OCEANO AIRPORT

Master Plan

AIRPORT MASTER PLAN

for

OCEANO AIRPORT

FINAL REPORT

Prepared for
County of

SAN LUIS OBISPO

by

Coffman Associates, Inc.
In Association With
Environmental Science Associates (ESA)

2007
Accepted by the Board of Supervisors
of the County of San Luis Obispo on
March 18, 2008

"The preparation of this document may have been supported, in part, through the Airport Improvement Program financial assistance from the Federal Aviation Administration as provided under Title 49, United States Code, section 47104. The contents do not necessarily reflect the official views or policy of the FAA. Acceptance of this report by the FAA does not in any way constitute a commitment on the part of the United States to participate in any development depicted therein nor does it indicate that the proposed development is environmentally acceptable in accordance with appropriate public laws."

Table of Contents

CONTENTS

OCEANO AIRPORT
Oceano, California

Airport Master Plan
Final Report

Chapter One
INVENTORY

Chapter Two
FORECASTS

Chapter Three
FACILITY REQUIREMENTS

Chapter Four
AIRPORT DEVELOPMENT ALTERNATIVES

Chapter Four (Continued)

Chapter Five
MASTER PLAN CONCEPT AND AIRPORT PLANS

Chapter Six
CAPITAL IMPROVEMENT PROGRAM

EXHIBITS

Appendix A
GLOSSARY OF TERMS

Appendix B
ENVIRONMENTAL OVERVIEW

PREFACE

The Airport Master Plan for Oceano Airport was undertaken during calendar year 2006 and finalized in early 2007. While the airport has been operated as a San Luis Obispo County-owned facility since the early 1950s, a long range plan had never been undertaken. This study has provided an opportunity to examine current facilities, forecast aviation demand, examine future needs, and prepare a long-range capital improvement program that will be of assistance to the County, State Aeronautics, and the FAA as future projects are contemplated for the facility. The overall goal of the plan is to provide systematic guidelines for the airport's maintenance, development, and operation.

The final recommendations of the study provide for the following airfield items:

- Widening of the runway to 60 feet to meet current FAA design standards. Currently, the runway is 50 feet wide.
- Widening of the parallel taxiway and connecting taxiways to 25 feet to meet current FAA design standards. Most of the existing taxiways are 20 feet wide.
- Extension of taxiway reflectors along segments of taxiway which have no current lighting or reflectors.
- Realignment of the ramp edge taxilane marking to improve separation between taxiing and parked aircraft.
- Relocation of the segmented circle to mid-field location, allowing for future hangars and ramp on the southwest side.

- Relocation of wind sock at southeast end (for better pilot visibility) and add supplemental wind sock near northwest end of runway.

- Release of excess non-aeronautical property and pursuit of abandoned right-of-way property within the runway protection zone.

The following landside items have been included in the recommendations:

- Redevelopment of older County-owned hangars on the existing ramp, to be replaced by four new hangars (approximately 2,500 square feet each). The existing campground will be maintained for transient pilots.

- Redevelopment of existing terminal/fueling area to provide multiple hangars and additional ramp for transient aircraft. Existing terminal/office and house will be removed, and fueling facility relocated.

- Extension of ramp for additional hangars on southwest side of airfield. Roadway will be extended from Delta Lane. All development will remain outside Army Corps and Coastal Commission wetlands.

In total, the program is estimated to cost $5.2 million over the planning period. It is estimated that $3.8 million will be eligible for funding under the Airport Improvement Program, while another $370,000 will be eligible for state grants. Of the $1.0 million in local share, a high percentage is dedicated to hangar construction, which may be funded through third parties or with state loans.

The *Airport Master Plan* was a cooperative effort between the consultant, the County of San Luis Obispo, and a cross-section of community, government, and airport tenants, organized as a Planning Advisory Committee. The committee met four times, and public workshops were held on three evenings. The report was accepted by the Board of Supervisors of the County of San Luis Obispo on March 18, 2008.

The primary issues and objectives upon which the *Airport Master Plan* is based will remain valid for many years. However, flexibility will need to be built into the plan to respond to changing needs or compliance requirements. Each year, the County will be required to submit updated Five-Year Capital Improvement Programs to the FAA and state. This plan will assist in this process.

Advice and assistance provided by the members of the Planning Advisory Committee, County of San Luis Obispo personnel, and airport tenants were invaluable. We gratefully acknowledge their input and support throughout the planning process.

Oceano Airport

Chapter One

Inventory

INVENTORY

The initial step in the preparation of the airport master plan update for Oceano Airport is the collection of information pertaining to the airport and the area it serves. The information collected in this chapter will be used in subsequent analyses in this study. The inventory of existing conditions at Oceano Airport provides an overview of the airport facilities, airspace, and air traffic control. Background information regarding the regional area is also collected and presented. This includes information regarding the airport's role in regional, state, and national aviation systems, surface transportation, and a socio-economic profile.

The information was obtained from several sources, including on-site inspections, airport records, review of other planning studies, the Federal Aviation Administration (FAA), various government agencies, a number of on-line sites which presently summarize most statistical information and facts about the airport and/or area, and interviews with airport staff, planning associations, and airport tenants. As with any airport planning study, an attempt has been made to utilize existing data or information provided in existing planning documents to the maximum extent possible.

REGIONAL SETTING

The airport is located adjacent to Oceano, a coastal community near Pismo Beach, Grover Beach, and Arroyo Grande.

The airport encompasses approximately 58 acres of land in an unincorporated portion of San Luis Obispo County. Vehicle access to the airport is via Air Park Drive. The airport is bordered on the north by Pismo State Beach, on the east by the Union Pacific Railroad, and on the south by the Pismo Dunes Natural Preserve. The Pacific Ocean coastline is less than a half-mile from the main ramp area.

INFRASTRUCTURE

Regionally, Oceano is located approximately 186 statute miles northwest of Los Angeles; 248 statute miles southeast of San Francisco; and 17 statute miles south of the City of San Luis Obispo. The location of the airport in its regional setting is presented on **Exhibit 1A**.

U.S. Highway 101 and State Highway 1 (Pacific Coast Highway) are the major highways providing access to Oceano. State Highway 1 runs along the Pacific coast for most of the length of the state. U.S. Highway 101 is a primary north-south highway linking the major coastal cities of California. These highways extend through the central portion of the county, providing access to Atascadero and Paso Robles (north of San Luis Obispo), to Arroyo Grande and Santa Maria. Several other state highways provide access to central and eastern California.

Rail service to and from Oceano is provided by Union Pacific Railroad. Amtrak offers daily service into San Luis Obispo County from the Coast Starlight and the Pacific Surfliner trains. The Grover Beach Station is located at the intersection of Highway 1 (Pacific Coast Highway) and West Grand Avenue.

South County Area Transit (SCAT) provides fixed-schedule public transportation in the five-city area, which includes Arroyo Grande, Grover Beach, Pismo Beach, Shell Beach, and Oceano. San Luis Obispo Regional Transit Authority provides fixed-schedule public transportation to all communities within the County, as well as the most northern part of Santa Barbara County.

CLIMATE

Weather conditions are important to the planning and development of an airport. Temperature is an important factor in determining runway length requirements, while wind direction and speed are used to determine optimum runway orientation. The need for navigational aids and lighting is determined by the percentage of time that visibility is impaired due to cloud coverage or other conditions.

San Luis Obispo County is bisected by the Santa Lucia Mountain Range. This contributes to several distinct local climates, ranging from year-round mild temperatures and dense seasonal fog along the 85-mile coastline. Oceano Airport is mostly affected by this dense fog in the morning hours. More dramatic temperature variations occur in the northern inland region. Temperatures range from the low 40s in the winter months to the high 70s in the summer months. **Table 1A** summarizes climatic data for the Oceano area, including temperatures and precipitation.

04MP10-1A-2/27/06

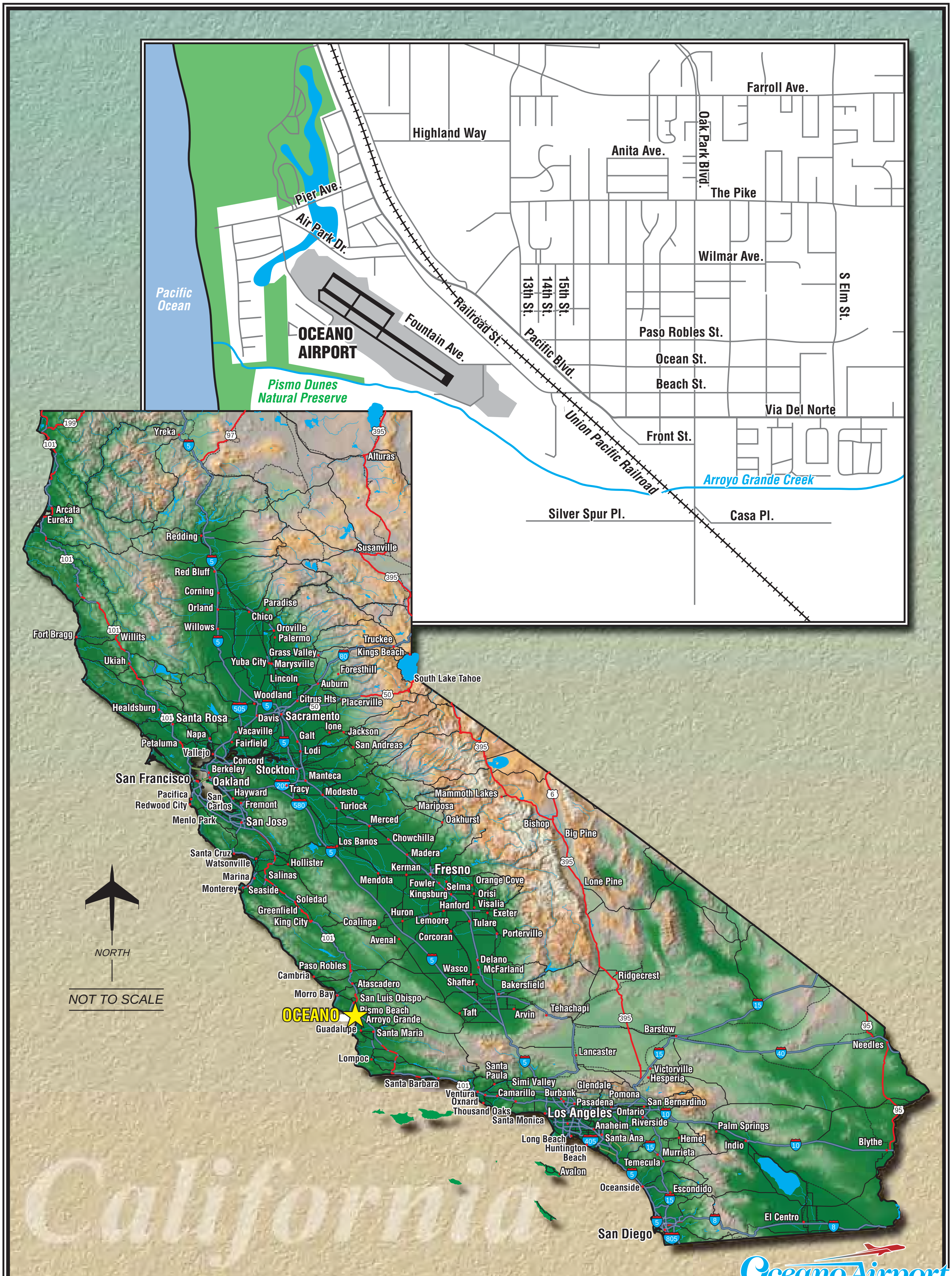


Exhibit 1A
LOCATION MAP

TABLE 1A
Climate Summary
Oceano, California

	High Temperature	Low Temperature	Precipitation (inches)
January	65 °F	43°F	3.59
February	66°F	44°F	3.87
March	67°F	45°F	3.46
April	69°F	46°F	1.13
May	70°F	47°F	0.41
June	71°F	51°F	0.07
July	71°F	53°F	0.03
August	72°F	53°F	0.02
September	73°F	53°F	0.32
October	73°F	51°F	0.62
November	69°F	46°F	1.70
December	66°F	42°F	2.57

Source: www.weather.com (Averages based on a 30-year period).

AIRPORT HISTORY AND ADMINISTRATION

Oceano Airport was constructed in the early 1950s to serve the Pismo Dunes and Pismo Beach recreational areas. The airport is owned and operated by San Luis Obispo County. The County also owns and operates San Luis Obispo County Regional Airport, which is located approximately eight nautical miles north of Oceano Airport. The day-to-day administration and management of both airports is the responsibility of the Airports Manager. "Airports" is a division within the Department of General Services. Overall administration and financial oversight of the two county-owned airports falls under the jurisdiction of the County Administrative Office and the five-member elected Board of Supervisors.

AIRPORT SYSTEM PLANNING ROLE

Airport planning exists on many levels: national, state, and local. Each level has a different emphasis and purpose. An airport master plan is the primary local airport planning document.

At the national level, the airport is included in the *National Plan of Integrated Airport Systems* (NPIAS). This plan identifies 3,344 existing airports which are significant to national air transportation, as well as airport development necessary to meet the present and future requirements in support of civil needs. An airport must be included in the NPIAS to be eligible for federal funding assistance. Oceano Airport is classified as a general aviation airport in the NPIAS. The 2,556 general aviation airports in the NPIAS have an average of 33 based aircraft and account for approximately 40 percent of the nation's general aviation fleet.

At the state level, the California Department of Transportation (CALTRANS), Division of Aeronautics, provides statewide planning to airports through its *California Aviation System Plan* (CASP). The purpose of the CASP is to ensure that the state has an adequate and efficient system of airports to serve its aviation needs well into the future. The CASP is responsible for the general supervision of all aeronautics within the state. It is empowered by state law to make rules and regulations governing all airports, flight schools, and all other aeronautical activity. The CASP defines the specific role of each airport in the state's aviation system and develops forecasts for aviation activity in the State of California. These forecasts assist in the identification of airports in need of capital improvements and provide a guide for programming federal and state development funds.

A summary of capital improvement projects completed at Oceano Airport since 1997 is presented in **Table 1B**. These projects were funded by the Airport Improvement Program (AIP), which provides grants to public agencies for the planning and development of public-use airports that are included in the NPIAS.

TABLE 1B
Historical AIP Grant History – Capital Projects 1997-2005
Oceano Airport

Project Number	Fiscal Year	Federal Funds	Description of Project
3	1997	$374,000	Construct Apron, Rehabilitate Runway Lighting, Replaced Airport Beacon & Tower, Install Fencing
4	2002	$1,651,860	Rehabilitate Apron, Rehabilitate Runway, Rehabilitate Taxiway, Improve Runway Safety Area

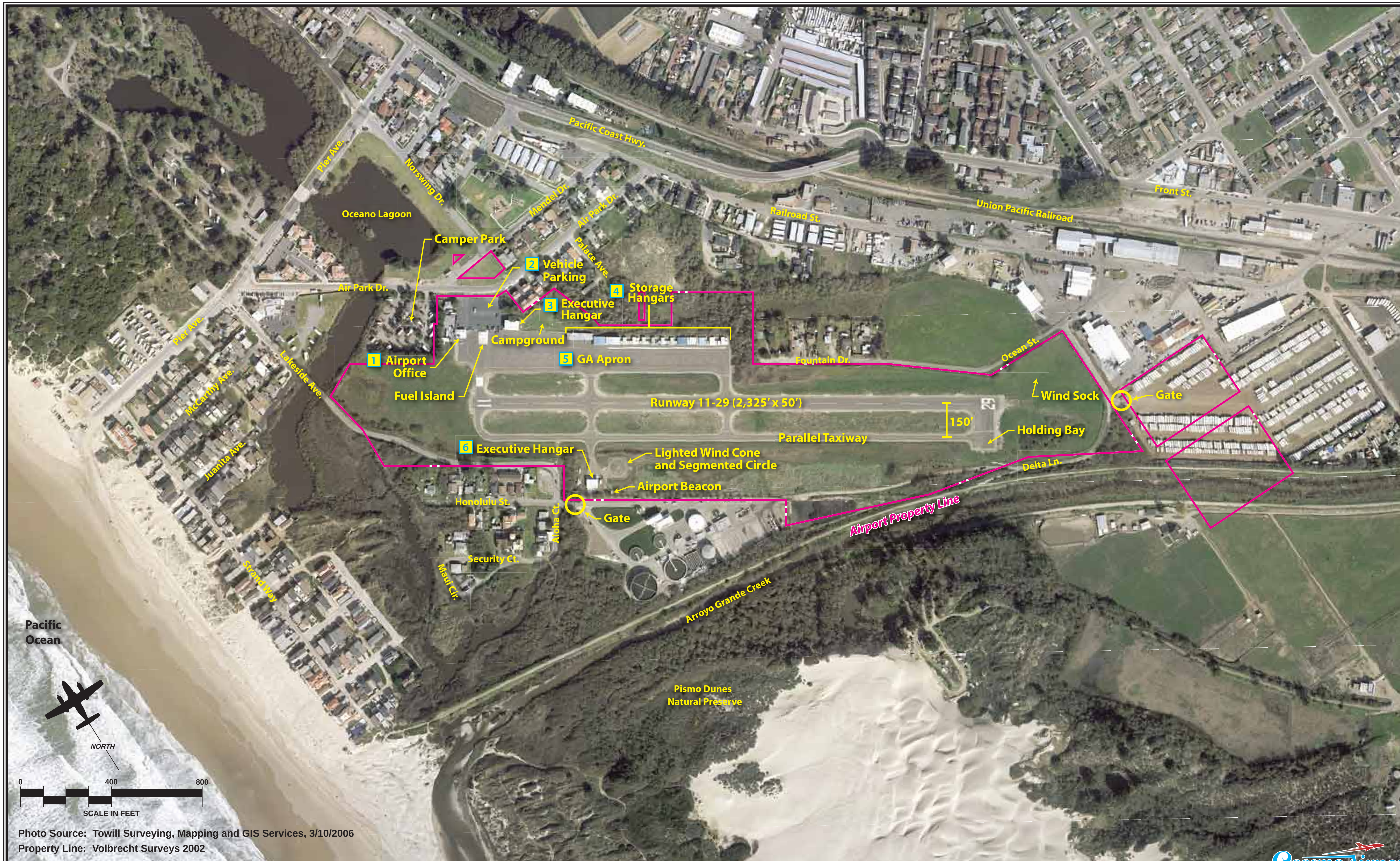
Source: FAA

AIRPORT FACILITIES

Airport facilities can be functionally classified into two broad categories: airside and landside. The airside category includes those facilities directly associated with aircraft operations. The landside category includes those facilities necessary to provide a safe transition from surface to air transportation and support aircraft servicing, storage, maintenance, and operational safety.

AIRSIDE FACILITIES

Airside facilities include runways, taxiways, airfield lighting, and navigational aides. Airside facilities are identified on **Exhibit 1B**. **Table 1C** summarizes airside facility data.



Oceano Airport

Exhibit 1B
EXISTING FACILITIES

TABLE 1C Airside Facility Data Oceano Airport	Runway 11-29
Runway Length (feet) Runway Width (feet)	2,325 50
Runway Surface Material Condition	Asphalt Excellent
Pavement Markings	Basic
Runway Load Bearing Strengths (lbs.) Single Wheel Loading	 12,500
Runway Lighting	Medium Intensity Runway Lighting
Taxiway Lighting	(Connectors lighted)
Approach Lighting	None
Instrument Approach Procedures	None
Weather or Navigational Aids	Segmented Circle Lighted Wind Cone

Source: *Airport/Facility Directory, Southwest U.S.* (December 22, 2005).

Runways and Taxiways

Oceano Airport is served by a single runway. Runway 11-29 is oriented in a northwest-southeast direction and is constructed of asphalt. The runway is 2,325 feet long and 50 feet wide. The load bearing strength for the runway is 12,500 pounds single wheel loading (SWL), which refers to the design of certain aircraft landing gear which has a single wheel on each main landing gear strut.

The existing taxiway system at Oceano Airport is illustrated on **Exhibit 1B**. A full-length parallel taxiway is located on the south side of Runway 11-29 and is 20 feet wide. The distance between the Runway 11-29 centerline and the parallel taxiway centerline is 150 feet. Two connecting taxiways are available for aircraft entering/exiting the runway and also provide access to the general aviation facilities on the north side of the airfield. One of the connecting taxiways also extends south, providing access to a single hangar.

Airfield Lighting

Airfield lighting systems extend an airport's usefulness into periods of darkness and/or poor visibility. A variety of lighting systems are installed at the airport for this purpose. These lighting systems, categorized by function, are summarized in the following paragraphs.

The location of the airport at night is universally identified by a rotating beacon. A rotating beacon projects two beams of light, one white and one green, 180 degrees apart. The rotating beacon at Oceano Airport is located on the south side of the airfield, east of the aircraft hangar (noted on **Exhibit 1B**).

Pavement edge lighting utilizes light fixtures placed near the edge of the pavement to define the lateral limits of the pavement. This lighting is essential for safe operations during night and/or times of low visibility, in order to maintain safe and efficient access to and from the runway and aircraft parking areas. Runway 11-29 is equipped with medium intensity runway lighting (MIRL). Taxiway lighting is limited to the connecting taxiways and reflectors on the south end.

Pavement Markings/ Airfield Signage

Pavement markings aid in the movement of aircraft along airport surfaces and identify closed or hazardous areas on the airport. The basic markings on Runway 11-29 identify the runway designation and centerline.

Taxiway and apron centerline markings are provided to assist aircraft using these airport surfaces. Taxiway centerline markings assist pilots in maintaining proper clearance from pavement edges and objects near the taxiway/taxilane edges. Pavement edge markings also identify aircraft parking and aircraft holding positions.

Holding position markings are located on all taxiways entering the runway at 125 feet from the runway centerline.

Weather and Communication Aids

The airport is equipped with a wind cone, which provides pilots with information about wind direction, and a segmented circle, which provides traffic pattern information to pilots. The wind cone and segmented circle are located north of the rotating beacon.

LANDSIDE FACILITIES

Landside facilities are the ground-based facilities that support the aircraft and pilot/passenger handling functions. These facilities typically include the terminal/office building, aircraft storage/maintenance hangars, aircraft parking aprons, and support facilities such as fuel storage, automobile parking, roadway access, and aircraft rescue and firefighting (not provided at Oceano Airport). Landside facilities are identified on **Exhibit 1B**, which corresponds with **Table 1D**.

TABLE 1D
Landside Facility Inventory
Oceano Airport

Facility No.	Facility Description	Area	Condition
1	Airport Office	840 square feet	Fair
2	Vehicle Parking	3,630 square yards	Fair
3	Executive Hangar	2,435 square feet	Good
4	Storage Hangars	17,300 square feet	Fair/Good
5	General Aviation Apron	19,100 square yards	Excellent
6	Executive Hangar	1,810 square feet	Fair

Airport Office

An airport office is located on the northwest corner of the aircraft parking apron. This building, which is approximately 840 square feet in size, is accessed via Air Park Drive. A vehicle parking lot, which is identified on **Exhibit 1B**, is located adjacent to the building. Approximately 50 parking spaces are available in this lot.

Aircraft Storage Facilities

Hangar space at Oceano Airport is comprised of smaller executive hangars and individual storage hangars. Executive hangars provide a large, open space, free from roof support structures. They have the capability to accommodate several aircraft simultaneously, and are typically less than 10,000 square feet in size. Individual box and T-hangars provide individual aircraft storage and are frequently aligned to maximize ramp or taxiway frontage. **Exhibit 1B** depicts the location of aircraft storage facilities at Oceano Airport.

Aircraft Parking Aprons

An aircraft parking apron is located on the northeast side of the runway. This asphalt apron totals approximately 19,100 square yards. There are a total of 34 aircraft tiedown positions on this apron for single/multi-engine based and transient aircraft. A campground for transient pilots is located adjacent to the aircraft parking apron.

Fuel Facilities

One 8,000-gallon aboveground fuel tank (100LL) provides fuel storage at Oceano Airport and is located on the general aviation apron, southeast of the airport office. Fueling is self-service.

Fire Station

Structural firefighting is available through the Oceano Community Service District (off-airport).

ENROUTE NAVIGATION AND AIRSPACE

Navigational aids are electronic devices that transmit radio frequencies, which pilots of properly equipped aircraft translate into point-to-point guidance and position information. The types of electronic navigational aids available for aircraft flying to or from Oceano Airport include the very high frequency omnidirectional range (VOR) facility and global positioning system (GPS).

The VOR, in general, provides azimuth readings to pilots of properly equipped aircraft by transmitting a radio signal at every degree to provide 360 individual navigational courses. Frequently, distance measuring equipment (DME) is combined with a VOR facility (VOR/DME) to provide distance as well as direction information to the pilot. In addition, military

TACAN and civil VORs are commonly combined to form a VORTAC. A VORTAC provides distance and direction information to civil and military pilots. Pilots flying to or from the airport can utilize the Morro Bay VORTAC (11.3 miles northwest); the Paso Robles VORTAC (34.3 miles north), or the Fellows VORTAC (37.1 miles east). **Exhibit 1C**, a map of the regional airspace system, depicts the location of these navigational aids.

GPS is an additional navigational aid for pilots enroute to the airport. GPS was initially developed by the United States Department of Defense for military navigation around the world. Increasingly, GPS has been utilized more in civilian aircraft. GPS uses satellites placed in orbit around the globe to transmit electronic signals, which properly equipped aircraft use to determine altitude, speed, and position information. GPS allows pilots to navigate to any airport in the country and they are not required to navigate using a specific navigational facility. The FAA is proceeding with a program to gradually replace all traditional enroute navigational aids with GPS over the next 20 years.

In July 2003, the FAA commissioned a Wide Area Augmentation System (WAAS), which is a GPS-based navigation and landing system that provides guidance to aircraft at thousands of airports and airstrips where there is currently no precision landing capability. Systems such as WAAS are known as satellite-based augmentation systems (SBAS). WAAS is designed to improve the accuracy and ensure the integrity of information coming from GPS satellites. The FAA is using WAAS to provide Lateral Navigation/Vertical Navigation (LNAV/VNAV) capability.

INSTRUMENT APPROACH PROCEDURES

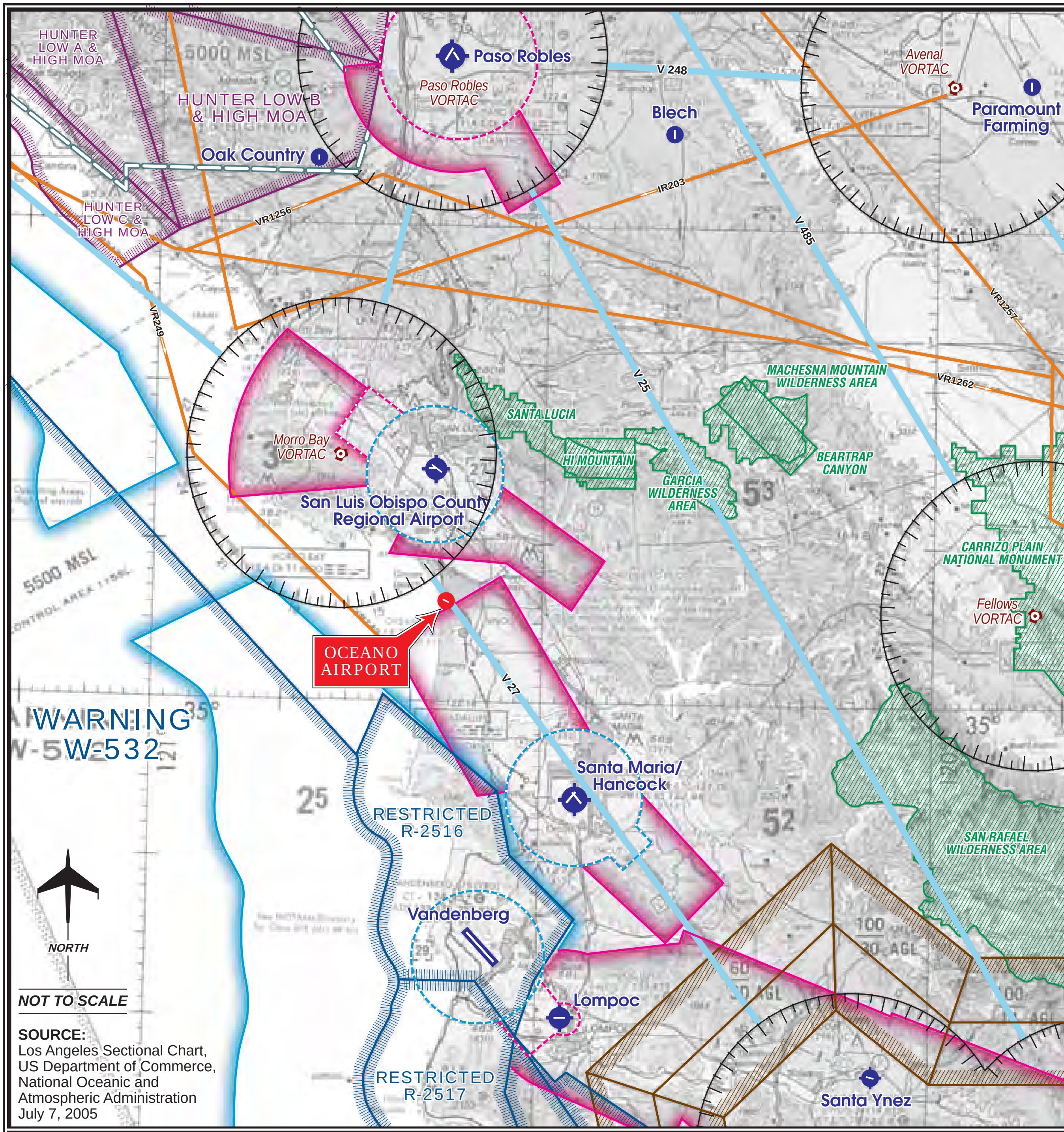
There are no instrument approach procedures available at Oceano Airport.

Vicinity Airspace

To ensure a safe and efficient airspace environment for all aspects of aviation, the FAA has established an airspace structure that regulates and establishes procedures for aircraft using the National Airspace System. The U.S. airspace structure provides two basic categories of airspace, controlled and uncontrolled, and identifies them as Classes A, B, C, D, E, and G.

Class A airspace is controlled airspace that includes all airspace from 18,000 feet MSL to Flight Level 600 (approximately 60,000 feet MSL). Class B airspace is controlled airspace surrounding high-capacity commercial service airports (i.e., San Francisco International Airport). Class C airspace is controlled airspace surrounding lower activity commercial service airports and some military airports. Class D airspace is controlled airspace surrounding airports with an airport traffic control tower. All aircraft operating within Classes A, B, C, and D airspace must be in contact with the air traffic control facility responsible for that particular airspace. Class E airspace is controlled airspace that encompasses all instrument approach

04MP10-1C-5/16/06



SOURCE:
Los Angeles Sectional Chart,
US Department of Commerce,
National Oceanic and
Atmospheric Administration
July 7, 2005

LEGEND

- Airport with other than hard-surfaced runways
- Airport with hard-surfaced runways 1,500' to 8,069' in length
- Airports with hard-surfaced runways greater than 8,069' or some multiple runways less than 8,069'
- Non-Directional Radiobeacon (NDB)
- VORTAC
- VHF Omni Range (VOR)
- VOR-DME
- Compass Rose
- Class D Airspace
- Class E Airspace
- Class E Airspace with floor 700 ft. above surface
- Class E Airspace with floor 1200 ft. or greater above surface
- Victor Airways
- Wilderness Area
- Military Training Routes
- Differentiates floors of Class E Airspace greater than 700 ft. above surface
- Military Operations Area - MOA
- Prohibited, Restricted, Warning, and Alert Areas
- Special Airport Traffic Areas

Oceano Airport

Exhibit 1C
AIRSPACE VICINITY MAP

procedures and low-altitude federal airways. Only aircraft conducting instrument flights are required to be in contact with air traffic control when operating in Class E airspace. Aircraft conducting visual flights in Class E airspace are not required to be in radio communications with air traffic control facilities. Visual flight can only be conducted if minimum visibility and cloud ceilings exist. Class G airspace is uncontrolled airspace that does not require contact with an air traffic control facility.

Airspace in the vicinity of Oceano Airport is depicted on **Exhibit 1C**. The airport is located in Class E airspace, with the floor 1,200 feet above the surface.

For aircraft arriving or departing the regional area using VOR facilities, a system of Federal Airways, referred to as Victor Airways, has been established. Victor Airways are corridors of airspace eight miles wide that extend upward from 1,200 feet AGL to 18,000 feet MSL and extend between VOR navigational facilities. As shown on **Exhibit 1C**, Victor Airways in the area emanate from the Morro Bay, Paso Robles, and Fellows VORTACs.

There are several areas of special-use airspace in the vicinity of the airport. This includes Military Operations Areas (MOAs), Restricted Areas, and Warning Areas. Located northwest of the airport are the Hunter Low A, Low B, Low D, Low E, and High MOAs, and the Roberts MOA. Located to the south of the airport are Restricted Areas R-2516 and R-2517. Located to the west of the airport is Warning Area W-532, which is used extensively by Vandenberg Air Force Base. Civil aircraft operations within these areas are specifically restricted at various times and altitudes. The hours that these areas are in use and the altitudes that are restricted vary. This information can be found on the Los Angeles Sectional Chart.

A number of military training routes (MTRs) are also located in the vicinity of Oceano Airport. These routes are used by military training aircraft which commonly operate at speeds in excess of 250 knots and at altitudes to 10,000 feet MSL. While general aviation flights are not restricted within these areas, pilots are strongly cautioned to be alert for high speed military jet training aircraft.

Several Wilderness Areas are located northeast of the airport. Aircraft in and over Wilderness Areas are requested to remain above 2,000 feet AGL.

AIR TRAFFIC CONTROL

There is no airport traffic control tower at Oceano Airport. Aircraft arriving and departing Oceano Airport area are controlled by the Los Angeles Air Route Traffic Control Center (ARTCC). ARTCCs control aircraft in a large multi-state area. All aircraft in radio communication with the ARTCC will be provided with altitude, aircraft separation, and route guidance to and from the airport. The Hawthorne Flight Service Station (FSS) provides additional information to pilots operating in the vicinity of the airport.

AREA AIRPORTS

A review of airports within 30 nautical miles of Oceano Airport has been made to identify and distinguish the type of air service provided in the area surrounding the airport. Public-use airports within 30 nautical miles of the airport were previously illustrated on **Exhibit 1C**. Information pertaining to each airport was obtained from FAA records.

San Luis Obispo County Airport is located approximately eight nautical miles (nm) north of Oceano Airport. The airport is owned and operated by San Luis Obispo County. There are two runways available for use. The longest runway is 5,300 feet long and constructed of asphalt with a grooved surface. The airport is equipped with an airport traffic control tower and has four published instrument approaches. There are 301 aircraft based at San Luis Obispo County Airport, the majority of which are single-engine. The airport averages 336 operations per day. Services available at the airport include aircraft parking (ramp and tiedown), 100LL and Jet A fuel sales, aircraft charters, aircraft maintenance, passenger terminal and lounge, pilot supplies, and catering. Scheduled airline passenger service is also provided from this airport.

Santa Maria Public/Captain G. Allan Hancock Field is located approximately 15 nm south-southeast of the airport. There are two runways available for use. The longest runway is 6,304 long, 150 feet wide, and constructed of asphalt with a grooved surface. The airport is served by an airport traffic control tower which operates from 6:00 a.m. to 10:00 p.m. There are four published instrument approaches available at the airport. Approximately 198 aircraft are based at the airport, mostly single-engine. The airport averages 187 operations per day. Services available at the airport include 100LL and Jet A fuel sales, tie-downs, aircraft maintenance, flight instruction, aircraft rental, aerial tours/sightseeing, aircraft painting/interior, and avionics sales and service. Scheduled airline passenger service is also provided from this airport.

Lompoc Airport is located approximately 27 nm south-southeast of Oceano Airport. The airport is served by a single 4,600-foot asphalt runway. The airport is not served by an airport traffic control tower. There are four published instrument approaches to the airport. Approximately 70 aircraft are based at the airport, the majority of which are single-engine. The airport averages 99 operations per day. Services available at the airport include 100LL fuel sales, aircraft tie-downs, and aircraft maintenance.

AIRPORT USER SURVEY

In order to obtain a profile of local general aviation users and their preferences, an airport user survey was made available to general aviation pilots using Oceano Airport. A total of 23 surveys were completed. The survey responses are summarized in **Table 1E**.

As shown in the table, five of the respondents currently base their aircraft at Oceano Airport. An additional five indicated they would base their aircraft at Oceano Airport if additional hangars were available. The responses also indicated that each user conducts an average of eight operations per month at Oceano Airport, with local training operations averaging 5.0 percent of these operations.

TABLE 1E
General Aviation Pilot Survey

Survey No.	Aircraft	Aircraft Based at	Hangar/ Tiedown	Base at Oceano if Hangars available?	Ops Per Month at Oceano	Percent of Local Ops
1	Ultralight	Oceano	Tiedown	--	10	3.0%
2	Cessna 172	Camarillo	Tiedown	Y	25	0.0%
3	Cessna 150	Camarillo	Tiedown	N	1	0.0%
4	Cessna 170	Corona	Tiedown	N	1	25.0%
5	Piper Aeronca	Oceano	Hangar	--	1	0.0%
6	Ultralight	Oceano	Tiedown	--	4	5.0%
7	Cessna 172	Santa Barbara	Tiedown	N	60	0.0%
8	Piper PA28B	Santa Barbara	Tiedown	N	1	0.0%
9	Beech 95	Redlands	Tiedown	Y	1	0.0%
10	Cessna 172	Santa Maria	Tiedown	N	2	10.0%
11	Lancair 360	Lompoc	Hangar	Y	7	10.0%
12	Globe Swift	Lompoc	Tiedown	Y	2	10.0%
13	Piper Aeronca	Oceano	Hangar	--	5	0.0%
14	Eagle II	Paso Robles	Hangar	N	2	0.0%
15	Cessna 170	Paso Robles	Hangar	N	1	0.0%
16	Piper Cub	Oceano	Hangar	--	20	10.0%
17	Beech 95	Van Nuys	Tiedown	N	1	0.0%
18	Piper Archer	Santa Clara	Hangar	N	2	0.0%
19	Piper Cherokee	Bakersfield	Hangar	N	2	0.0%
20	Piper Arrow	SLO Co.	Hangar	Y	8	0.0%
21	Cessna 172	Santa Barbara	Hangar	N	5	0.0%
22	Piper Cherokee	Santa Monica	Hangar	N	1	0.0%
23	Europa Turbo	Ramona	Tiedown	N	6	30.0%

The remaining questions on the survey were related to reasons for basing their aircraft at their chosen airport. The majority of the respondents indicated their primary reason was convenience (live/work close to airport). The availability of fuel and hangars and/or tiedowns was the next most popular reason for basing at their chosen airport. The least popular reason for basing at their chosen airport was the availability of navigational aids.

The respondents were also asked to provide general comments pertaining to specific improvements needed at Oceano Airport. Some of the responses indicated the need for additional hangars, an aircraft wash area, additional navigational aids, long-term leases, and more local activities.

GENERAL LAND USE

Oceano Airport is surrounded by an area with a broad range of existing land uses. The area north and west of the airport is mainly residential and consists of several multi-family housing units. The area east of the airport is a mix of industrial and residential uses. To the southeast of the airport, the existing land use is primarily agricultural land. The area immediately south of the airport is mainly recreational and includes Pismo Dune Natural Preserve.

The main entrance to the Pismo Dunes State Vehicular Recreation Area is located on Pier Avenue, directly on the airport's extended runway centerline, approximately 750 feet from the departure end of Runway 29.

SOCIOECONOMIC CHARACTERISTICS

A variety of historical and forecast socioeconomic data related to the regional area was collected for use in various elements of this master plan. This information assists in the determination of aviation service level requirements at the airport. Aviation activity is influenced by the population base, economic strength of the region, and the ability of the region to sustain a strong economic base over an extended period of time. Historical population, employment, and economic data were obtained for use in this study.

POPULATION

Population is one of the most important elements to consider when planning for future needs of the airport. Historical population data was obtained from the U.S. Census Bureau and is presented in **Table 1F**. According to 2000 Census data, California had the largest population increase of all fifty states since 1990, adding nearly four million people, with an average annual growth rate of 1.3 percent. As a result, California's 33.9 million residents in 2000 made it the most populous state in the country and accounted for 12 percent of the nation's total population.

TABLE 1F
Historical Population

Area	1990	2000	Average Annual Growth Rate (1990-2000)
San Luis Obispo County	217,200	246,700	1.3%
State of California	29,760,000	33,872,000	1.3%

Source: U.S. Census Bureau.

Forecast population projections are presented in **Table 1G**. These projections were obtained from the California Department of Finance. As shown in the table, the department projects the county's population to reach 317,800 by 2025, which represents an average annual growth rate of 1.0 percent. During this same time, the state's population is projected to grow at an average annual rate of 1.2 percent, reaching an estimated 46.0 million residents by the year 2025.

TABLE 1G Forecast Population					
Area	**2010**	**2015**	**2020**	**2025**	**Average Annual Growth Rate (2000-2025)**
San Luis Obispo Co.	277,400	291,000[1]	305,300	317,800[1]	1.0%
State of California	39,200,000	41,500,000[1]	43,900,000	46,000,000[1]	1.2%

Source: California Department of Finance.
[1]Interpolated

EMPLOYMENT

Analysis of a community's employment base can be valuable in determining the overall well-being of that community. In most cases, the community make-up and health are significantly impacted by the number of jobs, variety of employment opportunities, and types of wages provided by local employers.

Since 1995, annual average unemployment rates for both San Luis Obispo and neighboring counties have been consistently lower than California's unemployment rate, suggestive of employment opportunities in the area. In addition, the county's unemployment rate has fallen since 1995, when it was at a ten-year high of 6.6 percent. At the end of 2005, the county's unemployment rate stood at 4.1 percent. While the state's unemployment rate has also decreased since 1995, it is still slightly above that of the county's. **Table 1H** provides historical unemployment rates in San Luis Obispo County and the State of California between 1995 and 2005.

TABLE 1H Historical Unemployment Rates						
	1995	**1997**	**1999**	**2001**	**2003**	**2005**
San Luis Obispo County	6.6%	4.7%	3.2%	2.8%	3.4%	4.1%
State of California	7.9%	6.4%	5.3%	5.4%	6.8%	5.4%

Source: California Labor Market Information.

Historical and forecast employment by economic sectors for San Luis Obispo County was also examined. This information, which is presented in **Table 1J**, was obtained from the *Complete Economic and Demographic Data Source* (CEDDS) 2005.

TABLE 1J
Employment by Economic Sector
San Luis Obispo County

Economic Sector	2005	% of Total Employment	2025	% of Total Employment	Avg. Annual Growth Rate (2003-2025)
Total Employment	**145,490**	**100.0%**	**204,370**	**100.0%**	**1.7%**
Mining	210	0.1%	250	0.2%	0.9%
Construction	11,260	7.7%	14,830	7.3%	1.4%
Manufacturing	8,850	6.1%	12,410	6.1%	1.7%
Transportation & Public Utilities	6,340	4.4%	8,180	4.0%	1.3%
Wholesale Trade	3,980	2.7%	5,840	2.9%	1.9%
Retail Trade	27,600	19.0%	35,150	17.2%	1.2%
Finance, Insurance, & Real Estate	16,350	11.2%	19,180	9.4%	0.8%
Services	48,170	33.1%	79,030	38.7%	2.5%
Government	22,730	15.6%	29,500	14.4%	1.3%

Source: *Complete Economic and Demographic Data Source* (CEDDS), Woods & Poole, Inc. (2005).

San Luis Obispo County's economy is based largely on tourism and education. As a result, services, government, and retail trade are significant industries in the county. The services industry, which is the largest industry in the county, accounted for more than 48,000 jobs, or 33.1 percent of total employment in 2005. Retail trade, the second largest industry, accounted for 19 percent of total employment, with 27,600 jobs reported. Government is also a significant sector of employment in the county, with over 22,000 jobs reported in 2005. The majority of government jobs in San Luis Obispo County are in the local government sector.

The current industry projections for the county, through the year 2025, indicate that total employment will increase at an average annual rate of 1.7 percent, adding over 58,000 new jobs. The services, retail trade, and government industries will continue to dominate employment, collectively accounting for over 70 percent of total employment in San Luis Obispo County by 2025. Strength factors for future growth in the county include education, through county and post-secondary schools, and tourism, which are expected to remain strong assets in the county's economic growth.

The major employers in San Luis Obispo County have also been examined. The 15 largest employers in the county are presented in **Table 1K**. The total number of employees was not available; therefore, the employers are listed in alphabetical order.

TABLE 1K
Major Employers in San Luis Obispo County

Employer Name	Location (city)	Industry
Arroyo Grande Community Hospital	Arroyo Grande	Hospital/Medical
Atascadero State Hospital	Atascadero	Hospital/Medical
California 16th District Agriculture	Paso Robles	Carnivals
California Mid-State Fair	Paso Robles	Trade Fairs & Shows
California Polytech State University	San Luis Obispo	Schools/Universities
Campus Dining	San Luis Obispo	Caterers
Child Abuse & Neglect Services	San Luis Obispo	Social Service
Cuesta College	San Luis Obispo	Schools/Universities
Fairgrounds	Paso Robles	Fairgrounds
French Hospital Medical Center	San Luis Obispo	Hospital/Medical
JIT Manufacturing, Inc.	Paso Robles	Manufacturers
Medi-Cal Eligibility Information	San Luis Obispo	Information & Referral Services
Morro Bay Art Association Gallery	Morro Bay	Art Gallery/Dealers
Pacific Gas & Electric Company	Avila Beach	Electric Company
Ramirez Farm Labor	Shandon	Labor Contractors

Source: California Labor Market Information, Employment Development Department.

INCOME

Table 1L compares the per capita personal income (PCPI), adjusted for 2005 dollars, for San Luis Obispo County, the State of California, and the United States. As shown in the table, the PCPI of San Luis Obispo County has remained lower than that of both the State of California and the United States since 1990. Forecasts of PCPI are presented in **Table 1M** and project this trend to continue through the planning period.

TABLE 1L
Historical Per Capita Personal Income (2005$)

Area	1990	2000	Average Annual Growth Rate (1990-2000)
San Luis Obispo County	$17,600	$27,500	4.6%
State of California	$21,600	$32,500	4.2%
United States	$19,500	$29,800	4.3%

Source: *Complete Economic and Demographic Data Source* (CEDDS), Woods & Poole, Inc. (2005).

TABLE 1M
Forecast Per Capita Personal Income (2005$)

Area	2010	2015	2020	2025	Average Annual Growth Rate (2000-2025)
San Luis Obispo Co.	$39,800	$48,500	$60,100	$75,400	4.1%
State of California	$43,200	$52,800	$65,400	$82,000	3.8%
United States	$40,700	$49,700	$61,700	$77,400	3.9%

Source: *Complete Economic and Demographic Data Source* (CEDDS), Woods & Poole, Inc. (2005).
[1]Interpolated

SUMMARY

The information discussed on the previous pages provides a foundation upon which the remaining elements of the planning process will be constructed. Information on current airport facilities and utilization will serve as a basis, with additional analysis and data collection, for the development of forecasts of aviation activity and facility requirement determinations. The inventory of existing conditions is the first step in the process of determining those factors which will meet projected aviation demand in the community and region.

DOCUMENT SOURCES

As mentioned earlier, a variety of different sources were utilized in the inventory process. The following listing reflects a partial compilation of these sources. This does not include data provided by airport management as part of their records, nor does it include airport drawings and photographs which were referenced for information. On-site inventory and interviews with staff tenants also contributed to the inventory effort.

1987 Airport Master Plan Update Study, PRC Engineering, Inc.

Airport/Facility Directory, Southwest U.S., U.S. Department of Transportation, Federal Aviation Administration, National Aeronautical Charting Office, December 22, 2005 Edition.

Los Angeles Aeronautical Chart, U.S. Department of Transportation, Federal Aviation Administration, National Aeronautical Charting Office, July 7, 2005 Edition.

National Plan of Integrated Airport Systems (NPIAS), U.S. Department of Transportation, Federal Aviation Administration, 2005-2009.

A number of Internet sites were also used to collect information for the inventory chapter. These include the following:

California Labor Market Information:
www.calmis.ca.gov

California State Department of Transportation:
www.dot.ca.gov/

FAA 5010 Data:
www.airnav.com

San Luis Obispo County (Homepage):
www.co.slo.ca.us

U.S. Census Bureau:
www.census.gov/

Oceano Airport

Chapter Two

Forecasts

FORECASTS

An important factor in facility planning is the definition of demand that may reasonably be expected to occur during the useful life of its key components. In airport planning, this involves projecting potential aviation activity over at least a twenty-year time frame. For general aviation airports such as Oceano Airport, forecasts of based aircraft, aircraft fleet mix, and operations (takeoffs and landings) serve as the basis for facility planning.

Aviation activity can be affected by many influences on the local, regional, and national level, making it virtually impossible to predict year-to-year fluctuations of activity over twenty years with any certainty into the future. Therefore, it is important to remember that forecasts are to serve only as guidelines and planning must remain flexible enough to respond to a range of unforeseen developments.

The following forecast analysis examines recent developments, historical information, and current aviation trends to provide an updated set of aviation demand projections for Oceano Airport. The intent is to permit San Luis Obispo County to make planning adjustments as necessary and to ensure that the facility meets projected demands in an efficient and cost-effective manner.

This is the first planning forecast to be prepared for Oceano Airport subsequent to the events of September 11, 2001. Immediately following the terrorist attacks, the national airspace system was closed and all civilian flights were grounded. Following the resumption of flights, commercial air

line traffic declined, which led to schedule reductions and layoffs by many of the commercial airlines to reduce operating losses.

The federal government provided billions of dollars in financial assistance to the commercial airlines, along with loan guarantees. Similar assistance was not provided for the general aviation industry until early 2004. The cumulative impacts of 9/11 may only be determined over time. Prior to updating the airport=s forecasts, the following section discusses the trends in aviation at the national level.

NATIONAL AVIATION TRENDS

Each year, the FAA updates and publishes a national aviation forecast. Included in this publication are forecasts for the large air carriers, regional/commuter air carriers, general aviation, and FAA workload measures. The forecasts are prepared to meet the budget and planning needs of the constituent units of the FAA and to provide information that can be used by state and local authorities, the aviation industry, and the general public. The current edition when this chapter was prepared was *FAA Aerospace Forecasts-Fiscal Years 2006-2017*, published in March 2006. The forecasts use the economic performance of the United States as an indicator of future aviation industry growth. Similar economic analyses are applied to the outlook for aviation growth in international markets.

In the seven years prior to 2001, the U.S. civil aviation industry experienced unprecedented growth in demand and profits. However, since then the industry has been battered with the impacts of 9/11, the spread of the Severe Acute Respiratory Syndrome (SARS), and record high fuel prices. The following paragraphs present a review of the U.S. civil aviation industry over the past year.

In 2005, for the second year in a row, passenger demand on U.S. airlines remained strong. System revenue passenger miles (RPMs) and enplanements grew 8.0 and 7.1 percent, respectively. Commercial air carrier domestic enplanements rose 6.6 percent and were 4.5 percent higher than pre-9/11 levels. In 2005, there were a record 739 million passengers, up from 690 million the previous year. U.S. commercial aviation remains on track to carry one billion passengers by 2015. In addition, international traffic is growing almost two percent faster than domestic traffic. International enplanements grew 12.1 percent and were 22 percent higher than in 2000. The system-wide load factor increased to an all-time high of 77.1 percent.

Continuing a trend that has been occurring for several years, regional and low-cost carriers grew much faster than their legacy carrier counterparts. In 2005, the domestic market share for these carriers increased 2.2 points to 45 percent, up from a 30 percent share in 2000. Increased competition is prompting legacy carriers to continue to cut costs and prices in markets served by low-cost carriers.

The market for general aviation products and services climbed for the second consecutive year, following a three-year run of declining shipments and weak billings. General aviation aircraft shipments and billings were stimulated by growth in the U.S. economy, as well as by accelerated depreciation allowances for the operators of new aircraft.

GENERAL AVIATION

Following more than a decade of decline, the general aviation industry was revitalized with the passage of the *General Aviation Revitalization Act* in 1994 that limits the liability on general aviation aircraft to 18 years from the date of manufacture. This legislation sparked an interest to renew the manufacturing of general aviation aircraft due to the reduction in product liability, as well as renewed optimism for the industry. The high cost of product liability insurance had been a major factor in the decision by many U.S. aircraft manufacturers to slow or discontinue the production of general aviation aircraft.

The sustained growth in the general aviation industry slowed considerably in 2001, negatively impacted by the events of September 11. Thousands of general aviation aircraft were grounded for weeks due to no-fly zone restrictions imposed on operations of aircraft in security-sensitive areas. General aviation aircraft remain restricted at Washington National Airport. This, in addition to the economic recession that began in early 2001, has had a negative impact on the general aviation industry. General aviation shipments by U.S. manufacturers declined for three straight years from 2001 through 2003. Stimulated by an expanding U.S. economy as well as accelerated depreciation allowances for operators of new aircraft, general aviation experienced relatively strong growth in 2004 and 2005.

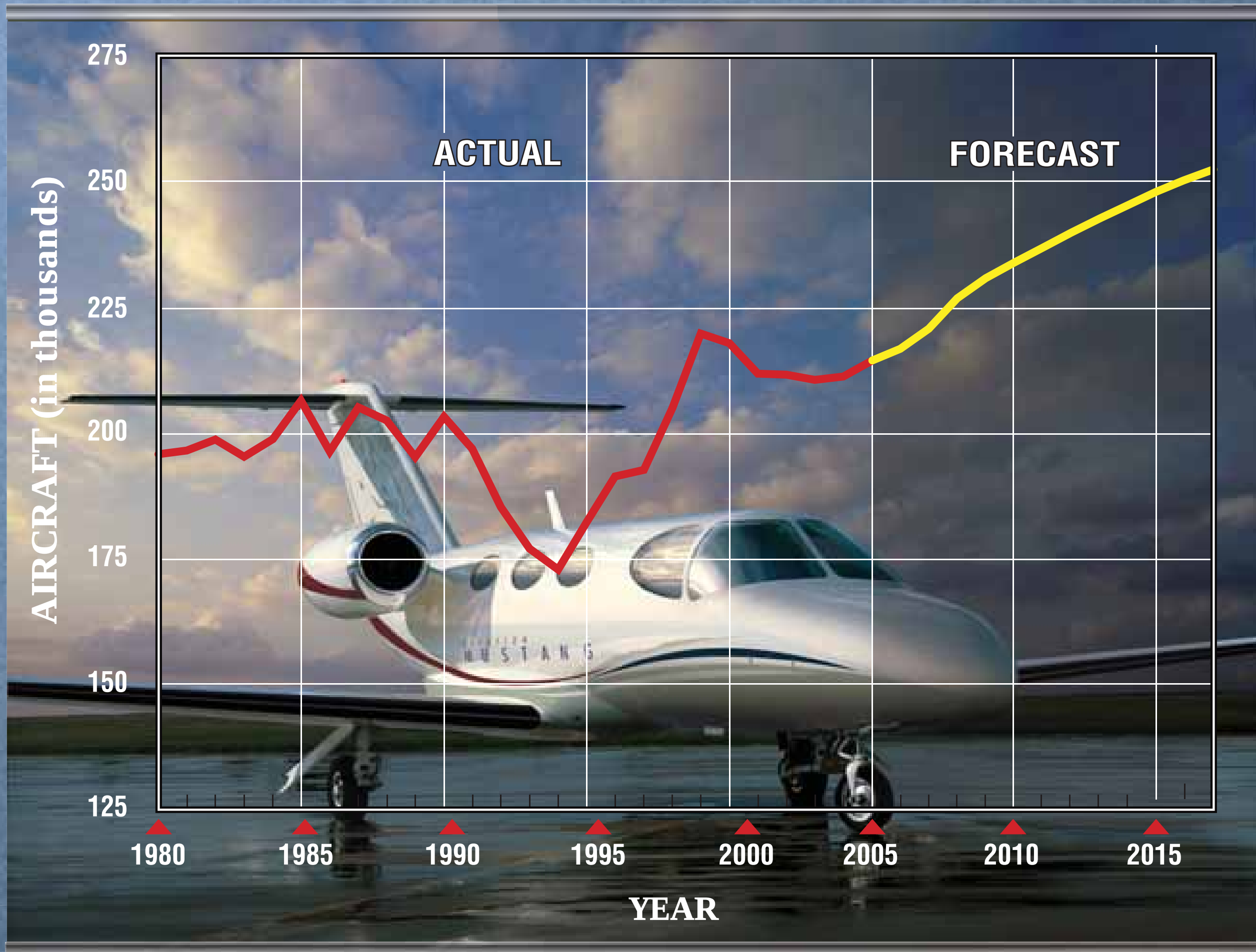
Despite a slowdown in the demand for business jets over the past several years, the current forecast assumes that business use of general aviation aircraft will expand at a more rapid pace than that for personal/sport use. Safety concerns, combined with increased processing time at commercial terminals, make business/corporate flying an attractive alternative. In addition, the business/corporate side of general aviation should continue to benefit from a growing market for new microjets.

General aviation is expected to receive a boost from relatively inexpensive microjets. This twin-engine business jet is expected to be priced between $1 million and $2 million, and is believed to have the potential to redefine business jet flying with the capability to support a true on-demand air taxi business service. The FAA forecast assumes that microjets will begin to enter the active fleet in 2006 with 100 new aircraft, and then grow by 400 to 500 aircraft per year, contributing a total of 4,950 aircraft to the jet forecast by 2017.

In 2005, there were an estimated 214,600 active general aviation aircraft in the U.S. **Exhibit 2A** depicts the FAA forecast for active general

04MP10-2A-4/27/06

U.S. ACTIVE GENERAL AVIATION AIRCRAFT



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

	FIXED WING									
	PISTON		TURBINE		ROTORCRAFT					
Year	Single Engine	Multi-Engine	Turboprop	Turbojet	Piston	Turbine	Experimental	Sport Aircraft	Other	Total
2005 (Est.)	144.5	17.5	8.0	8.6	2.8	4.8	22.3	N/A	6.0	214.6
2009	146.7	17.6	8.8	10.8	4.1	5.4	23.5	8.2	5.9	231.0
2013	148.4	17.6	9.6	14.0	5.2	6.0	24.6	11.6	5.8	242.8
2017	149.7	17.7	10.4	17.2	6.0	6.7	25.7	13.6	5.7	252.8

Source: FAA Aerospace Forecasts, Fiscal Years 2006-2017.

Notes: An active aircraft is one that has a current registration and was flown at least one hour during the calendar year.

OceanoAirport

Exhibit 2A
U.S. ACTIVE GENERAL AVIATION
AIRCRAFT FORECASTS

aviation aircraft. The FAA projects an average annual increase of 1.4 percent through 2017, resulting in 252,800 active aircraft. Piston-powered aircraft and turbine-powered aircraft are expected to grow at an average annual rate of 1.0 percent and 4.0 percent, respectively. This is due, in part, to declining numbers of multi-engine piston aircraft, and the attrition of approximately 1,500 older single-engine aircraft annually. In addition, it is expected that the new, light sport aircraft and the relatively inexpensive microjets will dilute or weaken the replacement market for piston aircraft.

Starting in 2005, owners of ultralight aircraft could begin registering their aircraft as "light sport" aircraft. The FAA estimates there will be a registration of 10,000 aircraft over a six-year period, beginning in 2005. This new aircraft category is projected to total roughly 14,000 in 2017.

FORECASTING APPROACH

The development of aviation forecasts proceeds through both analytical and judgmental processes. A series of mathematical relationships is tested to establish statistical logic and rationale for projected growth. However, the judgment of the forecast analyst, based upon professional experience, knowledge of the aviation industry, and assessment of the local situation, is important in the final determination of the preferred forecast. The most reliable approach to estimating aviation demand is through the utilization of more than one analytical technique. Methodologies frequently considered include trend line/time-series projections, correlation/regression analysis, and market share analysis.

Trend line/time-series projections are probably the simplest and most familiar of the forecasting techniques. By fitting growth curves to historical data, then extending them into the future, a basic trend line projection is produced. A basic assumption of this technique is that outside factors will continue to affect aviation demand in much the same manner as in the past. As broad as this assumption may be, the trend line projection does serve as a reliable benchmark for comparing other projections.

Correlation analysis provides a measure of direct relationship between two separate sets of historic data. Should there be a reasonable correlation between the data sets, further evaluation using regression analysis may be employed.

Regression analysis measures statistical relationships between dependent and independent variables, yielding a "correlation coefficient." The correlation coefficient (Pearson's "r") measures association between the changes in the dependent variable and the independent variable(s). If the "r^2" value (coefficient determination) is greater than 0.95, it indicates good predictive reliability. A value less than 0.95 may be used, but with the understanding that the predictive reliability is lower.

Market share analysis involves a historical review of the airport activity as a percentage, or share, of a larger regional, state, or national aviation market. A historical market share trend is determined, providing an expected market share for the future. These shares are then multiplied by the forecasts of the larger geographical area to produce a market share projection. This method has the same limitations as trend line projections, but can provide a useful check on the validity of other forecasting techniques.

It is important to note that one should not assume a high level of confidence in forecasts that extend beyond five years. Facility and financial planning usually require at least a 10-year preview, since it often takes more than five years to complete a major facility development program. However, it is important to use forecasts which do not overestimate revenue-generating capabilities or understate demand for facilities needed to meet public (user) needs.

GENERAL AVIATION FORECASTS

General aviation encompasses all portions of civil aviation except commercial operations. To determine the types and sizes of facilities that should be planned to accommodate general aviation activity, certain elements of this activity must be forecast. These indicators of general aviation demand include based aircraft, aircraft fleet mix, and annual operations.

BASED AIRCRAFT

The number of based aircraft is the most basic indicator of general aviation demand. By first developing a forecast of based aircraft, the growth of other general aviation activities and demands can be projected. Aircraft basing at an airport is somewhat dependent upon the nature and magnitude of aircraft ownership in the local service area. As a result, aircraft registrations in the area were reviewed and forecast first.

Registered Aircraft Forecasts

Data was collected on the history of aircraft ownership in San Luis Obispo County since 1995. As shown in **Table 2A**, registered aircraft in the county has increased nearly every year since 1995, with more than a two percent annual growth rate in the last three years. Aircraft registrations have generally increased since 1995, growing by 110 aircraft and at an annual average growth rate of 1.9 percent. This is slightly above the national average of 1.3 percent annual growth rate for U.S. active aircraft during that same period. National growth coincides not only with the improved general economic conditions of the period, but also the enactment of the *General Aviation Revitalization Act*, which was approved by Congress in 1994 and sparked new aircraft manufacturing. There are no other recently prepared forecasts of registered aircraft to examine and compare. As a result, several projections of county registrations were developed.

TABLE 2A Historical Registered Aircraft San Luis Obispo County		
Year	**SLO County Registered Aircraft**	**Annual Growth Rate**
1995	517	-
1996	512	-1.0%
1997	515	0.6%
1998	518	0.6%
1999	547	5.6%
2000	566	3.5%
2001	589	4.1%
2002	582	-1.2%
2003	597	2.6%
2004	615	3.0%
2005	627	2.0%
Source: Historical Registered Aircraft Data - Aviation Goldmine CD (1995-2000), Avantex CD (2001-2005).		

Examining the historical growth trend in San Luis Obispo County, a time-series projection of registered aircraft has been made. This projection takes into account the growth at the airport over the past ten years and yields an "r^2" value of 0.94. Regression analyses were also performed, comparing registered aircraft to the county's population and per capita personal income (PCPI). These analyses yielded "r^2" values of 0.94 and 0.95, respectively. As previously mentioned, a correlation coefficient of 0.95 or greater indicates good predictive reliability. The time-series analysis results in 875 registered aircraft by 2025, while the regression analyses comparing population and PCPI result in 859 and 1,105 registered aircraft respectively by 2025.

The number of U.S. active general aviation aircraft has also been used as a comparison with registered aircraft in San Luis Obispo County. Between 1995 and 1999, the county=s market share decreased, reaching a low of 0.249 percent in 1999. However, the county's market share has increased annually since then and was at 0.292 percent in 2005. A projection maintaining the 2005 market share constant into the future results in 815 registered aircraft by 2025. Continuing with an increasing market share projection yields 865 registered aircraft by 2025. This forecast is presented in **Table 2B**.

An additional forecast compared the population of San Luis Obispo County with the number of registered aircraft. The forecast examined the historical registered aircraft as a ratio of 1,000 residents in the county. As shown in **Table 2C**, the 2005 estimated population for the county was 261,600, which equals 2.40 registered aircraft per 1,000 residents. This is an increase from 1995, when the county had 2.23 registered aircraft per 1,000 residents.

A constant ratio projection of 2.40 registered aircraft per 1,000 residents was first developed and yields 761 registered aircraft by 2025. An increasing share projection was also completed to represent the historical trend at the airport. This increasing forecast yields 889 registered aircraft by 2025. These two projections are presented in **Table 2C**.

TABLE 2B
San Luis Obispo County Registered Aircraft
Market Share of U.S. Active Aircraft

Year	San Luis Obispo County Registered Aircraft	U.S. Active Aircraft	% of U.S. Active Aircraft
1995	517	188,100	0.275%
1996	512	191,100	0.268%
1997	515	192,400	0.268%
1998	518	204,700	0.253%
1999	547	219,500	0.249%
2000	566	217,500	0.260%
2001	589	211,500	0.278%
2002	582	211,200	0.276%
2003	597	209,600	0.285%
2004	615	212,400	0.290%
2005	627	214,600	0.292%
Constant Market Share of U.S. Active Aircraft			
2010	684	234,000	0.292%
2015	725	248,100	0.292%
2020	768	263,000[1]	0.292%
2025	815	278,900[1]	0.292%
Increasing Market Share of U.S. Active Aircraft			
2010	690	234,000	0.295%
2015	744	248,100	0.300%
2020	802	263,000[1]	0.305%
2025	865	278,900[1]	0.310%

Source: Historical Registered Aircraft Data - Aviation Goldmine CD (1995-2000), Avantex Aircraft & Airmen CD (2001-2005); Historical and Forecast U.S. Active Aircraft: FAA Aerospace Forecasts, Fiscal Years 2006-2017.

[1] Extrapolated by Coffman Associates.

TABLE 2C
Registered Aircraft Per 1,000 Residents
San Luis Obispo County

Year	San Luis Obispo County Registered Aircraft	San Luis Obispo County Population	Registered Aircraft Per 1,000 Residents
1995	517	231,500	2.23
1996	512	234,500	2.18
1997	515	237,500	2.17
1998	518	240,500	2.15
1999	547	243,600	2.25
2000	566	246,700	2.29
2001	589	249,600	2.36
2002	582	252,600	2.30
2003	597	255,500	2.34
2004	615	258,500	2.38
2005	627	261,600	2.40
Constant Ratio Per Capita			
2010	664	277,400	2.40
2015	696	291,000[1]	2.40
2020	731	305,300	2.40
2025	761	317,800[1]	2.40
Increasing Ratio Per Capita			
2010	693	277,400	2.50
2015	756	291,000[1]	2.60
2020	823	305,300	2.70
2025	889	317,800[1]	2.80

Source: Historical Registered Aircraft Data - Aviation Goldmine CD (1995-2000), Avantex Aircraft & Airmen CD (2001-2005); Historical Population - U.S. Census Bureau; Forecast Population – California Department of Finance.
[1] Extrapolated by Coffman Associates.

Table 2D summarizes the registered aircraft forecasts for San Luis Obispo County. The strength of the area's economy in tourism should contribute to an increase of aircraft ownership in the county. For planning purposes, an average of each of the newly created forecasts has been selected as the planning forecast. This forecast results in 253 new aircraft in San Luis Obispo County by 2025, with aircraft registrations growing at 1.7 percent annually.

TABLE 2D
Registered Aircraft Forecast Summary
San Luis Obispo County

	2005	2010	2015	2020	2025
Time-Series Analysis (r^2 = 0.94)		688	750	813	875
Regression Analyses					
Vs. Population (r^2 = 0.94)		691	748	807	859
Vs. PCPI (r^2 = 0.95)		702	801	932	1,105
Market Share of U.S. Active GA Aircraft					
Constant Market Share		684	725	768	815
Increasing Market Share		690	744	802	865
Registered Aircraft Per Capita (SLO Co.)					
Constant Ratio Projection		664	696	731	761
Increasing Ratio Projection		693	756	823	889
Selected Planning Forecast	**627**	**690**	**750**	**810**	**880**

Based Aircraft Forecasts

The number of based aircraft is the most basic indicator of general aviation demand. By first developing a forecast of based aircraft, the growth of aviation activities at the airport can be projected. There were a total of 12 based aircraft reported at the airport in 2005. Due to the lack of accurate historical data, time-series and regression analyses were not performed. Instead, other methods were used to forecast based aircraft at Oceano Airport.

The first method used to project based aircraft examined the airport's market share of registered aircraft in San Luis Obispo County. As shown in **Table 2E**, the 12 based aircraft at Oceano Airport in 2005 accounted for 1.9 percent of registered aircraft in San Luis Obispo County. Based on this information, a constant market share forecast of 1.9 percent was first developed and yields 17 based aircraft by the year 2025. An increasing market share forecast was also developed to represent the national trend and yields 25 based aircraft at Oceano Airport by the year 2025.

An additional forecast compared the population of San Luis Obispo County with the number of based aircraft. As shown in **Table 2F**, the 2005 estimated population for the county was 261,600, which equals 0.05 registered aircraft per 1,000 residents.

A constant ratio projection of 0.05 based aircraft per 1,000 residents was first developed and yields 15 based aircraft by 2025. An increasing ratio projection was also completed to represent the national trend. This increasing projection yields 32 based aircraft by 2025. These two projections are presented in **Table 2F**.

TABLE 2E
Based Aircraft Market Share of Registered Aircraft (SLO County)
Oceano Airport

Year	Oceano Airport Based Aircraft	SLO County Registered Aircraft	Market Share of Registered Aircraft
2005	12	627	1.9%
Constant Market Share			
2010	13	690	1.9%
2015	14	750	1.9%
2020	16	810	1.9%
2025	17	880	1.9%
Decreasing Market Share			
2010	14	690	2.1%
2015	17	750	2.3%
2020	20	810	2.5%
2025	25	880	2.8%

Source: Historical Based Aircraft – Airport Records; Historical Registered Aircraft - Avantex Aircraft & Airmen CD.

TABLE 2F
Based Aircraft Per 1,000 Residents (SLO County)
Oceano Airport

Year	Oceano Airport Based Aircraft	SLO County Population	Based Aircraft Per 1,000 Residents
2005	12	261,600	0.05
Constant Ratio Projection			
2010	13	277,400	0.05
2015	13	291,000[1]	0.05
2020	14	305,300	0.05
2025	15	317,800[1]	0.05
Decreasing Ratio Projection			
2010	17	277,400	0.06
2015	20	291,000[1]	0.07
2020	24	305,300	0.08
2025	32	317,800[1]	0.10

Source: Historical Based Aircraft – Airport Records; Historical Population - U.S. Census Bureau; Forecast Population – California Department of Finance.
[1]Interpolated

The forecast included in the FAA *Terminal Area Forecast* (TAF) was also examined. The FAA TAF used a base year of 2004 (31 based aircraft) and expects this number to remain stagnant through the planning period.

A summary of all the forecasts for based aircraft at Oceano Airport, as well as the selected planning forecast, is presented in **Table 2G** and **Exhibit 2B**. As shown on the exhibit, the combination of forecasts represents a "forecast envelope." The forecast envelope represents the area in which future based aircraft at Oceano should be found. The selected planning forecast of based aircraft at Oceano Airport is a mid-range of the forecast developed by Coffman Associates and yields 14 based aircraft by 2010; 16 based aircraft by 2015; 19 based aircraft by 2020; and 22 based aircraft by 2025.

04MP10-2B-4/28/06

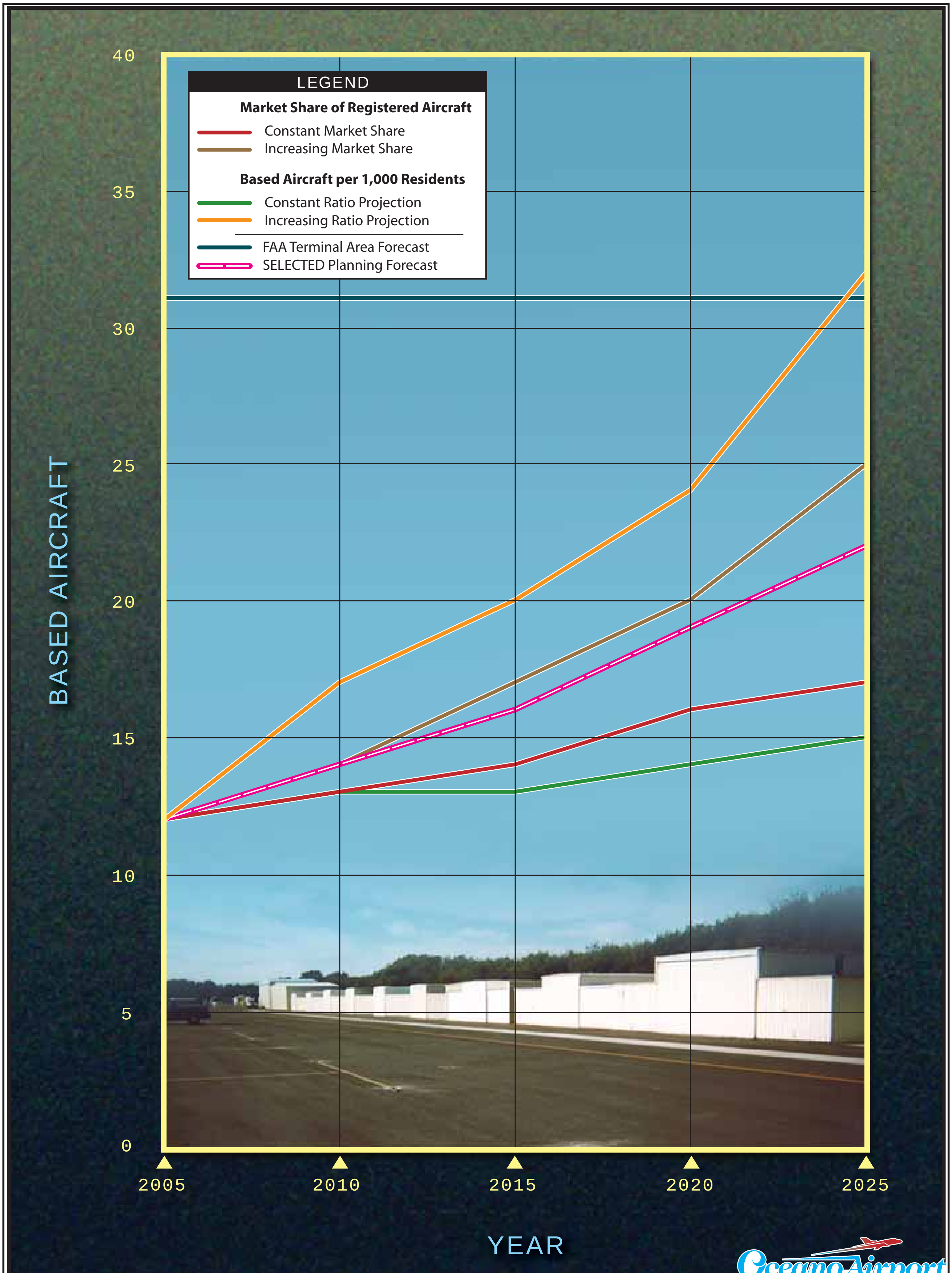


Exhibit 2B
BASED AIRCRAFT
FORECASTS SUMMARY

TABLE 2G **Based Aircraft Forecast Summary** **Oceano Airport**	2005	2010	2015	2020	2025
Market Share of Registered Aircraft (SLO Co.)					
Constant Market Share		13	14	16	17
Decreasing Market Share		14	17	20	25
Based Aircraft Per 1,000 Residents (SLO Co.)					
Constant Ratio Projection		13	13	14	15
Decreasing Ratio Projection		17	20	24	32
FAA Terminal Area Forecast		31	31	31	31
Selected Planning Forecast	**12**	**14**	**16**	**19**	**22**

Based Aircraft Fleet Mix

According to airport records, the fleet mix consists of the following: eight single engine aircraft, one helicopter, and three ultralights. While the number of general aviation aircraft based at Oceano Airport is projected to increase, it is important to know the fleet mix of the aircraft expected to use the airport. This will ensure the placement of proper facilities in the future.

The forecast mix of based aircraft was determined by comparing existing and forecast U.S. general aviation trends, as well as the local trend at the airport. The national trend in general aviation is toward a greater percentage of larger, more sophisticated aircraft as part of the national fleet. This is reflected in an increasing percentage of multi-engine aircraft in the mix at Oceano Airport. The general aviation fleet mix projections for the airport are presented in **Table 2H**.

TABLE 2H
Based Aircraft Fleet Mix
Oceano Airport

Year	Total	Single-Engine	Multi-Engine	Helicopters	Ultralight/Sport
2005	12	8	0	1	3
Percentage Share					
2005	100.0%	66.7%	0.0%	8.3%	25.0%
FORECAST					
2010	14	9	1	1	3
2015	16	9	2	1	4
2020	19	10	2	2	5
2025	22	11	3	2	6
Percentage Share					
2010	100%	62.0%	5.0%	8.0%	25.0%
2015	100%	57.0%	10.0%	8.0%	25.0%
2020	100%	54.0%	13.0%	8.0%	25.0%
2025	100%	52.0%	15.0%	8.0%	25.0%
Source: Historical Based Aircraft – Airport Records.					

GENERAL AVIATION OPERATIONS

General aviation operations are classified as either local or itinerant. A local operation is a take-off or landing performed by an aircraft that operates within sight of the airport, or which executes simulated approaches or touch-and-go operations at the airport. Itinerant operations are those performed by aircraft with a specific origin or destination away from the airport. Generally, local operations are characterized by training operations. Typically, itinerant operations increase with business and commercial use, since business aircraft are not typically used for large scale training activities.

The forecast included in the *2006 Oceano County Airport Land Use Plan* (Draft) was first examined. The 2006 Plan used the base number of 12,000 as an estimate of current annual operations. The 2006 Plan projects operations to grow at an annual rate of 1.6 percent, which yields 16,500 annual operations by 2025.

Projections included in the FAA *Terminal Area Forecast* (TAF) were also examined. The FAA TAF used a base year of 2004, with an estimated 10,000 annual operations. The FAA TAF expects the number of annual operations to remain stagnant at 10,000 through the planning period. However, without an airport traffic control tower, these operational numbers reflect only a rough estimate of activity.

When forecast data of operations is not available, the FAA recommends using the statewide growth rate from the Terminal Area Forecast and to develop current activity statistics by estimating annual operations per based aircraft. According to the *Field Formulation of the National Plan of Integrated Airport Systems* (NPIAS), Order 5090.3C, a general guideline is 350 operations per based aircraft for busier general aviation airports with more itinerant traffic. Using this guideline, a base number of annual operations at Oceano Airport was estimated at 4,200.

Another method developed by the FAA Statistics and Forecast Branch, the *Model for Estimating General Aviation Operations at Non-Towered Airports* (July 2001) was also examined. This report develops and presents a regression model for estimating general aviation (GA) operations at non-towered airports. Independent variables used in the equation include airport characteristics (i.e., number of based aircraft, number of flight schools), population totals, and geographic location. This equation yields an initial annual operations total of 4,900.

For planning purposes, an average of the operations derived from the two formulas was used as a base number from which to develop forecasts of general aviation operations. This number (4,500 annual operations) equates to 375 operations per based aircraft, which is consistent with national trends. Based on this, both a constant and increasing ratio of operations per based aircraft was developed. The constant ration projection yields 8,300 annual operations by 2025, while the increasing ration projection yields 10,500 annual operations by 2025.

Table 2J and **Exhibit 2C** summarize the general aviation operations forecasts for Oceano Airport. The selected planning forecast is an average of the constant and increasing ratio projections completed by Coffman Associates and yields 9,400 annual operations at Oceano Airport by 2025. This represents an average annual growth rate of 3.8 percent. It is expected that the operational split will remain 60 percent itinerant and 40 percent local.

TABLE 2J
Summary of General Aviation Operations Forecasts
Oceano Airport

	2005	2010	2015	2020	2025
Operations Per Based Aircraft					
Constant Market Share		10,200	10,500	11,200	11,500
Increasing Market Share		10,900	12,000	13,600	14,800
*2006 Oceano Airport Land Use Plan (Draft)		13,000	14,100	15,200	16,500
***FAA Terminal Area Forecast*		10,000	10,000	10,000	10,000
Selected Planning Forecast	**4,500**	**10,600**	**11,300**	**12,400**	**13,200**

*2006 Plan used a base number of 12,000 operations in 2005.
**FAA TAF used a base number of 10,000 operations in 2004.

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 passenger enplanements or aircraft operations occur.
- **Design Day** - The average day in the peak month. Normally this indicator is easily derived by dividing the peak month enplanements or operations by the number of days in a month.
- **Design Hour** - The peak hour within the design day. This descriptor is used in airfield 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 other peak periods 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.

Monthly operational totals were not available at Oceano Airport. For planning purposes, the peak month has been estimated at 20.0 percent of forecast annual operations. This higher percentage was used to reflect the increase of activity during the summer months, which is the airport's peak season. The design day was then calculated by dividing the peak month

04MP10-2C-4/28/06

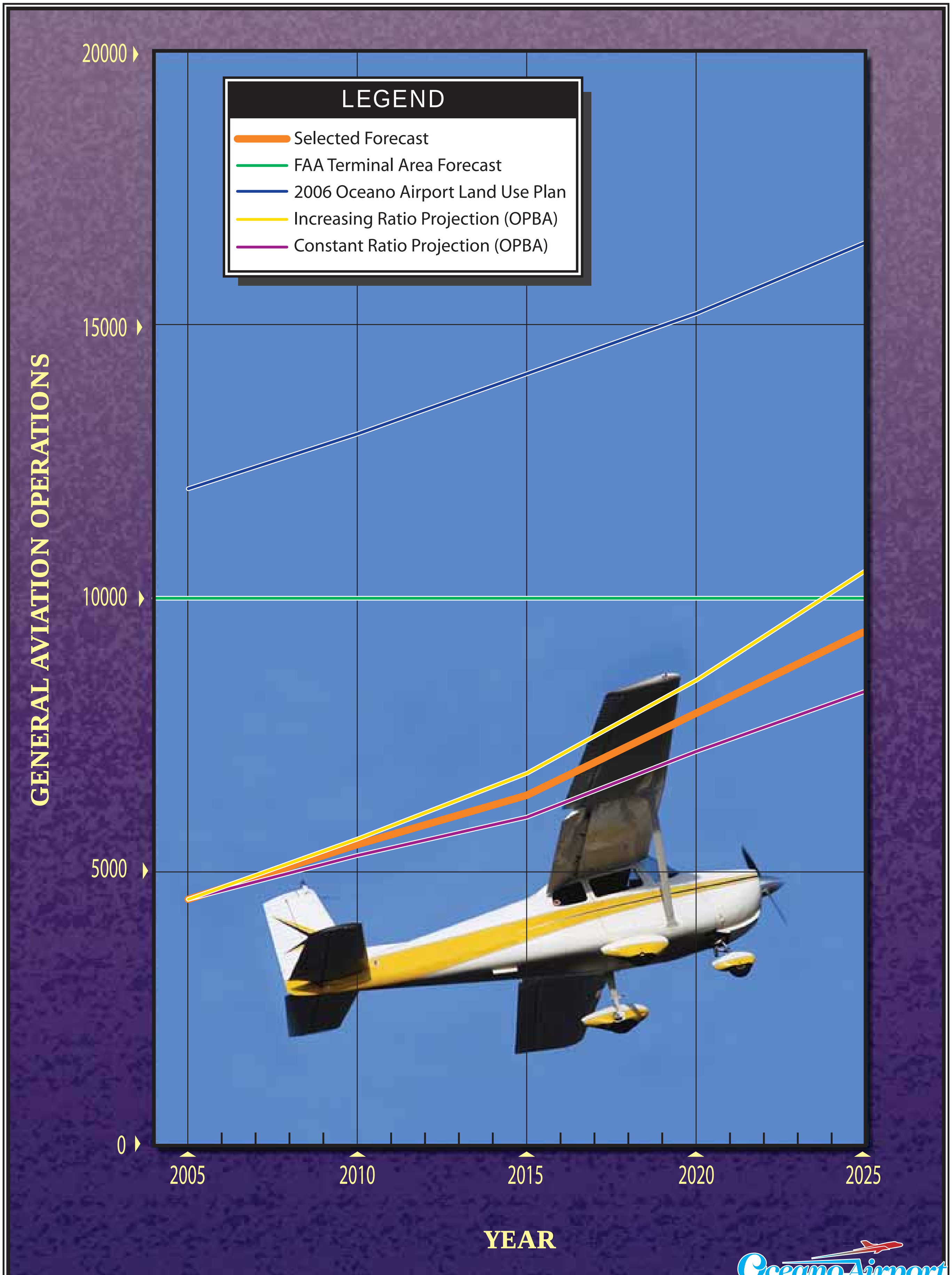


Exhibit 2C
GENERAL AVIATION
OPERATIONS FORECASTS

operations by 30. The busy day has been estimated at 25 percent higher than the average day in the peak month and was calculated by multiplying the design day by 1.25. Design hour operations were calculated at 12.0 percent of design day operations. **Table 2K** summarizes the general aviation peak activity forecasts.

TABLE 2K
Forecasts of Peak Activity
Oceano Airport

	2005	2010	2015	2020	2025
General Aviation Operations					
Annual	4,500	5,500	6,400	7,900	9,400
Peak Month (20.0%)	900	1,100	1,280	1,580	1,880
Design Day	30	37	43	53	63
Busy Day	38	46	53	66	78
Design Hour (12.0%)	4	4	5	6	8

SUMMARY

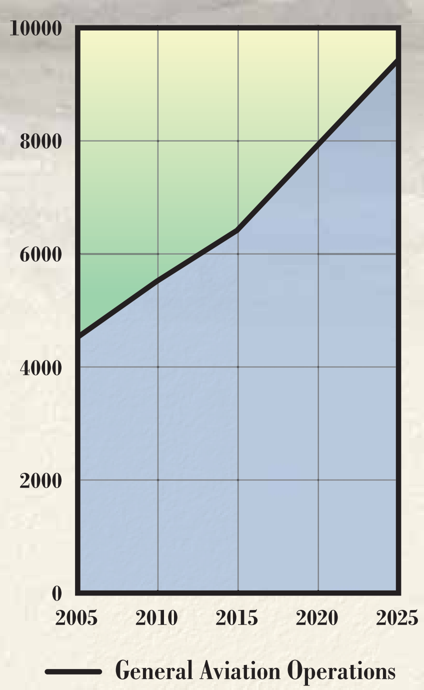
This chapter has outlined the various activity levels that might reasonably be anticipated over the planning period. **Exhibit 2D** is a summary of the aviation forecasts prepared for Oceano Airport. The next step in the planning process is to assess the capacity of the existing facilities to determine what upgrades may be necessary to meet future demands. The forecasts developed here will be taken forward in the next chapter as planning horizon activity levels that will serve milestones or activity benchmarks in evaluating facility requirements. Peak activity characteristics will also be determined for the various activity levels for use in determining facility needs.

04MP10-2D-4/28/06

FORECAST SUMMARY

	HISTORICAL	FORECASTS			
CATEGORY	**2005**	**2010**	**2015**	**2020**	**2025**
GENERAL AVIATION OPERATIONS					
Itinerant	2,700	3,300	3,800	4,700	5,600
Local	1,800	2,200	2,600	3,200	3,800
Total Operations	**4,500**	**5,500**	**6,400**	**7,900**	**9,400**
BASED AIRCRAFT					
Single-Engine	8	9	9	10	11
Multi-Engine	0	1	2	2	3
Helicopters	1	1	1	2	2
Ultralight/Sport	3	3	4	5	6
Total Based Aircraft	**12**	**14**	**16**	**19**	**22**

General Aviation Operations



Based Aircraft

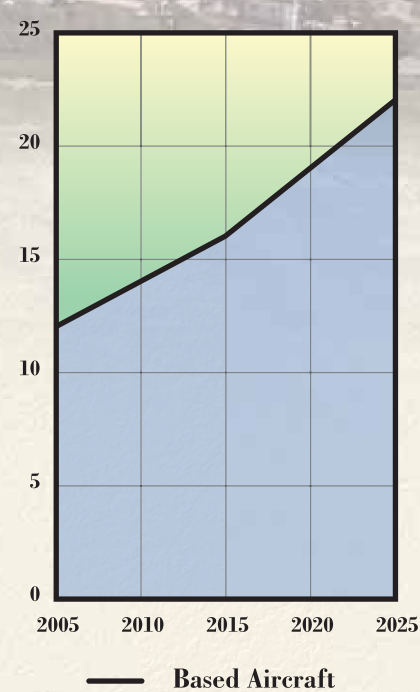


Exhibit 2D
FORECAST SUMMARY

RECEIVED
JUL 1 8 2006
BY:

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

**San Francisco Airports District Office
831 Mitten Road, Room 210
Burlingame, California 94010-1303**

July 12, 2006

Ms. Klaasje Nairne
Airports Manager
County of San Luis Obispo
Department of General Services
903-5 Airport Drive
San Luis Obispo, CA 93401

Dear Mrs. Nairne,

**RE: Oceano Airport Master Plan (AMP) Study; AIP No. 3-06-0172-0504
Forecast Approval**

This is in response to the Oceano AMP's Draft Phase One Report submittal, dated May 2006. The ADO has completed its review of the Aviation Activity Forecast Chapter.

FAA Forecast Comments

- Concur with the comprehensive methodology, current data sources and comparative analysis for each forecast scenario.
- Concur with the Selected Forecast, as summarized in Exhibit 2D.

At this point, please submit the AMP Alternative Chapter, as well as any completed subsequent draft chapters. The ADO needs to review the proposed projects, prior to the ALP submittal.

Please note, when drafting the Capital Improvement Plan (CIP) schedule, the proposed short-term (1-5 year) projects should be based on actual demand levels and identified airfield needs. The ADO recommends you address the nonstandard width for the runway and taxiway. For the mid-term and long-term planning horizon, utilize the selected forecast as a basis for proposed CIP development.

Please continue to submit associated Echo Payment Status Reports.

If you have any questions, please contact me at 650 876-2803, ext 667. Alternatively, email at Fernando.Yanez@FAA.Gov.

Sincerely,

Fernando Yáñez
FAA Airport Planner

OceanoAirport

Chapter Three

Facility Requirements

FACILITY REQUIREMENTS

To properly plan for the future of Oceano Airport, it is necessary to translate forecast aviation demand into the specific types and quantities of facilities that can adequately serve this identified demand. This chapter uses the results of the forecasts conducted in Chapter Two, as well as established planning criteria, to determine the airfield (i.e., runways, taxiways, navigational aids, marking and lighting) and landside (i.e., hangars, general aviation terminal building, aircraft parking apron) 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 Four to determine the most cost-effective and efficient means for implementation.

The cost-effective, efficient, and orderly development of an airport should rely more upon actual demand at an airport than on a time-based forecast figure. In order to develop a master plan that is demand-based rather than time-based, a series of planning horizon milestones have been established for Oceano Airport that take into consideration the reasonable range of aviation demand projections prepared in Chapter Two. It is important to consider that the actual activity at the airport may be higher or lower than projected activity levels. By planning according to activity milestones, the resultant plan can accommodate un-

expected shifts or changes in the area's aviation demand.

The most important reason for utilizing milestones is that they allow the airport to develop facilities according to need generated by actual demand levels. The demand-based schedule provides flexibility in development, as development schedules can be slowed or expedited according to actual demand at any given time over the planning period. The resultant plan provides airport officials with a financially responsible and needs-based program. **Table 3A** presents the planning horizon milestones for each activity demand category.

TABLE 3A
Planning Horizon Activity Levels
Oceano Airport

	2005	Short Term	Intermediate Term	Long Term
OPERATIONS				
Local	2,700	3,300	3,800	4,700
Itinerant	1,800	2,200	2,600	3,200
Total	4,500	5,500	6,400	7,900
Based Aircraft	12	14	16	22

In this chapter, existing components of the airport are evaluated so that the capacities of the overall system are identified. Once identified, the existing capacity is compared to the planning horizon milestones to determine where deficiencies currently exist or may be expected to materialize in the future. Once deficiencies in a component are identified, a more specific determination of the appropriate sizing and timing of the new facilities can be made.

AIRFIELD REQUIREMENTS

Airfield requirements include the need for those facilities related to the arrival and departure of aircraft. The adequacy of existing airfield facilities at Oceano Airport has been analyzed from a number of perspectives, including airfield capacity, runway length, runway pavement strength, airfield lighting, navigational aids, and pavement markings.

AIRFIELD DESIGN STANDARDS

The selection of appropriate Federal Aviation Administration (FAA) design standards for the development and location of airport facilities is based primarily upon the characteristics of the aircraft which are currently using or are expected to use the airport. 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 FAA has established a coding system to relate airport design criteria to the operational and physical characteristics of aircraft expected to use the airport. This code, the airport reference code (ARC), has two components. The first component, depicted by a letter, is the 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 aircraft wingspan primarily relates to separation criteria involving taxiways, taxilanes, and landside facilities.

According to FAA 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: 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 greater than 166 knots.

The airplane design group (ADG) is based upon the aircraft's wingspan. The six ADGs used in airport planning 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.

In order to determine facility requirements, an ARC should first be determined, and then appropriate airport design criteria can be applied. This begins with a review of the type of aircraft using and expected to use Oceano Airport. **Exhibit 3A** provides a listing of typical aircraft and their associate ARC.

The FAA recommends designing airport functional elements to meet the requirements of the most demanding ARC for that airport (minimum of 500 annual operations). Oceano Airport currently accommodates a wide variety of civilian aircraft, including small single and multi-engine aircraft which fall within approach categories A and B and airplane design group I.

The existing ARC for Runway 11-29 (and the facility) is A-I (small aircraft). The forecasts anticipate increasing utilization by small single-engine

05MP10-3A-5/16/06

A-I

- Beech Baron 55
- Beech Bonanza
- Cessna 150
- Cessna 172
- Cessna Citation Mustang
- **Eclipse 500**
- Piper Archer
- Piper Seneca

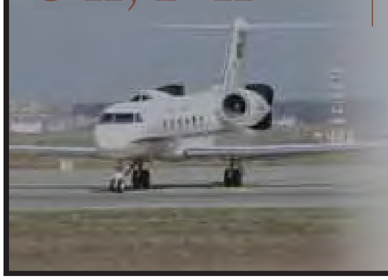
C-I, D-I

- Beech 400
- **Lear** 25, 31, **35**, 45, 55, 60
- Israeli Westwind
- HS 125-400, 700

B-I less than 12,500 lbs.

- Beech Baron 58
- Beech King Air 100
- Cessna 402
- **Cessna 421**
- Piper Navajo
- Piper Cheyenne
- Swearingen Metroliner
- Cessna Citation I

C-II, D-II



- Cessna Citation III, VI, VIII, X
- **Gulfstream** II, III, **IV**
- Canadair 600
- ERJ-135, 140, 145
- CRJ-200, 700, 900
- Embraer Regional Jet
- Lockheed JetStar
- Super King Air 350

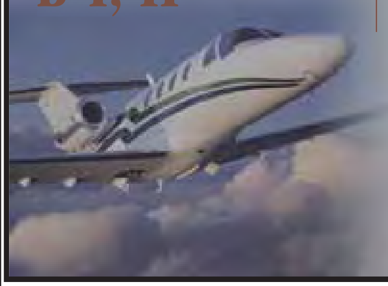
B-II less than 12,500 lbs.

- **Super King Air 200**
- Cessna 441
- DHC Twin Otter

C-III, D-III

- ERJ-170, 190
- Boeing Business Jet
- B 727-200
- **B 737-300 Series**
- MD-80, DC-9
- Fokker 70, 100
- A319, A320
- Gulfstream V
- Global Express

B-I, II over 12,500 lbs.



- Super King Air 300
- Beech 1900
- Jetstream 31
- Falcon 10, 20, 50
- Falcon 200, 900
- **Citation II**, III, IV, V
- Saab 340
- Embraer 120

C-IV, D-IV

- **B-757**
- B-767
- DC-8-70
- DC-10
- MD-11
- L1011

A-III, B-III

- DHC Dash 7
- **DHC Dash 8**
- DC-3
- Convair 580
- Fairchild F-27
- ATR 72
- ATP

D-V

- **B-747** Series
- B-777

Note: Aircraft pictured is identified in bold type.

OceanoAirport

Exhibit 3A
AIRPORT REFERENCE CODES

aircraft throughout the planning period. The potential mix of aircraft will continue to place the airport in the A-I category.

AIRPORT IMAGINARY SURFACES

The FAA has established several imaginary surfaces to protect aircraft operational areas and keep them free from obstructions that could affect the safe operation of aircraft. These include the runway safety area (RSA), object free area (OFA), obstacle free zone (OFZ), and runway protection zone (RPZ).

The RSA is "a defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or an excursion from the runway." An object free area is an area on the ground centered on the runway, taxiway, or centerline, provided to enhance the safety of aircraft operations, except for objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes. An obstacle free zone is a volume of airspace that is required to be clear of objects, except for frangible items required for navigation of aircraft. It is centered along the runway and extended runway centerline. The RPZ is defined as an area off the runway end to enhance the protection of people and property on the ground. The RPZ is trapezoidal in shape and centered about the extended runway centerline. The dimensions of an RPZ are a function of the runway ARC and approach visibility minimums.

Table 3B summarizes the design requirements of these safety areas by airport reference code for Runway 11-29. The FAA expects these areas to be free from obstructions. Runway 11-29 currently meets all safety area standards, although the RPZ does not remain within airport property. The FAA does not necessarily require fee simple acquisition of the RPZ, but requests that the airport's sponsor maintain some form of land use control.

RUNWAYS

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

TABLE 3B
Airfield Safety Area Dimensional Standards (feet)
Oceano Airport

	ARC A-I Standards
Runway Safety Area (RSA)	
Width	120
Length Prior to Landing Threshold	240
Length Beyond Runway End	240
Runway Object Free Area (OFA)	
Width	250
Length Beyond Runway End	240
Runway Obstacle Free Zone (OFZ)	
Width	250
Length Beyond Runway End	200
Runway Protection Zone (RPZ)	
Inner Width	250
Outer Width	450
Length	1,000

Source: FAA Airport Design Computer Program, Version 4.2D.
Note: Runway 11-29 meets all standards in this table; however, portions of the RPZ extend beyond airport property.

Airfield Capacity

A demand/capacity analysis measures the capacity of the airfield configuration in order to identify and plan for additional development needs. Annual capacity of a single runway configuration normally exceeds 150,000 operations with a suitable parallel taxiway available. Since the forecasts for Oceano Airport remain well below 150,000 operations, the capacity of the existing runway and taxiway system will not be reached and the airfield will be able to meet operational demands.

Runway Orientation

Oceano Airport has a single runway (Runway 11-29) oriented in a northwest-southeast manner. For the operational safety and efficiency of an airport, it is desirable for the principal runway of an airport's runway system to be oriented as close as possible to the direction of the prevailing wind. This reduces the impact of crosswind components during landing or takeoff.

FAA design standards recommend additional runway configurations when the primary runway configuration provides less than 95 percent wind coverage at specific crosswind components. The 95 percent wind coverage is computed on the basis of crosswinds not exceeding 10.5 knots for small aircraft weighing less than 12,500 pounds. No current wind data was available for Oceano Airport. However, a review of wind coverage at the nearest weather station, located at San Luis Obispo County Regional Airport, indicates that the Runway 11-29 alignment provides 98.9 percent wind coverage in 10.5 knot crosswind conditions. This data is presented on **Exhibit 3B**.

Runway Length

The runway length requirements for an airport are based on five primary factors: airport elevation, mean maximum temperature of the hottest month, runway gradient (difference in runway elevation of each runway end), critical aircraft type expected to use the airport, and stage length of the longest nonstop trip destination. Aircraft performance declines as each of these factors increase. Summertime temperatures and stage lengths are the primary factors in determining runway length requirements.

The local airport elevation is 14 feet above mean sea level (MSL) and the mean maximum temperature of the hottest month is 70.0 degrees Fahrenheit (F) (at San Luis Obispo County Regional Airport). Runway end elevations vary by approximately five feet.

Using the site-specific data described above, runway length requirements for the various classifications of aircraft that may operate at the airport were examined using the FAA Airport Design computer program, Version 4.2D. The program groups general aviation aircraft into several categories, reflecting the percentage of the fleet within each category. **Table 3B** summarizes FAA's generalized recommended runway lengths for Oceano Airport.

As shown in the table, the FAA recommends a minimum runway length of 2,300 feet for A-I aircraft (less than 12,500 pounds) using the facility. The current runway length of 2,325 feet accommodates most small aircraft operating at Oceano Airport. However, these aircraft may experience payload and/or fuel limitations during the warmest summer days, when attempting longer stage lengths.

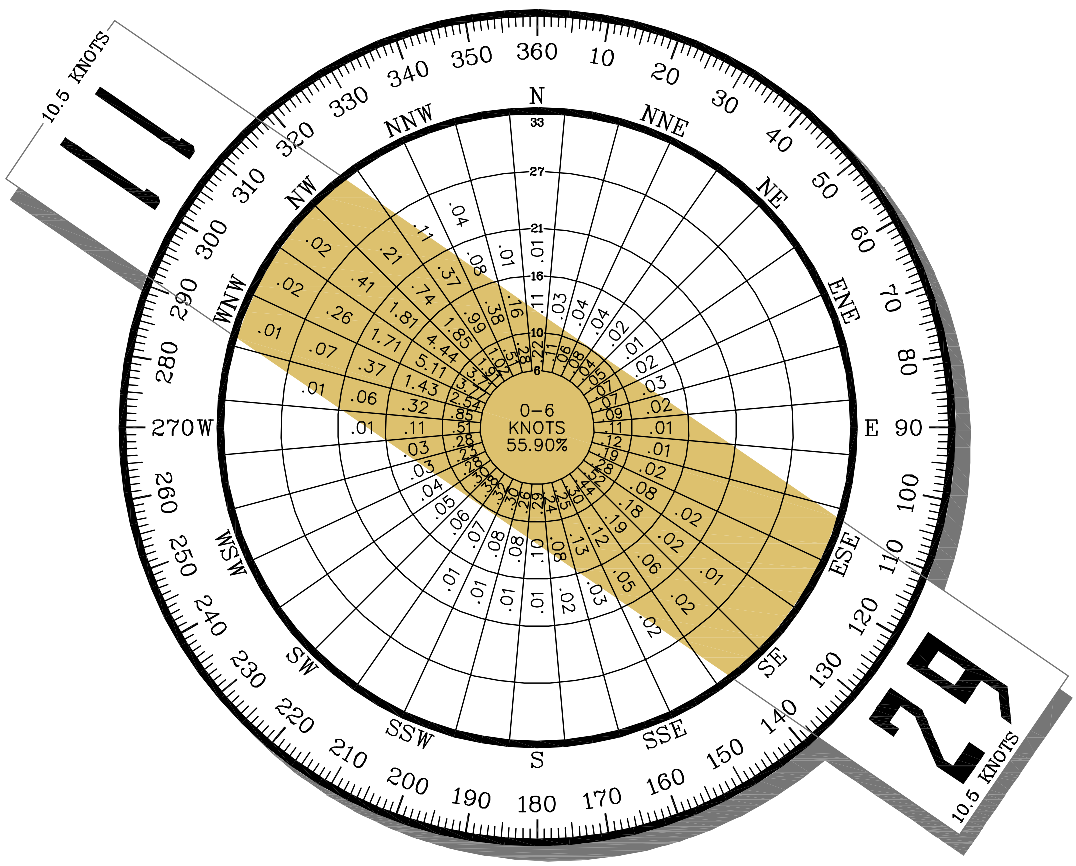
TABLE 3B
Runway Length Requirements
Oceano Airport

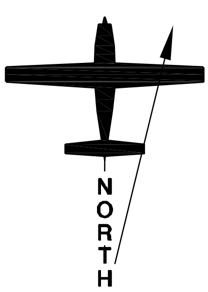
AIRPORT AND RUNWAY DATA	
Airport elevation	14 feet
Mean daily maximum temperature of the hottest month	70.0 F
Maximum difference in runway centerline elevation	5 feet
RUNWAY LENGTHS RECOMMENDED FOR AIRPORT DESIGN	
Small airplanes with less than 10 passenger seats	
75 percent of these small airplanes	2,300 feet
95 percent of these small airplanes	2,900 feet
100 percent of these small airplanes	3,400 feet

Reference: FAA's airport design computer software utilizing Chapter Two of AC 150/5325-4B, *Runway Length Requirements for Airport Design*.

Draft 04MP10-3B-05/16/06

ALL WEATHER WIND COVERAGE	
Runway	10.5 Knots
Runway 11-29	*98.90%*





Magnetic Variance
13° 46' East (May 2006)
Annual Rate of Change
00° 05' West (May 2006)

SOURCE:
NOAA National Climatic Center
Asheville, North Carolina
San Luis Obispo County Regional Airport (SBP)
San Luis Obispo, California

OBSERVATIONS:
72,149 All Weather Observations
1994-2003

Oceano Airport

Exhibit 3B
ALL WEATHER WIND ROSE

Runway Width

The width of the existing runway was also examined to determine the need for facility improvements. Currently, Runway 11-29 has a width of 50 feet, which falls short of the required 60-foot width for ADG I facilities serving small airplanes exclusively. Consideration should be given to widening the runway.

Runway Pavement Strength

The most important feature of airfield pavement is its ability to withstand repeated use by aircraft of significant weight. Oceano Airport is a facility which serves small airplanes (12,500 pounds or less) exclusively. Runway 11-29 has a current strength rating of 12,500 pounds single wheel gear loading (SWL), which will be sufficient for the existing and future fleet.

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 the runways, whereas other taxiways become necessary as activity increases at an airport to provide safe and efficient use of the airfield.

Taxiway width is determined by the ADG of the most demanding aircraft to use the taxiway. As previously mentioned, the most demanding aircraft to use the airfield fall within ADG I. According to FAA design standards, the minimum taxiway width for ADG I is 25 feet. The full-length parallel taxiway at Oceano Airport falls just short of this at 20 feet wide. Consideration should be given to widening the taxiway.

The runway-taxiway separation distance was also examined. This distance is such to satisfy the requirement that no part of an aircraft (tail tip, wing tip) on the taxiway/taxilane centerline is within the runway safety area or penetrates the obstacle free zone (OFZ). According to the Airport Layout Plan, there are no OFZ object penetrations on the airport at this time. The current distance between the Runway 11-29 centerline and the full-length parallel taxiway centerline is 150 feet, which is the required distance for ARC A-I facilities serving small airplanes exclusively. The distance between the Runway 11-29 centerline and the taxiway adjacent to the apron is 160 feet, which exceeds the 150-foot standard.

NAVIGATIONAL AND APPROACH AIDS

Airport navigational aids, or NAVAIDS, provide electronic navigational assistance to aircraft for approaches to an airport. NAVAIDS are either visual approach aids or instrument approach aids, the former providing a visual navigational tool, and the latter being an instrument-based navigational tool. The types of approaches available at an airport are based on the NAVAIDS that are provided.

Oceano Airport does not currently have any navigational or approach aids. However, pilots flying into or out of Oceano Airport can utilize the Morro Bay VORTAC (11.3 miles northwest), the Paso Robles VORTAC (34.3 miles north), or the Fellows VORTAC (37.1 miles east).

AIRFIELD LIGHTING, SIGNAGE, AND MARKING

Airports commonly include a variety of lighting and pavement markings to assist pilots utilizing the airport. These lighting systems and marking aids are used to assist pilots in locating the airport during the day, at night, during poor weather conditions, and assisting in the ground movement of aircraft.

Identification Lighting

Oceano Airport is equipped with a rotating beacon to assist pilots in locating the airport at night. The existing rotating beacon, located on the south side of the airfield near the executive hangar, is sufficient and should be maintained in the future.

Runway and Taxiway Lighting

Airport lighting systems provide critical guidance to pilots during nighttime and low visibility operations. Runway 11-29 is equipped with medium intensity runway lighting (MIRL), which will be adequate throughout the planning period.

Effective ground movement of aircraft at night is enhanced by the availability of taxiway lighting. Currently, taxiway lighting at the airport is limited to taxiway connectors and reflectors on the south end. It is recommended that reflectors be installed along the entire taxiway system.

Pilot-Controlled Lighting

Oceano Airport is equipped with pilot-controlled lighting (PCL). PCL allows pilots to control the intensity of runway lighting using the radio transmitter in the aircraft. This system should be maintained through the planning period.

Pavement Markings

Runway markings are designed according to the type of instrument approach available on the runway. FAA Advisory Circular 150/5340-1J, *Marking of Paved Areas on Airports*, provides the guidance necessary to design airport markings. The basic markings on Runway 11-29 are sufficient.

Taxiway and apron areas also require marking. Yellow centerline stripes are currently painted on all taxiway surfaces at the airport to provide this guidance to pilots. The paved aircraft parking aprons also have centerline markings to indicate the alignment of taxilanes within these areas. The ramp edge taxilane needs to be remarked closer to the pavement edge to create greater separation between taxiing and parked aircraft. Besides routine maintenance of the taxiway striping, these markings will be sufficient through the planning period.

Holding position markings should be located on all taxiways that intersect runways. At airports without airport traffic control towers, these runway markings identify the location where a pilot should assure there is adequate separation with other aircraft before proceeding onto the runway. The required perpendicular distance from the runway centerline to the taxiway centerline is 125 feet for ARC A-I facilities serving small airplanes exclusively. The current holding position markings on Runway 11-29 meet this standard.

WEATHER AND COMMUNICATION AIDS

Oceano Airport is equipped with a lighted wind cone and a segmented circle, which provides pilots with information about wind conditions and local traffic patterns. These facilities are required when an airport is not served by a 24-hour airport traffic control tower (ATCT). The installation of a supplemental wind cone near the end of Runway 11 is recommended, and the relocation of the wind cone at the Runway 29 end is recommended to improve visibility.

LANDSIDE REQUIREMENTS

Landside facilities are those necessary for the handling of aircraft and passengers while on the ground. These facilities provide the essential interface between the air and ground transportation modes. The capacities of the various components of each area were examined in relation to projected demand to identify future landside facility needs.

AIRPORT OFFICE/GENERAL AVIATION TERMINAL BUILDING

General aviation terminal facilities have several functions. Space is required for passenger waiting, pilot's lounge and flight planning, airport management, storage, and various other needs. The existing airport office provides approximately 840 square feet.

Table 3C outlines the space requirements for the general aviation terminal building (airport office) at Oceano Airport. A planning average of 2.5 passengers per flight throughout the planning period was multiplied by the number of design hour itinerant operations. Space requirements were then based upon providing a planning criterion of 90 square feet per design hour itinerant passenger. As shown in the table, additional area could be supported through the planning period.

TABLE 3C
Airport Office/General Aviation Terminal Building
Oceano Airport

	Currently Available	Short Term Need	Intermediate Term Need	Long Term Need
General Aviation Design Hour Itinerant Passengers	11	11	18	26
General Aviation Building Space (s.f.)	840	1,000	1,600	2,400

HANGARS

Utilization of hangar space varies as a function of local climate, security, and owner preferences. The trend in general aviation aircraft, whether single or multi-engine, is toward more sophisticated (and consequently, more expensive) aircraft. Therefore, many aircraft owners prefer enclosed hangar space to outside tie-downs.

The demand for aircraft storage hangars is dependent upon the number and type of aircraft expected to be based at the airport in the future. For planning purposes, it is necessary to estimate hangar requirements based upon forecast operational activity. However, hangar development should be based upon actual demand trends and financial investment conditions. While a majority of aircraft owners prefer enclosed aircraft storage, a number of based aircraft will still tie-down outside (due to the lack of hangar availability, hangar rental rates, and/or operational needs). Therefore, enclosed hangar facilities should not be planned for each based aircraft. At Oceano Airport, approximately 100 percent of the based aircraft are currently stored in enclosed hangar facilities. In the future, it is estimated that 100 percent of based aircraft will continue to be hangared.

Approximately 90 percent of hangared aircraft at Oceano Airport are currently stored in T-hangars. All of these aircraft are single-engine. A planning standard of 1,200 square feet per based aircraft has been used to determine future T-hangar requirements.

The remaining ten percent of hangared aircraft at Oceano Airport are stored in executive/conventional hangars. These types of hangars are designed for multiple aircraft storage. As the trend towards more sophisticated aircraft continues throughout the planning period, it is important to determine the need for more executive/conventional hangars. A planning standard of 1,200 square feet was used for single-engine aircraft, while a planning standard of 3,000 square feet was used for multi-engine aircraft and helicopters.

Since portions of conventional hangars are also used for aircraft maintenance and servicing, requirements for maintenance/service hangar area were estimated using a planning standard of approximately 15 percent of the total hangar space needs.

Future hangar requirements for the airport are summarized in **Table 3D**. As shown in the table, additional hangar area could be supported through the planning period. Adequate space should also be planned for maintenance area.

TABLE 3D
Aircraft Storage Requirements
Oceano Airport

		Future Requirements		
	Currently Available	Short Term Need	Intermediate Term Need	Long Term Need
Aircraft to be Hangared		14	16	22
Single Engine, Ultralight Positions,	11	12	13	17
Multi-Engine, Jet, Helicopter Positions	1	2	3	5
T-Hangar Area	17,000	14,400	15,600	20,400
Executive/Conventional Hangar Area	4,000	6,000	9,000	15,000
Total Maintenance Area	N/A	3,00	3,700	5,300
Total Hangar Area (s.f.)	**21,000**	**23,500**	**28,300**	**40,700**

AIRCRAFT PARKING APRON

A parking apron should provide for the number of locally-based aircraft that are not stored in hangars, and for those aircraft used for air taxi and training activity. Parking should be provided for itinerant aircraft as well. As mentioned in the previous section, approximately 70 percent of based aircraft at Oceano Airport are currently stored in hangars, and that percentage is expected to increase throughout the planning period.

For planning purposes, 25 percent of the based aircraft total will be used to determine the parking apron requirements of local aircraft, due to some aircraft requiring both hangar storage and parking apron space. Since the majority of locally based aircraft are stored in hangars, the area requirement for parking of locally based aircraft is smaller than for transient aircraft. Therefore, a planning criterion of 650 square yards per aircraft was used to determine the apron requirements for local aircraft.

Several aircraft are based at Oceano Airport on a seasonal basis. Due to this increase in based aircraft during peak season, parking needs for these aircraft were also determined. A planning criterion of 800 square yards was used for seasonally based single and multi-engine aircraft.

Transient aircraft parking needs must also be considered when determining apron requirements. A planning criterion of 800 square yards was used for single and multi-engine itinerant aircraft.

Current apron area at Oceano Airport includes one large apron totaling approximately 19,100 square yards. There are a total of 34 tie-downs available on this apron, as well as additional parking for large aircraft. This apron is used by locally based, transient, and seasonally based aircraft. Total aircraft parking apron requirements are presented in **Table 3E**. As shown in the table, additional apron area will be needed throughout the planning period.

TABLE 3E
Aircraft Parking Apron Requirements
Oceano Airport

	Currently Available	Short Term Need	Intermediate Term Need	Long Term Need
Single, Multi-Engine Transient				
Aircraft Positions		5	7	8
Apron Area (s.y.)		4,000	5,600	6,400
Locally Based Aircraft Positions		30	33	35
Apron Area (s.y.)		24,000	26,400	28,000
Seasonally Based Aircraft Positions		3	3	4
Apron Area (s.y.)		2,000	2,100	2,400
Total Aircraft Positions	**34**	**38**	**43**	**47**
Total Apron Area (s.y.)	**19,100**	**30,000**	**34,000**	**37,000**

VEHICLE PARKING

The airport currently maintains one parking lot, adjacent to the airport office building. This lot totals 32,000 square feet and provides parking for approximately 50 vehicles. Future parking demands have been determined based on an evaluation of the existing airport use, as well as industry standards, which consider one-half of based aircraft at the airport will require a parking space. As shown in **Table 3F**, the existing vehicle parking facilities will be sufficient through the planning period.

TABLE 3F
Vehicle Parking Requirements
Oceano Airport

		Future Requirements		
	Currently Available	Short Term Need	Intermediate Term Need	Long Term Need
Design Hour Passengers		5	6	11
Terminal Vehicle Spaces		9	15	26
Parking Area (s.f.)		3,600	6,000	10,400
General Aviation Spaces		7	8	11
Parking Area (s.f.)		2,800	3,200	4,400
Total Parking Spaces	**50**	**16**	**23**	**37**
Total Parking Area (s.f.)	**32,700**	**6,400**	**9,200**	**14,800**

SUPPORT REQUIREMENTS

Various facilities that do not logically fall within classifications of airfield, terminal building, or general aviation areas have also been identified. These other areas provide certain functions related to the overall operation of the airport, and include aircraft rescue and firefighting, fuel storage, and airport maintenance facilities.

FIRE STATION

Oceano Airport does not have an aircraft rescue and firefighting (ARFF) building located on the airfield. Structural firefighting services are provided to the airport by Oceano Community Service District, which is located off airport property. This is adequate for the present level of operations.

AVIATION FUEL STORAGE

An 8,000-gallon aboveground fuel tank (100 LL) is located on the general aviation apron. Fuel storage requirements are typically based upon maintaining a two-week supply of fuel during the peak month. The airport is not projected to exceed this requirement.

AIRPORT MAINTENANCE/ STORAGE FACILITIES

No airport maintenance facilities are located on-site at Oceano Airport. Current equipment storage is provided by existing executive/conventional hangars. Separate facilities for maintenance are not anticipated during the planning period.

SUMMARY

The intent of this chapter has been to outline the facilities required to meet potential aviation demands projected for Oceano Airport through the long term planning horizon. The next step is to develop an alternative for development to best meet these projected needs. The remainder of the airport master plan will be devoted to outlining this direction, its schedule, and costs.

Chapter Four

Airport Development Alternatives

AIRPORT DEVELOPMENT ALTERNATIVES

In the previous chapter, airside and landside facility needs that would satisfy projected demand over the planning period were identified. The next step in the master planning process is to evaluate the various ways these facilities can be provided. In this chapter, the facility needs will be applied to a series of airport development alternatives. The possible combination of alternatives can be endless, so some intuitive judgment must be applied to identify the alternatives which have the greatest potential for implementation. The alternatives analysis is an important step in the planning process since it provides the underlying rationale for the final master plan recommendations.

The alternatives presented in this chapter provide a series of options for meeting short and long-range facility needs. Since the levels of general aviation activity can vary from forecast levels, flexibility must be considered in the plan. If activity levels vary significantly within a five-year period, the San Luis Obispo County should consider updating the plan to reflect the changing conditions.

Since the combination of alternatives can be endless and the budgeted time for alternative evaluation is limited, only the more prudent and feasible alternatives were examined. The alternatives presented in this chapter will be reviewed with the Planning Advisory Committee to allow for further refinement.

An environmental overview has also been completed and is included as

Appendix B. The purpose of this document is to obtain information regarding environmental sensitivities on or near airport property and identify any potential environmental concerns that must be addressed prior to program implementation.

Following environmental reviews and an updated airport layout plan drawing, a capital improvement program will be developed. However, a final decision with regard to pursuing a particular development plan which meets the needs of commercial and general aviation users rests with the airport.

BACKGROUND

Prior to presenting airport development alternatives, it is helpful to review some of the previous airport planning efforts and the development that has occurred during the intervening years. Recounting recent (or ongoing) improvements will assist with the identification of current issues affecting future development options. Improvements made at Oceano Airport in the past ten years include the following projects:

- Runway, taxiway, apron, and runway lighting rehabilitated.
- Airport beacon and tower replaced.
- Runway safety area improved.
- Airport fencing installed.

INITIAL DEVELOPMENT CONSIDERATIONS

Upon completion of the facility needs evaluation and a subsequent meeting with the Planning Advisory Committee for the master plan study, a number of airport development considerations were outlined. These considerations, which have been grouped into airside and landside categories, have been summarized in **Exhibit 4A**.

While many of these development considerations are demand driven (e.g. based aircraft and peak transient parking demand levels), several are included to upgrade operating capabilities and improve airfield safety or efficiency of the airfield system. Several of the airside considerations are included to meet current design standards (e.g., the existing width of both the runway and parallel taxiway fall short of the required widths). Also, the distance between the taxilane centerline and the tie-down parking area does not meet obstacle clearance standards. These all remain important considerations in the master planning process.

NO ACTION ALTERNATIVE

In analyzing and comparing costs and benefits of various development alternatives, it is important to consider the consequences of no further development. The “no action” alternative essentially considers keeping the airfield in its present condition, and not pro-

AIRSIDE PLANNING CONSIDERATIONS

- Widen runway to 60 feet
- Widen taxiway to 25 feet and install reflectors
- Taxilane realignment on apron
- Examine land use of RPZ on both ends
- Relocate segmented circle and wind sock
- Install supplemental wind sock

LANDSIDE PLANNING CONSIDERATIONS

- Provide additional hangar capacity
- Provide additional commercial/ industrial business opportunities
- Construct maintenance facility
- Provide additional tie-down area
- Improvements to Delta Lane (south access)

Oceano Airport

Exhibit 4A
INITIAL DEVELOPMENT CONSIDERATIONS

viding for any improvements to existing facilities. The primary result of this alternative, as in any changing air transportation market, would be the eventual inability of the airport to satisfy the increasing demands of the local service area.

The airport's aviation forecasts and the analysis of facility requirements indicated a potential need to widen the runway and the parallel taxiway, as well as additional hangar facilities. Without these improvements to the airport facilities, regular and potential users of the airport would be constrained from taking maximum advantage of the airport's air transportation capabilities.

The ramifications of the "no action" alternative extend into impacts on the economic well-being of the region. If facilities are not maintained and improved so that the airport maintains a pleasant experience to the visitor or business traveler, then these individuals may consider alternate locations for vacations or doing their business elsewhere.

Thus, the "no action" alternative is inconsistent with the long term transportation system goals of the county, which are to enhance local and interstate commerce. A policy of "no action" would be considered an irresponsible approach, affecting not only the long term viability of the airport and the investment that has been made in it, but also the economic growth and development of the airport's service area. Therefore, the "no action" alternative was not considered as prudent or feasible.

TRANSFER SERVICES TO ANOTHER AIRPORT

Transferring aviation services to another airport essentially considers limiting development at Oceano Airport and relying on other airports to serve aviation demand for the local area.

As discussed in the Inventory Chapter, there are three public-use airports located within 30 nautical miles (nm) of Oceano Airport. San Luis Obispo County Airport is located approximately eight nm north and is served by two asphalt runways, the longest of which is 5,300 feet. Scheduled passenger service is also provided at this airport. Santa Maria Public/Captain G. Allan Hancock Field is located approximately 15 nm south-southeast of Oceano Airport and is also served by two asphalt runways, the longest one being 6,304 feet. Lompoc Airport is the nearest (27 nm south-southeast) general aviation airport and is served by a single 4,600-foot asphalt runway.

As new businesses in the community begin to emerge and existing businesses expand, there will be a need for a functional airport. This role is not easily replaced by another airport. Moreover, the community relies on the existing airport's facilities and services.

DEVELOP NEW AIRPORT

The alternative of developing an entirely new airport facility to meet the aviation needs of the local area can also be considered. This would essentially consider abandoning the existing airport site and replacing the existing facilities with comparable facilities in a new location.

The development of a new airport is generally considered when an airport reaches capacity and it is cost-prohibitive to expand the existing facility. Oceano Airport currently encompasses more than 58 acres. At the present time, the capacity of the existing airport has not been reached and adequate space is available for further development.

Constructing an entirely new airport is a very difficult and costly action requiring a significant financial commitment of funds for property acquisition, site preparation, and the construction of new airport facilities. The closing of the existing airport site would result in a substantial loss of the public and private investment in the existing facility which may only be partially recovered through the sale of the property. This could put a significant burden on existing tenants of the airport which would need to replace existing facilities. From social, political, and environmental standpoints, extensive justification would be needed to follow this alternative.

AIRFIELD DESIGN CONSIDERATIONS

Airfield facilities are, by their very nature, a focal point of the airport complex. Because of their role, and the fact that they physically dominate a great deal of the airport's property, airfield facility needs are often the most critical factor in the determination of viable airport development alternatives. In particular, the runway system requires the greatest influence on the identification and development of other airport facilities. Furthermore, due to the number of aircraft operations, there are a number of Federal Aviation Administration (FAA) design criteria that must be considered when looking at airfield improvements.

Safety area design standards and adjacent development can ultimately impact the viability of various alternatives. These criteria, depending upon existing constraints around the airport, can have a significant impact on the viability of various alternatives which are designed to meet airfield needs. Oceano Airport is classified as an A-I facility, serving small airplanes exclusively. The forecasts anticipate increasing utilization by small single-engine aircraft throughout the planning period. The potential mix of aircraft will continue to place the airport in the A-I category. The safety areas, which are discussed in the following paragraphs, are depicted on **Exhibit 4B**.

The FAA has placed a high priority on establishing and maintaining adequate safety areas at all airports due to recent aircraft accidents. Under Order 5200.8, effective October 1, 1999, the FAA established a Runway Safety Area Program. The Order states, "The goal of the Runway Safety Area (RSA) Program is that all RSAs at federally obligated airports and all RSAs at airports certificated under 14 CFR Part 139 shall conform to the standards contained in Advisory Cir-

04MP10-4B-9/1/06

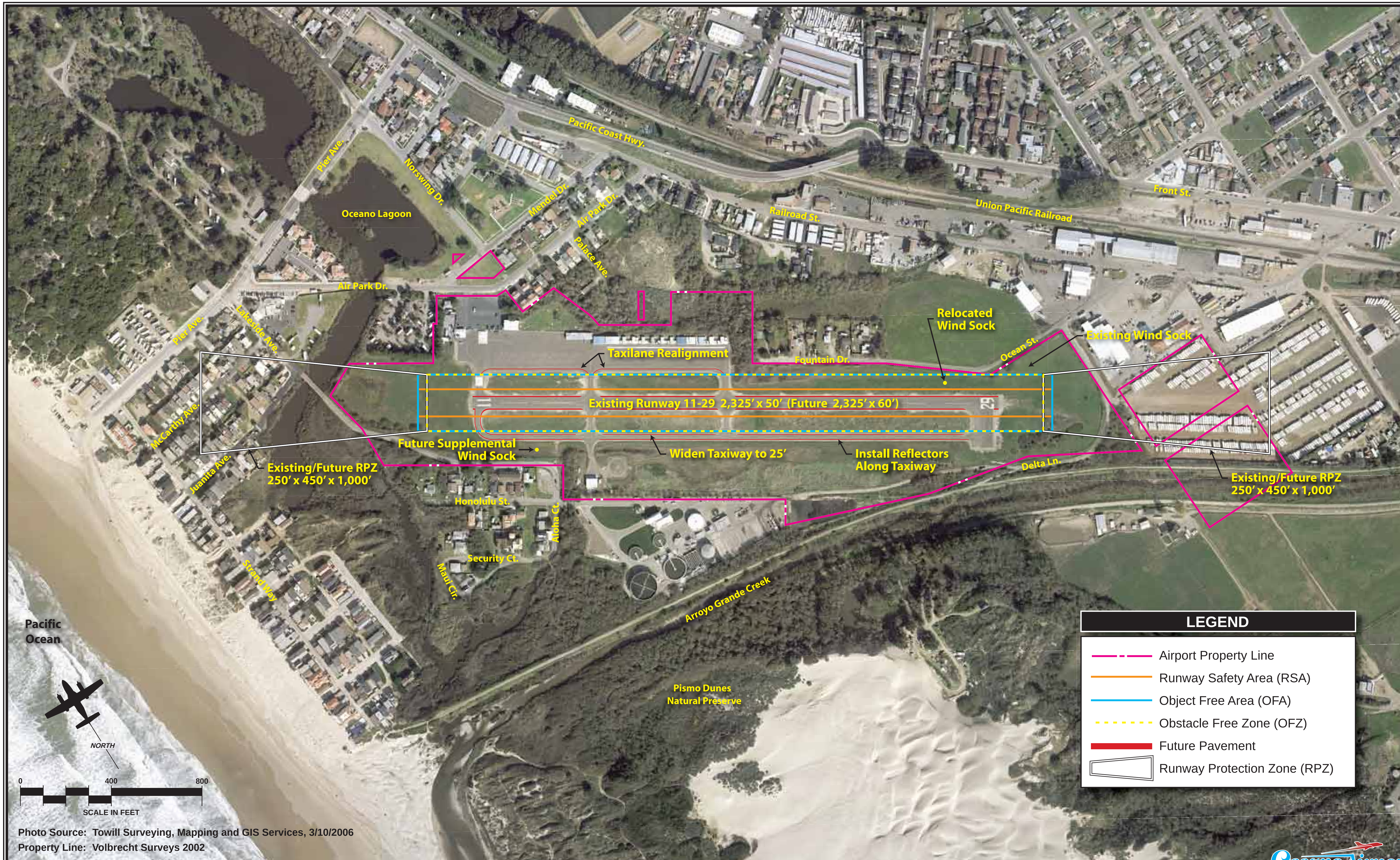


Exhibit 4B
AIRFIELD CONSIDERATIONS

cular 150/5300-13, *Airport Design,* to the extent practical." Under the Order, each FAA Regional Office's Airports Division is obligated to collect and maintain data on the RSA of each airport for federally obligated airports.

The FAA requires the RSA to be cleared and graded, drained by grading or storm sewers, capable of accommodating fire and rescue vehicles, and free of obstacles not fixed by navigational purpose for a distance of 240 feet beyond the end of the runway. The facility requirements analysis in the previous chapter indicated that the RSA on both runways conforms to all FAA safety design standards as outlined in FAA AC 150/5300-13, *Airport Design*.

Other design considerations include the runway object free area (OFA), the runway object free zone (OFZ), the runway protection zones (RPZ), and the building restriction line (BRL). Unlike the RSA, these standards may be modified if it can be shown that the modification to design standards will provide an acceptable level of safety.

The runway OFA is defined in FAA Advisory Circular 150/5300-13, Change 10, *Airport Design*, as an area centered on the runway extending out in accordance to the critical aircraft design category utilizing the runway. The OFA must provide clearance of all ground-based objects protruding above the RSA edge elevation, unless the object is fixed by function serving air or ground navigation. The OFA on Runway 11-29 meets the standards for ARC A-I.

The runway must also consider the OFZ, which is a volume of airspace that is required to be clear of objects, except for frangible items required for air navigation of aircraft. It is centered along the runway and extended runway centerline. The standard dimensions of the OFZ for runways serving small airplanes exclusively with approach speeds of 50 knots or more is 250 wide, extending 200 feet beyond the runway end. The OFZ at Oceano Airport meets these standards.

Whenever an airport master plan study is undertaken, an evaluation of land uses in the RPZ should be a normal consideration, especially if there are existing objects in the RPZ, including roads. The RPZ is a trapezoidal area centered on the runway and typically beginning 200 feet beyond the runway end. The RPZ has been established by the FAA to provide an area clear of obstructions and incompatible land uses in order to enhance the protection of approaching aircraft as well as people and property on the ground. The dimensions of the RPZ vary according to the visibility minimums serving the runway, and in some instances, the type of aircraft operating on the runway.

The current RPZ for Runway 11-29 is for "not lower than one mile" visibility conditions for ARC A-I aircraft and is 250 (inner width) by 1,000 (length) by 450 (outer width). As shown on **Exhibit 4B**, portions of the RPZ on both ends of the runway extend beyond airport property.

The California Airport Land Use Planning (ALUP) Handbook, 2002, provides guidance to the Airport Land Use Commission (ALUC) for managing the density of residential and nonresidential uses in airport safety areas. The RPZ is one of several safety areas defined for the airport in the Oceano County Airport revised final dated May 16, 2007.

Another consideration for airport development is the location and height of structures both on and off the airport. On-airport development typically follows guidelines established by 14 CFR Part 77 (FAA's height and hazard zoning and planning guidelines) with the use of a building restriction line (BRL).

The BRL starts at ground level according to the inner width of the RPZ, then rises at a slope of one foot vertically to every seven feet horizontally. Although structures can penetrate the BRL, airports are encouraged to not allow such an occurrence as it could result in diminished approach capabilities and allowances. The existing and planned hangars do not penetrate the BRL.

Considering all of the aforementioned FAA design criteria, the alternatives will present ultimate development designed to accommodate future aviation demand at Oceano Airport.

RUNWAY CONSIDERATIONS

The facility needs evaluation completed in the previous chapter did not identify the potential need for a runway extension. The current runway length of 2,325 feet accommodates most small aircraft currently operating at Oceano Airport. However, it should be noted that these aircraft may experience payload and/or fuel limitations during the warmest summer days, when attempting longer stage lengths.

The facility needs also examined the width of the existing runway, which is currently 50 feet. This falls short of the required 60-foot width for ADG I facilities serving small airplanes exclusively. **Exhibits 4B** and **4C** depict widening the runway by five feet on each side. This will maintain the required 150-foot separation standard between the runway centerline and the parallel taxiway centerline on the south side and the taxilane centerline on the north side.

Exhibit 4B also recommends the relocation of the wind sock, which is currently located east of the Runway 29 end. The proposed location of the wind sock is approximately 400 feet to the north, which would provide pilots with a more advantageous view. It is also recommended that the segmented circle be relocated to this position in order to provide adequate area for hangar development on the south side of the runway. A supplemental wind cone is also recommended near the end of Runway 11.

04MP10-4C-12/6/06

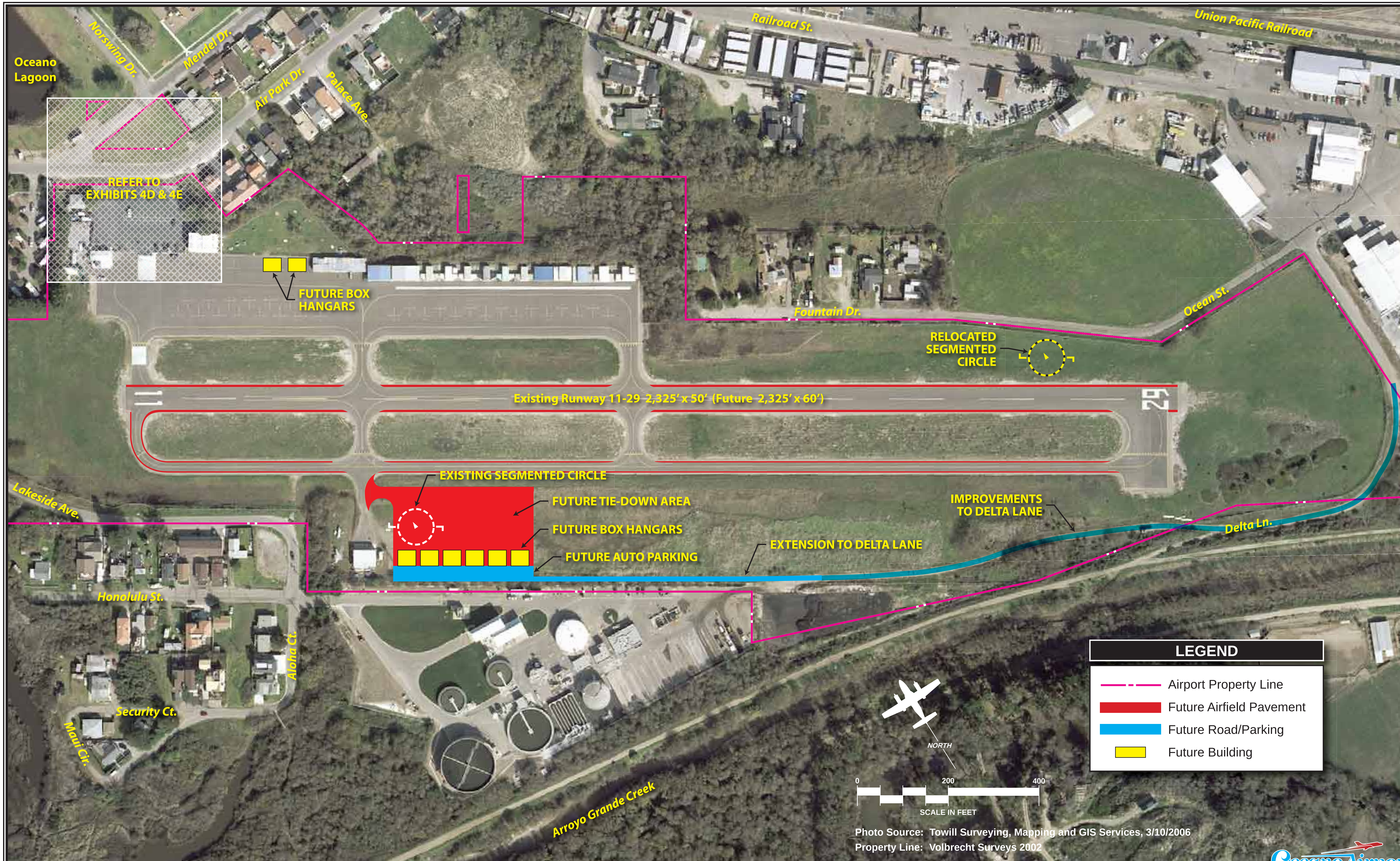


Exhibit 4C
LANDSIDE CONSIDERATIONS

TAXIWAY CONSIDERATIONS

Taxiways are primarily constructed to facilitate aircraft movements to and from the runway system. The availability of entrance and exit taxiways can affect the overall airfield efficiency. Taxiway considerations for Oceano Airport have been depicted on **Exhibit 4B** and are discussed in the following paragraphs.

According to FAA design standards, the minimum taxiway width for ADG I is 25 feet. The full-length parallel taxiway at Oceano Airport falls just short of this with an existing width of 20 feet. The exhibit depicts widening the parallel taxiway by 2.5 feet on each side. This will maintain the required 150-foot separation standard between the runway centerline and parallel taxiway/taxilane.

The realignment of the taxilane on the north end of the apron is also depicted on **Exhibit 4B**. Realigning this taxilane approximately five feet south will allow for a greater separation between the aircraft parking area, while still maintaining the required 150-foot separation standard between the runway centerline.

LANDSIDE ALTERNATIVES

The primary general aviation functions to be accommodated at Oceano Airport include aircraft storage hangars, aircraft parking aprons, commercial general aviation activities, and other aviation-related development. The interrelationship of these functions is important in defining a long-range landside layout for general aviation uses at the airport. Runway frontage should be reserved for those uses with a high level of airfield interface, or need of exposure. Other uses with lower levels of aircraft movement or little need for runway exposure can be planned in more isolated locations. While the relationship between hangar area, apron, and automobile parking will vary based upon usage, a general rule of thumb is to provide 1,000 square feet of apron space with each 1,000 square feet of hangar space, and 400 square feet of auto parking for each 1,000 square feet of hangar area. The following briefly describes landside facility requirements.

Commercial General Aviation Facilities: This essentially relates to providing areas for the development of facilities associated with aviation businesses providing services to general aviation pilots, passengers, and users. This typically includes businesses involved with (but not limited to) aircraft rental and flight training, aircraft charters, aircraft maintenance, line service, and aircraft fueling. High levels of activity characterize businesses such as these, with a need for apron space for the storage and circulation of aircraft. These facilities are best placed along ample apron frontage with good visibility from the runway system for transient aircraft. The facilities commonly associated with businesses such as these include large conventional hangars that hold several aircraft. Utility services are needed for these types of facilities, as well as automobile parking areas and public access roads. This alternatives analysis will examine areas for the future development of active commercial general aviation operators and associated apron areas.

Aviation-Related Commercial/Industrial Facilities: Aviation-related commercial/industrial facilities are distinguished from commercial general aviation facilities in that these types of uses are associated with non-service providers to the general aviation industry. This can include, but is not limited to, aircraft manufacturing, aircraft component manufacturing, aviation trade organizations, or aircraft financial services. While aircraft manufacturers may need access to the airfield, many aviation-related businesses do not need airfield access. Both users with a need for airfield access and those without a need for airfield access will be considered in the alternatives. These types of users need all utility services, as well as public access roads.

Corporate/Executive Hangars: Corporate/executive aviation facilities are characterized by co-located hangar and office complexes for individually owned or corporate-owned aircraft storage, maintenance, and administration. Corporate/executive aviation facilities are different from commercial general aviation facilities. Corporate/executive aviation facilities generally have lower levels of activity that do not require visibility from the runways or taxiways for transient aircraft identification and location as these facilities generally do not provide services to the public. Utility services are needed for these types of facilities, as well as automobile parking areas and a public access road.

T-hangars/Box Hangars: The facility requirements analysis indicated the need for additional T-hangar/box hangar facilities at the airport. T-hangars/box hangars are specifically designed hangar facilities that provide for segregated individual storage areas within a single hangar complex. This is in contrast with the hangars described in the previous paragraphs, which allow for multiple aircraft storage in the same area.

Segregated Vehicular Access/Airfield Security: A planning consideration for any Master Plan is the segregation of vehicles and aircraft operational areas. This is both a safety and security consideration for the airport. Aircraft safety is reduced and accident potential increased when vehicles and aircraft share the same pavement surfaces. Vehicles contribute to the accumulation of debris on aircraft operational surfaces, which increases the potential for Foreign Object Damage (FOD). The potential for runway incursions is increased as vehicles may inadvertently access active runway or taxiway areas if they become disoriented once on the aircraft operational area (AOA). Finally, airfield security is compromised as there is loss of control over the vehicles as they enter the secure AOA. The greatest concern is for public vehicles such as delivery vehicles and visitors, which may not fully understand the operational characteristics of aircraft and the markings in place to control vehicle access. The best solution is to provide dedicated vehicle access roads to each landside facility that is separated from the aircraft operational areas with security fencing.

The segregation of vehicle and aircraft operational areas is further supported by new FAA guidance established in June 2002. FAA AC 150/5210-20, *Ground Vehicle Operations on Airports* states, "The control of vehicular activity on the airside of an airport is of the highest importance." The AC further states, "An airport operator should limit vehicle operations on the movement areas of the airport to only those vehicles necessary to support the operational activity of the airport." The landside alternatives for Oceano Airport have been developed to reduce the need for vehicles to cross an apron or taxiway area. Special attention is within the alternatives given to ensure public access routes to commercial general aviation operators' facilities. Commercial general aviation operators' facilities are focal points for users who are not familiar with aircraft operations (i.e., delivery vehicles, charter passengers, etc.).

Security

The *Aviation and Transportation Security Act*, passed in November 2001, created the Transportation Security Administration (TSA) to administer the security of public-use airports across the country. In cooperation with representatives of the general aviation community, the TSA published security guidelines for general aviation airports. These guidelines are contained in the publication entitled *Security Guidelines for General Aviation Airports*, published in May 2004. Within this publication, the TSA recognized that general aviation is not a specific threat to national security. However, the TSA does believe that general aviation may be vulnerable to misuse by terrorists as security is enhanced in the commercial portions of aviation and at other transportation links.

To assist in defining which security methods are most appropriate for a general aviation airport, the TSA defined a series of airport characteristics that potentially affect an airport's security posture. These include:

1. **Airport Location** – An airport's proximity to areas with over 100,000 residents or sensitive sites can affect its security posture. Greater security emphasis should be given to airports within 30 miles of mass population centers (areas with over 100,000 residents) or sensitive areas such as military installations, nuclear and chemical plants, centers of government, national monuments, and/or international ports.

2. **Based Aircraft** – A smaller number of based aircraft increases the likelihood that illegal activities will be identified more quickly. Airports with based aircraft over 12,500 pounds warrant greater security.

3. **Runways** – Airports with longer paved runways are able to serve larger aircraft. Shorter runways are less attractive as they cannot accommodate the larger aircraft which have more potential for damage.

4. **Operations** – The number and type of operations should be considered in the security assessment.

Since Oceano Airport's level of operational activity and runway length lower its potential ranking, a more detailed security assessment was not undertaken.

SOUTH LANDSIDE DEVELOPMENT

Exhibit 4C depicts hangar development on the south side of the parallel taxiway. A row of six box hangars (approximately 1,400 square feet each) are shown south of the existing segmented circle, which as previously discussed, would need to be relocated. These hangars would be supported by an aircraft parking apron and accessed by the existing taxiway stub. Parking would be provided on the south side of these hangars. This area will also need the installation of utility services. This location was chosen to avoid interfering with any wetlands on airport property. **Appendix B** (Environmental Overview) provides a thorough report on the wetlands.

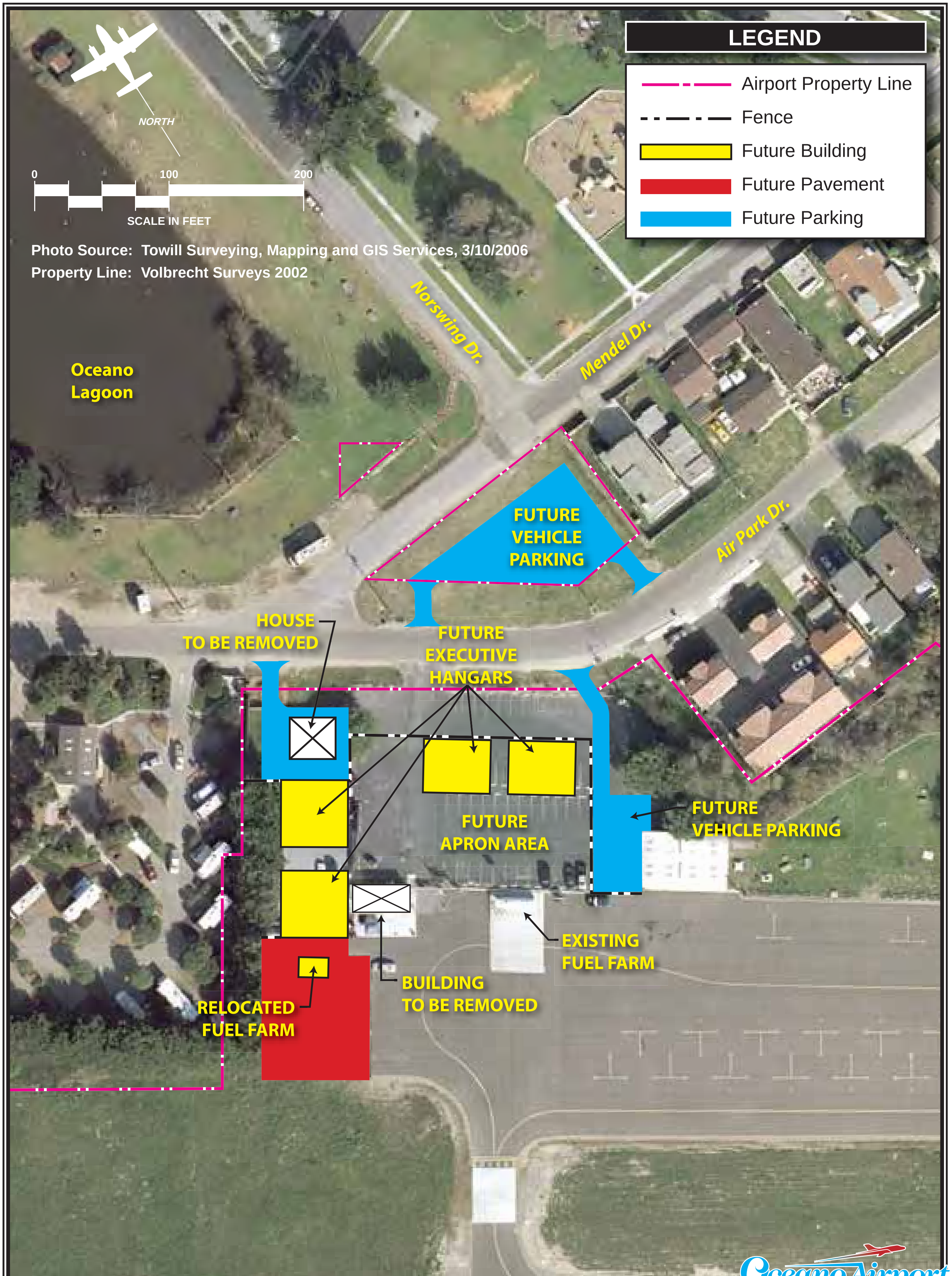
This exhibit also depicts improvements to Delta Lane, the road which runs along the southeast side of the airport. The majority of this two-lane road is unimproved. It is recommended that the entire length of Delta Lane be paved and extended to connect with the parking area adjacent to the proposed hangars south of the parallel taxiway. The alignment will need to remain outside of a 1.76-acre parcel to be deeded to the South San Luis Obispo County Sanitation District (outside the current perimeter fence).

NORTHWEST LANDSIDE ALTERNATIVE 1

Northwest Landside Alternative 1 is shown on **Exhibit 4D**. This alternative provides for the development of commercial general aviation facilities on the northwest corner of the airfield, in the area of the existing vehicle parking lot. Various aviation-related commercial/industrial users may include a variety of businesses such as aircraft component manufacturing, aviation trade organizations, or aircraft financial services. This area is well-suited for this type of development as it visible from the runway and taxiway for transient users and has ample area for apron development.

Two corporate/executive hangars (approximately 2,500 square feet each) are shown along the west side of the parking lot. Public vehicle access would be via a new access road west of the parcels, which would connect with Air Park Drive. However, a residential unit as well as the airport office would first need to be removed in order to allow room for the development of these hangars.

Two additional corporate/executive hangars (approximately 2,000 square feet each) are shown on the existing vehicle parking lot. This parking lot would be transformed into an apron area to facilitate aircraft movement adjacent to the proposed hangars. Fencing is recommended along the north side of these hangars to provide increased security. A small parking



04MP10-4D-4/27/06

Exhibit 4D
NW LANDSIDE ALTERNATIVE 1

area would remain next to the existing executive hangar on the southeast corner of the parking lot and would be accessed via Air Park Drive. Future vehicle parking would be provided on airport property on the other side of Air Park Drive.

The relocation of the fuel farm is also depicted on **Exhibit 4D**. The existing fuel farm is located in the middle of the parking lot and apron area. Relocating the fuel farm to the west will allow for enhanced aircraft movement on the apron.

NORTHWEST LANDSIDE ALTERNATIVE 2

Northwest Landside Alternative 2 is shown on **Exhibit 4E**. Similar to Alternative 1, this alternative also proposes commercial general aviation development on the northwest corner of the airfield. In contrast with Alternative 1, this alternative depicts one corporate/executive hangar (approximately 2,500 square feet) along the west side of the parking lot. Public vehicle access would be via a new access road west of the parcels, which would connect with Air Park Drive. With this alternative, the residential unit and airport office would also need to be removed.

Three additional corporate/executive hangars (approximately 2,000 square feet each) are shown on the existing vehicle parking lot. This parking lot would be transformed into an apron area to facilitate aircraft movement adjacent to the proposed hangars. Fencing is recommended along the north side of these hangars to provide increased security.

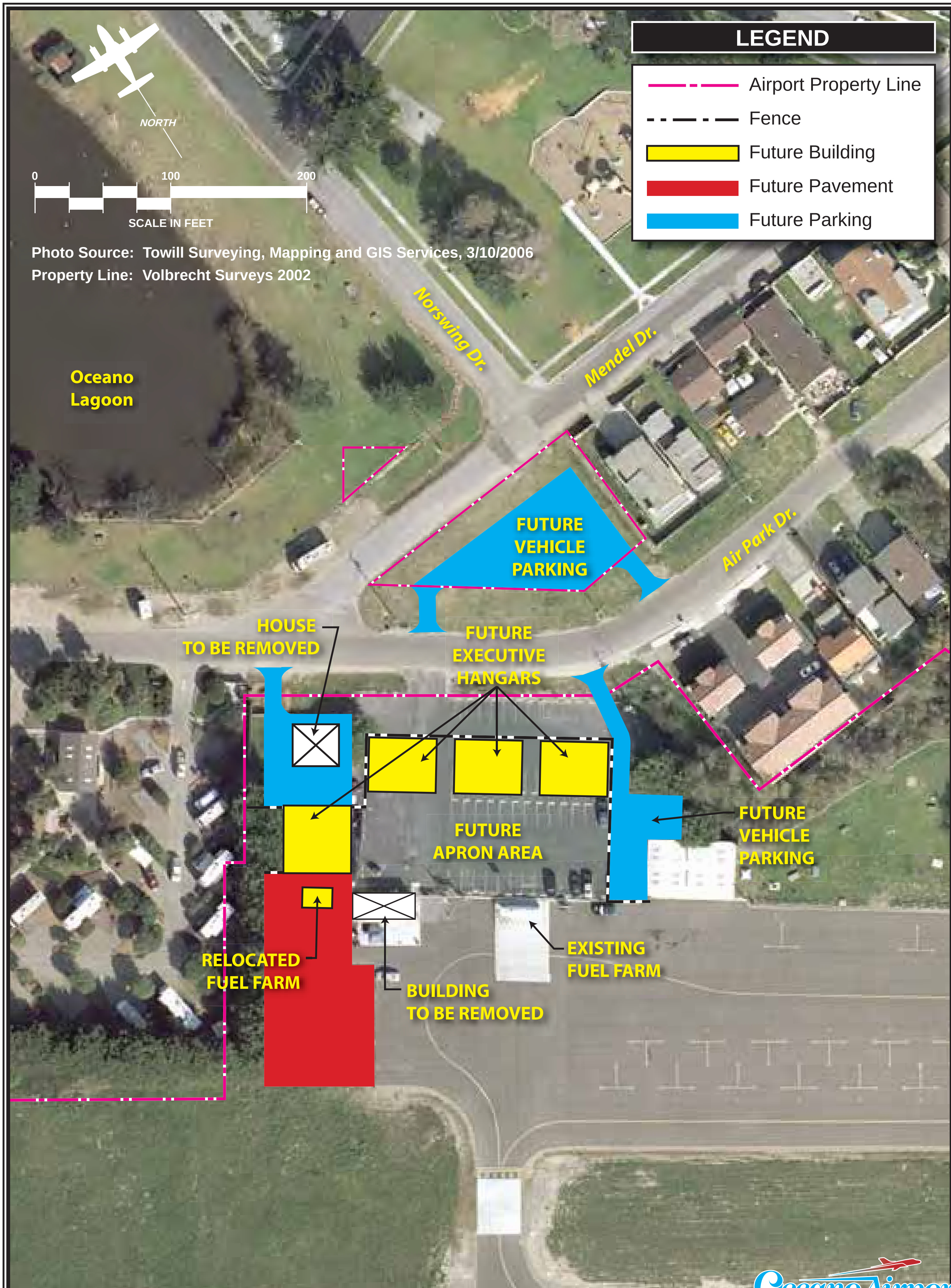
Vehicle parking for the existing executive hangar on the southeast corner of the parking lot would be provided on the north side of the hangar, with new road access connecting via Air Park Drive. Additional vehicle parking would be provided on airport property on the other side of Air Park Drive. This alternative also depicts the relocation of the fuel farm for improved circulation on the apron.

THROUGH-THE-FENCE AIRPORT ACCESS

There are instances when the owner of a public airport proposes to enter into an agreement which permits access to the public landing area by aircraft based on land adjacent to, but not part of, the airport property. This type of an arrangement is commonly called a through-the-fence operation, whether the perimeter fence is imaginary or real. It is FAA policy to strongly discourage through-the-fence agreements.

The obligation to make an airport available for the use and benefit of the public does not impose any requirement to permit access by aircraft from adjacent property. On the contrary, the existence of such an arrangement has been recognized as an encumbrance upon the airport property itself. Airport obligations arising from federal grant agreements and conveyance instruments apply to dedicated airport land and facilities and not to

04MP10-4E-4/27/06



Oceano Airport

Exhibit 4E
NW LANDSIDE ALTERNATIVE 2

private property adjacent to the airport, even when the property owner is granted a through-the-fence privilege.

The owner of a public airport is entitled to seek recovery of the initial and continuing costs of providing a public use landing area. The owners of airports receiving federal funds have been required to establish a fee and rental structure designed to make the airports as self-sustaining as possible. Most public airports seek to recover a substantial part of airfield operating costs indirectly through various arrangements affecting commercial activities on the airport. The development of aeronautical businesses on land uncontrolled by the airport owner may give the through-the-fence operation a competitive advantage that will be detrimental to the on-airport operators on whom the airport owner relies for revenue and service to the public. To avoid a potential imbalance, the airport owner may refuse to authorize a through-the-fence operation. In an effort to equalize an imbalance of existing through-the-fence operations, the airport owner should obtain a fair return from off-airport operators in exchange for continuing access to the airport and use of the landing area.

Although airports do not need and should avoid through-the-fence arrangements, circumstances may arise which compel an airport owner to contemplate a through-the-fence operation. In this situation, the airport owner must plan ahead to formulate a prudent through-the-fence agreement and obtain just compensation for granting access to the airport. This is because the airport is enfranchising a special class of airport users who will be permitted to exercise an exclusive through-the-fence privilege.

In making airport facilities available for public use, the airport owner must make the airport as self-sustaining as possible under the particular circumstances at the airport. The FAA has interpreted the self-sustaining assurance to require airport owners to charge fair market value (FMV) commercial rates for non-aeronautical uses of the airport. In conformity with the self-sustaining principle, it would be appropriate to charge FMV rates to off-airport users for the exclusive privilege of accessing the airport through-the-fence. In formulating a through-the-fence agreement, the airport owner should endeavor to establish terms that are beneficial to the airport. For example, the adjacent developer or landowner should be made to finance the necessary improvements and maintenance of the facilities and infrastructure connecting the adjacent land to the airport's landing area. Recurring payments should be based on use rather than on flat rates. Agreements should contain provisions allowing the airport to terminate through-the-fence access permits for cause.

In addition, the airport owner must restrict the uses that may be made of the adjacent land as a condition for granting a through-the-fence privilege. Private property owners must be asked to enter into agreements that prohibit public aeronautical commercial operations. Simply stated, they should not be allowed to operate as fixed base operators (FBO) offering aeronautical services to the public. Such FBO operations, if allowed, would give private property operators an advantage over on-airport operators. Allowing private property owners to gain a competitive advantage will jeopardize the economic vitality of the airport and impede its ability to remain self-sustaining. Additionally, any economic advantage gained by adjacent property owners will diminish the economic viability of the airport's own aeronautical commercial operators.

Arrangements that permit aircraft to gain access to a public landing area from off-site property introduce safety considerations along with additional hazards that complicate the control of vehicular and aircraft traffic. Airport improvements designed to accommodate access to the airport and landing areas from an off-site location for the sole benefit and convenience of an off-airport neighbor present a substantial and continuing burden to the airport owner. In addition, the airport must contend with legal, insurance, and management implications represented by increased costs, liability, and administrative and operational controls. For the airport owner, it may become an unexpected challenge to balance airport needs with the increasing demands on the airport by off-airport users.

It is FAA policy to strongly discourage any agreement that grants access to public landing areas by aircraft normally stored on adjacent property. Airport owners must guard against any through-the-fence operation that can become detrimental to the airport and threaten its economic viability. Any agreement for a through-the-fence operation must include provisions making such operations subject to the same federal obligations as tenants on airport property. Furthermore, the airport owner must ensure that the through-the-fence operators contribute a fair share toward the cost of the operation, maintenance, and improvement of the airport and that they do not gain an unfair economic advantage over on-airport operators.

NAVIGATIONAL AND APPROACH AIDS

Electronic and visual guidance to arriving and departing aircraft enhance safety and utilization of the airfield. Such facilities are vital to the operational success of the airport and enhance the safety of passengers using the airport. While instrument approach aids are especially helpful during poor weather, they often are used by commercial pilots when visibility is above instrument flight rule conditions.

Oceano Airport does not currently have any navigational or approach aids. Pilots flying into or out of Oceano Airport can utilize the Morro Bay VORTAC 11.3 miles northwest), the Paso Robles VORTAC (34.3 miles north), or the Fellows VORTAC (37.1 miles east). The need for navigational and approach aids at Oceano Airport is not anticipated through the planning period.

Airfield Marking and Lighting

Pavement markings aid in the movement of aircraft along airport surfaces and identify closed or hazardous areas on the airport. Runway markings are designed according to the type of approach available on the runway. FAA *Advisory Circular 150/5340-1J, Standards for Airport Markings*, provides the guidance necessary to design an airport's markings. Runway 11-29 has basic markings, which will be sufficient for the existing and future fleet expected to operate at Oceano Airport.

Airport lighting systems provide critical guidance to pilots during nighttime and/or poor visibility. While the runway is equipped with medium intensity runway lighting (MIRL), no lighting is present on the taxiways at Oceano Airport. It is recommended that the airport consider installing reflectors along the taxiway system to enhance the safety and movement of aircraft at nighttime.

SUMMARY

The process utilized in assessing the airside and landside development alternatives involved an analysis of both short and long term requirements and future growth potential. Current airport design standards were reflected in the alternatives.

Upon review of this working paper by San Luis Obispo County and the Planning Advisory Committee, a final Master Plan concept can be finalized. The resultant plan will represent an airside facility that fulfills safety and design standards and a landside complex that can be developed as demand dictates.

The proposed development plan for the airport must represent a means by which the airport can grow in a balanced manner, both on the airside as well as the landside, to accommodate forecast demand. In addition, it must provide for flexibility in the plan to meet activity growth beyond the long term planning period. The remaining chapters will provide a refinement of the final concept, recommend an implementation schedule, and provide detailed cost estimates and capital program financing assumptions.

Oceano Airport

Chapter Five

Master Plan Concept and Airport Plans

MASTER PLAN CONCEPT AND AIRPORT PLANS

The airport master planning process has evolved through efforts in the previous chapters to analyze future aviation demand, establish airside and landside facility needs, and evaluate options for the future development of the airside and landside facilities. The development alternatives have been considered for refinement into a single recommended master plan concept. The planning process has included the development of phased reports, which were distributed to the Planning Advisory Committee (PAC) and discussed at three coordination meetings (and two public workshops) held during the study process.

This chapter describes, in narrative and graphic form, the recommended direction for the future use and development of Oceano Airport. Following a fourth coordination meeting with the PAC (and a final public workshop), the draft final document will be presented to the County of San Luis Obispo. Upon acceptance of the final master plan document, a final technical report will be prepared for the study.

RECOMMENDED MASTER PLAN CONCEPT

The recommended master plan concept provides for anticipated facility needs over the next 20 years. The concept, depicted on **Exhibit 5A**, is a composite of airside and landside considerations developed in the last chapter. However, during refinement of the concept, an effort was made to avoid all Army Corps

04MP10-5A-5/10/07

Exhibit 5A
MASTER PLAN CONCEPT

and Coastal Commission wetland areas on airport property (identified on **Exhibit B-4** in **Appendix B - Environmental Overview**). While these areas are predominately on the southwest side of the property, and only limited development is proposed on the southwest side, every effort has been made to avoid disturbing any of the wetland areas delineated on the exhibit. In addition, several excess parcels of non-aeronautical property have been identified for potential release, while a parcel in the runway protection zone on the northwest end of the runway has been identified for potential purchase. The following sections summarize airside and landside recommendations.

AIRSIDE RECOMMENDATIONS

Airside recommendations include improvements to the runway, the taxiways, airfield lighting or marking, and navigational aids, as follows:

- Widening of the runway to 60 feet to meet current FAA design standards. Currently, the runway is 50 feet wide.

- Widening of parallel taxiway and connecting taxiways to 25 feet to meet current FAA design standards. While a couple of the existing connecting taxiways are 25 feet wide, most of the taxiways on the airfield are only 20 feet wide.

- Extend taxiway reflectors along segments of taxiway which have no current lighting or reflectors. Currently, the connecting taxiways are lighted, while a segment of taxiway at the south end has been equipped with reflectors. Reflectors would improve the margin of safety for taxiing aircraft.

- Realign the ramp edge taxilane marking to improve separation between taxiing and parked aircraft. (The airport layout drawing will show this in better detail than the master plan concept exhibit).

- Relocate the segmented circle to provide for expansion of hangars and ramp on the southwest side.

- Relocate wind sock at southeast end to a location more easily seen by pilots. In addition, a supplemental wind sock should be located near the northwest end of the runway.

- A land parcel (1.76 acres) on the south side of the airport property has been released (subject to FAA approval) to the South San Luis Obispo County Sanitation District (as identified on **Exhibit 5A**). Four other parcels have been identified as excess non-aeronautical property, while one parcel is identified for potential purchase within the runway protection zone. The non-aeronautical properties are located along Palace Avenue, Air Park Drive, and Lakeside Avenue. The County should continue to pursue dedication of abandoned right-of-way along

Delta Street and Sand Dollar Avenue which falls within the runway protection zone.

LANDSIDE RECOMMENDATIONS

Landside recommendations include improvements to the general aviation service and storage hangars, ramp, and parking areas, as follows:

- Redevelopment of older County-owned hangars on the existing ramp. Removal of existing hangars will allow for placement of four new hangars (approximately 2,500 square feet each) to be placed on the ramp. The existing campground behind these hangars will be maintained for transient pilots.

- Redevelopment of existing terminal/fueling area to provide for multiple hangars and additional ramp area for transient aircraft. This redevelopment, which is depicted in the inset on **Exhibit 5A**, will require the removal of the existing terminal/office and County-owned residence, and relocation of the fuel tank and fence. Each of the hangars as depicted is approximately 2,500 square feet in area. Each of the hangars will occupy existing paved areas. A portion of the existing automobile parking lot will be converted to ramp, while new automobile parking areas will be provided (if necessary, an overflow lot will be provided on the opposite side of Air Park Drive).

- An extension of ramp on the southwest side of the runway will provide long-term expansion for four additional hangars (approximately 2,500 square feet each). Prior to developing the area, the segmented circle will require relocation. Roadway access may be extended from Delta Lane, following along the inside of the perimeter fence. The development as shown on **Exhibit 5A** will stay outside Army Corps and Coastal Commission wetlands.

AIRPORT LAYOUT PLANS

The remainder of this chapter provides a brief description of the official airport layout plan drawings that will be submitted to the County of San Luis Obispo and the FAA for their respective approvals. These drawings, referred to as the Airport Layout Plans (ALPs), have been prepared to graphically depict the ultimate airfield layout, facility development, and airport imaginary surfaces (pursuant to 14 CFR Part 77, *Objects Affecting Navigable Airspace*). They have been prepared in AutoCAD 2005, which will allow the County (or consultants for the County) to easily update the drawings as facilities are updated. The drawings have been prepared with new aerial mapping which was compiled (under this master plan contract) in March 2006. Property metes and bounds information was obtained from Volbrecht Surveys, based upon a record of survey compiled for the County of San Luis Obispo in 2001/2002.

The documents summarized in this chapter include:

- Airport Layout Plan Drawing
- 14 CFR Part 77 Airspace Drawing(s)
- Inner Approach Surfaces Drawing(s)
- Airport Property Map
- On-Airport Land Use Drawing

AIRPORT LAYOUT PLAN DRAWING

This drawing graphically depicts existing and future airport layout, buildings, property, and critical safety/setback lines. Checklists for this drawing are developed by the FAA and the drawing must conform to the latest checklist when it is submitted to the FAA for review and approval. The drawing will become the official guidance for the FAA (upon acceptance by the County of San Luis Obispo) in making future decisions for funding improvements eligible for federal grant assistance. Quite simply, if a potential project is not shown on the ALP, it will not be considered by the FAA for funding assistance. It is important that the County periodically update this drawing as new facilities are added or removed.

Most of the information presented on the ALP has been analyzed or discussed in previous chapters, providing the justification for the project. While the ALP is a comprehensive drawing, outlining existing and future facilities, separate drawings are required to provide added detail in the runway approach areas, airport property information and on-airport land use.

14 CFR PART 77 AIRSPACE DRAWING(S)

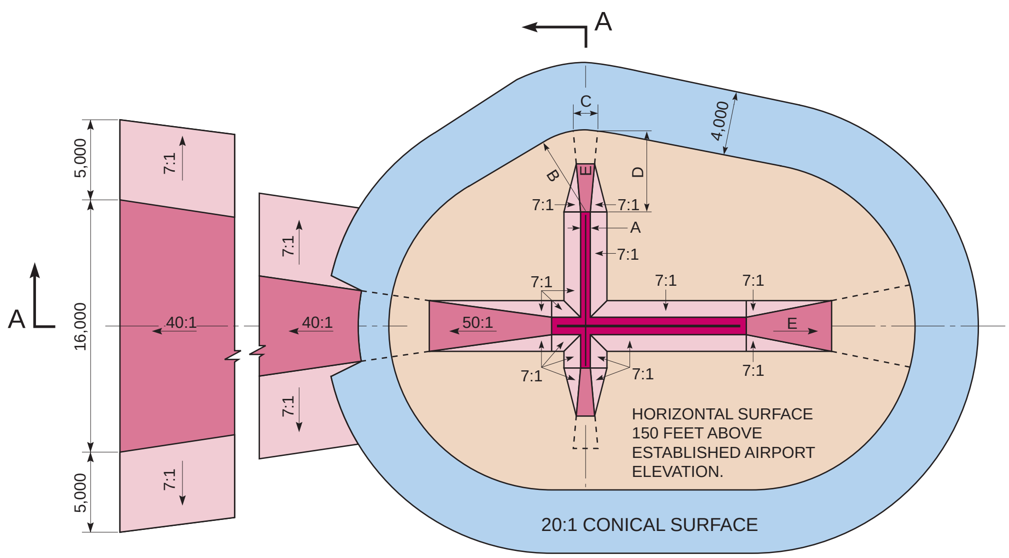
The airspace drawing was developed utilizing the criteria found in 14 CFR Part 77, *Objects Affecting Navigable Airspace*. In order to protect the airspace and approaches to each runway end from hazards that could affect the safe and efficient operation of the airport, federal criteria has been established for use by local planning and land use jurisdictions to control the height of objects in the vicinity of the airport. The 14 CFR Part 77 airspace plan is a graphic depiction of these criteria.

The drawing assigns three-dimensional imaginary surfaces to the runway. These imaginary surfaces emanate from the runway centerline and are dimensioned according to visibility minimums associated with each runway approach, transitional surface, horizontal surface, and conical surface. Part 77 imaginary surfaces are described in the following paragraphs and illustrated in **Exhibit 5B**.

Primary Surface: The primary surface is an imaginary surface longitudinally centered on the runway. The primary surface extends 200 feet beyond each runway end. The elevation at any point on the primary surface is the same as the elevation along the nearest associated point on the runway centerline. Under Part 77 regulations, the primary surface for Runway 11-29 is 250 feet wide.

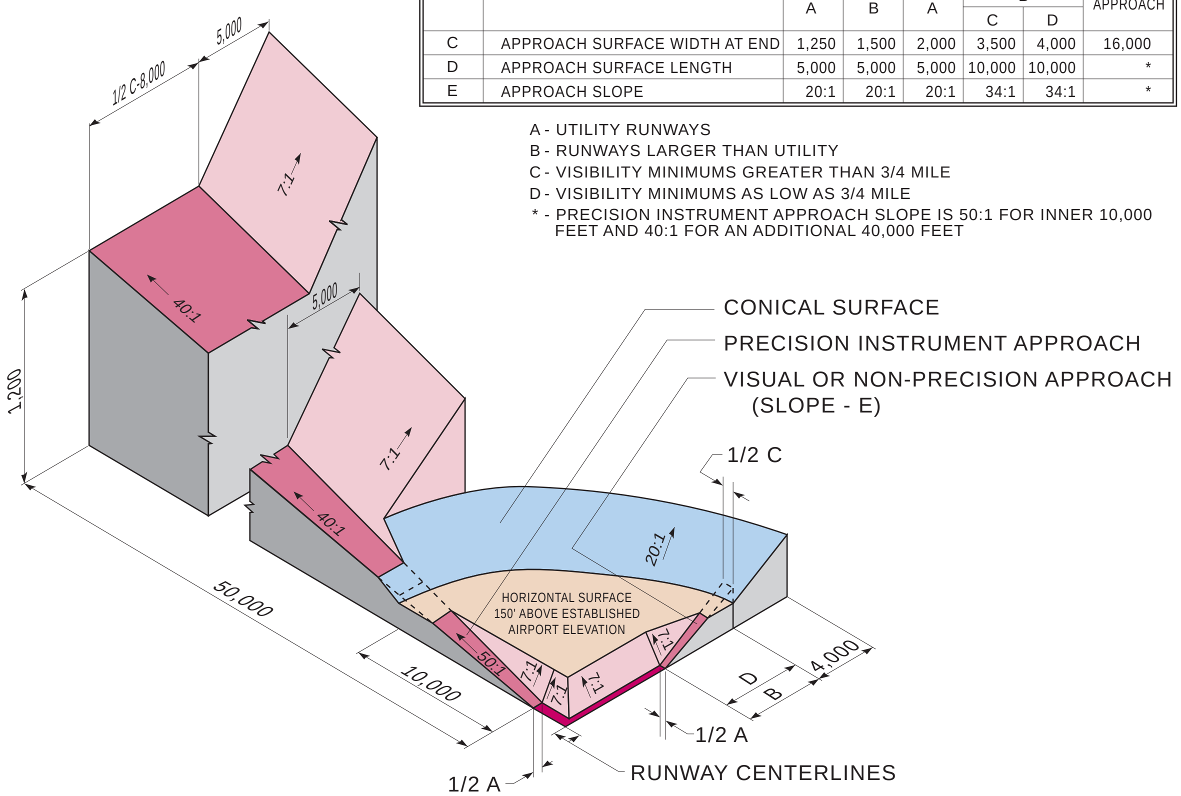
Approach Surface: An approach surface is also established for each runway end. The approach surface begins at the

04MP10-5B-2/27/06



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

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



ISOMETRIC VIEW OF SECTION A-A

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

same width as the primary surface and extends upward and outward from the primary surface end, and is centered along an extended runway centerline. The approach surfaces for Runway 11-29 extend 5,000 feet from the primary surface at an upward slope of 20:1. The width of the approach surface at the outer end 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 at each runway end. The surface rises at a slope of 7:1 up to a height which is 150 feet above the highest runway elevation. At that point, the controlling surface is the horizontal surface.

Horizontal Surface: The horizontal surface is established at 150 feet above the highest elevation of the runway surface. Having no slope, the horizontal surface connects the transitional and approach surfaces to the conical surface at a distance of 5,000 feet from the primary surface of each runway.

Conical Surface: The conical surface begins at the outer edge of the horizontal surface, then continues for an additional 4,000 feet horizontally at a slope of 20:1. Therefore, at 4,000 feet from the edge of the horizontal surface, the elevation of the conical surface is 350 feet above the highest airport elevation.

INNER APPROACH SURFACES DRAWING(S)

The inner approach surfaces drawing depicts physical features in the vicinity of the runway=s extended centerline, including buildings, topographic changes, roadways, transmission lines, and drainageways. The approach surfaces and dimensions are a function of the airport category and instrumentation available. For Oceano Airport, each runway approach is visual and there are no plans to upgrade to an instrument approach.

AIRPORT PROPERTY MAP

The airport property map depicts the lands currently owned by the County of San Luis Obispo. A survey of the "Oceano Airport property" as described in the August 1986 quitclaim deed between the County of San Luis Obispo and the Oceano Community Services District was undertaken in 2001 and recorded in 2002 by Volbrecht Surveys of San Luis Obispo. The information provided on the attached Airport Property Map is taken entirely from Volbrecht=s record of survey (which provides a fascinating history of the area). The survey had been undertaken to eliminate confusion among property owners regarding the actual location of property lines on the ground. Based upon the record of survey, most of the airport property parcels were deeded to the County in the late 1940s and early 1950s.

The airport property is comprised of portions of the Ranchos Pismo and Bolsa de Chamisal. Part of the property sits on Lot 116 of James Stratton=s 1873 subdivision of portions of the Ranchos Corral de Piedra, Pismo and Bolsa de Chamisal. The rest falls within Lot 15 of R.R. Harris= 1886 map of the subdivision of parts of Ranchos Pismo and San Miguelito.

The Southern Pacific Railroad tracks were constructed in January 1895, providing the impetus to create the town. Originally known as the "Coffee Rice tract," it subsequently was known as "Deltina," then changed to "La Bolsa," and finally to "Oceano." After several re-subdivisions, a resort developer constructed curb and gutter and installed concrete electric light standards on the property, only to see plans halted by the Great Depression. The first airstrip was constructed by the Guiton family on the site in 1947. The original survey of the property followed in February 1949, as the County prepared to construct a new runway on the site.

The Volbrecht record of survey retraces the ten plots which were described in the Oceano Airport quitclaim deed. There are over 100 separate deeds recorded on these ten plots, in addition to miscellaneous County Road abandonments. The County released property to the South San Luis Obispo County Sanitation District in 1965, and is currently in the process of releasing a 1.76 acre parcel to the Sanitation District (as noted on the property map), subject to FAA approval.

ON-AIRPORT LAND USE DRAWING

Several land use categories define the future use of airport land, as defined in the following paragraphs and depicted on the drawing:

AV-1: Aviation/Object Free Area: This area, extending along the length of the runway needs to remain free of all above ground objects. For this particular runway design category (small aircraft exclusively), it also generally defines the primary surface and obstacle free zone (although these surfaces stop 200 feet beyond the runway end, while the object free area extends 240 feet beyond the runway end).

AV-2: Aviation/Transitional Surface: This area extends outward from the edge of the primary surface to the building setback line. The transitional area places restrictions on objects (parked aircraft or buildings) based upon the 14 CFR Part 77 surfaces. The building setback line on the airport layout drawing has been shown at 105 feet from the edge of the primary surface, allowing for a 15-foot structure at its outer edge. Parked aircraft within this area must remain under the 7:1 transitional surface.

AV-3: Aviation Operations/Approach Protection: Within the runway approaches, areas have been noted for approach protection.

AV-4: Aviation/General Use: This area has been used to denote future hangar development and apron.

AV-5: Aviation/Support Areas: Other miscellaneous uses, including fuel farm, access roads, and auto parking are included within this category.

OS: Open Space: The open space areas may include delineated wetland areas (as defined by Army Corps or Coastal Commission), or areas which should be held in reserve.

Airport land use planning is important for the orderly development and efficient use of available space. There are two primary considerations for airport land use planning: to secure those areas essential for the safe and efficient operation of the airport; and to determine compatible land uses for the balance of the property. The plan depicts the recommendations for ultimate hangar and apron development, areas which are reserved for object free, transitional, approach protection, and open space. Several excess non-aeronautical properties have been noted, as is a potential property purchase inside the runway protection zone. A portion of the Runway 29 departure zone is developed in mixed residential and commercial use, as noted on the drawing. Falling outside airport property, the planning and zoning in these areas has been discussed in **Appendix B - Environmental Overview.**

SUMMARY

The airport layout plan drawings are intended to assist the FAA and the County of San Luis Obispo with decision-making relative to future development. The plan considers anticipated development needs based upon forecasts for a 20-year planning period. These forecasts have anticipated roughly a doubling of based aircraft and operations, which will create a need for new or updated hangar facilities and supporting ramp. Flexibility in planning will be essential as activity growth may not occur exactly as forecast. The drawings provide the County an overall direction and reference as future projects are contemplated and funded.

AIRPORT LAYOUT PLANS
FOR
OCEANO AIRPORT

PREPARED FOR

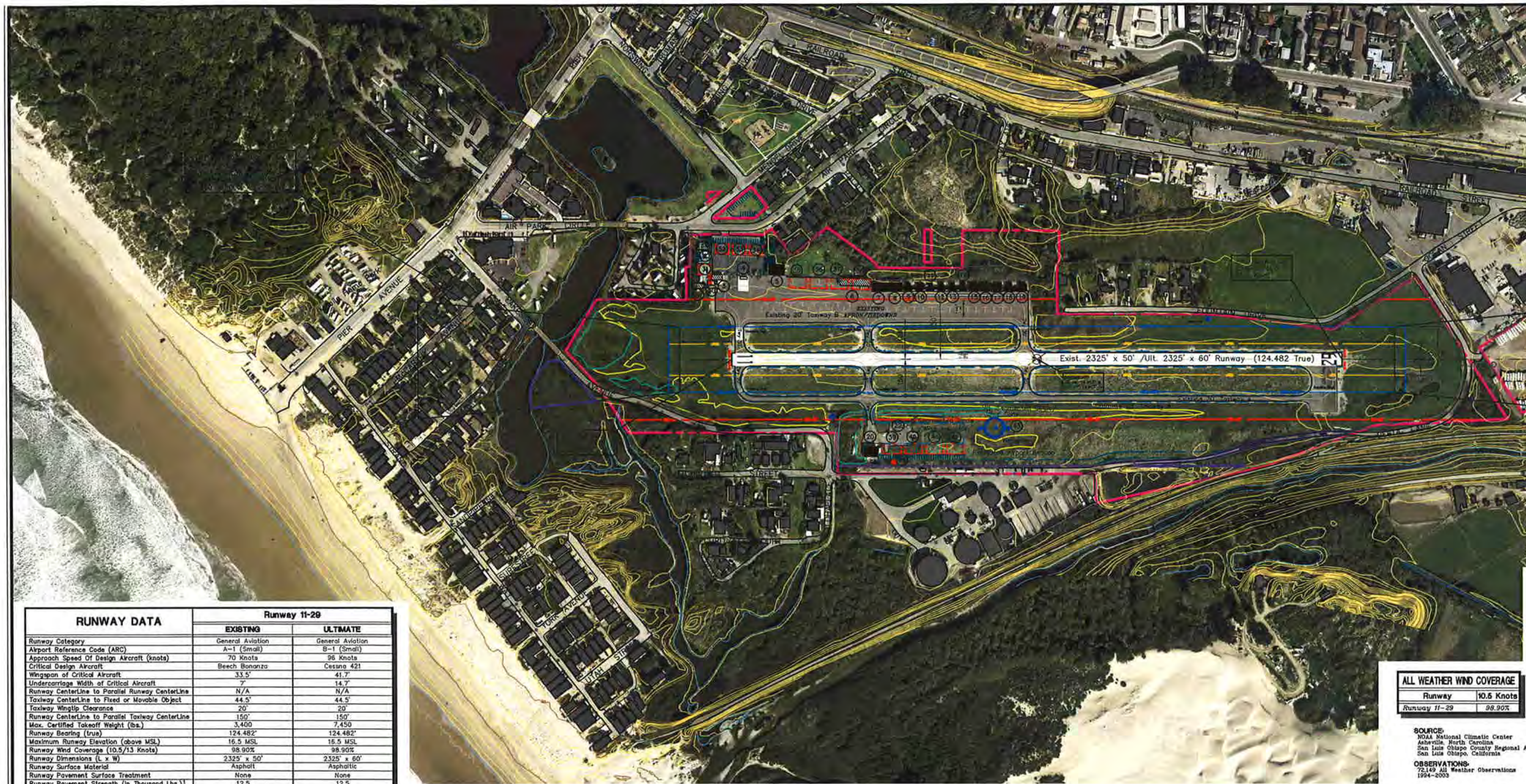
SAN LUIS OBISPO COUNTY, CALIFORNIA

INDEX OF DRAWINGS

1. AIRPORT LAYOUT DRAWING
2. AIRPORT AIRSPACE DRAWING
3. INNER PORTION OF RUNWAY 11-29 APPROACH SURFACES DRAWING
4. EXHIBIT A-PROPERTY MAP
5. AIRPORT LAND USE DRAWING

Coffman Associates
Airport Consultants
www.coffmanassociates.com

JUNE 2007



RUNWAY DATA

RUNWAY DATA	Runway 11-29 EXISTING		Runway 11-29 ULTIMATE	
Runway Category	General Aviation		General Aviation	
Airport Reference Code (ARC)	A-1 (Small)		B-1 (Small)	
Approach Speed Of Design Aircraft (knots)	70 Knots		96 Knots	
Critical Design Aircraft	Beech Bonanza		Cessna 421	
Wingspan of Critical Aircraft	33.5'		41.7'	
Undercarriage Width of Critical Aircraft	7'		14.7'	
Runway CenterLine to Parallel Runway CenterLine	N/A		N/A	
Taxiway CenterLine to Fixed or Movable Object	44.5'		44.5'	
Taxiway Wingtip Clearance	20'		20'	
Runway CenterLine to Parallel Taxiway CenterLine	150'		150'	
Max. Certified Takeoff Weight (lbs.)	3,400		7,450	
Runway Bearing (true)	124.482°		124.482°	
Maximum Runway Elevation (above MSL)	16.5 MSL		16.5 MSL	
Runway Wind Coverage (10.5/13 Knots)	98.90%		98.90%	
Runway Dimensions (L x W)	2325' x 50'		2325' x 60'	
Runway Surface Material	Asphalt		Asphaltic	
Runway Pavement Surface Treatment	None		None	
Runway Pavement Strength (In Thousand Lbs.)[1]	12.5		12.5	
Runway Effective Gradient	0.2%		0.2%	
Runway Maximum Gradient	1.43%		1.43%	
Runway Lighting	MIRL		MIRL	
Taxiway Holding Position Marking/holdsign	125'		125'	
Taxiway Lighting	None		Reflectors	
Taxiway Marking	Centerline		Centerline	
Taxiway Surface Material	Asphalt		Asphalt	
Taxiway Width	20' (Require 25')		25'	
Taxiway Safety Area (Width)	49'		49'	
Taxiway Object Free Area (Width)	89'		89'	
Elevation Of Runway High Point	16.5 MSL		16.5 MSL	
Elevation Of Runway Low Point	12.0 MSL		12.0 MSL	
Far Part-77 Approach Surfaces	250' x 5000' x 1250' (11) 250' x 5000' x 1250' (29)		250' x 5000' x 1250' (11) 250' x 5000' x 1250' (29)	
Runway Protection Zones	250' x 1000' x 450' (11) 250' x 1000' x 450' (29)		250' x 1000' x 450' (11) 250' x 1000' x 450' (29)	
RUNWAY END DATA	**RUNWAY 11**	**RUNWAY 29**	**RUNWAY 11**	**RUNWAY 29**
Line Of Sight Requirement Met	Yes	Yes	Yes	Yes
Elevation (NAVD 88) Runway Ends	12.0 MSL	16.5 MSL	12.0 MSL	16.5 MSL
Elevation Of Runway Touchdown Zone (TDZE)	N/A	N/A	N/A	N/A
Runway Stopway	None	None	None	None
Runway Approach Visibility Minimums	Visual	Visual	Visual	Visual
Threshold Siting Requirements (Appendix 2) [3]	20:1	20:1	20:1	20:1
Threshold Siting Surface Object Penetrations	Yes	Yes	Yes	Yes
F.A.R. Part 77 Category	A (V)	A (V)	A (V)	A (V)
F.A.R. Part-77 Approach Slope	20:1	20:1	20:1	20:1
Runway Threshold Displacement	None	None	None	None
Runway Threshold Displacement Elevation	None	None	None	None
Runway Instrumentation	Visual	Visual	Visual	Visual
Runway Safety Area (RSA) Beyond Rwy End	240'	240'	240'	240'
Runway Safety Area (RSA) Width	120'	120'	120'	120'
Runway Approach Lighting	None	None	None	None
Precision Obstacle Free Zone (200' x 800')	N/A	N/A	N/A	N/A
Obstacle Free Zone (OFZ) Beyond Rwy End	200'	200'	200'	200'
Runway Obstacle Free Zone (OFZ) Width	250'	250'	250'	250'
Runway Marking	Basic	Basic	Basic	Basic
Runway Object Free Area Beyond Rwy End	240'	240'	240'	240'
Runway Object Free Area (OFA) Width	250'	250'	250'	250'
Runway Electronic Navigational Aids	None	None	None	None
Runway Visual Navigational Aids	None	None	None	None

1 Pavement strengths are expressed in Single(S) wheel loading capacities.
2 Lighted Runway Distance Remaining Signs.
3 AC 150/5300-13 CHG 10 Appendix 2 (Runway Type 2) Approach Requirements.

BUILDINGS/FACILITIES

NO.	EXISTING DESCRIPTION	ELEVATION
1	HANGAR (To Be Removed)	25.5 MSL
2	HOUSE (To Be Removed)	27.0 MSL
3	HANGAR (To Be Removed)	25.8 MSL
4	FUEL TANK (To Be Relocated)	22.7 MSL
5	HANGAR	34.5 MSL
6	HANGAR (To Be Removed)	26.4 MSL
7	HANGAR	33.5 MSL
8	HANGAR	30.3 MSL
9	PORT-A-PORT HANGAR	22.6 MSL
10	PORT-A-PORT HANGAR	22.6 MSL
11	PORT-A-PORT HANGAR	22.8 MSL
12	PORT-A-PORT HANGAR	23.0 MSL
13	PORT-A-PORT HANGAR	23.0 MSL
14	PORT-A-PORT HANGAR	22.7 MSL
15	HANGAR	23.8 MSL
16	HANGAR	23.3 MSL
17	HANGAR	24.5 MSL
18	PORT-A-PORT HANGAR	25.0 MSL
19	PORT-A-PORT HANGAR	24.9 MSL
20	HANGAR	24.3 MSL
21	AIRPORT ROTATING BEACON	- MSL
22	SEGMENTED CIRCLE/LIGHTED WINDSOCK	- MSL
	ULTIMATE BUILDINGS/FACILITIES DESCRIPTION	
30	FUEL TANK	
31	HANGAR	
32	HANGAR	
33	HANGAR	
34	HANGAR	
35	HANGAR	
36	HANGAR	
37	HANGAR	
38	HANGAR	
39	HANGAR	
40	HANGAR	
41	HANGAR	
42	HANGAR	
43	SEGMENTED CIRCLE/LIGHTED WINDSOCK	

AIRPORT DATA

ACREAGE: 58

CITY: Oceano, California | RANGE: R13E | TOWNSHIP: T32S | COUNTY: Oceano County

OCEANO AIRPORT (L52) ACREAGE: 58		EXISTING	ULTIMATE
Airport Service Level		General Aviation	General Aviation
Airport Reference Code		A-1 (Small)	B-1 (Small)
Design Aircraft		Beech Bonanza	Cessna 421
Airport Elevation (NAVD 88)		16.5' MSL	16.5' MSL
Mean Maximum Temperature of Hottest Month		70° (July)	70° (July)
Airport Reference Point Coordinates (NAD 83)	Latitude	35° 06' 04.913" N	35° 06' 04.913" N
	Longitude	120° 37' 19.615" W	120° 37' 19.615" W
Airport Instrument Approach / GPS at Airport		None	None
Airport And Terminal Navigational Aids		Rotating Beacon	Rotating Beacon
Runway 11 End Coordinates (NAD 83)	Latitude	35° 06' 11.422" N	35° 06' 11.422" N
	Longitude	120° 37' 31.148" W	120° 37' 31.148" W
Runway 29 End Coordinates (NAD 83)	Latitude	35° 05' 58.403" N	35° 05' 58.403" N
	Longitude	120° 37' 08.083" W	120° 37' 08.083" W

OBSTACLE FREE ZONE (OFZ) OBJECT PENETRATIONS

OBJECT	PENETRATION	DISPOSITION
TREES (West side of Rw 11 Centerline)	YES	Remove All Trees From Runway 11 OFZ and OFA
TREES (West side of Rw 29 Centerline)	YES	Remove All Trees From Runway 29 OFZ/OFA/RPZ
TREE (East side of Rw 29 Threshold)	YES	Remove Tree From Runway 29 OFZ and OFA

THRESHOLD SITING SURFACE OBJECT PENETRATIONS

OBJECT	PENETRATION	DISPOSITION
TREES 17' AGL (Locate 220' from Runway 11 end)	4'	Remove All Trees
TREES 18' AGL (Locate 130' from Runway 29 end)	11'	Remove All Trees

GENERAL NOTES:

1. Depiction of features and objects, including related elevations and clearances, within the runway protection zones are depicted on the INNER PORTION OF RUNWAY APPROACH SURFACE DRAWING.
2. Recommended land uses within the airport environs are depicted on the AIRPORT LAND USE DRAWING.
3. ftp://ftp.ngs.noaa.gov/pub/uddf/WESTERN-PACIFIC/CALIFORNIA. All Elevation are in NAVD 88.

LEGEND

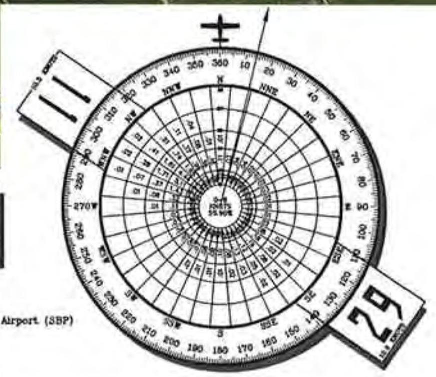
EXISTING	ULTIMATE	DESCRIPTION
		ABANDONED PAVEMENT (To Be Removed)
		AIRPORT PROPERTY LINE/FENCE
	SAME	AIRPORT REFERENCE POINT (ARP)
		AIRPORT ROTATING BEACON
		AVIGATION EASEMENT (if applicable)
		BUILDING ABANDONMENT (To Be Removed)
		BUILDING CONSTRUCTION (Off / on Airport)
	SAME	DRAINAGE
		FACILITY CONSTRUCTION
		FENCING
VASI-2	PAPI-2	NAVIGATIONAL AID INSTALLATION (GVGI)
		RUNWAY THRESHOLD LIGHTS
		SEGMENTED CIRCLE/WIND INDICATOR
		WIND INDICATOR (Lighted)
		HOLDING POSITION MARKING
		TOPOGRAPHY (1/10/2006)
		SECTION CORNER (None Available-USGS MAP)
		LIGHT POLES
BRL-15'		BUILDING RESTRICTION LINE (BRL)
		DIRT ROAD
		PARCELS
		TREES
OFZ/OFA		OBSTACLE FREE ZONE/OBJECT FREE AREA
RSA		RUNWAY SAFETY AREA
		SURVEY MONUMENT (SACS/PACS)
	SAME	RUNWAY PROTECTION ZONE (RPZ)
		ARMY CORPS WETLANDS
		COASTAL COMMISSION WETLANDS

ALL WEATHER WIND COVERAGE

Runway	10.5 Knots
Runway 11-29	98.90%

SOURCE:
NOAA National Climatic Center
Asheville, North Carolina
San Luis Obispo County Regional Airport (SBP)
San Luis Obispo, California

OBSERVATIONS:
72,149 All Weather Observations
1994-2003



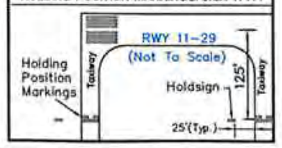
APPROVED BY: DATE:

FAA APPROVAL STAMP

Magnetic Declination
13° 41' East (May 8, 2007)
Annual Rate of Change 05' West

0 200 400 600
SCALE IN FEET

HOLDING POSITION MARKINGS/SIGN (TYP)



California Coordinate System, Zone 5	Date of Photography: 01/10/06
Horizontal Datum: North American Datum of 1983 (NAD83)	
Vertical Datum: North American Vertical Datum of 1988 (NAVD88)	
Ground Control Survey by: Towill, Inc. Towill File No. 11295-101	

No.	REVISIONS	DATE	BY	APP'D.
2	-	-	-	-
1	-	-	-	-

"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 VIEWS 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 DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

OCEANO AIRPORT

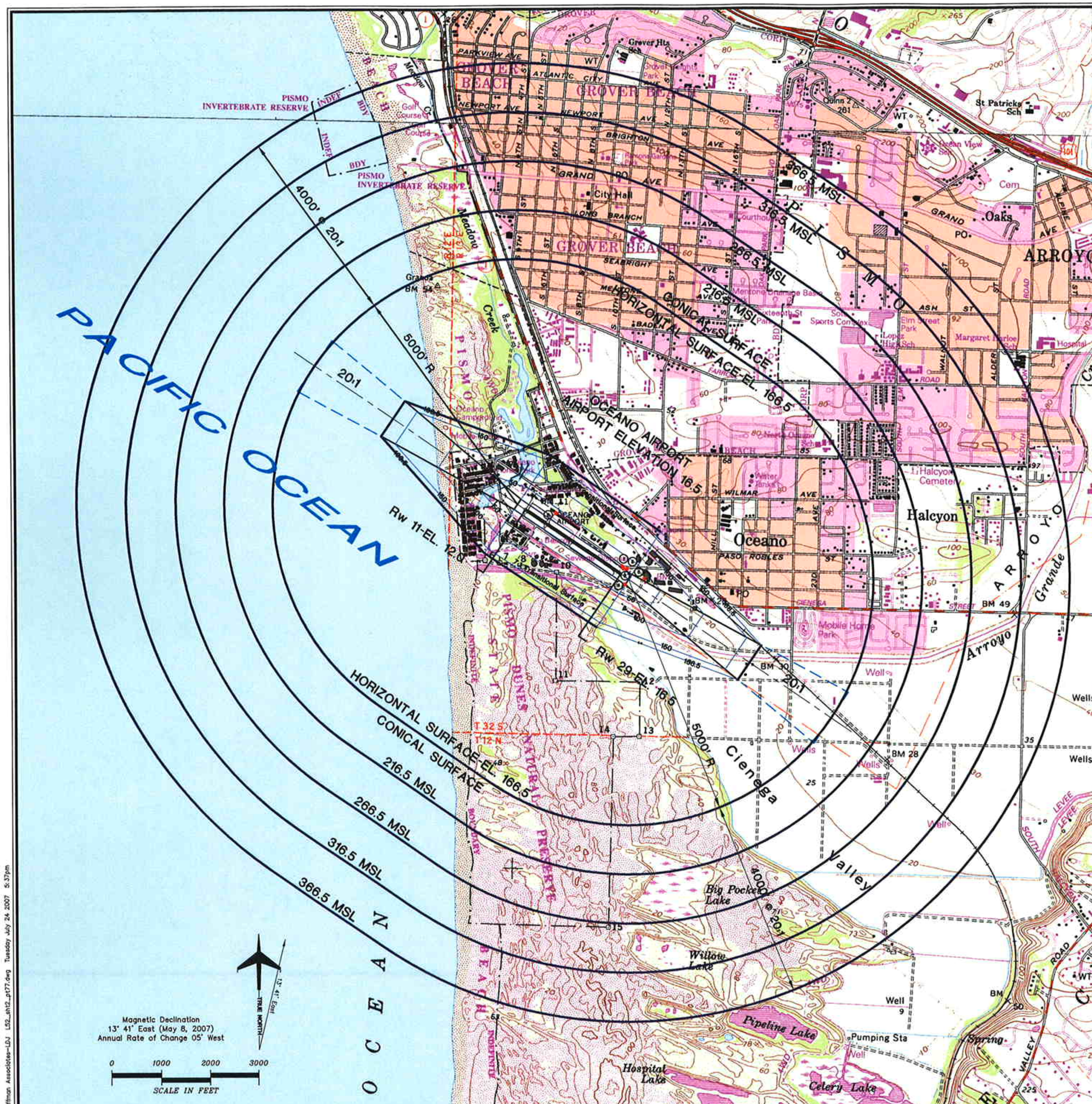
AIRPORT LAYOUT DRAWING

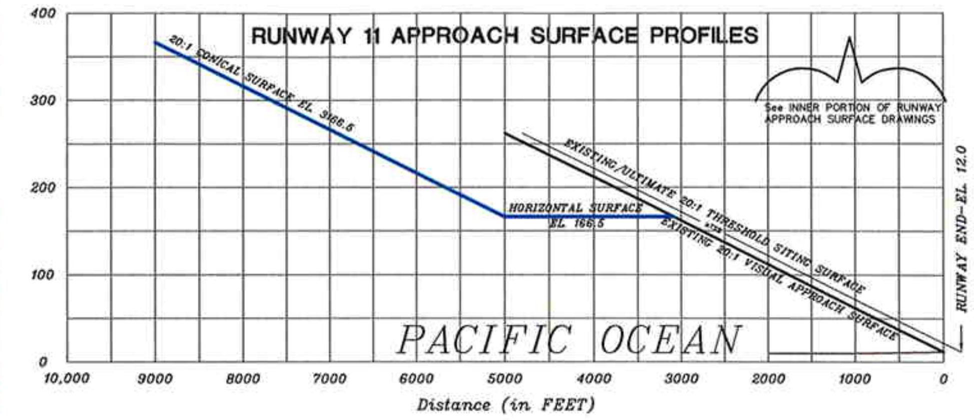
Oceano, California
San Luis Obispo County, California

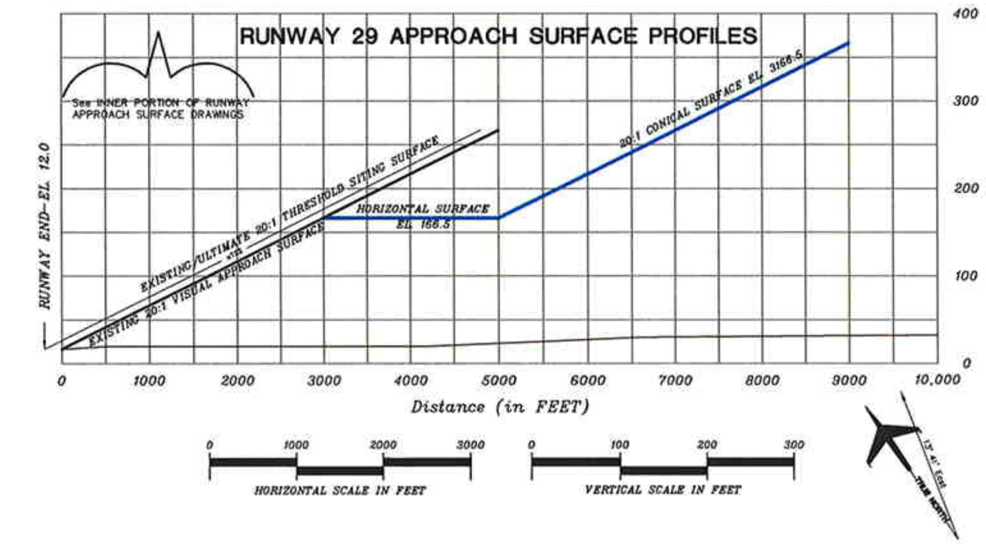
PLANNED BY: Stephen C. Wagner/Vicki Rogers
DETAILED BY: Larry D. Johnson
APPROVED BY: James M. Harris, P.E.

July 31, 2007 | SHEET 1 OF 5

Coffman Associates
Airport Consultants
www.coffmanassociates.com







OBSTRUCTION TABLE

Object Description	Elevation	Primary Surface	Part 77 20:1 Slope	Part 77 7:1	Horizontal Surface	Conical Surface	ADR(1) TSS 20:1	Proposed Object Disposition
1. ROAD– EL 29.5	29.5 MSL			10.5'				NO ACTION
2. BUSH	22 MSL	5.5'						REMOVE
3. BUSH	23 MSL			1'				REMOVE
4. BUSH	23 MSL	6.5'		6'				REMOVE
5. BUILDING	39 MSL			5'				ADD OBST. LIGHT
6. BUILDING	34 MSL			2'				ADD OBST. LIGHT

(1) AC 150/5300–13 CHG 10, Appendix 2 Approach/Departure Requirements Surfaces.
(2) See the Inner Approach Surface Drawings for close–in obstructions.

OBSTRUCTION LEGEND

1 OBSTRUCTION

GENERAL NOTES:

1. Obstructions, clearances, and locations are calculated from ultimate runway end elevations and ultimate runway approach surface, unless otherwise noted.
2. Depiction of features and objects within the Conical, Horizontal, Transitional, and Primary Part 77 surfaces, is illustrated on the AIRPORT AIRSPACE DRAWING, sheet 2 of these plans.
3. Depiction of features and objects within the inner portion of the approach surfaces, is illustrated on the INNER PORTION OF THE RUNWAY APPROACH SURFACE DRAWING, sheet 3 of these plans.

No.	REVISIONS	DATE	BY	APP'D.
2	–	–	–	–
1	–	–	–	–

"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 VIEWS 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 DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

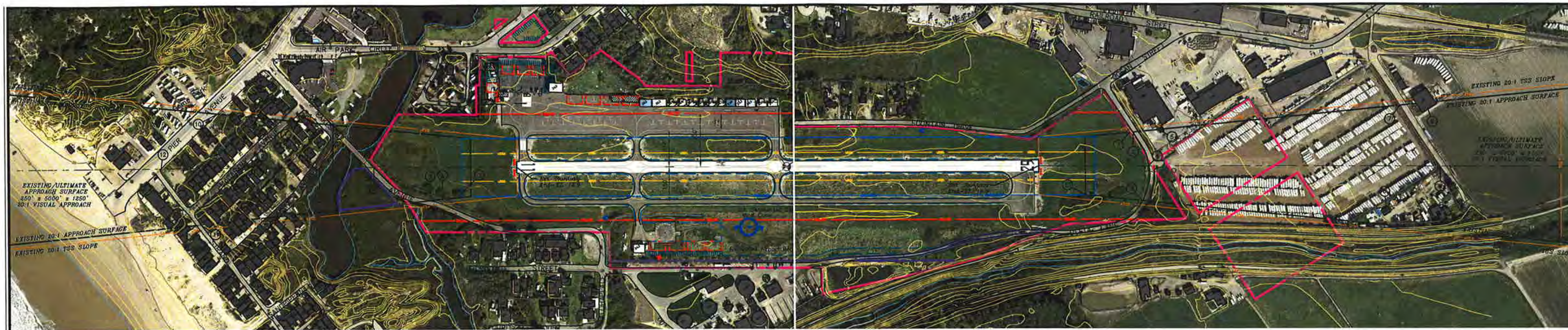
OCEANO AIRPORT

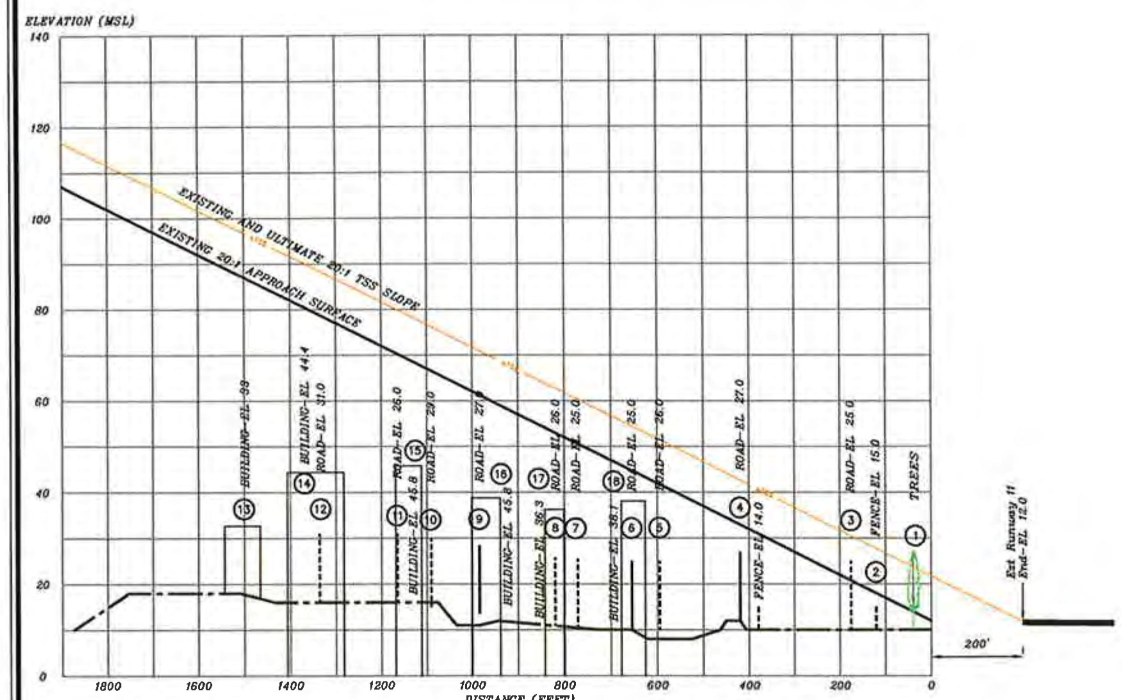
AIRPORT AIRSPACE DRAWING

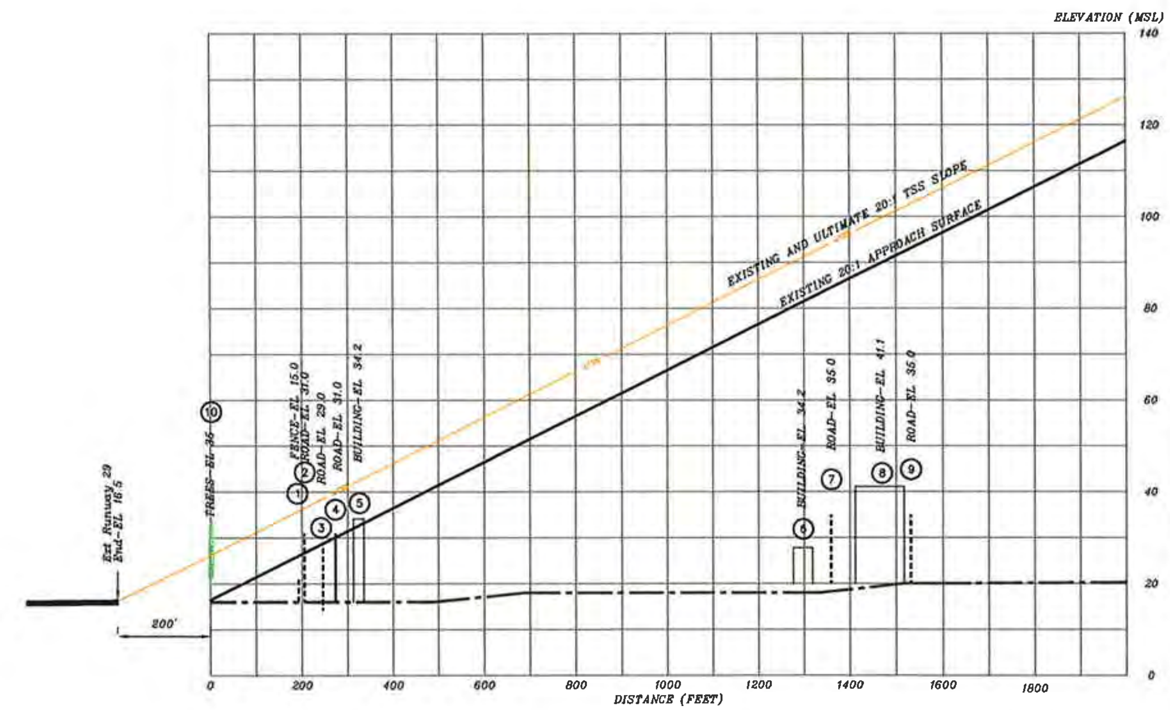
Oceano, California
San Luis Obispo County, California

PLANNED BY: Stephen C. Wagner/Vicki Rogers
DETAILED BY: Larry B. Johnson
APPROVED BY: James M. Harris, P.E.
July 31, 2007 — SHEET 2 OF 5

Coffman Associates
Airport Consultants
www.coffmanassociates.com







GENERAL NOTES:

1. Obstructions, clearances, and locations are calculated from ultimate runway end elevations and ultimate approach surfaces, unless otherwise noted. Road obstructions reflect a safety clearance of 10' for dirt roads or private roads, 15' for noninterstate roads, 17' for Interstate roads, and 23' for railroad.
2. Depiction of features and objects within the primary, transitional, and horizontal Part 77 surfaces, is illustrated on the AIRPORT AIRSPACE DRAWING, sheet 3 and 4.
3. AC 150/5300-13 CHG 10 Appendix-2, Runway Approach/Departure Requirements (Runway ADR).

RUNWAY 11 APPROACH OBSTRUCTION TABLE

No.	Object Description	Elevation (MSL)	PART 77 20:1	RW ADR 20:1	Proposed Object Disposition
1	TREES	27'	13'	3'	REMOVE ALL TREES/BRUSHES
2	ROAD	25' 25'	4'	CL	REQUEST AERONAUTICAL STUDY

AC 150/5300-13 CHG 10 Appendix-2, Runway Approach/Departure Requirements (Runway ADR).

RUNWAY 29 APPROACH OBSTRUCTION TABLE

No.	Object Description	Elevation (MSL)	PART 77 20:1	RW ADR 20:1	Proposed Object Disposition
2	ROAD	31'	4'	CLEAR	REQUEST AERONAUTICAL STUDY
3	ROAD	29'	1'	CLEAR	REQUEST AERONAUTICAL STUDY
4	ROAD	31'	1'	CLEAR	REQUEST AERONAUTICAL STUDY
5	BUILDING	34.2'	2'	CLEAR	REQUEST AERONAUTICAL STUDY
10	TREES	34'	18'	8'	REMOVE ALL TREES/BRUSHES

AC 150/5300-13 CHG 10 Appendix-2, Runway Approach/Departure Requirements (Runway ADR).

13° 41' East
TRUE NORTH

0 200 400 600
HORIZONTAL SCALE IN FEET

0 20 40 60
VERTICAL SCALE IN FEET

Magnetic Declination
13° 41' East (May 8, 2007)
Annual Rate of Change 05' West

California Coordinate System, Zone 5	Date of Photography: 01/10/06
Horizontal Datum: North American Datum of 1983 (NAD83)	
Vertical Datum: North American Vertical Datum of 1988 (NAVD88)	
Ground Control Survey by: Towill, Inc.	Towill File No. 11295-101

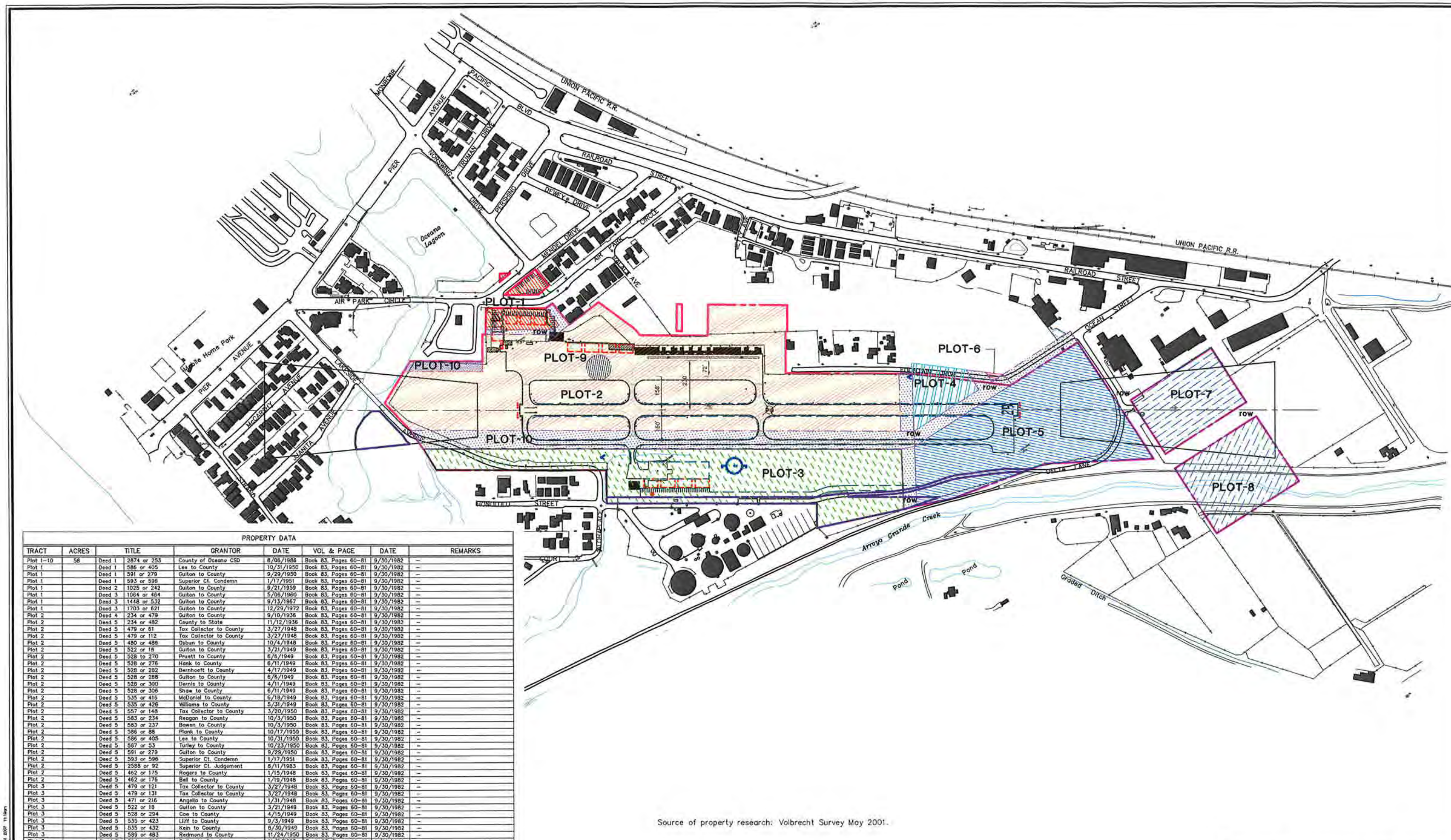
No.	REVISIONS	DATE	BY	APP'D.
2	-	-	-	-
1	-	-	-	-

"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 VIEWS 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 DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

OCEANO AIRPORT
INNER PORTION OF RUNWAY 11-29 APPROACH SURFACES DRAWING
Oceano, California
San Luis Obispo County, California

PLANNED BY: Stephen C. Wagner/Vicki Rogers
DETAILED BY: Larry B. Johnson
APPROVED BY: James M. Harris, P.E.
July 31, 2007
SHEET 3 OF 5

Coffman Associates
Airport Consultants
www.coffmanassociates.com



PROPERTY DATA								
TRACT	ACRES	TITLE		GRANTOR	DATE	VOL & PAGE	DATE	REMARKS
Plot 1–10	58	Deed 1	2874 or 253	County of Oceano CSD	8/06/1986	Book 83, Pages 60–81	9/30/1982	–
Plot 1		Deed 1	586 or 405	Lee to County	10/31/1950	Book 83, Pages 60–81	9/30/1982	–
Plot 1		Deed 1	591 or 279	Guiton to County	9/29/1950	Book 83, Pages 60–81	9/30/1982	–
Plot 1		Deed 1	593 or 596	Superior Ct. Condemn	1/17/1951	Book 83, Pages 60–81	9/30/1982	–
Plot 1		Deed 2	1025 or 242	Guiton to County	9/21/1959	Book 83, Pages 60–81	9/30/1982	–
Plot 1		Deed 3	1064 or 464	Guiton to County	5/06/1960	Book 83, Pages 60–81	9/30/1982	–
Plot 1		Deed 3	1448 or 532	Guiton to County	9/13/1967	Book 83, Pages 60–81	9/30/1982	–
Plot 1		Deed 3	1703 or 621	Guiton to County	12/29/1972	Book 83, Pages 60–81	9/30/1982	–
Plot 2		Deed 4	234 or 479	Guiton to County	9/10/1936	Book 83, Pages 60–81	9/30/1982	–
Plot 2		Deed 5	234 or 482	County to State	11/12/1936	Book 83, Pages 60–81	9/30/1982	–
Plot 2		Deed 5	479 or 61	Tax Collector to County	3/27/1948	Book 83, Pages 60–81	9/30/1982	–
Plot 2		Deed 5	479 or 112	Tax Collector to County	3/27/1948	Book 83, Pages 60–81	9/30/1982	–
Plot 2		Deed 5	480 or 486	Osbun to County	10/4/1948	Book 83, Pages 60–81	9/30/1982	–
Plot 2		Deed 5	522 or 18	Guiton to County	3/21/1949	Book 83, Pages 60–81	9/30/1982	–
Plot 2		Deed 5	528 to 270	Pruett to County	6/6/1949	Book 83, Pages 60–81	9/30/1982	–
Plot 2		Deed 5	528 or 276	Hank to County	6/11/1949	Book 83, Pages 60–81	9/30/1982	–
Plot 2		Deed 5	528 or 282	Bernhoeft to County	4/17/1949	Book 83, Pages 60–81	9/30/1982	–
Plot 2		Deed 5	528 or 288	Guiton to County	6/6/1949	Book 83, Pages 60–81	9/30/1982	–
Plot 2		Deed 5	528 or 300	Dernis to County	4/11/1949	Book 83, Pages 60–81	9/30/1982	–
Plot 2		Deed 5	528 or 306	Shaw to County	6/11/1949	Book 83, Pages 60–81	9/30/1982	–
Plot 2		Deed 5	535 or 416	McDaniel to County	6/18/1949	Book 83, Pages 60–81	9/30/1982	–
Plot 2		Deed 5	535 or 426	Williams to County	5/31/1949	Book 83, Pages 60–81	9/30/1982	–
Plot 2		Deed 5	557 or 148	Tax Collector to County	3/20/1950	Book 83, Pages 60–81	9/30/1982	–
Plot 2		Deed 5	583 or 234	Reagan to County	10/3/1950	Book 83, Pages 60–81	9/30/1982	–
Plot 2		Deed 5	583 or 237	Bowen to County	10/3/1950	Book 83, Pages 60–81	9/30/1982	–
Plot 2		Deed 5	586 or 88	Plank to County	10/17/1950	Book 83, Pages 60–81	9/30/1982	–
Plot 2		Deed 5	586 or 405	Lee to County	10/31/1950	Book 83, Pages 60–81	9/30/1982	–
Plot 2		Deed 5	587 or 53	Turley to County	10/23/1950	Book 83, Pages 60–81	9/30/1982	–
Plot 2		Deed 5	591 or 279	Guiton to County	9/29/1950	Book 83, Pages 60–81	9/30/1982	–
Plot 2		Deed 5	593 or 596	Superior Ct. Condemn	1/17/1951	Book 83, Pages 60–81	9/30/1982	–
Plot 2		Deed 5	2588 or 92	Superior Ct. Judgement	8/11/1983	Book 83, Pages 60–81	9/30/1982	–
Plot 2		Deed 5	462 or 175	Rogers to County	1/15/1948	Book 83, Pages 60–81	9/30/1982	–
Plot 2		Deed 5	462 or 176	Bell to County	1/19/1948	Book 83, Pages 60–81	9/30/1982	–
Plot 3		Deed 5	479 or 121	Tax Collector to County	3/27/1948	Book 83, Pages 60–81	9/30/1982	–
Plot 3		Deed 5	479 or 131	Tax Collector to County	3/27/1948	Book 83, Pages 60–81	9/30/1982	–
Plot 3		Deed 5	471 or 216	Angello to County	1/31/1948	Book 83, Pages 60–81	9/30/1982	–
Plot 3		Deed 5	522 or 18	Guiton to County	3/21/1949	Book 83, Pages 60–81	9/30/1982	–
Plot 3		Deed 5	528 or 294	Coe to County	4/15/1949	Book 83, Pages 60–81	9/30/1982	–
Plot 3		Deed 5	535 or 423	Iliff to County	9/3/1949	Book 83, Pages 60–81	9/30/1982	–
Plot 3		Deed 5	535 or 432	Kein to County	8/30/1949	Book 83, Pages 60–81	9/30/1982	–
Plot 3		Deed 5	589 or 483	Redmond to County	11/24/1950	Book 83, Pages 60–81	9/30/1982	–
Plot 3		Deed 5	594 or 314	Bailey to County	11/6/1950	Book 83, Pages 60–81	9/30/1982	–
Plot 3		Deed 5	562 or 581	Superior Ct. Condemn	5/2/1951	Book 83, Pages 60–81	9/30/1982	–
Plot 4		Deed 6	581 or 434	Amaral to County	10/2/1950	Book 83, Pages 60–81	9/30/1982	–
Plot 4		Deed 7	597 or 206	Rhyne to County	2/1/1951	Book 83, Pages 60–81	9/30/1982	–
Plot 4		Deed 8	597 or 207	County to Rhyne	2/5/1951	Book 83, Pages 60–81	9/30/1982	–
Plot 4		Deed 9	607 or 426	Rhyne to County	4/16/1951	Book 83, Pages 60–81	9/30/1982	–
Plot 4		Deed 10	607 or 432	County to Rhyne	4/16/1951	Book 83, Pages 60–81	9/30/1982	–
Plot 4		Deed 11	733 or 27	County to Sakamoto	5/07/1951	Book 83, Pages 60–81	9/30/1982	–
Plot 5		Deed 11	462 or 176	Bell to County	1/19/1948	Book 83, Pages 60–81	9/30/1982	–
Plot 5		Deed 11	528 or 288	Guiton to County	6/6/1949	Book 83, Pages 60–81	9/30/1982	–
Plot 6		Deed 11	–	–	–	Book 83, Pages 60–81	9/30/1982	See Plot 4 for complete references
Plot 7 & 8		Deed 11	–	–	–	Book 83, Pages 60–81	9/30/1982	Not included in this survey
Plot 9		Deed 11	479 or 117	Tax Collector to County	3/27/1948	Book 83, Pages 60–81	9/30/1982	–
Plot 9		Deed 11	535 or 429	Guiton to County	8/1/1949	Book 83, Pages 60–81	9/30/1982	–
Plot 10		Deed 11	608 or 73	County Rd. Abandonment	3/5/1951	Book 83, Pages 60–81	9/30/1982	–
Plot 10		Deed 12	–	T.H.A. to Hillyard	6/14/1912	Book 83, Pages 60–81	9/30/1982	93 Deeds 104
Plot 10		Deed 13	1363 or 431	County to S. Co. Sanit. Dist.	2/15/1965	Book 83, Pages 60–81	9/30/1982	–
Plot 10		Deed 14	2905 or 962	Esser to Oceano CSD	3/31/1987	Book 83, Pages 60–81	9/30/1982	–

Source of property research: Volbrecht Survey May 2001.

Magnetic Declination
13° 41' East (May 8, 2007)
Annual Rate of Change 05' West

0 200 400 600
SCALE IN FEET

California Coordinate System, Zone 5	Date of Photography: 01/10/06
Horizontal Datum: North American Datum of 1983 (NAD83)	
Vertical Datum: North American Vertical Datum of 1988 (NAVD88)	
Ground Control Survey by: Towill, Inc.	Towill File No. 11295-101

No.	REVISIONS	DATE	BY	APP'D.
2	–	–	–	–
1	–	–	–	–

"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 VIEWS 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 DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

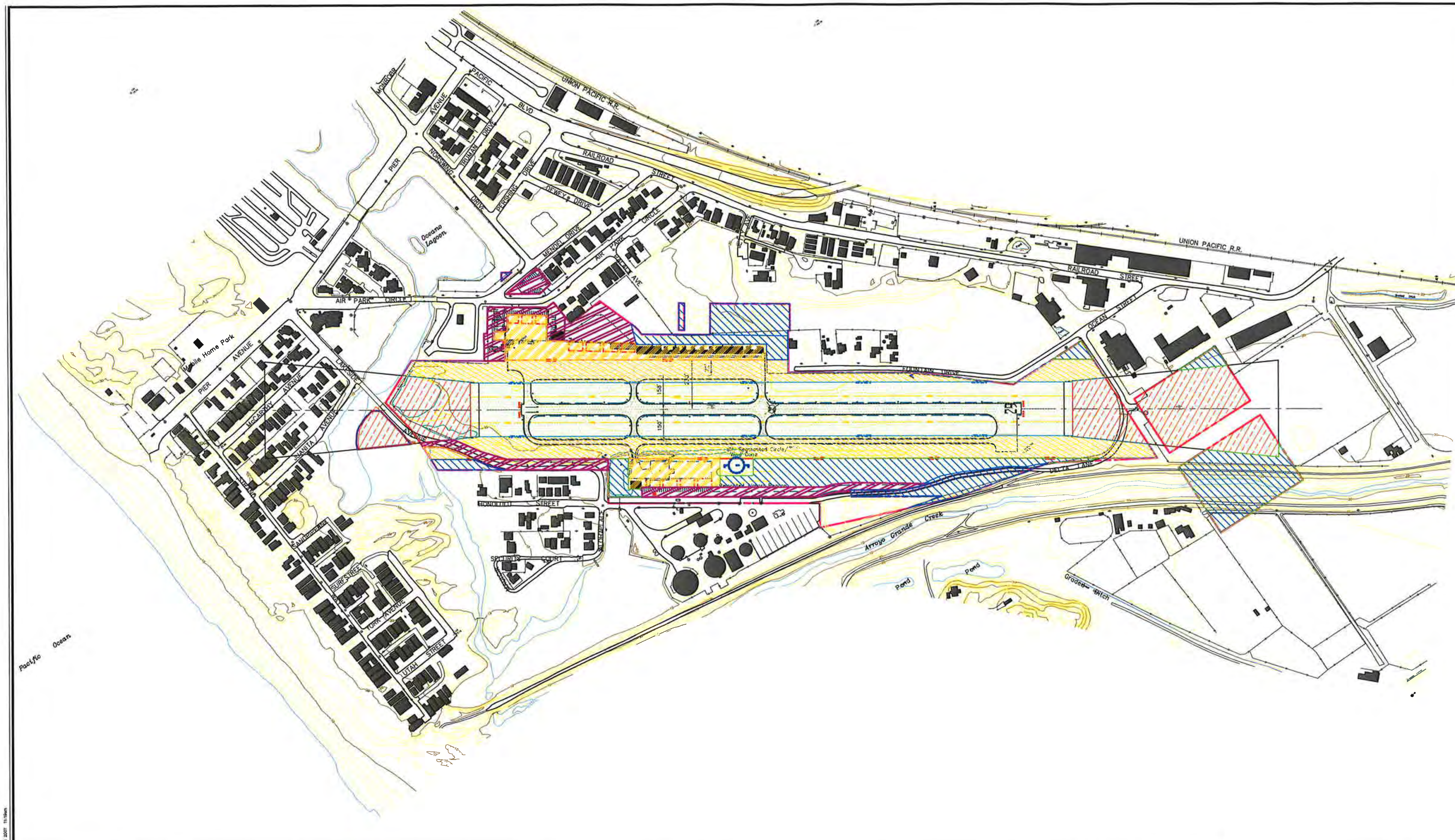
OCEANO AIRPORT

EXHIBIT A-PROPERTY MAP

Oceano, California
San Luis Obispo County, California

PLANNED BY: Stephen C. Wagner/Vicki Rogers
DETAILED BY: Larry D. Johnson
APPROVED BY: James M. Harris, P.E.
July 31, 2007

Coffman Associates
Airport Consultants
www.coffmanassociates.com



AV-1	AVIATION/OBJECT FREE AREA
AV-2	AVIATION/TRANSITIONAL SURFACE
AV-3	AVIATION OPERATIONS/ APPROACH PROTECTION
AV-4	AVIATION/GENERAL USE
AV-5	AVIATION/SUPPORT AREAS
OS	OPEN SPACE

13° 41' East
TRUE NORTH

Magnetic Declination
13° 41' East (May 8, 2007)
Annual Rate of Change 05' West

0 200 400 600
SCALE IN FEET

California Coordinate System, Zone 5	Date of Photography: 01/10/06
Horizontal Datum: North American Datum of 1983 (NAD83)	
Vertical Datum: North American Vertical Datum of 1988 (NAVD88)	
Ground Control Survey by: Towill, Inc.	Towill File No. 11295–101

No.	REVISIONS	DATE	BY	APP'D.
2	–	–	–	–
1	–	–	–	–

"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 VIEWS 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 DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

OCEANO AIRPORT
AIRPORT LAND USE DRAWING

Oceano, California
San Luis Obispo County, California

PLANNED BY: Stephen S. Wagner/Vicki Rogers
DETAILED BY: Larry D. Johnson
APPROVED BY: James M. Harris, P.E.

July 31, 2007 SHEET 5 OF 5

Coffman Associates
Airport Consultants
www.coffmanassociates.com

Oceano Airport

Chapter Six

Capital Improvement Program

CAPITAL IMPROVEMENT PROGRAM

The successful implementation of the master plan will require that the County of San Luis Obispo remain flexible to changing aviation needs. While it is necessary for scheduling and budgeting purposes to consider the timing of airport development, the actual needs will be established by airport activity. This chapter will provide guidance for the County, State Aeronautics, and the FAA for implementing the plan recommendations.

Presentation of the recommended capital improvement program in **Table 6A** separates the planning period into short, intermediate, and long term periods. Projects eligible for federal or state funding participation have been noted, and discussion in the following paragraphs explains these programs in more detail. However, as noted in the discussion, these programs cannot be assumed to exist in their present form through-out the planning period. Availability of funds will be contingent on authorizations and appropriations by federal and state legislatures on a year-to-year basis.

Due to the conceptual nature of a master plan, implementation of capital projects will only occur after further refinement of their design and costs through engineering analyses. Under normal conditions, the cost estimates reflect an allowance for engineering and contingencies that may be anticipated on the project. Although the capital costs presented in this chapter should be viewed only as estimates, and subject to further refinement, they are considered sufficiently accurate for performing feasibility analyses.

TABLE 6A
Oceano Airport
San Luis Obispo County, California
Capital Improvement Program 2008-2027
Airport Master Plan

Year	Project Description	Total Units		Unit Cost	Total Cost	AIP Eligible	State Eligible	Local Share
2008	New Electrical Vault & Misc. Airfield Electrical		l.s.		$300,000	$285,000	$7,500	$7,500
	Replace Oldest County-Owned Hangars	5000	sq. ft.	30	$150,000	$0	$0	$150,000
	Upgrade Transient Pilot Facilities		l.s.		$5,000	$0	$5,000	$0
	Environmental Documentation		l.s.		$200,000	$190,000	$5,000	$5,000
	Subtotal				$655,000	$475,000	$17,500	$162,500
2009	Relocate Fence/Gate/Fueling Facilities		l.s.		$75,000	$71,250	$1,875	$1,875
	Overlay Pavement (Convert to Apron)	1700	sq.yds.	25	$42,500	$40,375	$1,063	$1,063
	Remove House/Add Auto Parking/New Marking		l.s.		$75,000	$71,250	$1,875	$1,875
	New Exec.Hangar/Admin. Space	3000	sq. ft.	30	$90,000	$0	$0	$90,000
	Add New Executive Hangars (Air Park Dr.)	7500	sq. ft.	30	$225,000	$0	$0	$225,000
	New Security Lighting on Apron		l.s.		$100,000	$95,000	$2,500	$2,500
	Subtotal				$607,500	$277,875	$7,313	$322,313
2010	Widen Runway to 60 feet (ADG B-I)	2300	sq.yds.	60	$138,000	$131,100	$3,450	$3,450
	Widen Taxiway to 25 feet (ADG B-I)	1400	sq.yds.	60	$35,000	$33,250	$875	$875
	Install Taxiway Reflectors		l.s.		$10,000	$9,500	$250	$250
	Subtotal				$183,000	$173,850	$4,575	$4,575
2011	Safety Area Improvements (Drainage)		l.s.		$250,000	$237,500	$6,250	$6,250
	Aircraft Wash Rack		l.s.		$175,000	$0	$175,000	$0
	Subtotal				$425,000	$237,500	$181,250	$6,250
2012	Add Public Parking (n. of Air Park Dr.)	1200	sq.yds.	10	$35,000	$33,250	$875	$875
	Relocate Wind Cone/Add Supplemental		l.s.		$15,000	$14,250	$375	$375
	Subtotal				$50,000	$47,500	$1,250	$1,250
Total Short Term					$1,920,500	$1,211,725	$211,888	$496,888
2013-2017	Overlay Existing Pavements	45000	sq.yds.	25	$1,125,000	$1,068,750	$28,125	$28,125
	Remark all Pavements		l.s.		$50,000	$47,500	$1,250	$1,250
	Upgrade Airfield Lighting		l.s.		$50,000	$47,500	$1,250	$1,250
	Add New Executive Hangars (east side)	5000	sq. ft.	30	$150,000	$0	$0	$150,000
	Relocate Segmented Circle		l.s.		$20,000	$19,000	$500	$500
	Extend Delta Lane	4100	sq.yds.	30	$123,000	$116,850	$3,075	$3,075
Total Intermediate Term					$1,518,000	$1,299,600	$34,200	$184,200
2018-2027	Extend Taxilane/Parking Apron (south side)	3700	sq.yds.	30	$111,000	$105,450	$2,775	$2,775
	Add New Executive Hangars (south side)	10000	sq. ft.	30	$300,000	$0	$0	$300,000
	Overlay Existing Pavements	45000	sq.yds.	25	$1,125,000	$1,068,750	$28,125	$28,125
	Remark all Pavements		l.s.		$50,000	$47,500	$1,250	$1,250
	Upgrade Airfield Lighting		l.s.		$50,000	$47,500	$1,250	$1,250
	Expand Fuel Storage Facilities	8000	gallons		$100,000	$0	$90,000	$10,000
Total Long Term					$1,736,000	$1,269,200	$123,400	$343,400
Grand Total					$5,174,500	$3,780,525	$369,488	$1,024,488

General Notes:
1. AIP eligible projects: 95% federal, 2.5% state match, 2.5% local match. Current program expires 9/30/07.
2. Annual grants (California): $10,000 max. per year/ 5 years' worth may be accrued/No local match.
3. Acquisition and Development Grants (California) require 10% local match.
4. Loan programs available through State of California for hangar construction.

Revised 5/21/07

Financing of capital improvements will be contingent on funding from federal and state sources. The grant programs which are currently available at the federal and state levels are presented in the following discussion.

FEDERAL GRANTS

The U.S. Congress has long recognized the need to develop and maintain a system of aviation facilities across the nation, and has long provided grant-in-aid programs for this purpose. The system, which includes more than 3,300 airports, is known as the *National Plan of Integrated Airport Systems* (NPIAS). The plan identifies airports across the country that are significant to national air transportation and identifies the funding requirements for various segments of civil aviation.

The NPIAS includes a section on the condition and performance of the airport system, highlighting six topics: safety, capacity, pavement condition, financial performance, accessibility, and noise. Funding requirements for the system are based upon master plans performed on individual airports and statewide systems plans. General aviation airports are identified in the plan as requiring 11 percent of the total funding needs across the country.

In recent years, federal grants have been issued by the FAA under an authorization bill that is expiring in 2007. This four-year bill provided annual funding levels of $3.2-$3.4 billion over the last three years, through the Airport Improvement Program (AIP). The bill also introduced annual entitlements of $150,000 to general aviation airports.

The source of funds for the AIP is the Aviation Trust Fund, which was established in 1970 to provide funding for aviation capital investment programs, but also is used to finance FAA operations. The trust fund is supported by user fees, taxes on airline tickets, aviation fuel, and aircraft parts.

As is often the case, major capital projects may also require discretionary funds, which are distributed by the FAA on a priority basis. One of the reasons for undertaking an airport master planning study is to assist the FAA in determining priorities for discretionary funding.

Qualifying projects receive 95 percent participation in federal funding. Eligible projects include land acquisition, terminal buildings, airfield pavement projects, aprons, and access roads. In addition, navigational aids and weather equipment qualify for participation.

STATE AID TO AIRPORTS

All state grant programs for airports are funded from the Aeronautics Account in the State Transportation Fund. Tax revenues, which are collected on general aviation fuel, are deposited in the Aeronautics Account. General aviation jet fuel is taxed at $.02 per gallon, and avgas is taxed at $.18 per gallon. These taxes generate about $7 million per year. The Revenue and Taxation Code spells out the priority for expenditure of funds: 1) Administration and collection of taxes; 2) Operations of Division of Aeronautics; and 3) Grants to airports. The Public Utilities Code further specifies the priority for allocation of Aeronautics Account funds to airports: 1) Annual Grants; 2) AIP Matching; and 3) Acquisition and Development (A&D) Grants.

ANNUAL GRANTS

To receive an Annual Grant, the airport cannot be designated by the FAA as a reliever or commercial service airport. The Annual Grant can fund projects for Aairport and aviation purposes@ as defined in the *State Aeronautics Act*. It can also be used to fund fueling facilities, restrooms, showers, wash racks, and operations and maintenance. The annual funding level is $10,000; up to five years' worth of Annual Grants may be accrued at the sponsor=s discretion. No local match is required.

AIP MATCHING GRANTS

An FAA AIP grant can be matched with state funds; the current matching rate is 2.5 percent. Generally, state matching is limited to projects that primarily benefit general aviation. A project which is being funded by an AIP grant must be included in the Capital Improvement Program (CIP). The amount set aside for AIP matching is determined by the California Transportation Commission (CTC) each fiscal year. Unused set-aside funds are available for additional A&D Grants.

ACQUISITION AND DEVELOPMENT (A&D) GRANTS

This grant program is open to general aviation, reliever, and commercial service airports. Also, a city or county may receive grants on behalf of a privately owned, public-use airport. An airport land use commission (ALUC) can receive funding to either prepare or update a comprehensive land use plan (CLUP). An A&D grant can fund projects for Aairport and aviation purposes@ as defined in the *State Aeronautics Act*. An A&D grant cannot be used as a local match for an AIP grant. The minimum amount of an A&D grant is $10,000, while the maximum amount that can be allocated to an airport in a single fiscal year is $500,000 (single or multiple grants). The local match can vary from 10 to 50 percent of the project's cost, and is set annually by the CTC. A 10 percent rate has been used the past 15 years. The Annual Grant may not be used for the local match to an A&D grant.

LOCAL SHARE FUNDING

Table 6A has itemized the federal and state eligibility for projects identified in the CIP. While several funding options may be available on a given project, the maximum federal eligibility has been identified in an attempt to maximize federal/state funding (and to reduce the level of local matching funds). If federal funding is not forthcoming on a project, then alternatives involving a combination of state/local funding may be considered (based upon existing state programs as identified in the preceding paragraphs). The local match will need to come from airport operating revenues.

Several methods are available to maximize local revenues for matching funds: hangar rentals and land leases, fuel flowage fees, tie-down fees, or lease of land/buildings for non-aeronautical purposes. Of course, any new hangars constructed on the airport will need to obtain market rental rates to amortize the construction cost. Based upon recent hangar construction at San Luis Obispo County Regional Airport, the monthly rental cost will likely range from $0.40 to $0.45 per square foot (based upon a 17-year amortization schedule).

The state offers loans to eligible airports for construction and land acquisition projects. The sponsor must meet the same requirements as the Annual Grant. For a revenue-producing project, a separate account must be established to receive income from the project. Expenses for maintaining the project may be paid from this separate account, but all revenues received must be held in trust for payment of the loan=s principal and interest until the loan is repaid in full.

No limit on the size of a loan has been established in either law or regulation. The state determines the amount for each individual loan in accordance with the feasibility of the project and the sponsor's financial status. Economic feasibility is an especially strong factor in the approval of loans for revenue-generating projects such as hangars and fueling facilities.

A pay-back schedule is included in each loan agreement. Generally, the term of the loan will vary between 8 and 17 years depending upon the amount of the loan. Simple interest is charged on the outstanding balance of the loan=s principal. The interest rate is based upon the state bond sale that occurs before the loan agreement is prepared.

ECONOMIC BENEFITS

Revenues generated from operations at general aviation airports often do not meet the required annual expenditures to operate, maintain, and improve the facility without additional funding from the governing entity. As such, general aviation airports are often criticized for not operating at a profit or causing a drain on local taxpayers.

When airports are perceived in this limited way, their role in attracting business and facilitating spending in the community is overlooked. It is true that a goal of an airport should be to strive for self-sufficiency; however, there are limits to the amount of revenue that can be obtained from airport users in meeting operating expenses and necessary capital costs for airport improvements. An analysis of direct and indirect impacts of airport development provides some insight into the amount of economic activity generated by the presence of an airport.

The economics of an airport reach beyond a simple balance sheet of revenues and expenditures. Since businesses often choose to locate near transportation centers, the presence of an airport can provide a substantial benefit to the community. Similar to the location advantages of waterways and railroads of the past, airports are now considered attractors of economic development opportunities.

The airport also improves the essential services of the community, including enhanced medical care (such as air ambulance services), support for law enforcement, and courier delivery of freight and mail. 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 a modern airport facility 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 or expansions.

Two out of every three Fortune 500 companies use private aircraft in their businesses to transport goods, materials, and personnel. The remainder often charter, lease, or employ other ownership options. Therefore, adequate general aviation facilities, properly promoted and funded, are necessary to ensure that a community fully participates in the modern economy.

PLAN IMPLEMENTATION

The best means of beginning the implementation of recommendations of this master plan is to first recognize that planning is an ongoing 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. As such, the primary goal is for the airport to evolve into a facility that will best serve the air transportation needs of the surrounding area.

While projections have been made with regard to when additional storage hangars and capital projects will need to be completed, actual development will only be undertaken when the demand supports a given project. The real value of the plan is that it keeps the issues and objectives in front of key decision-makers, and provides guidance in the long term development of the facility. The airport layout drawings and capital improvement program need to be updated on a regular basis or as projects are implemented.

Glossary of Terms

ABOVE GROUND LEVEL: The elevation of a point or surface above the ground.

ACCELERATE-STOP DISTANCE AVAILABLE (ASDA): See declared distances.

ADVISORY CIRCULAR: External publications issued by the FAA consisting of non-regulatory material providing for the recommendations relative to a policy, guidance and information relative to a specific aviation subject.

AIR CARRIER: An operator which: (1) performs at least five round trips per week between two or more points and publishes flight schedules which specify the times, days of the week, and places between which such flights are performed; or (2) transport mail by air pursuant to a current contract with the U.S. Postal Service. Certified in accordance with Federal Aviation Regulation (FAR) Parts 121 and 127.

AIRCRAFT: A transportation vehicle that is used or intended for use for flight.

AIRCRAFT APPROACH CATEGORY: An alphabetic classification of aircraft based upon 1.3 times the stall speed in a landing configuration at their maximum certified landing weight.

AIRCRAFT OPERATION: The landing, takeoff, or touch-and-go procedure by an aircraft on a runway at an airport.

AIRCRAFT OPERATIONS AREA: A restricted and secure area on the airport property designed to protect all aspects related to aircraft operations.

AIRCRAFT OWNERS AND PILOTS ASSOCIATION: A private organization serving the interests and needs of general aviation pilots and aircraft owners.

AIRCRAFT APPROACH CATEGORY: A grouping of aircraft based on 1.3 times the 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 greater than 166 knots.

AIRCRAFT RESCUE AND FIRE FIGHTING: A facility located at an airport that provides emergency vehicles, extinguishing agents, and personnel responsible for minimizing the impacts of an aircraft accident or incident.

AIRFIELD: The portion of an airport which contains the facilities necessary for the operation of aircraft.

AIRLINE HUB: An airport at which an airline concentrates a significant portion of its activity and which often has a significant amount of connecting traffic.

AIRPLANE DESIGN GROUP (ADG): A grouping of aircraft based upon wingspan. 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 or greater.

AIRPORT AUTHORITY: A quasi-governmental public organization responsible for setting the policies governing the management and operation of an airport or system of airports under its jurisdiction.

AIRPORT BEACON: A navigational aid located at an airport which displays a rotating light beam to identify whether an airport is lighted.

AIRPORT CAPITAL IMPROVEMENT PLAN: The planning program used by the Federal Aviation Administration to identify, prioritize, and distribute funds for airport development and the needs of the National Airspace System to meet specified national goals and objectives.

AIRPORT ELEVATION: The highest point on the runway system at an airport expressed in feet above mean sea level (MSL).

AIRPORT LAYOUT DRAWING (ALD): The drawing of the airport showing the layout of existing and proposed airport facilities.

AIRPORT MASTER PLAN: The planner's concept of the long-term development of an airport.

AIRPORT MOVEMENT AREA SAFETY SYSTEM: A system that provides automated alerts and warnings of potential runway incursions or other hazardous aircraft movement events.

AIRPORT OBSTRUCTION CHART: A scaled drawing depicting the Federal Aviation Regulation (FAR) Part 77 surfaces, a representation of objects that penetrate these surfaces, runway, taxiway, and ramp areas, navigational aids, buildings, roads and other detail in the vicinity of an an airport.

AIRPORT REFERENCE CODE (ARC): A coding system used to relate airport design criteria to the operational (Aircraft Approach Category) to the physical characteristics (Airplane Design Group) of the airplanes intended to operate at the airport.

AIRPORT REFERENCE POINT (ARP): The latitude and longitude of the approximate center of the airport.

AIRPORT SPONSOR: The entity that is legally responsible for the management and operation of an airport, including the fulfillment of the requirements of laws and regulations related thereto.

AIRPORT SURFACE DETECTION EQUIPMENT: A radar system that provides air traffic controllers with a visual representation of the movement of aircraft and other vehicles on the ground on the airfield at an airport.

AIRPORT SURVEILLANCE RADAR: The primary radar located at an airport or in an air traffic control terminal area that receives a signal at an antenna and transmits the signal to air traffic control display equipment defining the location of aircraft in the air. The signal provides only the azimuth and range of aircraft from the location of the antenna.

AIRPORT TRAFFIC CONTROL TOWER (ATCT): A central operations facility in the terminal air traffic control system, consisting of a tower, including an associated instrument flight rule (IFR) room if radar equipped, using air/ground communications and/or radar, visual signaling and other devices to provide safe and expeditious movement of terminal air traffic.

AIR ROUTE TRAFFIC CONTROL CENTER: A facility which provides enroute air traffic control service to aircraft operating on an IFR flight plan within controlled airspace over a large, multi-state region.

AIRSIDE: The portion of an airport that contains the facilities necessary for the operation of aircraft.

AIRSPACE: The volume of space above the surface of the ground that is provided for the operation of aircraft.

AIR TAXI: An air carrier certificated in accordance with FAR Part 121 and FAR Part 135 and authorized to provide, on demand, public transportation of persons and property by aircraft. Generally operates small aircraft "for hire" for specific trips.

AIR TRAFFIC CONTROL: A service operated by an appropriate organization for the purpose of providing for the safe, orderly, and expeditious flow of air traffic.

AIR ROUTE TRAFFIC CONTROL CENTER (ARTCC): A facility established to provide air traffic control service to aircraft operating on an IFR flight plan within controlled airspace and principally during the enroute phase of flight.

AIR TRAFFIC HUB: A categorization of commercial service airports or group of commercial service airports in a metropolitan or urban area based upon the proportion of annual national enplanements existing at the airport or airports. The categories are large hub, medium hub, small hub, or non-hub. It forms the basis for the apportionment of entitlement funds.

AIR TRANSPORT ASSOCIATION OF AMERICA: An organization consisting of the principal U.S. airlines that represents the interests of the airline industry on major aviation issues before federal, state, and local government bodies. It promotes air transportation safety by coordinating industry and governmental safety programs and it serves as a focal point for industry efforts to standardize practices and enhance the efficiency of the air transportation system.

ALERT AREA: See special-use airspace.

ALTITUDE: The vertical distance measured in feet above mean sea level.

ANNUAL INSTRUMENT APPROACH (AIA): An approach to an airport with the intent to land by an aircraft in accordance with an IFR flight plan when visibility is less than three miles and/or when the ceiling is at or below the minimum initial approach altitude.

APPROACH LIGHTING SYSTEM (ALS): An airport lighting facility which provides visual guidance to landing aircraft by radiating light beams by which the pilot aligns the aircraft with the extended centerline of the runway on his final approach and landing.

APPROACH MINIMUMS: The altitude below which an aircraft may not descend while on an IFR approach unless the pilot has the runway in sight.

APPROACH SURFACE: An imaginary obstruction limiting surface defined in FAR Part 77 which is longitudinally centered on an extended runway centerline and extends outward and upward from the primary surface at each end of a runway at a designated slope and distance based upon the type of available or planned approach by aircraft to a runway.

APRON: A specified portion of the airfield used for passenger, cargo or freight loading and unloading, aircraft parking, and the refueling, maintenance and servicing of aircraft.

AREA NAVIGATION: The air navigation procedure that provides the capability to establish and maintain a flight path on an arbitrary course that remains within the coverage area of navigational sources being used.

AUTOMATED TERMINAL INFORMATION SERVICE (ATIS): The continuous broadcast of recorded non-control information at towered airports. Information typically includes wind speed, direction, and runway in use.

AUTOMATED SURFACE OBSERVATION SYSTEM (ASOS): A reporting system that provides frequent airport ground surface weather observation data through digitized voice broadcasts and printed reports.

AUTOMATED WEATHER OBSERVATION STATION (AWOS): Equipment used to automatically record weather conditions (i.e. cloud height, visibility, wind speed and direction, temperature, dewpoint, etc.)

AUTOMATIC DIRECTION FINDER (ADF): An aircraft radio navigation system which senses and indicates the direction to a non-directional radio beacon (NDB) ground transmitter.

AVIGATION EASEMENT: A contractual right or a property interest in land over which a right of unobstructed flight in the airspace is established.

AZIMUTH: Horizontal direction expressed as the angular distance between true north and the direction of a fixed point (as the observer's heading).

BASE LEG: A flight path at right angles to the landing runway off its approach end. The base leg normally extends from the downwind leg to the intersection of the extended runway centerline. See "traffic pattern."

BASED AIRCRAFT: The general aviation aircraft that use a specific airport as a home base.

BEARING: The horizontal direction to or from any point, usually measured clockwise from true north or magnetic north.

BLAST FENCE: A barrier used to divert or dissipate jet blast or propeller wash.

BLAST PAD: A prepared surface adjacent to the end of a runway for the purpose of eliminating the erosion of the ground surface by the wind forces produced by airplanes at the initiation of takeoff operations.

BUILDING RESTRICTION LINE (BRL): A line which identifies suitable building area locations on the airport.

CAPITAL IMPROVEMENT PLAN: The planning program used by the Federal Aviation Administration to identify, prioritize, and distribute Airport Improvement Program funds for airport development and the needs of the National Airspace System to meet specified national goals and objectives.

CARGO SERVICE AIRPORT: An airport served by aircraft providing air transportation of property only, including mail, with an annual aggregate landed weight of at least 100,000,000 pounds.

CATEGORY I: An Instrument Landing System (ILS) that provides acceptable guidance information to an aircraft from the coverage limits of the ILS to the point at which the localizer course line intersects the glide path at a decision height of 100 feet above the horizontal plane containing the runway threshold.

CATEGORY II: An ILS that provides acceptable guidance information to an aircraft from the coverage limits of the ILS to the point at which the localizer course line intersects the glide path at a decision height of 50 feet above the horizontal plane containing the runway threshold.

CATEGORY III: An ILS that provides acceptable guidance information to a pilot from the coverage limits of the ILS with no decision height specified above the horizontal plane containing the runway threshold.

CEILING: The height above the ground surface to the location of the lowest layer of clouds which is reported as either broken or overcast.

CIRCLING APPROACH: A maneuver initiated by the pilot to align the aircraft with the runway for landing when flying a predetermined circling instrument approach under IFR.

CLASS A AIRSPACE: See Controlled Airspace.

CLASS B AIRSPACE: See Controlled Airspace.

CLASS C AIRSPACE: See Controlled Airspace.

CLASS D AIRSPACE: See Controlled Airspace.

CLASS E AIRSPACE: See Controlled Airspace.

CLASS G AIRSPACE: See Controlled Airspace.

CLEAR ZONE: See Runway Protection Zone.

COMMERCIAL SERVICE AIRPORT: A public airport providing scheduled passenger service that enplanes at least 2,500 annual passengers.

COMMON TRAFFIC ADVISORY FREQUENCY: A radio frequency identified in the appropriate aeronautical chart which is designated for the purpose of transmitting airport advisory information and procedures while operating to or from an uncontrolled airport.

COMPASS LOCATOR (LOM): A low power, low/medium frequency radio-beacon installed in conjunction with the instrument landing system at one or two of the marker sites.

CONICAL SURFACE: An imaginary obstruction-limiting surface defined in FAR Part 77 that extends from the edge of the horizontal surface outward and upward at a slope of 20 to 1 for a horizontal distance of 4,000 feet.

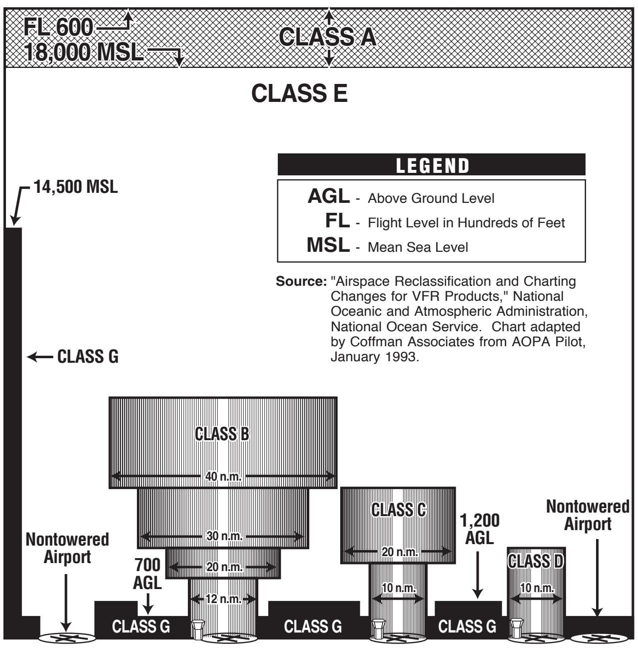
CONTROLLED AIRPORT: An airport that has an operating airport traffic control tower.

CONTROLLED AIRSPACE: Airspace of defined dimensions within which air traffic control services are provided to instrument flight rules (IFR) and visual flight rules (VFR) flights in accordance with the airspace classification. Controlled airspace in the United States is designated as follows:

- *CLASS A:* Generally, the airspace from 18,000 feet mean sea level (MSL) up to but not including flight level FL600. All persons must operate their aircraft under IFR.
- *CLASS B:* Generally, the airspace from the surface to 10,000 feet MSL surrounding the nation's busiest airports. The configuration of Class B airspace is unique to each airport, but typically consists of two or more layers of air space and is designed to contain all published instrument approach procedures to the airport. An air traffic control clearance is required for all aircraft to operate in the area.
- *CLASS C:* Generally, the airspace from the surface to 4,000 feet above the airport elevation (charted as MSL) surrounding those airports that have an operational control tower and radar approach control and are served by a qualifying number of IFR operations or passenger enplanements. Although individually tailored for each airport, Class C airspace typically consists of a surface area with a five nautical mile (nm) radius and an outer area with a 10 nautical mile radius that extends from 1,200 feet to 4,000 feet above the airport elevation. Two-way radio communication is required for all aircraft.
- *CLASS D:* Generally, that airspace from the surface to 2,500 feet above the air port elevation (charted as MSL) surrounding those airport that have an operational control tower. Class D airspace is individually tailored and configured to encompass published instrument approach proce dures. Unless otherwise authorized, all persons must establish two-way radio communication.
- *CLASS E:* Generally, controlled airspace that is not classified as Class A, B, C, or D. Class E airspace extends upward from either the surface or a designated altitude to the overlying or adjacent controlled airspace. When designated as a surface area, the airspace will be configured to contain all instrument

procedures. Class E airspace encompasses all Victor Airways. Only aircraft following instrument flight rules are required to establish two-way radio communication with air traffic control.

- *CLASS G:* Generally, that airspace not classified as Class A, B, C, D, or E. Class G airspace is uncontrolled for all aircraft. Class G airspace extends from the surface to the overlying Class E airspace.



CONTROLLED FIRING AREA: See special-use airspace.

CROSSWIND: A wind that is not parallel to a runway centerline or to the intended flight path of an aircraft.

CROSSWIND COMPONENT: The component of wind that is at a right angle to the runway centerline or the intended flight path of an aircraft.

CROSSWIND LEG: A flight path at right angles to the landing runway off its upwind end. See "traffic pattern."

DECIBEL: A unit of noise representing a level relative to a reference of a sound pressure 20 micro newtons per square meter.

DECISION HEIGHT: The height above the end of the runway surface at which a decision must be made by a pilot during the ILS or Precision Approach Radar approach to either continue the approach or to execute a missed approach.

DECLARED DISTANCES: The distances declared available for the airplane's takeoff runway, takeoff distance, accelerate-stop distance, and landing distance requirements. The distances are:

- *TAKEOFF RUNWAY AVAILABLE (TORA):* The runway length declared available and suitable for the ground run of an airplane taking off;

- *TAKEOFF DISTANCE AVAILABLE (TODA):* The TORA plus the length of any remaining runway and/or clear way beyond the far end of the TORA;

- *ACCELERATE-STOP DISTANCE AVAILABLE (ASDA):* The runway plus stopway length declared available for the acceleration and deceleration of an aircraft aborting a takeoff; and

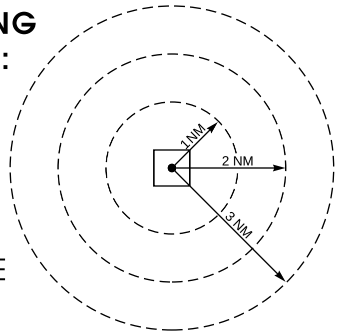
- *LANDING DISTANCE AVAILABLE (LDA):* The runway length declared available and suitable for landing.

DEPARTMENT OF TRANSPORTATION: The cabinet level federal government organization consisting of modal operating agencies, such as the Federal Aviation Administration, which was established to promote the coordination of federal transportation programs and to act as a focal point for research and development efforts in transportation.

DISCRETIONARY FUNDS: Federal grant funds that may be appropriated to an airport based upon designation by the Secretary of Transportation or Congress to meet a specified national priority such as enhancing capacity, safety, and security, or mitigating noise.

DISPLACED THRESHOLD: A threshold that is located at a point on the runway other than the designated beginning of the runway.

DISTANCE MEASURING EQUIPMENT (DME): Equipment (airborne and ground) used to measure, in nautical miles, the slant range distance of an aircraft from the DME navigational aid.



DNL: The 24-hour average sound level, in A-weighted decibels, obtained after the addition of ten decibels to sound levels for the periods between 10 p.m. and 7 a.m. as averaged over a span of one year. It is the FAA standard metric for determining the cumulative exposure of individuals to noise.

DOWNWIND LEG: A flight path parallel to the landing runway in the direction opposite to landing. The downwind leg normally extends between the crosswind leg and the base leg. Also see "traffic pattern."

EASEMENT: The legal right of one party to use a portion of the total rights in real estate owned by another party. This may include the right of passage over, on, or below the property; certain air rights above the property, including view rights; and the rights to any specified form of development or activity, as well as any other legal rights in the property that may be specified in the easement document.

ELEVATION: The vertical distance measured in feet above mean sea level.

ENPLANED PASSENGERS: The total number of revenue passengers boarding aircraft, including originating, stop-over, and transfer passengers, in scheduled and non-scheduled services.

ENPLANEMENT: The boarding of a passenger, cargo, freight, or mail on an aircraft at an airport.

ENTITLEMENT: Federal funds for which a commercial service airport may be eligible based upon its annual passenger enplanements.

ENVIRONMENTAL ASSESSMENT (EA): An environmental analysis performed pursuant to the National Environmental Policy Act to determine whether an action would significantly affect the environment and thus require a more detailed environmental impact statement.

ENVIRONMENTAL AUDIT: An assessment of the current status of a party's compliance with applicable environmental requirements of a party's environmental compliance policies, practices, and controls.

ENVIRONMENTAL IMPACT STATEMENT (EIS): A document required of federal agencies by the National Environmental Policy Act for major projects ar legislative proposals affecting the environment. It is a tool for decision-making describing the positive and negative effects of a proposed action and citing alternative actions.

ESSENTIAL AIR SERVICE: A federal program which guarantees air carrier service to selected small cities by providing subsidies as needed to prevent these cities from such service.

FEDERAL AVIATION REGULATIONS: The general and permanent rules established by the executive departments and agencies of the Federal Government for aviation, which are published in the Federal Register. These are the aviation subset of the Code of Federal Regulations.

FINAL APPROACH: A flight path in the direction of landing along the extended runway centerline. The final approach normally extends from the base leg to the runway. See "traffic pattern."

FINDING OF NO SIGNIFICANT IMPACT (FONSI): A public document prepared by a Federal agency that presents the rationale why a proposed action will not have a significant effect on the environment and for which an environmental impact statement will not be prepared.

FIXED BASE OPERATOR (FBO): A provider of services to users of an airport. Such services include, but are not limited to, hangaring, fueling, flight training, repair, and maintenance.

FLIGHT LEVEL: A designation for altitude within controlled airspace.

FLIGHT SERVICE STATION: An operations facility in the national flight advisory system which utilizes data interchange facilities for the collection and dissemination of Notices to Airmen, weather, and administrative data and which provides pre-flight and in-flight advisory services to pilots through air and ground based communication facilities.

FRANGIBLE NAVAID: A navigational aid which retains its structural integrity and stiffness up to a designated maximum load, but on impact from a greater load, breaks, distorts, or yields in such a manner as to present the minimum hazard to aircraft.

GENERAL AVIATION: That portion of civil aviation which encompasses all facets of aviation except air carriers holding a certificate of convenience and necessity, and large aircraft commercial operators.

GLIDESLOPE (GS): Provides vertical guidance for aircraft during approach and landing. The glideslope consists of the following:

1. Electronic components emitting signals which provide vertical guidance by reference to airborne instruments during instrument approaches such as ILS; or

2. Visual ground aids, such as VASI, which provide vertical guidance for VFR approach or for the visual portion of an instrument approach and landing.

GLOBAL POSITIONING SYSTEM (GPS): A system of 24 satellites used as reference points to enable navigators equipped with GPS receivers to determine their latitude, longitude, and altitude.

GROUND ACCESS: The transportation system on and around the airport that provides access to and from the airport by ground transportation vehicles for passengers, employees, cargo, freight, and airport services.

HELIPAD: A designated area for the takeoff, landing, and parking of helicopters.

HIGH INTENSITY RUNWAY LIGHTS: The highest classification in terms of intensity or brightness for lights designated for use in delineating the sides of a runway.

HIGH-SPEED EXIT TAXIWAY: A long radius taxiway designed to expedite aircraft turning off the runway after landing (at speeds to 60 knots), thus reducing runway occupancy time.

HORIZONTAL SURFACE: An imaginary obstruction-limiting surface defined in FAR Part 77 that is specified as a portion of a horizontal plane surrounding a runway located 150 feet above the established airport elevation. The specific horizontal dimensions of this surface are a function of the types of approaches existing or planned for the runway.

INSTRUMENT APPROACH PROCEDURE: A series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing, or to a point from which a landing may be made visually.

INSTRUMENT FLIGHT RULES (IFR): Procedures for the conduct of flight in weather conditions below Visual Flight Rules weather minimums. The term IFR is often also used to define weather conditions and the type of flight plan under which an aircraft is operating.

INSTRUMENT LANDING SYSTEM (ILS): A precision instrument approach system which normally consists of the following electronic components and visual aids:

1. Localizer.
2. Glide Slope.
3. Outer Marker.
4. Middle Marker.
5. Approach Lights.

INSTRUMENT METEOROLOGICAL CONDITIONS: Meteorological conditions expressed in terms of specific visibility and ceiling conditions that are less than the minimums specified for visual meteorological conditions.

ITINERANT OPERATIONS: Operations by aircraft that are not based at a specified airport.

KNOTS: A unit of speed length used in navigation that is equivalent to the number of nautical miles traveled in one hour.

LANDSIDE: The portion of an airport that provides the facilities necessary for the processing of passengers, cargo, freight, and ground transportation vehicles.

LANDING DISTANCE AVAILABLE (LDA): See declared distances.

LARGE AIRPLANE: An airplane that has a maximum certified takeoff weight in excess of 12,500 pounds.

LOCAL AREA AUGMENTATION SYSTEM: A differential GPS system that provides localized measurement correction signals to the basic GPS signals to improve navigational accuracy, integrity, continuity, and availability.

LOCAL OPERATIONS: Aircraft operations performed by aircraft that are based at the airport and that operate in the local traffic pattern or within sight of the airport, that are known to be departing for or arriving from flights in local practice areas within a prescribed distance from the airport, or that execute simulated instrument approaches at the airport.

LOCAL TRAFFIC: Aircraft operating in the traffic pattern or within sight of the tower, or aircraft known to be departing or arriving from the local practice areas, or aircraft executing practice instrument approach procedures. Typically, this includes touch-and-go training operations.

LOCALIZER: The component of an ILS which provides course guidance to the runway.

LOCALIZER TYPE DIRECTIONAL AID (LDA): A facility of comparable utility and accuracy to a localizer, but is not part of a complete ILS and is not aligned with the runway.

LONG RANGE NAVIGATION SYSTEM (LORAN): Long range navigation is an electronic navigational aid which determines aircraft position and speed by measuring the difference in the time of reception of synchronized pulse signals from two fixed transmitters. Loran is used for enroute navigation.

LOW INTENSITY RUNWAY LIGHTS: The lowest classification in terms of intensity or brightness for lights designated for use in delineating the sides of a runway.

MEDIUM INTENSITY RUNWAY LIGHTS: The middle classification in terms of intensity or brightness for lights designated for use in delineating the sides of a runway.

MICROWAVE LANDING SYSTEM (MLS): An instrument approach and landing system that provides precision guidance in azimuth, elevation, and distance measurement.

MILITARY OPERATIONS: Aircraft operations that are performed in military aircraft.

MILITARY OPERATIONS AREA (MOA): See special-use airspace.

MILITARY TRAINING ROUTE: An air route depicted on aeronautical charts for the conduct of military flight training at speeds above 250 knots.

MISSED APPROACH COURSE (MAC): The flight route to be followed if, after an instrument approach, a landing is not affected, and occurring normally:

1. When the aircraft has descended to the decision height and has not established visual contact; or

2. When directed by air traffic control to pull up or to go around again.

MOVEMENT AREA: The runways, taxiways, and other areas of an airport which are utilized for taxiing/hover taxiing, air taxiing, takeoff, and landing of aircraft, exclusive of loading ramps and parking areas. At those airports with a tower, air traffic control clearance is required for entry onto the movement area.

NATIONAL AIRSPACE SYSTEM: The network of air traffic control facilities, air traffic control areas, and navigational facilities through the U.S.

NATIONAL PLAN OF INTEGRATED AIRPORT SYSTEMS: The national airport system plan developed by the Secretary of Transportation on a biannual basis for the development of public use airports to meet national air transportation needs.

NATIONAL TRANSPORTATION SAFETY BOARD: A federal government organization established to investigate and determine the probable cause of transportation accidents, to recommend equipment and procedures to enhance transportation safety, and to review on appeal the suspension or revocation of any certificates or licenses issued by the Secretary of Transportation.

NAUTICAL MILE: A unit of length used in navigation which is equivalent to the distance spanned by one minute of arc in latitude, that is, 1,852 meters or 6,076 feet. It is equivalent to approximately 1.15 statute mile.

NAVAID: A term used to describe any electrical or visual air navigational aids, lights, signs, and associated supporting equipment (i.e. PAPI, VASI, ILS, etc.)

NOISE CONTOUR: A continuous line on a map of the airport vicinity connecting all points of the same noise exposure level.

NON-DIRECTIONAL BEACON (NDB): A beacon transmitting nondirectional signals whereby the pilot of an aircraft equipped with direction finding equipment can determine his or her bearing to and from the radio beacon and home on, or track to, the station. When the radio beacon is installed in conjunction with the Instrument Landing System marker, it is normally called a Compass Locator.

NON-PRECISION APPROACH PROCEDURE: A standard instrument approach procedure in which no electronic glide slope is provided, such as VOR, TACAN, NDB, or LOC.

NOTICE TO AIRMEN: A notice containing information concerning the establishment, condition, or change in any component of or hazard in the National Airspace System, the timely knowledge of which is considered essential to personnel concerned with flight operations.

OBJECT FREE AREA (OFA): An area on the ground centered on a runway, taxiway, or taxilane centerline provided to enhance the safety of aircraft operations by having the area free of objects, except for objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes.

OBSTACLE FREE ZONE (OFZ): The airspace below 150 feet above the established airport elevation and along the runway and extended runway centerline that is required to be kept clear of all objects, except for frangible visual NAVAIDs that need to be located in the OFZ because of their function,
in order to provide clearance for aircraft landing or taking off from the runway, and for missed approaches.

OPERATION: A take-off or a landing.

OUTER MARKER (OM): An ILS navigation facility in the terminal area navigation system located four to seven miles from the runway edge on the extended centerline, indicating to the pilot that he/she is passing over the facility and can begin final approach.

PILOT CONTROLLED LIGHTING: Runway lighting systems at an airport that are controlled by activating the microphone of a pilot on a specified radio frequency.

PRECISION APPROACH: A standard instrument approach procedure which provides runway alignment and glide slope (descent) information. It is categorized as follows:

- *CATEGORY I (CAT I):* A precision approach which provides for approaches with a decision height of not less than 200 feet and visibility not less than 1/2 mile or Runway Visual Range (RVR) 2400 (RVR 1800) with operative touchdown zone and runway centerline lights.

- *CATEGORY II (CAT II):* A precision approach which provides for approaches with a decision height of not less than 100 feet and visibility not less than 1200 feet RVR.

- *CATEGORY III (CAT III):* A precision approach which provides for approaches with minima less than Category II.

PRECISION APPROACH PATH INDICATOR (PAPI): A lighting system providing visual approach slope guidance to aircraft during a landing approach. It is similar to a VASI but provides a sharper transition between the colored indicator lights.

PRECISION APPROACH RADAR: A radar facility in the terminal air traffic control system used to detect and display with a high degree of accuracy the direction, range, and elevation of an aircraft on the final approach to a runway.

PRECISION OBJECT FREE AREA (POFA): An area centered on the extended runway centerline, beginning at the runway threshold and extending behind the runway threshold that is 200 feet long by 800 feet wide. The POFA is a clearing standard which requires the POFA to be kept clear of above ground objects protruding above the runway safety area edge elevation (except for frangible NAVAIDS). The POFA applies to all new authorized instrument approach procedures with less than 3/4 mile visibility.

PRIMARY AIRPORT: A commercial service airport that enplanes at least 10,000 annual passengers.

PRIMARY SURFACE: An imaginary obstruction limiting surface defined in FAR Part 77 that is specified as a rectangular surface longitudinally centered about a runway. The specific dimensions of this surface are a function of the types of approaches existing or planned for the runway.

PROHIBITED AREA: See special-use airspace.

PVC: Poor visibility and ceiling. Used in determining Annual Sevice Volume. PVC conditions exist when the cloud ceiling is less than 500 feet and visibility is less than one mile.

RADIAL: A navigational signal generated by a Very High Frequency Omni-directional Range or VORTAC station that is measured as an azimuth from the station.

REGRESSION ANALYSIS: A statistical technique that seeks to identify and quantify the relationships between factors associated with a forecast.

REMOTE COMMUNICATIONS OUTLET (RCO): An unstaffed transmitter receiver/facility remotely controlled by air traffic personnel. RCOs serve flight service stations (FSSs). RCOs were established to provide ground-to-ground communications between air traffic control specialists and pilots at satellite airports for delivering enroute clearances, issuing departure authorizations, and acknowledging instrument flight rules cancellations or departure/landing times.

REMOTE TRANSMITTER/RECEIVER (RTR): See remote communications outlet. RTRs serve ARTCCs.

RELIEVER AIRPORT: An airport to serve general aviation aircraft which might otherwise use a congested air-carrier served airport.

RESTRICTED AREA: See special-use airspace.

RNAV: Area navigation - airborne equipment which permits flights over determined tracks within prescribed accuracy tolerances without the need to overfly ground-based navigation facilities. Used enroute and for approaches to an airport.

RUNWAY: A defined rectangular area on an airport prepared for aircraft landing and takeoff. Runways are normally numbered in relation to their magnetic direction, rounded off to the nearest 10 degrees. For example, a runway with a magnetic heading of 180 would be designated Runway 18. The runway heading on the opposite end of the runway is 180 degrees from that runway end. For example, the opposite runway heading for Runway 18 would be Runway 36 (magnetic heading of 360). Aircraft can takeoff or land from either end of a runway, depending upon wind direction.

RUNWAY ALIGNMENT INDICATOR LIGHT: A series of high intensity sequentially flashing lights installed on the extended centerline of the runway usually in conjunction with an approach lighting system.

RUNWAY END IDENTIFIER LIGHTS (REIL): Two synchronized flashing lights, one on each side of the runway threshold, which provide rapid and positive identification of the approach end of a particular runway.

RUNWAY GRADIENT: The average slope, measured in percent, between the two ends of a runway.

RUNWAY PROTECTION ZONE (RPZ): An area off the runway end to enhance the protection of people and property on the ground. The RPZ is trapezoidal in shape. Its dimensions are determined by the aircraft approach speed and runway approach type and minima.

RUNWAY SAFETY AREA (RSA): A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway.

RUNWAY VISIBILITY ZONE (RVZ): An area on the airport to be kept clear of permanent objects so that there is an unobstructed line-of-site from any point five feet above the runway centerline to any point five feet above an intersecting runway centerline.

RUNWAY VISUAL RANGE (RVR): An instrumentally derived value, in feet, representing the horizontal distance a pilot can see down the runway from the runway end.

SCOPE: The document that identifies and defines the tasks, emphasis, and level of effort associated with a project or study.

SEGMENTED CIRCLE: A system of visual indicators designed to provide traffic pattern information at airports without operating control towers.

SHOULDER: An area adjacent to the edge of paved runways, taxiways, or aprons providing a transition between the pavement and the adjacent surface; support for aircraft running off the pavement; enhanced drainage; and blast protection. The shoulder does not necessarily need to be paved.

SLANT-RANGE DISTANCE: The straight line distance between an aircraft and a point on the ground.

SMALL AIRPLANE: An airplane that has a maximum certified takeoff weight of up to 12,500 pounds.

SPECIAL-USE AIRSPACE: Airspace of defined dimensions identified by a surface area wherein activities must be confined because of their nature and/or wherein limitations may be imposed upon aircraft operations that are not a part of those activities. Special-use airspace classifications include:

- *ALERT AREA:* Airspace which may contain a high volume of pilot training activities or an unusual type of aerial activity, neither of which is hazardous to aircraft.

- *CONTROLLED FIRING AREA:* Airspace wherein activities are conducted under conditions so controlled as to eliminate hazards to nonparticipating aircraft and to ensure the safety of persons or property on the ground.

- *MILITARY OPERATIONS AREA (MOA):* Designated airspace with defined vertical and lateral dimensions established outside Class A airspace to separate/segregate certain military activities from instrument flight rule (IFR) traffic and to identify for visual flight rule (VFR) traffic where these activities are conducted.

- *PROHIBITED AREA:* Designated airspace within which the flight of aircraft is prohibited.

- *RESTRICTED AREA:* Airspace designated under Federal Aviation Regulation (FAR) 73, within which the flight of aircraft, while not wholly prohibited, is subject to restriction. Most restricted areas are designated joint use. When not in use by the using agency, IFR/VFR operations can be authorized by the controlling air traffic control facility.

- *WARNING AREA:* Airspace which may contain hazards to nonparticipating aircraft.

STANDARD INSTRUMENT DEPARTURE (SID): A preplanned coded air traffic control IFR departure routing, preprinted for pilot use in graphic and textual form only.

STANDARD TERMINAL ARRIVAL (STAR): A preplanned coded air traffic control IFR arrival routing, preprinted for pilot use in graphic and textual or textual form only.

STOP-AND-GO: A procedure wherein an aircraft will land, make a complete stop on the runway, and then commence a takeoff from that point. A stop-and-go is recorded as two operations: one operation for the landing and one operation for the takeoff.

STOPWAY: An area beyond the end of a takeoff runway that is designed to support an aircraft during an aborted takeoff without causing structural damage to the aircraft. It is not to be used for takeoff, landing, or taxiing by aircraft.

STRAIGHT-IN LANDING/APPROACH: A landing made on a runway aligned within 30 degrees of the final approach course following completion of an instrument approach.

TACTICAL AIR NAVIGATION (TACAN): An ultra-high frequency electronic air navigation system which provides suitably-equipped aircraft a continuous indication of bearing and distance to the TACAN station.

TAKEOFF RUNWAY AVAILABLE (TORA): See declared distances.

TAKEOFF DISTANCE AVAILABLE (TODA): See declared distances.

TAXILANE: The portion of the aircraft parking area used for access between taxiways and aircraft parking positions.

TAXIWAY: A defined path established for the taxiing of aircraft from one part of an airport to another.

TAXIWAY SAFETY AREA (TSA): A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an airplane unintentionally departing the taxiway.

TERMINAL INSTRUMENT PROCEDURES: Published flight procedures for conducting instrument approaches to runways under instrument meteorological conditions.

TERMINAL RADAR APPROACH CONTROL: An element of the air traffic control system responsible for monitoring the en-route and terminal segment of air traffic in the airspace surrounding airports with moderate to high-levels of air traffic.

TETRAHEDRON: A device used as a landing direction indicator. The small end of the tetrahedron points in the direction of landing.

THRESHOLD: The beginning of that portion of the runway available for landing. In some instances the landing threshold may be displaced.

TOUCH-AND-GO: An operation by an aircraft that lands and departs on a runway without stopping or exiting the runway. A touch-and-go is recorded as two operations: one operation for the landing and one operation for the takeoff.

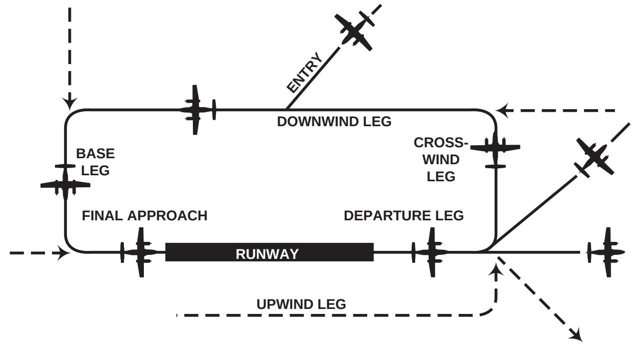
TOUCHDOWN: The point at which a landing aircraft makes contact with the runway surface.

TOUCHDOWN ZONE (TDZ): The first 3,000 feet of the runway beginning at the threshold.

TOUCHDOWN ZONE ELEVATION (TDZE): The highest elevation in the touchdown zone.

TOUCHDOWN ZONE (TDZ) LIGHTING: Two rows of transverse light bars located symmetrically about the runway centerline normally at 100-foot intervals. The basic system extends 3,000 feet along the runway.

TRAFFIC PATTERN: The traffic flow that is prescribed for aircraft landing at or taking off from an airport. The components of a typical traffic pattern are the upwind leg, crosswind leg, downwind leg, base leg, and final approach.

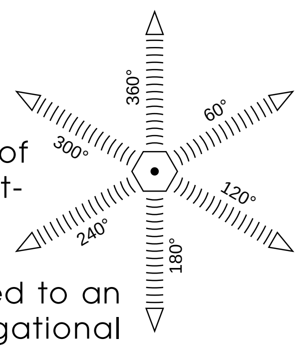


UNCONTROLLED AIRPORT: An airport without an air traffic control tower at which the control of Visual Flight Rules traffic is not exercised.

UNCONTROLLED AIRSPACE: Airspace within which aircraft are not subject to air traffic control.

UNIVERSAL COMMUNICATION (UNICOM): A nongovernment communication facility which may provide airport information at certain airports. Locations and frequencies of UNICOM's are shown on aeronautical charts and publications.

UPWIND LEG: A flight path parallel to the landing runway in the direction of landing. See "traffic pattern."



VECTOR: A heading issued to an aircraft to provide navigational guidance by radar.

VERY HIGH FREQUENCY/ OMNIDIRECTIONAL RANGE STATION (VOR): A ground-based electronic navigation aid transmitting very high frequency navigation signals, 360 degrees in azimuth, oriented from magnetic north. Used as the basis for navigation in the national airspace system. The VOR periodically identifies itself by Morse Code and may have an additional voice identification feature.

VERY HIGH FREQUENCY OMNI-DIRECTIONAL RANGE STATION/ TACTICAL AIR NAVIGATION (VORTAC): A navigation aid providing VOR azimuth, TACAN azimuth, and TACAN distance-measuring equipment (DME) at one site.

VICTOR AIRWAY: A control area or portion thereof established in the form of a corridor, the centerline of which is defined by radio navigational aids.

VISUAL APPROACH: An approach wherein an aircraft on an IFR flight plan,
operating in VFR conditions under the control of an air traffic control facility and having an air traffic control authorization, may proceed to the airport of destination in VFR conditions.

VISUAL APPROACH SLOPE INDICATOR (VASI): An airport lighting facility providing vertical visual approach slope guidance to aircraft during approach to landing by radiating a directional pattern of high intensity red and white focused light beams which indicate to the pilot that he is on path if he sees red/white, above path if white/white, and below path if red/red. Some airports serving large aircraft have three-bar VASI's which provide two visual guide paths to the same runway.

VISUAL FLIGHT RULES (VFR): Rules that govern the procedures for conducting flight under visual conditions. The term VFR is also used in the United States to indicate weather conditions that are equal to or greater than minimum VFR requirements. In addition, it is used by pilots and controllers to indicate type of flight plan.

VISUAL METEOROLOGICAL CONDITIONS: Meteorological conditions expressed in terms of specific visibility and ceiling conditions which are equal to or greater than the threshold values for instrument meteorological conditions.

VOR: See "Very High Frequency Omnidirectional Range Station."

VORTAC: See "Very High Frequency Omnidirectional Range Station/Tactical Air Navigation."

WARNING AREA: See special-use airspace.

WIDE AREA AUGMENTATION SYSTEM: An enhancement of the Global Positioning System that includes integrity broadcasts, differential corrections, and additional ranging signals for the purpose of providing the accuracy, integrity, availability, and continuity required to support all phases of flight.

Abbreviations

AC: advisory circular

ADF: automatic direction finder

ADG: airplane design group

AFSS: automated flight service station

AGL: above ground level

AIA: annual instrument approach

AIP: Airport Improvement Program

AIR-21: Wendell H. Ford Aviation Investment and Reform Act for the 21st Century

ALS: approach lighting system

ALSF-1: standard 2,400-foot high intensity approach lighting system with sequenced flashers (CAT I configuration)

ALSF-2: standard 2,400-foot high intensity approach lighting system with sequenced flashers (CAT II configuration)

APV: instrument approach procedure with vertical guidance

ARC: airport reference code

ARFF: aircraft rescue and firefighting

ARP: airport reference point

ARTCC: air route traffic control center

ASDA: accelerate-stop distance available

ASR: airport surveillance radar

ASOS: automated surface observation station

ATCT: airport traffic control tower

ATIS: automated terminal information service

AVGAS: aviation gasoline - typically 100 low lead (100LL)

AWOS: automated weather observation station

BRL: building restriction line

CFR: Code of Federal Regulations

CIP: capital improvement program

DME: distance measuring equipment

DNL: day-night noise level

DWL: runway weight bearing capacity for aircraft with dual-wheel type landing gear

DTWL: runway weight bearing capacity fo aircraft with dual-tandem type landing gear

FAA: Federal Aviation Administration

FAR: Federal Aviation Regulation

FBO: fixed base operator
FY: fiscal year

GPS: global positioning system

GS: glide slope

HIRL: high intensity runway edge lighting

IFR: instrument flight rules (FAR Part 91)

ILS: instrument landing system

IM: inner marker

LDA: localizer type directional aid

LDA: landing distance available

LIRL: low intensity runway edge lighting

LMM: compass locator at middle marker

LOC: ILS localizer

LOM: compass locator at ILS outer marker

LORAN: long range navigation

MALS: medium intensity approach lighting system

MALSR: medium intensity approach lighting system with runway alignment indicator lights

MIRL: medium intensity runway edge lighting

MITL: medium intensity taxiway edge lighting

MLS: microwave landing system

MM: middle marker

MOA: military operations area

MSL: mean sea level

NAVAID: navigational aid

NDB: nondirectional radio beacon

NM: nautical mile (6,076 .1 feet)

NPES: National Pollutant Discharge Elimination System

NPIAS: National Plan of Integrated Airport Systems

NPRM: notice of proposed rulemaking

ODALS: omnidirectional approach lighting system

OFA: object free area

OFZ: obstacle free zone

OM: outer marker

PAC: planning advisory committee

PAPI: precision approach path indicator

PFC: porous friction course

PFC: passenger facility charge

PCL: pilot-controlled lighting

PIW: public information workshop

PLASI: pulsating visual approach slope indicator

POFA: precision object free area

PVASI: pulsating/steady visual approach slope indicator

PVC: Poor visibility and ceiling.

RCO: remote communications outlet

REIL: runway end identifier lighting

RNAV: area navigation

RPZ: runway protection zone

RSA: Runway Safety Area

RTR: remote transmitter/receiver

RVR: runway visibility range

RVZ: runway visibility zone

SALS: short approach lighting system

SASP: state aviation system plan

SEL: sound exposure level
SID: standard instrument departure

SM: statute mile (5,280 feet)

SRE: snow removal equipment

SSALF: simplified short approach lighting system with sequenced flashers

SSALR: simplified short approach lighting system with runway alignment indicator lights

STAR: standard terminal arrival route

SWL: runway weight bearing capacity for aircraft with single-wheel type landing gear

STWL: runway weight bearing capacity for aircraft with single-wheel tandem type landing gear

TACAN: tactical air navigational aid

TDZ: touchdown zone

TDZE: touchdown zone elevation

TAF: Federal Aviation Administration (FAA) Terminal Area Forecast

TODA: takeoff distance available

TORA: takeoff runway available

TRACON: terminal radar approach control

VASI: visual approach slope indicator

VFR: visual flight rules (FAR Part 91)

VHF: very high frequency

VOR: very high frequency omni-directional range

VORTAC: VOR and TACAN collocated

Appendix B
ENVIRONMENTAL OVERVIEW

An environmental overview has two objectives:

1. To describe the existing environmental conditions at an airport and its surrounding communities, and

2. To identify environmentally sensitive areas that may require special management, conservation, and/or preservation during the planning, design, or construction phases of any proposed airport development project.

Guidance for preparing this chapter is provided at both the federal- and state-government levels. FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, updates the FAA agency-wide policies and procedures for compliance with the National Environmental Policy Act (NEPA) and implements regulations issued by the Council on Environmental Quality (40 CFR parts 1500-1508). FAA Order 5050.4B, *NEPA Implementing Instructions for Airport Actions*, provides additional guidance. The California Environmental Quality Act (CEQA) provides guidance at the state level, as described in the CEQA *Guidelines.*

San Luis Obispo County has assembled considerable information about the Oceano area and its environmental resources. Among the various plans and documents referred to for this chapter are: the *Airport Land Use Plan, Oceano County Airport, Oceano Specific Plan* (2001, revised 14 April 2004), *San Luis Bay Area Plan – Coastal* (revised April 2004), and *San Luis Obispo County General Plan, Annual Resource Summary Report* (2005).

B.1 Airport Setting

B.1.1 Location

As noted in Chapter 1, Oceano County Airport is located approximately 186 miles northwest of Los Angeles, 248 miles southeast of San Francisco, and 17 miles south of the City of San Luis Obispo. Situated south of the communities of Pismo Beach and Grover Beach, the airport encompasses approximately 58 acres within the unincorporated *Oceano Urban Area* of San Luis Obispo County. The airport is bordered on the north by Oceano Lagoon, residential and commercial uses, and Pismo State Beach; on the east by the Union Pacific Railroad and residences; and on the south by the Pismo Dunes Natural Preserve. The Pacific Ocean and a residential community border the airport to the west. The Pacific Coast Highway (State Route 1) provides vehicle access to Oceano, with airport access from Air Park Drive. According to FAA (2006), the airport elevation is 14 feet above sea level.

B.1.2 Climate

Oceano County Airport is located within an area of Mediterranean climate with moderate year-round temperatures. Average annual temperatures in the area range from the low 40s during winter months, to the lower 70s during summer months. The average annual rainfall in Oceano is approximately 18 inches, most of it occurring between November and April. The average frost free period ranges from 300 to 350 days (USDA, 1984).

The area is characterized by coastal wind patterns. The local airflow patterns are generally associated with a moderate to strong onshore wind from the northwest (*Airport Land Use Plan,* 2006).

B.1.3 Topography and Drainage

The Oceano urban area and the airport are located within the Central Coast Range province of California. The immediate area tends to be fairly flat, with a relatively high water table, reflecting past filling of low-lying marshes, channels, and other wet areas. The gentle slopes and hills in the vicinity are primarily sand dunes (USGS, 2004). The airport is located north of Arroyo Grande Creek and south and southeast of Oceano Lagoon, which is formed by the confluence of Arroyo Grande Creek and Meadow Creek.

The airport site was previously characterized by sand dunes that were graded into lower lying areas and built up with approximately two feet of additional fill during construction in the 1950s (Pehl, 2003). The site was graded to direct rain and surface runoff away from the airport into broad drainage swales. Although none of the runoff from airport pavement surfaces drains directly to Oceano Lagoon or Arroyo Grande Creek, flow from these swales appears hydrologically connected to Oceano Lagoon (California Coastal Commission, 2002; ESA, 2004a). Because the airport and most of the unincorporated community of Oceano has no stormwater improvements and the community generally drains toward Oceano Lagoon and Arroyo Grande Creek, the area around the airport often floods due to low elevation and inadequate drainage (Questa Engineering Corporation, 2003). The County has identified several areas near the perimeter of the airport that are subject to flooding (*Oceano Specific Plan*, page 18). The drainage swales are inundated regularly, during larger precipitation events, and may hold water for up to a week following such events (ESA, 2004a). Even when the area is not flooded, the water table is relatively shallow, within approximately 2.5 feet of the surface (Pehl, 2003).

In 2004, the airport runway and taxiway surfaces were improved with an asphalt overlay. That project also improved site drainage with the installation of a concrete valley gutter, storm drain catch basins, and a new storm drain pipe. Runoff from the apron now flows toward the valley gutter, into catch basins equipped with an oil/water separator, and through the storm drain pipe which discharges to rock rip-rap which dissipates energy and traps sediment before the flow continues into the vegetated swales (ESA, 2004b).

B.1.4 Soils

Soils in the area have been mapped by the United States Department of Agriculture (USDA) Natural Resource Conservation Service. The soils mapped are predominately non-hydric, although the series does include some hydric soils. The predominant soils mapped as occurring at the airport is Mocho fine sandy loam (USDA, 1984). Mocho fine sandy loam is a very deep, well-drained soil formed from sedimentary rock, consisting of a brown fine sandy loam surface layer, underlain by silty clay loam and stratified sand and gravelly sand to a depth of five feet or more. Mocho fine sandy loam is moderately alkaline. This soil is not considered generally hydric (USDA 1995) and is not listed as a hydric soil for San Luis Obispo County (USDA, 1992). Another non-hydric soil that occurs as a minor component of this map unit is Salinas loam, which is a well drained dark gray loam underlain by stratified layers of fine sandy loam and silty clay loam. However, the Mocho fine sandy loam soils unit also contains small areas of hydric soils, such as Camarillo sandy loam and minor inclusions of Psamments and Fluvents soils (*wet* and *occasionally flooded* types).

However, these mapped soils do not generally reflect the soils encountered at the airport. This is likely due to the local variations found within the primary soils unit and, especially, to the amount of past grading and filling at the airport. The original soils at the airport were disturbed during construction and were graded, compacted, and then covered with at least two feet of additional fill. This history is observable in the soil profiles found during sampling for the previous wetland delineation (ESA, 2004a), where soils were generally homogenous sands with rarely discernible horizons. The soils encountered were moist to saturated in most of the depressional features surveyed (ESA, 2004a).

B.2 Land Impact Categories

B.2.1 Farmland

The Farmland Protection Policy Act (FPPA) regulates federal actions with the potential to convert farmland to non-agricultural use. To be protected under the FPPA, the land must be either “prime farmland” that is not committed to urban development or water storage, unique farmland, or farmland that is of state or local significance. The CEQA *Guidelines* provide similar guidance at the state level.

Based on available information, there are no prime, unique, or state or locally important farmlands in the immediate vicinity of the Airport (*General Plan, Agriculture and Open Space Element*, page C-7).

B.2.2 Compatible Land Use

The compatibility of existing and planned land uses in the vicinity of an airport is usually associated with the extent of the airport’s noise impacts. FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures,* and FAA Order 5050.4B, *NEPA Implementing Instructions for Airport Actions* refer to the significance threshold for noise to determine whether a land use compatibility impact is significant. Examples of activities that can alter aviation-related noise impacts and affect land uses subjected to those impacts include airport development actions to accommodate fleet mix changes or the number of aircraft operations, air traffic changes, or new approaches made possible by new navigational aids.

Generally, if there are no noise impacts, a similar conclusion may be drawn with respect to compatible land use. However, if a proposed development has other impacts with land use ramifications, the effects on land use may be analyzed in that context and cross-referenced to the Compatible Land Use section to avoid duplication.

The CEQA *Guidelines* defines land use impact base on the degree of conflict with any applicable land use plan, policy, or regulations of an agency with jurisdiction over the project.

Noise sensitive areas include residential, educational, health, religious structures and sites, and parks, recreational areas (including areas with wilderness characteristics), wildlife refuges, and cultural and historical sites. Table B-1 (*Airport Land Use Plan*, Table 2) identifies the maximum allowable interior noise exposure from aviation-related noise sources.

Land Use Designations

Existing land uses surrounding the airport are not entirely compatible with the operations at the airport. According to the *San Luis Bay Area Plan – Coastal* (Figure 9), the airport is designated as *Public Facilitie*s, land immediately to the northwest and northeast is designated *Residential – Multiple Family*, land to the north is designated as *Commercial Retail*, and land to the southeast is designated *Industrial*. According to the *Airport Land Use Plan*, the size, location, and configuration of the Airport Planning Areas for the airport are based on:

- The Aviation Safety Zones recommended by the current edition of the *Airport Land Use Handbook* (January, 2002), a guide to the preparation of Airport Land Use Plans which is prepared and distributed by the Division of Aeronautics of the California Department of Transportation, and

- The preexisting land use designations and existing development currently located in the vicinity of the airport.

The defined Airport Planning Areas are shown in Figures B-1 and B-2 (*Airport Land Use Plan*, Figures 2 and 3) and are summarized below (for more complete descriptions see the *Airport Land Use Plan*):

- **Area RA-1: Residential Use Areas Exposed to Severe Airport Impact** – includes properties which are currently zoned for residential use by the County's planning documents, which are substantially developed with existing housing, and which lie within the zones defined by the current Caltrans Airport Land Use Planning Handbook as the *Runway Protection Zones* and *Inner Approach/Departure Zones* of the airport. The residential properties in Area RA-1 are of special concern, because

TABLE B-1: MAXIMUM ALLOWABLE INTERIOR NOISE EXPOSURE FROM AVIATION-RELATED NOISE SOURCES

	Single Event[1] Interior Aviation Noise Level	Degree of Noise Attenuation Required (dB) Single Event Noise Contour		
	dB LAmax	85 dB	75 dB	65 dB
Residential dwellings				
Sleeping rooms	50	35	25	15[2]
Non-sleeping areas	55	30	20	10[2]
Hotels and motels, bed and breakfast inns, homestay facilities, campgrounds (with overnight sleeping facilities), temporary sleeping quarters for air crews and other employees in transit				
Sleeping rooms	50	35	25	15[2]
Non-sleeping areas	60	25	15[2]	5[2]
Restaurants	60	25	15[2]	15[2]
Offices, office buildings	60	25	15[2]	5[2]
Hospitals, nursing homes, residential care facilities and other medical facilities offering 24-hour care				
Sleeping rooms	50	35	25	15[2]
Non-sleeping areas	60	25	15[2]	5[2]
Churches, synagogues, temples, monasteries and convents	60	25	15[2]	5[2]
Mortuaries, funeral parlors	60	25	15[2]	5[2]
Indoor theatres, music halls, meeting halls, and other indoor public assembly facilities[3]	50	35	25	5[2]
Studios – radio, television, recording, rehearsal, and performance facilities	60	25	15[2]	5[2]
Schools and day care centers[4]	60	25	15[2]	5[2]
Libraries (excluding aviation-oriented libraries)	50	35	25	5[2]
Museums (excluding air museums)	50	35	25	15[2]

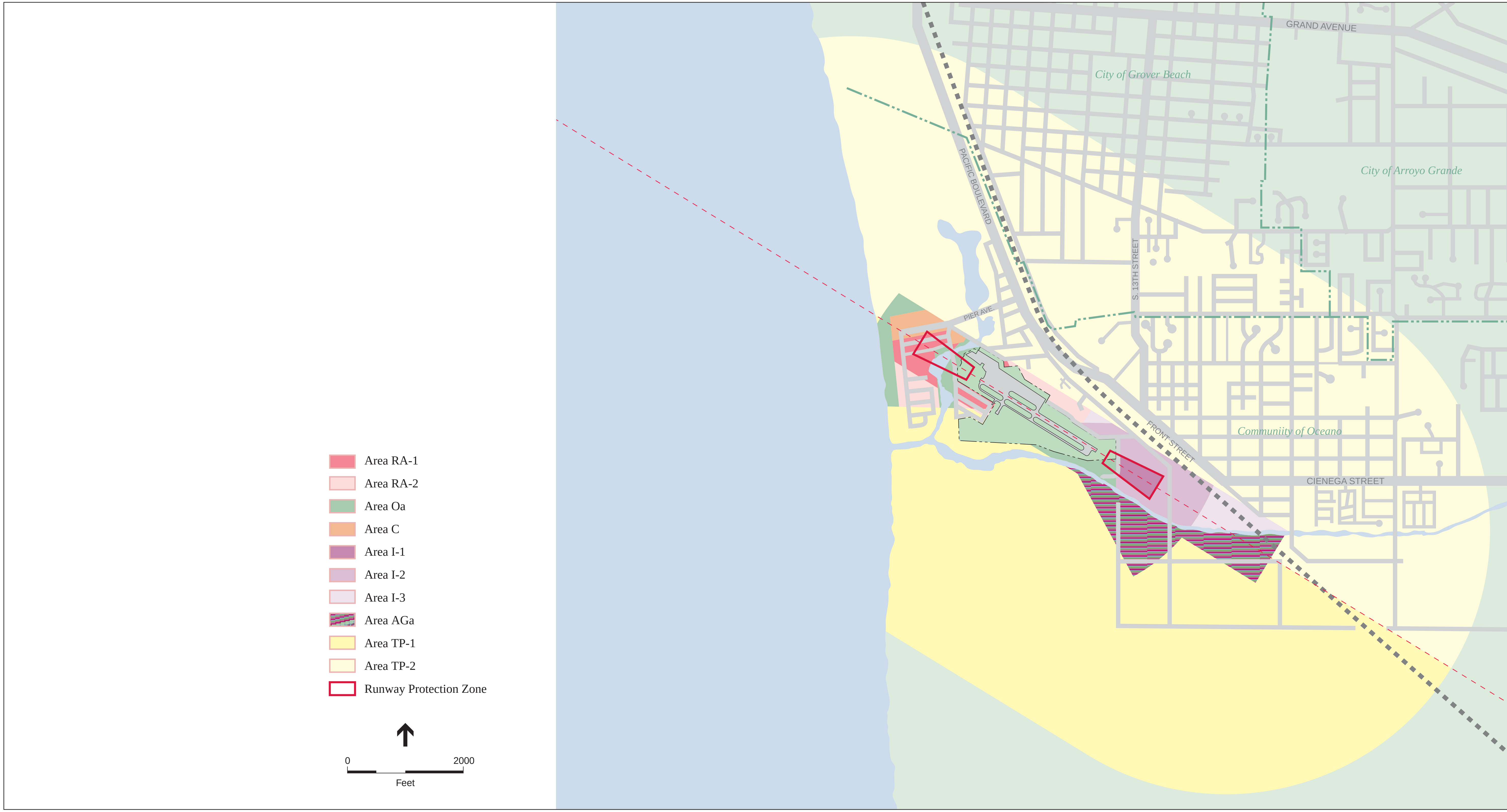
[1] The reference for determination of required single event noise mitigation shall be the single-event noise contours for the straight-in arrival of a high-performance single engine general aviation aircraft landing on Runway 29 and the straight-out departure of such aircraft from Runway 29. Noise contours are as defined by the Airport land Use Planning Handbook and are shown in Figures 4 and 5.

[2] Normal construction techniques are assumed to provide adequate noise attenuation.

[3] Not including facilities utilized exclusively by pilots' organizations, airport or airline employees, or other airport related groups.

[4] Not including flight schools, aviation mechanics training schools, airline orientation facilities or other institutions offering instruction only in aviation-related fields.

Source: Airport Land Use Plan, Oceano County Airport, 2007.

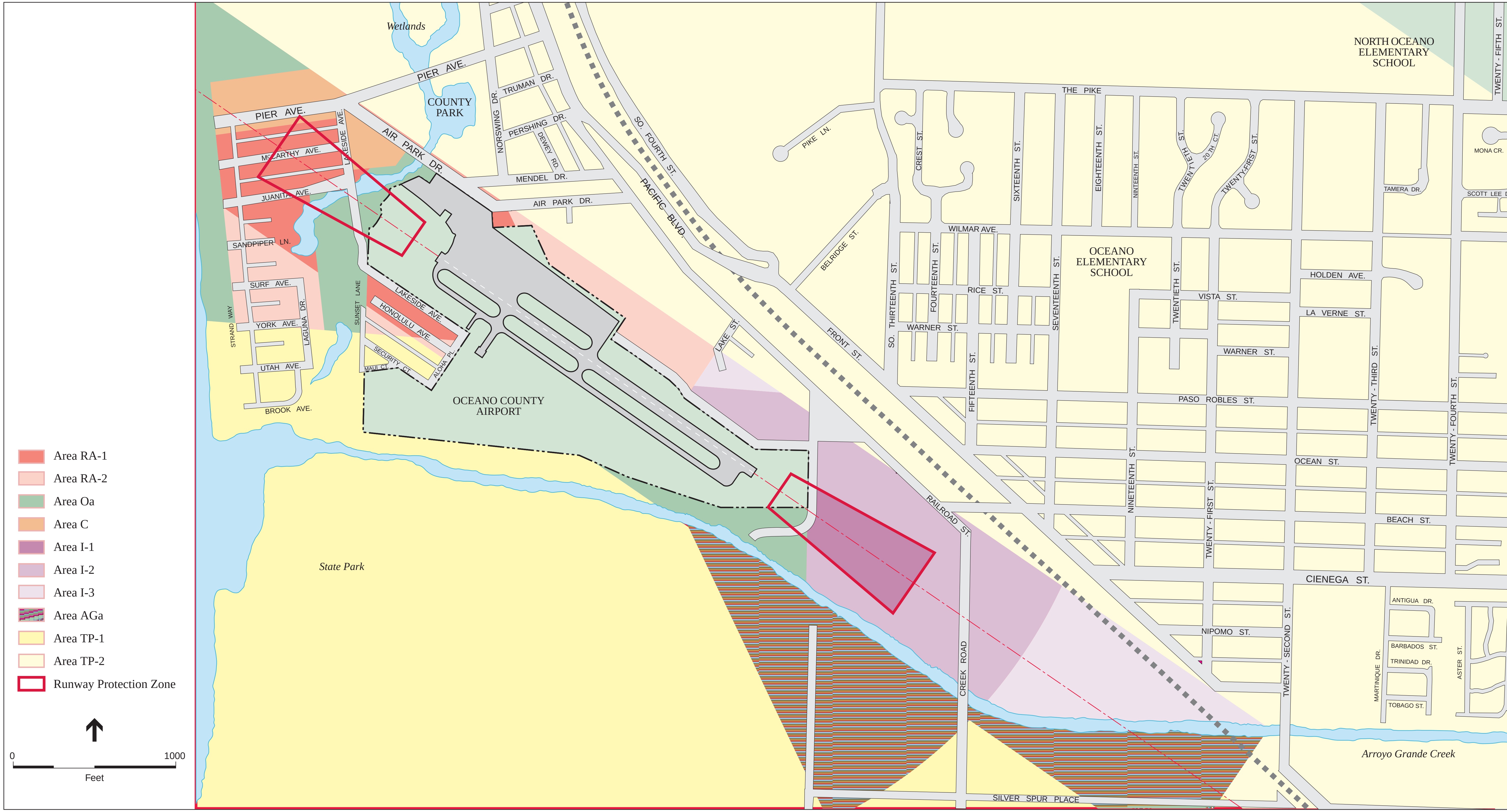


SOURCE: Oceano County Airport, Airport Land Use Commission, 2007; and ESA Airports, 2008

Oceano Airport Master Plan - Environmental Overview . 205474

Figure B-1

Airport Land Use Planning Areas



SOURCE: Oceano County Airport, Airport Land Use Commission, 2007; and ESA Airports, 2008

Figure B-2
Airport Land Use Planning Areas –
Detail Map of Oceano Village Area

residential development is generally considered, from the standpoints of both noise and safety, to be one of the most incompatible of all land use types with airport operations.

However, given the historical pattern of residential land use in Area RA-1 and the few remaining vacant parcels, the Airport Land Use Commission (ALUC), with respect to Area RA-1 incorporate the following principles:

- o Present residential land uses should be permitted to remain. Intensification of existing residential uses is to be avoided.
- o Property owners should be able to improve their properties in a manner consistent with adjacent parcels.
- o Rezoning of additional land for residential use within the Runway Protection Zones or the Inner Approach/Departure Zones will not be allowed.

- **Area RA-2: Residential Use Areas Exposed to Significant Airport Impact** – includes properties which are currently designated for residential use by the County and which lie within areas identified by the Airport Land Use Planning Handbook as the *Inner Turning Zones* and *Sideline Zones* of the airport.

  As with Area RA-1, the ALUC recognizes the existence of long-standing residential neighborhoods within the Inner Turning Zones and Sideline Zones and the lack of any feasible means to abate the resulting safety incompatibilities. Consequently, the policies of this Airport Land Use Plan have been designed to permit existing residential zoning and development to remain unchanged and to allow development of vacant parcels in a manner consistent with the surrounding neighborhood. However, expansion of current residential zoning or intensification of residential density is to be avoided.

- **Area Oa: Open Space Areas Exposed to Severe/Significant Airport Impact –** includes properties which are currently assigned to the recreational or public facilities zoning designation by the County or are undesignated, which are substantially undeveloped, and which lie within the *Runway Protection Zones*, the *Inner Approach/Departure Zones,* the *Inner Turning Zones*, and the *Sideline Zones* of the airport. This area includes a park which lies to the immediate northwest of the runway, a narrow strip of river bank that abuts the southern edge of the airport boundary, and a portion of the Oceano Dunes State Vehicular Recreation Area. Much of Area Oa consists of wetlands and, as such, has very limited development potential.

  Open space areas are generally compatible with airport operations and consistent with state standards for all safety zones. The Airport Land Use Plan, therefore, requires only that Area Oa remain as is.

- **Area C: Commercial Use Area Exposed to Severe Airport Impact** – includes areas which are zoned for retail commercial use by the County and which lie within the state-defined *Runway Protection Zones* and *Inner Approach/Departure Zones* of the airport.

This Area includes primarily the existing commercially-zoned properties along the north and south sides of Pier Avenue. The area is currently developed with relatively low-intensity retail sales and service establishments, together with some multi-family residential uses. The most intensive commercial establishments are two restaurants. A significant number of parcels in Area C are undeveloped.

Because the area of commercially-zoned property within the Runway Protection Zone is quite small and is located at the extreme edge and outer end of the Zone, however, the ALUC has elected to consider all of Area C under the less restrictive State guidelines for the Inner Approach/Departure Zone.

As with Areas RA-1 and RA-2, the Airport Land Use Plan acknowledges the presence of existing development in Area C and the need, in the interest of fairness, to permit the owners of now-vacant parcels to develop commercial uses that are consistent with other nearby properties. Because residential development is inherently less compatible with airport operations and because it is not the primary use in this commercially-zoned area, the establishment of new residential land uses in Area C is prohibited.

- **Area I-1: Industrial Use Area Exposed to Extreme Airport Impact** – includes properties which are designated for industrial use by the County's planning documents and which lie within the *Runway Protection Zones* of the airport. These properties are subject to potential severe noise and safety impacts.

  Because Area I-1 is largely undeveloped, there is no basis for modifying State guidelines to accommodate established patterns of land use. The Airport Land Use Plan, therefore, adopts the standards of the Airport Land Use Planning Handbook for future land uses in Area I-1. While the development of parcels in Area I-1 clearly will be constrained by safety concerns, the industrial zoning of this area affords the possibility that properties can be used for storage yards, parking, or other purposes that entail minimal human participation.

- **Area I-2: Industrial Use Area Exposed to Severe Airport Impact** – includes properties which are designated for industrial use by the County's planning documents and which lie within the *Inner Approach/Departure Zones* of the airport.

  Because Area I-2 is largely undeveloped, the ALUP has incorporated the standards of the Airport Land Use Planning Handbook with respect to future land uses. It is anticipated that ALUP standards for maximum allowable land use intensity (40 persons per acre) will be adequate to accommodate most industrial land uses.

- **Area I-3: Industrial Use Area Exposed to Significant Airport Impact** – includes properties which are designated for industrial use by the County's planning documents and which lie within the *Sideline Zone* and the *Outer Approach/Departure Zones* of the airport.

With respect to Area I-3, the ALUP has incorporated the standards of the Airport Land Use Planning Handbook for future land uses. However, it is very unlikely that ALUP standards for maximum land use intensity (80 persons per acre) will be a limiting factor for any future industrial use.

- **Area AGa: Agricultural Use Area Exposed to Significant Airport Impact** – includes properties which are designated for agricultural use by the County's planning documents and which lie within the *Inner Turning Zones* and *Outer Approach/Departure Zones* of the airport.

  Because the existing agricultural land use designation in this area is relatively consistent with airport operations, the ALUP adopts current County standards for residential development (one dwelling unit per five acres). In addition, the non-residential density limit of 80 persons per acre is expected to be adequate to permit virtually any agricultural processing, packing, or storage operations that might be proposed for this area.

- **Area TP-1: Areas Exposed to Slight Airport Impact** – includes all properties which are within the Airport Planning Area, but which are not included in any of the planning areas described above and which are located to the south and west of the extended runway centerline. Because of the airport's single-sided traffic pattern, overflight in Area TP-1 may be expected by both arriving and departing aircraft, as well as by airplanes whose pilots are making repeated practice takeoffs and landings. Aircraft in this area are at relatively high altitudes and are not performing complex maneuvers. Aviation noise and safety impacts are, therefore, expected to be relatively low.

- **Area TP-2: Areas Exposed to Minimal Airport Impact** – includes all properties which are within the Airport Planning Area, which are not included in any of the planning areas described above and which lie to the north and east of the extended runway centerline. Because the entire traffic pattern for aircraft arriving at the Airport is on the southwest of the extended centerline, overflight in Area TP-1 is to be expected only by departing aircraft. Aviation noise and safety impacts are expected to be quite low.

Safety

As described in the *California Airport Land Use Planning Handbook* published by the Caltrans Division of Aeronautics (2002), safety is a primary consideration when making land use decisions in the vicinity of an airport. Safety issues to be considered include: protecting people and property on the ground, minimizing injury to aircraft occupants, and preventing the creations of new hazards to flight.

The County of San Luis Obispo has, in response to the mandates of the State Aeronautics Act, created an Airport Land Use Commission (ALUC) to prepare airport Compatibility Plans (Airport Land Use Plans or ALUPs) and to review Local Agency Actions and Airport Plans. The County adopted its first ALUP in 1976, and prepared modifications to the ALUP following the release of the Caltrans Airport Land Use Handbook in January 2002. The ALUC assists local agencies in order to ensure that new land uses and development are compatible with aviation operations, while at the same time protecting the health, safety, and welfare of those who live and work in the airport vicinity.

Compatible Land Uses

In order to protect people and property on the ground and aircraft passengers/operators, the ALUP creates policies to promote and enhance safety through compatible land use, clear areas and safety zones, and airspace protection. The ALUP is used by local agencies to identify the types of land uses that are appropriate in the vicinity of the airport. For example, the development of hospital or school facilities is generally prohibited because they create large populations of persons who could be affected in the event of an incursion or other aviation incident. Similarly, even low-density uses, such as industrial uses can be prohibited should they pose potential hazards to aviators, such as obstructions (e.g., smokestacks, power lines, etc.) sources of smoke or glare, or uses that would attract birds or other potentially hazardous wildlife. The ALUC, through implementation of the ALUP, prevents the development of new land uses that could pose such safety hazards. The ALUP presents an extensive list of land uses that are considered compatible with the Airport Land Use Areas shown in Figure B-1. Proposed new land uses within the planning area would require review by the ALUC to ensure that they comply with the ALUP.

Clear Areas and Safety Zones

The Federal Aviation Administration (FAA) limits its guidance on safety issues to the immediate vicinity of the runway, the runway zones at each end of the runway, and the protection of navigable airspace. FAA's safety criteria focus on the runway surface and the areas adjacent to it. The standards set forth in FAA Advisory Circular 150/5200-13, *Airport Design*, identify specific dimensions for runway gradients and areas such as: runway safety areas (RSAs), runway protection zones (RPZs), object free areas (OFA), object free zones (OFZs), etc.

As shown in Figure 4-B, "Airport Considerations", of the Master Plan, only the RPZ extends off of airport property. The RPZ is a trapezoidal area centered on the runway, and it usually originates approximately 200 feet off of the end of the runway. FAA established the RPZ to provide an area clear of obstructions and prevent incompatible land uses in an effort to enhance safety for approaching aircraft and those on the ground. The area designated as the RPZ is included entirely within the ALUP for Oceano Airport, and proposed new uses would have to be reviewed for its compatibility within the RPZ. As shown in the Master Plan, the size of the RPZ would not change or shift as a result of the facility requirements identified.

Airspace Protection

Federal Aviation Regulation (FAR) Part 77, *Objects Affecting Navigable Airspace*, establishes standards for determining obstructions to navigable airspace. This regulation requires that FAA be notified of any proposed construction or alteration of objects that would exceed the height limits identified by FAR Part 77.

Prior to the construction of any proposed Master Plan facility requirements, airport staff would be required to submit FAA form 7460-1, Notice of Construction or Alteration," to FAA. Upon receipt, FAA would conduct an aeronautical study to determine whether the proposed facility would constitute an airspace hazard that would require relocation, design modification, lighting, marking, etc. Similarly, the ALUP for Oceano airport encompasses the off-site areas that would be subject to FAR Part 77. Projects proposed in this area that exceed the heights specified in the ALUP would be required to undergo FAA airspace review to prevent intrusion to protected airspace.

B.2.3 Fish, Wildlife, and Plants

FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, lists numerous requirements related to the protection of fish, wildlife, and plant populations as well as their respective habitats. Key among them is Section 7 of the federal Endangered Species Act (FESA), which applies to federal agency actions and sets forth requirements for consultation to determine if the proposed action "may affect" an endangered or threatened species. If an agency, such as the FAA, determines that an action "may affect" a threatened or endangered species, then it must consult with the U.S. Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service (NMFS) to ensure that their action is not likely to jeopardize the continued existence of any federally listed endangered or threatened species or result in the destruction or adverse modification of critical habitat.

The California Endangered Species Act (CESA) provides similar protection. Among the considerations specified in the CEQA *Guidelines,* are requirements to evaluate project effects on special status species and to determine whether a project would interfere substantially with the movement of any native resident or migratory fish or wildlife species. Where the project would adversely affect special status species, CEQA requires coordination with the California Department of Fish and Game (CDFG) to identify methods to avoid, reduce, or mitigate project impacts. CEQA *Guidelines* also requires evaluation of project consistency with any Habitat Conservation Plan (HCP), Natural Community Conservation Plan, or other approved local, regional, or state conservation plans.

Currently, there are no HCPs approved for the area. However, the California Department of Parks and Recreation is preparing an HCP for six coastal parks within San Luis Obispo County which permit "incidental take" of plant and wildlife species identified within the planning area.

Existing Biological Conditions

Biologists visited the airport in June 2003 and conducted a routine field delineation of potential wetlands and water-associated habitats subject to U.S. Army Corps of Engineers (Corps) and California Coastal Commission (CCC) jurisdiction. Those findings are summarized here and in Section B.3.2 Wetlands.

Vegetation and Habitat

Based, in part, on the Holland (1986) and Sawyer/Keeler-Wolf (1995) classification systems, six basic vegetation types were identified and mapped on-site, including annual grassland/ruderal, creeping wildrye series, fennel series, non-native groves, arroyo willow riparian scrub, and seasonal emergent wetlands (see Figure B-3). Each of these basic vegetation types presented some variation in terms of species composition and dominance as they occurred throughout the site. Table B-2 provides a summary of the dominant species for each vegetation type and their percent cover, as well as a complete listing of species occurring in each vegetation type with a preponderance of wetland vegetation with percent cover given for all species. A range for percent cover is often given since proportional dominance varied within a given vegetation type as it occurred in different areas throughout the airport. The first four vegetation types are characterized as upland types and the last two are characterized as wetland types. Characterization was based first on whether or not a preponderance of hydrophytic species dominated within the mapped unit and then on the evidence for hydrology and/or hydric soils. There are no intact upland native plant communities remaining within the survey area due to the high degree of previous site disturbance. Overall, the dominant vegetation on-site can be characterized as non-native annual grasslands, mixed with ruderal species. Repeated disturbance has essentially eliminated native species from these areas by enabling the establishment of non-native herbaceous species adapted to frequent disturbance. Conversely, wetland vegetation is dominated by native species, with only a few non-natives present. Each vegetation type is described briefly below. The following vegetation types were determined to be upland types, even though two of them are dominated by hydrophytic vegetation.

SOURCE: ESA, 2004

Oceano Airport Master Plan - Environmental Overview . 205474

Figure B-3
Vegetation

TABLE B-2
VEGETATION TYPES, DOMINANT SPECIES, AND PERCENT COVER[1]

Vegetation type	Dominant species	Percent cover	Subdominant species	Percent cover
Annual grassland/ruderal	*Pennisetum clandestinum* *Lolium multiflorum* *Bromus diandrus* *Vulpia myuros* *Avena sativa* *Bromus hordeaceus* *Plantago coronopus*	50-100 80 45 30-40 20 20-40 40	*Sonchus asper* *Brassica nigra* *Melilotus indica* *Distichlis spicata* *Carpobrotus edulis* *Mesembryanthemum* sp. *Medicago* sp. *Ambrosia* sp. *Heterotheca grandiflora*	
Creeping wildrye series	*Leymus triticoides*	100	*Rumex crispus* *Lolium multiflorum*	
Fennel series	*Foeniculum vulgare* *Atriplex subspicata*	35 25	*Lolium multiflorum* *Brassica rapa*	
Non-native groves	Tree layer: *Cupressus* sp. *Pinus* sp. Herb layer: Pennisetum clandestinum	 50 80	*Myoporum laetum*	
Arroyo willow riparian scrub	Tree layer: *Salix lasiolepis* Herb layer: *Potentilla anserina* *Cynodon dactylon* *Baccharis douglasii*	 40 95 20 20	*Lolium multiflorum* *Plantago major* *Rubus ursinus* *Scirpus americanus* *Bromus carinatus* *Polypogon monspeliensis* *Equisetum telmateia*	<1-10 <1 <1 <1 <5 10 5
Seasonal emergent wetlands	Always dominant: *Atriplex triangularis* *Atriplex* sp. *Potentilla anserina* *Jaumea carnosa* *Equisetum telmateia* *Carex* sp.	 30 25 25-100 40-85 85 45-60	Always subdominant: *Polypogon monspeliensis* *Lolium multiflorum* *Rumex acetosella* *Bromus carinatus* *Juncus* sp. *Heliotropum curassavicum* *Salicornia virginica* *Frankenia grandiflora* *Aster* sp. *Apium graveolens dulce*	 <1 <1 <1 <1 5 10 <1 <1 <5 <5
	Dominant or subdominant: *Distichlis spicata* *Lolium multiflorum* *Plantago lanceolata* *Cynodon dactylon* *Rumex crispus* *Scirpus americanus* *Leymus triticoides* *Pennisetum clandestinun*	 10-90 <1-90 3-25 <5-50 <1-25 5-20 5-100 5-100		
Source: ESA, 2004a				

[1] Percent cover for subdominant species estimated for vegetation types with a preponderance of wetland vegetation only. Proportional dominance varied substantially between wetlands in different areas of the site; therefore a range for species dominance is often given.

Annual grassland/ruderal: The majority of vegetation on the airport property can be classified as annual grassland mixed with ruderal herbaceous species. This vegetation type occurs on sandy soils at higher elevations throughout the site and is dominated by non-native annual grasses and weedy non-native herbaceous species. It occurs in the vegetated areas between the runway and taxiway and at the northwest and southeast ends of the airport. The dominant species in this association are ripgut brome (*Bromus diandrus*), rattail fescue (*Vulpia myuros*), kikuyu grass (*Pennisetum clandestinum*), and Italian ryegrass (*Lolium multiflorum*). Other species occurring in this association include wild oat (*Avena* sp.), soft chess (*Bromus hordeaceus*), telegraph weed (*Heterotheca grandiflora*), English plantain (*Plantago lanceolata*), black mustard (*Brassica nigra*), hairy vetch (*Vicia villosa*), curly dock (*Rumex crispus*) and clover (*Trifolium hirtum*). Iceplant (*Carpobrotus edulis* and *Mesembryanthemum* sp.) occurs in several patches widely scattered throughout the site. A few coastal scrub species are scattered throughout the grassland at the southeastern end of the airport, including coyote brush (*Baccharis pilularis*), yellow bush lupine (*Lupinus arboreus*), and California blackberry (*Rubus ursinus*). Much of this vegetation had been mowed at the time of the field investigations and was, therefore, difficult to characterize completely in some areas.

Creeping wildrye series: This vegetation type occurs on a terrace along the southeastern portion of the airport adjacent to, but at a higher elevation than, the swale to the northeast. Creeping wildrye (*Leymus triticoides*) dominates this area almost exclusively. Creeping wildrye has exhibited a wide range of tolerance for available soil moisture at the airport and was found in areas with saturated hydric soils, as well as in areas with dry sandy soils. This series as mapped did not indicate the presence of a functioning wetland, since the data collected on this terrace contained no evidence of hydric soils or hydrology.

Fennel series: This vegetation type is dominated almost exclusively by fennel (*Foeniculum vulgare*) and occurs in a large swath on a gentle slope along the easterly portion of the southwestern perimeter of the airport. The ground here slopes down to the airport from the water treatment plant to the southwest. This species has a broad tolerance for soil moisture conditions and, in generally mesic climates, such as occur along the California coast, is often found growing in non-wetland conditions. Other species occurring as associates in this vegetation type included field mustard (*Brassica rapa*), *Atriplex subspicata*, and occasional Italian ryegrass. This series as mapped did not indicate the presence of a functioning wetland as there was no evidence of hydric soils or hydrology.

Non-native groves: Non-native trees have been planted on and adjacent to airport property. They occur along the northernmost corner of the property and along portions of the northeastern perimeter, and within landscaped areas in adjacent residential areas. The most common species planted are cypress (*Cupressus* sp.) myoporum (*Myoporum laetum*), and various pines (*Pinus* sp.). Where these groves occur on the airport property the understory consists primarily of kikuyu grass and other non-native grasses and weeds.

The following vegetation types were determined to have a preponderance of hydrophytic vegetation and occurred in conjunction with the presence of hydric soils and/or hydrologic indicators. Thus, they were determined to occur in wetlands.

Arroyo willow riparian scrub: This vegetation type occurs as wetlands in two places along the southwestern perimeter of the airport. Associated species include Douglas' false willow (*Baccharis douglasii*), Italian ryegrass, silverweed (*Potentilla anserina*), and giant horsetail. The other wetland characteristics of these sites are described in greater detail in Section B.3.2 Wetlands. Several lone willows and small groups of willows also occur toward the southwestern end of the airport. These stands were not fully investigated as they occurred at higher elevations with no evidence of hydrology and were located outside of the construction footprint as currently understood. Associated species included coyote brush, California blackberry, Italian thistle (*Carduus pycnocephalus*) and ripgut brome.

Seasonal emergent wetlands: Seasonal emergent wetlands occur primarily in the southern and western portions of the site, as well as the in the two drainage swales located to the northeast of the runway. These wetlands all occur in distinct topographic depressions. A similar suite of species can be found in all of these wetlands, although their proportional dominance varies and occasional associates also occur. Species common to most, if not all, of these wetlands include silverweed, saltgrass (*Distichlis spicata*), fleshy jaumea (*Jaumea carnosa*), creeping wildrye, and Italian ryegrass. The first three of these species were commonly found in the lowest lying portions of the wetlands, while the grasses were most abundant on slightly higher ground but still within the topographic depressions containing the wetlands.

Threatened, Endangered, and Special Status Species (Vegetation and Habitat)

Habitat for three plant species documented from the general vicinity (CNDDB, 2003) exists at the airport. These species are La Graciosa thistle (*Cirsium loncholepis*), listed as federally endangered and state threatened; crisp monardella (*Monardella crispa*), a federal species of concern; and San Luis Obispo monardella (*Monardella frutescens*), also a federal species of concern. None of these species were noted during the wetland delineation field investigations; and although their presence is unlikely on the site due to its long history of disturbance, their presence cannot be ruled out in the absence of a focused floristic survey. Oceano Lagoon, immediately adjacent to the airport, is identified as a Sensitive Resource Area in the *Coastal Plan* (2004) and is designated as an Environmentally Sensitive Habitat Area (ESHA) (California Coastal Commission, 2000) as defined by the California Coastal Act. Coastal and valley freshwater marsh, as well as brackish marsh, which occur in the Oceano Lagoon, are listed as sensitive on the global level and rare and very threatened on the state level. The wetlands on the project site may be considered ESHA under the Coastal Act, particularly in light of their connectivity with Oceano Lagoon.

Wildlife

Wildlife habitat at the airport falls within five categories as described by the California Wildlife Habitat Relationships (CWHR) system (Mayer and Laudenslayer 1988): "annual grassland" corresponds to the annual grassland/ruderal vegetation type described above; "perennial grassland" corresponds to creeping wildrye series; "urban" best corresponds to non-native groves; "riparian" corresponds to arroyo willow riparian scrub; and "fresh emergent wetland" to seasonal emergent wetlands. There is no corresponding wildlife habitat designation for the fennel series. A number of common wildlife species use these habitats. Species observed during field surveys

(ESA, 2003) include Northern mockingbird (*Mimus polyglottos*), killdeer (*Charadrius vociferous*), and pocket gopher (*Thomomys bottae*). These are common species typical of edge habitat found in semi-rural and agricultural lands.

Threatened, Endangered, and Special Status Species (Wildlife)

California red-legged frog (CRLF; *Rana aurora draytonii*) and central-south coast steelhead (*Onchorhychus mykiss irideus*), listed as threatened by the USFWS, are both documented as occurring in the lower reaches of Arroyo Grande Creek (CNDDB, 2003). Because the airport provides seasonal wetland habitat adjacent to, and with connectivity to, permanent waterbodies and is in relatively close proximity to documented locations, the absence of CRLF at the airport cannot be concluded. However, the presence of aquatic habitat on-site is seasonal and there are no appropriate upland refugia at the airport, as no ground squirrel burrows were noted during the field investigations. Therefore, the likelihood of CRLF using the site for breeding purposes is low. Similarly, the likelihood of California tiger salamander (*Ambystoma californiense*) using the airport is low as this species also requires upland refugia. Additionally, this species is not documented as occurring in the area (CNDDB, 2003). Southwestern pond turtle, a federal species of concern, is documented from the Nipomo Dunes area south of the airport and marginally suitable habitat exists at the airport for the species, although the lack of permanent water makes it unlikely that breeding would occur at the airport.

Marginally suitable nesting habitat for the federally threatened western snowy plover (*Charadrius alexandrinus nivosus*) and for the federally and state endangered California least tern (*Sterna antillarum browni*) exists at the airport and these species are known from the Nipomo dunes in the Oso Flaco Lake area to the south of the airport (CNDDB, 2003).

There are a number of monarch butterfly (*Danaus plexippus*) roosting sites, which are protected by CDFG, in the vicinity of the airport. The butterflies are documented primarily from eucalyptus (*Eucalyptus globulus*) groves but are also known to use Monterey pines. It is unlikely that the species uses any of the trees on the airport as regular annual wintering sites as there are no documented sightings from the airport (CNDDB, 2003).

B.2.4 Energy Supply and Natural Resources

Transportation-related energy is generally regulated at the federal level. In addition, FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, notes that Executive Order 13123, *Greening the Government through Efficient Energy Management*, encourages each federal agency to expand the use of renewable energy within its facilities. The Executive Order also requires each federal agency to reduce petroleum use, total energy use, and associated air emissions, and water consumption at its facilities.

Building energy consumption is generally regulated at the state level. In California, building energy consumption is regulated under the *California Energy Code* (revised 2003) which is set forth in the *California Code of Regulations (CCR), Title 24, Part 6*. The efficiency standards apply to new construction of both residential and non-residential buildings, and regulate energy consumed for heating, cooling, ventilation, water heating, and lighting. The building energy efficiency standards are enforced through the local building permit process.

In 1948, oil was discovered in the Guadalupe Dunes to the south and sand mining was later pursued in portions of the Nipomo Dunes. However, over time, growing environmental awareness led to increased interest in restoration and preservation of the dunes to provide habitat and public access. As a result, the Guadalupe-Nipomo dunes National Wildlife Refuge was established in 2000 (USFWS, 2006).

While there are no identified energy resources at the airport, there are various energy-related activities in the airport vicinity. Existing oil fields are located inland from Oceano, in Price Canyon, Tiber Canyon, and in the hills of Ormonde Road. Any expansion of these existing oilfields requires development plan approval. The Diablo Canyon Nuclear Power Plant is located up the coast from Oceano. The County requires that access to the plant remain restricted (*San Luis Bay Area Plan – Coastal*, pages 8-3 and 8-5). Offshore oil support facilities are located to the north at Port San Luis and require County approvals for new or expanded development (*San Luis Bay Area Plan – Coastal*, page 8-14).

Depending on the proposed action, the extent of impacts to the energy supply or natural resources will be determined prior to development. For example, if a project were to cause energy demand to greatly exceed the capacity of the utility infrastructure, or greatly increase fuel consumption, or use a natural resource that is in short supply, then an assessment of the impact to natural resources would be conducted.

B.2.5 Geology and Seismicity

FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, does not require the examination of geology and seismicity impacts. However, the CEQA *Guidelines* require evaluation of such site conditions as the degree of seismic, liquefaction, landslide, or erosion potential. State and local regulations also provide protection of health and safety from geologic and seismic hazards. Government Code Section 65302 requires a safety element within a general plan to protect the community from geologic hazards, including an assessment of seismic hazards and recommendations to reduce adverse impacts associated with seismic events. The *California Building Code* has been codified in *CCR, Title 24, Part 2*, and includes significant building design criteria that have been tailored for California earthquake conditions.

Following the San Simeon earthquake in December 2003, the USGS conducted extensive subsurface exploration and monitoring of aftershocks to determine the cause of earthquake-related damage in Oceano. The USGS investigation indicates that the shallow geologic units beneath Oceano are very susceptible to liquefaction – a condition where saturated sands lose their strength during an earthquake and become fluid-like and mobile (USGS, 2004). In Oceano, this material is typically young sand dunes and clean sandy fill that was placed in marshes and wet areas to create buildable lots. The risk of liquefaction and lateral spreading can be mitigated by compliance with up-to-date building codes. New construction is required to meet these standards, while compliance for existing structures is voluntary. Geologic and seismic considerations will be addressed during the planning, design, and construction of specific projects at the airport.

B.3 Water Impact Categories

B.3.1 Water Quality

The Clean Water Act (CWA) is the primary federal law regulating water quality in the U.S. and forms the basis for several state and local laws throughout the country. Its objective is to reduce or eliminate water pollution in the nation's rivers, streams, lakes, and coastal waters. The CWA prescribes the basic federal laws for regulating discharges of pollutants and sets minimum water quality standards for all surface waters in the U.S. At the federal level, the CWA is administered by the U.S. Environmental Protection Agency (EPA). At the state and regional levels, the CWA is administered and enforced by the State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards (RWQCBs).

Oceano relies on water from groundwater wells to supplement entitlements from the Lopez Reservoir (*San Luis Bay Area Plan – Coastal*, page 5-4). Specific development proposals would need to evaluate effects on water supply.

B.3.2 Wetlands

As summarized in FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures,* wetlands are protected by the Clean Water Act; Executive Order 11990, *Protection of Wetlands;* and Department of Transportation (DOT) Order 5660.1A, *Preservation of the Nation's Wetlands.* Executive Order 11990 requires federal agencies to ensure their actions minimize the destruction, loss, or degradation of wetlands. It also assures the protection, preservation, and enhancement of the Nation's wetlands to the fullest extent practicable during the planning, construction, funding, and operation of transportation facilities and projects. DOT Order 5660.1A sets forth DOT policy that transportation facilities should be planned, constructed, and operated to assure protection and enhancement of wetlands. The State's authority to regulate activities in wetlands and waters at the site resides primarily with the CDFG and the RWQCB.

Wetlands are areas that are inundated by surface or groundwater with a frequency sufficient to support, under normal conditions, vegetation or aquatic life that requires saturated or seasonally saturated soil for growth and reproduction. These ecologically productive habitats support a rich variety of both plant and animal life. Wetlands also provide many other functions, such as flood control, replenishment of water supplies, and water quality protection. The importance and sensitivity of wetlands have increased as a result of their widespread destruction to enable urban and agricultural development.

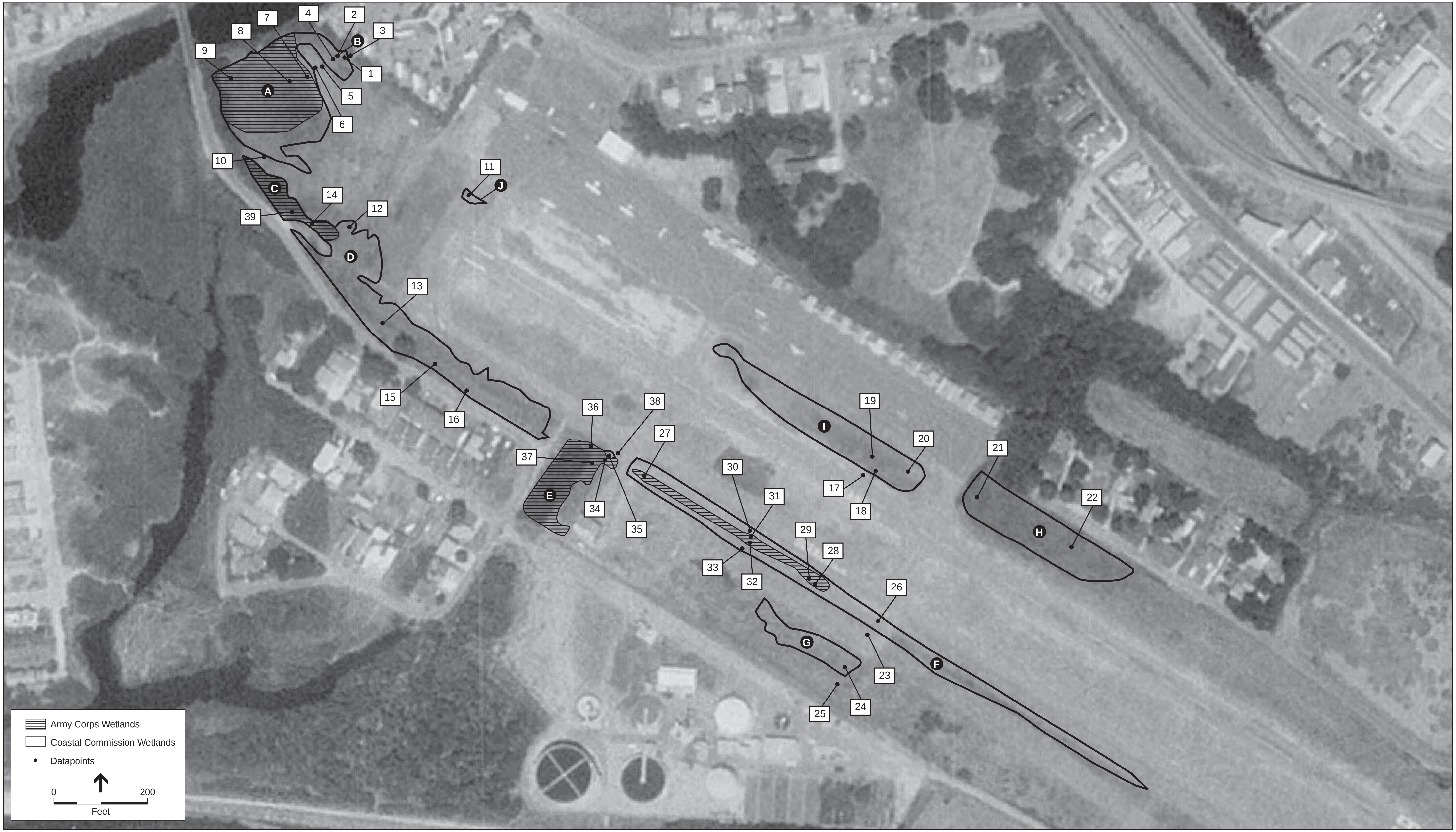
As previously noted, biologist conducted a routine field delineation of potential wetlands and water-associated habitats subject to Corps and CCC jurisdiction in June 2003. To fall under Corps jurisdiction, wetlands must meet criteria for three parameters: hydrophytic vegetation, hydrology, and soil conditions. Whereas, the CCC requires that a site meet the hydrophytic vegetation criterion and either the hydrologic or soil criteria.

The biological reconnaissance identified ten wetland and water-associated habitat areas on the site that meet CCC criteria (several of which also meet Corps criteria). These jurisdictional waters, as listed in Table B-3 and mapped on Figure B-4, include: four swales excavated to facilitate drainage of the upland areas of the airport (located northeast of the runway and southwest of the taxiway) that support emergent herbaceous wetland species (wetlands D, F, H, and I); a large broad topographic depression (located at the northwestern end of the airport immediately adjacent to Oceano Lagoon) that also supports emergent herbaceous hydrophytes (wetland A, also includes wetland B which is too small to map separately); a topographic depression located on higher ground on the southwestern side of the airport that supports emergent herbaceous hydrophytes (wetland G); a topographic depression located in generally upland habitat, a short distance north of the northwestern end of the runway (wetland J); and two swales located along the southwestern perimeter that also were likely excavated to facilitate drainage and that support arroyo willow riparian scrub (wetlands C and E). These wetlands, with the exception of the two located in generally upland areas, are found in the lowest elevations of the airport.

TABLE B-3
JURISDICTIONAL WATERS AT THE AIRPORT (Acres)

Wetlands		Corps	CCC
Arroyo willow riparian scrub	***Subtotal***	**0.391**	**0.391**
Wetland C – excavated swale		0.151	0.151
Wetland E (in part) – excavated swale		0.240	0.240
Seasonal emergent wetlands	***Subtotal***	**0.907**	**4.467**
Wetland A – northwestern wetland		0.699	1.022
Wetland B – northwestern wetland (in part)		0.002	0.002
Wetland D – excavated swale		0.000	0.966
Wetland E (in part) – excavated swale		0.092	0.097
Wetland F – excavated swale		0.114	0.953
Wetland G – southwestern wetland		0.000	0.204
Wetland H – excavated swale		0.000	0.572
Wetland I – excavated swale		0.000	0.640
Wetland J – topographic depression in upland		0.000	0.011
	Total	**1.298**	**4.858**

SOURCE: ESA, 2003



SOURCE: ESA, 2004

Oceano Airport Master Plan - Environmental Overview . 205474

Figure B-4
Wetland Delineation

The total wetland and water-associated habitat area potentially under CCC jurisdiction is 4.858 acres. As shown in Figure B-4, approximately 1.298 acres meet the three wetland criteria required to satisfy Corps jurisdictional requirements and, by default, also fall under CCC jurisdiction. The remaining 3.560 acres meet the hydrophytic vegetation criterion and either the hydrologic or soil criteria and, therefore, fall under CCC jurisdiction. A calculation for the CCC buffer for these areas is not included, since the buffer width may vary according to habitat quality (Carl, 2002). A discussion of jurisdictional areas follows.

Excavated swales/emergent herbaceous species: Four excavated swales with emergent herbaceous species are mapped as wetlands D, F, H, and I. As described earlier, these swales were excavated to facilitate drainage of runoff from the runway, taxiway, and other developed areas of the airport. The lowest elevations in these swales generally support obligate hydrophytes and, in the case of wetland F, hydric soils. Higher elevations within the swales generally support facultative vegetation and nearly all these sample points show oxidized rhizospheres as a secondary hydrology indicator in addition to topographic depression. Therefore, these features were delineated in the field to the elevation at which vegetation was no longer dominated by hydrophytes as this point correlated well with the presence of oxidized rhizospheres.

Excavated swales/arroyo willow riparian scrub: Two excavated swales vegetated with arroyo willow are mapped as wetlands C and E. These features both appear to be excavated swales that have revegetated with arroyo willow rather than emergent herbaceous species and both convey water off of the airport property into Oceano Lagoon. All three wetland criteria are met in both of these wetlands. They both support obligate hydrophytes in the understory, in addition to arroyo willow. Soils are hydric, and the hydrologic criterion is also met.

Northwestern wetland: This feature is a broad shallow bowl shown as wetland A. As with the herbaceous swales described above, the lowest elevations support obligate hydrophytes and the upper elevations support facultative species. Much of this wetland meets all three Corps criteria. However, the southern and northeastern portions only meet the vegetation and hydrology criteria and data point 1 (Figure B-4) only meets the vegetation and soil criteria. These areas therefore meet CCC jurisdiction criteria. At data point 2 (Figure B-4) there is a small nine by eleven foot area (wetland B) that meets all three Corps criteria.

Southwestern wetland: This seasonal emergent wetland (wetland G) consists of a topographic depression within an otherwise upland terrace that contains facultative vegetation but no hydric soils.

Wetland J: This feature is a topographic depression in an otherwise upland area that supports wetland vegetation, including one obligate species. Oxidized rhizospheres also were found here.

B.3.3 Floodplains

Executive Order 11988 was enacted in 1977 for the purpose of preventing federal agencies from contributing to the "adverse impacts associated with the occupancy and modification of floodplains" and the "direct or indirect support of floodplain development." Executive Order 11988 defines floodplains as "the lowland and relatively flat areas adjoining inland and coastal waters including flood prone areas of offshore islands, including at a minimum, the areas subject to a one percent or greater chance of flooding in any given year" (i.e., the area that would be inundated by a 100-year flood). Executive Order 11988 requires that federal agencies "take action to reduce the risk of flood loss, to minimize the impact of floods to human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains."

CEQA *Guidelines* require evaluation of activities that would alter the existing drainage pattern or rate of surface water runoff, such as by altering the course of a stream or increasing the rate or amount of surface runoff causing flooding on or off the site; create or contribute runoff water that that would exceed the capacity of existing or planned stormwater drainage systems; place structures within a 100-year flood hazard area that would impede or redirect flood flows; or expose people or structures to a risk of loss, injury, or death involving flooding.

The airport is located in the floodplains of Arroyo Grande Creek, which lies to the south, and Meadow Creek, which lies to the northwest. Meadow Creek runs from north to south through Pismo State Beach and its confluence with Arroyo Grande Creek is approximately 0.25 mile southwest of the airport. Meadow Creek forms Oceano Lagoon, part of which is directly adjacent to the northwestern perimeter of the airport. Oceano Lagoon continues to the southwest of the airport where its confluence with Arroyo Grande is controlled by tidegates.

As noted previously, the community generally drains toward Oceano Lagoon and Arroyo Grande Creek and the area around the airport often floods due to its low elevation and inadequate drainage (Questa Engineering Corporation, 2003). The County has identified several areas near the perimeter of the airport that are subject to flooding (*Oceano Specific Plan*, page 18). Any future development will require an assessment of flood hazard and mitigation, if applicable.

B.3.4 Wild and Scenic Rivers

The Wild and Scenic Rivers Act of 1968, as amended, and its implementing regulations at 36 CFR Part 297 describes those river segments designated or eligible to be included in the Wild and Scenic Rivers System. The President's 1979 Environmental Message Directive on Wild and Scenic Rivers (2 August 1979) directs federal agencies to avoid or mitigate adverse effects on rivers identified in the Nationwide Rivers Inventory as having potential for designation under the Wild and Scenic Rivers Act. The 11 August 1980 Council on Environmental Quality (CEQ) Memorandum on Procedures for Interagency Consultation requires federal agencies to consult with the National Park Service (NPS) when proposals may affect a river segment included in the Nationwide Rivers Inventory. The primary goal of the act is to prohibit new water impoundments on designated rivers.

The State of California also adopted the California Wild and Scenic Rivers Act (Public Resources Code Section 5093.50 et seq.) in 1972 to preserve designated rivers possessing extraordinary scenic, recreation fishery, or wildlife values. The policy seeks to preserve such rivers in their free-flowing condition.

There are no wild and scenic rivers at the airport and none would be affected by the proposed action. According to the Nationwide Rivers Inventory, the two closest wild and scenic river segments is a segment of the Big Sur River, located over 100 miles to the north, and a 33-mile segment of the Sisquoc River, located over 100 miles to the southwest in Santa Barbara County in the Los Padres National Forest. Future projects at the airport would not affect the freeflowing nature or outstandingly remarkable values of the either of those rivers.

B.3.5 Coastal Resources

Federal activities involving or affecting coastal resources are governed by the Coastal Zone Management Act (CZMA) and the Coastal Barriers Resources Act. Activities affecting coastal resources are also governed by the California Coast Act of 1976 (as of 2006).

Coastal Zone Management Act

CZMA and the National Oceanic and Atmospheric Administration (NOAA) implementing regulations (15 CFR Part 930) provide procedures for ensuring that a proposed action is consistent with approved coastal zone management programs. The CZMA is a federal program that is implemented locally. CZMA consistency only applies to states that have an approved Coastal Zone Management Plan (CZMP).

Federal agencies also must ensure that any actions that they authorize, fund, or carry out will not degrade the conditions of coral reef ecosystems pursuant to Executive Order 13089, Coral Reef Protection (63 FR 32701). Under this Order, U.S. coral reef ecosystems are defined to mean those species, habitats, and other natural resources associated with coral reefs in maritime areas and zones subject to the jurisdiction or control of the U.S.

CEQA *Guidelines* requires a consistency with applicable CZMP policies, plans, or regulations set forth by local agencies.

No coral reef ecosystems are located on or in the vicinity of the airport. However, the airport lies within the jurisdiction of the California Coast Commission. Future development will require Coast Development Permit approval.

Coastal Barriers Resources Act

Coastal barriers are landscape features that shield the mainland from the full force of wind, wave, and tidal energies. They can take on a variety of forms including islands and spits. Legislation passed in 1982 and 1990 limits federally-subsidized development within a defined Coastal Barrier Resources System.

The Coastal Barrier Resources Act of 1982 (CBRA), as amended by the Coastal Barrier Improvement Act of 1990 (16 U.S.C. 3501-3510; PL 97348) prohibits, with some exceptions, federal financial assistance for development within the Coastal Barrier Resources System (CBRS) that contains undeveloped coastal resources along the Atlantic and Gulf coasts and the Great Lakes.

Coastal barrier resources are not present along California's Pacific coast. For this reason, CEQA also does not address these resources.

B.4 Atmospheric Impact Categories

B.4.1 Air Quality

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographic features effecting pollutant movement and dispersal. Atmospheric conditions such as wind speed, wind direction, atmospheric stability, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants, and consequently affect air quality.

Regulation of air pollution is achieved through both federal and state ambient air quality standards and emission limits for individual sources of air pollutants. An "ambient air quality standard" represents the level of air pollutant in the outdoor (ambient) air necessary to protect public health. The EPA has identified criteria pollutants and established National Ambient Air Quality Standards (NAAQS or national standards) to protect public health and welfare. NAAQS have been established for ozone, carbon monoxide (CO), nitrogen dioxide (NO2), sulfur dioxide (SO2), particulate matter less than or equal to 10 microns (PM10), and particulate matter less than or equal to 2.5 microns (PM2.5), and lead. California has adopted more stringent ambient air quality standards for most of the criteria air pollutants (CAAQS or state standards).

Under the Clean Air Act, the FAA has the responsibility for applying the General Conformity Rule to federal actions involving airport development in nonattainment areas. The criteria for determining the conformity of such actions state that a conformity determination must be performed when the emissions caused by a federal action equal or exceed what are known as *de minimis* levels. Since San Luis Obispo is currently "attainment" or "unclassified" for all of the national ambient air quality standards, a conformity analysis would not be required.

According to FAA's *Air Quality Procedures for Civilian Airports and Air Force Bases* (2004), an air quality assessment (dispersion modeling) is not needed if activity forecasts, for a general aviation airport, predict less than 180,000 general aviation operations annually.

Total general aviation operations at the airport were approximately 9,500 in 2005. The Master Plan forecasts 13,200 annual operations by 2025, based on an average annual growth rate of 1.7 percent. This represents a very small fraction of the activity level that would require dispersion modeling.

If future development requires preparation of an Environmental Assessment (EA), and if that action results in a capacity enhancement, then the FAA would require an emissions inventory. Future development would also be required to comply with the guidance provided by the San Luis Obispo County Air Pollution Control District, CEQA *Air Quality Handbook* (2003) for analyzing and mitigating project-specific air quality impacts from construction and operational activities.

B.4.2 Noise

California does not have the authority to regulate aircraft single event noise levels. It has, however, established 65 decibel Community Noise Equivalent Level (65 CNEL) as the "standard for the acceptable level of aircraft noise for persons living in the vicinity of airports" (California Code of Regulations (CCR), Title 21 Section 5012). This is a regulatory limit for an airport when the county, wherein the airport lies, adopts a resolution declaring the airport has a "noise problem" (CCR Section 5020). Since the County of San Luis Obispo has not declared it to have a noise problem pursuant to State Regulations, 65 dB CNEL is not an imposed limit at Oceano Airport. The *Airport Land Use Plan* provides noise contours of single event noise levels in decibels (dB), which is included here (Figure B-5) for informational purposes only. Existing residential uses are located off the Runway 11 and across Front Street, generally northeast of the airport. Less sensitive industrial uses are located off the Runway 29 end.

Noise is an important environmental issue with regard to the operation of most airports. Most environmental noise sources produce varying amounts of noise over time, so the measured sound levels also vary. Governmental agencies have developed a variety of noise descriptors as a means of quantifying, describing, and regulating these sound levels. The descriptors are typically used to assess noise from aircraft and surface traffic as well as from construction activities.

Noise Descriptors

In the United States, there are two basic approaches for quantifying, describing, and regulating noise levels for transportation noise sources. These approaches are generally reported as "noise descriptors," which are based upon established principles of physics and reported in numerical terms.

The first approach addresses the noise resulting from single noise "events." This approach is most directly relevant to aircraft noise events, which are generally perceived as discrete occurrences. It also is sometimes relevant in assessing construction noise impacts. The second type of noise descriptor commonly used to describe aircraft and surface transportation noise is referred to as a "cumulative" noise descriptor. Such descriptors describe in numerical terms the amount of noise occurring at a given location over a defined period of time. This period of time can be as short as one hour, but is more commonly calculated for an annualized 24-hour period. Cumulative noise descriptors can be used to describe noise exposure from a specific source, such as a roadway or an airport, or they can be used to describe total noise exposure from all noise sources affecting a specific location.

The cumulative noise descriptor defined for use in the State of California is the Community Noise Equivalent Level (CNEL). FAA Order 1050.1E, *Environmental Impact: Policies and Procedures,* and FAA Order 5050.4B, *NEPA Implementing Instructions for Airport Actions*, state that cumulative noise exposure of individuals to noise resulting from aviation activities must be established in terms of annual community noise equivalent level (CNEL).

Legend:

- 65db — 65db Noise Contour
- 75db — 75db Noise Contour
- 85db — 85db Noise Contour

SOURCE: Airport Land Use Plan, Oceano County Airport, 2006

Figure B-5
Single Event Noise Levels

Noise Thresholds

There are no FAA-approved or adopted criteria or thresholds for evaluating the significance of changes in aircraft single events that may result from an airport improvement project. However, an increase in a single event sound level of at least 3 dB is generally required before most people perceive a change. An increase of 5 dB is required before a change is clearly noticeable.

California has established a CNEL of 65 dBA as the standard for maximum outdoor noise levels in residential areas. FAA Regulations have determined that 65 CNEL is the level of noise "acceptable to a reasonable person residing in the vicinity of an airport." This is consistent with federal (FAA and U.S. Department of Housing and Urban Development) land use compatibility guidelines and federal noise attenuation grant funding eligibility criteria.

According to FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, no noise analysis is needed for proposals involving Design Group I and II airplanes (wingspan less than 79 feet), with landing speeds less than 166 knots, operating at airports whose forecast operations during the planning period do not exceed 90,000 annual propeller operations (247 average daily operations) *or* 700 jet operations (2 average daily operations). These numbers of general aviation and propeller and jet operations result in noise levels not exceeding 60 dB DNL contours of less than 1.1 square miles that extend no more than 12,500 feet from start of takeoff roll. The 65 dB DNL contour areas would be 0.5 square mile or less and extend no more than 10,000 feet from start of takeoff roll. Similarly, no noise analysis is required for existing airports with annual average daily of 10 helicopter operations, with hover times not exceeding two minutes.

Although the level and intensity of activity at the airport is well under these thresholds, a noise analysis could be useful to more specifically describe the noise conditions. The existing single event noise levels (Figure B-5), while informative, do not reflect the cumulative noise level required to determine significance.

If projects at the airport require noise analysis, then the Integrated Noise Model, along with local land use information, must be used to determine the level of significance. The noise contours would be based upon characteristics such as aircraft and engine type, aircraft mix, flight tracks and operational profiles, volume of daily operations, and runway elevation and length.

B.5 Community Impact Categories

B.5.1 Historical, Architectural, Archaeological, and Cultural Resources

Cultural resources, also referred to as historic properties, are districts, sites, buildings, structures, objects, and landscapes significant in American history, prehistory, architecture, archaeology, engineering and culture. For the purposes of this Master Plan, cultural resources include existing and/or potential historic and prehistoric archaeological sites, historic buildings and structures, and Native American Traditional Cultural Properties (TCPs).

The National Historic Preservation Act (NHPA) of 1966, as amended, establishes the Advisory Council on Historic Preservation (ACHP) and the National Register of Historic Places (NRHP) within the National Park Service (NPS). Section 106 of the NHPA requires federal agencies to consider the effects of their undertakings on properties on or eligible for inclusion in the NRHP. Compliance with Section 106 requires consultation with the ACHP, the State Historic Preservation Officer (SHPO), and /or the Tribal Historic Preservation Officer (THPO) if there is a potential adverse effect to historic properties on or eligible for listing on the NRHP. Consultation on preservation-related activities also may occur with other Federal, State, and local agencies, Tribes, Native Hawaiian organizations, the private sector, and the public.

The Archaeological and Historic Preservation Act of 1974 provides for the preservation of historic American sites, buildings, objects, and antiquities of national significance by providing for the survey, recovery, and preservation of historical and archaeological data which might otherwise be destroyed or irreparable lost due to a federal, federally licensed, or federally funded action.

CEQA provides similar guidance regarding impacts to historical and unique archaeological resources.

The effort to identify cultural resources in the project area included a field survey, record search, and contacts with Native Americans. This investigation was conducted by ESA (2004c), under the direct supervision of a Registered Professional Archaeologist, and those results are summarized below.

Field Survey

An archaeological field inspection of the airport was conducted on 7 August 2003 (ESA, 2004c) by a Registered Professional Archaeologist. The surface of the airport was inspected using systematic survey transects spaced between 15 and 20 meters apart. Although vegetation cover reduced the visibility of the surface, rodent spoil piles, existing graded surfaces, and duff scrapes were examined for evidence of archaeological remains such as artifacts, features, or culturally modified soil horizons. No cultural resources were identified at the airport. The archaeologist noted that the airport appeared to have been previously disturbed and that the surface is primarily fill material. Based on the survey and previous site disturbance, it is unlikely that archaeological remains are present near the ground surface at the airport.

Contacts with Native Americans

The archaeologist contacted the Native American Heritage Commission (NAHC) on 28 July 2004 and requested information on locations of importance to Native Americans and a list of Native Americans that should be contacted. The NAHC provided a list of 15 Native American individuals and organizations to contact. The archaeologist sent a letter to each organization on the NAHC list, providing information about the proposal at that time and requesting information on locations of importance to Native Americans. Ms. Adelina Alva-Padilla, Chairwoman of the Santa Ynez Band of Mission Indians indicated that the Tribal Elders Council had no knowledge of the airport as a spiritual or ceremonial site and requested additional information.

Records Search

A cultural resources records search of all pertinent survey and site data was conducted at the Central Coastal Information Center in August 2004. Records were accessed using the Oceano U.S. Geological Survey (USGS) 7.5-minute quadrangle map for an area that included the airport and surrounding areas within a ¼ mile radius of the airport. In addition to Information Center maps and site record forms, other sources that were reviewed included the Directory of Properties in the Historic Property Data File for San Luis Obispo County, the National Register of Historic Places, the California Register of Historic Resources, the California Inventory of Historic Resources (1976), the California Historical Landmarks (1996), and the California Points of Historical Interest (1992).

The records search found that no cultural resources have been previously identified at the airport. However, the record search indicated that thirteen archaeological sites, both prehistoric and historic, have been identified with a ¼ mile of the airport. Therefore, the airport vicinity should be considered sensitive for the presence of buried archaeological remains.

Future projects would need to consider potential impacts to previously unidentified archaeological resources as part of project planning, design, and construction.

B.5.2 Department of Transportation Section 4(f)

Section 4(f) of the Department of Transportation (DOT) Act, which was recodified and renumbered as section 303 (c) of 49 U.S.C., states that the Secretary of Transportation will not approve any program or project that requires the use of any publicly owned land or park, recreation area, or wildlife and waterfowl refuge of nation, state, or local significance, unless there is no feasible and prudent alternative to the use of such land and such program, and the project includes all possible planning to minimize harm resulting from the use.

CEQA does not specifically address Section 4(f) resources, but the CEQA *Guidelines* address potential impacts to the types of resources covered by DOT Section 303 (recreational facilities, wetlands, historic resources, and wildlife refuges).

San Luis Obispo County has designated three areas, totaling about 25 acres, and several trails within Oceano as *Recreation.* According to the *Oceano Specific Plan* (page 9), these areas are shown on the Land Use Map (*Oceano Specific Plan,* page 4) and include:

- Oceano Memorial Park (County Park) is the largest recreation area and is designated a Sensitive Resource Area. This park includes a campground, a fishing area, and grassy areas adjacent to the Oceano Lagoon.
- Sand and Surf is a recreational vehicle park, operated under agreement with the County, for full hook-up camping located on State Route 1 across from the beginning of Pier Avenue.
- Oceano Depot, on Front Street, was recently restored as a museum and community center.

- Several trails in or near Oceano, identified or proposed in the County Trails Plan, include the Juan Bautista trail plan along Highway 1, the Arroyo Grande Creek Trail, and a trail near Oceano Lagoon.

B.5.3 Socioeconomic Impacts

B.5.3.1 Transportation

FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures,* and FAA Order 5050.4B, *NEPA Implementing Instruction for Airport Actions,* indicate that a significant impact would occur if the proposed action causes an increase in congestion from surface transportation by causing a decrease in the Level of Service below acceptable levels determined by the appropriate transportation agency.

CEQA requires the evaluation of project impacts to intersection functioning and delays, traffic safety, and parking demand.

The *San Luis Bay Area Plan – Coastal* (Chapter 4, Circulation) describes the transportation infrastructure in Oceano and recommends improvements that are summarized here. The Pacific Coast Highway (State Route 1) provides access to area and experiences heavy tourist/recreation traffic which is expected to increase as tourist facilities are expanded. Air Park Drive provides access to the airport. The Plan identifies improvements to roads which are functioning as collectors, but which are not improved to County collector road standards:

- **Front Street** – Improve to urban collector standards from Highway 1 to the Grover City city limits.

- **Railroad Avenue / Beach Street** – Improve to urban collector standards from the Beach Street / State Route 1 Intersection to Pershing Drive.

- **Pier Avenue, Roosevelt Drive** – Improve to urban collector standards. Initiate a street tree program and provide bikeways along the Pier Avenue / Roosevelt Drive Alignment from the beachfront to State Route 1.

The Plan also identifies the poor condition of local streets in Oceano as a primary community problem. Broken pavement, lack of paving in some areas, and lack of curbs, gutters and sidewalks inconveniences residents and contributes to an overall poor appearance. Future off-street parking needs to be provided in the Central Business District.

Specific development proposals would need to evaluate impacts to intersection functioning and delays, traffic safety, and parking demand as applicable.

B.5.3.2 Environmental Justice

Executive Order 12898, *Federal Actions to address Environmental Justice in Minority and Low-Income Populations,* requires all federal agencies to identify and address disproportionately high and adverse impacts to minority and low-income populations. U.S. Department of Transportation (DOT) Order 56102.2 presents DOT's policy to promote the principles of environmental justice through the incorporation of those principles in all DOT programs, policies and activities. The DOT Order defines a low-income person as an individual whose median household income is at or below the poverty level. Minorities are defined as individuals or populations who are considered in the black, Asian/Pacific Islander, or American Indian/Alaskan Native racial categories, or individuals of Hispanic origins.

CEQA does not address environmental justice.

According to the *San Luis Bay Area Plan – Coastal* (Chapter 2, Population and Economy), the median family income in the Oceano Urban Area is only about 64 percent of the income for unincorporated areas of the County overall. The opportunities for employment in Oceano are confined to a few retail establishments in the downtown area, the produce packing sheds and related industries, and the beach resort commercial area. The majority of residents, approximately 40 percent, are employed in agriculture throughout the Arroyo Grande Valley. While the numbers in the Plan are not current, this available information suggests the presence of disadvantaged communities.

Specific development proposals would need to identify and address disproportionately high and adverse impacts to minority and low-income populations.

B.5.3.3 Children's Environmental Health and Safety Risk

Children may suffer disproportionately from environmental health and safety risks as a result of their developing bodies and systems and from the effect of products or substances with which they are likely to come in contact or ingest (e,g., air, food, drinking water, recreational waters, soil, or products to which they might use or be exposed). Pursuant to Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, FAA Order 1050.1E (Section 16.1b) directs federal agencies to make it a high priority to identify and assess environmental health risks and safety risks to children (i.e., the portion of the population under 18 years of age). Federal agencies are encouraged to ensure that their policies, programs, and activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.

CEQA does not specifically require evaluation of the impacts associated with children's environmental health and safety.

Specific development proposals would need to identify and address disproportionately high and adverse impacts to children's environmental health and safety.

B.5.4 Induced Socioeconomic Impacts

Induced impacts occur if a major development proposal affects the surrounding community. FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures, Section 15,* states that when a proposed action involves induced or secondary impacts to surrounding communities, the factors shall be described in general terms. The CEQA *Guidelines* also require consideration of effects to population and housing (often tied to employment), public services, and utilities.

B.5.4.1 Employment, Population, and Housing

The FAA requires the evaluation of a proposed project's potential to affect population and housing demand and to change business and economic activity.

CEQA *Guidelines* require evaluation of a project's potential to induce substantial population growth in an area, either directly (by proposing new homes and businesses) or indirectly (through the extension of roads or other infrastructure).

Specific development proposals would need to consider effects on employment, population and housing.

B.5.4.2 Public Services

FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures, Section 15*, states that a major airport development proposal could potentially have induced or secondary impacts on public services in surrounding communities. Normally, induced socioeconomic impacts on public services would not be considered significant unless there were significant impacts in other categories, such as land use or direct social impacts. However, a project would need to address demands for public services that exceed the capacity of existing public facilities, such as schools or hospitals.

The CEQA *Guidelines* state that a project may be deemed to have a significant effect on public services if project construction could cause significant environmental impacts in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services.

Specific development proposals would need to consider effects on public facilities and services.

B.5.4.3 Utilities

Airport development would be considered to have a significant impact on the water delivery system if major new facilities are required to accommodate the projected demand. For wastewater, an action is considered to have a significant impact on the sanitary and industrial wastewater systems if a major new wastewater facility is required to meet the projected demand.

The CEQA *Guidelines* state that a project may be deemed to have a significant effect if it were to exceed wastewater treatment standards of the applicable RWQCB or require construction of new water or wastewater systems (the construction of which would cause significant environmental effects).

Oceano relies on water from groundwater wells to supplement entitlements from the Lopez Reservoir (*San Luis Bay Area Plan – Coastal*, page 5-4). The Oceano Community Services

District shares a sewage treatment plant with the cities of Arroyo Grande and Grover Beach through their membership in the South San Luis Obispo County Sanitation District (*Annual Resource Summary Report*, page 41). The sewage treatment plant abuts the airport's southeastern property boundary.

Specific development proposals would need to consider effects on utility systems.

B.5.5 Hazardous Materials, Pollution Prevention, and Solid Waste

According to FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, two statues of most importance to the FAA when proposing actions to construct and operate facilities and navigational aids are the Resources Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). RCRA governs the generation, treatment, storage, and disposal of hazardous wastes. CERCLA provides for consultation with natural resources trustees and clean-up of any release of a hazardous substance (excluding petroleum) into the environment.

FAA Order 1050.1E states that terminal area development may involve circumstances which require consideration of solid waste impacts. If the projected quantity or type of solid waste generation or method of collection or disposal would cause an "appreciably different" level of service to meet project needs, then solid waste related impacts would be significant.

CEQA provides similar guidance for evaluation hazardous materials and solid waste impacts.

Project-specific environmental review would require review of the hazardous nature of any materials or wastes to be used, generated, or disturbed and consideration of control measures. The effects of transporting and disposing of solid waste would also be required.

B.5.6 Construction Impacts

FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, provides primary guidance and notes that construction activities are addressed by regulations at all levels of government and that these impacts are generally discussed under descriptions within the appropriate impact category. At a minimum, project specifications should incorporate the provisions of Advisory Circular 150/5370-10 Standards for Specifying Construction of Airports, (Change 10), Item P-156 Temporary Air and Water Pollution, Soil Erosion, and Siltation Control.

The CEQA *Guidelines* do not establish a specific significance threshold for construction impacts. Instead significance is derived from Section 15382 which defines "significant effect on the environment" as "substantial, or potentially substantial, adverse changes in any of the physical conditions within the area affected by the project…"

Construction impacts, which generally would be temporary and of short duration, include increased air pollutant emissions, noise disturbance, soil erosion, water quality degradation, potential exposure of workers to hazardous materials and construction debris disposal. Permits or certificates pertaining to specific impacts may be required on a project by project basis.

Construction impacts and impact avoidance would be considered during project-specific planning, design, and construction.

B.5.7 Light Emissions

FAA safety requirements prohibit any major source of glare from being present at the Airport. FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, and FAA Order 5050.4B, *NEPA Implementing Instructions for Airport Actions*, require the project sponsor to identify light emissions (e.g., strobe lights, high-intensity airfield or facility lighting) that could create an annoyance for people in the vicinity of an installation as a potential impact of airport development.

According to the CEQA *Guidelines*, potentially significant aesthetic effects include substantial or potentially substantial adverse changes in objects having aesthetic significance, and substantial or potentially substantial, demonstrable negative aesthetic effects. Production of new light and glare is among the potential aesthetic effects that could result in a significant impact.

Prior to project development, if lighting is to be altered, public involvement and consultation with appropriate federal, state and local agencies and tribes may help determine the extent of these impacts.

References and Sources Consulted

Archaeological and Historic Preservation Act of 1974, 1974. Available at: http://www.thecre.com/fedlaw/legal13/archpreserv.htm.

California Coastal Commission, *California Coast Act of 1976*, as of January 2006. Available at: www.coastal.ca.gov/coastact.pdf.

California Coastal Commission, *Staff Report and Recommendations for Coastal Development Permit Application 3-01-121*, 2003. Available at: http://www.coastal.ca.gov/sc/3-02-094.pdf.

California Air Resource Board, *Ambient Air Quality Standards*, 4 May 2005. Available at: http://www.arb.ca.gov/aqs/aqs.htm.

California Air Resource Board, *Area Designation Maps: State and National*, 2005. Available at: http://www.arb.ca.gov/desig/adm/adm.htm.

California Air Resource Board, *California Air Quality Data*, 1980-2005. Available at: http://www.arb.ca.gov/aqd/aqdpage.htm.

California Air Resource Board, *State and National Criteria Air Pollutant Standards, Effects, and Sources*, 11 November 2005. Available at: http://www.arb.ca.gov/aqs/aaqs2.pdf.

California Building Standards Commission, *California Code of Regulations (CCR), Title 24, Part 2, California Building Code*, 2001 (revised 2005). Available at: http://www.bsc.ca.gov/title_24/t24_2001tried.html#part2.

California Central Coastal Information System, *cultural resources records search of Oceano Airport and surrounding area within ¼ mile radius,* Oceano 7.5 minute USGS topographic quadrangle, August 2004.

California Building Standards Commission, *California Code of Regulations (CCR), Title 24, Part 6, California Energy Code*, 2001 (revised 2003). Available at: http://www.bsc.ca.gov/title_24/t24_2001tried.html#part6.

California Coastal Commission, Regional Cumulative Assessment Project, San Luis Obispo County Periodic Review, County's ESHA Combining Designation and Areas Containing Federally-Listed Species, from CNDDB, 2000. Available at: www.coastal.ca.gov/recap/slo/slo-map-4-b.pdf.

California Department of Fish and Game, *California Natural Diversity Database (CNDDB), version 2.1.2,* data request for the Oceano 7.5 minute USGS topographic quadrangle, 2003.

California Department of Transportation, Division of Aeronautics, *Airport Land Use Planning Handbook*, 2002. Available at: http://www.dot.ca.gov/hq/planning/aeronaut/htmlfile/landuse.php.

Carl, Dan, California Coastal Commission, personal communication, July 2002.

Clean Air Act, 1990. Available at: http://www.epa.gov/air/caa/.

Clean Water Act, 27 November 2002. Available at: http://www.epa.gov/region5/water/cwa.htm.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act, 17 October, 1986. Avialable at: http://www.epa.gov/superfund/action/law/cercla.htm.

Cowardin, L.M., V. Carter, F. C. Golet, and E. T. La Roe, *Classification of Wetlands and Deepwater Habitats of the United States,* USFWS Office of Biological Services, Washington, D. C., Publication No. FWS/OBS-79/31, 1979.

Department of Army Waterways Experiment Station, Environmental Laboratory, *Corps of Engineers Wetland Delineation Manual*, Final Report, January 1987.

Environmental Science Associates (ESA), *Field Surveys*, 10-13 June 2003.

Environmental Science Associates (ESA), *Preliminary Delineation of Waters of the State, Oceano Airport, San Luis Obispo County, California*, 27 August 2004 (2004a). Available at: Oceano County Airport.

Environmental Science Associates (ESA), *Rehabilitation of Runway, Taxiways, and Apron; Coastal Development Permit No: 3-04-031 (Oceano Airport); Supporting responses to June 8, 2004 Coastal Commission Letter;* 2004b. Available at: Oceano County Airport.

Environmental Science Associates (ESA), *Cultural Resources Inventory Report, Oceano Airport Rehabilitation Project, San Luis Obispo County, California*, 27 August 2004 (2004c). Available at: Oceano County Airport.

Executive Order 11988, *Floodplain Management*, 24 May 1977. Available at: http://www.epa.gov/owow/wetlands/regs/eo11988.html

Executive Order 11990, *Protection of Wetlands*, 24 May 1977. Available at: http://www.epa.gov/OWOW/wetlands/regs/eo11990.html.

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minorities and Low-Income Populations*, 1994. Available at: www.epa.gov/fedrgstr/eo/eo12898.pdf.

Executive Order 13045, *Protecting Children from Environmental Health Risks and Safety Risks*, 1997. Available at: http://ceq.eh.doe.gov/nepa/regs/eos/eo13045.html.

Executive Order 13123, *Greening the Government through Efficient Energy Management*, 1999. Available at: http://www.eere.energy.gov/femp/pds/eo13123.pdf.

Friends of the River, *California Wild and Scenic Rivers Act (Including summary and rivers in the California Wild and Scenic River System)*, 2003. Available at: www.friendsoftheriver.org/CaliforniaRivers/CaliforniaWildAndScenicRiversAct.html.

Governor's Office of Planning and Research (OPR), *CEQA Statutes and Guidelines*, 2006. Available at: http://ceres.ca.gov/ceqa/.

Hickman, J.C., (ed.), *The Jepson Manual: Higher plants of California*, 1993.

Holland, R.F., California Department of Fish and Game, *Preliminary descriptions of the terrestrial natural communities of California*. 1986.

Mayer K.E., Laudenslayer W.F., (eds), California Department of Forestry and Fire Protection, *A Guide to Wildlife Habitats of California*, 1988

National Historic Preservation Act (NHPA) of 1966, as amended, 2000. Available at: http://www.achp.gov/nhpa.html:

National Oceanic and Atmospheric Administration, *Coastal Zone Management Act of 1972, as amended through the Coastal Zone Protection Act of 1996*, 1996. Available at: http://coastalmanagement.noaa.gov/czm/czm_act.html.

National Park Service, *National Wild and Scenic River System, List of Wild and Scenic Rivers by State*, March 28, 2005. Available at: http://www.nps.gov/rivers/wildriverslist.html#ca.

Pehl, Martin, San Luis Obispo County Airports, personal communication, 2003.

Questa Engineering Corporation, *Draft Technical Memorandum: San Luis Obispo County Hydrology and Hydraulics Study, Oceano Community*, 2003. Available at: http://slocountydrainagestudies.org/oceanodraftreview.html.

Resource Conservation and Recovery Act (RCRA), as amended, 1986. Available at: http://www.epa.gov/rcraonline/.

San Luis Obispo, County of, *Historic Property Data File*, August 2004.

San Luis Obispo, County of, *Oceano Specific Plan*, 14 April 2004. Available at: www.slocounty.ca.gov/Assets/PL/Specific+Plans/Oceano+Specific+Plan.pdf.

San Luis Obispo, County of, *San Luis Obispo County General Plan, Land Use and Circulation Elements, San Luis Bay Area Plan, Coastal*, revised April 2004. Available at: http://www.slocounty.ca.gov/planning/General_Plan__Ordinances_and_Elements/Area_Plans.htm.

San Luis Obispo, County of, *San Luis Obispo County General Plan, Agriculture and Open Space Element*, 15 December 1998. Available at: http://www.slocounty.ca.gov/planning/General_Plan__Ordinances_and_Elements/Elements.htm.

San Luis Obispo, County of, *San Luis Obispo County General Plan, Annual Resource Summary Report*, 2005. Available at: http://www.slocounty.ca.gov/planning/General_Plan__Ordinances_and_Elements/Other_Documents.htm.

San Luis Obispo, County of, Airport Land Use Commission, *Airport Land Use Plan, Oceano County Airport* (as amended 16 May 2007). Available at: http://www.sloairport.com/alup-oceano.htm.

San Luis Obispo County Air Pollution Control District, *CEQA Air Quality Handbook, A Guide to Assessing the Air Quality Impacts of Projects Subject to CEQA Review*, 2003. Available at: Oceano County Airport.

Sawyer J.O., Keeler-Wolf T., *A Manual of California Vegetation*, 1995.

United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), *Soil Survey of San Luis Obispo County, California Coastal Part*, 1984.

United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), *Field Office Official List of Hydric Soil Map Units for San Luis Obispo County, California Coastal Part*, 1992.

United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), *Hydric Soils of the United States*, 1995. Available at: http://soils.usda.gov/soil_use/hydric/national.htm.

United States Department of Transportation, Department of Transportation Act, Section 303, Title 49 United States Code, *Policy on Lands, Wildlife, and Waterfowl Refuges, and Historic Sties*, 1983. Available at: http://environmental.fhwa.dot.gov/projdev/pd5sec4f.asp.

United States Department of Transportation, Federal Aviation Administration (FAA), *Advisory Circular 150.5370-10-B, Standards for Specifying Construction of Airports*, 2005. Available at: http://www.faa.gov/arp/publications/acs/5370_10b.pdf.

United States Department of Transportation, Federal Aviation Administration (FAA), *Air Quality Procedures for Civilian Airports and Air Force Bases*, September 2004. Available at: http://www.faa.gov/regulations_policies/policy_guidance/envir_policy/airquality_handbook/.

United States Department of Transportation, Federal Aviation Administration (FAA), *Airport Information*, effective 3 August 2006. Available at: http://www.airnav.com/airport/L52.

United States Department of Transportation, Federal Aviation Administration (FAA), Order 1050.1E, *Environmental Impacts: Policies and Procedures*, 2004. Available at: Oceano County Airport.

United States Department of Transportation, Federal Aviation Administration (FAA), Order 5050.4B, *NEPA Implementing Instructions for Airport Actions*, 2006. Available at: Oceano County Airport.

United States Department of Transportation, *Final DOT Order on Environmental Justice*, 1997. Available at: www.fhwa.dot.gov/environment/ejustice/dot_ord.htm.

United States Department of Transportation Order 5660.1A, *Preservation of the Nation's Wetlands*, 24 August 1978. Available at (Appendix I): www.dot.ca.gov/ser/downloads/bio/bioguide.pdf.

United States Fish and Wildlife Service (USFWS), *Coastal Barrier Resources System Fact Sheet*, 7 May 1998. Available at: www.fws.gov/cep/cbrfact.html.

United States Fish and Wildlife Service (USFWS), *National List of Vascular Plant Species That Occur in Wetlands: 1996 National Summary*, 1996. Available at: http://www.nwi.fws.gov/bha/download/1996/national.pdf.

United States Fish and Wildlife Service (USFWS), *National List of Plant Species That Occur in Wetlands: 1988 National Summary*, 1998 Available at: http://www.nwi.fws.gov/bha/download/1988/nat_list.txt.

United States Fish and Wildlife Service (USFWS), Pacific Region, *Guadalupe-Nipomo Dunes National Wildlife Refuge, Conservation Chronology of Nipomo Dunes Complex*, 2006. Available at: http://www.fws.gov/hoppermountain/Guadalupe/history.html.

United States Geological Survey (USGS; in cooperation with the San Luis Obispo County Planning and Building Department), *Liquefaction-Induced Lateral Spreading in Oceano, California, During the 2003 San Simeon Earthquake*, Open-File Report 2004-1269, Version 1.0, 2004. Available at: http://pubs.usgs.gov/of/2004/1269.

Wild and Scenic Rivers Act (P.L. 90-542, as amended; 16 U.S.C. 1271-1287). Available at: http://www.nps.gov/rivers/wsract.html.