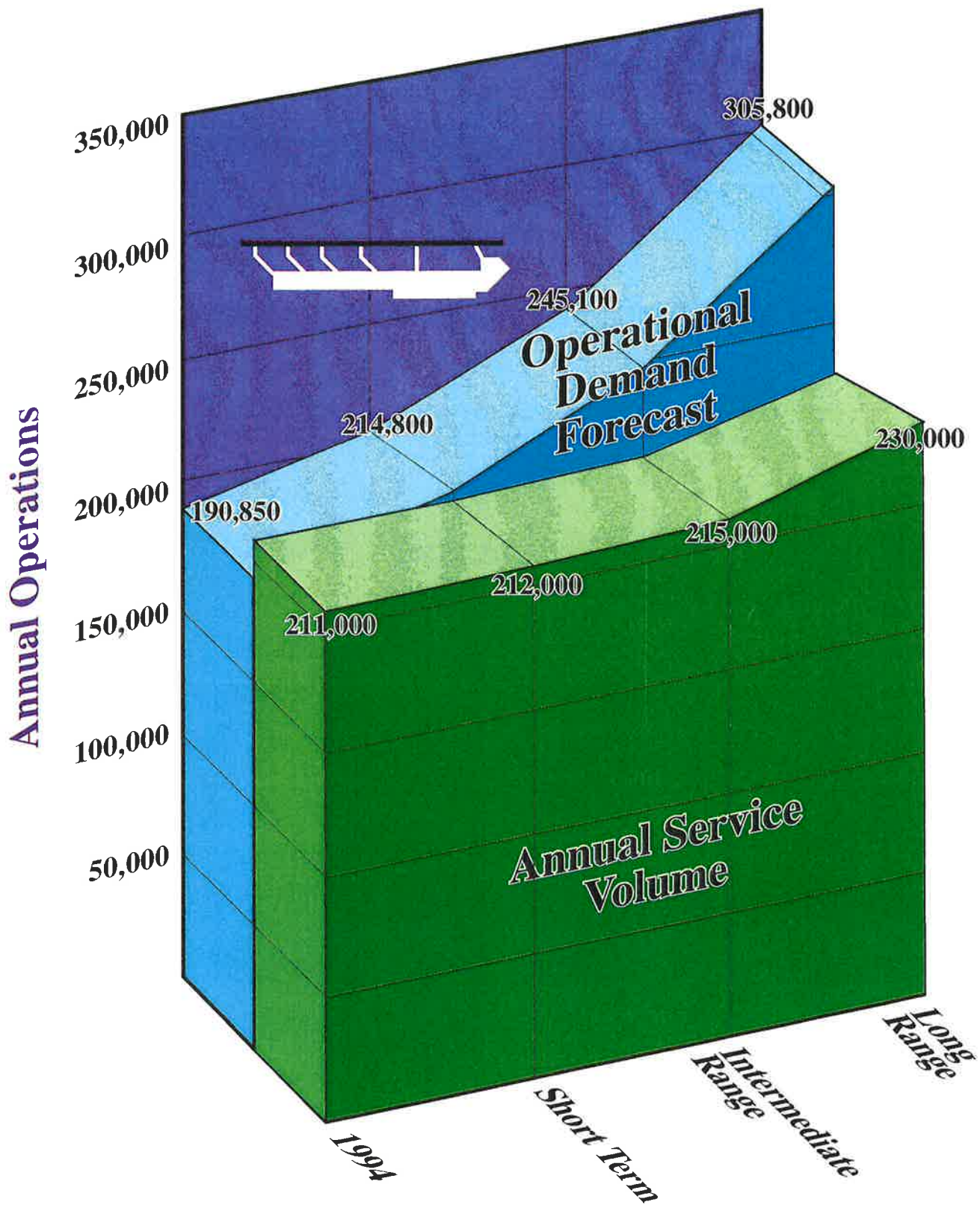
As an airport's operations increase, delay increases exponentially. Annual delay at Camarillo Airport is currently estimated at 1,909 hours. Annual delay can be expected to reach 28,032 hours at the long range planning horizon demand level. **Table 3D** depicts the levels of delay projected for the airport.

CONCLUSIONS

This chapter has examined the capability of the airfield to handle the various aviation demand levels. From the analysis, it was determined that annual operations at Camarillo Airport would surpass the annual service volume (ASV) if activity levels grow beyond the short term planning horizon.

Therefore, it is apparent that the existing airfield layout at Camarillo Airport will be inadequate for the potential demand levels, and capacity improvements should be planned that could accommodate the anticipated activity levels through the long range planning horizon.

In addition to the basic capacity requirements, several other facility components must be examined to ensure that the airport is properly planned to meet the future needs. The following chapter will outline the facility needs associated with future demand. That information combined with this capacity analysis, will provide the background to examining various alternatives to meet future aviation needs in the Camarillo area.





Chapter Four
FACILITY REQUIREMENTS

FACILITY REQUIREMENTS



To properly plan for the future of Camarillo Airport, it is necessary to translate the planning horizon demand levels into the specific types and quantities of facilities that can adequately serve this identified demand. This chapter uses the results of the planning horizon demand levels established in Chapter Two, the demand/capacity analysis presented in Chapter Three, as well as established planning criteria, to determine the airfield (i.e., runways, taxiways, navigational aids, marking and lighting), and land-side (i.e., hangars, terminal building, aircraft parking apron, fueling, automobile parking and access) facility requirements.

The objective of this effort is to identify, in general terms, the adequacy of the existing airport facilities, outline what new facilities may be needed, and when these may be needed to accommodate forecast demands. Having established these facility

requirements, alternatives for providing these facilities will be evaluated in Chapter Five to determine the most cost-effective and efficient means for implementation.

AIRFIELD REQUIREMENTS

Airfield requirements include the needs for those facilities related to the arrival and departure of aircraft. These facilities are comprised of the following items:

- Runways
- Taxiways
- Airfield Marking and Lighting
- Navigational Aids

The selection of the appropriate FAA design standards for the development of the airfield facilities is based primarily upon the characteristics of the aircraft which are expected to use the airport. The most critical

characteristics are the **approach speed** and the size of the **critical design aircraft** anticipated to use the airport now or in the future. The critical design aircraft is defined as the most demanding category of aircraft that accounts for 500 or more operations per year. Planning for future aircraft use is of particular importance since design standards are used to plan separation distances between facilities. These standards must be determined now since the relocation of these facilities will likely be extremely expensive at a later date.

The Federal Aviation Administration has established criteria for use in the sizing and design of airfield facilities. These standards include criteria which relate to aircraft size and performance. According to Federal Aviation Administration Advisory Circular (AC) 150/ 5300-13, **Airport Design**, an aircraft's approach category is based upon 1.3 times its stall speed in landing configuration at that aircraft's maximum certificated weight. The five approach categories used in airport planning are as follows:

Category A: Speeds of less than 91 knots.

Category B: Speeds of 91 knots or more, but less than 121 knots.

Category C: Speeds of 121 knots or more, but less than 141 knots.

Category D: Speeds of 141 knots or more, but less than 166 knots.

Category E: Speeds of 166 knots or greater.

The second basic design criteria relates to aircraft size. The Airplane Design Group (ADG) is based upon wingspan. The six groups are as follows:

Group I: Up to but not including 49 feet.

Group II: 49 feet up to but not including 79 feet.

Group III: 79 feet up to but not including 118 feet.

Group IV: 118 feet up to but not including 171 feet.

Group V: 171 feet up to but not including 214 feet.

Group VI: 214 feet or greater.

Together, approach category and ADG identify a coding system whereby airport design criteria are related to the operational and physical characteristics of the aircraft intended to operate at the airport. This code, the **Airport Reference Code (ARC)**, has two components: the first component, depicted by a letter, is the aircraft approach category and relates to aircraft approach speed (operational characteristic); the second component, depicted by a Roman numeral, is the airplane design group and relates to aircraft wingspan (physical characteristic). Generally, aircraft approach speed applies to runways and runway-related facilities, while airplane wingspan primarily relates to separation criteria involving taxiways and taxilanes. **Table 4A** provides a listing of typical aircraft including their approach speed, wingspan, maximum takeoff weight, and ARC.

**TABLE 4A
Typical Aircraft Classifications
Camarillo Airport**

Typical Aircraft	Approach Speed (knots)	Wingspan (feet)	Airport Reference Code	Maximum Take-off Weight (lbs.)
Single-Engine Piston				
Cessna 150	55	32.7	A-I	1,600
Cessna 172	64	35.8	A-I	2,300
Beech Bonanza	75	37.8	A-I	3,850
Twin-Engine Piston				
Beech Baron	101	37.8	B-I	6,200
Cessna 402	95	39.8	B-I	6,300
Piper Navajo	100	40.7	B-I	6,200
Cessna 421	96	41.7	B-I	7,450
Turboprop				
Piper Cheyenne	110	47.7	B-I	12,050
Beech King-Air B100	111	45.8	B-I	11,800
Super KingAir	103	54.5	B-II	12,500
Cessna 441	100	49.3	B-II	9,925
Mitsubishi MU-2	119	39.2	B-I	10,800
Corporate Jets				
Cessna Citation I	108	47.1	B-I	11,850
Cessna Citation II	108	51.7	B-II	13,300
Cessna Citation III	114	53.5	B-II	22,000
Learjet 25	137	35.6	C-I	15,000
Learjet 55	128	43.7	C-I	21,500
Falcon 10	104	42.9	B-I	18,740
Falcon 20	107	53.5	B-II	28,660
BAe 800	125	51.4	C-II	23,350
Westwind	127	44.8	C-I	23,300
Learjet 35	143	39.5	D-I	18,300
Canadair Challenger	125	61.8	C-II	41,250
Falcon 900	100	63.4	B-II	45,500
Gulfstream II	141	68.8	D-II	65,300
Gulfstream III	136	77.8	C-II	68,700
Gulfstream IV	145	77.8	D-II	71,780

The FAA recommends designing airport functional elements to meet the requirements of the airport's most demanding ARC for that airport element. Camarillo Airport is currently utilized by general aviation aircraft ranging from small single-engine piston aircraft to the full range of business jets. The propeller aircraft

range from A-I (Cessna 172) to B-III (Constellation), and the business jet aircraft range up to D-II (Gulfstream IV).

Runway design standards include runway width, object free area, safety area, taxiway separation, etc. The most critical ARC for this element at

Camarillo Airport is and will continue to be D-II. For taxiway and ground circulation, the design group is most critical. Therefore, the most critical ARC for taxiway design standards is and will continue to be B-III.

Camarillo Airport is currently classified in the **National Plan of Integrated Airport Systems (NPIAS)** as a reliever airport. The Camarillo Airport serves as a reliever in the Los Angeles metropolitan area. To qualify for this category, an airport must have at least 50 based aircraft, 25,000 annual itinerant operations, or 35,000 annual local operations. Also, the relieved airport must serve a metropolitan statistical area with a population of at least 250,000 people or annual enplanements must total at least 250,000 passengers, and the airport must be operating at over 60 percent capacity. The airfield facility requirements outlined in this chapter correspond to the design standards described in FAA's Advisory Circular 150/5300-13, **Airport Design**.

The following airfield facilities are outlined to describe the scope of facilities that would be necessary to accommodate the airport's role throughout the planning period.

RUNWAYS

The adequacy of the existing runway system at Camarillo Airport has been analyzed from a number of perspectives, including airfield capacity, runway orientation, runway length, and pavement strength. From this information, requirements for runway improvements were determined for the airport.

Airfield Capacity

The evaluation of airfield capacity presented in Chapter Three outlined the capacity of the airport at current, intermediate, and long term stages of the planning period. The capacity analysis determined that the current configuration of the airfield could reach its annual service volume (ASV) of 211,000 annual operations in the short term. With 1994 annual operations of 190,450, the airfield configuration is currently at 90 percent of its ASV. If the long range planning horizon demand level is reached, the current airfield configuration will be at over 144 percent of its ASV. FAA Order 5090.3B **Field Formulation of the National Plan of Integrated Airport Systems (NPIAS)** indicates that improvements should be considered when operations reach 60 percent of the ASV.

Because the Camarillo Airport is already exceeding 90 percent capacity, consideration needs to be given to methods of enhancing airfield capacity if additional operational growth is realized. Any improvements considered by the alternatives analysis need to be of the type that will enhance the annual service volume to at least the long range planning horizon demand level. Improvements to be considered could include a dual parallel taxiway system, additional taxiway exits, improved instrument (IFR) weather minimums, and runway improvements that would permit arrivals and/or departures to operate simultaneously during visual (VFR) weather. These alternatives will be formulated and evaluated in the next chapter.

Runway Orientation

Camarillo Airport's single Runway 8-26 is oriented in an east-west direction. Ideally, the runway at an airport should be oriented as close as practical in the direction of the predominant winds to maximize the runway's usage. This minimizes the percent of time that a crosswind could make the runway inoperable.

FAA Advisory Circular 150/5300-13, Change 1, **Airport Design** recommends that a crosswind runway should be made available when the primary runway orientation provides less than 95 percent wind coverage for any aircraft forecast to use the airport on a regular basis. The 95 percent wind coverage is computed on the basis of the crosswind component not exceeding 10.5 knots (12 mph) for Airport Reference Codes (ARC) A-I and B-I; 13 knots (15 mph) for ARC A-II and B-II; and 16 knots (18 mph) for ARC C-I through D-II.

Sufficient current wind data specific to Camarillo Airport is not available. The closest and most current comparable wind data available was from NAS Point Mugu for the years 1985-1994. This data is graphically depicted by the wind rose in **Exhibit 3B**. Runway 8-26 provides 97.53 percent coverage for 10.5 knot crosswinds, 98.93 percent at 13 knots, 99.79 percent at 16 knots, and 99.97 percent at 20 knots. The current runway orientation provides adequate wind coverage and no additional runway orientations are required to meet FAA criteria.

Runway Length

The determination of runway length requirements for the airport are based on five primary factors:

- Critical aircraft type expected to use the airport.
- Stage length of the longest nonstop trip destinations.
- Mean maximum daily temperature of the hottest month.
- Runway gradient.
- Airport elevation.

An analysis of the existing and future fleet mix indicates that business/corporate aircraft are and will continue to be the most demanding aircraft for runway length at Camarillo Airport. The typical business aircraft range from the Cessna Citation I, with minimal runway length requirements, to the Learjet and Gulfstream models, requiring longer runway lengths.

Aircraft operating characteristics are affected by three primary factors. They are the mean maximum temperature of the hottest month, the airport's elevation, and the gradient of the runway. The mean maximum daily temperature of the hottest month for Camarillo, California is 73.3 degrees Fahrenheit. The airport elevation is 75 feet MSL. Gradient for Runway 8-26 is 0.23 percent.

Table 4B outlines the runway length requirements for various classifications for aircraft that utilize the Camarillo Airport. These design lengths were derived from the FAA Airport Design Computer Program for recommended

runway lengths. As with other design criteria, runway length requirements are based upon the critical aircraft grouping with at least 500 annual operations.

TABLE 4B	
Runway Length Requirements	
Camarillo Airport	
AIRPORT AND RUNWAY DATA	
Airport elevation	75 feet
Mean daily maximum temperature of the hottest month	73.3° F.
Maximum difference in runway centerline elevation	14 feet
Wet and slippery runway	
RUNWAY LENGTHS RECOMMENDED FOR AIRPORT DESIGN	
Small airplanes with less than 10 passenger seats	
75 percent of these small airplanes	2,400 feet
95 percent of these small airplanes	2,900 feet
100 percent of these small airplanes	3,500 feet
Small airplanes with 10 or more passenger seats	
	4,000 feet
Corporate of 60,000 pounds or less	
75 percent of corporate aircraft at 60 percent useful load	5,300 feet
75 percent of corporate aircraft at 90 percent useful load	6,700 feet
100 percent of corporate aircraft jets at 60 percent useful load	5,500 feet
100 percent of corporate aircraft at 90 percent useful load	7,200 feet
Reference: Chapter Two of AC 150/5325-4A, Runway Length Requirements for Airport Design, no changes included.	

Currently, the length of Runway 8-26 is 6,010 feet. This length exceeds the requirements for 100 percent of small airplanes, but falls short of the requirements for the full range of corporate aircraft that serve Camarillo. As indicated by the table, the current runway length is adequate to accommodate the full range of aircraft jets at 60 percent useful load. In

general, this is adequate for all landings and for departures to destinations within the western half of the United States. For trips further east or to Hawaii, however, the existing length is not adequate for takeoffs.

To fully accommodate the business aircraft fleet at Camarillo, a runway

length of 7,200 feet should be considered in the future. Businesses such as Proctor & Gamble and GTE utilize the airport regularly for business trips. The Camarillo area is becoming attractive for headquarters for HMO's and other medical companies. Adequate runway length for trips to the eastern half of the United States will aid these businesses as well as potentially attract other business and industry to the Ventura County area.

Runway Width

Runway 8-26 is currently 150 feet wide. FAA design standards indicate that a runway width of 100 feet is required for serving aircraft up to D-II or B-III. Therefore, the present width will be more than adequate for the planning period.

Runway Strength

Recent pavement evaluations indicated that Runway 8-26 has a pavement strength of 65,000 pounds dual wheel gear loading strength (DWL). This is more than adequate for all but the Grumman Gulfstream business jets. The Gulfstream IV has a maximum takeoff weight of 71,780 pounds on dual wheel gear. Also to be considered is the occasional use by the two historic 110,000 pound Lockheed C-121 constellations based at the airport. The current pavement strength can accommodate these aircraft on an infrequent basis or as long as it is not operating at maximum takeoff weight. The airport agreement between the City of Camarillo and Ventura County limits the pavement strength to

115,000 pounds DWL. This pavement strength is adequate for general aviation use and will continue to prohibit the use of the airfield by commercial jets and large military aircraft.

TAXIWAYS

Taxiways are constructed primarily to facilitate aircraft movements to and from the runway system. Some taxiways are necessary simply to provide access between the aprons and runways, whereas other taxiways become necessary as activity increases at an airport to provide safe and efficient use of the airfield.

Runway 8-26 is served by a full length parallel taxiway. The width of the parallel taxiway and taxiways B, C, and D is 50 feet. Taxiway E measures 75 feet wide. A taxiway width of 35 feet is required for aircraft in Design Group II. Because the airport is used by aircraft restoration groups such as the Confederate Air Force which restore and operate historic propeller aircraft that fall within Design Group III, it is recommended that airfield taxiways at Camarillo Airport be maintained at 50 foot wide.

The location of the apron and hangar facilities in relation to the airfield creates taxiway circulation problems at Camarillo Airport. Most aircraft are parked or stored in an area east of the runway and parallel taxiway. As a result, aircraft taxiing to and from the runway must utilize the taxiway for a significant distance. During busy times, this creates a taxiway bottleneck. It can also pose a safety hazard when aircraft attempt to pass

each other on the taxiway. To improve airfield circulation, a second parallel taxiway should be planned for safe two-way operations. Also, the runway is presently served by five exit taxiways. An additional exit taxiway should be planned as a means of improving airfield efficiency and circulation.

NAVIGATIONAL AIDS AND LIGHTING

Airport and runway navigational aids are based on FAA recommendations as depicted in DOT/FAA Handbook 7031.2B **Airway Planning Standard Number One** and FAA Advisory Circular 150/5300-2D **Airport Design Standards, Site Requirements for Terminal Navigation Facilities**.

Navigational aids provide two primary services to airport operations, precision guidance to specific runway and/or non-precision guidance to a runway or the airport itself. The basic difference between a precision and non-precision navigational aid is that the former provides electronic descent, alignment (course), and position guidance, while the non-precision navigational aid provides only alignment and position location information.

The necessity of such equipment is usually determined by design standards predicated on safety considerations and operational needs. The type, purpose and volume of aviation activity expected at the airport are factors in the determination of the airport's eligibility for navigational aids.

Currently Camarillo Airport is equipped with a nonprecision approach

on Runway 26 provided by the terminal VOR/DME. The VOR/DME approach permits the airport to remain open while weather conditions remain at or above a 600 foot cloud ceiling and one mile visibility for small aircraft and at or above a 600 foot cloud ceiling and one and one half mile visibility for aircraft of Category C or larger.

With over 1,900 annual instrument approaches (AIA's), Camarillo meets FAA criteria to qualify for a precision instrument approach system. The demand/capacity analysis in the previous chapter indicated that the airport's operating capability was affected by the present minimums and the lack of an instrument approach from the west. With the improvement of the established visibility minimums and the addition of a nonprecision approach from the west, the airport would decrease the percentage of time which it is closed due to inclement weather. Obstructions and airspace considerations, however, could limit the capability of improving the existing approach minimums at Camarillo.

Global Positioning System

The advancement of technology has been one of the most important factors in the growth of the aviation industry in the twentieth century. Much of the civil aviation and aerospace technology has been derived and enhanced from the initial development of technological improvements for military purposes. The use of orbiting satellites to confirm an aircraft's location is the latest military development to be made available to the civil aviation community.

Global positioning systems (GPS) use two or more satellites to derive an aircraft's location by a triangulation method. The accuracy of these systems has been remarkable, with initial degrees of error of only a few meters. As the technology improves, it is anticipated that GPS may be able to provide accurate enough position information to allow Category II and III precision instrument approaches, independent of any existing ground-based navigational facilities. In addition to the navigational benefits, it has been estimated that GPS equipment will be much less costly than existing precision instrument landing systems.

The FAA is currently in the process of flight testing nonprecision GPS approaches, and has commissioned thousands of GPS approaches on existing nonprecision approaches across the country. The FAA is also developing Category I (CAT I) precision instrument capability from the GPS. This is anticipated to involve a differential GPS system that utilizes GPS ground monitors at known locations to determine errors in satellite signals and to transmit error correction messages. Current plans call for the establishment of CAT I GPS approaches beginning in 1998.

Camarillo Airport currently has a GPS nonprecision approach serving Runway 26. The technological advances made in the GPS may provide precision instrument approach capability to Runway 26 in the near future. As stated earlier, the airport is closed due to inclement weather approximately 6.5 percent of the year. The implementation of a precision GPS approach

may improve airfield capacity, thus relieving delays experienced by aircraft using the airport. Therefore, it is important for airport management to monitor these developments and to plan for the equipment which may be necessary for these approaches.

Terminal Area Navigational Aids

Visual glide slope indicators (VGSI) are a system of lights located at the side of the runway which provide visual descent guidance information during an approach to the runway. There are presently two approaches equipped with VGSI systems at Camarillo Airport. Currently, both ends of Runway 8-26 is equipped with a two-box precision path indicator (PAPI-2). The PAPI-2 can be utilized by the range of business jets forecast to utilize the airport during VFR weather conditions and should be planned for the runway.

Runway identification lighting provides the pilot with a rapid and positive identification of the runway end. The most basic system involves runway end identifier lights (REIL's). REIL's should be considered for all lighted runways not planned for a more sophisticated approach light system (ALS). Presently, Runway 8-26 is equipped with REIL's which will be sufficient for the planning period. If the precision approach is installed, a medium intensity approach lighting system with runway alignment lights (MALSR) should be installed. The MALSR would aid in reducing the visibility minimums for the approach, as well as provide the pilot with a visual indication of the runway.

The medium intensity runway lighting (MIRL) and the medium intensity taxiway lighting (MITL) will be adequate for the planning period. Runway marking should remain non-precision on Runway 8-26 unless a precision GPS approach is installed. If the approach is installed, the runway should be upgraded to precision marking.

The airport also presently has a wind cone and segmented circle which provides pilots with information about wind conditions. In addition, an airport beacon assists in identifying the airport from the air at night. Each of the facilities should be maintained in the future.

Information on current weather conditions is also important to the pilot. An automated weather observation system (AWOS-III) has been installed at Camarillo Airport. The AWOS-III provides the pilot with the airfield's current altimeter setting, wind direction and speed, temperature, dewpoint, density altitude, visibility, and cloud-height. The observations are continually broadcast to the pilot using an integral VHF radio or an existing navigational aid. The AWOS should be maintained in the future.

LANDSIDE FACILITIES

Landside facilities are those necessary for handling of aircraft, passengers, and cargo while on the ground. These facilities provide the essential interface between the air and ground transportation modes. These areas will be subdivided into two parts: general aviation facilities and support facilities.

The capacities of the various components of each area were examined in relation to projected demand to identify future landside facility needs.

GENERAL AVIATION TERMINAL FACILITIES

The purpose of this section is to determine the space requirements during the planning period for the following types of facilities normally associated with general aviation terminal areas:

- Hangars
- Aircraft Parking Apron
- General Aviation Terminal

Hangars

The space required for hangar facilities is dependent upon the number and type of aircraft expected to be based at the airport. Based upon an analysis of general aviation facilities and the current demand at Camarillo Airport, percentages representing hangar requirements for various types of general aviation aircraft have been calculated. The analysis indicates that nearly 75 percent of all based aircraft at the airport are hangared. Although based aircraft are hangared, the aircraft maintenance performed by the FBO requires some aircraft to be moved outside the hangar to provide adequate room for mechanics to work on aircraft.

Weather extremes at Camarillo Airport are not severe and do not appear to play a major role in the decision to

hangar an aircraft. Generally, most aircraft owners prefer to hangar their aircraft as opposed to tying them down on the apron. At Camarillo Airport, all available hangar space is currently used. Also, a hangar waiting list, updated monthly by the airport administration, shows a steady demand for approximately 70 additional hangar units.

As a result, it is necessary to examine what percentages of these aircraft would utilize conventional-type hangars as opposed to individual T-hangars and executive hangars. T-hangars and executive hangars are less expensive to construct than larger conventional hangars, and they provide the aircraft owner more privacy and greater ease in obtaining access to the aircraft. The principal uses of conventional hangars at general aviation airports are for large aircraft storage, storage during maintenance, and for housing fixed base operator activities.

From the analysis in **Table 4C**, it appears that conventional hangar storage space could be needed in the intermediate planning horizon. Also, as existing large hangars age, they may need to be replaced with other storage units such as T-hangars. In addition the airport should always maintain space available to accommodate executive hangars as an attraction for new businesses considering relocation to the Camarillo area.

Presently, all of the T-hangar and executive hangar positions on the airport are occupied and there is a waiting list to obtain space. As shown in **Table 4C**, an additional 155 T-hangars and 86 executive hangars

would be needed to serve the long range horizon demand level. This number of hangars will accommodate the projected growth in the number of based aircraft and as well as those who are waiting for space.

An area equal to 10 percent of the total hangar space on the airport should be allocated for maintenance shop facilities. It is also assumed that this maintenance area would be housed in conventional hangar space.

The final step in the process of determining hangar requirements involves estimating the area necessary to accommodate the required hangar space. Use of existing space indicates an area of 1,200 square feet per T-hangar and 1,500 feet per executive hangar. Use of space in conventional hangars generally equates to an area of 1,200 square feet for piston aircraft and 2,500 square feet for turbine aircraft. These planning figures were then applied to the aircraft to be hangared in conventional and T-hangars to determine the area to be devoted to hangar facility requirements through the planning period. The total hangar needs for the scope of the planning period are presented in **Table 4C**.

Aircraft Parking Apron

A parking apron should be provided for at least the number of locally-based aircraft that are not stored in hangars, as well as transient aircraft. At the present time 148 based aircraft are stored full-time on the ramp, although some aircraft stored in conventional hangars may be moved to the ramp during the day to provide hangar area for aircraft maintenance.

TABLE 4C
T-Hangar And Conventional Hangar Area
Camarillo Airport

	PLANNING HORIZONS				
	Available	1994	Short Term	Intermediate Term	Long Range
Based Aircraft					
Single Engine		528	576	640	785
Multi-Engine		45	50	60	75
Turboprops		1	4	6	10
Jets		0	1	2	4
Rotorcraft		<u>6</u>	<u>9</u>	<u>12</u>	<u>16</u>
Total		580	640	720	890
Aircraft to be Hangared					
Single Engine		385	426	474	589
Multi-Engine		39	45	54	68
Turboprops		1	4	6	10
Jets		0	1	2	4
Rotorcraft		<u>6</u>	<u>9</u>	<u>12</u>	<u>16</u>
Total		431	485	548	687
T-Hangar Positions	173	191	236	264	328
Executive Hangars	119	128	144	162	205
Conventional Hangar Positions	110	112	105	122	154
Conventional Hangar Area (sq. ft.)					
Aircraft Storage	N/A	137,100	136,500	161,000	211,700
Aircraft Maintenance	<u>N/A</u>	<u>56,000</u>	<u>63,500</u>	<u>72,000</u>	<u>91,000</u>
Total	100,000	193,100	200,000	233,000	302,700
T-Hangar Area (s.f.)	207,600	229,300	282,700	316,600	394,000
Executive Hangar Area (s.f.)	172,500	192,000	216,000	243,000	307,500
Total Hangar Area (s.f.)	480,100	614,400	698,700	792,600	1,004,200

FAA Advisory Circular 150/5300-13 suggests a methodology by which transient apron requirements can be determined from knowledge of busy-day operations. At Camarillo Airport, the number of itinerant spaces required was determined to be approximately 17.5 percent of the busy-day itinerant operations. FAA planning criterion of

360 square yards per aircraft was applied to the number of itinerant spaces to determine future transient apron requirements. The FAA planning criterion of 300 square yards per based aircraft was used to determine based aircraft apron requirements. The results of this analysis are presented in **Table 4D**.

**TABLE 4D
Aircraft Parking Apron Requirements
Camarillo Airport**

	Available	PLANNING HORIZONS			
		1994	Short Term	Intermediate Term	Long Range
Locally Based Aircraft Apron Based Aircraft Positions Apron Area (s.y.)		148 44,400	155 46,500	172 51,700	204 61,200
Itinerant Ramp Requirements Busy Day Itinerant Operations		332	362	410	532
Itinerant Aircraft Positions Apron Area (s.y.)		58 20,900	63 22,800	72 25,800	93 33,500
Total Positions	211	206	218	244	297
Total Apron Area (s.y.)	63,300	65,300	69,300	77,500	94,700

**General Aviation
Terminal Facilities**

General aviation terminal facilities have several functions. Space is required for passenger waiting, pilot's lounge and flight planning, concessions, management, storage and various other needs. This space is not necessarily limited to a single, separate terminal building but also includes the space offered by fixed base operators for these functions and services. The methodology used in estimating general aviation terminal facility needs was based on the number of airport users expected to utilize general aviation facilities during the design hour.

Space requirements were then based upon providing 120 square feet per design hour itinerant passenger. **Table 4E** outlines the general space requirements for general aviation

terminal services at Camarillo Airport through the planning period. The general aviation terminal areas are provided by the FBO and specialty operators located on the airport. The current space available should be adequate for the planning period.

**AVIATION
SUPPORT FACILITIES**

Various facilities that do not logically fall within classifications of airfield, terminal building, or general aviation facilities have been identified for inclusion in this Master Plan. Facility requirements have been identified for these remaining facilities:

- Aircraft Access and Vehicle Parking
- Aircraft Rescue and Firefighting Facilities
- Fuel Storage

TABLE 4E General Aviation Terminal Area Facilities Camarillo Airport					
	Available	1994	PLANNING HORIZONS		
			Short Term	Intermediate Term	Long Term
General Aviation Design Hour Itinerant Passengers		78	88	101	132
General Aviation Terminal Facility (s.f.)	30,000	9,400	10,560	12,120	15,800

**AIRPORT ACCESS
AND VEHICLE PARKING**

Access to Camarillo Airport is available from Pleasant Valley Road. On airport, the area is served by a network of two lane roads, which provide access to all facilities. The existing road system provides for adequate roadway capacity through the planning period.

Vehicle parking demands have been determined for Camarillo Airport. Space determinations were based on an

evaluation of the existing airport use as well as industry standards. General aviation spaces were calculated by multiplying design hour itinerant passengers by the industry standard of 1.8. Parking requirements are summarized in **Table 4F**.

There are approximately 350 parking spaces currently serving general aviation operators on the airport. The current number of parking spaces will be adequate for the planning period.

TABLE 4F Automobile Parking Requirements Camarillo Airport					
	Available	1994	PLANNING HORIZONS		
			Short Term	Intermediate Term	Long Term
Design Hour Passengers		78	88	101	132
Auto Parking Spaces	350	140	160	180	240
Auto Parking Area (s.f.)	110,250	44,100	50,400	56,700	75,600

AIRPORT RESCUE AND FIREFIGHTING

Requirements for aircraft rescue and firefighting (ARFF) services at an airport are established under Federal Aviation Regulation (F.A.R.) Part 139 - Certification and Operations: Land Airports serving Air Carriers. This regulation governs airports with scheduled passenger service by aircraft with seating capacities over 30. Camarillo Airport is not currently served by aircraft which require ARFF services. However, the Ventura County Fire Department has a station on the airport which provides adequate response time and services for any airport emergencies.

FUEL STORAGE

Fuel storage at Camarillo Airport is handled by the fixed based operators. The existing fuel storage at Camarillo Airport consists of underground storage of 25,000 gallons Avgas and 25,000 gallons Jet A. Also, a recently constructed fuel island stores an additional 10,000 gallons of Avgas in an aboveground fuel tank. Fuel storage requirements can vary based upon individual supplies and distributor policies. For this reason, fuel storage requirements will be dependent upon the independent distributors.





SUMMARY

The intent of this chapter has been to outline the facilities required to meet aviation demands projected for Camarillo Airport through the long range planning horizon. A summary of the airfield, and general aviation facility requirements are presented on **Exhibits 4A and 4B.**

The current airfield configuration will be inadequate to meet the level of demand over the long range planning horizon. Airfield capacity improvements will be formulated and evaluated in the following chapter as a means of increasing the airfield's ASV.

Improvements are also necessary in the general aviation terminal area. Currently, all of the hangar space on the airport is occupied. This chapter has shown a need for additional hangar space to meet the current level of demand. Additional apron space will also be needed for the short term planning horizon.

The next step in the master planning process is to analyze alternatives that can accommodate these requirements. The following chapter will provide this analysis and recommend the best alternative for future development of the airport.

	AVAILABLE	SHORT-TERM	ULTIMATE
<p>RUNWAYS</p> 	<p><u>Runway 8-26</u> 6,010' x 150' 65,000 #DWL</p>	<p><u>Runway 8-26</u> 6,010' x 150' 70,000 #DWL</p>	<p><u>Runway 8-26</u> 7,200' x 150' 115,000 #DWL</p> <p>Add: Operational Capacity</p>
<p>TAXIWAYS</p> 	<p><u>Runway 8-26</u> Full Length Parallel 50' Wide Five Exits</p>	<p><u>Runway 8-26</u> Dual Parallel Taxiways 50' Wide Six Exits Holding Apron</p>	<p><u>Runway 8-26</u> Same</p>
<p>NAVIGATIONAL AIDS</p> 	<p>Air Traffic Control Tower</p> <p>AWOS-3</p> <p><u>Runway 8-26</u> VGSI-2 VOR/DME (26) GPS (26)</p>	<p>Air Traffic Control Tower</p> <p>AWOS-3</p> <p><u>Runway 8-26</u> VGSI-4 VOR/DME (26) GPS (26)</p>	<p>Air Traffic Control Tower</p> <p>AWOS-3</p> <p><u>Runway 8-26</u> VGSI-4 CAT I GPS (26) GPS (8)</p>
<p>LIGHTING & MARKING</p> 	<p>Wind Cone Segmented Circle Airport Beacon, MITL</p> <p><u>Runway 8-26</u> MIRL REIL Nonprecision</p>	<p>Wind Cone Segmented Circle Airport Beacon, MITL</p> <p><u>Runway 8-26</u> Same</p>	<p>Wind Cone Segmented Circle Airport Beacon, MITL</p> <p><u>Runway 8-26</u> Add: Precision Marking MALSR(26)</p>



HANGARS	AVAILABLE	CURRENT	SHORT-TERM	INTERMEDIATE TERM	LONG-TERM
	Aircraft Positions Conventional Hangars ±110 T-Hangars 173 Executive Hangars 119	112 191 128	105 236 144	122 264 162	154 328 205
APRON TIE DOWNS	Aircraft Positions 207 Area (sq. yds.) 63,300	206 65,300	218 69,300	244 77,500	297 94,700
GENERAL AVIATION TERMINAL	Gross Area (sq. yds.) 30,000	9,400	10,560	12,120	15,800
AUTO PARKING	General Aviation Spaces 350	140	160	180	240





Chapter Five
DEVELOPMENT ALTERNATIVES

Chapter 5

DEVELOPMENT ALTERNATIVES



In the previous chapter, airside and landside facilities required to satisfy the demand for the 20-year planning period were identified. The next step in the planning process is to evaluate the several ways these facilities can be provided. There are countless combinations of options, but the alternatives presented are those with the greatest potential for implementation.

Any development proposed for a master plan is evolved from an analysis of projected needs for a set period of time. Though the needs were determined by the best methodology available, it cannot be assumed that future events will not change these needs. The master planning process attempts to develop a viable concept for meeting the needs caused by projected demands for the next twenty years. However, no plan of action should be developed inconsistent with the goals and objectives of Ventura County and area

residents that have a vested interest in the results of development at the airport.

The development alternatives for Camarillo Airport can be categorized into two functional areas: The airside (airfield) and landside (general aviation hangars, apron, and terminal area). Within each of these areas, specific facilities are required or desired. In addition, the utilization of the remaining airport property to provide revenue support for the airport and benefit the economic development and well-being of the Ventura County area must be considered.

Each functional area interrelates and affects the development potential of the others. Therefore, all areas must be examined both individually, and coordinated as a whole to ensure the final plan is functional, efficient, and cost effective. The total impact of all of these factors on the existing airport



must be evaluated to determine if the investment in Camarillo Airport will meet the needs of the citizens of the community during and beyond the planning period.

When analyzing alternatives for development, consideration must also be given to a "do nothing" or "no build" alternative as well as the possibility of removing aviation services altogether. As these alternatives are not without major impacts and costs to the public, they are also addressed in this chapter.

The alternatives considered are compared using environmental, economic, and aviation factors to determine which of the alternatives will best fulfill the local aviation needs. With this information, as well as the input and direction from local government agencies, Ventura County Department of Airports, and airport users, a final airport concept can evolve into a realistic development plan.

DO-NOTHING ALTERNATIVE

In analyzing and comparing the costs and benefits of various development alternatives, it is important to consider the consequence of no future development at Camarillo Airport. The "do-nothing" alternative essentially considers keeping the airport in its present condition and not providing for any type of improvement to the existing facilities. The primary result of this alternative would be the inability of the airport to satisfy the projected aviation demands of the airport service area.

The airport's aviation forecast and the analysis of facility requirements indicates both a current and future need for development of a longer runway, increased runway capacity, additional taxiways, improvement of navigational aids, and additional conventional, executive, and T-hangars. Without these facilities, regular users of the airport will be constrained from taking maximum advantage of the airport's air transportation capabilities.

The unavoidable consequence of the "do nothing" alternative would involve the airport's inability to attract potential airport users. Corporate aviation plays a major role in the transportation of business leaders. Thus, an airport's facilities are often the first impression many corporate officials will have of the community. If the airport does not have the capability to meet hangar, apron, or airfield needs of potential users, the City's capabilities to attract business that rely on air transportation will be diminished.

The long-term consequences of the "do nothing" alternative extends beyond the immediate Camarillo area. Camarillo Airport is part of a system of public airports in Ventura County that serve the aviation needs of the community. Without facilities such as Camarillo Airport, Oxnard Airport, and Santa Paula Airport, commercial service airports like Burbank and Santa Barbara would be at or exceeding capacity. General aviation airports not only provide convenience to general aviation users, but also help to avoid a major concentration of smaller general aviation aircraft and large commercial aircraft at a single

airport. An overall impact of this alternative will be the inability to attract new users, especially those businesses and industries seeking locations with adequate and convenient aviation facilities. Camarillo Airport has much to offer in terms of airfield and landside facilities. Without regular maintenance and additional improvements, potential users and business for the Ventura County region could be lost.

To propose no further development at Camarillo Airport could adversely affect the long-term viability of the airport and the community. Therefore, the no development alternative is not considered as prudent or feasible.

TRANSFER AVIATION SERVICES

The alternative of shifting aviation services to another existing airport was found an undesirable alternative due to the lack of airports available having the facilities or the potential that Camarillo Airport provides in Ventura County. In 1994, Camarillo Airport based 580 aircraft and experienced 190,850 total operations. There are only two public-use airports within twenty miles of Camarillo; Oxnard Airport and Santa Paula Airport. Both of these airports maintain a single runway and landside facilities which are capable of handling their demand level. Oxnard Airport currently maintains a waiting list for hangar space and is restricted in developing a large hangar configuration, and Santa Paula's runway configuration is not conducive to a high number of operations. Due to the numbers of based aircraft and aircraft operations

at Camarillo, the lack of existing and future potential facilities at Oxnard and Santa Paula to meet the long range demand of based aircraft and operations, shifting services would not be possible without major development costs.

Furthermore, the continuing growth expected by the major employers in the area as well as the infusion of new industries into the community demonstrates the need for a highly functional airport. General aviation airports play a major role in the way companies conduct their business. Camarillo Airport is expected to accommodate business aircraft traffic for companies located or conducting business in the Ventura County area. This role is not easily replaced by another existing airport in the system without tremendous expense.

Shifting aviation services to NAWS Point Mugu was also considered. NAWS Point Mugu was considered to be a possible selection for closure by the Base Realignment and Closure Committee (BRACC). However, the facility was spared from the recently released closure list. In any case, the uncertainty of Point Mugu's closure makes it difficult to include in Camarillo's planning efforts.

A study conducted by the Southern California Association of Governments (SCAG) recently concluded that Point Mugu could operate as a joint-use facility. However, it is likely that any scenario involving Point Mugu being closed or converted to a joint-use facility would have little if any effect on Camarillo Airport. According to the joint-use study, Point Mugu would not open to general aviation, thus no

aircraft or operations would be lost at Camarillo, and Camarillo would not have to compete for passengers since it is not a commercial service facility.

Even if Point Mugu was opened to general aviation aircraft, the joint-use study indicates that the airfield reaches its annual service volume (ASV) at 180,000 operations. Camarillo Airport's current operational demand exceeds Point Mugu's capacity. The only scenario which could impact Camarillo Airport would be if Ventura County were to purchase the Point Mugu facility and completely close Oxnard Airport. In this case, based aircraft could relocate to Camarillo, putting an increased strain on existing airfield and landside facilities, which are near or at capacity.

CONSTRUCTION OF A NEW AIRPORT SITE

The alternative of developing an entirely new airport facility in Ventura County to meet Camarillo's aviation demands was also considered, but similarly found to be an unacceptable alternative primarily due to the economic and environmental considerations.

Camarillo Airport was developed as a result of the Oxnard Air Base closure. The acquisition of the facility provided the county and the region with an inexpensive solution to the local aviation needs. Land acquisition, site preparation and the construction of an entirely new airport near an urbanized area can be a very difficult and costly action. In addition, closing Camarillo Airport would mean the loss of a

substantial investment in a sizable transportation facility. In a situation where public funds are limited, the replacement of a functional and expandable airport facility would represent an unjustifiable loss of a significant public investment.

From the social, political, and environmental standpoints, the commitment of a new large land area must also be considered. The public sentiment toward new airports in the last few years has been very negative, primarily because a new airport normally requires the acquisition of several large parcels of privately-owned property. Furthermore, the development of a new airport similar to Camarillo Airport would likely take a minimum of ten years to become a reality. In addition, the potential exists for significant environmental impacts associated with disturbing a large land area when developing a new airport site.

Overall, transferring service to an existing airport in the region or to an entirely new facility are unreasonable alternatives that should not be pursued. Camarillo Airport is fully capable of accommodating the long term aviation demands of the area and should be developed in response to those demands. The airport has the potential to continue to develop as a quality general aviation airport that could greatly enhance the economic development of the community.

The previous chapter identified facilities necessary to meet the forecast demand throughout the planning period. The purpose of the remainder of this chapter is to evaluate alter-

natives that meet the needs of the airport, and then select one or a combination of alternatives for future development. The necessary facilities and design concerns are examined in the paragraphs to follow.

AIRPORT DEVELOPMENT ALTERNATIVES

A commitment to remain at the existing site and develop facilities sufficient to meet the long-range aviation demands entails the following requirements:

- Provide sufficient airside and landside capacity to meet the long range planning horizon level demand of the area.
- Develop the airport in accordance with the currently established FAA criteria.

The Facility Requirements Chapter outlined specific types and quantities of facilities necessary to meet projected aviation demands throughout the planning period. Expansion will be required to meet the long range planning horizon level of demand. The remainder of this chapter will describe various alternatives for the airfield and landside facilities.

ALTERNATIVE EVALUATION CRITERIA

The analysis will evaluate each alternative based on the following factors.

- **Airport Capacity:** The runway configuration's potential to increase airport capacity.
- **Compatibility:** The impact land acquisition and aircraft will have on existing and future land use.
- **Ground Access:** Examine the ground transportation and pilot/passenger access to the terminal area.
- **Landside Efficiency:** Examine the configuration of the landside facilities to serve the terminal, FBO, and T-hangar areas without conflicting levels of activity operating together.

Before actual airfield and landside alternatives are presented, it is necessary to discuss items which are factored into the development of the various alternatives.

Runways

Currently there are two areas of concern with Runway 8-26. The first is the need for additional runway length to accommodate take-offs of the critical aircraft utilizing the airport. Increasing the runway's annual service volume is the second concern.

Runway Length: Analysis in the previous chapter indicated that Runway 8-26 has adequate length for small airplanes, but falls short of the requirements for the full range of business aircraft which serve Ventura County.

FAA runway length design criteria requires 7,200 feet of runway to fully accommodate takeoffs at 90 percent useful load by the range of business aircraft utilizing the airport, while the existing runway length is adequate for landings by these aircraft. The critical factor contributing to the need for additional runway length is the added weight, or useful load of the business aircraft currently utilizing the runway. Therefore, the range of business aircraft serving the airport can be accommodated by providing an additional 1,190 feet of runway for take-offs.

The most simplistic method of providing additional runway length for take-offs would be a runway extension. However, the original agreement between the City of Camarillo and Ventura County which allowed the airport to become operational stipulates that the runway length could be no more than 6,010 feet. Therefore, alternatives which consider additional runway length must be sensitive to this contractual agreement.

One alternative for improving take-off capability would be to shift the take-off point while maintaining the landing threshold in its current position. This would provide additional runway for take-off but would not affect aircraft landings and associated traffic patterns.

Other methods for improving take-off capability involve a clearway or stopway. A clearway is a clearly defined area connected to and extending beyond the end of the runway available for completion of the take-off operation of turbine powered aircraft. Establishing a clearway allows the airplanes take-off weight to

be increased without increasing the length of pavement. The clearway must be at least 500 feet wide centered on the runway and cleared of all objects not fixed by navigational function. The practical limit of a clearway is 1,000 feet. Also, the clearway plane rises upward at a slope of not greater than 1.25 percent.

Stopways are defined as an area beyond the end of the take-off runway, centered on the extended centerline, and designated by the airport operator for use in decelerating an airplane during an aborted take-off. The stopway must be as wide as the runway and able to support an airplane during the aborted take-off without causing structural damage to the aircraft.

Both clearways and stopways affect the declared distances of the runway. Declared distances are the effective runway distances that the airport operator declares are available for take-off run, take-off distance, accelerate-stop distance, and landing distance requirements. These are defined by the FAA as:

Take-off run available (TORA) - The length of the runway declared available and suitable to accelerate from brake release to lift-off, plus safety factors.

Take-off distance available (TODA) - The TORA plus the length of any remaining runway or clearway beyond the far end of the TORA available to accelerate from brake release past lift-off to start of take-off climb, plus safety factors.

Accelerate-stop distance available (ASDA) - The length of the runway plus stopway declared available and

suitable to accelerate from brake release to take-off decision speed, and then decelerate to a stop, plus safety factors.

Landing distance available (LDA) - The distance from threshold to complete the approach, touchdown, and decelerate to a stop, plus safety factors.

The following airfield alternatives will present these alternatives and compare the effects on the runway's declared distances.

Parallel Runway: As demonstrated by the demand/capacity analysis, Camarillo Airport is currently at 90 percent of the runway's annual service volume (ASV). FAA Order 5090.3B **Field Formulation of the National Plan of Integrated Airport Systems (NPIAS)** indicates that improvements should be considered when operations reach 60 percent of the runway's ASV.

The demand-capacity analysis indicated that annual operations will exceed the ASV within the short term planning horizon. At Camarillo, delays will escalate and operational safety both in the air and on the ground could be jeopardized without additional airfield improvements which would increase ASV. Because the runway is at 90 percent of its ASV and forecasts indicate potential for growth, improvements necessary to accommodate future demand must include more than additional exit taxiways and a longer runway. These are short term fixes which will not help relieve capacity problems. In order to meet the long range level of operational demand, the addition of another runway is necessary.

Wind data for the airport depicted by **Exhibit 3B** indicates the current runway configuration is ideal for the predominant winds. With this in mind, the existing need for additional runway capacity would not be satisfied by the addition of a crosswind runway. The airfield's annual service volume would increase only slightly because Runway 8-26 would remain the predominant runway orientation and used the highest percentage of the time. The runway's ASV would be surpassed well within the scope of the planning period.

In order to increase the runway's ASV to meet the operational demand level of the long term planning horizon, a parallel runway should be constructed. A parallel runway system can improve the airfield's capacity provided adequate separation is available between the runways. The minimum acceptable separation is 700 feet, which will provide simultaneous operations only during visual flight rule (VFR) conditions. Under instrument flight rule (IFR) conditions, 2,500 feet separation between runways is required for a simultaneous approach and departure or simultaneous departures. For simultaneous IFR approaches, 4,300 feet separation between runways is necessary.

Adequate capacity can be provided with a parallel runway capable of accommodating small general aviation aircraft during VFR conditions. Therefore, a runway at least 3,500 feet in length at 700 foot separation will be adequate.

Three parallel runway options were examined and are shown in conjunction

with other various airfield alternatives. All airfield alternatives place the proposed parallel runway between the existing runway and parallel taxiway. It should be noted that analysis of other possible parallel runway sites further south and north of the airfield were considered but rejected. The analysis indicated a non-compatible airspace environment for a runway placed further south due to the area's restrictive airspace allowances as depicted in **Exhibit 5A**. By placing a parallel runway south of the existing airport property line, traffic patterns would be shifted into Point Mugu's airspace. Northern sites were rejected as well, because noise would be shifted closer to the City of Camarillo. Land would have to be purchased in either case, whereas land is readily available for the development of the runway depicted in the airfield alternatives. The proposed parallel will be designated as Runway 8R-26L.

Taxiways

The existing parallel taxiway is inadequate to meet the current level of demand. Safety concerns and traffic congestion have been raised due to the lack of two way flow. The primary area of concern is on the east side of the airfield near the main parking apron, where many of the aircraft taxi operations occur. Aircraft leaving the main terminal area must taxi west on a 50 foot wide airfield access taxiway, sharing it with aircraft departing the airfield toward the ramp. Pilots are often required to stop or pull over to avoid other aircraft, which is an awkward and time consuming maneuver.

Each alternative will provide two way taxi circulation on the airfield and in the terminal area in order to increase operational capacity and to enhance operational safety. Two-way circulation will be provided by the addition of a parallel taxiway running between the existing runway and the proposed parallel runway. Also, the main terminal area (east end) will be served by an additional parallel taxiway originating from Taxiway Alpha running to the east end of the airfield. Finally, because of the additional 1,190 foot on Runway 8-26, an exit taxiway is needed for aircraft access to the end of the runway. All alternatives will provide an exit taxiway to the relocated take-off point from the parallel taxiway (Taxiway F).

Helipad

Camarillo Airport currently does not have the facilities to adequately handle a helicopter service and training operation. When the helicopter training school was fully operational, conflicts with fixed wing aircraft and airfield capacity problems were created during peak helicopter training periods. Although the helicopter service is no longer operating, the potential for the return a viable helicopter operation is possible. It is recommended that helicopter facilities be planned in case a similar operation starts up at Camarillo Airport. Each helicopter training area alternative considers takeoff and landing area needed for safe operation plus an autorotation training area.

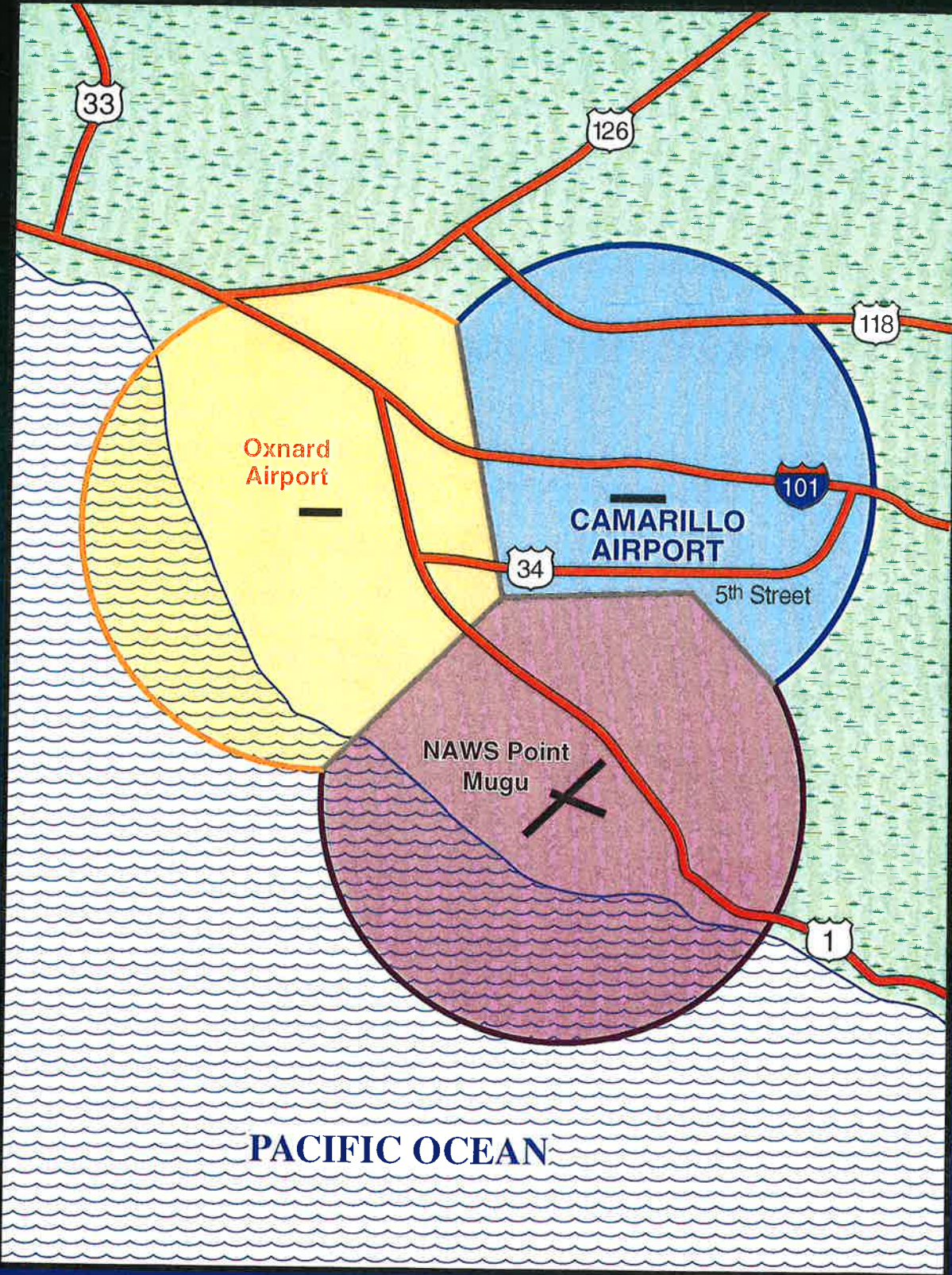


Exhibit 5A
AREA AIRSPACE ALLOWANCES

Navigational Aids

Capacity issues discussed in Chapter Three have demonstrated a need for a nonprecision instrument approach from the west. The new global positioning system (GPS) may provide for an additional nonprecision approach option. All alternatives will provide a 34:1 approach to both ends of Runway 8-26. Approaches to the proposed parallel runway will be planned for visual 20 to 1 approaches. It should be noted that the construction of the new parallel runway/taxiway system will require the removal of the terminal VOR. All approaches utilizing the VOR should be planned accordingly.

AIRFIELD ALTERNATIVES

Airfield Alternative A

Exhibit 5B depicts the layout of shifting the take-off point of the existing runway 1,190 feet east with the landing threshold displaced in its current location. Analysis of the existing runway indicated that an easterly shift of the take-off point would be the only real alternative for shifting the take-off point due to four factors which would be cost prohibitive to a westerly shift.

A westerly shift would require complete removal and replacement of the existing overrun pavement and sub-base. The parallel taxiway would also have to be extended 2,300 feet and an additional exit taxiway would need to be constructed. The Camarillo Hills Drain which turns due south approximately 1,190 feet beyond the end of the Runway 8 threshold, would have to be re-routed. The final factor

would involve the acquisition of additional property needed to secure an adequate runway protection zone, runway safety area (RSA), and obstacle free area (OFA). A minimum of 33 acres of land west of the current property line would need to be acquired.

Shifting the take-off point east while displacing the landing threshold, or simply extending the runway to the east would require crack fill and slurry seal of the existing pavement and an extension of the taxiway system with a total estimated cost of \$700,000. The cost of the runway/taxiway extension to the west would exceed two million dollars alone without additional costs involved with re-routing Camarillo Hills Drain and necessary property acquisition. Therefore, the extension would best be accommodated to the east.

Also illustrated is the proposed parallel runway originating at Taxiway Alpha and terminating immediately west of Taxiway Charlie. The runway would extend 3,500 feet in length and would measure 75 feet wide. Ninety degree exit taxiways would be constructed at the location of Taxiway B, and near Taxiway C, running between the existing runway and parallel Taxiway F. Preliminary costs were estimated at \$5,800,000 for the development of Alternative A as shown in **Exhibit 5B**. A helicopter operations area is also included in this alternative and is located in the area of the existing pistol range on the west end of the airfield.

Advantages: The alternative provides adequate runway length for take-offs of the range of business aircraft utilizing the airport. Because the additional

1,190 feet of runway is for take-offs only, the landing threshold will remain displaced in its current position. Runway 8-26 would provide 7,200 feet of pavement for take-offs in both directions, and for landings to Runway 8 as illustrated by **Table 5A**, Declared Distances. However, approaches and landings to both ends of the runway would not change. Thus, current aircraft traffic patterns associated with approaches to Runway 26 would not change and noise from the patterns would not be shifted toward the City of Camarillo. Runway 8-26 would provide an additional 1,190 feet for TORA, TODA, and ASDA.

The extension would also improve the airfield ASV. The runway could support two take-off points which would allow the tower to position aircraft at two separate locations. Having two separate take-off point would expedite departures and alleviate delays.

With the addition of a parallel runway, the airfield's ASV increases to meet the long range level of demand providing enough length to accommodate 100 percent of small airplanes. The parallel runway could serve as a touch and go runway during peak operational periods. The runway's proximity to the existing terminal area creates convenience of use. Two-way circular flow is created for taxiing operations both on the airfield and in the terminal area enhancing operational safety.

Disadvantages: Moving the take-off point would require a change to the agreement between the City of Camarillo and Ventura County. Most of existing Taxiway B and all of Taxiway C would have to be

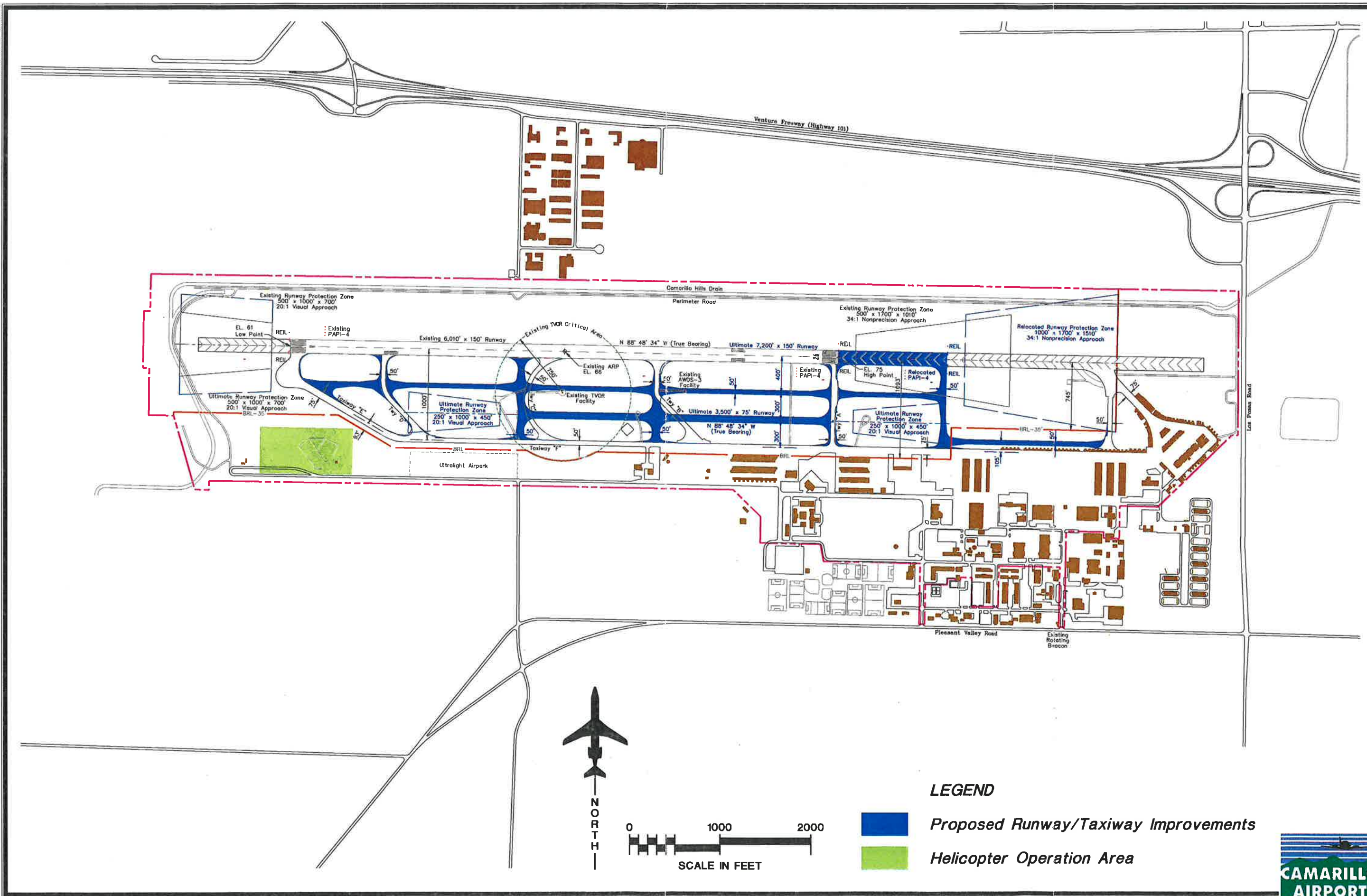
reconfigured and replaced. The current configuration of these taxiways would not work efficiently with this parallel runway under this alternative.

The location of the parallel runway also creates some operational efficiency problems. In addition, the parallel taxiway extending to the east general aviation facilities could not be extended to Taxiway A due to approach clearance requirements. The taxiway layout associated with this alternative would only be efficient if and when Runway 26 were extended. The location of the proposed parallel runway requires an aircraft to hold for ground clearance before crossing the proposed runway when taxiing on Taxiway A.

Because the thresholds are parallel to each other, traffic patterns would have to be staggered. This would force traffic utilizing Runway 26R (existing runway) further east in times of dual VFR approaches shifting noise closer to the City of Camarillo. The location of the helicopter operations area is not ideal because it may cause conflict between fixed wing and rotor aircraft traffic patterns. Helicopters would approach from the south and west into fixed wing patterns in a location where fixed wing aircraft are ascending and have not yet reached pattern altitude.

Airfield Alternative B

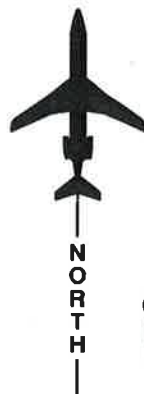
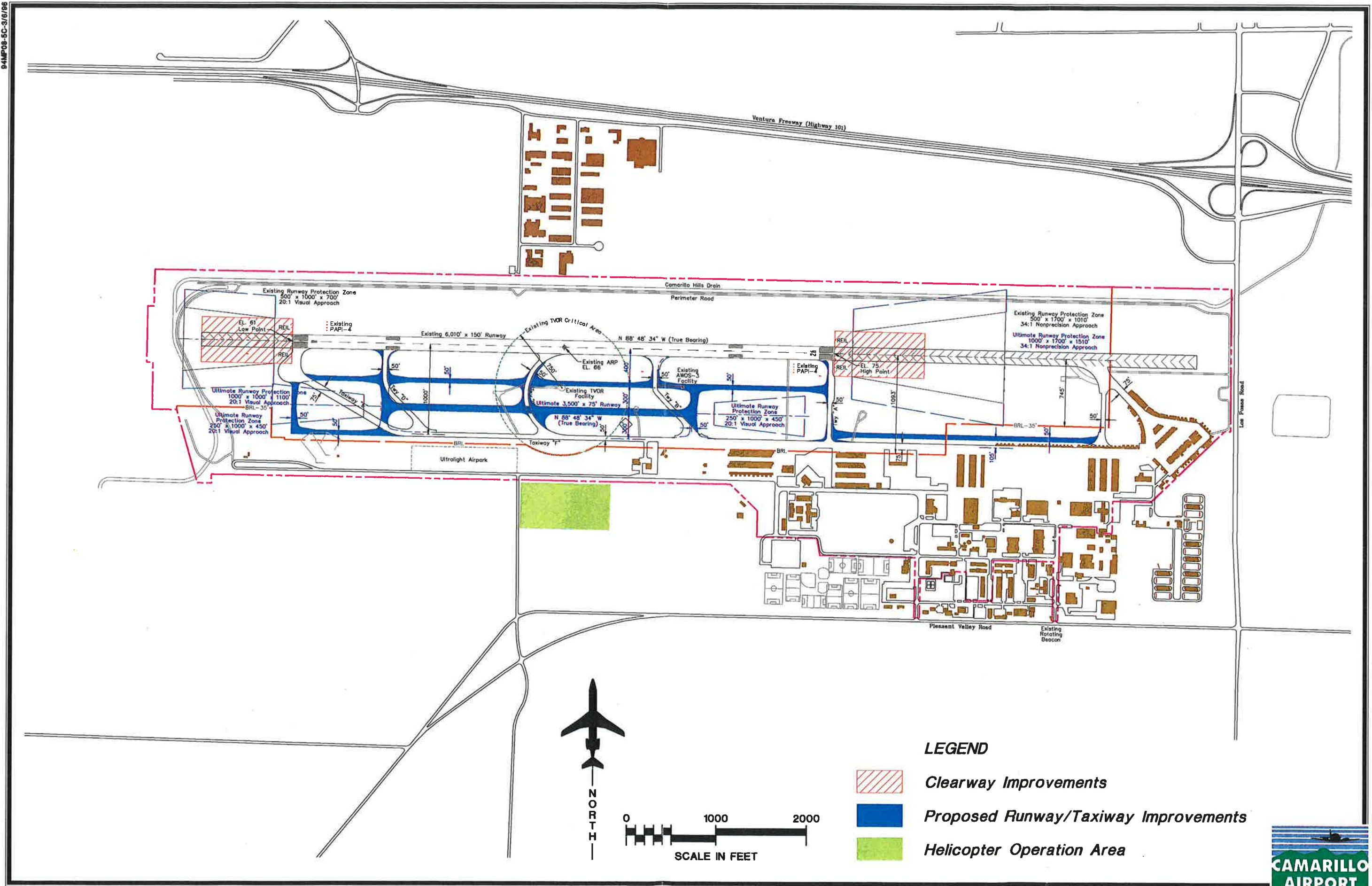
Exhibit 5C depicts the alternative of providing a clearway on both ends of Runway 8-26. As illustrated on **Table 5A**, the only change to the declared distances for the runway would be an additional 1,000 feet for TODA in both directions, thus providing 7,010 feet for



LEGEND

- Proposed Runway/Taxiway Improvements
- Helicopter Operation Area





LEGEND

- Clearway Improvements**
- Proposed Runway/Taxiway Improvements**
- Helicopter Operation Area**



TODA in both directions. As mentioned earlier, the practical limit of a clearway is 1,000 feet. The clearways would need to be cleared of all

obstructions, including terrain outward from the end of the runway at 1.25 percent.

**TABLE 5A
Declared Distances
Camarillo Airport**

	RUNWAY	
	8	26
Existing		
Take-off Run Available (TORA)	6,010	6,010
Take-off Distance Available (TODA)	6,010	6,010
Accelerate-Stop Distance Available (ASDA)	6,010	6,010
Landing Distance Available (LDA)	6,010	6,010
Airfield Alternative A		
Take-off Run Available (TORA)	7,200	7,200
Take-off Distance Available (TODA)	7,200	7,200
Accelerate-Stop Distance Available (ASDA)	7,200	7,200
Landing Distance Available (LDA)	7,200	6,010
Airfield Alternative B		
Take-off Run Available (TORA)	6,010	6,010
Take-off Distance Available (TODA)	7,010	7,010
Accelerate-Stop Distance Available (ASDA)	6,010	6,010
Landing Distance Available (LDA)	6,010	6,010
Airfield Alternative C		
Take-off Run Available (TORA)	6,010	6,010
Take-off Distance Available (TODA)	6,010	6,010
Accelerate-Stop Distance Available (ASDA)	7,200	6,010
Landing Distance Available (LDA)	6,010	6,010

Also depicted on the exhibit is another viable layout of the proposed parallel runway. The runway would be constructed with the Runway 26L threshold located parallel to the intersection point of Taxiway B and F and threshold 8R located at Taxiway D.

The runway would extend 3,500 feet and measure 75 feet wide as with the first alternative. This alternative extends the existing parallel taxiway in order to serve as a ninety degree taxiway to the end of the primary runway. An initial cost estimate for

the complete development illustrated in **Exhibit 5C** totaled \$6,100,000. The helicopter operations area in this alternative is located immediately south of airport property, approximately midfield.

Advantages: This alternative provides adequate take-off distance available for the range of business aircraft utilizing the airport without increasing the actual runway length. Increasing the TODA would allow business aircraft to take on extra fuel for long hauls. Airfield ASV is increased by the addition of the parallel runway. A two-way taxi system is created with a limited number of ground clearance requirements. Taxiway A is removed from the approach and obstacle free zone providing two way free flow of traffic enhancing taxiing operational safety of terminal area. Due to the staggered thresholds traffic patterns during westerly operational flow would not be moved closer to the City of Camarillo. The location of the helicopter operation area would be ideal causing no conflicts with traffic patterns.

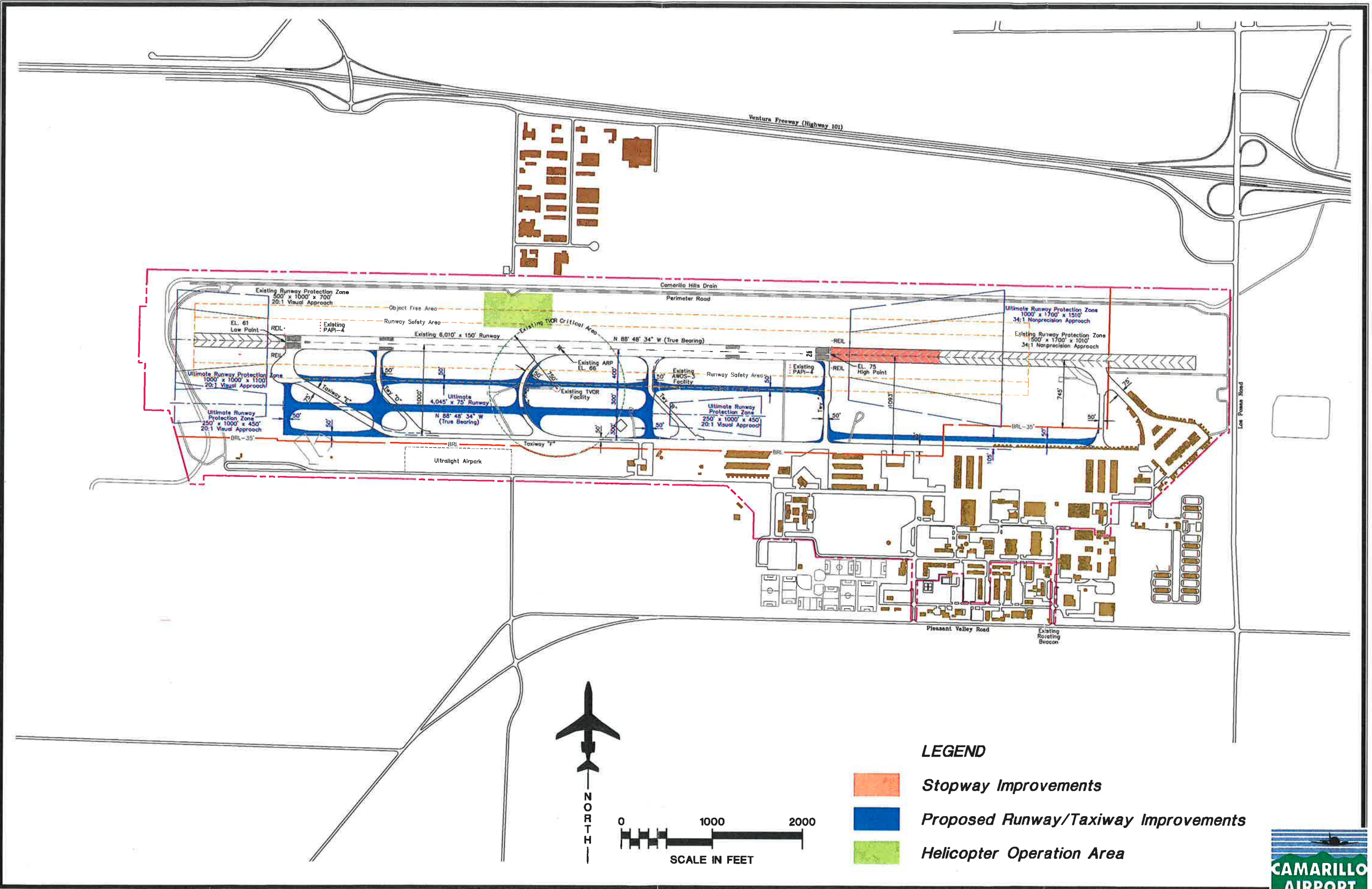
Disadvantages: The TODA would be limited to 7,010 feet because of the practical length limit of a clearway. Implementation of clearways to the ends of Runway 8-26 does not increase the TORA for business aircraft. The proposed runway design requires the reconfiguration or abandonment of the majority of three existing taxiways: Taxiway B, D, and E. Developmental costs are slightly higher than those in the first alternative, and property must be acquired to develop the proposed helicopter operations area.

Airfield Alternative C

The final airfield alternative outlined in **Exhibit 5D** depicts the addition of a stopway beyond the east end of Runway 8-26. FAA design criteria requires that for the RSA and OFA to extend beyond the stopway. This can be easily accommodated on the east end of the runway. Off the west end, this would require re-routing the Camarillo Hills Drain, and bringing the area up to standards. As mentioned previously, increasing the pavement strength of the overrun and maintaining adequate OFA and RSA beyond the west end of Runway 8-26 could cost over two million dollars and would require property acquisition. Therefore, this alternative does not include a stopway beyond the west end of Runway 8-26 because it would be cost prohibitive.

Alternative C also shifts the proposed parallel runway further west. The runway would run between Taxiway B and extend to the end of the existing runway. This would be the longest of all parallel runway alternatives, measuring 4,045 feet long by 75 feet wide. As with Alternative B, Taxiway F would be extended to serve as a ninety degree exit taxiway to the end of Runway 8L and 8R. Taxiways B and D are converted to ninety degree exit taxiways as well. Estimated costs associated with this alternative equals \$6,450,000. This alternative depicts the helicopter operation area north of the runway system, lying between the existing runway and the Camarillo Hills Drain.

Advantages: The addition of a 1,190 foot stopway to the east end increases the ASDA for Runway 8 to 7,200 feet.



LEGEND

- Stopway Improvements
- Proposed Runway/Taxiway Improvements
- Helicopter Operation Area



Two way taxiing circulation is created with maximum separation between airfield and terminal area taxi operations. Traffic patterns during simultaneous conditions will not produce increased noise for the City of Camarillo because patterns are shifted west.

Disadvantages: As depicted by Table 5A, the stopway would allow for an increase in the ASDA to Runway 8 only and would not change the TORA or TODA for either runway. Also, as mentioned earlier, Runway 26 is the preferred runway and is used 80 percent of the time. This limits the effectiveness of the stopway.

The proposed parallel runway is shifted away from the main terminal area creating longer taxi times during periods of westerly operational flow. The helicopter training operation area is developed on the north side of the runway needing an access road bridging the Camarillo Hills Drain which may be quite costly. Also, conflicts between fixed wing and rotor patterns and noise being shifted toward the north may not allow for the proposed location.

LANDSIDE ALTERNATIVES

Terminal Area

The orderly development of the airport terminal area can be the most critical, and probably the most difficult development to control on the airport. Many airports have been developed without proper planning in regards to the functional elements to be served. A terminal area development approach of taking the path of least resistance can

be disastrous to the long term viability of the airport. Allowing operators and tenants to develop wherever they please without regard to a functional plan will result in a haphazard array of buildings and small ramp areas, which will eventually preclude the most efficient use of the valuable space along the flight line.

Activity in the terminal area can be divided into three areas at Camarillo Airport. The high activity area is the area providing aviation services on the airport. The aircraft parking apron provides for outside storage of aircraft and circulation of aircraft. In addition, large conventional hangars housing corporate aviation departments or storing a large number of aircraft would be considered a high activity use. A conventional hangar structure in the high activity area should be a minimum of 10,000 square feet on the ground level. The best location for high activity areas is along the flight line near midfield for ease of access to all areas of the airfield.

The medium activity use defines the next level of airport use and primarily includes smaller corporate aircraft that may desire their own conventional hangar storage on the airport. A conventional hangar structure in the medium activity use area should be at least 50 by 50 feet or a minimum of 2,500 feet on the ground level. The best location for medium activity use is off the immediate flight line but readily accessible. Parking and utilities such as water and sewer should also be provided in this area.

Low activity use defines the area for storage of smaller single and twin engine aircraft. Low activity users are

personal or small business aircraft owners who prefer individual space in T-hangars for aircraft storage. Low activity area should be located in less conspicuous areas. This use category will require electricity but generally does not require water or sewer utilities.

In addition to the functional compatibility of the terminal area, the proposed development concept should provide a first class appearance to Camarillo Airport. Consideration to aesthetics should be given to the entryway as well as public areas when arranging the various activity areas. Architecturally pleasing buildings and corporate aircraft found in the high activity levels should be featured in these areas when possible.

Because most of Camarillo Airport's existing landside development lies east of Taxiway Alpha and much of the future development is proposed west of Taxiway Delta, all landside alternatives will be split for ease of reference. Each landside alternative will separately address development issues of the east side and the west side of the airport, with Taxiway Alpha designated as the dividing line.

Fuel Facilities

It is a priority of the Ventura County Department of Airports to relocate/consolidate the existing fuel farm to another site in order to free up prime apron space. Each landside alternative presents an area for the possible relocation of the fuel farm, off of the immediate ramp area. Alternatives presented analyzed sites according to

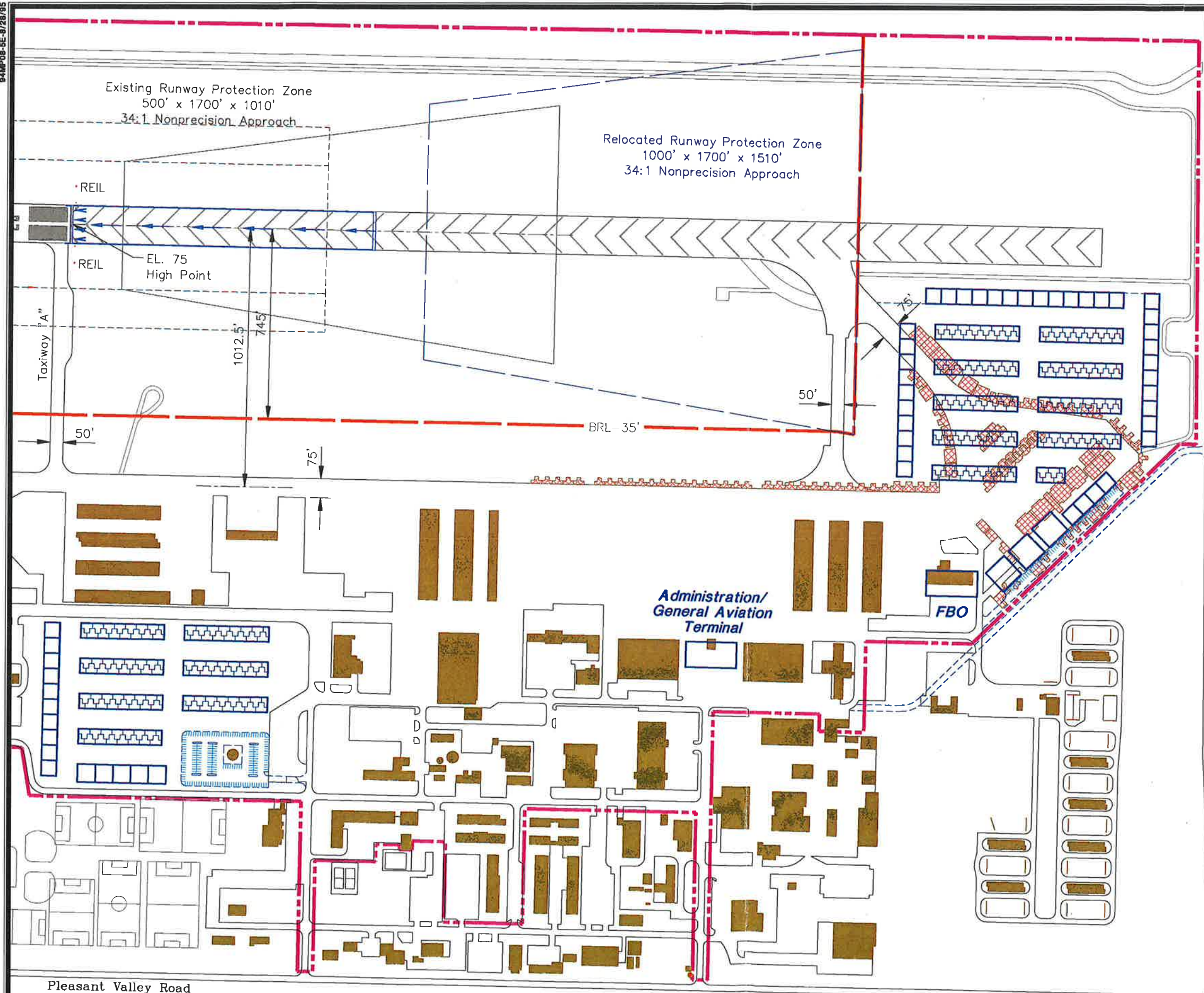
airfield and ground access, expansion potential, and site readiness.

Landside Alternative A

Eastside Development: Exhibit 5E shows the first functional development alternative on the eastside of the airport. The main focus on the east side is clearing the T-hangars from the edge of the terminal area taxiway and configuring the hangars near the alert area in order to maximize hangar space. This alternative "squares" hangar development in the alert area and includes the removal of the older alert hangars. Also planned in the area is the expansion of the current FBO operator's building and aircraft parking apron. A new Ventura County Department of Airports administration building is shown in the location of the existing fuel farm. Executive and T-hangars are planned for the eleven acres of property adjacent to the water tank.

Westside Development: Exhibit 5F depicts landside development west of Taxiway A. The major issue surrounding development to the west is the need for additional FBO and corporate parcels for future development. After the fire department relocates from the airfield, the property can be converted to an FBO location. FBO and corporate parcels as well as executive hangars are developed west of the control tower as needed, ultimately requiring relocation of the ultra-light airpark. A new fuel facility is proposed adjacent and behind the County Fire Station in the property plot described as the "triangle".

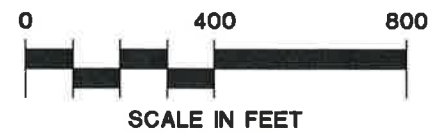
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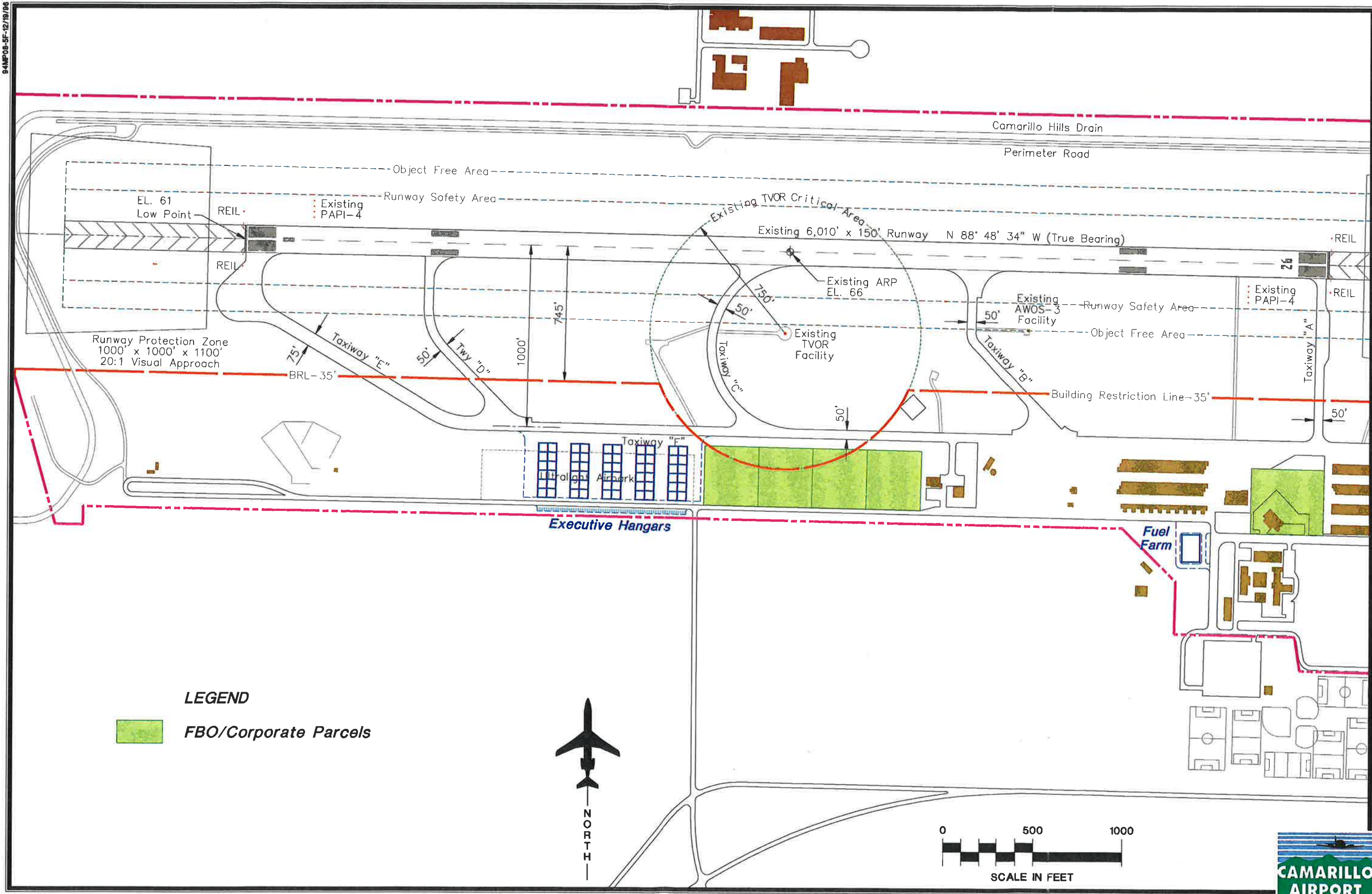
LEGEND

 **Hangars To Be Relocated**

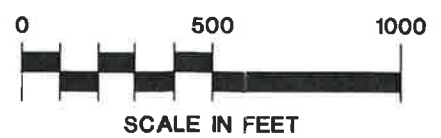
Los Posas Road



Pleasant Valley Road



LEGEND
 **FBO/Corporate Parcels**



Advantages: The proposed layout in the alert area provides maximum space while presenting an attractive view of executive hangars from Los Posas Road. T-hangars once lining the edge of the pavement have been relocated which enhances taxiing operations. Additional executive and T-hangars constructed due south of the confederate air force (CAF) building are complete with adequate parking and taxilane clearances and an automobile parking lot providing ease of access to aircraft owners. The location of the fuel farm is ideal, providing both airfield and landside ease of access while siting it away from aircraft operation areas.

Hangar space accommodating the long range planning horizon level of demand is shifted west and developed as needed. Corporate and FBO parcels are also planned accommodating the demand of the planning period. The location of the FBO areas provide service to all areas of the airfield.

Disadvantages: Hangar owners in the alert area and along the apron may object to the relocation of their hangars. T-hangars are mixed and placed near executive hangars in both developments on the eastside, thus, mixing activity areas.

Development at the west end will be affected by the existing TVOR. The present TVOR lease with the FAA requires their approval before developing any structures within a 1,000 feet radius of the TVOR. This could hinder development in this area until the TVOR is phased out by the FAA sometime after the year 2000.

Landside Alternative B

Eastside Development: This alternative reconfigures and develops new executive and T-hangars in the alert area as illustrated in **Exhibit 5G**. The alert hangars are removed and the T-hangars currently located along the terminal area taxiway are relocated. A new FBO site is created, sitting in view of the taxiway with conventional hangars on either side. As with the first alternative the administration/pilot lounge building is constructed where the existing fuel farm currently lies. The eleven acre parcel is developed for corporate parcels with the addition of a new fuel site located on the eastern edge of the parcel.

Westside Development: Exhibit 5H depicts developmental growth of the west end to meet future demand levels.

This alternative also develops an FBO in the current location of the Ventura County Fire Station with corporate and FBO parcels along the flight line west of the control tower. Smaller T-hangars are developed adjacent and behind the control tower.

Advantages: The alert area has adequate access to all areas within the hangar development. The location of the existing and proposed FBO areas provide service to all areas of the airfield. Also, by planning for the corporate parcel development in the eleven acre parcel, activity areas are completely separated in the newly constructed hangar areas, maintaining separation of executive and T-hangars. The landside needs of the long range planning horizon are met.

Disadvantages: The location of the fuel farm may prove to be too close to the corporate parcel layout. This alternative also calls for the removal of the ultra-light airpark from the airfield which may be viewed negatively and opposed. The layout of the T-hangar development on the west side will also require property purchase. Automobile access is cut off and passgate entrances or new access roads must be built so the control tower employees and aircraft owners can have access to their facilities. As with Alternative A, development at the west end could be limited until the TVOR is phased out.

SUMMARY

The process utilized in assessing the airside and landside development alternatives involved a detailed analysis of short and long term requirements as well as future growth potential. Current airport design standards were considered at every stage of development. Safety, both air and ground, were given a high priority in the analysis of alternatives.

Through further discussions with the Planning Advisory Committee, as well as public input through the public information workshops, a recommended concept was developed. The recommendations were subsequently presented to the Ventura County Airport Advisory Commission, Camarillo Airport Authority, and the Ventura County Board of Supervisors in the form of a draft Master Plan. All three entities voted to accept the Master Plan's recommendations after changes to a few elements were made. It was determined that the extension to

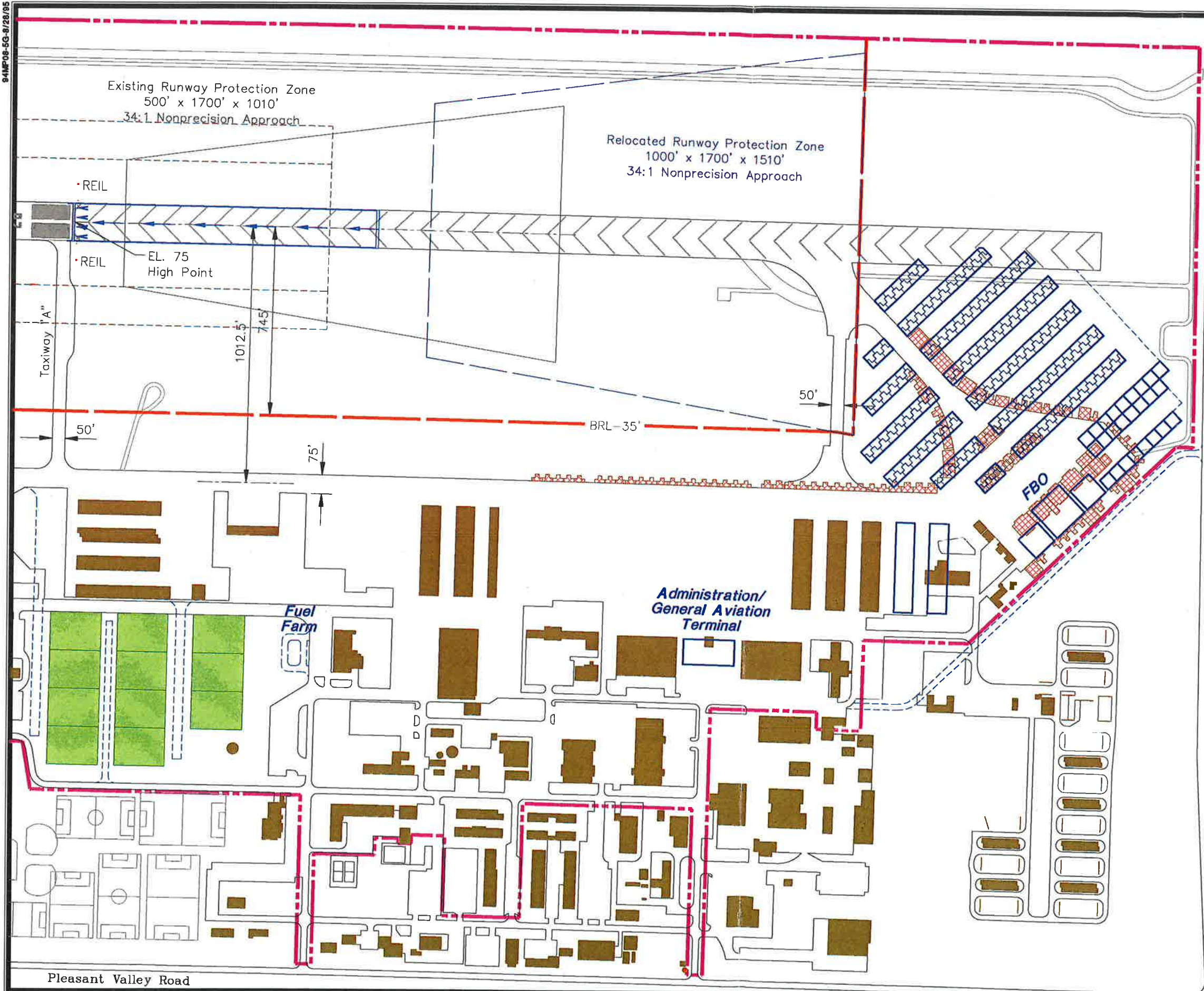
Runway 8-26 would be omitted from the plan. The planned parallel runway would be included in the plan as potential development so as to reserve land and protect surrounding airspace if future needs require construction of the runway. Actual construction of the parallel runway will be subject to additional airport user and community input, further studies to evaluate noise effects/benefits of the runway and final approval of the Camarillo Airport Authority and the Ventura County Board of Supervisors.

New hangar construction and relocation of existing port-a-port and T-hangars were modified to accommodate for future needs and existing tenants. The approved plan is presented in the following chapter. The Ultralight Field will remain in its current location until such time as air traffic requirements and/or other Federal Aviation Administration Regulations or standards warrant its relocation or removal.

The resultant plan represents an airside facility that fulfills safety design standards, and a landside complex that can be developed as demand dictates. The development plan for Camarillo Airport represents a means by which the airport can evolve in a balanced manner, both on the airside and landside, to accommodate the forecast demand. In addition, the plan provides for flexibility to meet activity growth beyond the long range planning horizon.

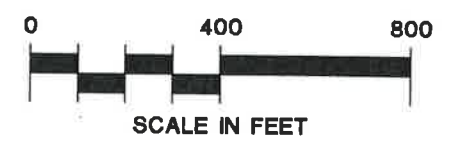
The following chapters outline the refined final plan with recommendations to ensure proper implementation and timing for a demand-based program.

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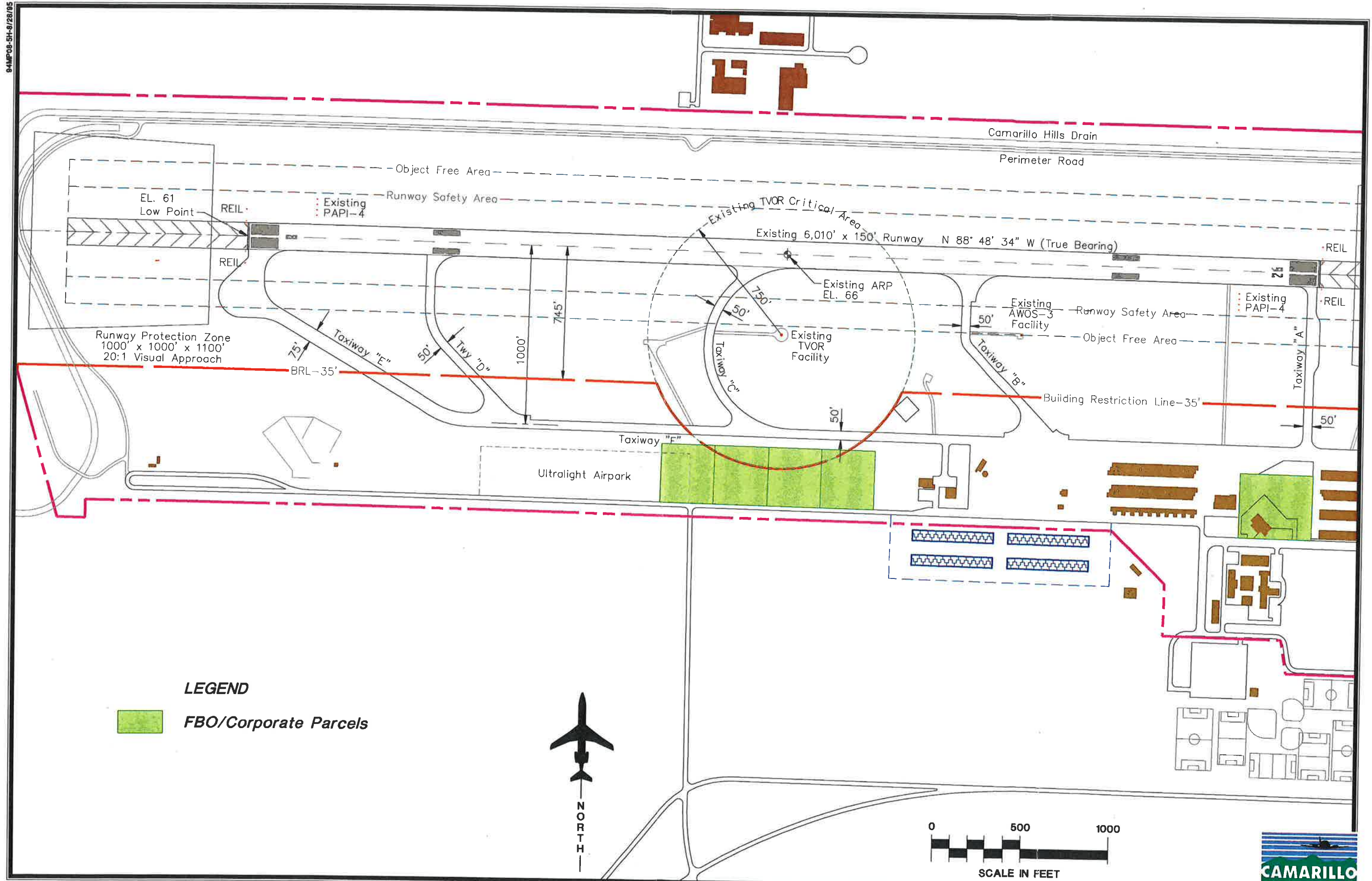


LEGEND

-  Hangars To Be Relocated
-  Corporate Parcels



Pleasant Valley Road



LEGEND
 **FBO/Corporate Parcels**

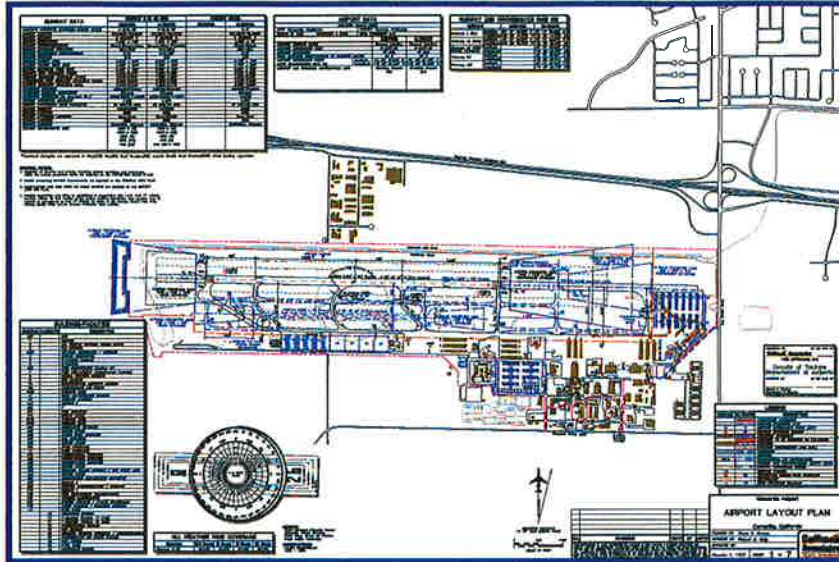




Chapter Six
AIRPORT PLANS

Chapter 6

AIRPORT PLANS



In Chapter Five, an evaluation was made of future options for airfield and terminal area development. This resulted in the selection of an alternative for future airport improvements that could best serve the planning horizon levels identified earlier in the process. The purpose of this chapter is to describe in narrative and graphic form, the recommended direction for future development.

A set of plans, referred to as Airport Layout Plans, has been prepared to graphically depict the recommendations for airfield layout, disposition of obstructions, and future use of land on the airport. This set of plans includes:

- Airport Layout Plan
- Part 77 Airspace Plan and Approach Profiles
- Runway Protection Zone Plans
- Terminal Area Plan
- Airport Land Use Plan

The airport layout plan set has been prepared on a computer-aided drafting system for future ease of use. The computerized plan set provides detailed information of existing and future facility layout on multiple layers that permit the user to focus in on any section of the airport at any desirable scale. The plan can be used as base information for design, and can be easily updated in the future to reflect new development and more detail concerning existing conditions as made available through design surveys. The plan set is also being provided in 24-inch x 36-inch reproducible hard copy in accordance with current FAA standards.

AIRPORT DESIGN STANDARDS

Camarillo Airport (CMA) is identified as a reliever airport in the FAA National Plan of Integrated Airport

Systems (NPIAS). FAA Advisory Circular 150/5300-13 **Airport Design** outlines recommended design standards for airports. These design standards are based upon the characteristics of the airplanes that the airport is expected to serve on a regular basis. Most critical to airport design are the weight, wingspan and approach speed of the design aircraft. An airport's reference code (**ARC**) is based upon a combination of the aircraft approach category and the airplane design group (**ADG**).

The aircraft approach category is a grouping of aircraft based upon 1.3 times their stall speed in their landing configuration at their maximum certificated landing weight. The categories are as follows:

- Category A: Speed less than 91 knots.
- Category B: Speed 91 knots or more but less than 121 knots.
- Category C: Speed 121 knots or more but less than 141 knots.
- Category D: Speed 141 knots or more but less than 166 knots.
- Category E: Speed 166 knots or more.

The airplane design group is a grouping of airplanes based on wingspans. The groups are as follows:

- Group I: Up to but not including 49 feet.
- Group II: 49 feet up to but not including 79 feet.
- Group III: 79 feet up to but not including 118 feet.
- Group IV: 118 feet up to but not including 171 feet.
- Group V: 171 feet up to but not including 214 feet.

- Group VI: 214 feet up to but not including 262 feet.

The critical aircraft for CMA is the range of business aircraft that are in Approach Categories C and D and Design Group II. However, the airport is also the home base to two refurbished Lockheed Constellations as well as a wing of the Confederate Air Force (CAF). The Constellations as well as some of the older military aircraft restored by the CAF have wingspans that fall into ADG III. **Thus, the airport reference code for planning at Camarillo Airport is a combination of D-II and B-III.** In each instance the more restrictive standard should be applied.

The design standards used for CMA are summarized in **Table 6A**. At present Runway 8-26 is the only runway and has a length of 6,010 feet. The runway is planned to remain at its present length and the pavement strength will remain limited to a maximum of 115,000 pounds dual-wheel loading. This will continue to prohibit the use of the airport by large commercial aircraft.

To accommodate future operational levels, without significant delays on landing and takeoff, a potential location parallel runway for small aircraft is being reserved. This reserved potential runway location should be planned to accommodate 100 percent of the small airplanes (weighing less than 12,500 pounds). This would include aircraft up to ARC B-II. The dimensional areas to be reserved are also outlined in **Table 6A**.

TABLE 6A
Airfield Planning Design Standards
Camarillo Airport

Component	Runway 8-26		Potential
	Runway 8-26		Runway 8R-26L*
Reference Code	D-II, B-III		B-II
Runway			
Length (ft.)	6,010		3,500
Strength (ft.) <i>width</i>	150		75
Shoulder Width (ft.)	20		10
Strength (lbs.)	115,000 DWL		12,500 SWL
Safety Area			
Width (ft.)	500		150
Length Beyond Runway End (ft.)	1,000		300
Object Free Area			
Width (ft.)	800		500
Length Beyond Runway End (ft.)	1,000		300
Runway Centerline to:			
Building Restriction Line (ft.) (35 ft. height clearance)	745		370
Taxiway Centerline (ft.)	400		240
Taxiways			
Width (ft.)	50		50
Shoulder Width (ft.)	20		20
Centerline to Fixed or Movable Object (ft.)	78		78
Runway Protection Zones			
Inner Width (ft.)	1,000	1,000	250
Length (ft.)	1,700	2,500	1,000
Outer Width (ft.)	1,510	1,750	450
Approach Slope	34:1	50:1	20:1
DWL - Dual Wheel Loading SWL - Single Wheel Loading			
* The parallel runway is shown for planning purposes. Actual construction of the parallel runway is subject to additional airport user and community input, further studies to evaluate noise effects/benefits of the runway, and final approval of the Camarillo Airport Authority and the Ventura Board of Supervisors.			

AIRPORT LAYOUT PLAN

The Airport Layout Plan (ALP) drawing graphically presents the existing and ultimate airport layout. It

depicts the recommended improvements which will enable the airport to meet the planning horizon demand levels. The detailed airport and runway data are provided to facilitate

Taxiway improvements include the development of a dual parallel taxiway system along the runway and extending eastward along the entire terminal area. This will include a full length parallel taxiway 400 feet south of the Runway 8-26 centerline and 600 feet north of the existing parallel taxiway. This taxiway will be completed only after an independent GPS approach is in place and the VOR is decommissioned by the FAA. At the east end of the existing runway, a parallel taxiway is planned at approximately 105 foot separation from the existing parallel taxiway. This taxiway would extend to the hangar area at the east end of the airport. The dual parallel taxiway system will improve airfield efficiency and ground circulation by providing a two-way circulation system.

A helicopter operations area is planned near midfield, 500 feet north side of Runway 8-26. The operations area will feature helipads for practicing auto rotations. All helicopter terminal facilities will remain on the south side of the field. In this location, helicopter patterns will remain south of the Ventura Freeway and out of conflict with other airport traffic.

The ultralight field can remain in place until such time as air traffic and/or other Federal Aviation Administration Regulations warrant its relocation or removal.

AIRSPACE PLANS

Several drawings (**Sheet Nos. 2-5**) in the plan set provide varying levels of detail on the airspace associated with

ultimate development at Camarillo Airport. These include the F.A.R. Part 77 Airspace Plan, and Runway Approach Profiles, and Runway Protection Zone (RPZ) Drawings.

PART 77 AIRSPACE PLAN

The Part 77 Airspace Plan depicted on **Sheet No. 2** of the ALP set reflects Part 77 critical surfaces for Camarillo Airport. It is based on Federal Aviation Regulations (F.A.R.) Part 77, **Objects Affecting Navigable Airspace**. F.A.R. Part 77 has been established to protect the airspace and approaches to each runway from hazards which could affect the safe and efficient operation of aircraft. These federal criteria have also been established for use by local jurisdictions in controlling the height of objects in the vicinity of the airport. For example, Part 77 drawings can be utilized in zoning ordinances to enhance area land use compatibility.

The drawings are also used to indicate potential obstructions which are located within the imaginary surfaces of the airport. Ideally, the obstruction should be removed or lowered beneath the imaginary Part 77 surfaces. Remaining obstructions must be reviewed by the Federal Aviation Administration to determine if they will seriously impact aircraft operations.

There are several critical imaginary surfaces which categorize the airspace around an airport. Each runway at Camarillo Airport has a primary and transitional surface that connects to horizontal and conical surfaces. The

surface heights, angles and radii for each of these surfaces are determined by the type of runway and its instrumentation. Each of these surfaces are described in the following subsections.

Primary Surface

The primary surface is the imaginary surface immediately surrounding the runway. It extends 200 feet beyond each runway end, and its width depends on the type of runway approach capability (visual, non-precision or precision). In addition, the elevation of the primary surface is the same as the elevation along the associated part of the runway.

With a planned precision instrument approach on the east end, Runway 8-26 has a primary surface that is 1,000 feet wide, centered on the runway. The primary surface for Runway 8-26 will be 6,410 feet in length.

Potential parallel Runway 8R-26L would have a visual approach and a primary surface that is 3,900 feet long and 250 feet wide, centered on the runway.

Situated adjacent to the runway and taxiway system, the primary surface should remain clear of most objects in order to allow unobstructed passage of aircraft. Within the primary surface, objects are only permitted if they are fixed by function. VASI's, glide slope antennae and their equipment shelters are examples of such objects within the category of "fixed by function".

Analysis indicates that the primary surface at Camarillo Airport is free

from obstructions except those that are fixed by function.

Approach Surface

An approach surface is also established for each runway approach. The approach surface has the same inner width as the primary surface, and then flares (gets wider) as it rises upward and outward along the extended runway centerline from the primary surface. The slope of the rise and the length of the approach surface is dictated by the type of approach available to the runway (visual, non-precision or precision), and by the approach category of the aircraft for which the runway is designed.

At Camarillo Airport, Runway 26 is planned for a precision instrument approach and the Runway 8 approach is planned as nonprecision. The approach surface for Runway 26 extends 10,000 feet from the primary surface, and rises at a slope of one foot vertically for each 50 feet of horizontal distance (50:1). Then, between 10,000 feet and 50,000 feet from the beginning of the primary surface, the approach surface rises at a 40:1 slope to an ultimate elevation which is 1,200 feet above the airport elevation. The width of the approach surface at 10,000 feet from the primary surface is 4,000 feet, and is 16,000 feet wide at a distance of 50,000 feet from the primary surface.

Runway 8 has a planned nonprecision approach surface which extends to 10,000 feet from the primary surface. The approach slope for a nonprecision approach rises at a rate of one foot vertically for each 34 feet horizontally (34:1). The inner width of the

approach surface is 1,000 feet, whereas the width of the approach surface at 10,000 feet from the primary surface is 3,500 feet.

Potential Runway 8R-26L is reserved with visual approaches at both ends. The visual approach surface extends for 5,000 feet from the primary surface. The approach slope rises at a rate of one foot vertical to 20 feet horizontal. The inner width is 250 feet, and the outer width is 1,250 feet.

Transitional Surface

The runway has a transitional surface that begins at the outside edge of the primary surface at the same elevation as the runway. The transitional surface also connects with the approach surfaces of each runway. The transitional surface rises at a slope of one foot vertically for each seven feet horizontal distance (7:1), up to a height which is 150 feet above the highest runway elevation. At that point, the transitional surface is replaced by the horizontal surface.

Horizontal Surface

The horizontal surface is established at 150 feet above the highest elevation on the runway. Having no slope, the horizontal surface connects the transitional and approach surfaces to the conical surface at a distance of 10,000 feet from the primary surface of Runway 8-26. At Camarillo Airport, the horizontal surface will be at an elevation of 228 feet above mean sea level (MSL). The Camarillo Hills located to the north of the airport penetrate the horizontal surface.

Conical Surface

The conical surface begins at the outer edge of the horizontal surface. The conical surface then continues for an additional 4,000 feet horizontally at a slope of one foot rise for each 20 foot horizontal distance (20:1). Therefore, at 4,000 feet from the horizontal surface, the elevation of the conical surface is 350 feet above the highest airport elevation (428 feet MSL). The Camarillo Hills also penetrate the conical surface.

RUNWAY APPROACH PROFILES

The Runway Approach Profiles present profile views of the approach surfaces to each runway end. The profile views facilitate identification of obstructions that lie within areas that should be free of objects which could endanger the safe flight of aircraft. As described previously, the approach surface has the same inner width as the primary surface, and then flares as it rises upward and outward along the extended runway centerline from the primary surface.

Sheet No. 2 includes the approach profiles of Runway 8-26. The planned precision approach surface for Runway 26 extends 10,000 feet from the primary surface, and rises at a 50:1 slope. Then, between 10,000 feet and 50,000 feet from the beginning of the primary surface, the approach surface rises at a 40:1 slope to an ultimate elevation which is 1,200 feet above the airport elevation.

Analysis indicates there is one penetration to the 50:1 surface and

areas of terrain penetration within the 40:1 outer approach surface of the planned precision approach surface. These obstructions can be cleared by the 34:1 approach criteria of the United States Standards for Terminal Instrument Approaches (TERPS). Therefore, an FAA aeronautical study is proposed.

The planned nonprecision approach profile to Runway 8, extends to 10,000 feet from the primary surface at an 34:1 approach slope. There are no obstructions to the Runway 8 approach path.

The visual approach profiles for potential Runway 8R-26L are depicted on **Sheet No. 4**. These profiles extend for 5,000 feet from the primary surface at a 20:1 approach slope. There are no obstructions in the approaches to the potential parallel runway.

RUNWAY PROTECTION ZONE PLANS

The **Runway Protection Zones Plans (Sheets No. 3 and 4)** present plan and profile views of the innermost portion of the approaches to, and departures from each runway end. The purpose of the runway protection zone (RPZ) is to provide as clear an area as possible for aircraft takeoffs and landings.

Typically, protection zones begin 200 feet before the runway threshold, and extend into the approach area. The distance which an RPZ extends into the approach area varies according to the runway instrument approach capabilities and whether aircraft using the runway are classified as small (less

than 12,500 pounds) or large (greater than 12,500 pounds).

For Runway 26, which is planned for a precision instrument approach, the RPZ has dimensions of 1,000 feet x 2,500 feet x 1,750 feet. The existing nonprecision approach to Runway 26, has dimensions of 500 feet x 1,700 feet x 1,010 feet. The existing and future RPZ's for Runway 26 essentially lie entirely within the existing airport property.

Runway 8 is presently a visual approach with RPZ dimensions of 500 feet x 1,000 feet x 700 feet. With the advent of GPS, it is prudent to plan for a nonprecision approach to Runway 8. This will require maintaining RPZ dimensions of 1,000 feet x 1,700 feet x 1,010 feet. This future RPZ would extend beyond existing airport property over agricultural uses to the west. Existing aviation easements should provide control over development in this area.

Potential Runway 8R-26L is reserved with RPZ's for visual approaches by small airplanes. The dimensions for each RPZ are 250 feet x 1,000 feet x 450 feet. These areas remain within the existing airport property.

An obstruction table is included on the RPZ plan sheets to indicate the proposed disposition of any obstruction. There are no existing obstructions within any of the existing or future RPZ's at Camarillo Airport.

TERMINAL AREA PLAN

Sheet No. 5 depicts the Terminal Area Plan and represents a refinement of

the selected development configuration for landside facilities at the airport. The long range plan includes a general aviation terminal/administration building, additional aircraft parking, reconfiguration and expansion of storage hangar areas, and space for development of corporate flight facilities and additional FBO facilities.

Much of the focus of the terminal area plan is providing efficient use of the space available. With the conversion from an Air Force Base to a civilian airport, the initial civilian development took advantage of available hangars and apron to minimize costs. As a result of an immediate demand for hangar space, more hangars began to be developed on and along existing apron and taxiways. While this was easy and inexpensive to develop, it has ultimately resulted in less than efficient use of space, and created circulation problems. The proposed plan attempts to rectify this over an extended period of time with a phased hangar development program.

The first phase of hangar development concentrates within an area immediately south of existing T-hangars adjacent to Taxiway A. As depicted on **Sheet No. 5**, the central hangar area will support the layout of 98 T-hangars and 23 executive box hangars. The construction of 63 nested T-hangars and the relocation of 35 port-a-port hangars is planned for this area. The 35 port-a-ports proposed for relocation are currently located along the northern edge of the main taxiway. Relocation is necessary to construct the east parallel taxiway that will improve circulation in the terminal area.

Development of the central hangar area will require closing a section of

on-airport roadway on the north side of the area and improving a dirt road on the south side. The construction of automobile parking areas surrounding the central hangar area will accompany hangar development.

The second phase of hangar development will be located immediately west of the air traffic control tower (ATCT). The construction of two twelve unit nested T-hangars is planned for the west hangar area. This area will also support the construction of an additional 30 executive box hangars. At the present time, the FAA lease with Ventura County for the Camarillo VOR on the airport requires FAA approval of any development within 1,000 feet of the VOR. Therefore, any hangar development or aircraft parking in this area prior to the decommissioning of the VOR will require FAA approval.

The final phase of hangar development will be situated in the east hangar area. The plan attempts to maximize available space to the north and west of existing hangars. Construction of 68 T-hangars and, relocation of 17 port-a-ports, and the removal of the alert hangars is planned. The removal and relocation of hangars have been planned in order to improve access with two way circulation and additional apron space.

Later phases will be subjected to a cost-benefit analysis closer to the time they would be constructed. This analysis will look at the actual cost to move each hangar compared with the value or benefit that would be created. If the study indicates that it is feasible, the public would be provided an opportunity to review and comment on the study, prior to approval by the

Board of Supervisors. Also, if the study proves the move feasible, the costs of relocating hangars would be paid by the project and not by the hangar owners.

The development at the east end is being coordinated with plans to develop a new fire station in this area near Los Posas Road. An access road is planned by the county for this area to serve the fire station and the fire training campus. It is expected that exits from the airport onto Los Posas will be limited to right turns for non-emergency vehicles.

A new general aviation terminal/administration building is planned for the flightline between the two large FBO hangars. This building would not only house the Department of Airports staff, but would also provide area for common general aviation terminal services, and office space for aviation-related tenants.

Larger parcels for conventional and FBO hangar development are also planned along the flightline. These parcels would be leased for development similar to parcel that has been leased to the Confederate Air Force. The site of the existing fire station would be made available as a development parcel after the fire station moves to the east end of the airport.

The Ultralight Field will remain in its current location until such time as air traffic and/or other Federal Aviation Administration Regulations warrant its relocation or removal. The access road would need to be paved and utilities would need to be extended to serve development on this end of the terminal area.

A new consolidated fuel farm is planned off the flightline behind the existing westernmost T-hangars. The location is close to the operations area and accessible to over-the-road fuel trucks.

AIRPORT LAND USE PLAN

The objective of the On-Airport Land Use Plan is to coordinate uses of the airport property in a manner compatible with the functional design of the airport facility. Airport land use planning is important for orderly development and efficient use of available space. There are two primary considerations for airport land use planning. These are, first, to secure those areas essential to the safe and efficient operation of the airport; and, second, to determine compatible land uses for the balance of the property which would be most advantageous to the airport and community.

The plan depicts the recommendations for ultimate land use development on the airport. The long range future plans for an area may differ from the current use of the property. In these areas, major expansion or improvements of the existing use should be discouraged. If expansion is needed, it should be directed to the appropriate use areas depicted on the Airport Land Use Plan.

The Airport Land Use Plan is depicted on **Sheet No. 6**. Several airport land use categories have been identified. They include airfield operations, general aviation area, aviation support, revenue support, and open space. In addition, the airport industrial park provides for other nonaviation uses. A

brief description of the suggested land uses is provided below.

AIRFIELD OPERATIONS

The airfield operations area is the most critical category of land use since it includes all areas necessary for safe operation on the airside of the airport. The included items are runway and taxiway safety areas, runway approaches where clearance is not adequate to permit other uses, and areas where nav aids will be located. At Camarillo Airport, this includes the existing and proposed runways, associated taxiways and taxiway exits, and areas within the object free areas and runway protection zones.

GENERAL AVIATION

The general aviation land use category consists of aircraft apron, fixed base operator (FBO) hangars, conventional hangars, aviation development parcels, and auto parking. These sites are primarily designed to store and service general aviation aircraft and their users.

General aviation uses are planned to extend along the entire flightline on the south side of the runway. FBO sites are interspersed along the flightline. There are two major T-hangar areas at the east end and near the landing threshold of Runway 26. Aviation development sites will extend to the west along the runway. The westernmost area will be reserved for long range T- and box hangar needs, and other needs as demand dictates.

AIRPORT SUPPORT

The airport support category includes several land uses that provide support facilities to other airfield operations. Support facilities include, airport maintenance, consolidated fuel farm, air traffic control (ATCT), nav aids and communications which are not required to be located directly adjacent to a runway. As with other uses, the airfield support uses are primarily maintained on the south side of the airfield.

REVENUE SUPPORT

This land use category consists of industrial or commercial activities that require or may be attracted to the airport location. These uses not only provide additional employment opportunities at the airport, but also can maximize use of the land for revenue generation to support the airport operation.

At Camarillo Airport, this involves airport property that does not have direct access to the airfield. While these areas do presently include some aviation-related businesses (including the Department of Airports administrative offices), they can also include other commercial, institutional, and industrial uses. Several public agencies rent space from the airport including the Fire Protection District, Sheriff's Office, Animal Control, Department of Public Works, Correction Services Agency, U.S. Navy, State Department of Agriculture, and the school district.

Other space is leased to commercial businesses. The Department of Airports should continue to aggressively lease and market these properties to provide additional operating revenues to keep the County airport system as self-sufficient as possible.

AIRPORT PROPERTY PLAN

The primary purpose of the Airport Property Plan (**Drawing No. 7**) is to provide information analyzing the current and future aeronautical use of land. Existing and future airport features (i.e. runways, taxiways, aprons, runway protection zones, hangars, terminal facilities, etc.) are depicted which indicate the aeronautical need for existing and future property limits. The plan indicates how various tracts of land were acquired (i.e. Federal funds, surplus property, local funds only, etc.). Also shown on this plan are easement interests in areas outside the fee property line.

The existing airport property line encompasses parcels A, B1, and B2 all acquired fee simple in the June 6, 1977 transfer from the U.S. Department of Defense. Parcels B1 and B2 are designated for non-aeronautical use. A number of aviation easement parcels are located east, west, and north of the runway. These aviation easements

were secured by the Air Force in order to protect surrounding airspace and were transferred to the county along with airport property.

SUMMARY

The airport layout plan drawing set is designed to provide basic guidance for Ventura County in making decisions relative to future development at Camarillo Airport. The plan provides for development to satisfy both short-term and long-term needs. Flexibility will be a key to future development as demands are not likely to occur exactly as forecast. The plan has considered demands that could be placed upon the airport over at least a twenty-year period to ensure the facility is capable of accommodating a variety of circumstances.

The Part 77 Airspace Plan should be used as a tool to evaluate the potential impacts the heights of future structures or antennae in the area could have on the airport's operational viability. The ALP plan set also provides the County with an on-airport land use plan that identifies the economic assets of the airport for community development. Following the general recommendations of the plan, the County can maintain the long-term viability of the airport and continue to provide a first-class general aviation facility for the region.

AIRPORT LAYOUT PLANS

FOR

CAMARILLO AIRPORT

CAMARILLO, CALIFORNIA

Prepared for the

County of Ventura
Department of Airports

INDEX OF DRAWINGS

1. AIRPORT LAYOUT PLAN
2. PART 77 AIRSPACE PLAN and APPROACH ZONE PROFILES
3. RUNWAY 8-26 PROTECTION ZONE PLANS and PROFILES
4. POTENTIAL RUNWAY 8R-26L APPROACH and PROTECTION ZONE PLANS and PROFILES
5. TERMINAL AREA PLAN
6. AIRPORT LAND USE PLAN
7. AIRPORT PROPERTY MAP

RUNWAY DATA	RUNWAY 8-26		RUNWAY 6R-26L	
	EXISTING	ULTIMATE	EXISTING	POTENTIAL
AIRCRAFT APPROACH CATEGORY-DESIGN GROUP	C-II/B-III	D-II/B-III	C-II/B-III	B-II
RUNWAY BEARING	270.5547/90.5556	270.5547/90.5556	270.5547/90.5556	270.5547/90.5556
RUNWAY DIMENSIONS	N 88.8084° W 6,010' ± 150'	N 88.8084° W 6,010' ± 150'	N 88.8084° W 6,010' ± 150'	N 88.8084° W 6,010' ± 150'
RUNWAY INSTRUMENTATION	Visual/Nonprecision	Nonprecision/Precision	Visual/Nonprecision	Visual/Nonprecision
RUNWAY APPROACH SURFACES	80:1/54:1	84:1/60:1	80:1/54:1	80:1/54:1
RUNWAY THRESHOLD DISPLACEMENT	0'/0'	0'/0'	0'/0'	0'/0'
RUNWAY STOPWAY	N/A	N/A	N/A	N/A
RUNWAY SAFETY AREA	6,010' ± 500'	6,010' ± 500'	6,010' ± 500'	6,010' ± 500'
RUNWAY OBJECT FREE AREA	6,010' ± 800'	6,010' ± 800'	6,010' ± 800'	6,010' ± 800'
RUNWAY OBSTACLE FREE ZONE	6,410' ± 450'	6,410' ± 450'	6,410' ± 450'	6,410' ± 450'
TAKOFF RUN AVAILABLE (TORA)	6,010'/6,010'	6,010'/6,010'	6,010'/6,010'	6,010'/6,010'
TAKOFF DISTANCE AVAILABLE (TODA)	6,010'/6,010'	6,010'/6,010'	6,010'/6,010'	6,010'/6,010'
ACCELERATE-STOP DISTANCE AVAILABLE (ASDA)	6,010'/6,010'	6,010'/6,010'	6,010'/6,010'	6,010'/6,010'
LANDING DISTANCE AVAILABLE (LDA)	6,010'/6,010'	6,010'/6,010'	6,010'/6,010'	6,010'/6,010'
PAYMENT MATERIAL	Asphalt/Concrete	Asphalt/Concrete	Asphalt/Concrete	Asphalt/Concrete
PAYMENT SURFACE TREATMENT	Grooved	Grooved	Grooved	Grooved
PAYMENT STRENGTH (in thousand lbs.)	48(S)/65(D)/110(DT)	48(S)/70(D)/110(DT)	48(S)/65(D)/110(DT)	48(S)/70(D)/110(DT)
RUNWAY EFFECTIVE GRADIENT	0.23%	0.23%	0.23%	0.23%
RUNWAY TOUCHDOWN ZONE ELEVATION	66 MSL/76 MSL	66 MSL/76 MSL	67 MSL/88 MSL	67 MSL/88 MSL
RUNWAY MARKING	Nonprecision	Precision	Nonprecision	Precision
RUNWAY LIGHTING	MIRL	MIRL	MIRL	MIRL
RUNWAY APPROACH LIGHTING	None/None	None/MALS	None/None	None/None
TAXIWAY LIGHTING	MIRL	MIRL	MIRL	MIRL
TAXIWAY MARKING	Centerline, Signage	Centerline, Signage	Centerline, Signage	Centerline, Signage
RUNWAY NAVIGATIONAL AIDS	PAPI-2 (R) PAPI-2 (L) REIL (R) REIL (L) VOR (26)	PAPI-4 (R) PAPI-4 (L) REIL (R) REIL (L) GPS (R) GPS CAT-1 (26)		

AIRPORT DATA	
CITY: Camarillo, California	COUNTY: Ventura, California
RANGE: 21 West	TOWNSHIP: 2 North
	CIVIL TOWNSHIP: N
EXISTING	
AIRPORT SERVICE LEVEL	General Aviation
AIRPORT REFERENCE CODE	C-11/B-III
AIRPORT ELEVATION	76 MSL
MEAN MAXIMUM TEMPERATURE OF HOTTEST MONTH	76 F (July)
ULTIMATE	
AIRPORT SERVICE LEVEL	General Aviation
AIRPORT REFERENCE CODE	C-11/B-III
AIRPORT ELEVATION	76 MSL
MEAN MAXIMUM TEMPERATURE OF HOTTEST MONTH	76 F (July)
AIRPORT REFERENCE POINT (ARP) COORDINATES (NAD 83)	Latitude 34° 12' 49.515" N Longitude 119° 05' 39.541" W
AIRPORT and TERMINAL NAVIGATIONAL AIDS	Rotating Beacon VOR Rotating Beacon GPS

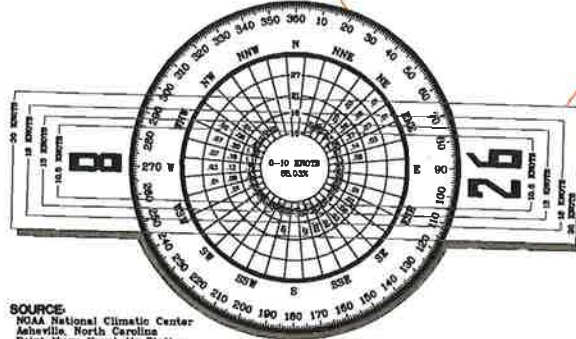
RUNWAY END COORDINATES (NAD 83)		
RUNWAY	EXISTING	ULTIMATE
Runway 8	Latitude 34° 12' 49.505" N Longitude 119° 05' 16.519" W	Latitude 34° 12' 49.505" N Longitude 119° 05' 16.519" W
Runway 26	Latitude 34° 12' 49.220" N Longitude 119° 05' 03.761" W	Latitude 34° 12' 49.220" N Longitude 119° 05' 03.761" W
Potential Runway 6R	Latitude 34° 12' 42.287" N Longitude 119° 05' 03.815" W	Latitude 34° 12' 42.287" N Longitude 119° 05' 03.815" W
Potential Runway 26L	Latitude 34° 12' 42.614" N Longitude 119° 05' 22.175" W	Latitude 34° 12' 42.614" N Longitude 119° 05' 22.175" W



GENERAL NOTES:

1. Depiction of features and objects, including related elevations and clearances, within the runway protection zones are depicted on the PROTECTION ZONES PLANS.
2. Details concerning terminal improvements are depicted on the TERMINAL AREA PLAN.
3. Recommended land uses within the airport environs are depicted on the AIRPORT LAND USE PLAN.
4. Building Restriction Line (BRL) is established in accordance with F.A.R. Part 77 criteria, location utilizes 35 foot vertical object height. Building Restriction Line location may be reduced in accordance to Part 77 criteria, to limits of the Runway Object Free Area, Runway Safety Area, and/or Runway Protection Zone criteria.
5. The ultralight field will remain in its existing location until such time as air traffic control requirements and/or other Federal Aviation Administration regulations or standards warrant its relocation or removal.
6. The potential runway is shown for planning purposes. Actual construction of the potential runway is subject to additional airport user and community input, further studies to evaluate noise effects/benefits of the runway and final approval of the Camarillo Airport Authority and the Ventura County Board of Supervisors.

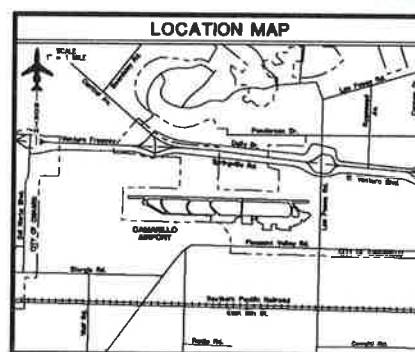
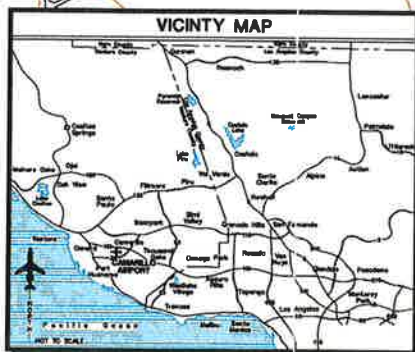
BUILDINGS/FACILITIES		
EXISTING	ULTIMATE	DESCRIPTION
1		HANGAR
2		AIR TRAFFIC CONTROL TOWER (ATCT)
3		FAA OFFICES
4		SELF-SERVICE FUEL ISLAND
5		PUBLIC RESTROOMS
6		T-HANGAR (Nested)
7		T-HANGAR
8		FIRE DEPARTMENT (Maintenance Facility)
9		ANIMAL CONTROL FACILITY
10		BOX HANGAR
11		EXPERIMENTAL AIRCRAFT HANGAR
12		SELF-MAINTENANCE HANGAR
13		SHERIFF JOBSITE
14		WORK FURLOUGH
15		FUEL FARM
119		ALERT HANGARS/CAMARILLO AVIATION
127		COUNTY STORAGE/PUBLIC RESTROOMS
129		AIRPORT MAINTENANCE
149		FIRE DEPARTMENT (Headquarters)
173		HANGAR 1 (Pender 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		CONSTRUCTION SERVICES
256		CONSTRUCTION SERVICES
257		MCL BUILDERS
260		OFFICE SPACE
267		GENERATOR BUILDING
269		WATER PUMP BUILDING
272		CONSTRUCTION SERVICES
276		WORK FURLOUGH
278		PIKE DISPATCH
279		OFFICE SPACE
281		OFFICE SPACE
283		CONFEDERATE AIR FORCE
284		FIRE DEPARTMENT (Station 80)
287		CITE
1020		STORAGE TANK
2007		STANLEY GENERATOR/STORAGE
2008		STORAGE TANK
2010		STORAGE TANK
18		RELIPIAP
17		EXECUTIVE HANGAR (60' x 80')
16		EXECUTIVE HANGAR (60' x 60')
19		T-HANGAR (Nested, 14 Units)
20		T-HANGAR (Nested, 18 Units)
21		T-HANGAR (Nested, 10 Units)
22		T-HANGAR (Nested, 8 Units)
23		RELOCATED T-HANGAR
24		CONVENTIONAL HANGAR (100' x 100')
25		CENTRAL AVIATION TERMINAL/ADMINISTRATION
26		CONFEDERATE AIR FORCE PARCEL
27		AVIATION DEVELOPMENT PARCEL
28		CONSOLIDATED FUEL FARM
29		FIRE STATION/ALPP PARCEL



SOURCE:
NOAA National Climatic Center
Asheville, North Carolina
Point Mugu Naval Air Station
Point Mugu, California

OBSERVATIONS:
94,346 Observations
1965 - 1994

Runways	10.5 Knots	13 Knots	16 Knots	20 Knots
Runway 8-26	57.93%	60.93%	59.79%	59.97%



SUBMITTED BY: **Coffman Associates** ON THE DATE OF: _____
 FOR APPROVAL BY: _____
 County of Ventura
 Department of Airports
 APPROVED BY: _____ ON THE DATE OF: _____
 Bill Murphy
 Director of Airports

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

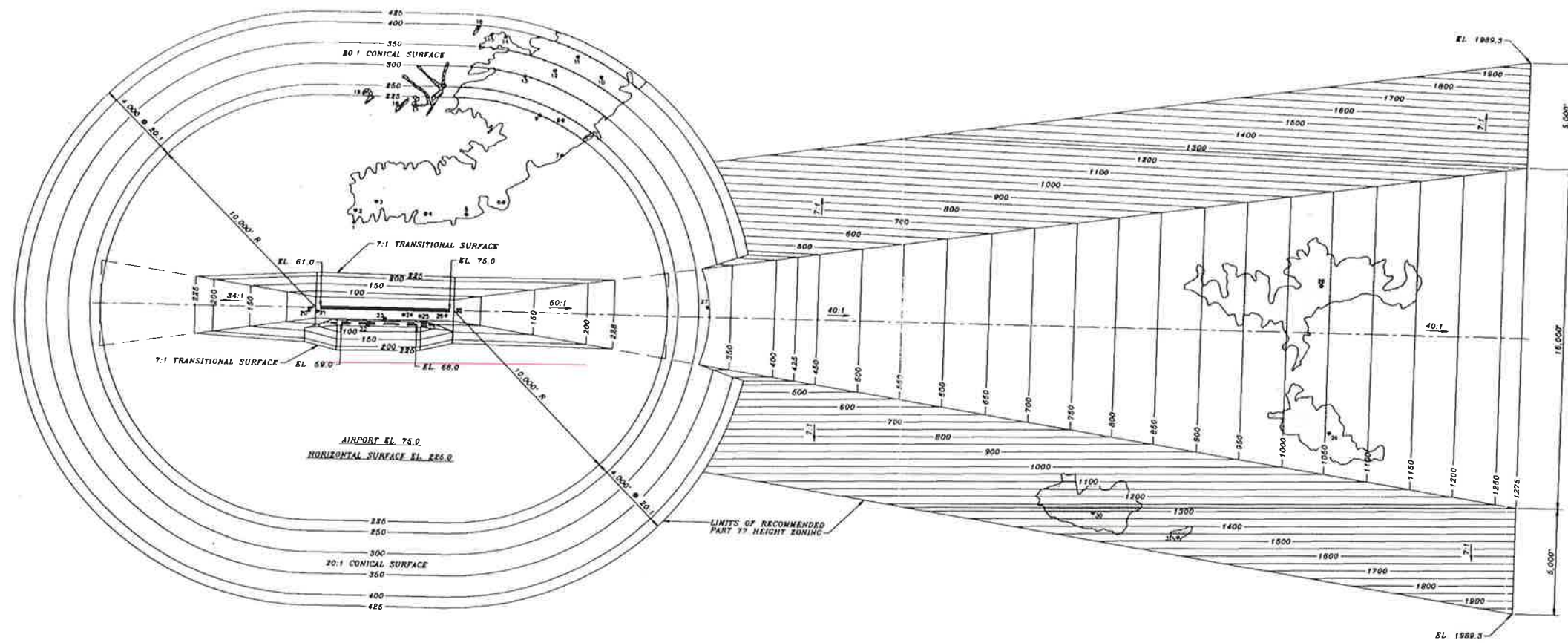
Camarillo Airport
AIRPORT LAYOUT PLAN
 Camarillo, California

PLANNED BY: **Steven S. Benson**
 DETAILED BY: **Richard A. Kelly**
 APPROVED BY: **James M. Harris**
 November 6, 1996 SHEET 1 OF 7

Coffman Associates
 Airport Consultants

NO.	REVISIONS	DATE	BY	APPD.

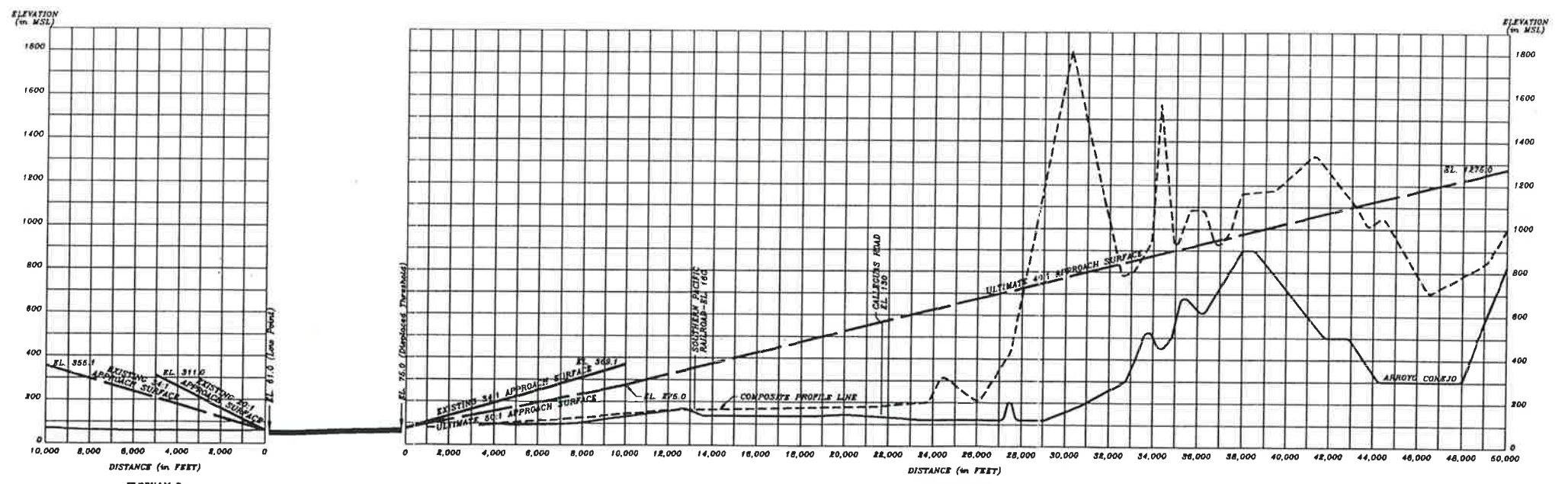
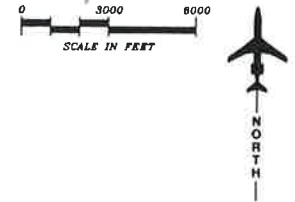
THE PREPARATION OF THESE DOCUMENTS WAS FINANCED IN PART THROUGH A PLANNING GRANT FROM THE FEDERAL AVIATION ADMINISTRATION AS PROVIDED UNDER SECTION 505 OF THE AIRPORT AND AIRWAY IMPROVEMENT ACT OF 1982 AS AMENDED. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEW OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT OF THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS.



- GENERAL NOTES:**
- Obstructions, clearances, and locations are calculated from ultimate runway and elevations and ultimate approach surfaces, unless otherwise noted.
 - 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.
 - 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.
 - 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.
 - Additional obstruction data is illustrated on National Ocean Survey document OC 674, AIRPORT OBSTRUCTION CHART dated May 1991.
 - Existing and future height and hazard ordinances are to be amended and/or referenced upon approval of updated PART 77 AIRSPACE PLAN.

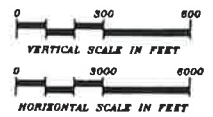
OBSTRUCTION LEGEND

- OBSTRUCTION
- ▨ GROUP OR MULTIPLE OBSTRUCTIONS
- ◻ TOPOGRAPHIC OBSTRUCTION



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	368 MSL	HORIZONTAL SURFACE	225 MSL	143'	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	518 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	366 MSL	234'	REQUEST AERONAUTICAL STUDY
12. TREE	586 MSL	CONICAL SURFACE	335 MSL	251'	REQUEST AERONAUTICAL STUDY
13. TREE	528 MSL	CONICAL SURFACE	299 MSL	227'	REQUEST AERONAUTICAL STUDY
14. TREE	442 MSL	CONICAL SURFACE	380 MSL	82'	REQUEST AERONAUTICAL STUDY
15. TREE	432 MSL	CONICAL SURFACE	380 MSL	52'	REQUEST AERONAUTICAL STUDY
16. TREE	431 MSL	CONICAL SURFACE	398 MSL	35'	REQUEST AERONAUTICAL STUDY
17. TREE	275 MSL	HORIZONTAL SURFACE	225 MSL	50'	REQUEST AERONAUTICAL STUDY
18. TREE	280 MSL	HORIZONTAL SURFACE	225 MSL	50'	REQUEST AERONAUTICAL STUDY
19. TREE	268 MSL	CONICAL SURFACE	233 MSL	35'	REQUEST AERONAUTICAL STUDY
20. WINDSOCK	71 MSL	34:1 APPROACH SURFACE	89 MSL	2'	FIX BY FUNCTIONAL PURPOSE
21. FENCE POST	84 MSL	PRIMARY SURFACE	81 MSL	3'	TO BE REMOVED
22. PIPE	70 MSL	PRIMARY SURFACE	82 MSL	6'	TO BE REMOVED
23. OIL ON VOR/DME	86 MSL	PRIMARY SURFACE	88 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	80 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	1036 MSL	134'	REQUEST AERONAUTICAL STUDY
29. TOPOGRAPHIC	1538 MSL	40:1 APPROACH SURFACE	1054 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	86'	REQUEST AERONAUTICAL STUDY



REVISIONS

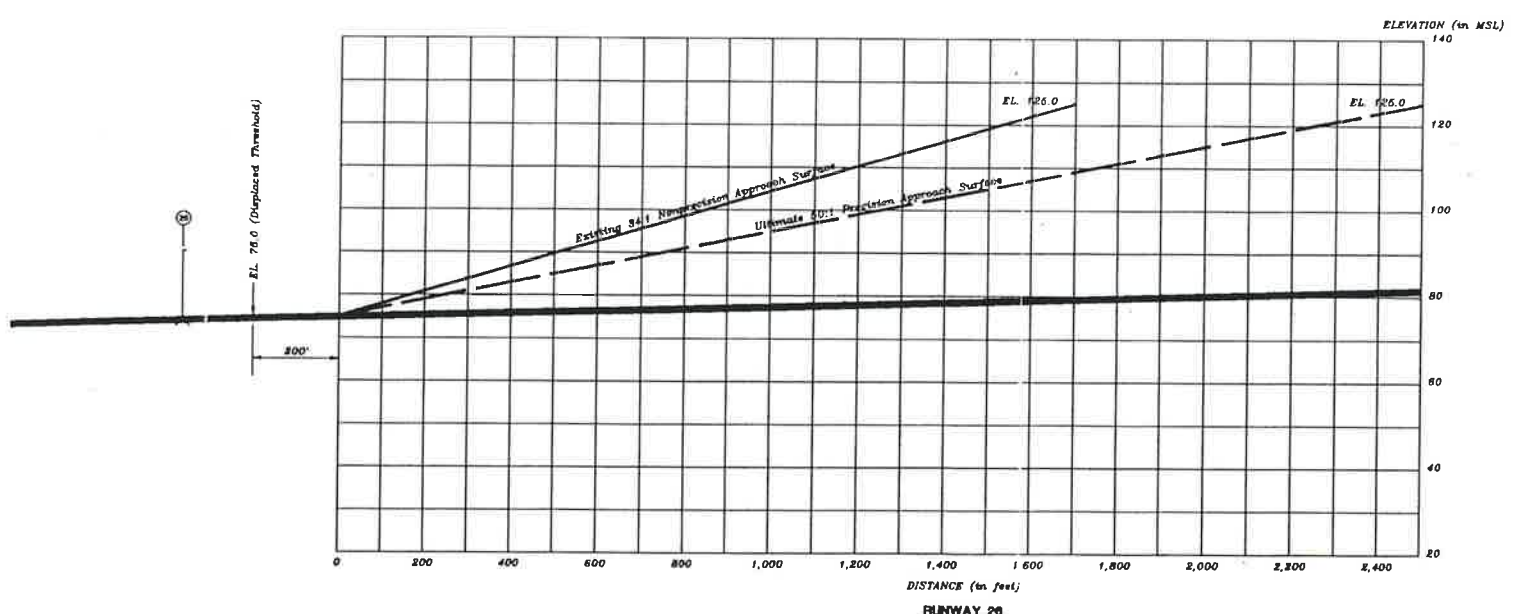
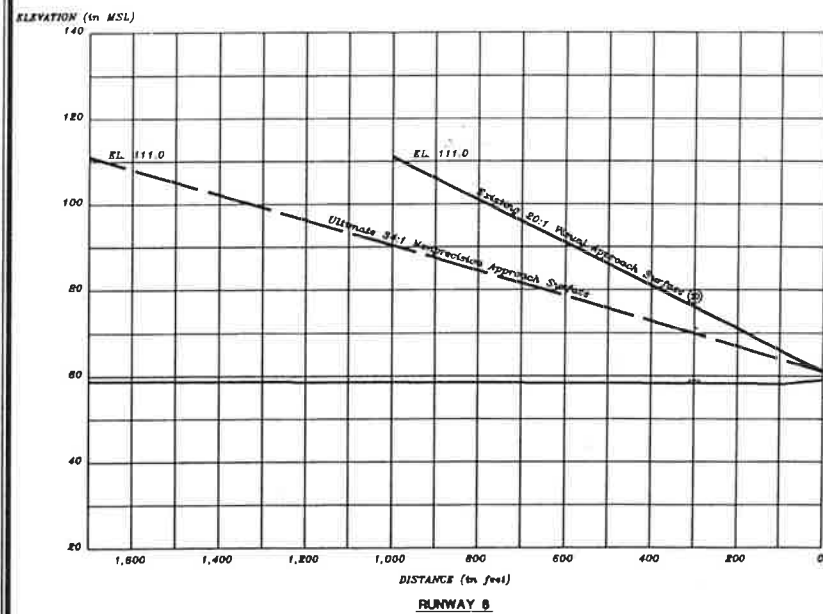
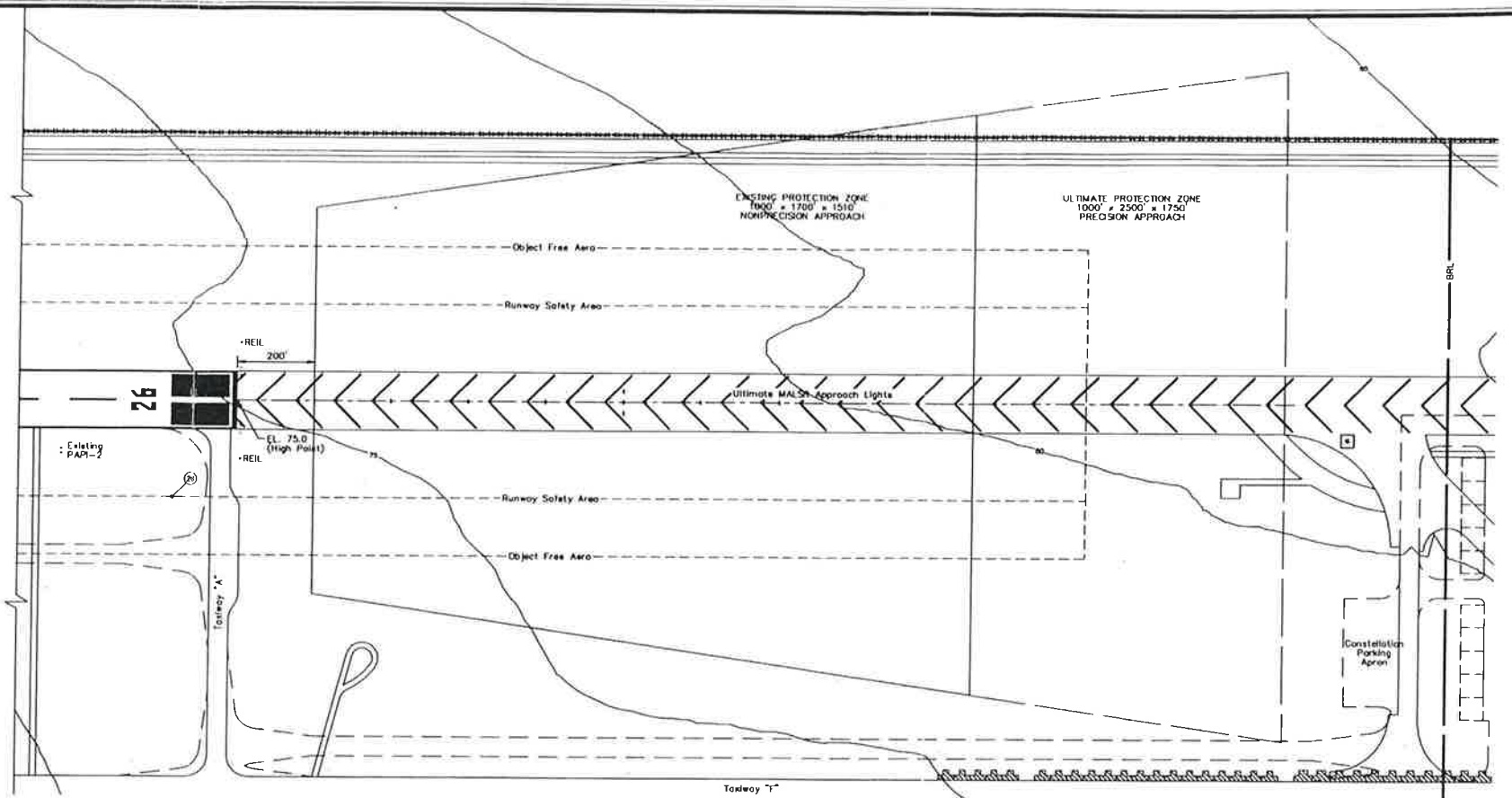
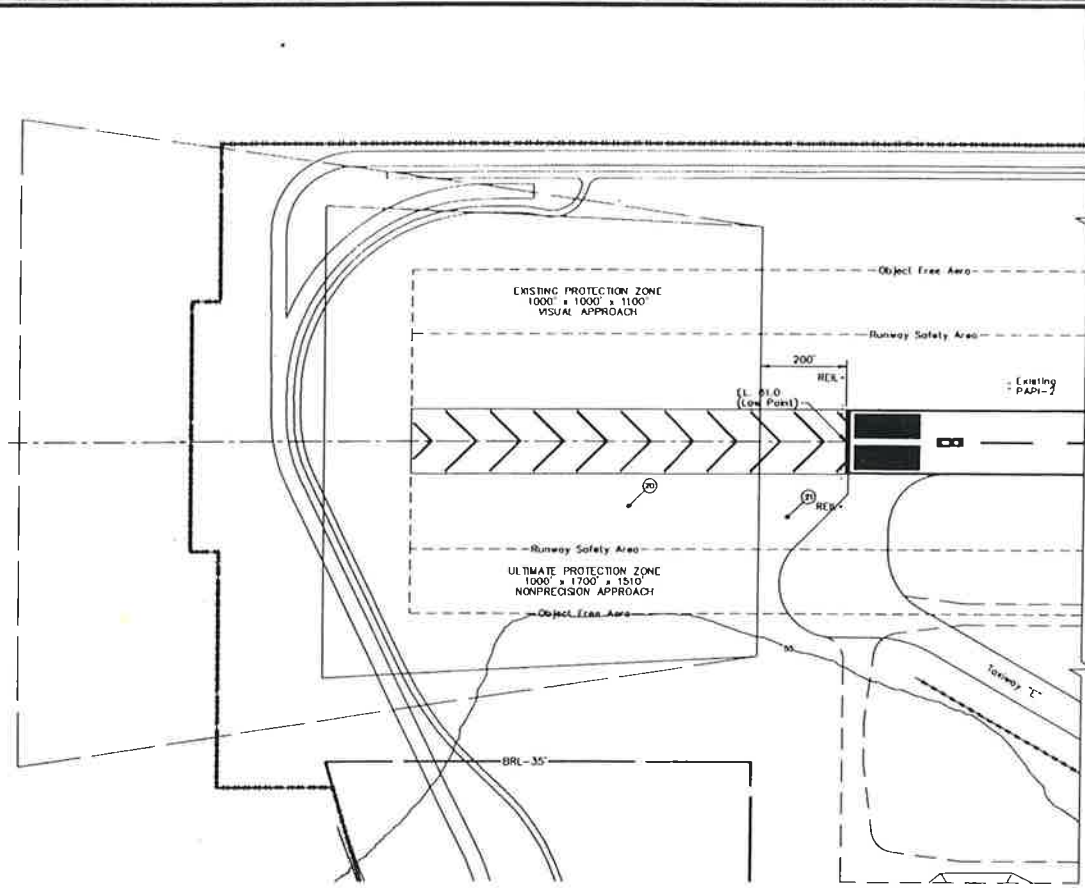
No.	REVISIONS	DATE	BY	APPD.

Camarillo Airport
PART 77 AIRSPACE PLAN and
APPROACH ZONE PROFILES
 Camarillo, California

PLANNED BY: *Alta W. Douglas*
 DETAILED BY: *R. A. Kelly / S. D. Johnson*
 APPROVED BY: *James M. Harris*

October 18, 1996 SHEET 2 OF 7

Coffman Associates
 Airport Consultants

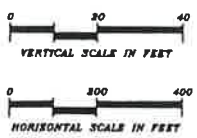


RUNWAY 8-26 PROTECTION ZONE PLANS and PROFILES

RUNWAY 8 (8R) OBSTRUCTION TABLE					
Object Description	Object Elevation	Obstructed Part 77 Surface	Surface Elevation	Object Penetration	Proposed Object Disposition
20. WINDSOCK	71 MSL	34:1 APPROACH SURFACE	69 MSL	Z	FIX BY FUNCTIONAL PURPOSE
21. FENCE POST	64 MSL	PRIMARY SURFACE	61 MSL	J	TO BE REMOVED

RUNWAY 26 (26L) OBSTRUCTION TABLE					
Object Description	Object Elevation	Obstructed Part 77 Surface	Surface Elevation	Object Penetration	Proposed Object Disposition
26. WINDSOCK	90 MSL	PRIMARY SURFACE	74 MSL	16'	FIX BY FUNCTIONAL PURPOSE

- GENERAL NOTES:**
- Obstructions, clearances, and locations are calculated from ultimate runway and elevations and ultimate approach surfaces, unless otherwise noted.
 - Distances for road obstructions and clearances reflect a safety clearance of 15' for noninterstate roads, 17' for interstate roads, and 25' for railroads.
 - 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.
 - 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.
 - Depiction of features and objects within the inner portion of the approach surfaces, is illustrated on the PROTECTION ZONES PLAN, sheets 3 and 4 of these plans.
 - Existing and future height and bearing ordinances are to be amended and/or referenced upon approval of updated PART 77 AIRSPACE PLAN.
 - Additional obstruction data is illustrated on National Ocean Survey document OC 890, AIRPORT OBSTRUCTION CHART.



No.	REVISIONS	DATE	BY	APPD.

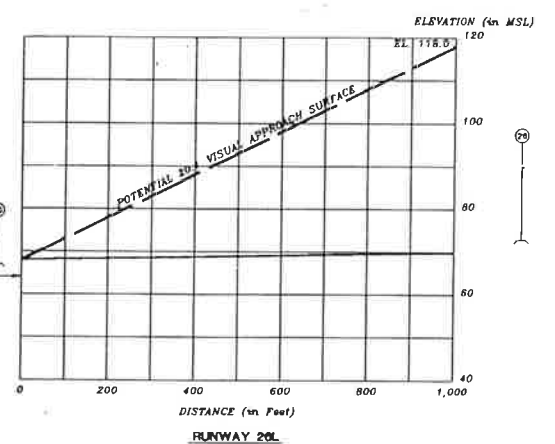
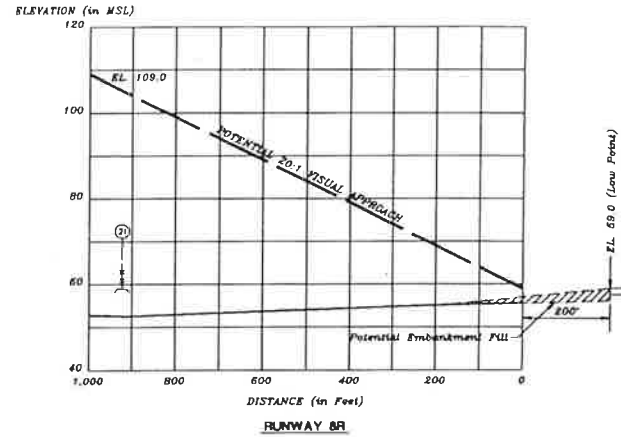
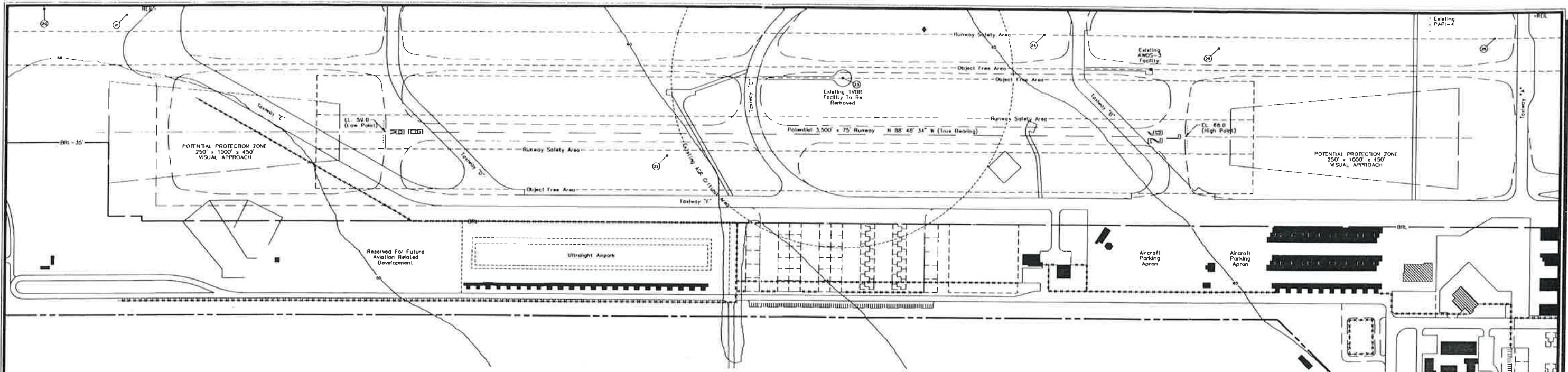
Camarillo Airport
RUNWAY 8-26 PROTECTION ZONE PLANS and PROFILES
 Camarillo, California

PLANNED BY: *John W. Douglas*
 DETAILED BY: *R. A. Kelly/L. S. Johnson*
 APPROVED BY: *James M. Morris*

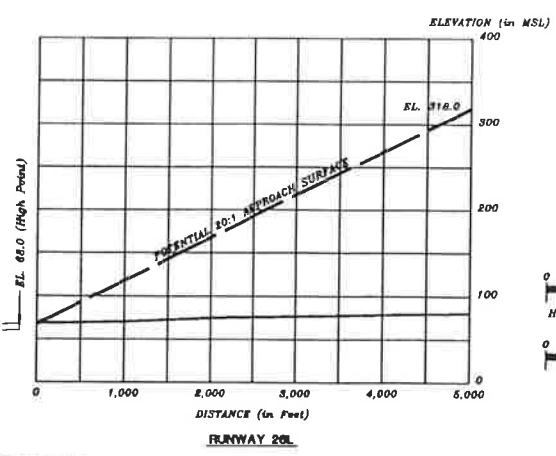
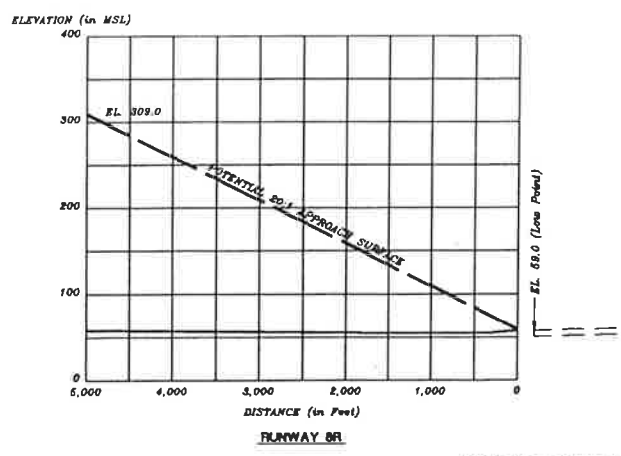
October 16, 1996 SHEET 3 OF 7

Coffman Associates
 Airport Consultants

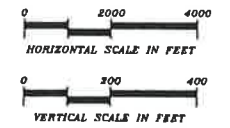
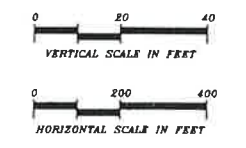
THE PREPARATION OF THESE DOCUMENTS WAS FINANCED IN PART THROUGH A PLANNING GRANT FROM THE FEDERAL AVIATION ADMINISTRATION AS PROVIDED UNDER SECTION 808 OF THE AIRPORT AND AIRWAY IMPROVEMENT ACT OF 1982, AS AMENDED. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEW OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAW.



POTENTIAL RUNWAY 8R-26L PROTECTION ZONE PLANS and PROFILES



POTENTIAL RUNWAY 8R-26L APPROACH ZONE PROFILES



- GENERAL NOTES:**
- Obstructions, clearances, and locations are calculated from ultimate runway and elevations and ultimate approach surfaces, unless otherwise noted.
 - Distance for road obstructions and clearances reflect a safety clearance of 15' for noninterstate roads, 17' for interstate roads, and 25' for railroads.
 - 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.
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 - Depiction of features and objects within the inner portion of the approach surfaces, is illustrated on the PROTECTION ZONES PLAN, sheets 3 and 4 of these plans.
 - Existing and future height and hazard ordinances are to be amended and/or referenced upon approval of updated PART 77 AIRSPACE PLAN.
 - Additional obstruction data is illustrated on National Ocean Survey document OC 680, AIRPORT OBSTRUCTION CHART.

OBSTRUCTION TABLE					
Object Description	Object Elevation	Obstructed Part 77 Surface	Surface Elevation	Object Penetration	Proposed Object Disposition
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. CL. ON VOR/DME	66 MSL	PRIMARY SURFACE	66 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

No.	REVISIONS	DATE	BY	APPD.

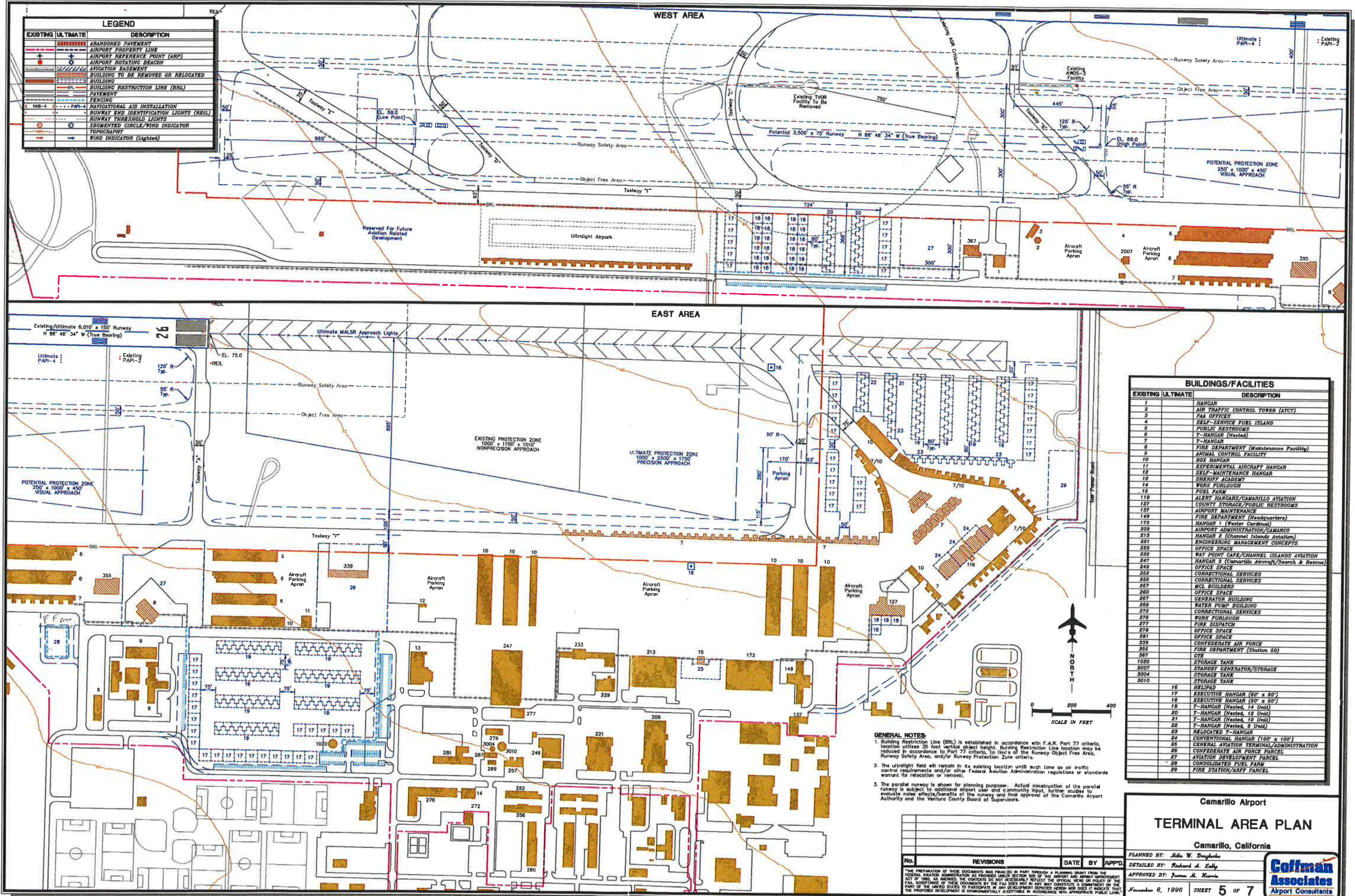
Camarillo Airport
**POTENTIAL RUNWAY 8R-26L
 APPROACH and PROTECTION
 ZONE PLANS and PROFILES**
 Camarillo, California

PLANNED BY: *Mike W. Douglas*
 DETAILED BY: *Richard A. Kelly*
 APPROVED BY: *James M. Harris*
 November 6, 1996 SHEET 4 OF 7

Coffman Associates
 Airport Consultants

THE PREPARATION OF THESE DOCUMENTS WAS FINANCED IN PART THROUGH A PLANNING GRANT FROM THE FEDERAL AVIATION ADMINISTRATION AS PROVIDED UNDER SECTION 603 OF THE AIRPORT AND AIRWAY IMPROVEMENT ACT OF 1982. AS ADVISED, THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEW OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT PROJECT HEREIN NOR DOES IT WARRANT THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPLICABLE PUBLIC LAWS.

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
---	---	NAVIGATIONAL AID INSTALLATION
---	---	RUNWAY END IDENTIFICATION LIGHTS (REIL)
---	---	RUNWAY THRESHOLD LIGHTS
---	---	SEGMENTED CIRCLE/WIND INDICATOR
---	---	TOPOGRAPHY
---	---	WIND INDICATOR (Lighted)



EXISTING	ULTIMATE	DESCRIPTION
1		HANGAR
2		AIR TRAFFIC CONTROL TOWER (ATCT)
3		FAR 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 (Pester Corridor)
209		AIRPORT ADMINISTRATION/CAMARCO
213		HANGAR 2 (Charcoal Islands Aviation)
221		ENGINEERING MANAGEMENT CONCEPTS
229		OFFICE SPACE
233		WAY POINT CAFE/CHANNEL ISLANDS AVIATION
247		HANGAR 3 (Camarillo Aircraft/Search & Rescue)
248		OFFICE SPACE
258		CORRECTIONAL SERVICES
259		CORRECTIONAL SERVICES
267		MCL BUILDERS
269		OFFICE SPACE
267		GENERATOR BUILDING
269		WATER PUMP BUILDING
272		CORRECTIONAL SERVICES
276		WORK FURLOUGH
277		FIRE DISPATCH
279		OFFICE SPACE
281		OFFICE SPACE
281		CONFEDERATE AIR FORCE
304		FIRE DEPARTMENT (Station 50)
307		GTE
1020		STORAGE TANK
3007		STANDBY GENERATOR/STORAGE
3004		STORAGE TANK
3010		STORAGE TANK
16		HELIPAD
17		EXECUTIVE HANGAR (60' x 60')
18		EXECUTIVE HANGAR (60' x 60')
19		T-HANGAR (Nested, 14 Units)
20		T-HANGAR (Nested, 12 Units)
21		T-HANGAR (Nested, 10 Units)
22		T-HANGAR (Nested, 8 Units)
23		RELOCATED T-HANGAR
24		CONVENTIONAL HANGAR (100' x 100')
26		GENERAL AVIATION TERMINAL/ADMINISTRATION
28		CONFEDERATE AIR FORCE PARCEL
27		AVIATION DEVELOPMENT PARCEL
28		CONSOLIDATED FUEL FARM
29		FIRE STATION/ARFF PARCEL

GENERAL NOTES:

- Building Restriction Line (BRL) is established in accordance with F.A.R. Part 77 criteria, location utilizes 35 foot vertical object height. Building Restriction Line location may be reduced in accordance to Part 77 criteria, to limits of the Runway Object Free Area, Runway Safety Area, and/or Runway Protection Zone criteria.
- The ultralight field will remain in its existing location until such time as air traffic control requirements and/or other Federal Aviation Administration regulations or standards warrant its relocation or removal.
- The parallel runway is shown for planning purposes. Actual construction of the parallel runway is subject to additional airport user and community input, further studies to evaluate noise effects/benefits of the runway and final approval of the Camarillo Airport Authority and the Ventura County Board of Supervisors.

Camarillo Airport

TERMINAL AREA PLAN

Camarillo, California

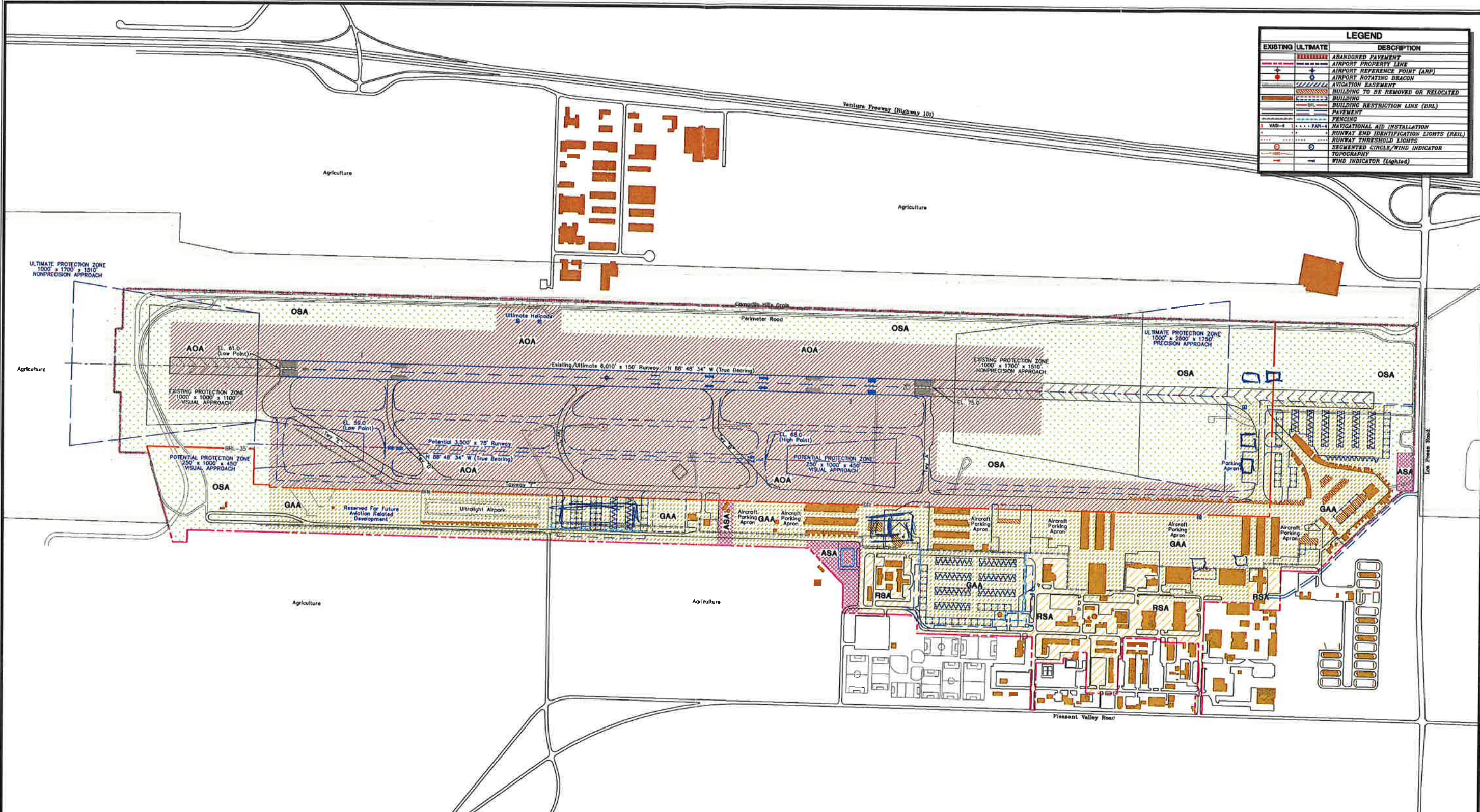
PLANNED BY: Mike W. Douglas
 DETAILED BY: Richard A. Kelly
 APPROVED BY: James M. Morris

November 6, 1996 **SHEET 5 OF 7**

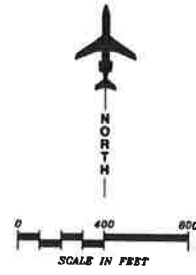
No.	REVISIONS	DATE	BY	APP'D

THE PREPARATION OF THESE DOCUMENTS WAS FINANCED IN PART THROUGH A PLANNING GRANT FROM THE FEDERAL AVIATION ADMINISTRATION AS PROVIDED UNDER SECTION 503 OF THE AIRPORT AND AIRWAY REVENUE ACT OF 1966. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEW OR POLICY OF THE FEDERAL AVIATION ADMINISTRATION. THE FAA DOES NOT IN ANY MANNER CONSTITUTE A COMMITMENT OF THE FEDERAL GOVERNMENT TO PARTICIPATE IN ANY DEVELOPMENT PROJECTS UNLESS IT INDICATES THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS.

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



AIRPORT LAND USE LEGEND	
	Airfield Operations Area
	General Aviation Area
	Airport Support Area
	Revenue Support Area
	Open Space / Agriculture



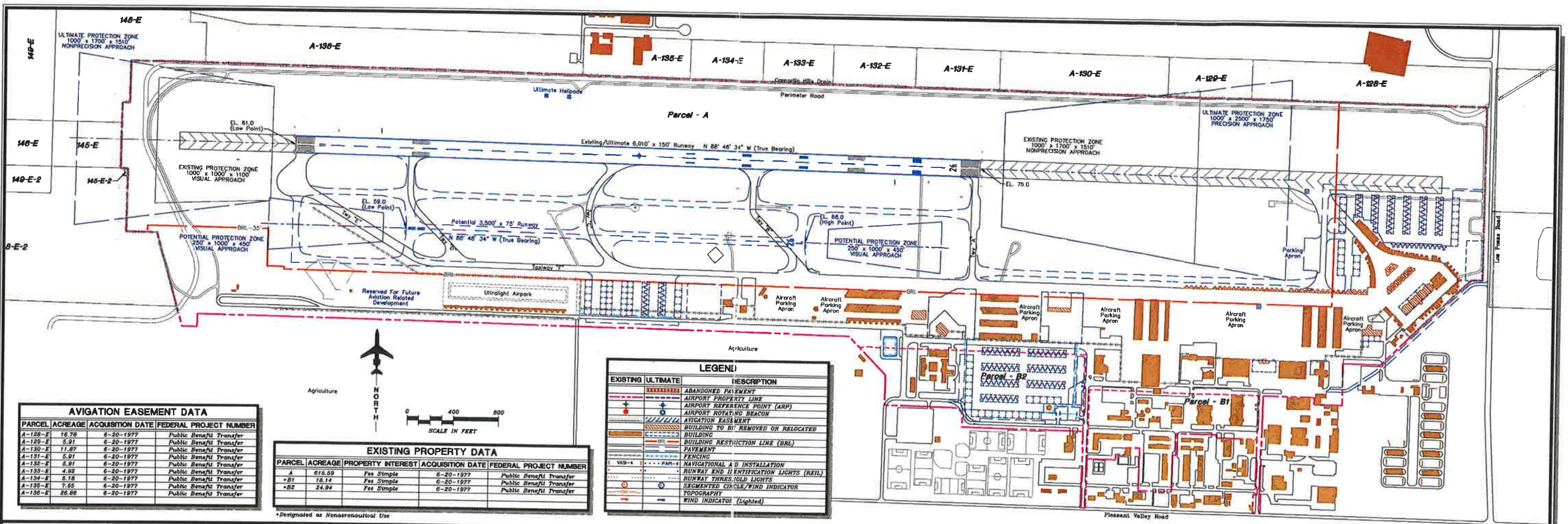
No.	REVISIONS	DATE	BY	APPD.

Camarillo Airport
AIRPORT LAND USE PLAN
 Camarillo, California

PLANNED BY: Mike W. Smyth
 DETAILED BY: Richard A. Kelly
 APPROVED BY: James A. Harris

November 6, 1996 SHEET 6 OF 7

THE PREPARATION OF THESE DOCUMENTS WAS FINANCED IN PART THROUGH A PLANNING GRANT FROM THE FEDERAL AVIATION ADMINISTRATION AS PROVIDED UNDER SECTION 405 OF THE AIRPORT AND AIRWAY IMPROVEMENT ACT OF 1982, AS AMENDED. THE CONTENTS DO NOT NECESSARILY REFLECT THE OPINION, VIEW OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT IDENTIFIED HEREIN NOR DOES IT IMPLY THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAW.



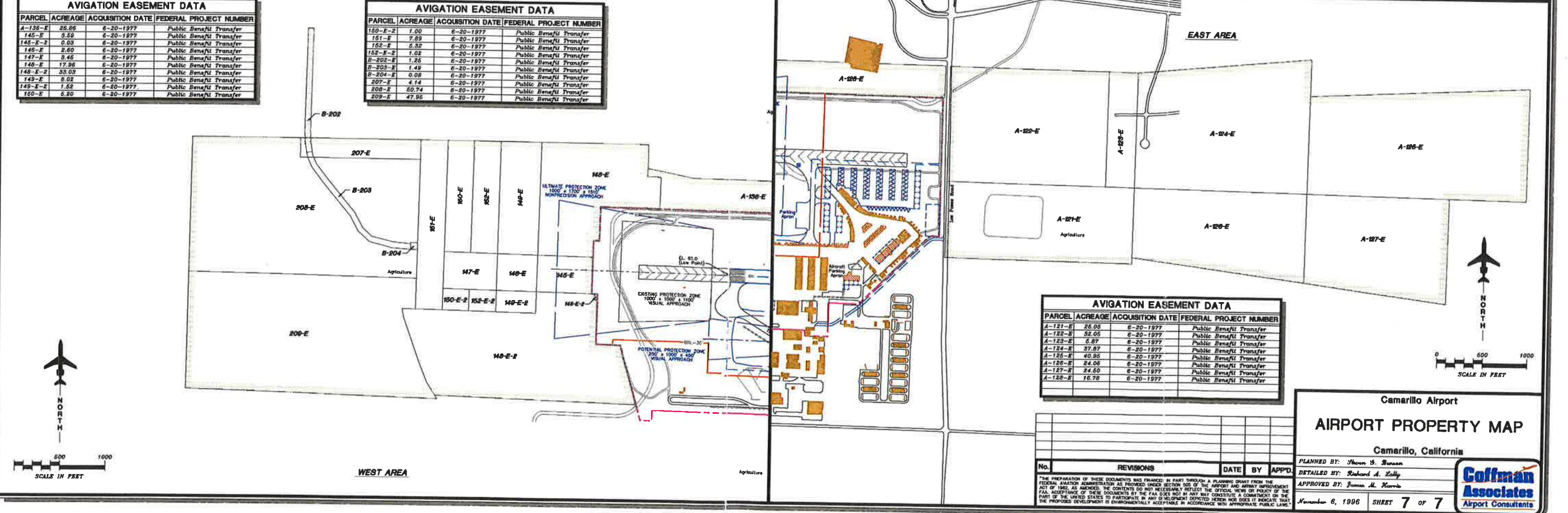
AVIGATION EASEMENT DATA			
PARCEL	ACREAGE	ACQUISITION DATE	FEDERAL PROJECT NUMBER
A-128-E	16.79	6-20-1977	Public Benefit Transfer
A-129-E	5.91	6-20-1977	Public Benefit Transfer
A-130-E	11.87	6-20-1977	Public Benefit Transfer
A-131-E	5.91	6-20-1977	Public Benefit Transfer
A-132-E	5.91	6-20-1977	Public Benefit Transfer
A-133-E	4.92	6-20-1977	Public Benefit Transfer
A-134-E	5.18	6-20-1977	Public Benefit Transfer
A-135-E	7.55	6-20-1977	Public Benefit Transfer
A-136-E	26.86	6-20-1977	Public Benefit Transfer

EXISTING PROPERTY DATA				
PARCEL	ACREAGE	PROPERTY INTEREST	ACQUISITION DATE	FEDERAL PROJECT NUMBER
A	615.59	Fee Simple	6-20-1977	Public Benefit Transfer
B1	18.14	Fee Simple	6-20-1977	Public Benefit Transfer
B2	24.94	Fee Simple	6-20-1977	Public Benefit Transfer

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

AVIGATION EASEMENT DATA			
PARCEL	ACREAGE	ACQUISITION DATE	FEDERAL PROJECT NUMBER
A-136-E	26.86	6-20-1977	Public Benefit Transfer
145-E	3.59	6-20-1977	Public Benefit Transfer
146-E-2	0.03	6-20-1977	Public Benefit Transfer
146-E	8.60	6-20-1977	Public Benefit Transfer
147-E	3.45	6-20-1977	Public Benefit Transfer
148-E	17.96	6-20-1977	Public Benefit Transfer
148-E-2	33.03	6-20-1977	Public Benefit Transfer
149-E	8.02	6-20-1977	Public Benefit Transfer
149-E-2	1.52	6-20-1977	Public Benefit Transfer
150-E	5.80	6-20-1977	Public Benefit Transfer

AVIGATION EASEMENT DATA			
PARCEL	ACREAGE	ACQUISITION DATE	FEDERAL PROJECT NUMBER
150-E-2	1.00	6-20-1977	Public Benefit Transfer
151-E	7.83	6-20-1977	Public Benefit Transfer
152-E	5.52	6-20-1977	Public Benefit Transfer
153-E-2	1.03	6-20-1977	Public Benefit Transfer
B-202-E	1.25	6-20-1977	Public Benefit Transfer
B-203-E	1.49	6-20-1977	Public Benefit Transfer
B-204-E	0.08	6-20-1977	Public Benefit Transfer
207-E	4.14	6-20-1977	Public Benefit Transfer
208-E	80.74	6-20-1977	Public Benefit Transfer
209-E	47.95	6-20-1977	Public Benefit Transfer



AVIGATION EASEMENT DATA			
PARCEL	ACREAGE	ACQUISITION DATE	FEDERAL PROJECT NUMBER
A-121-E	25.05	6-20-1977	Public Benefit Transfer
A-122-E	32.05	6-20-1977	Public Benefit Transfer
A-123-E	5.87	6-20-1977	Public Benefit Transfer
A-124-E	37.87	6-20-1977	Public Benefit Transfer
A-125-E	40.95	6-20-1977	Public Benefit Transfer
A-126-E	24.08	6-20-1977	Public Benefit Transfer
A-127-E	24.50	6-20-1977	Public Benefit Transfer
A-128-E	16.78	6-20-1977	Public Benefit Transfer

Camarillo Airport
AIRPORT PROPERTY MAP
 Camarillo, California

PLANNED BY: *Steven S. Sunan*
 DETAILED BY: *Richard A. Kelly*
 APPROVED BY: *James M. Harris*

November 6, 1996 SHEET 7 OF 7

No.	REVISIONS	DATE	BY	APP'D.

THE PREPARATION OF THESE DOCUMENTS HAS BEEN MADE IN PART THROUGH A PLANNING GRANT FROM THE FEDERAL AVIATION ADMINISTRATION AS FUNDED UNDER SECTION 505 OF THE AIRPORT AND AIRWAY IMPROVEMENT ACT OF 1982, AS AMENDED. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEW OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY ANY DEVELOPER DOES NOT CONSTITUTE A COMMITMENT OF THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT PROJECT HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS.



Chapter Seven
FINANCIAL PLAN

FINANCIAL PLAN



The analyses conducted in previous chapters evaluated airport development needs based upon forecast activity changes and operational efficiency. However, the most important element of the master planning process is the application of basic economic, financial and management rationale to each development item so that the feasibility of implementation can be assured. The purpose of this chapter, therefore, is to provide financial management information and tools which will help make the master plan achievable and successful.

The presentation of the financial plan and its feasibility has been organized into three sections. First, the airport development schedule is presented in narrative and graphic form. Secondly, capital improvement funding sources on the federal, state, and local levels are identified and discussed. Finally, the chapter

presents a cash flow analysis which analyzes the financial feasibility of the recommended capital improvement program (CIP).

AIRPORT DEVELOPMENT SCHEDULES AND COST SUMMARIES

Once the specific needs and improvements for the airport have been established, the next step is to determine a realistic schedule and costs for implementing the plan. This section examines the overall cost of development and presents a development schedule. The recommended improvements are grouped and divided into three planning horizons of short term, intermediate term, and long range. **Table 7A** summarizes the key activity milestones for each planning horizon.

The short-term planning horizons covers items of highest priority as well



as items that should be developed as the airport approaches the short term activity milestones. Priority items include improvements related to safety and pavement maintenance. Also included are improvements to facilities that are inadequate for present demand.

Because of their priority, those items will need to be incorporated into County, State, and FAA programming. To assist in this process, short term projects are scheduled year-by-year over a five year period.

TABLE 7A
Aviation Activity Planning Horizons
Camarillo Airport

	Actual 1994	Short Term	Intermediate Term	Long Range
ANNUAL OPERATIONS				
General Aviation				
Itinerant	82,661	92,000	106,000	132,000
Local	103,567	118,000	134,000	168,000
Total GA	186,228	210,000	240,000	300,000
Air Taxi	2,025	2,300	2,600	3,300
Military	2,597	2,500	2,500	2,500
Total Operations	190,850	214,800	245,100	305,800
BASED AIRCRAFT	580	640	720	890

When short term horizon activity levels are reached, it will be time to program for the intermediate term based upon the next activity milestones. Similarly, when the intermediate term milestones are reached, it will be time to program for the long range.

Nevertheless, these estimates are considered sufficiently accurate for performing the feasibility analyses in this chapter. Cost estimates for each development project listed in **Table 7B** are presented in current (1995) dollars.

Due to the conceptual nature of a master plan, implementation of capital projects should occur only after further refinement of their design and costs through architectural and engineering analyses. The cost estimates were increased by 30 percent in order to allow for engineering and other contingencies that may be experienced by the project. Capital costs in this chapter should be viewed only as estimates subject to further refinement during design.

SHORT TERM IMPROVEMENTS

As indicated above, the Short Term Horizon is the only development stage that is correlated to time. This is because development within this initial period is concentrated first on the most immediate needs of the airfield and landside areas. Therefore, the program is presented year-by-year for the first five years to assist in capital improvement.

**TABLE 7B
Capital Improvement Program
Camarillo Airport
(1995 Dollars)**

	Total Cost	FAA Eligible	State Matching	Airport
CY 1996 IMPROVEMENTS				
1. Overlay, stripe, and mark Taxiways A & D	\$120,000	\$108,000	\$5,400	\$6,600
2. Slurry, crack fill, & mark east and west ramps	100,000	90,000	4,500	5,500
3. Add asphalt concrete cap to existing access road	120,000	108,000	0	12,000
4. Runway and taxiway shoulder rehabilitation	250,000	225,000	11,250	13,750
5. Perimeter security fencing, lighting, and signage	525,000	472,500	23,625	28,875
6. Site prep. & paving for hangar for central hangar development	1,630,000	610,000	30,500	989,500
7. Prepare Consolidated Fuel Farm Site	180,000	0	0	180,000
Subtotal	\$2,925,000	\$1,613,500	\$75,275	\$1,236,225
CY 1997 IMPROVEMENTS				
8. Clear, rehab storm drainage system	\$210,000	\$189,000	\$9,450	\$11,550
9. Construct 42 T-hangars and relocate 35 port-a-ports	860,000	0	0	860,000
10. Reconstruct road south of central hangar area	415,000	373,500	0	41,500
11. Extend perimeter fence around central hangar area	30,000	27,000	1,350	1,650
Subtotal	\$1,515,000	\$589,500	\$10,800	\$914,700
CY 1998 IMPROVEMENTS				
12. Reconstruct ramp east of CAF leasehold	\$94,000	\$84,600	\$4,230	\$5,170
13. Construct taxiway parallel to east ramp with marking & lighting	1,045,000	940,500	47,025	57,475
Subtotal	\$1,139,000	\$1,025,100	\$51,255	\$62,645
CY 1999 IMPROVEMENTS				
14. Overlay, mark, & stripe Runway 8-26	\$1,450,000	\$1,305,000	\$65,250	\$79,750
15. Slurry and mark all ramps	212,000	190,800	9,540	11,660
Subtotal	\$1,662,000	\$1,495,800	\$74,790	\$91,410
CY 2000 IMPROVEMENTS				
16. Construct parallel taxiway to Runway 8-26 - Phase I	\$895,000	\$805,500	\$40,275	\$49,225
17. Construct ramp with security lighting	555,000	499,500	24,975	30,525
18. Replace rotating beacon with tower, electricity and controls	100,000	90,000	4,500	5,500
19. Extend access road/fire protection west	700,000	630,000	0	70,000
20. Construct 21 T-hangars	546,000	0	0	546,000
Subtotal	\$2,796,000	\$2,025,000	\$69,750	\$701,250
SHORT TERM PROGRAM SUBTOTAL	\$10,037,000	\$6,748,900	\$281,870	\$3,006,230

pd = private development

TABLE 7B (Continued) Capital Improvement Program Camarillo Airport				
	Total Cost	FAA Eligible	State Matching	Airport
INTERMEDIATE HORIZON IMPROVEMENTS				
1. Improve safety areas & drainage for Runway 8-26 <i>Phase 1</i>	\$1,100,000	\$990,000	\$49,500	\$60,500
2. Slurry and mark runway and taxiways	200,000	180,000	9,000	11,000
3. X Construct Administration/General Aviation terminal building	2,850,000	0	0	2,850,000
4. X Construct parallel taxiway to Runway 8-26 - Phase II	1,350,000	1,215,000	60,750	74,250
5. Install MALSR - Runway 26 <i>FAA</i>	350,000	350,000	0	0
6. Site prep & pave access taxiway for west hangar development	1,145,000	515,000	25,750	604,250
7. Construct 24 T-hangars	624,000	0	0	624,000
8. Rehabilitate and in-fill for east parking apron	93,000	83,700	4,185	5,115
Intermediate Horizon Subtotal	\$7,712,000	\$3,333,700	\$149,185	\$4,229,115
LONG RANGE HORIZON IMPROVEMENTS				
1. Pave perimeter service road <i>Phase 1 06/07</i>	\$550,000	\$495,000	\$24,750	\$30,250
2. X Construct parallel taxiway to Runway 8-26 - Phase III	415,000	373,500	18,675	22,825
3. Site prep/paving of east hangar development area	1,500,000	675,000	33,750	791,250
4. Construct 68 T-hangars & relocate 17 port-a-ports	1,768,000	0	0	1,768,000
5. Construct Parking Apron (10,000 sq. yd.) <i>Summary</i>	325,000	292,500	14,625	17,875
Long Range Horizon Subtotal	\$4,558,000	\$1,836,000	\$91,800	\$2,630,200
TOTAL PROGRAM COSTS	\$22,307,000	\$11,918,600	\$522,855	\$9,865,545

programming. Short term improvements are estimated at \$10.0 million and include the following:

Airside: Many of the projects included in the short term are designed to increase and enhance operational safety, while providing the airfield with increased efficiency. The construction of a parallel taxiway to Runway 8-26 Phase I will provide the airfield with partial two-way circulation. Construction of the full length parallel taxiway will be completed in three phases. Another taxiway will be constructed parallel to the east ramp to improve circulation to and from the

terminal area. Runway 8-26 is programmed to receive an overlay.

Other airfield projects planned for the short term include overlay and marking Taxiways A & D, airport perimeter security fencing, runway/taxiway shoulder rehabilitation, and clearing and rehabilitating the airfield storm drainage system.

Landside: Much of the landside improvements focus on apron and hangar construction and renovation. Hangar development in the short term will be concentrated in an area south of the existing T-hangars adjacent to

Taxiway A. Included in the planned hangar development is site preparation and paving of the existing undeveloped area in order to provide for the construction of an additional 63 T-hangars and relocation of the 35 port-a-ports along the main ramp. This relocation is necessary to permit the construction of the parallel taxiway along the east ramp, that is needed to provide safe, efficient two-way circulation. Costs for the port-a-port relocation are included in the project cost. Hangar development in this area will require paving the road on the south side of the expanded central hangar area prior to closing the road on the north side for development.

Reconstruction of the ramp east of the CAF leasehold and the construction of a parking apron at the existing Ventura County Fire Station leasehold is also planned for the period. Finally, slurry seal and marking of all ramp areas will be completed by 1999.

Other items included in the short term include site preparation for a consolidated fuel farm, overlay and extension of the airport access road west of the air traffic control tower, and replacement of the rotating beacon.

Intermediate Term Development

The Intermediate Term Horizon encompasses development related to accommodating the intermediate activity milestones presented in **Table 7A**. This includes improvements that will be triggered by the continued growth of the related sector of activity. The major airside development items anticipated are the improvement of safety areas and drainage for Runway

8-26 and construction of the parallel taxiway Phase II.

Other airside projects planned for the period include the slurry seal and marking of Runway 8-26 and taxiways as well as the installation of a MALSR for Runway 26.

Landside improvements in the intermediate term planning horizon include the construction of the general aviation/airport administration building. To accommodate growing hangar needs, development of additional hangars west of the air traffic control tower are included in the intermediate term. **As depicted in Table 7B, the total cost of Stage II is estimated at \$7.7 million.**

LONG RANGE IMPROVEMENTS

Development projects will ultimately produce an airport capable of accommodating all of the aviation activity and requirements anticipated for the planning period.

The rehabilitation of the airport service road is planned within the long range. The final phase of the parallel taxiway construction will provide Runway 8-26 with a full length parallel taxiway once the VOR is decommissioned and removed.

Westside development consists of the construction of a 10,000 square yard parking apron/ramp. Eastside development involves construction of 68 T-hangars and the relocation of 17 port-a-port hangars in the east hangar area. Removal of the alert hangars is also planned which will open up the area and improve access for two-way

circulation and apron space. **The total cost of development for Long Range development is estimated at \$4.6 million.**

CAPITAL IMPROVEMENTS FUNDING

Financing capital improvements at the airport will not rely exclusively upon the financial resources of the Ventura County Department of Airports. Capital improvements funding is available through various grant-in-aid programs on the state and federal levels. The following discussion outlines the key sources for capital improvement funding.

FEDERAL GRANTS

The United States Congress has long recognized the need to develop and maintain a system of aviation facilities across the nation for the purpose of national defense and promotion of interstate commerce. Various grant-in-aid programs to public airports have been established over the years for this purpose. The most recent legislation established the Airport Improvement Program (AIP) in 1982. The source for AIP funds is the Aviation Trust Fund. The Aviation Trust Fund was established in 1970 to provide funding for aviation capital investment programs (e.g. facilities and equipment, research and development, and grants for airport development and expansion projects). It also finances about half of the FAA's operations account. The Aviation Trust Fund is funded by federal user fees and taxes on airline tickets, aviation fuel and various

aircraft parts. In 1994, the Aviation Trust Fund income totaled \$6 billion, and the cash balance was over \$12 billion.

Under the AIP, examples of eligible development projects include the airfield, apron, terminal and access road improvements. The AIP program provides funding for 90 percent of eligible public use projects cost. The AIP funds are distributed each year by the FAA under authorization from the United States Congress.

The primary feature of AIP discretionary funds that must be recognized is that these funds are distributed on a priority basis. These priorities are established by each FAA regional office based primarily upon need and secondarily the funds available according to the dollar amount of applications received. Since the AIP program funds up to 90 percent of eligible projects, it is essential to most public airport development programs. As a result, the airport will be competing with other airports in California, the FAA Western Pacific Region, as well as the remainder of the country for discretionary funds. Whereas entitlement monies are guaranteed on an annual basis, discretionary funds are not assured.

Other FAA funds will come through the Airways Facilities Division of the FAA. As activity levels and other development warrant, the airport will be considered by Airways and Facilities for various navigational aids. At Camarillo Airport this can include the installation of the MALSR system on Runway 26. The facility would be operated and maintained by the FAA at no expense to the airport.

STATE FUNDS

In support of the state airport system, the California Transportation Commission (CTC) also participates in state airport development projects. An Aeronautics Account has been established within the State Transportation Fund from which all airport improvement monies are drawn. As of 1994, tax revenues have been collected and deposited in the Aeronautics Account from the sale of general aviation jet fuel (\$0.02 per gallon) and avgas (\$0.18 per gallon).

The California Transportation Commission has established three grant programs to distribute funds deposited in the Aeronautics Account: **Annual Grants, Acquisition and Development (A & D) Grants, and AIP Matching Grants.** Another funding source provided by the CTC is low interest loans. Each item is briefly discussed below.

Annual Grants

Annual Grants are distributed by the CTC for projects considered "airport and aviation purposes" as defined in the State Aeronautics Act. This grant provides up to \$10,000 annually to airports which are not designated as a reliever or commercial service airport. Camarillo Airport is currently designated by the **NPIAS** as a reliever airport. Therefore, Camarillo Airport is not eligible to receive funding through an Annual Grant.

Acquisition and Development (A & D) Grants

A & D Grants are designed to provide funding to airports for the purpose of land acquisition and development. This grant has a minimum allocation level of \$10,000 and provides up to \$500,000 per fiscal year (maximum allowable funding to a single airport yearly). Grant requests are initiated through the CIP process and require a local match of 10 to 50 percent the projects cost (the level has been 10 percent for the last 10+ years). Unlike Annual Grants, reliever and commercial service airports are eligible for the A & D grant.

AIP Matching Grants

The AIP grant is distributed for the purpose of aiding an airport with the local match of a federally funded improvement project. In order to be eligible for an AIP Matching Grant, the project must have been included in the State CIP and the sponsor must have accepted a federal AIP Grant for the project. Only state eligible projects can be awarded an AIP Matching Grant (projects involved with air carrier improvements are not eligible). This grant provides 4.5 percent of the projects eligible cost (i.e. 5 percent of the AIP Grant) and counts towards the yearly \$500,000 maximum grant disbursement level. As illustrated by **Table 7B**, a majority of the projects within the CIP include the matching funds provided by the State.

California Airport Loan Program

The loan program provides funding for all airports within the State of California which are owned by an eligible public agency and open to the public without exception. These loans provide funding to eligible airports for construction and land acquisition projects which will benefit the airport and improve its self-sufficiency. The loans can be used for any airport related project and the funding limits are not bound by law or regulation. The amount of the loan is determined in accordance with project feasibility and the sponsor's financial status. Terms of the loan provide 8 to 15 years for its payback and the interest rate is based upon the most recent State bond sale. The Ventura County Department of Airports could apply for these loans to construct additional hangars at Camarillo Airport.

LOCAL SHARE FUNDING

The balance of project costs, after consideration has been given to the various grants available, must be funded through airport resources. Usually, this is accomplished through the use of airport earnings and reserves, to the extent possible, with the remaining costs financed through revenue bonding. The airport operates on a self-sustaining basis from the collection of various rates and charges to the airport users.

Projects that are not typically eligible for FAA funding are those that are exclusive use facilities or are revenue-producing for the airport. These include items such as parking lots, hangars, and fuel facilities. The following sections examine the

potential sources of local funding beginning with an examination of operating revenues and expenditures.

Airport Operating Expenses

Operating expenses for Camarillo Airport were projected after reviewing previous expense records of the airport. These expenses were compared to similar airports and related to the expected growth and development of the airport through the master plan. An historical summary of operating expenses for fiscal years 1991 through 1995 is included in **Table 7C**. The cash flow, including operating revenues for this period, is also included in the table for comparison. This information was tabulated from airport financial statements.

The airport's expenses includes salaries and benefits, utilities, supplies, maintenance, professional fees and internal service fund charges. Details concerning these categories are discussed below and operating expense projections are shown in **Tables 7D and 7E**. Inflation will affect future operating expenses but in order to maintain consistency with the remainder of the analysis, these factors are not included in these estimates. The projected operating expenses are shown in 1995 dollars to discount the unpredictability of inflation.

• SALARIES AND BENEFITS

This category includes airport employee salaries and benefits. Benefits include longevity pay, retirement, health insurance, and social security. Salary costs were projected to increase to

assume additional employees over the planning period. Increases for merit are also factored into the projected cash flow.

This includes the administration office utilities, as well as equipment storage areas, parking lot, security, and airfield lighting. The continued addition of facilities and apron lighting will increase utility costs. Utility costs will also increase when the new terminal/administration building is constructed.

- **UTILITIES**

Utilities included power, gas, water, and sewer charges paid by the airport.

TABLE 7C Historical Operating Revenue and Expenses Camarillo Airport					
					Budget
	1991	1992	1993	1994	1995
OPERATING INCOME:					
Hangar & Tie-down Rentals	\$567,000	\$558,000	\$545,800	\$577,000	\$566,000
Other Rentals	1,258,100	1,225,200	1,242,100	1,395,800	1,348,500
Fuel Flowage	40,700	50,400	50,000	54,200	52,800
Auto Parking	500	600	800	1,300	300
Non-Operating Items	473,900	127,500	76,400	228,900	100,000
Other Revenues	39,100	82,000	41,800	42,600	70,900
OPERATING INCOME	\$2,379,300	\$2,043,700	\$1,956,900	\$2,299,800	\$2,138,500
OPERATING EXPENSES:					
Salaries & Benefits	\$841,400	\$960,100	\$1,028,700	\$1,067,100	\$1,066,200
Utilities	43,200	48,800	59,200	68,400	63,800
Supplies	16,400	25,200	22,900	18,000	26,800
Maintenance	224,100	216,900	151,300	301,400	241,400
Professional Fees	54,600	24,400	16,300	20,200	13,400
Other	49,400	56,700	52,700	372,300	71,300
Internal Service Fund Chgs	202,000	168,300	165,300	93,800	229,400
OPERATING EXPENSES	\$1,431,100	\$1,500,400	\$1,496,400	\$1,941,200	\$1,712,300
OPERATING INCOME (LOSS)	\$948,200	\$543,300	\$460,500	\$358,600	\$426,200

- **SUPPLIES AND MAINTENANCE**

Supplies and maintenance costs include the general costs of maintaining all airfield facilities. These include costs for landscaping upkeep, furniture and fixtures, maintenance, building and pavement repair, as well as associated supplies. Adjustments have been

applied through the planning period to account for maintaining additional facilities as well as the aging of the existing facilities.

- **PROFESSIONAL FEES**

Professional fees are fees paid for work done on a consulting basis by private

TABLE 7D
Short Term Cash Flow Analysis
Camarillo Airport
(1995 Dollars)

	1996	1997	1998	1999	2000
OPERATING INCOME					
Hangar & Tiedown Rentals	\$567,200	\$690,200	\$757,900	\$785,800	\$790,000
Other Rentals	1,347,800	1,359,200	1,370,700	1,382,400	1,394,100
Fuel Flowage	53,000	53,800	54,600	55,400	56,300
Auto Parking	500	500	500	500	500
Non-Operating Items	100,000	100,000	100,000	100,000	100,000
Other Revenues	40,600	25,700	25,900	26,000	26,100
TOTAL OPERATING INCOME	\$2,109,100	\$2,229,400	\$2,309,600	\$2,350,100	\$2,367,000
OPERATING EXPENSES					
Salaries & Benefits	\$1,072,100	\$1,088,100	\$1,104,500	\$1,121,000	\$1,137,800
Utilities	65,000	66,000	67,000	68,000	69,000
Supplies	25,500	25,800	25,900	26,000	26,100
Maintenance	241,200	242,100	243,000	244,000	244,900
Professional Fees	15,200	15,300	15,400	15,400	15,500
Other	70,200	70,500	70,900	71,200	71,600
Internal Service Fund Charges	191,500	192,500	193,400	194,400	195,400
TOTAL OPERATING EXPENSES	\$1,680,700	\$1,700,300	\$1,720,100	\$1,740,000	\$1,760,300
OPERATING INCOME(LOSS)	\$428,400	\$529,100	\$589,500	\$610,100	\$606,700
CIP FUNDING					
Recommended CIP(-)	\$2,925,000	\$1,515,000	\$1,139,000	\$1,662,000	\$2,796,000
Discretionary Funds(+)	1,613,500	589,500	1,025,100	1,495,800	2,025,000
State Matching Funds(+)	75,275	10,800	51,255	74,790	69,750
CIP LOCAL SHARE(-)	\$1,236,225	\$914,700	\$62,645	\$91,410	\$701,250
Bond Proceeds(+)	1,000,000	800,000	0	500,000	500,000
Debt Service(-)	0	110,108	198,195	198,195	253,249
NET EXCESS OR (DEFICIT)	\$192,175	\$304,292	\$328,660	\$820,495	\$152,201
Oxnard Annual Excess(Deficit)	(120,100)	(185,003)	(146,602)	(255,504)	(115,143)
VENTURA COUNTY AIRPORTS ANNUAL EXCESS(DEFICIT)	\$72,075	\$119,289	\$182,058	\$564,991	\$37,058

TABLE 7E
Extended Cash Flow Analysis - Annual Averages
Camarillo Airport
(1995 Dollars)

	Intermediate Term	Long Range
OPERATING INCOME		
Hangar & Tiedown Rentals	\$883,960	\$1,054,640
Other Rentals	1,539,580	1,901,190
Fuel Flowage	60,620	73,090
Auto Parking	500	500
Non-Operating Items	100,000	100,000
Other Revenues	26,500	27,520
TOTAL OPERATING INCOME	\$2,611,160	\$3,156,940
OPERATING EXPENSES		
Salaries & Benefits	\$1,190,080	\$1,331,590
Utilities	72,140	80,750
Supplies	26,540	27,550
Maintenance	204,820	324,980
Professional Fees	15,740	16,340
Other	72,640	75,410
Internal Service Fund Chgs	198,300	205,870
TOTAL OPERATING EXPENSES	\$1,780,260	\$2,062,490
OPERATING INCOME(LOSS)	\$830,900	\$1,094,450
CIP FUNDING		
Recommended CIP(-)	1,542,400	455,800
Discretionary Funds(+)	666,740	183,600
State Matching Funds(+)	29,837	9,180
CIP LOCAL SHARE(-)	\$845,823	\$263,020
Bond Proceeds (+)	600,000	0
Debt Service(-)	440,432	638,627
NET EXCESS OR (DEFICIT)	\$144,645	\$192,803
Oxnard Annual Excess(Deficit)	(66,678)	2,262
VENTURA COUNTY AIRPORTS ANNUAL EXCESS(DEFICIT)	77,967	195,065

firms. It does not include engineering and architectural fees that are a part of the capital improvement program. These fees are not projected to increase significantly.

- **INTERNAL SERVICE
FUND CHARGES**

Internal service fund charges are the airports share of charges related to administrative services provided by the County. These charges were forecast to increase as airport activity increases.

Airport Operating Revenues

Airport operating revenues are generated from fees and lease agreements with users of the airport or the airport property. Several methods are available for an airport to generate income from its use. The Ventura County Department of Airports presently uses a number of fees and rents at Camarillo and Oxnard Airports, including the following:

- Tie-down fees
- Hangar rentals
- Ground rent
- Landing fees
- Fuel flowage fees

The ideal and ultimate goal of any airport should be the capability of supporting its own operation and development through airport user fees. This can be very difficult for general aviation and small commercial service airports to achieve. Therefore, adequate yet reasonable fees must be maintained and potential new sources of revenue must be examined to keep an airport on a positive stature within

its community. For example, an airport cannot expect to break even when the fees received from building rentals will not even amortize the cost of construction. Such is the case all too frequently, making it little wonder that communities often complain about the high costs of maintaining their airport. The same communities continue to finance the airport's operation because they recognize its value to the area.

Another consideration is that to meet FAA compliance requirements that are tied to every grant received, the airport must demonstrate that it is maintaining a reasonable system of rates and charges that is equitable for all airport tenants and users. The Ventura County Department of Airports has established such a system with its schedule of rents and fees common to the Oxnard and Camarillo Airports.

Table 7D outlines future revenue projections. Projections were developed taking into account activity increases and additional facilities provided by the capital improvement program. All revenue rates are based upon 1995 dollars. The present rent and fee schedule has been established in a manner that will permit fees to be adjusted with inflation.

CASH FLOW ANALYSIS

Tables 7D and 7E present the summary of the cash flow analysis for the planning period. The analysis is based upon revenues, expenditures, funding eligibility, and the remaining local share of capital improvement construction costs. The cash flow analysis assumes that federal and state

funding will be available for eligible items.

Unlike Oxnard Airport, which is a primary commercial service airport, Camarillo Airport does not receive any guaranteed entitlement funding and must rely entirely on discretionary funding. As a reliever airport, Camarillo Airport does receive some additional consideration by being eligible to receive grants from a portion of the discretionary funding reserved for reliever airports.

Still, there is no guarantee of receiving adequate discretionary funds to cover the projects as scheduled. If adequate discretionary funding cannot be obtained, the choices will be to either finance the projects from the Department of Airport's operating revenue stream and cash reserves or to delay the implementation of certain projects.

Certain projects in the capital improvement program were assumed to be financed over 20 years at eight percent interest. These were primarily hangar development, administration/terminal building, and other projects that are not eligible for FAA funding.

It is evident from the cash flow analysis in **Table 7D** that revenues generated at Camarillo Airport have and can continue to meet operating expenditures and capital improvement costs over the Short Term Planning Horizon. The surplus can be primarily attributed revenues generated from the business park. As activity increases to trigger development outlined in the Intermediate and Long Range Planning Horizons, revenues would also increase to further improve the cash flow at Camarillo Airport. Because Camarillo

Airport is one of two airports operated by Ventura County, the surplus is used to offset deficits at Oxnard Airport.

In summary, the system of county-owned airports appears to be capable of generating sufficient revenues from its operating sources to cover operating expenses and capital improvements. As was mentioned earlier, a significant portion of the development funding is assumed to be provided by the FAA Airport Improvement Program. The Department of Aviation will need to aggressively pursue this funding. If not available, some key projects may need to be funded from remaining operating revenues and cash reserves, while others will need to be delayed to await future funding.

PLAN IMPLEMENTATION

The best means of beginning the implementation of recommendations of this master plan is to first recognize that planning is a **continuous process** that does not end with completion of the master plan. Rather, the ability to continuously monitor the existing and forecast status of airport activity must be provided and maintained. The basic issues upon which this master plan is based will remain valid for several years. In fact, they are likely to remain valid into the next century. As such, the primary goal is for the airport to evolve into a facility that will best serve the air transportation needs of the Camarillo and Ventura County area well into the 21st century.

Towards meeting this goal, successful implementation of airport improvement projects will require sound judgement

on the part of airport management. Among the more important factors influencing the decision by airport management to carry out a specific improvement are **timing** and **airport activity**. Both of these factors should be used as references in the implementation of the master plan. In this master plan, it was necessary to primarily focus on the timing of airport improvements. However, the actual need for facilities is more appropriately established by airport activity levels rather than a specified date.

For example, projections have been made as to when operational growth will dictate when a new parallel runway should be constructed. However, in reality, the time frame in which additional facilities are needed may be substantially different. Actual demand may be slow in reaching forecast activity levels. On the other hand, increased operational levels may establish the need for new facilities much sooner. Although every effort has been made in this master planning process to conservatively estimate when facility development may be needed, aviation demand will dictate when facility improvements need to be accelerated or delayed.

The real value of a usable master plan is that it keeps the issues and objectives in the mind of the user so that he or she is better able to recognize change and its effect. In addition to adjustments in aviation demand, decisions made as to when to undertake recommended improvements in this master plan will impact the period that the plan remains valid. The format used in this plan is intended to reduce the need for costly updates. Updating can be done by

the user, improving the plan's effectiveness.

In summary, the planning process requires the Ventura County Department of Airports to consistently monitor the progress of the airport in terms of enplanements, total aircraft operations, and overall aviation activity. Analysis of aircraft and passenger demand is critical to the exact timing and need for new airport facilities. The information obtained from this continuous monitoring process will provide the data necessary to determine if the development schedule should be accelerated or decelerated.

The development schedules and exhibits presented on the following pages are designed to aid airport management in the continuous evaluation of programming of airport development. The development schedules should not be viewed as a commitment by the Camarillo Airport Authority or the FAA to the improvements shown. Rather, it is hoped that the inclusion of these tables and exhibits will help decision-makers recognize the continuous planning process and allow the airport master plan to become a valuable too in this process.

This continuous planning process data will be extremely important during the first five-year development program. The data obtained should be reported on the space provided on the yearly airport development schedule. With this information, adjustments in the development schedule can be made to effectively deal with variations in forecast or any unanticipated demand that may arise. By closely monitoring

the activity and availability of funds with the work sheets provided on the following pages, management will be

able to carry out its function of implementing the master plan.

SHORT TERM PLANNING HORIZON 1996 Airport Development Program

The table provided below has been designed to note the funds available so that they can be kept in mind while analyzing the development factors outlined for this period on the next few

pages. The table also provides a reminder of other potential sources that might be used in critical situations.

Airport Funds Balance	\$ _____
Bonds	\$ _____
Contributions/Other	\$ _____
TOTAL:	\$ _____

As a reminder, airport development should be keyed to demand (**actual activity**) rather than to a specific time frame (**forecast activity**). The spaces provided below allow actual activity data to be recorded for comparison with the planning horizon envelope. This

should be the first step in the process of initiating the recommended development program for this period. Significant increases or decreases in actual activity may justify acceleration or deceleration of the airport development schedule.

Activity	1994 Actual Levels	1995 Actual	Short Term Horizon Level
Based Aircraft Operations	580 190,850	_____ _____	640 214,800

Based on the activity comparison above, should the recommended development schedule be maintained? Have new problems, needs, or development potentials occurred which

may impact the development program? What adjustments in the development schedule are required to effectively deal with these factors?

In order to maintain the continuity of a staged development plan and to meet forecast activity demand, the following development items are recommended. Each item is numbered so that it can

be cross-referenced on the following exhibit. The costs for every development consider 30 percent for engineering, contingency, and administration.

SHORT TERM PLANNING HORIZON (Continued)
1996 Development Funding

Development Item	Total Cost	FAA Eligible	State Matching	Airport
✓ 1. Overlay, stripe, and mark Taxiways A & D	\$120,000	\$108,000	\$5,400	\$6,600
✓ 2. Slurry, crack fill, & mark east and west ramps	100,000	90,000	4,500	5,500
③ Add asphalt concrete cap to existing <i>UNDER GRASS</i> access road	120,000	108,000	0	12,000
4. Runway and taxiway shoulder rehabilitation	250,000	225,000	11,250	13,750
✓ 5. Perimeter security fencing, lighting, and signage	525,000	472,500	23,625	28,875
6. Site prep. & paving for hangar for central hangar development	1,630,000	610,000	30,500	989,500
✓ 7. Prepare Consolidated Fuel Farm Site	180,000	0	0	180,000
Total for FY 1996	\$2,925,000	\$1,613,500	\$75,275	\$1,236,225

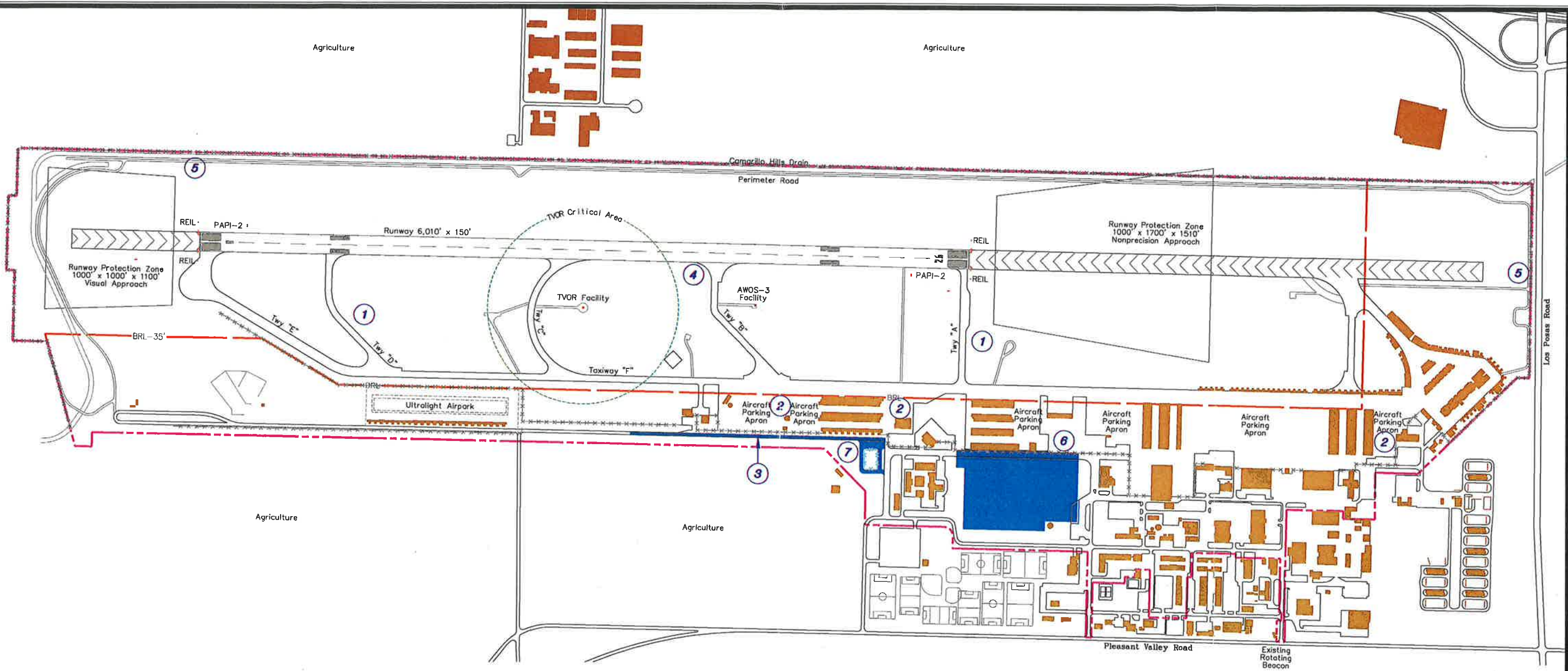
Inflation Adjustment: ___% X \$2,925,000 = \$_____

Plus or Minus Other Proposed Development:

Development Item	Total Cost	FAA Eligible	State Matching	Local Share
1.				
2.				
3.				
4.				
5.				
Total				

Since the FAA Fiscal Year is from October through September, efforts should begin immediately to identify the development that will be eligible for federal or other funding during this

period. The County should have applications submitted early for the maximum funding possible in case additional funds become available.



LEGEND

- ① Overlay, Stripe, and Mark Taxiways A and D
- ② Slurry, Crack Fill, and Mark East and West Ramps
- ③ Add Asphalt Concrete Cap to Existing Access Road
- ④ Runway and Taxiway Shoulder Rehabilitation
- ⑤ Perimeter Security Fencing, Lighting, and Signage
- ⑥ Site Preparation and Paving for Central Hangar Development
- ⑦ Prepare Consolidated Fuel Farm Site



SHORT TERM PLANNING HORIZON (Continued) 1997 Airport Development Program

The table provided below has been designed to note the funds available so that they can be kept in mind while analyzing the development factors outlined for this period on the next few

pages. The table also provides a reminder of other potential sources that might be used in critical situations.

Airport Funds Balance	\$ _____
Bonds	\$ _____
Contributions/Other	\$ _____
TOTAL:	\$ _____

As a reminder, airport development should be keyed to demand (**actual** activity) rather than to a specific time frame (**forecast** activity). The spaces provided below allow actual activity data to be recorded for comparison with the planning horizon envelope. This

should be the first step in the process of initiating the recommended development program for this period. Significant increases or decreases in actual activity may justify acceleration or deceleration of the airport development schedule.

Activity	1994 Actual Levels	1996 Actual	Short Term Horizon Level
Based Aircraft Operations	580 190,850	_____ _____	640 214,800

Based on the activity comparison above, should the recommended development schedule be maintained? Have new problems, needs, or development potentials occurred which

may impact the development program? What adjustments in the development schedule are required to effectively deal with these factors?

In order to maintain the continuity of a staged development plan and to meet forecast activity demand, the following development items are recommended. Each item is numbered so that it can

be cross-referenced on the following exhibit. The costs for every development consider 30 percent for engineering, contingency, and administration.

SHORT TERM PLANNING HORIZON (Continued)
1997 Development Funding

Development Item	Total Cost	FAA Eligible	State Matching	Airport
8. Clear, rehab storm drainage system <i>CMA</i>	\$210,000	\$189,000	\$9,450	\$11,550
9. Construct 42 T-hangars and relocate 35 port-a-ports <i>UNDER GRANT LEASE</i>	860,000	0	0	860,000
10. Reconstruct road south of central hangar area <i>PVT TAN DEC 0</i>	415,000	373,500	0	41,500
11. Extend perimeter fence around central hangar area <i>W/...</i>	30,000	27,000	1,350	1,650
Total for FY 1997	\$1,515,000	\$589,500	\$10,800	\$914,700

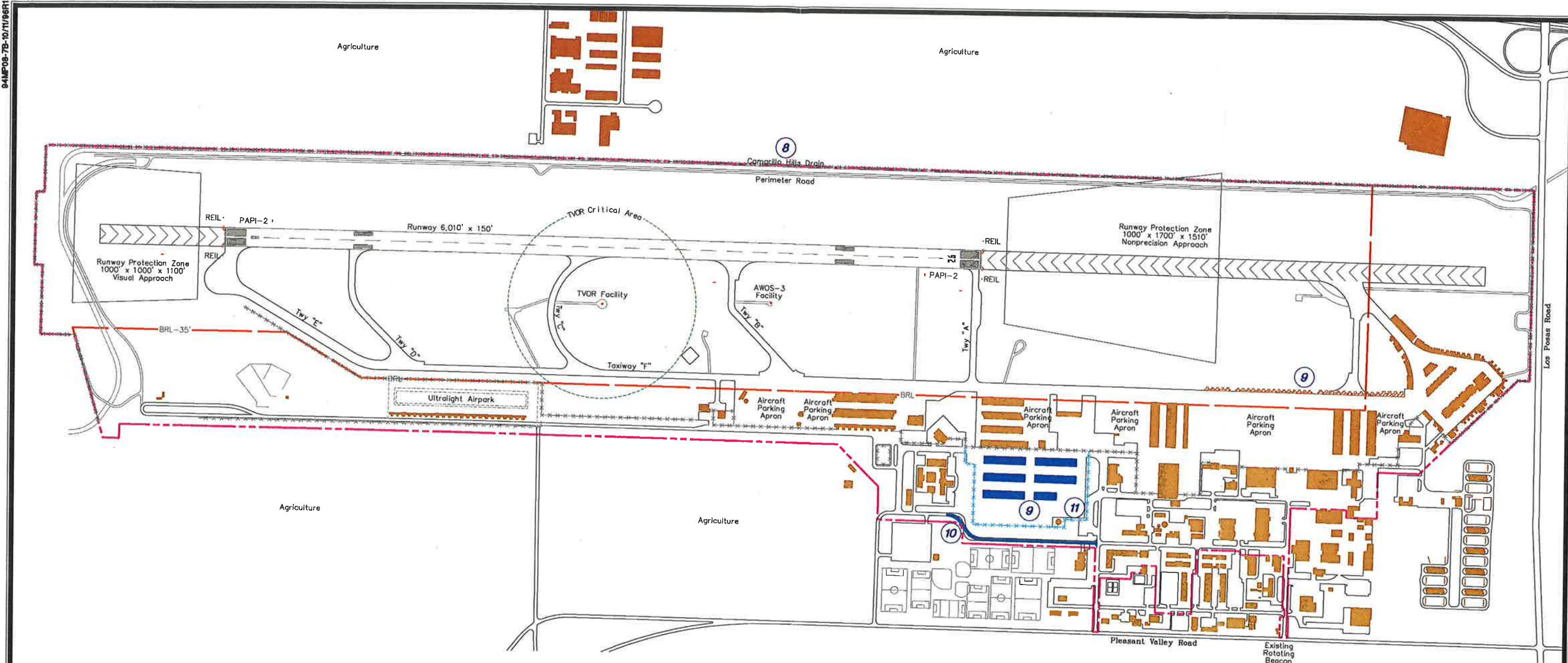
Inflation Adjustment: ___% X \$1,515,000 = \$_____

Plus or Minus Other Proposed Development:

Development Item	Total Cost	FAA Eligible	State Matching	Local Share
1.				
2.				
3.				
4.				
5.				
Total				

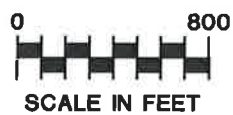
Since the FAA Fiscal Year is from October through September, efforts should begin immediately to identify the development that will be eligible for federal or other funding during this

period. The County should have applications submitted early for the maximum funding possible in case additional funds become available.



LEGEND

- ⑧ *Clear and Rehabilitate Storm Drainage System*
- ⑨ *Construct 42 T-Hangars and Relocate 35 Port-A-Ports*
- ⑩ *Reconstruct Road South of Central Hangar Development*
- ⑪ *Extend Perimeter Fence Around Central Hangar Area*



SHORT TERM PLANNING HORIZON (Continued)
1998 Airport Development Program

The table provided below has been designed to note the funds available so that they can be kept in mind while analyzing the development factors outlined for this period on the next few

pages. The table also provides a reminder of other potential sources that might be used in critical situations.

Airport Funds Balance	\$ _____
Bonds	\$ _____
Contributions/Other	\$ _____
 TOTAL:	 \$ _____

As a reminder, airport development should be keyed to demand (**actual activity**) rather than to a specific time frame (**forecast activity**). The spaces provided below allow actual activity data to be recorded for comparison with the planning horizon envelope. This

should be the first step in the process of initiating the recommended development program for this period. Significant increases or decreases in actual activity may justify acceleration or deceleration of the airport development schedule.

Activity	1994 Actual Levels	1997 Actual	Short Term Horizon Level
Based Aircraft	580	_____	640
Operations	190,850	_____	214,800

Based on the activity comparison above, should the recommended development schedule be maintained? Have new problems, needs, or development potentials occurred which

may impact the development program? What adjustments in the development schedule are required to effectively deal with these factors?

In order to maintain the continuity of a staged development plan and to meet forecast activity demand, the following development items are recommended. Each item is numbered so that it can

be cross-referenced on the following exhibit. The costs for every development consider 30 percent for engineering, contingency, and administration.

SHORT TERM PLANNING HORIZON (Continued)
1998 Development Funding

Development Item	Total Cost	FAA Eligible	State Matching	Airport
12. Reconstruct ramp east of CAF leasehold <i>under construction</i>	\$94,000	\$84,600	\$4,230	\$5,170
13. Construct taxiway parallel to east ramp with marking & lighting	1,045,000	940,500	47,025	57,475
Total for FY 1998	\$1,139,000	\$1,025,100	\$51,255	\$62,645

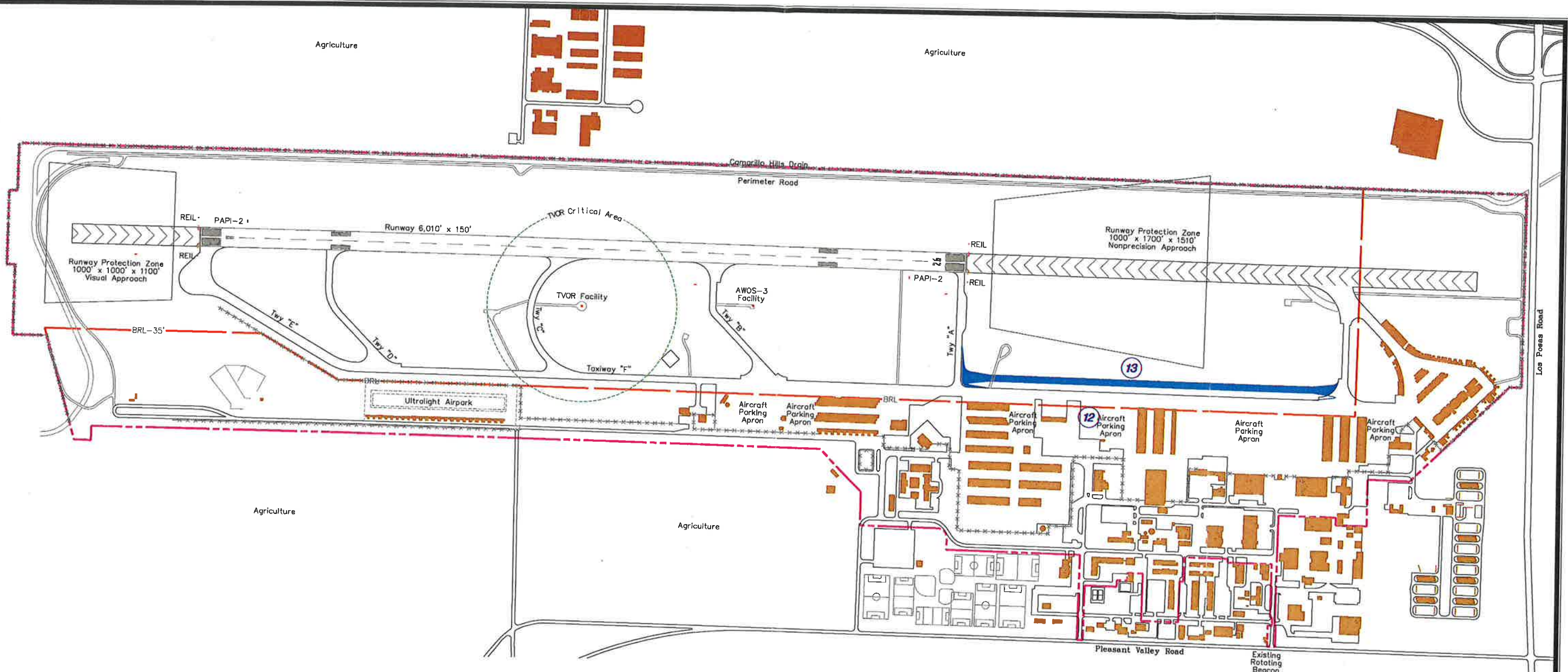
Inflation Adjustment: ___% X \$1,139,000 = \$_____

Plus or Minus Other Proposed Development:

Development Item	Total Cost	FAA Eligible	State Matching	Local Share
1.				
2.				
3.				
4.				
5.				
Total				

Since the FAA Fiscal Year is from October through September, efforts should begin immediately to identify the development that will be eligible for federal or other funding during this

period. The County should have applications submitted early for the maximum funding possible in case additional funds become available.



LEGEND

- ⑫ Reconstruct Ramp East of CAF Leasehold
- ⑬ Construct Taxiway Parallel to East Ramp, with Lighting and Marking



SHORT TERM PLANNING HORIZON (Continued)
1999 Airport Development Program

The table provided below has been designed to note the funds available so that they can be kept in mind while analyzing the development factors outlined for this period on the next few

pages. The table also provides a reminder of other potential sources that might be used in critical situations.

Airport Funds Balance	\$ _____
Bonds	\$ _____
Contributions/Other	\$ _____
TOTAL:	\$ _____

As a reminder, airport development should be keyed to demand (**actual activity**) rather than to a specific time frame (**forecast activity**). The spaces provided below allow actual activity data to be recorded for comparison with the planning horizon envelope. This

should be the first step in the process of initiating the recommended development program for this period. Significant increases or decreases in actual activity may justify acceleration or deceleration of the airport development schedule.

Activity	1994 Actual Levels	1998 Actual	Short Term Horizon Level
Based Aircraft Operations	580 190,850	_____ _____	640 214,800

Based on the activity comparison above, should the recommended development schedule be maintained? Have new problems, needs, or development potentials occurred which

may impact the development program? What adjustments in the development schedule are required to effectively deal with these factors?

In order to maintain the continuity of a staged development plan and to meet forecast activity demand, the following development items are recommended. Each item is numbered so that it can

be cross-referenced on the following exhibit. The costs for every development consider 30 percent for engineering, contingency, and administration.

SHORT TERM PLANNING HORIZON (Continued)
1999 Development Funding

Development Item	Total Cost	FAA Eligible	State Matching	Airport
✓14. Overlay, mark, & stripe Runway 8-26	\$1,450,000	\$1,305,000	\$65,250	\$79,750
Ⓟ15. Slurry and mark all ramps <i>Per Union Army</i>	212,000	190,800	9,540	11,660
Total for FY 1999	\$1,662,000	\$1,495,800	\$74,790	\$91,410

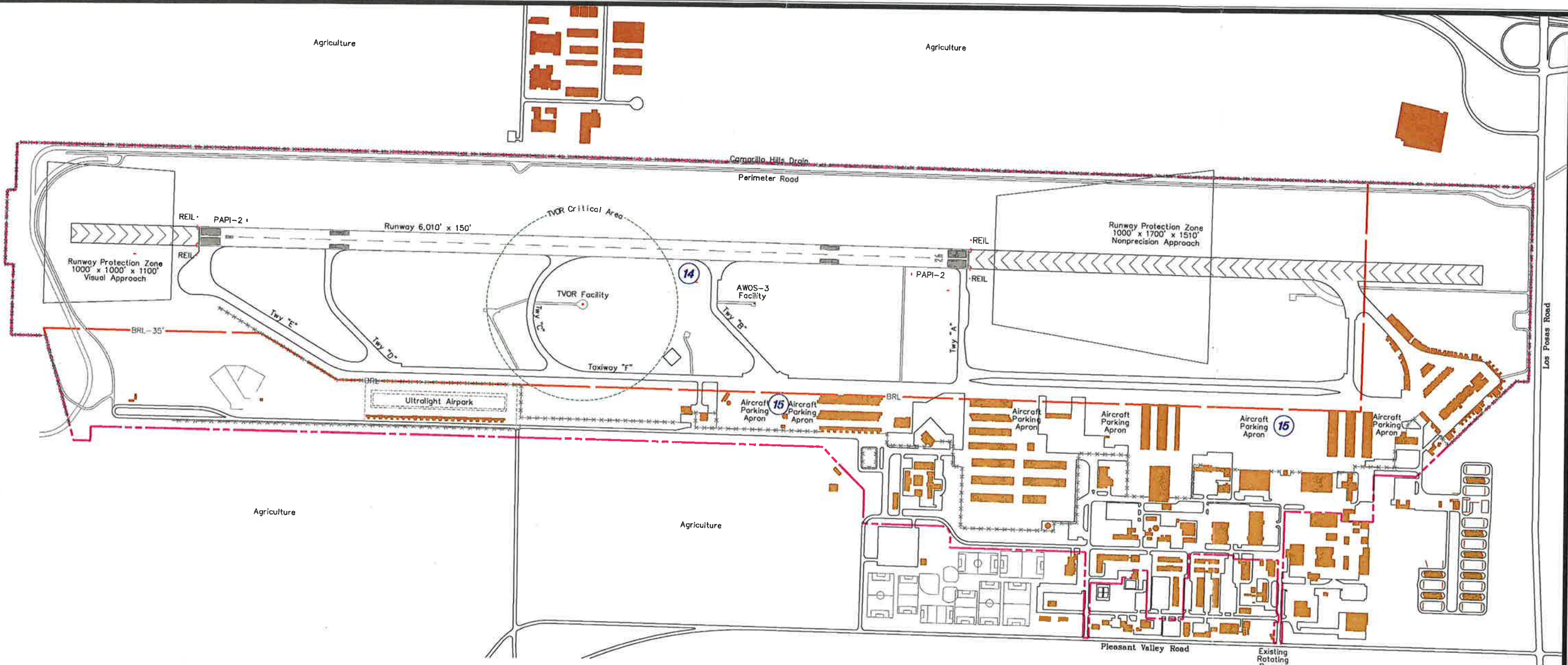
Inflation Adjustment: ___% X \$1,662,000 = \$_____

Plus or Minus Other Proposed Development:

Development Item	Total Cost	FAA Eligible	State Matching	Local Share
1.				
2.				
3.				
4.				
5.				
Total				

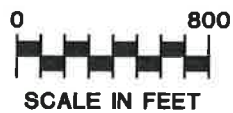
Since the FAA Fiscal Year is from October through September, efforts should begin immediately to identify the development that will be eligible for federal or other funding during this

period. The County should have applications submitted early for the maximum funding possible in case additional funds become available.



LEGEND

- ⑭ **Overlay, Mark, and Stripe Runway 8-26**
- ⑮ **Slurry Seal and Mark All Ramps**



SHORT TERM PLANNING HORIZON (Continued) 2000 Airport Development Program

The table provided below has been designed to note the funds available so that they can be kept in mind while analyzing the development factors outlined for this period on the next few

pages. The table also provides a reminder of other potential sources that might be used in critical situations.

Airport Funds Balance	\$ _____
Bonds	\$ _____
Contributions/Other	\$ _____
TOTAL:	\$ _____

As a reminder, airport development should be keyed to demand (**actual activity**) rather than to a specific time frame (**forecast activity**). The spaces provided below allow actual activity data to be recorded for comparison with the planning horizon envelope. This

should be the first step in the process of initiating the recommended development program for this period. Significant increases or decreases in actual activity may justify acceleration or deceleration of the airport development schedule.

Activity	1994 Actual Levels	1999 Actual	Short Term Horizon Level
Based Aircraft	580	_____	640
Operations	190,850	_____	214,800

Based on the activity comparison above, should the recommended development schedule be maintained? Have new problems, needs, or development potentials occurred which

may impact the development program? What adjustments in the development schedule are required to effectively deal with these factors?

In order to maintain the continuity of a staged development plan and to meet forecast activity demand, the following development items are recommended. Each item is numbered so that it can

be cross-referenced on the following exhibit. The costs for every development consider 30 percent for engineering, contingency, and administration.

SHORT TERM PLANNING HORIZON (Continued)
2000 Development Funding

Development Item	Total Cost	FAA Eligible	State Matching	Airport
16. Construct parallel taxiway to Runway 8- 26 - Phase I	\$895,000	\$805,500	\$40,275	\$49,225
17. Construct ramp with security lighting <i>ADD</i>	555,000	499,500	24,975	30,525
18. Replace rotating beacon with tower, electricity and controls	100,000	90,000	4,500	5,500
19. Extend access road/fire protection west	700,000	630,000	0	70,000
20. Construct 21 T-hangars <i>W.P.T.</i>	546,000	0	0	546,000
Total for FY 2000	\$2,796,000	\$2,025,000	\$69,750	\$701,250

Inflation Adjustment: ___% X \$2,796,000 = \$_____

Plus or Minus Other Proposed Development:

Development Item	Total Cost	FAA Eligible	State Matching	Local Share
1.				
2.				
3.				
4.				
5.				
Total				

Since the FAA Fiscal Year is from October through September, efforts should begin immediately to identify the development that will be eligible for federal or other funding during this

period. The County should have applications submitted early for the maximum funding possible in case additional funds become available.

INTERMEDIATE PLANNING HORIZON

Airport Development Program

The table provided below has been designed to note the funds available so that they can be kept in mind while analyzing the development factors outlined for this period on the next few

pages. The table also provides a reminder of other potential sources that might be used in critical situations.

Airport Funds Balance	\$ _____
Bonds	\$ _____
Contributions/Other	\$ _____
 TOTAL:	 \$ _____

As a reminder, airport development should be keyed to demand (**actual activity**) rather than to a specific time frame (**forecast activity**). The spaces provided below allow actual activity data to be recorded for comparison with the planning horizon envelope. This

should be the first step in the process of initiating the recommended development program for this period. Significant increases or decreases in actual activity may justify acceleration or deceleration of the airport development schedule.

Activity	Short Term Horizon Levels	Actual Levels	Intermediate Term Horizon Levels
Based Aircraft Operations	640 214,800	_____ _____	720 245,100

Based on the activity comparison above, should the recommended development schedule be maintained? Have new problems, needs, or development potentials occurred which

may impact the development program? What adjustments in the development schedule are required to effectively deal with these factors?

In order to maintain the continuity of a staged development plan and to meet forecast activity demand, the following development items are recommended. Each item is numbered so that it can

be cross-referenced on the following exhibit. The costs for every development consider 30 percent for engineering, contingency, and administration.

INTERMEDIATE TERM PLANNING HORIZON (Continued) Development Funding

Development Item	Total Cost	FAA Eligible	State Matching	Airport
1. Improve safety areas & drainage for Runway 8-26	\$1,100,000	\$990,000	\$49,500	\$60,500
2. Slurry and mark runway and taxiways	200,000	180,000	9,000	11,000
3. Construct Administration/General Aviation terminal building	2,850,000	0	0	2,850,000
4. Construct parallel taxiway to Runway 8-26 - Phase II	1,350,000	1,215,000	60,750	74,250
5. Install MALSR - Runway 26	350,000	350,000	0	0
6. Site prep & pave access taxiway for west hangar development <i>10000 TO A/E</i>	1,145,000	515,000	25,750	604,250
7. Construct 24 T-hangars <i>PVT</i>	624,000	0	0	624,000
8. Rehabilitate and in-fill for east parking apron <i>NEW C&T</i>	93,000	83,700	4,185	5,115
INTERMEDIATE TERM TOTAL	\$7,712,000	\$3,333,700	\$149,185	\$4,229,115

03/04

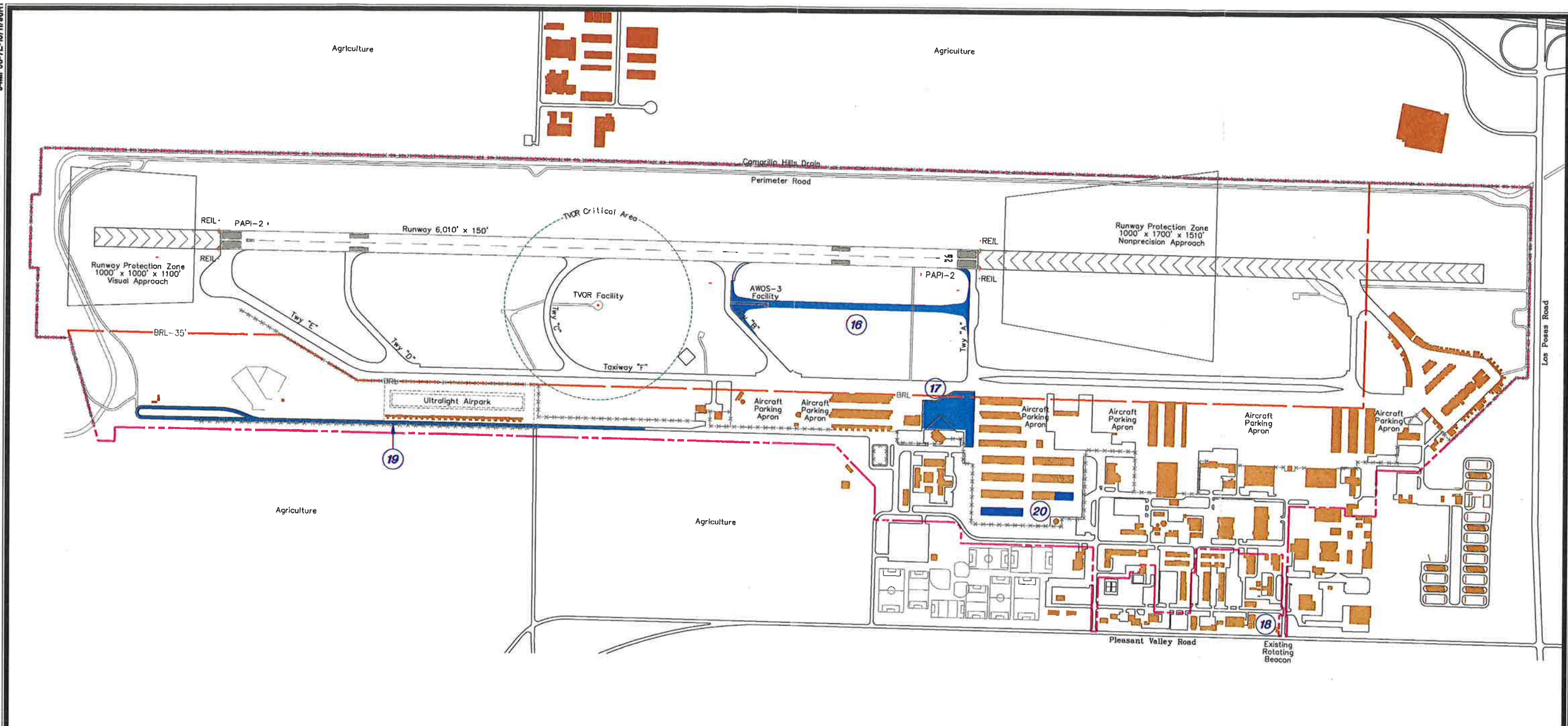
Inflation Adjustment: ___% X \$7,712,000 = \$_____

Plus or Minus Other Proposed Development:

Development Item	Total Cost	FAA Eligible	State Matching	Local Share
1.				
2.				
3.				
4.				
5.				
Total				

Since the FAA Fiscal Year is from October through September, efforts should begin immediately to identify the development that will be eligible for federal or other funding during this

period. The County should have applications submitted early for the maximum funding possible in case additional funds become available.



LEGEND

- ①⑥ Construct Parallel Taxiway to Runway 8-26 (Phase I)
- ①⑦ Construct Ramp with Security Lighting
- ①⑧ Replace Rotating Beacon with Tower, Electricity and Controls
- ①⑨ Extend Access Road/Fire Protection West
- ②① Construct 21 T-Hangars



LONG RANGE PLANNING HORIZON

Airport Development Program

The table provided below has been designed to note the funds available so that they can be kept in mind while analyzing the development factors outlined for this period on the next few

pages. The table also provides a reminder of other potential sources that might be used in critical situations.

Airport Funds Balance	\$ _____
Bonds	\$ _____
Contributions/Other	\$ _____
 TOTAL:	 \$ _____

As a reminder, airport development should be keyed to demand (**actual** activity) rather than to a specific time frame (**forecast** activity). The spaces provided below allow actual activity data to be recorded for comparison with the planning horizon envelope. This

should be the first step in the process of initiating the recommended development program for this period. Significant increases or decreases in actual activity may justify acceleration or deceleration of the airport development schedule.

Activity	Intermediate Term Horizon Levels	Actual Levels	Long Range Horizon Levels
Based Aircraft Operations	720 245,100	_____ _____	890 305,800

Based on the activity comparison above, should the recommended development schedule be maintained? Have new problems, needs, or development potentials occurred which

may impact the development program? What adjustments in the development schedule are required to effectively deal with these factors?

In order to maintain the continuity of a staged development plan and to meet forecast activity demand, the following development items are recommended. Each item is numbered so that it can

be cross-referenced on the following exhibit. The costs for every development consider 30 percent for engineering, contingency, and administration.

LONG RANGE PLANNING HORIZON (Continued)
Development Funding

Development Item	Total Cost	FAA Eligible	State Matching	Airport
1. Pave airport perimeter service road	\$550,000	\$495,000	\$24,750	\$30,250
2. Construct parallel taxiway to Runway 8L-26R - Phase III	415,000	373,500	18,675	22,825
3. Site prep/pave east hangar area <i>MT</i>	1,500,000	675,000	33,750	791,250
4. Construct 68 T-hangars & relocate 17 port-a-ports hangars <i>DVT</i>	1,768,000	0	0	1,768,000
5. Construct parking apron <i>MT</i>	325,000	292,500	14,625	17,875
LONG RANGE TOTAL	\$4,558,000	\$1,836,000	\$91,800	\$2,630,200

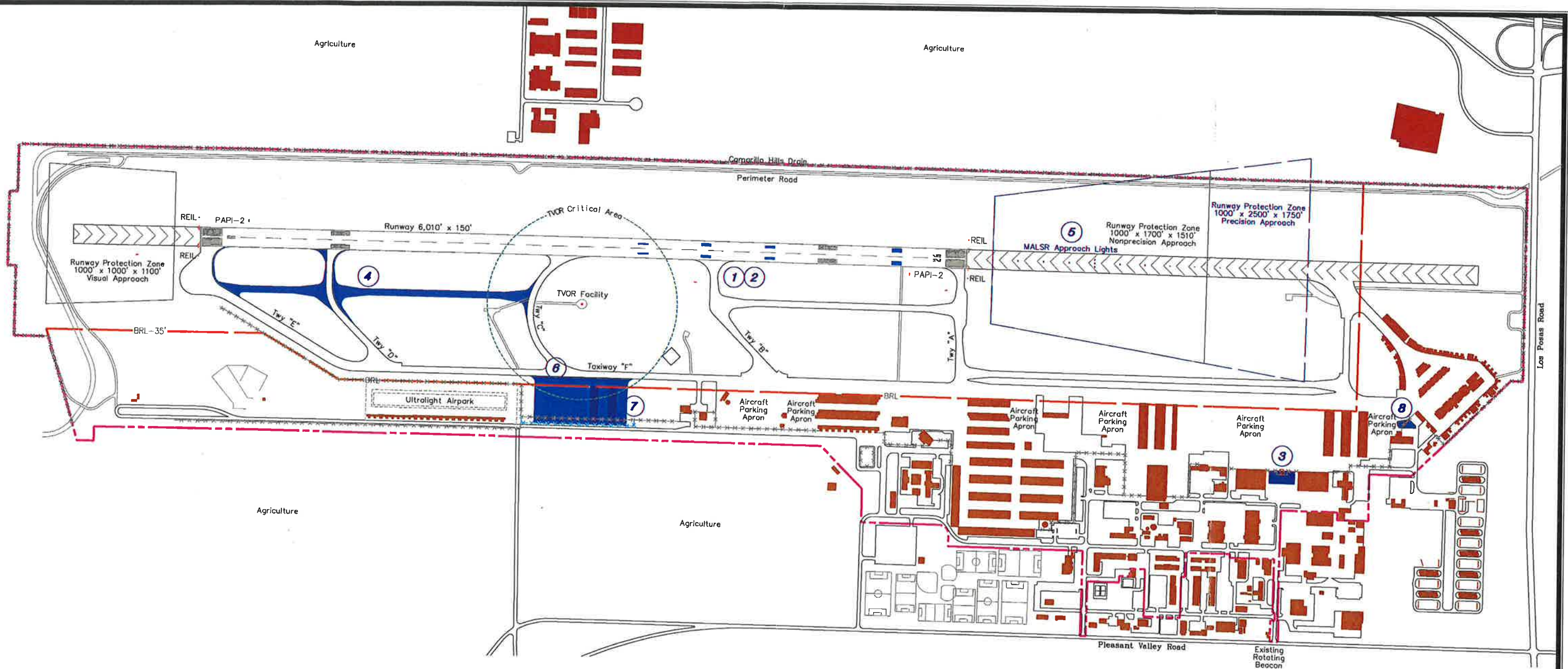
Inflation Adjustment: ___% X \$4,558,000 = \$_____

Plus or Minus Other Proposed Development:

Development Item	Total Cost	FAA Eligible	State Matching	Local Share
1.				
2.				
3.				
4.				
5.				
Total				

Since the FAA Fiscal Year is from October through September, efforts should begin immediately to identify the development that will be eligible for federal or other funding during this

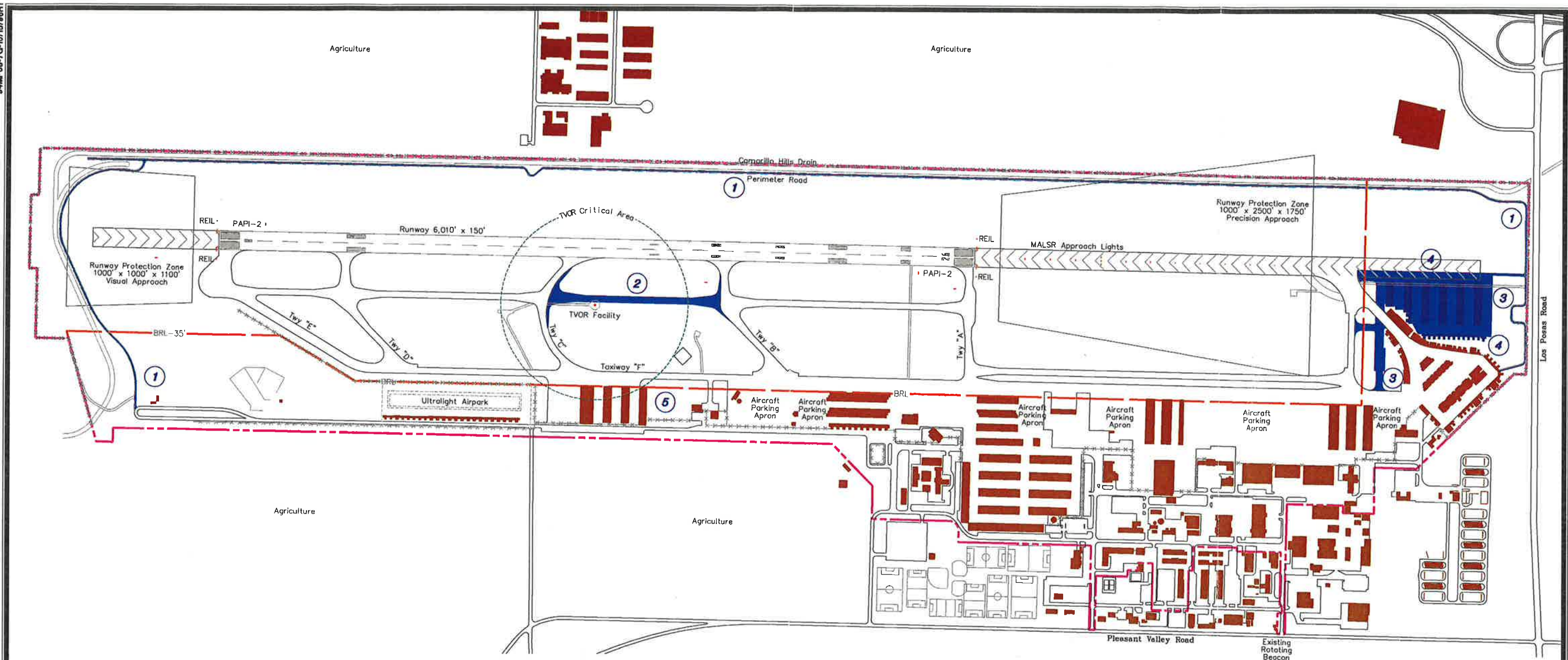
period. The County should have applications submitted early for the maximum funding possible in case additional funds become available.



LEGEND

- ① Improve Safety Areas and Drainage for Runway 8-26
- ② Slurry and Mark Runway and Taxiways
- ③ Construct Administration/General Aviation Terminal Building
- ④ Construct Parallel Taxiway to Runway 8R-26L (Phase II)
- ⑤ Install MALSR - Runway 26
- ⑥ Site Preparation And Access Taxiways for West Hangar Area
- ⑦ Construct 24 T-Hangers
- ⑧ Rehabilitate and In-Fill for East Parking Apron





LEGEND

- ① *Pave Perimeter Service Road*
- ② *Construct Parallel Taxiway to Runway 8L-26R (Phase III)*
- ③ *Site Preparation and Paving of East Hangar Development Area*
- ④ *Construct 68 T-Hangars and Relocate 20 Port-A-Ports*
- ⑤ *Construct Parking Apron (10,000 sq. yds.)*





Appendix A
ECONOMIC BENEFIT STUDY

OVERVIEW

This report presents the results of a study of the economic benefits of Camarillo Airport on the airport service area for calendar year 1995. (The airport service area is Ventura County, California, with a population exceeding 650,000 residents.)

BENEFIT TYPES AND MEASURES

The methodology follows procedures recommended by the Federal Aviation Administration and the California Department of Transportation (Caltrans).

There are three *types* of economic benefits associated with activity at Camarillo Airport.

Direct Benefits result from (a) **on-airport economic activity** of airport business such as fixed base operators, all other airport tenants, and government agencies including the airport authority as well as (b) **off-airport activity**, which includes spending by air travelers for lodging, restaurants, entertainment, ground transportation and retail goods and services.

Induced Benefits are the multiplier effects of the Direct Benefits. For example, when an aircraft mechanic's wages are spent to purchase food, housing, clothing, and medical services, these dollars induce more jobs and income in the general economy of the region, creating "second round" spending.

Total Benefits are the sum of the Direct and Induced Benefits, and therefore encompass both the initial and secondary economic impacts of the airport on the service area.

There are four *measures* of economic benefits used in this study:

- **Gross Revenues**
- **Value Added**
- **Payroll**
- **Employment**

Gross revenues measure the total flow of dollars from aviation-related activity and include total sales of business firms and budgets of administrative agencies.

Value added is a measure of new output created within the region. Value added results when input materials are processed by labor to produce a product for resale or a service.

**Table 1
Camarillo Airport**

Total Economic Benefits: 1995

	<u>Gross Revenues</u>	<u>Value Added</u>	<u>Payroll</u>	<u>Employees</u>
<i>Airport Operations</i>	\$27,751,600	\$18,636,950	\$5,719,937	166
Fuel Sales				
Aircraft Sales				
Pilot Supplies				
FBO Services				
Aircraft Rental				
Food Services				
Electrical Repair				
Charter Services				
Flight Instruction				
Avionics Services				
Aircraft Maintenance				
Airport Administration				
Capital Projects				
<i>Air Visitors</i>	\$2,810,026	\$2,091,396	\$1,084,854	53
Lodging				
Food/Drink				
Retail Goods/Services				
Entertainment				
Transportation				
Direct Benefits	\$30,561,626	\$20,728,346	\$6,804,791	219
Induced Benefits	\$24,087,800	\$24,087,970	\$10,366,992	356
TOTAL BENEFITS	\$54,649,426	\$44,816,316	\$17,171,783	575

Notes: Gross Revenues are total sales. Value Added is spending for goods and services supplied within the region plus payroll outlays to workers. Only Value Added has a multiplier effect within the regional economy. Total Benefits include spending induced by multiplier effects. Multipliers are from the Regional Input Output Modeling System, U. S. Department of Commerce, and Caltrans.

Airport Operations

The suppliers of aviation services located on Camarillo Airport include fixed base operators providing fuel, maintenance and aircraft storage; flight training; charter services; avionics firms; food services; tower personnel; and the airport administration.

On-airport operations at Camarillo Airport created economic benefits of:

- **\$27.7 Million Gross Revenues**
- **\$18.6 Million Value Added**
- **\$5.7 Million Payroll**
- **149 Aviation Jobs**
- **17 Construction Jobs**

Gross revenues measure total sales by businesses on the airport and are equivalent to total spending by all customers for the year. Gross revenues from on-airport operations in 1995 were \$27.8 million.

Value added is that part of gross revenues which results in new production of goods and services within the region. On-airport economic activity at Camarillo Airport created value added or new output of \$18.6 million in 1995.

There were 149 full time equivalent on-airport aviation workers, including those employed by private businesses and government agencies, and an additional 17 worker-years from capital and construction contracts. These 166 workers earned a payroll of \$5.7 million during the year.

Air Visitors

Significant economic benefits of aviation result from spending by the many visitors that arrive in the region by general aviation aircraft. These travelers spent throughout the year for lodging, food and drink, entertainment (such as golf and other attractions), retail goods and services, and ground transportation.

Air travelers visiting Camarillo Airport created benefits of:

- **\$2.8 Million Gross Revenues**
- **\$2.1 Million Value Added**
- **\$1.1 Million Payroll**
- **53 Jobs**

During calendar year 1995, there were 26,705 general aviation visitors to Ventura County that arrived at Camarillo Airport. These travelers contributed 46,066 visitor days of spending to the local economy, at \$61 per person per day.

Spending by air travelers on lodging, food, drink, entertainment, retail goods and services, and various ground transportation services summed to \$2.8 million of gross revenues for regional businesses in the hospitality industry in 1995.

Value added, measuring net new output created from spending by air travelers, was \$2.1 million in 1995.

There were 53 workers in Ventura County who were employed serving air visitors, earning a payroll of \$1.1 million.

On-airport operations and off-airport spending by air visitors are two distinct categories of Direct Benefits stemming from the presence of Camarillo Airport. On-airport employment of 166 workers was nearly three times as large as off-airport employment created by visitor spending. The on-airport payroll was five times the off-airport payroll in businesses serving air travelers, reflecting seasonal tourism factors and a somewhat lower wage structure in the hospitality industry.

The combined Direct Benefits from on-airport and off-airport economic activity in the Camarillo Airport service area in 1995 were:

- **\$30.6 Million Gross Revenues**
- **\$20.7 Million Value Added**
- **\$6.8 Million Payroll**
- **219 Jobs**

These measures represent the amount of "first round" gross spending, value added (new output), payroll, and jobs in the service area that were due to the direct suppliers and users of aviation services at Camarillo Airport during 1995.

Induced Benefits

The Direct Benefits described above include no multiplier effects. However, dollars spent in the Camarillo Airport service area by suppliers or users of aviation services create or induce additional output, jobs and payroll, as they circulate within the economy, creating "second round" benefits. Induced impacts occur throughout the service area whenever an aviation-related firm or agency buys supplies and services locally, pays

wages to its workers, or undertakes capital expenditures. All of these outlays create local jobs, revenues, and income as the dollars re-circulate through the economy.

The Induced Benefits of Camarillo Airport in 1995 included:

- **\$24.1 Million Value Added**
- **\$10.4 Million Payroll**
- **356 Jobs**

Induced multiplier effects created value added of \$24.1 million, and an additional 356 jobs in the service area with a payroll of \$10.4 million. The average salary of these jobs was \$29,120. While first round spending creates jobs in industries related to suppliers and users of aviation services, second-round effects create jobs in all sectors including medical, financial, and technical, as well as retail and services.

Total Benefits

The Total Benefits of the airport in 1995, combining Direct and Induced Benefits were:

- **\$54.6 Million Gross Revenues**
- **\$44.8 Million Value Added**
- **\$17.2 Million Payroll**
- **575 Jobs**

Note that gross revenues (sales) are not subject to multiplier effects, since only the value added component stays within the local economy. However, as value added increases, revenues increase by the same amount, reflecting spending on new output within the service area.

Therefore, total revenues can be computed as the sum of Direct gross revenues plus the revenues created from spending on Induced value added. Total revenues created by Direct and Induced spending summed to \$54.6 million in 1995, but value added was only 82 percent of this amount.

While total revenues are important as a base for tax collection, value added is more important economically, since it measures the value of new output. The total value added benefit of Camarillo Airport was \$44.8 million in 1995.

The value added created by Camarillo Airport represents the contribution of the airport to California Gross State Product, a measure of the market value of all final goods and services produced in the state.

Payroll contributes to the earnings component of California Personal Income. The payroll of \$17.2 million accounts for 38 percent of the total of \$44.8 million value added created by the airport.

The ratio of Total Benefits to Direct Benefits as measured by value added was \$44.8 million divided by \$20.7 million = 2.15. This is the average multiplier for Camarillo Airport, implying that each \$100 spent on airport operations or by air travelers created an additional \$115 of new output before it left the service area.

Similarly, every one hundred jobs on the airport or serving air travelers created, on the average, sixty three additional jobs in the service area. Each \$100 of payroll spending by aviation-related workers re-circulated in the economy to create an additional \$152 of payroll in all other sectors.

TAX BENEFITS

Because of the high volume of economic activity due to the presence of Camarillo Airport, the facility is an important source of tax revenues (in addition to the various fees paid by users of the airport.)

In 1995, an estimated \$4.4 million of tax revenues were collected as a result of activity related to Camarillo Airport, including both Direct Benefits and Induced Benefits due to multiplier effects.

Table 2
Camarillo Airport
Tax Benefits From Airport Activity

Direct Taxes	
Local Taxes	\$1,852,662
State Taxes	<u>395,234</u>
Subtotal	\$2,247,896
Induced Taxes	
Local Taxes	\$1,806,597
State Taxes	<u>385,408</u>
Subtotal	\$2,192,005
Direct + Induced	
Local Taxes	\$3,659,259
State Taxes	\$780,642
TOTAL TAXES	\$4,439,901

Source: Derived from *State of California Airport Impact Model*, Caltrans

The estimates in Table 2 were based on the historical relationship of Gross State Product and the operating budgets of state agencies and local jurisdictions built into the Caltrans *Airport Economic Impact Model*. The relatively higher amount of local taxes compared to state taxes reflects the return of state taxes to local jurisdictions.

Economic activity due to the presence of Camarillo Airport created Direct (aviation-related) tax revenues of \$2.2 million in 1995. This figure included sales and excise taxes from airport tenants such as FBO's and charter services, possessory interest property taxes paid by businesses located on the airport, assessments on based general aviation aircraft, and income taxes on wages earned as a result of airport operations.

Direct taxes also include government revenues collected from air visitors as sales and bed taxes, as well as taxes paid by businesses such as auto rental that serve air travelers.

Induced taxes, however, are a broader measure of revenues, representing taxes from all sources, including sales, property, and income, created after first round spending from suppliers and users of aviation services recirculates within the economy. Total Induced taxes contributed an additional \$2.2 million to state and local revenues in 1995.

Combined first-round tax revenues from airport operations and visitor spending plus tax revenues from Induced spending produced overall local tax collections related to aviation activity of \$3.7 million, while Direct plus Induced state tax collections were an additional \$780 thousand.

DAILY BENEFITS

Airports are available to serve consumers, businesses, and the flying public every day of the year. Therefore, it is often illuminating to measure the daily benefits of an airport to illustrate its importance to the local economy.

On a typical day in 1995, there were 200 operations by itinerant general aviation aircraft and an additional 275 local operations at Camarillo Airport.

During each day of the year in 1995, Camarillo Airport generated \$150,000 gross revenues within its service area (see figure). These revenues created daily value added (or new regional production) of \$123,000.

Revenues and production create jobs, not only for the suppliers and users of aviation services, but throughout the economy. Each day the economic activity associated with Camarillo Airport provided 166 jobs directly on the airport and in total supported 575 local jobs in the airport service area.

These 575 workers earned a daily payroll of \$47,000 in 1995, which was re-circulated in the local economy as consumer spending for goods and services.

Daily tax revenues exceeding \$12,000 were generated by economic activity on and off the airport and within the local economy by successive effects of aviation related spending.

On an average day during the year, there were 126 overnight visitors in the area who had arrived at Camarillo Airport by general aviation aircraft. The average expenditures for these visitors on a given day during 1995 was \$7,7000.

Camarillo Airport Daily Economic Benefits

- **\$150,000 Gross Revenues**
- **\$123,000 Value Added**
- **575 Local Jobs Supported**
- **\$47,000 Payroll Earned**
- **\$12,000 Tax Revenues**
- **126 Overnight Visitors**
- **\$7,700 Visitor Spending**



DETAIL ON BENEFITS

This section provides detail on the components of the benefits of Camarillo Airport, including the Direct Benefits of airport operations and visitor spending, and the Induced Benefits due to multiplier effects.

AIRPORT OPERATIONS

Table 4 illustrates the Direct Benefits from the annual operation of Camarillo Airport. Data on revenues, expenditures, payroll, and employment were obtained from a survey conducted on the airport during 1995.

There were 18 aviation-related private employers on the airport during the 1995 study period. Aviation supplies and services available at Camarillo Airport include aircraft sales, charter services, electrical repair, interior specialists, avionics sales and repair, fuel sales and full FBO services, aircraft cleaning and maintenance, fixed wing and helicopter flight instruction, pilot supplies, and food services. Administrative employers included the staff of the Ventura County Department of Airports and the Camarillo tower. Contractors also carried out various capital projects during the year.

On-airport private and administrative employers reported gross revenues of \$27.8 million in 1995. The largest source was gross revenues of \$23.9 million to private businesses on the airport. Administrative agencies had combined operating budgets of \$2.6 million in 1995. Capital outlays for on-airport improvements added an additional \$1.2 million to the revenue stream created

on the airport. Among the improvements during 1995 were:

- runway upgrades
- building improvements
- drainage projects
- runway sweeper
- ramp reconstruction
- road improvements

Value added due to the direct presence of on-airport operations was \$18.6 million in 1995. The value added component of Table 4 represents the sum of (a) purchases for materials, supplies and services plus (b) personnel outlays made by airport employers. (For administrative agencies, value added is assumed equal to the proportion of the total budget spent locally.)

Expenditures by on-airport businesses and agencies for local goods, materials, and supplies are an important part of the total significance of the airport, since this spending creates revenues, jobs, and payroll within the service area. Airport tenants, including aircraft sales and repair, other airport businesses, and government agencies, spent a reported \$15.4 million on supplies, materials, and services in 1995.

Similarly, paychecks received by workers on the airport are used for purchases in the local community, and thus create additional revenues, income, and employment in the airport service area. The total payroll for aviation employers was \$5.2 million in 1995. Payroll for private businesses on the airport was \$3.4 million. Administrative agencies reported payrolls of \$1.8 million.

**Table 4
Camarillo Airport**

**Direct Benefits from Airport Operations:
Revenues, Value Added, Payroll and Jobs**

	<u>Gross Revenues</u>	<u>Value Added</u>	<u>Payroll</u>	<u>Employees</u>
Airport Businesses	\$23,900,000	\$15,609,360	\$3,405,530	114
Fuel Sales				
Aircraft Sales				
Pilot Supplies				
FBO Services				
Aircraft Rental				
Food Services				
Electrical Repair				
Charter Services				
Flight Instruction				
Avionics Services				
Interior Specialists				
Aircraft Maintenance				
Airport Administration				
Capital Projects	\$1,231,300	\$800,345	\$480,207	17
Airport Administration	\$2,620,300	\$2,227,250	\$1,834,200	35
Control Tower				
Department of Airports				
DIRECT BENEFITS	\$27,751,600	\$18,636,795	\$5,719,937	166

Note: Value Added is expenditures by airport businesses, airport administration, all other airport tenants, and construction firms for goods and services produced locally, including labor and personnel.

Source: Survey of airport employers and tenants, 1995.

Private employers on the airport provided jobs for 114 persons during the 1995 study period while administrative agencies provided employment for 35 workers. Capital improvements required contract worker labor equivalent to 17 full time private sector jobs in construction and maintenance. On-airport employment during the year was 166 private and public sector workers.

Benefits From Based Aircraft

Camarillo Airport is home for 600 based general aviation aircraft used by their owners for business and recreation. A significant portion of the revenue created on the airport can be attributed to operating outlays and maintenance expenditures by based aircraft owners.

A survey of aircraft owners was conducted in 1995 to compile the information on expenditures and usage patterns shown below (176 useable surveys were returned, for a response rate of 29.3 percent):

- **\$64,457 Average Aircraft Value**
- **\$6,821 Annual Average Outlays**
- **51 Annual Average Trips**
- **54 Percent Some Business Use**

The typical aircraft based at Camarillo Airport had a market value of \$64,457. Extrapolating to all aircraft, the estimated market value was \$38.6 million. Aircraft owners paid property taxes of \$208,000 in 1995.

Owners reported expenditures averaging \$6,821 per year on maintenance and operations. Using these values, total revenues from maintenance and operations

of based aircraft can be estimated as approximately \$4 million in 1995. (Note that annual expenses for individual aircraft can vary greatly, depending on the size, technical specifications, and hours flown.)

Based general aviation aircraft owners reported an average of 51 non-training trips per year, approximating one trip per week. Twenty-eight percent of all general aviation trips were for business purposes and 72 percent of all trips were for personal reasons.

However, more than one half of all owners reported using their aircraft for business trips sometime during the year. Business uses ranging from a few trips a year to a maximum of 260 trips per year were reported by 54 percent of Camarillo based aircraft owners.

Of these business users, 43 percent stated that they would suffer a loss of revenues and have to lay off employees if Camarillo airport services were not available. The estimated lost revenue was \$24 million.

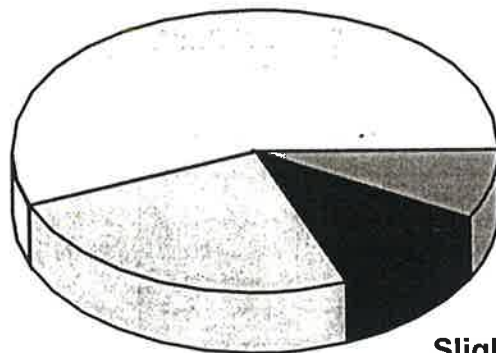
Approximately one half (46%) of owners using their aircraft for business purposes would relocate their business elsewhere if airport services were not available.

Camarillo airport is a significant factor in determining where aircraft owners live and work. Four out of five owners (81%) say that Camarillo airport is "important" or "very important" to their residential location and 54 percent state that the airport is important or very important to their business location. Only eight percent of aircraft owners say that the airport is not important in determining the location of their residence (see figures).

Camarillo Airport Based Aircraft Owner Survey

"Importance of Airport for Residential Location"

Very Important 56%



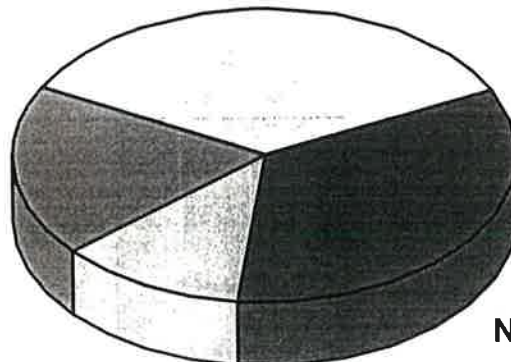
Not Important 8%

Slightly Important 11%

Important 25%

"Importance of Airport for Business Location"

Very Important 35%



Important 19%

Not Important 34%

Slightly Important 12%

GENERAL AVIATION VISITORS

Camarillo Airport attracts general aviation visitors from throughout the Western United States who come to the area for both business and personal travel. These visitors were surveyed during 1995 to determine such factors as average party size, length of stay and spending patterns for lodging, food, and other goods and services while in Ventura County

There were 74,176 itinerant general aviation operations at Camarillo Airport in 1995. Utilizing survey responses, tie down records and information from the airport administration, it was estimated that 30 percent of these itinerant operations could be attributed to "true transient travelers" who originated their trip at a distant home airport. Applying this proportion to Camarillo Airport itinerant operations yields 22,253 true transient operations and 11,127 arriving travel parties in 1995.

Average general aviation travel party size in 1995 was 2.4 persons. Multiplying 11,127 arriving aircraft by 2.4 persons gives 26,705 general aviation visitors in 1995.

According to the visitor survey, seventy five percent of those arriving by itinerant general aviation aircraft recorded no overnight stay, and were in the Camarillo area for just one day. The remaining twenty five percent of visitors stayed an average of 3.9 days. The weighted average stay is equal to 1.725 days as shown below:

$$(.75 \times 1 \text{ Day}) + (.25 \times 3.9 \text{ Days}) = 1.725$$

Multiplying 26,705 general aviation visitors by the 1.725 day average stay yields visitor days of 46,066 in 1995.

Table 5
Camarillo Airport
General Aviation Visitor Days

Itinerant GA Operations	74,176
Transient GA Operations*	22,253
Transient GA Arrivals	11,127
Average GA Passengers	2.4
Number of GA Visitors	26,705
Average Stay (days)	1.725
GA Visitor Days	46,066

*Based on 25 percent "true transients"

Source: General Aviation Survey, 1995.

General aviation travelers each spent an average of \$61 per day while visiting the Camarillo area. Food, at \$17 per person per day, was the single largest category of daily spending. Per person expenditures on the average trip were reported as \$104 (Table 6).

Multiplication of the average expenditures per trip by the average number of persons per aircraft (2.4) yields the Direct gross revenues injected into the local economy by each arriving itinerant general aviation flight, \$250. Each arriving general aviation aircraft represents average lodging expenditures of \$62, food outlays of \$70, retail spending of \$53, entertainment of \$36, and ground transportation expenses of \$29.

**Table 6
Camarillo Airport**

Expenditures By General Aviation Visitors

	Expenditures: Person Per Day	Expenditures: Person Per Trip	Expenditures: Aircraft Per Trip
Hotel and Lodging	\$15	\$26	\$62
Food and Beverage	17	29	70
Retail	13	22	53
Entertainment	9	15	36
Transportation	7	12	29
TOTAL	\$61	\$104	\$250

Source: General Aviation Survey, 1995.

Table 7 shows the gross revenues and value added benefits resulting from spending in the region by visitors arriving at Camarillo Airport in 1995.

Multiplying daily expenditures for each category of spending by the number of visitor days (46,066) yields total outlays for lodging, food and drink, transportation, entertainment, and retail spending due to general aviation visitors during the year.

(Following the Caltrans methodology, retail and entertainment spending have been combined into a "miscellaneous" category in Table 7 to allow for compatibility with Caltrans internal impact coefficients.)

Gross revenues from air visitor spending on goods and services during 1995 summed to \$2.8 million. This figure is important in computing economic benefits since sales and other taxes generated by visitors are based on total revenues.

Expenditures in the food, beverage, and retail spending category were adjusted by retail margin to provide an estimate of value added. Value added was \$2.1 million from visitor spending in 1995. Value added is important in determining benefits that stay within the local service area, since it is a measure of new production utilizing inputs from the region including intermediate supplies and materials and labor.

**Table 7
Camarillo Airport**

**Direct Benefits from Air Visitors:
Gross Revenues and Value Added**

	Air Traveler Visitor Days	Average Daily Expenditures	Gross Revenues	Value Added
Hotel and Lodging	46,066	\$15	\$690,990	\$690,990
Food and Beverage ¹	46,066	17	783,122	469,873
Transportation	46,066	7	322,462	322,462
Miscellaneous ¹	46,066	22	1,013,452	608,071
Total		\$61	\$2,810,026	\$2,091,396

1. Food and Beverage revenues are adjusted for value added and retail and entertainment categories are combined and adjusted for value added equal to average retail margin, estimated at 60 percent based on reported California averages. "Value Added" column is used with multipliers to compute Induced Impacts.

Visitor revenues from spending on lodging, entertainment, and transportation contribute fully to value added, since the services are produced locally at the time of consumption by visitors.

However, only a portion of food and retail outlays (retail is included in the miscellaneous category) contribute to value added. This is because these goods are typically manufactured in other areas and brought into the region as finished products for resale at a markup.

Although the miscellaneous category contributed the greatest flow of gross revenues, the largest component of value added was lodging, accounting for one third of the total.

On an average day, there were 126 visitors in the Camarillo area that had arrived by general aviation aircraft. Combined spending per day in 1995 was equal to \$7,700 of gross revenues and \$5,700 of value added each day.

The accompanying figure illustrates the distribution of the dollars from air visitor expenditures in the Ventura County area by spending categories. Each one hundred dollars of visitor spending results in

- \$25 spent on hotels and lodging
- \$28 spent on food and beverage
- \$11 spent on transportation
- \$21 spent on retail goods and services
- \$15 spent on entertainment

Lodging expenditures reported on the visitor survey were influenced by the large proportion of travelers that stayed in the area for only one day (75%). These visitors incurred no costs for lodging, but typically spent on food, transportation, retail and entertainment.

In addition, many overnight visitors stayed with friends or relatives and reported no outlays for lodging. For those visitors that did stay in a hotel or other lodging facility overnight while in the Camarillo area, average hotel expenditures per trip were \$243.

Camarillo Airport

Air Visitor Spending by Category

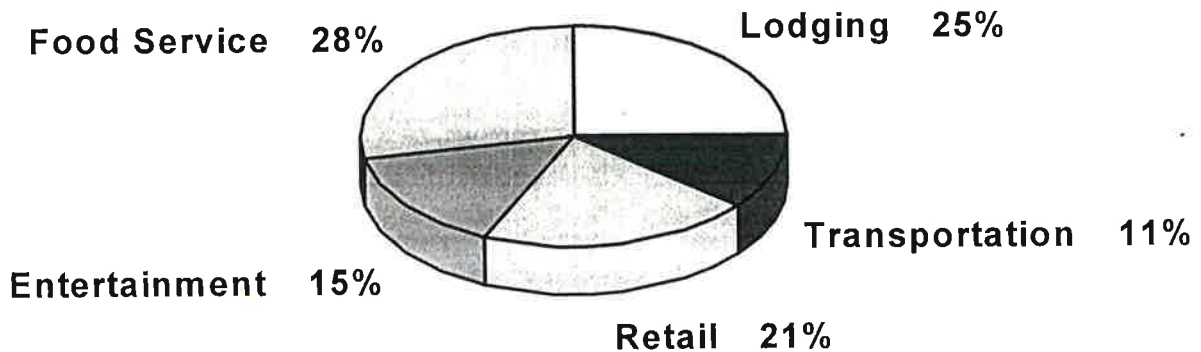


Table 8 presents the benefits of general aviation visitor spending on employment and payroll in the Camarillo Airport service area. Of the gross revenues of \$2.8 million created by aviation visitors, \$1.1 million (an average of 39 cents of each dollar) stayed in the local economy as payroll to employees whose jobs were supported by this spending.

Based on average salaries as shown in Table 8 for each category of spending, an estimated 53 full-time-equivalent jobs in the Camarillo Airport service area were supported by air visitor spending in 1995. Actual head count may have been larger, when part time workers are included.

The food and beverage sector accounted for the greatest number of employees (20) with an average annual salary of \$13,570 and a payroll of \$274,000 for the year 1995. Lodging combined with eating and drinking places accounted for two out of every three jobs supported directly by air visitor spending in the Camarillo area.

Air visitor spending created 15 jobs in hotels and lodging and an additional 14 jobs in the retail and entertainment sectors. The highest salary paid was in transportation, at \$29,397 with 4 workers. The average salary for all jobs created by visitor spending was \$20,469.

**Table 8
Camarillo Airport**

**Direct Economic Benefits from Air Visitors:
Jobs and Payroll**

	Gross Revenues	Percent To Labor	Payroll	Average Salary	Number of Jobs
Hotel/Lodging	\$690,990	40	\$276,396	\$18,965	15
Food/Beverage	783,122	35	274,093	13,570	20
Transportation	322,462	40	128,985	28,980	4
Miscellaneous	1,013,452	40	405,380	29,397	14
Total	\$2,810,026		\$1,084,854		53

Source: *State of California Economic Impact Model, Caltrans*

SUMMARY AND OUTLOOK

Camarillo Airport provides significant economic benefits for its service area. In 1995, airport Total Benefits approached \$55 million in gross revenues for the local economy. Value added -- or net new output associated with the presence of the airport -- was \$44.8 million, after accounting for all multiplier effects.

Aviation-related activity supported 575 jobs in the service area, with a regional payroll of \$17.1 million.

Economic activity due to on-airport operations created Direct Benefits with gross revenues of \$27.7 million and value added of \$18.6 million. On-airport employers provided jobs for 166 workers in private businesses and government agencies, ranking the facility among the important sources of employment in the Camarillo area. The on-airport payroll was \$5.7 million in 1995.

Visitors arriving by air contributed to 46,066 visitors days for the year. Spending by air travelers injected gross revenues of \$2.8 million into the regional economy, creating 53 jobs in tourism and the hospitality industry.

Accounting for all spending associated with the airport and including multiplier effects, some \$4.4 million in tax revenues were generated by the presence of the airport.

THE FUTURE

As passenger enplanements grow over time, airport operations will increase and the economic significance of the Airport will advance. Benefits were estimated for Short Term and Intermediate Term planning horizons by applying projected itinerant traffic growth rates to gross revenues, value added, payroll, and employment.

Benefits in the Short Term were based on 92,000 projected itinerant operations. Estimates for the Intermediate Term were based on itinerant operations of 106,000. Benefit estimates are in constant 1995 dollars. The projections shown in Tables 8 and 9 illustrate the changes in benefits associated with increased air travel and resulting levels of operations, and are not linked to a particular year.

When itinerant operations reach 92,000, the Total Benefits of Camarillo Airport will exceed \$70 million in revenues and more than \$57 million of value added to the regional economy (Table 9). This estimate includes \$35.6 million in Direct annual revenues from on-airport operations and \$3.5 million in air visitor revenues.

As itinerant operations reach the Intermediate Term level of 106,000, there will be 241 persons employed on the airport and more than 800 jobs supported in the total economy by aviation related activity. The Total Benefits of the airport will include gross revenues of \$79 million and value added of \$65 million (Table 10).

**Table 9
Camarillo Airport**

Summary of Economic Benefits (\$1995): Short Term

<u>Category</u>	<u>Gross Revenues</u>	<u>Value Added</u>	<u>Payroll</u>	<u>Employment</u>
Airport Operations	\$35,620,551	\$23,906,410	\$7,315,361	212
Air Visitors	3,533,957	2,631,390	1,364,113	67
Combined Benefits	39,154,508	26,537,800	8,679,474	279
Induced Benefits	30,947,470	30,947,470	13,146,799	452
TOTAL BENEFITS	\$70,101,978	\$57,485,270	\$21,826,273	731

Note: Revenues, value added, payroll and employment for Short Term are based on activity and spending associated with 92,000 itinerant general aviation operations.

**Table 10
Camarillo Airport**

Summary of Economic Benefits (\$1995): Intermediate Term

<u>Category</u>	<u>Gross Revenues</u>	<u>Value Added</u>	<u>Payroll</u>	<u>Employment</u>
Airport Operations	\$40,365,724	\$27,091,090	\$8,289,874	241
Air Visitors	4,071,721	3,031,810	1,571,690	77
Combined Benefits	44,437,445	30,122,900	9,861,564	318
Induced Benefits	35,022,320	35,022,320	14,937,311	514
TOTAL BENEFITS	\$79,459,765	\$65,145,220	\$24,798,875	832

Note: Revenues, value added, payroll and employment for Intermediate Term are based on activity and spending associated with 106,000 itinerant general aviation operations.

NOTES ON METHODOLOGY

AIRPORT BENEFITS

Airports benefit the regional economy through the employment, payroll, and spending associated with aviation activity both on and off the airport. Airports are sources of measurable economic benefits impacting jobs, income, and regional spending levels.

Suppliers of aviation services, such as those private businesses serving general aviation, other airport tenants, and various administrative agencies, all create jobs and value added for the local economy.

Air travelers create economic benefits that extend throughout the region. Visitors who arrive by air generally have greater expenditures for lodging, retail, entertainment, and food, as compared to visitors using other modes of travel.

However, it is important for citizens and policy makers to be aware that airports create significant *unmeasured* social and economic benefits for the regions which they serve. For example, convenient air transportation allows freedom for individuals to travel to satisfy their preferences for goods, services, and personal needs. Airports make the regional economy more competitive by providing businesses ready access to markets, materials and international commerce.

Airports also bring essential services to a community, including enhanced medical care (such as air ambulance service), support for

law enforcement and fire control, and courier delivery of mail and freight. These services raise the quality of life for residents and maintain a competitive environment for economic development.

Studies of factors influencing economic development consistently show that the presence of modern aviation facilities has a positive impact on the pace and quality of economic growth.

An efficient airport can provide a competitive edge for communities seeking corporate relocations and expansions. Two out of every three Fortune 500 companies use private aircraft in their business to transport goods, material, and personnel.

In addition to exerting a positive influence on economic development in general, aviation often reduces costs and increases efficiency in individual firms. Companies that operate general aviation aircraft typically record net income as a percent of sales approximately 50 percent greater than companies not utilizing such aircraft.

DATA COLLECTION

Data required for completing the economic benefit study included information on local and itinerant general aviation activity; ownership and use of general aviation aircraft; visitor characteristics; visitor spending, destination, and length of stay; the number of employees on the airport; revenues and expenditures of airport employers for wages, supplies and services; tax payments; fuel flowage; and the budget of the airport administration. In all instances, the Ventura County Department of Airports was extremely cooperative and effective in obtaining data directly or arranging for access to relevant data sources.

The data collection for the economic benefit study involved mail surveys and interview follow-up with both suppliers and users of aviation services. Survey forms are shown in an appendix to this report.

Airport businesses, administrative agencies, and all other tenants received a survey form designed for airport employers. Based aircraft owners were surveyed using a mailing list from the Department of Airports.

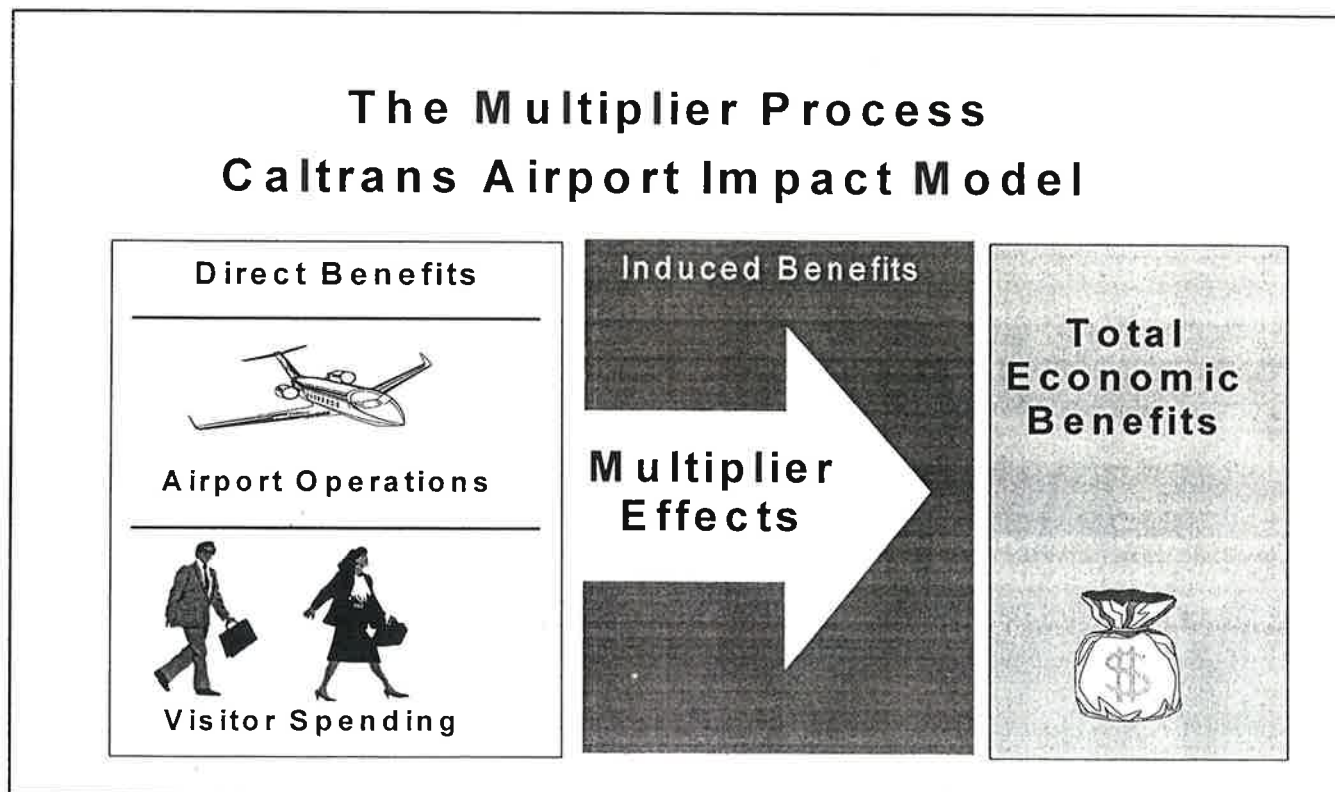
To obtain data from owners of visiting general aviation aircraft, survey forms were attached to visiting aircraft, accompanied by a postage paid return envelope. Visitors flying with commercial carriers were surveyed while waiting to board aircraft at the end of their stay in the Camarillo area.

Responses from the surveys were tabulated and analyzed following the methodology as

recommended by the FAA in *Estimating the Regional Significance of Airports*, published in September, 1992, and available from the National Technical Information Service as publication DOT/FAA/PP-92-6.

The FAA methodology has been incorporated into a computer based model with specific California coefficients, which provided the computational framework for calculating economic benefits in this study. The software and guidelines used are available as the *State of California Airport Economic Impact Model* developed by the Division of Aeronautics of the California Department of Transportation.

The Caltrans model computes total economic benefits as the sum of (a) Direct Benefits of airport operations and visitor spending plus (b) Induced Benefits from multiplier effects, as illustrated below.



APPENDIX

CAMARILLO AIRPORT ECONOMIC BENEFIT STUDY

SURVEY FORMS

CAMARILLO AIRPORT ECONOMIC IMPACT STUDY

To All Airport Businesses:

*As part of the Master Plan, we are preparing an Economic Impact Study for Camarillo Airport. In order to compile meaningful economic data about the airport, your cooperation is very much needed. This survey will be handled with the **strictest confidentiality** and only aggregate numbers will be used in publishing the data. You may return the survey directly to our consultant in the envelope provided. Your cooperation is very much appreciated and please do not hesitate to contact me at 388-4200, should you have any questions. Thank you.*

Rod Murphy, CAE
Administrator
County of Ventura
Department of Airports

1. Please describe your **main business activity** (FBO, car rental, etc.).

2. How many **employees** does your business have? (Please combine part time employees and convert to full time equivalent.) _____

3. Please estimate **annual payroll** and benefits \$ _____

4. Please estimate **all other outlays** for materials, services \$ _____

5. Please estimate **annual gross revenues** for your business (at this location only):

a. EITHER indicate amount if you can release it: \$ _____

b. OR mark appropriate range on scale below:

\$0 50 75 100 200 400 500 750 1 2 5 10
(Thousand) (Million)

Thank You For Your Participation

CAMARILLO AIRPORT AIRCRAFT OWNER SURVEY

*As part of the Master Plan, we are preparing an Economic Benefit Study for Camarillo Airport. In order to compile meaningful economic data about the airport, your cooperation is very much needed. This survey will be handled with the **strictest confidentiality** and only aggregate numbers will be used in publishing the data. You may return the survey in the envelope provided. Your cooperation is very much appreciated and please contact me at 388-4200, should you have any questions. Thank you for your participation.*

Rod Murphy, CAE
Administrator
County of Ventura
Department of Airports

1. How many aircraft do you have based at Camarillo Airport? _____

2. Please estimate the market value of your aircraft. _____

3. Please estimate your annual outlays for fuel, maintenance,
and other expenses associated with your aircraft. _____

4. Please estimate the annual number of (non- training) trips in your aircraft.

Business _____ Personal _____

5. Considering the location of your personal residence, how important is the presence of Camarillo Airport as a factor determining where you have decided to live?

Very Important ___ Important ___ Slightly Important ___ Not Important ___

6. Considering the location of your business or employment, how important is the presence of Camarillo Airport as a factor determining the location of this business?

Very Important ___ Important ___ Slightly Important ___ Not Important ___

7. Considering your business or employment, what would be the effect on your business/employment if Camarillo Airport was not available?

A. Lay off employees (estimate number) _____

B. Loss of revenues (estimate dollar amount) _____

C. My business/employment would close or relocate _____

D. Airport has no effect on my business/employment _____

Please Use Other Side For Comments or Suggestions About Airport

CAMARILLO AIRPORT GENERAL AVIATION SURVEY

*Camarillo Airport appreciates your interest in the Ventura County area. Completion of this **confidential** questionnaire will assist us in providing the best service possible for general aviation visitors. Please return the survey in the envelope provided. If you have questions, please call the Department of Airports at 805-388-4200. Thank you.*

Rod Murphy, CAE
Administrator
County of Ventura
Department of Airports

1. Where is your **residence**? City _____ State _____
2. What was the **main purpose** of your trip to the Ventura County area?
 - a. Convention _____
 - b. Business _____
 - c. Personal _____
3. How many **people** are in your travel party? 1 2 3 4 5 more? _____
4. How many **NIGHTS** were you away from your primary residence?

Circle: None 1 2 3 4 5 6 7 8 9 10 or more (specify) _____
5. Where was your primary **destination** for this trip? Please circle:
Camarillo Oxnard Ventura Port Hueneme Other? _____
6. Please estimate **spending by your ENTIRE TRAVEL PARTY** during your **TOTAL STAY**. Circle the closest figure.

Hotel/Lodging:
None \$100 200 400 600 800 1000 1500 1750 2000 or more (specify) _____

Restaurant Food and Drink:
None \$25 50 75 100 150 200 250 300 400 500 or more (specify) _____

Retail Spending for Goods and Services (but not entertainment):
None \$25 50 75 100 150 200 300 400 500 or more (specify) _____

Entertainment (Golf, Movies, etc.):
None \$25 50 75 100 150 200 250 300 400 500 or more (specify) _____

Ground Transportation Including Auto Rental:
None \$25 50 75 100 150 200 250 300 400 500 or more (specify) _____
7. If Camarillo Airport was not available, would you still have visited this area?
Definitely Yes _____ Probably Yes _____ Unlikely _____ Definitely Not _____
8. Please use the reverse side to provide comments or suggestions about services and facilities at Camarillo Airport.

CAMARILLO AIRPORT AIRCRAFT OWNER SURVEY

As part of the Master Plan, we are preparing an Economic Impact Study for Camarillo Airport. In order to compile meaningful economic data about the airport, your cooperation is very much needed. This survey will be handled with the strictest confidentiality and only aggregate numbers will be used in publishing the data. You may return the survey in the envelope provided. Your cooperation is very much appreciated and please contact me at 388-4200, should you have any questions. Thank you for your participation.

Rod Murphy, CAE
Administrator
County of Ventura
Department of Airports

- 1. How many aircraft do you have based at Camarillo Airport? 1
- 2. Please estimate the market value of your aircraft. 25,000
- 3. Please estimate your annual outlays for fuel, maintenance, and other expenses associated with your aircraft. 5500
- 4. Please estimate the annual number of (non- training) trips in your aircraft.
Business 4 Personal 40

5. Considering the location of your personal residence, how important is the presence of Camarillo Airport as a factor determining where you have decided to live?

Very Important Important Slightly Important Not Important

8. Considering the location of your business or employment, how important is the presence of Camarillo Airport as a factor determining the location of this business?

Very Important Important Slightly Important Not Important

9. Considering your business or employment, what would be the effect on your business/employment if Camarillo Airport was not available?

- A. Lay off employees (estimate number) _____
- B. Loss of revenues (estimate dollar amount) _____
- C. My business/employment would close or relocate _____
- D. Airport has no effect on my business/employment

Please Use Other Side For Comments or Suggestions About Airport

100

CAMARILLO AIRPORT AIRCRAFT OWNER SURVEY

As part of the Master Plan, we are preparing an Economic Impact Study for Camarillo Airport. In order to compile meaningful economic data about the airport, your cooperation is very much needed. This survey will be handled with the **strictest confidentiality** and only aggregate numbers will be used in publishing the data. You may return the survey in the envelope provided. Your cooperation is very much appreciated and please contact me at 388-4200, should you have any questions. Thank you for your participation.

Rod Murphy, CAE
Administrator
County of Ventura
Department of Airports

- 1. How many aircraft do you have based at Camarillo Airport? 1
- 2. Please estimate the market value of your aircraft. \$ 19,500⁰⁰
- 3. Please estimate your annual outlays for fuel, maintenance, and other expenses associated with your aircraft. \$ 3,500⁰⁰
- 4. Please estimate the annual number of (non- training) trips in your aircraft.

Business _____ Personal 40

5. Considering the location of your personal residence, how important is the presence of Camarillo Airport as a factor determining where you have decided to live?

Very Important Important ___ Slightly Important ___ Not Important ___

8. Considering the location of your business or employment, how important is the presence of Camarillo Airport as a factor determining the location of this business?

Very Important ___ Important ___ Slightly Important ___ Not Important

9. Considering your business or employment, what would be the effect on your business/employment if Camarillo Airport was not available?

A. Lay off employees (estimate number) NONE

B. Loss of revenues (estimate dollar amount) NONE

C. My business/employment would close or relocate NO

D. Airport has no effect on my business/employment ✓

Please Use Other Side For Comments or Suggestions About Airport

OVER

VERBATIM COMMENTS

CAMARILLO AIRPORT GENERAL AVIATION VISITORS

Tower and ground personnel were helpful and informative.

My first time into Camarillo and everything was fine. Tower personnel were very helpful.

VERBATIM COMMENTS

CAMARILLO AIRPORT BASED AIRCRAFT OWNERS

General aviation is very important as a whole to the economy, local and national, as well as a training ground or stepping stone for commercial aviation, which has a huge impact on the economy. The presence of CMA is very important because of its location to the general area, especially due to the fact that Van Nuys is moving to the very high end of corporate aviation. This makes it very difficult for GA people to exist in that environment, making CMA very attractive. CMA is the only place I would keep my aircraft. OXR is too close to the corrosive sea environment, same with Pt. Mugu.

CMA is an exceptional airport and one of the reasons I relocated my company to Camarillo in 1994. Our revenues are \$12 million, going to \$20 million this year. We employ 110 people. My only complaint is that the areas between the hangers and taxiways are NOT kept clean enough. Otherwise, great airport!

A list of businesses located at the airport with services offered, phone numbers, etc., would be helpful to both consumers and tenants.

The County should look around (Orange and LA County) and learn to recognize that impediments to business reduces the County's income (sales taxes, fees, taxes, etc.). The County should strive to do everything possible, including lowering fees, taxes, regulations, and removal of arrogant employees in order to operate in the black. We the people (Orange County) have sent a loud and clear message that we will no longer tolerate mismanagement and will vote NO on all tax increases and will soon take away your power to improve or increase fees without our approval. We would strongly suggest that the airport lead the way in volunteering to decrease your budget and then do it. The author has watched other airports driven into the ground by mismanagement by cities, counties.

I have been on the hanger list for two years -- we want a hanger! You need to get more community involvement in the airport with functions at least every six months. The airport needs to become part of the community. The airport cafe helps.

After six months the open ramp space for jets has been woefully under used and should be adjusted downward. Security guards are often arrogant, "badge heavy" and defensive. They could try a "How may I help you" attitude, even if the person they "help" is completely wrong. Too many public meetings with elected/appointed officials are canceled, reducing opportunity for open, honest communication between users and staff. Are you keeping secrets? Good restaurants, good fly in, need more hangers!

Water should be made available at hanger sites.

I recommend the County of Ventura Department of Airports support the users for a change. The economic crisis we face today will not support rate increases. As a user of the airport, for my own recreation, I do not need or want increased services.

Please pave the parking lot just east of Western Cardinal as the potholes are large and worse, wind blows dirt and grime into the taxiways between hangers that end up in the hangers and on the airplane. Also of concern is the pitting effect of the sand grit on the propellers which can be dangerous if not observed. All else is well and thanks for your efforts.

Need to retain good small service shops. Loss of Sam's Air service will force me to have work done at Oxnard. Hanger electric bills should distinguish lessees who only use lights and infrequently use power as contrasted to those who have shops, kitchens, etc. Difference between minimal electric use (and really appreciate having) and my monthly charge would pay for a meter - any thought of an "honor system" to charge for high energy use, such as refrigerator, building a plane, etc?

Other than the fog I am very happy with the current status and the location and operation of Camarillo Airport. Plus, the tower personnel and services on the airport are polite and understanding. Keep up the good work!

The County has a responsibility to SUPPORT an airport, not only as a "practical advantage" to the County but also an area for recreation, as much as a county park or any other non-producing recreational facility.

I used to be in a tie down in front of Channel Island. Now I am way down near the tower. I don't like it down there. It's too far from the cafe, etc., and the plane gets FILTHY very quickly. Please call me and let me know if there is anyway I can get back where I was?

Loss of Sam's Air Service is a MAJOR problem for me. Did you really try to keep him?

Camarillo Airport is a very valuable asset for Ventura County, both from a recreational use and as business/employment access. For me it is a major factor for my residence. Without it, I would transfer jobs!

Camarillo Airport should be considered a vital part of Ventura County. Ways need to be found to improve services and expand operations. New business should be allowed to develop on the airport. More restroom facilities, some with showers, should be constructed for users and visitors to CMA. Taxi ways and parking areas need to be "street cleaned" more frequently. Too many pebbles and rocks on the field damage propellers

How about setting up some small hangers for commercial maintenance operations - engines, paint, arts, upholstery, avionics, etc?. Competition works wonders! The Air Show was great this year. Well done!

There is inadequate private and commercial hanger space on the airport. Do not appreciate moving our airplane to the tower ramp. Since moving, the aircraft is showing signs of corrosion -- suspect related to corrosion from adjacent farmer's fields.

I understand the airport is constructing new hangers. I spent two years on a waiting list and ended up with a leaking, small t-hanger which when it rains deposits corrosive stains on my aircraft which is harder to get off than outside dirt. Also, birds manage to get in and leave deposits on my aircraft. I feel those of us who are already here deserve first shot at new facilities.

I would like to own a FIRST CLASS hanger.

It is fine that you are chopping down the weeds that are growing through the taxi ways and the tarmac. BUT, the workers are chopping with shovel blades and other tools. Their accuracy is none too good and their actions are chipping out chunks of concrete and asphalt, that in turn end up as rocks and pebbles that our props pick up and do damage. You need a different method of controlling weeds or just let them grow.

Allow more privately owned hangers!

I am a daily commuter by air. The airport is of vital importance to my quality of life.

If we can't have hangers, how about some shade roofs?

Camarillo Airport 1995

Airport Economic Impact Model

**California Department
of Transportation**

**Prepared By
Coffman Associates
And
Arizona State University**

January, 1996

TABLE #1

AIRPORT: CMA1

DIRECT IMPACTS FROM VISITORS:
EXPENDITURES

	NON-RESIDENT VISITOR-DAYS	AVERAGE DAILY EXPEND.	TOTAL REVENUES	VALUE ADDED
HOTEL	46066	15	690990	690990
FOOD AND BEVERAGE	46066	17	783122	469873 ¹⁾
TRANSPORTATION	46066	7	322462	322462
MISCELLANEOUS	46066	22	1013452	608071 ¹⁾
SUBTOTAL	46066	--	2810026	2091396
CREW	0	0	0	0 ²⁾
TOTAL	46066	--	2810026	2091396

1) These retail categories are adjusted for value added prior to use with multipliers in Table #10. Value added is equal to the average retail margin (markup) estimated at 60 % based on averages from 'Guide to Restaurants and Other Food Services' by Eric F. Green, the California Census of Retail Trade and the 'Restaurant Industry Operations Report

2) Estimated in same proportion as calculated for total visitor expenditures.

NOTE: Includes only those non-resident visitors who indicated on survey that without the airport they would not have visited the local area (definitely not = 100 %, unlikely = 50 %)

TABLE #2

AIRPORT: CMA1

DIRECT IMPACTS FROM VISITORS:
JOBS / PAYROLL

	TOTAL REVENUES	1) PERCENT TO LABOR	TOTAL PAYROLL	2) AVERAGE SALARY	# JOBS (FTE)
HOTEL	690990	40	276396	18965	15
FOOD AND BEVERAGE	783122	35	274093	13570	20
TRANSPORTATION	322462	40	128985	28980	4
MISCELLANEOUS	1013452	40	405381	29397	14
SUBTOTAL	2810026	--	1084854	20464	53
CREW RELATED	0	39	0	20464	0
TOTAL	2810026	--	1084854	20464	53

1) SOURCE: Laventhol & Horwath, U.S. Lodging Industry; California Census of Retail Trade; 'Guide to Restaurant & Other Food Services'.

2) SOURCE: California Census of Retail Trade; California Census of Service Industries.

NOTES: Payroll is part of, not additive to, direct impact from visitors

Average salary includes all forms of remuneration.

TABLE #3

AIRPORT: CMA1

DIRECT IMPACTS FROM AIRPORT OPERATIONS:
EXPENDITURES

	AIRLINES	FBO'S ¹⁾	OTHER TENANTS	AIRPORT ADMIN.
FUELS	--	1300000	---	--
MATERIALS AND SERVICES	0	7792000	2988000	516880
CAPITAL EXPENDITURES	0	0	0	800345
SUBTOTAL	0	9092000	2988000	1317225
PAYROLL	0	2000000	2173530	1066200
TOTAL	0	11092000	5161530	2383425

1) Includes only value added of all local fuel expenditures including those by airlines, charters, private planes, etc..

TABLE #4

AIRPORT: CMA1

DIRECT IMPACTS FROM AIRPORT OPERATIONS:
JOBS / PAYROLLS

	AIRLINES	FBO's	OTHER TENANTS	AIRPORT ADMIN.
TOTAL PAYROLL	0	2000000	2173530	1066200
AVERAGE SALARY ¹⁾	30190	29850	36839	46356
NUMBER OF JOBS (FTE)	0	67	59	23

1) SOURCE: California Census of Service Industries; California
Census of Retail Trade; Airport financial statements

NOTE: This table is a subset of Table #3

DIRECT IMPACTS FROM AIRPORT OPERATIONS:
TAXES

	SALES BASE	TOTAL TAX
<u>LOCAL</u>		
SALES & USE TAX	40900000	409000
BUSINESS LICENCE	--	0
PROPERTY & POSSESSORY INT.	--	93740
PERSONAL PROPERTY :		
G. A. AIRCRAFT	--	208440
A. C. AIRCRAFT	--	0
LAND PAYMENTS TO LOCAL JURISDICTION	--	0
 SUBTOTAL	 40900000	 711180
<u>STATE</u>		
SALES & USE TAX	40900000	2045000
G. A. FUEL TAX	639904 (GALS.)	73047
 SUBTOTAL	 40900000	 2118047
 TOTAL	 40900000	 2829227

NOTE: This table identifies specific local and state taxes paid by airport tenants only. These taxes are included in total local and state tax revenues of Table #8. Local taxes are further broken down by jurisdiction in Table #14.

DIRECT IMPACTS FROM OFF-SITE SERVICES:
REVENUES

	1) ROUND-TRIP PASSENGERS	2) TICKET PRICE	3) PERCENT VALUE ADDED	TOTAL
TRAVEL AGENTS	0	0	0.0	0
CARGO AGENTS	--	--	--	0
TOTAL	--	--	--	0

1) Round-trips generated by local residents

2) Average round-trip ticket price

3) Includes only agents' commission (value added)
Percent commission obtained from local survey

TABLE #7

AIRPORT: CMA1

DIRECT IMPACTS FROM OFF-SITE SERVICES:
JOBS / PAYROLL

	TOTAL REVENUES	1) PERCENT TO LABOR	TOTAL PAYROLL	2) AVERAGE SALARY	# JOBS (FTE)
TRAVEL AGENTS	0	4.0	0	22850	0
CARGO AGENTS	0	40.0	0	29730	0
TOTAL	0	-----	0	-----	0

1) SOURCE: California Census of Retail Trade.

2) SOURCE: California Census of Service Industries.

NOTES: This table is a subset of Table #6.

Average salary includes all forms of remuneration.

TAXES ON DIRECT IMPACTS:

	1) TAXES -----
2) REVENUE BASE	24702156

LOCAL TAX REVENUES	1852662
STATE TAX REVENUES	395234
TOTAL TAX REVENUES	2247896

1) These estimates are based on the historical relationship of gross domestic product in the state and the operating budgets of local and state jurisdictions. Therefore gross revenues can be used to approximate total state and local taxes paid. The higher amount of local taxes (compared to state taxes) reflects the fact that a portion of state taxes is returned to local jurisdictions.

Source: Economics Research Associates.

2) Total gross revenues (not value added) from Table #1, Table #3, and Table #6.

NOTE: Taxes are part of, not additive to, direct impacts.

TABLE #9

AIRPORT: CMA1

INDUCED IMPACTS:
GROSS OUTPUT MULTIPLIERS

CATEGORY	GROSS OUTPUT MULTIPLIER
-----	-----
VISITOR / CREW - HOTEL	2.34
VISITOR / CREW - OTHER	2.12
AIRLINE & AIRPORT OPS.	2.15
FUELS	2.12
TRAVEL AGENTS	2.15
CARGO AGENTS	2.15
CAPITAL EXPENDITURES	2.40

1) Multiplier coefficients as per Input Table #9
Source: (RIMS II). Federal Bureau Of Economic Analysis.

TABLE #10

AIRPORT: CMA1

SUMMARY OF DIRECT & INDUCED IMPACTS:
 VALUE ADDED - REVENUES
 (THOUSANDS OF DOLLARS)

1995

CATEGORY	DIRECT IMPACT	OUTPUT MULTIPLIER	INDUCED IMPACT	TOTAL IMPACT
VISITOR / CREW - HOTEL	690.99	2.34	925.93	1616.92
VISITOR / CREW - OTHER ¹⁾	1400.41	2.12	1568.46	2968.86
AIRLINE & AIRPORT OPS. ²⁾	16536.61	2.15	19017.10	35553.71
FUELS ³⁾	1300.00	2.12	1456.00	2756.00
TRAVEL AGENTS ⁴⁾	0.00	2.15	0.00	0.00
CARGO AGENTS ⁴⁾	0.00	2.15	0.00	0.00
CAPITAL EXPENDITURES	800.34	2.40	1120.48	1920.83
TOTAL ⁴⁾	20728.35		24087.97	44816.32

- 1) From Table #1 value added column excluding hotel expenditures.
- 2) Materials, services and payroll only. Airplane sales operations at the airport are in this category including value added only.
- 3) Only 'markup' (value added) is counted for fuel sales.
- 4) Value added (or local revenues) only.

TABLE #10

AIRPORT: CMA1

SUMMARY OF DIRECT & INDUCED IMPACTS:
 VALUE ADDED - REVENUES
 (THOUSANDS OF DOLLARS)

Short Term

CATEGORY	DIRECT IMPACT	OUTPUT MULTIPLIER	INDUCED IMPACT	TOTAL IMPACT
VISITOR / CREW - HOTEL	869.40	2.34	1165.00	2034.40
VISITOR / CREW - OTHER ¹⁾	1761.98	2.12	1973.42	3735.41
AIRLINE & AIRPORT OPS. ²⁾	20806.28	2.15	23927.22	44733.49
FUELS ³⁾	1635.65	2.12	1831.93	3467.58
TRAVEL AGENTS ⁴⁾	0.00	2.15	0.00	0.00
CARGO AGENTS ⁴⁾	0.00	2.15	0.00	0.00
CAPITAL EXPENDITURES	1463.02	2.40	2048.23	3511.25
TOTAL ⁴⁾	26536.33		30945.80	57482.13

- 1) From Table #1 value added column excluding hotel expenditures.
- 2) Materials, services and payroll only. Airplane sales operations at the airport are in this category including value added only.
- 3) Only 'markup' (value added) is counted for fuel sales.
- 4) Value added (or local revenues) only.

TABLE #10

AIRPORT: CMA1

SUMMARY OF DIRECT & INDUCED IMPACTS:
 VALUE ADDED - REVENUES
 (THOUSANDS OF DOLLARS)
 Intermediate Term

CATEGORY	DIRECT IMPACT	OUTPUT MULTIPLIER	INDUCED IMPACT	TOTAL IMPACT
VISITOR / CREW - HOTEL	1001.70	2.34	1342.28	2343.98
VISITOR / CREW - OTHER ¹⁾	2030.11	2.12	2273.73	4303.84
AIRLINE & AIRPORT OPS. ²⁾	23972.45	2.15	27568.32	51540.76
FUELS ³⁾	1884.56	2.12	2110.70	3995.26
TRAVEL AGENTS ⁴⁾	0.00	2.15	0.00	0.00
CARGO AGENTS ⁴⁾	0.00	2.15	0.00	0.00
CAPITAL EXPENDITURES	1232.40	2.40	1725.36	2957.76
TOTAL ⁴⁾	30121.22		35020.38	65141.60

- 1) From Table #1 value added column excluding hotel expenditures.
- 2) Materials, services and payroll only. Airplane sales operations at the airport are in this category including value added only.
- 3) Only 'markup' (value added) is counted for fuel sales.
- 4) Value added (or local revenues) only.

TABLE #11

AIRPORT: CMA1

SUMMARY OF DIRECT AND INDUCED IMPACTS:
EMPLOYMENT AND PAYROLL

1995

	DIRECT -----	INDUCED ¹⁾ -----	TOTAL -----
REVENUES (THOUSANDS)	20728.35	24087.97	44816.32
EMPLOYMENT	202	328	530
PAYROLL (THOUSANDS)	6324.58	9635.19	15959.77

1) Payroll is based on earnings multiplier from household sector as per input Table #9.

TABLE #12

AIRPORT: CMA1

SUMMARY OF DIRECT AND INDUCED IMPACTS:
TAX REVENUES

1995

IMPACT CATEGORY -----	TOTAL REVENUES -----	STATE TAXES -----	LOCAL TAXES -----
1) DIRECT	24702156	395234	1852662
2) INDUCED	24087966	385407	1806597
TOTAL	48790122	780642	3659259

1) Reflects total revenues (not value added).

2) Reflects value added as calculated in Table #10

NOTE: Indirect tax revenues are calculated by applying the budget ratios used in table #8 to the indirect gross revenues derived in Table #10

TABLE #14

ALLOCATION OF IMPACTS:
LOCAL TAXES FROM AIRPORT

JURISDICTION	APPORTIONMENT PERCENTAGE	TAX 1) REVENUES	G.A. TAXES 2)
CITY	4.00	412750	----
COUNTY	19.00	17811	104220
SCHOOL DISTRICT	53.00	49682	104220
OTHER DISTRICTS	24.00	22498	----
TOTAL	100.00	502740	208440

1) Consist of total local taxes less personal property taxes on general aviation aircraft. The city share also includes all sales tax and business license tax.

NOTE: This table allocates local taxes identified in Table #5 to various jurisdictions as listed.

TABLE S-1

AIRPORT: CMA1

SUMMARY OF ECONOMIC IMPACTS 1)
1995

	DIRECT -----	INDUCED -----	TOTAL -----
REVENUES			
VISITOR SERVICES ²⁾	2091396	2494382	4585778
AIRPORT OPERATIONS ^{3) 4)}	16536610	19017102	35553712
FUEL ⁴⁾	1300000	1456000	2756000
CAPITAL EXPENDITURES	800345	1120483	1920828
OFF - SITE SERVICES	0	0	0
TOTAL	20728352	24087966	44816318
JOBS			
VISITOR EXPENDITURES	53		
AIRPORT OPERATIONS ³⁾	149		
OFF-SITE SERVICES	0		
TOTAL	202	328	530

1) Includes impacts from visitors, airport operations and off-site services.

2) Hotels, food, transportation, other and crew expenditures .

3) Airport management, airlines, FBO's and other tenants on site.

4) Materials, services and payroll

SUMMARY OF ECONOMIC IMPACTS (cont.)

1995

	DIRECT -----	INDUCED -----	TOTAL -----
<u>PAYROLL</u>			
VISITOR SERVICES	1084854		
AIRPORT OPERATIONS	5239730		
OFF-SITE SERVICES	0		
TOTAL	6324584	9635187	15959771
<u>ON-AIRPORT TAX REVENUES</u>			
LOCAL - SALES, BUSINESS	409000		
LOCAL - PROPERTY	302180		
AIRPORT LAND PAYMENTS TO LOCAL JURISDICTION	0		
SUBTOTAL	711180		
STATE TAXES	2118047		
TOTAL	2829227		
<u>TOTAL TAX REVENUES</u>			
LOCAL TAX REVENUES	1852662	1806597	3659259
STATE TAX REVENUES	395234	385407	780642
TOTAL	2247896	2192005	4439901



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