Airport Layout Plan Update and Narrative Report for

OXNARD AIRPORT

COUNTY *of* VENTURA
Department of Airports

FINAL
Airport Layout Plan Update and Narrative Report

Prepared for

OXNARD AIRPORT
Ventura County, California

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AIRPORT LAYOUT PLAN UPDATE & NARRATIVE REPORT

COUNTY of VENTURA
Department of Airports

AIRPORT LAYOUT PLAN UPDATE & NARRATIVE REPORT

This report is intended to provide Ventura County, the Federal Aviation Administration (FAA), and the California Department of Transportation – Division of Aeronautics (CALTRANS) with a document that depicts the most current plans for airport improvements at Oxnard Airport (OXR). This document focuses primarily on the development direction and facility changes that have taken place since the completion and approval of the last Airport Master Plan Update in 2004 and provides a concept for future development potential over the next several years. The report provides a narrative and an updated Airport Layout Plan (ALP) drawing set, which consists of a computer-generated drawing that depicts the current and future facility conditions.

AIRPORT BACKGROUND

OXR is located approximately two miles west of downtown Oxnard, along West 5th Street in the southwestern quadrant of Ventura County, California. On a regional scale, the airport is located roughly 55 miles west-northwest of Los Angeles and approximately 32 miles southeast of Santa Barbara. Owned and operated by Ventura County, OXR is situated on approximately 230 acres at an elevation of 44.8 feet above mean sea level (MSL). **Exhibit A** depicts the location of the airport and its surroundings.

Land to the south and east of OXR is largely urbanized with residential, commercial, and industrial land uses, while land to the north and west of the airport is used for agricultural purposes. Given the urban land uses in close proximity to the airfield, the airport has voluntary noise abatement procedures in place for aircraft operations (to be discussed). It should also be noted that the airport currently has height and hazard zoning in place to protect navigable airspace surrounding the airport against obstructions.

Exhibit A
LOCATION/VICINITY MAP

The origin of OXR dates back to 1934 when the County of Ventura opened a 3,500-foot dirt runway. By 1938, the County of Ventura paved the runway, and one large hangar was constructed by the Works Progress Administration. Shortly thereafter, the Oxnard Flying School opened with two aircraft, and the U.S. Army Air Corp moved its civilian training program, Mira Loma Flight Academy, onto the airfield in 1940.

In December of 1941, when the U.S. entered World War II, all flying within 200 miles of the coastline was restricted and the Oxnard Flying School was relocated. The Army Air Corps operated OXR until 1944 until it was reallocated to the Navy. In 1945, the Navy moved to Naval Air Station (NAS) Point Mugu and the Oxnard Flying School returned to OXR. The County of Ventura officially regained control of the airport from the federal government in 1948 by receiving a final quitclaim deed, and the State of California issued the airport an operating permit in 1949.

The airport's first scheduled airline service began in 1946 by Southwest Airways and was later served by Pacific Airlines. Since then, a multitude of commuter airlines including Cable, Golden West, Wings West, Mesa, and other small air carriers served OXR. However, the airport has not been served by commercial air carriers since 2010 due to changing market conditions and lack of consistent commercial passenger service.

At present, aircraft operational statistics at OXR are recorded by the ATCT that is contracted by the FAA to operate daily from 7:00 a.m. to 9:00 p.m. Among other duties, the ATCT counts aircraft operations, which are defined as either a takeoff or a landing. The aggregate operations recorded by the OXR ATCT in 2017 totaled 66,932. These operations comprised 25,366 itinerant general aviation operations, 4,629 itinerant air taxi operations, 187 itinerant military operations, 36,594 local general aviation operations, and 156 local military operations. Generally, local operations are characterized by training operations, and itinerant operations are those performed by aircraft with a specific origin or destination away from an airport. Typically, itinerant operations increase with business and commercial use since business aircraft are not usually used for large scale training activities.

Although the most current FAA *Terminal Area Forecast* (TAF), published in January 2018, reports 165 based aircraft (including helicopters, gliders, and ultra-light aircraft), a based aircraft list verified by airport management and the FAA National Based Aircraft Inventory Program (https://basedaircraft.com) reported a total of 141 based aircraft in 2017. This based aircraft list accounts for 113 single engine piston fixed-wing aircraft, 15 multi-engine piston fixed-wing aircraft, four turboprops, and nine helicopters. The list verified by airport management will be utilized for forecasting purposes during this study process.

AIRPORT ROLE

Currently, OXR is recognized within the FAA's *National Plan of Integrated Airport Systems* (NPIAS) as a General Aviation (GA) airport. The NPIAS is a compilation of airports within the United States that are viewed as assets to national air transportation by the FAA. Airports included within the NPIAS are qualified for federal funding through the Airport Improvement Program (AIP).

Given that OXR is designated as a GA airport within the NPIAS, certain criteria must be met in order to be viewed by the federal government as an asset to the air transportation system. Typically, GA airports have at least 10 based aircraft and are approximately 20 miles from any other airport listed in the NPIAS. Within the GA designation, there are four different airport categories: National, Regional, Local, and Basic. OXR is classified within the Regional category. Regional GA airports are critical components of the GA system, providing communities with access to regional and national markets, and are typically located in metropolitan areas and serve relatively large populations. Regional GA airports have high levels of activity with some jets and multi-engine propeller aircraft. The metropolitan areas in which Regional GA airports are located can be metropolitan statistical areas with an urban core population of at least 50,000 or a micropolitan statistical area with a core population between 10,000 and 50,000.

In addition to its inclusion in the NPIAS, OXR is also included in the *California Aviation Systems Plan* (CASP). Within the CASP, OXR is designated as a Metropolitan GA airport. As presented in **Table A**, this qualification requires the following:

TABLE A | CASP Minimum Standards for Metropolitan GA Airports - Oxnard Airport

Facility Description	CASP Metropolitan GA Airports	OXR
Runway Length	5,000' if below 3,000' MSL; 6,000' if above 3,000' MSL; or as provided in Airport Master Plan	5,953'
Runway Width	100'	100'
Runway Pavement Strength	25,000 lbs S	83,000 lbs S
Runway Safety Area	Formula determined per AC 150/5300-13	Yes
Visual Aids	VASI/PAPI to lighted runway if no approach lights; REIL for IFR runway without approach lights	PAPI-4 to runway with MIRL, REILs (7), MALSF (25)
Approach Procedures	GPS/VOR	ILS, VOR, RNAV (GPS)
Runway/Approach Lighting	MALS to runway with precision IFR approach	MALSF
24-Hour On-Field Automated Weather AWOS/ASOS	24 hour on-field weather observation	ASOS
Fuel Available	Jet A and Avgas	Jet A and Avgas
Airport Layout Plan	Approval date fewer than five years old	Yes (pending approval of this document)

- ASOS: Automated Surface Observation System
- AWOS: Automated Weather Observation System
- GPS: Global Positioning System
- IFR: Instrument Flight Rules
- ILS: Instrument Landing System
- lbs: Pounds
- MALS: Medium Intensity Approach Lighting System
- MALSF: Medium Intensity Approach Lighting System with Sequenced Flashing Lights
- PAPI: Precision Approach Path Indicator
- REIL: Runway End Identifier Lights
- S: Single Wheel Loading
- VASI: Visual Approach Slope Indicator
- VOR: Very High Frequency Omnidirectional Range

Source: California Aviation System Plan (CASP), General Aviation System Needs Assessment Element – 2010, General Aviation System Needs Assessment Update - 2013.

- 5,000-foot runway (if airport elevation is lower than 3,000 feet MSL),
- 100-foot primary runway width,
- Minimum 25,000-pound single wheel load (S) pavement rating,
- Visual approach slope indicator (VASI)/precision approach path indicator (PAPI) visual approach guidance system to a lighted runway,
- Global positioning system (GPS)/very high frequency omnidirectional range (VOR) instrument approach procedures,

- Medium intensity approach lighting system (MALS) to any runway with a precision instrument flight rules (IFR) approach,
- 24-hour on-field weather observation,
- Jet A and 100LL fuels, and
- ALP not more than five years since its last approval.

CAPITAL IMPROVEMENT HISTORY

Historical funding and projects are presented in **Table B**. Between 1979 and 2017, OXR received 35 grants from the FAA for a combined total of approximately $27.1 million. Most recently, in 2017, OXR was granted $244,058 in AIP entitlement funding to conduct this current ALP Update and Narrative Report.

TABLE B | Grant History - Oxnard Airport

Year	Project	Amount	Grant Number
1979	OXR Master Plan	$91,146	001-1979
1983	Aircraft parking, flood control, drainage, taxiway lights, relocate threshold on Runway 7 and expansion of terminal ramp.	$208,974	002-1983
1983	Aircraft parking, flood control, drainage, taxiway lights, relocate threshold on Runway 7 and expansion of terminal ramp.	$908,820	003-1983
1987	Reconstruction of 310,000 sf of ramp, markings and tiedowns.	$605,500	004-1987
1988	Construct 2,200 lf of 10" diameter water main and 4 fire hydrants; install an electrical gate at Victoria Avenue; install airfield signs; stabilize runway shoulders; relocated electrical vault; construct holding apron for Runway 25; rehabilitate apron, south side, Phase I.	$387,720	005-1988
1989	Reconstruction of 310,000 sf of ramp, markings, and tiedowns.	$304,600	006-1989
1990	Overlay runway and cross taxiways; restripe runway and taxiways.	$720,000	007-1990
1992	Overlay runway and cross taxiways; groove runway and restripe runway/taxiways; procure power sweeper; adjust NAVAIDS; relocate runway hold signs; relocate MALSR shack.	$923,603	008-1992
1993	Land acquisition; guidance signs; procure sweeper.	$1,170,000	009-1993
1994	Ramp reconstruction; security lighting; land acquisition.	$1,388,099	010-1194
1994	Update Airport Master Plan, storm drain study.	$150,000	011-1994
1995	Overlay/rehabilitate parallel and crossover taxiways.	$378,246	012-1995
1997	Noise studies.	$148,320	013-1997
1997	Storm drain improvements (Phase 2); improvement projects.	$357,131	014-1997
1998	Upgrade ARFF shelter; airport drainage (Phase 3).	$300,000	015-1998
1999	Perimeter road; land acquisition (Phase 1); ARFF shelter.	$1,863,664	016-1999
1999	Acquire easement; Runway 25 RPZ, Phase 2.	$136,336	017-1999
2000	Rehabilitate apron and taxilanes; improve airport drainage; acquire handicap passenger lifting device.	$650,000	018-2000
2001	Rehabilitate apron on the east side (approximately 1,280,000 sf); Phase I: Improve airport drainage along 5th Street on the south side.	$1,000,000	019-2001
2002	Security enhancements.	$62,716	020-2002
2002	Rehabilitate apron.	$932,500	021-2002
2002	Install security fencing.	$67,500	021-2002
2003	Rehabilitate apron; acquire miscellaneous land; acquire ARFF vehicle; security enhancements.	$1,000,000	022-2003
2004	Rehabilitate apron; rehabilitate Runway 7-25; rehabilitate taxiway.	$113,000	023-2004
2005	Improve Runway 7/25 RSA; install perimeter fencing; rehabilitate apron; rehabilitate taxiway [rehabilitate taxiways, blast pad and apron].	$1,198,384	024-2005
2006	Improve Runway 7-25 RSA [relocate service road outside RSA]; rehabilitate apron.	$866,372	025-2006
2007	Improve airport drainage [Phase 1 - design].	$38,950	026-2007

TABLE B | Grant History - Oxnard Airport (continued)

Year	Project	Amount	Grant Number
2008	Acquire equipment [sweeper]; improve airport drainage; rehabilitate apron [east side].	$2,025,741	027-2008
2009	Install emergency generator; rehabilitate apron [construction]; rehabilitate Runway 7-25 [Phase I design]; rehabilitate taxiway [design only].	$1,472,809	028-2009
2009	EA for threshold relocation and land acquisition.	$250,000	029-2009
2009	Install emergency generator; rehabilitate apron; rehabilitate Runway 7-25; rehabilitate taxiway.	$1,272,507	030-2009
2009	Wildlife hazard assessment.	$91,529	031-2009
2010	Acquire land for approaches; threshold relocation; rehabilitate Runway 7-25 [including associated taxiways].	$4,283,090	032-2010
2012	Miscellaneous airport improvements; install guidance signs; rehabilitate Runway 7-25 lighting; rehabilitate taxiway lighting.	$1,247,342	033-2012
2014	Rehabilitate apron.	$227,169	034-2014
2017	Update airport master plan study.	$244,058	035-2017
	Total	**$27,086,507**	

EA: Environmental Assessment
lf: Linear Feet
RPZ: Runway Protection Zone
RSA: Runway Safety Area
sf: Square Feet

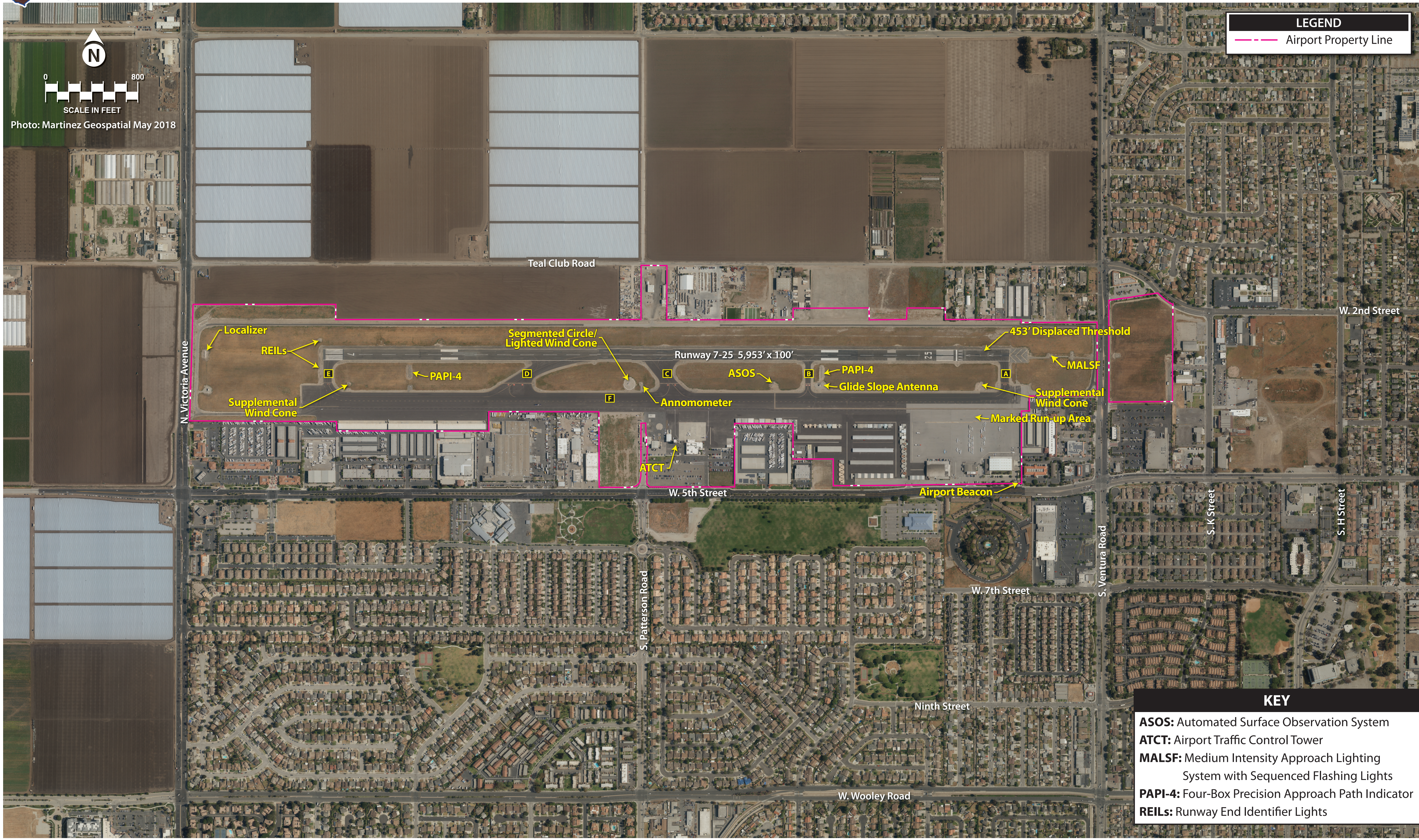
Source: FAA Grant History

EXISTING FACILITIES

Airport facilities can be categorized into two separate classifications: airside facilities and landside facilities. The airside facilities are directly associated with aircraft operations. These facilities may include, but are not limited to, runways, taxiways, airport lighting, and navigational aids. Landside facilities pertain to facilities necessary to provide safe and efficient transition from surface transportation to air transportation, as well as support aircraft servicing, storage, maintenance, and safe operation. The existing airside and landside facilities are presented on **Exhibits B** and **C**, respectively.

AIRSIDE FACILITIES

OXR is served by a single runway (7-25) configuration oriented in an east-west manner. Runway 7-25 is 5,953 feet long by 100 feet wide. Runway 25 is marked as a precision instrument runway, while Runway 7 is marked as a non-precision instrument runway. Precision instrument markings include landing designation, centerline, threshold markings, aiming point, touchdown zone, and edge markings. Non-precision markings include a runway designation, threshold, and aiming point. It is important to note that a 453-foot displaced landing threshold is present on Runway 25. Runway 7-25 has a gradient of 0.2 percent, sloping up from west to east. Runway 7-25 is equipped with medium intensity runway lighting (MIRL), runway end identifier lights (REILs) serving Runway 7, a medium intensity approach lighting system with sequenced flashing lights (MALSF) serving Runway 25, and four-box precision approach path indicator (PAPI-4) systems serving both ends of the runway. In addition, the pavement strength rating for Runway 7-25 is published as 83,000 pounds single wheel loading (S), 126,000 pounds dual wheel loading (D), and 238,000 pounds dual tandem wheel loading (2D). Runway 7-25 is served by a 75-foot-wide full-length parallel taxiway (Taxiway F), with a separation of 365 feet from runway centerline to taxiway centerline. In addition, there are five taxiways that connect Runway 7-25 and parallel Taxiway F, which include Taxiways A, B, C, D, and E moving east to west. All taxiways are equipped with medium intensity taxiway lighting (MITL).



KEY

ASOS: Automated Surface Observation System
ATCT: Airport Traffic Control Tower
MALSF: Medium Intensity Approach Lighting System with Sequenced Flashing Lights
PAPI-4: Four-Box Precision Approach Path Indicator
REILs: Runway End Identifier Lights

Exhibit B
AIRSIDE FACILITIES

BUILDING INVENTORY

#	Description
1	Golden West Jet Center FBO
2	Light Helicopter Depot
3	Aspen Helicopters/ Oxnard Jet Center FBO
4	Terminal Building
5	Airport Traffic Control Tower
6	ARFF Facility
7	Aspen Helicopters
8	Fuel Farm
9	FAA Equipment Vault
10	Executive Hangars (3-Units)
11	Port-A-Port Hangar Row (6-Units)
12	Port-A-Port Hangar Row (14-Units)
13	Port-A-Port Hangar Row (8-Units)
14	T-Hangar (12-Units)
15	T-Hangar (12-Units)
16	T-Hangar (12-Units)
17	Executive Hangars (6-Units)
18	Port-A-Port Hangar
19	Port-A-Port Hangar Row (9-Units)
20	Port-A-Port Hangar Row (8-Units)
21	T-Hangars (12-Units)
22	T-Hangars (5-Units)
23	Executive Hangars (3-Units)
24	FAA Facility
25	Port-A-Port Hangar Row (5-Units)
26	Executive Hangar
27	Executive Hangar
28	Executive Hangar
29	Executive Hangar
30	Executive Hangar
31	Executive Hangar
32	Executive Hangar
33	Executive Hangar
34	Executive Hangar Row (7-Units)
35	Executive Hangar Row (7-Units)
36	Executive Hangar Row (7-Units)
37	Airport Maintenance
38	Airport Maintenance
39	Airport Maintenance
40	Water Well
41	MALSF Equipment Shelter

Table C summarizes the airside facilities data available at OXR. Navigational aids (NAVAIDS) include a lighted wind indicator, supplemental windcones, a segmented circle, and a rotating beacon that remains in operation from sunset to sunrise.

TABLE C | Airside Facilities Data - Oxnard Airport

Runway 7-25		
Runway Length (feet)	5,953’	
Runway 25 Threshold Displacement (feet)	453’	
Runway Width (feet)	100’	
Runway Surface Material	Asphalt	
Condition	Fair	
Pavement Markings	Precision / Non-Precision	
Runway Weight Bearing Capacity		
Single Wheel Weight Bearing Capacity	83,000 lbs	
Dual Wheel Weight Bearing Capacity	126,000 lbs	
Dual Tandem Wheel Weight Bearing Capacity	238,000 lbs	
Lighting and Navigation		
Runway Lighting	MIRL	
Runway End Identifier Lights (REILs)	Yes (7)	
Approach Lighting System	MALSF (25)	
Taxiway Lighting	MITL	
Approach Aids	PAPI-4 (Both Ends)	
Instrument Approach Procedures	ILS, VOR, RNAV (GPS)	
Weather or Navigational Aids	• ASOS • Anemometer • CTAF/UNICOM • Oxnard Tower/ Ground Control	• Segmented Circle • Lighted Wind Indicator • Supplemental Windcones • Rotating Beacon

- ASOS: Automated Surface Observation System
- CTAF: Common Traffic Advisory Frequency
- GPS: Global Positioning System
- MALSF: Medium Intensity Approach Lighting System with Sequenced Flashing Lights
- MIRL: Medium Intensity Runway Lighting
- MITL: Medium Intensity Taxiway Lighting
- PAPI: Precision Approach Path Indicator
- REIL: Runway End Identifier Lights
- RNAV: Area Navigation
- UNICOM: Universal Communication Frequency
- VOR: Very High Frequency Omnidirectional and Range

Source: FAA Airport Master Record (Form 5010-1); Oxnard Airport Layout Plan (2006); airport communication.

The ATCT serving OXR is located immediately west of the terminal building on the south side of the runway. The primary responsibilities for tower controllers are to sequence and separate local arriving and departing traffic and to provide ground control direction to aircraft taxiing on the ground. Tower radio frequencies are 134.95 MHz for Tower and 121.9 for Ground. When the OXR ATCT is closed, 134.95 MHz reverts to a common traffic advisory frequency (CTAF), which can be utilized by pilots to communicate with one another, as well as activate the airport lighting systems by keying the radio microphone.

Weather information can be obtained from the automated surface observation system (ASOS) by utilizing the Automated Terminal Information Service (ATIS) radio frequency (118.05 MHz) or by calling 805-382-0569. ATIS broadcasts are updated hourly (at a minimum) and provide arriving and departing pilots with the current surface weather conditions, communication frequencies, and other important airport-specific information. The ASOS reports automated aviation weather observations 24 hours per day. The system updates weather observations every minute, continuously reporting significant weather changes as they occur. The ASOS system reports cloud ceiling, visibility, temperature, dew point, wind direction, wind speed, altimeter setting (barometric pressure), and density altitude (airfield elevation corrected for temperature). The ASOS equipment is located west of Taxiway B on the south side of Runway 7-25. In addition, an anemometer, which measures wind speed, is located immediately west of Taxiway C.

LANDSIDE FACILITIES

Aircraft hangars and apron area are available for both itinerant and based aircraft. Building and facility footprint measurements are summarized in **Table D** and further detailed on **Exhibit C**. The airport has 42 marked tiedown positions and approximately 49,300 square yards (sy) of aircraft apron and movement area. The total aircraft apron and movement area is made up of several different apron designations including the terminal apron, east and west itinerant GA aprons, and the based aircraft apron area. At this time, OXR has approximately 256,200 square feet (sf) of hangar space on the airfield. Hangar styles available include Port-A-Port, T-hangars, executive box, and conventional hangars. Port-A-Port hangars and T-hangars are smaller hangars that accommodate one individual aircraft. Port-A-Port hangars are typically stand-alone structures and portable in nature. T-hangars are commonly "nested" with several individual storage units making up a larger T-hangar complex. Executive/box hangars provide a larger storage space, generally with an area between 2,500 and 6,000 square feet. Finally, conventional hangars are large, clear span hangars that can range in size from 6,000 square feet to more than 20,000 square feet and accommodate multiple aircraft and other aviation-related activities such as maintenance or office space.

TABLE D | Landside Facility Data - Oxnard Airport

	Total Footprint Area
Terminal/FBO Area	26,600 sf
Port-A-Port Hangars	48,100 sf
T-Hangars	51,700 sf
Executive Box Hangars	103,400 sf
Conventional Hangars	53,000 sf
Total Apron and Movement Area	49,300 sy

sf: square feet
sy: square yards

Source: Google Maps Satellite Photo (2017).

Businesses that choose to locate on airport property or adjacent to the airport provide a significant impact not only to the airport, but also to the region. Encouraging businesses to locate in the vicinity of an airport is a good practice for a number of reasons. First, the business will benefit from being near a commerce and transportation hub. Second, the community will benefit because, if planned and executed properly, the airport will develop a buffer of industry and manufacturing that will restrict incompatible land uses, such as residential housing, from locating too close to the airport. Third, business development on and around airports can generate a direct revenue stream to the airport. Some airports have done this successfully, leading to airport self-sufficiency.

There is a full range of fixed base operators (FBOs) and specialty aviation service operators (SASOs) located on the airport that provide aviation services including fueling, line services, aircraft maintenance, rental cars, hangar space/leasing, aircraft parts, flight instruction, aircraft rental and charter services, and other services. These businesses and organizations include:

- **Aspen Helicopters/Oxnard Jet Center** – full service FBO with pilots' lounge, taxi and rental car service, catering, aircraft waxing and washing, ground power unit (GPU) service, aircraft and helicopter charter, aircraft and helicopter maintenance, lavatory service, aircraft fuel, oxygen service, aerial surveys, and agricultural application.
- **Golden West Jet Center** – full service FBO offering aircraft fuel, ground handling, oxygen service, aircraft parking (ramp or tiedown), hangars, GPU service, flight training, aircraft charters, aircraft cleaning, and catering.
- **Light Helicopter Depot** – specializes in maintenance, repair, and overhaul for the Robinson R22 and R44, as well as other aircraft models.
- **California Aeronautical University: Ventura County Flight Training Center** – Part 141 flight school.
- **Ventura County Airporter** – provides shuttle service to and from Los Angeles International Airport.
- **AeroComputers** – provides moving map mission management systems that integrate GPS-based maps and video overlay on live video, image collection and transmission, illumination, and data storage.
- **Executive Hangars West** – executive hangar rentals.
- **Dollar Car Rental** – rental car service.
- **Enterprise** – rental car service.
- **Avis/Budget** – rental car service.
- **Hertz** – rental car service.
- **Ventura County Credit Union** – provides banking services.
- **STC Group** – autopilot manufacturer and installer.

Fuel storage and dispensing facilities are owned by Ventura County Department of Airports and are operated by Aspen Helicopters/Oxnard Jet Center and Golden West Jet Center. Fuel is stored in four underground 12,000-gallon tanks (two tanks designated for Jet-A and the other two for 100LL) that are used to dispense fuel to fuel service trucks operated by Aspen Helicopters/Oxnard Jet Center and Golden West Jet Center which include two 3,000-gallon Jet A, one 5,000-gallon Jet A, one 1,000-gallon 100LL, and one 750-gallon 100LL fuel truck.

Utilities serving the airport include water, sanitary sewer, natural gas, and electricity. Natural gas is provided by the Southern California Gas Company and electric utilities are provided by Southern California Edison, while water and sanitary sewer services are provided by the City of Oxnard. The airport has an emergency generator capable of operating all runway and taxiway lights in the event of a power outage. It should also be noted that the emergency generator will allow the ATCT to select lighting intensity for different types of operations. In addition, the generator also provides backup power to the airport offices located on the first floor of the ATCT building, the terminal building, and the aircraft rescue and firefighting (ARFF) bay. The FAA has a separate backup generator accommodating their facilities.

The airport is accessible via multiple entrance points along the north side of West 5th Street. Automobile parking serving the airport terminal building is located west of the Terminal Entrance Road and has 127 parking spaces, seven of which are handicap accessible spaces. The rental car parking lot is co-located with the terminal parking lot and has 120 parking spaces. Immediately north of the terminal parking lot and west of the terminal building is the terminal employee, ATCT, ARFF, and Aspen Helicopters parking lot that consists of 78 parking spaces, three of which are handicap accessible. Automobile parking serving the Aspen Helicopters/Oxnard Jet Center FBO, Golden West Jet Center FBO, California Aeronautical University, the Light Helicopter Depot, and the GA hangar facilities is located on the southeast side of the airfield and can also be accessed from the north side of West 5th Street. In total, the GA and FBO automobile parking area provides 80 marked parking spaces, six of which are handicap accessible. The apron area is separated from the parking lot through use of a controlled access gate.

The airport's perimeter is equipped with eight-foot fencing with three strands of barbed-wire affixed on top. Controlled access gates located in various locations prevent inadvertent access by unauthorized personnel as well as wildlife.

TITLE 14 CFR PART 139 CERTIFICATION

An airport must have an Airport Operating Certificate (AOC) if it is serving air carrier aircraft with more than nine seats or serving unscheduled air carrier aircraft with more than 30 passenger seats. Title 14 Code of Federal Regulations (CFR) Part 139 (Part 139) describes the requirements for obtaining and maintaining an AOC. This includes meeting various Federal Aviation Regulations (FARs) now codified under the CFR. Given that OXR is no longer served by commercial air carrier operators, Part 139 certification is no longer mandatory; however, the airport has maintained its certification.

Airports are classified in the following categories based on the type of air carrier operations served:

- **Class I Airport** – an airport certificated to serve scheduled operations of large air carrier aircraft that can also serve unscheduled passenger operations of large air carrier aircraft and/or scheduled operations of small air carrier aircraft.

- **Class II Airport** – an airport certificated to serve scheduled operations of small air carrier aircraft and the unscheduled passenger operations of large air carrier aircraft. A Class II airport cannot serve scheduled large air carrier aircraft.

- **Class III Airport** – an airport certificated to serve scheduled operations of small air carrier aircraft. A Class III airport cannot serve scheduled or unscheduled large air carrier aircraft.

- **Class IV Airport** – an airport certificated to serve unscheduled passenger operations of large air carrier aircraft. A Class IV airport cannot serve scheduled air carrier aircraft regulated under CFR Part 121.

OXR is currently classified as a Class III CFR Part 139 airport. This designation typically supports the regularly scheduled operations of small air carrier aircraft conducting commercial passenger services at the airport.

Part 139 regulations (which implemented provisions of the *Airport and Airway Development Act of 1970*, as amended on November 27, 1971) set standards for: the marking and lighting of areas used for operations; firefighting and rescue equipment and services; the handling and storing of hazardous materials; the identification of obstructions; and safety inspection and reporting procedures. It also required airport operators to have an FAA-approved Airport Certification Manual (ACM).

The ACM is a required document that defines the procedures to be followed in the routine operation of the airport and for response to emergency situations. The ACM is a working document that is updated annually as necessary. It reflects the current condition and operation of the airport and establishes the responsibility, authority, and procedures as required. There are required sections for the ACM covering administrative detail and procedural detail. OXR has a current, approved ACM. The ACM includes the following information:

- General Information
- Inspection Authority
- Deviation to Part 139 Requirements
- ACM Maintenance/Revisions
- Personnel Information
- Paved/Unpaved Areas
- Safety Areas
- Marking, Signs, and Lighting
- Snow and Ice Control
- ARFF Index, Equipment, Agents, and Operational Requirements
- Hazardous Materials
- Traffic and Wind Indicators
- Airport Emergency Plan
- Self-inspection Program
- Pedestrians and Ground Vehicles
- Obstructions
- Protection of Navaids
- Public Protection
- Airport Condition Reporting
- Identifying, Marking, and Lighting Construction and Unserviceable Areas
- Letters of Agreement

OXR currently maintains an ARFF unit per the airport's CFR Part 139 certification. Each certificated airport maintains equipment and personnel based on an ARFF index established according to the length of aircraft and scheduled daily flight frequency. However, OXR is unique in that it is no longer served by commercial service air carriers but has maintained its Part 139 certification for safety and management purposes and the return of commercial service. There are five indices, A through E, with A applicable to the smallest aircraft and E the largest (based on aircraft length). Aircraft indices are ultimately used to determine an airport's ARFF index, which outlines the ARFF requirements needed for an airport to meet a certain index. OXR falls within ARFF Index A, which includes aircraft less than 90 feet in length. As such, OXR should maintain a fleet of equipment and properly trained personnel consistent with this standard.

The airport maintains two ARFF vehicles: one primary and one reserve. The primary ARFF vehicle has a 1500-gallon water capacity and is equipped with 205 gallons of aqueous film forming foam (AFFF). The reserve ARFF vehicle has a 650-gallon water capacity and 110-gallon AFFF capacity.

VICINITY AIRPORTS

Exhibit D outlines those airports that are designated as public-use within a 30-nautical mile (nm) radius of OXR. There are varying levels of service located at each airport. The closest airport is Camarillo Airport, which is also owned and operated by Ventura County. Santa Paula Airport, the second airport located within the 30 nm radius, is a privately-owned airport, yet is designated for public use. It should be mentioned that Point Mugu Naval Air Station is also located 6.5 nautical miles (nm) southeast from OXR; however, it is owned and operated by the U.S. Navy and is designated for military use. Although there are only two public-use airports located within 30 nm of OXR, 10 additional public-use airports can be identified when expanding to a radius of 50 nm around OXR. These include Santa Barbara Airport, Van Nuys Airport, Santa Monica Municipal Airport, Whiteman Airport, Bob Hope Airport, Los Angeles International Airport, Jack Northrop Field/Hawthorne Municipal Airport, Agua Dulce Airport, Zamperini Field Airport, and Santa Ynez Airport.

VICINITY AIRSPACE

The airspace within the National Airspace System is divided into six different categories or classes. The airspace classifications that make up the National Airspace System are presented in **Exhibit E**. These categories are made up of Classes A, B, C, D, E, and G airspace. Each class of airspace contains its own criteria that must be met in terms of required aircraft equipment, operating flight rules (visual or instrument flight rules), and procedures. Classes A, B, C, D, and E are considered controlled airspace which requires pilot communication with the controlling agency prior to airspace entry and throughout operation within the designated airspace. Pilot communication procedures, required pilot ratings, and required minimum aircraft equipment vary depending upon the class of airspace, as well as the type of flight rules in use. Class G airspace is uncontrolled and extends from the surface to the base of the overlying Class E airspace. Although air traffic control (ATC) has no authority or responsibility to control air traffic within this airspace, pilots should remember there are visual flight rule minimums that apply to Class G airspace.

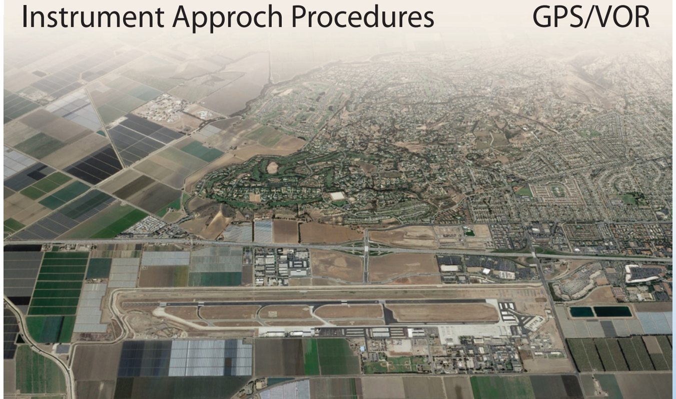
OXR lies within Class D Airspace, which is a form of controlled airspace. Class D airspace is typically made up of a cylinder with a horizontal radius of five miles from the airport, extending from the surface up to a designated vertical limit, typically set at approximately 2,500 feet above the airport elevation. The designated vertical limit of OXR's Class D airspace extends to 2,000 feet above the airport's elevation. If an airport has an instrument approach or departure, the Class D airspace sometimes extends along the approach or departure path. During periods when the ATCT at OXR is closed, the Class D airspace reverts to Class G airspace. It should also be mentioned that the airspace surrounding the vicinity of OXR's Class D airspace is designated as Class E airspace with a floor 700 feet above the surface.

The Class D airspace surrounding OXR intersects with the Class D airspace serving Camarillo Airport to the east and Point Mugu NAS to the southeast. The nearest Class C airspace serves Santa Barbara Airport to the northwest and Bob Hope Airport (Burbank) to the east. Class B airspace serves the Los Angeles International Airport approximately 43 nautical miles east-southeast. **Exhibit F** presents the classifications of airspace within the vicinity of OXR.

CAMARILLO AIRPORT (CMA)

Airport NPIAS Classification	Reliever
FAA Asset Study Classification	National
Location from OXR	5.7 nm E
Elevation	76.8 ft
Weather Reporting	ASOS
ATCT	Yes
Annual Operations	135,961
Based Aircraft	450
Enplaned Passengers	None

Runways	**8-26**
Length	6,013'
Width	150'
Pavement Strength	
SWL	50,000
DWL	80,000
Lighting	MIRL
Marking	NPI
Approach Aids	PAPI-4, REILs
Instrument Approch Procedures	GPS/VOR



Services Provided: Aircraft tiedowns, 100LL and Jet A fuel, major airframe and powerplant maintenance, and oxygen.

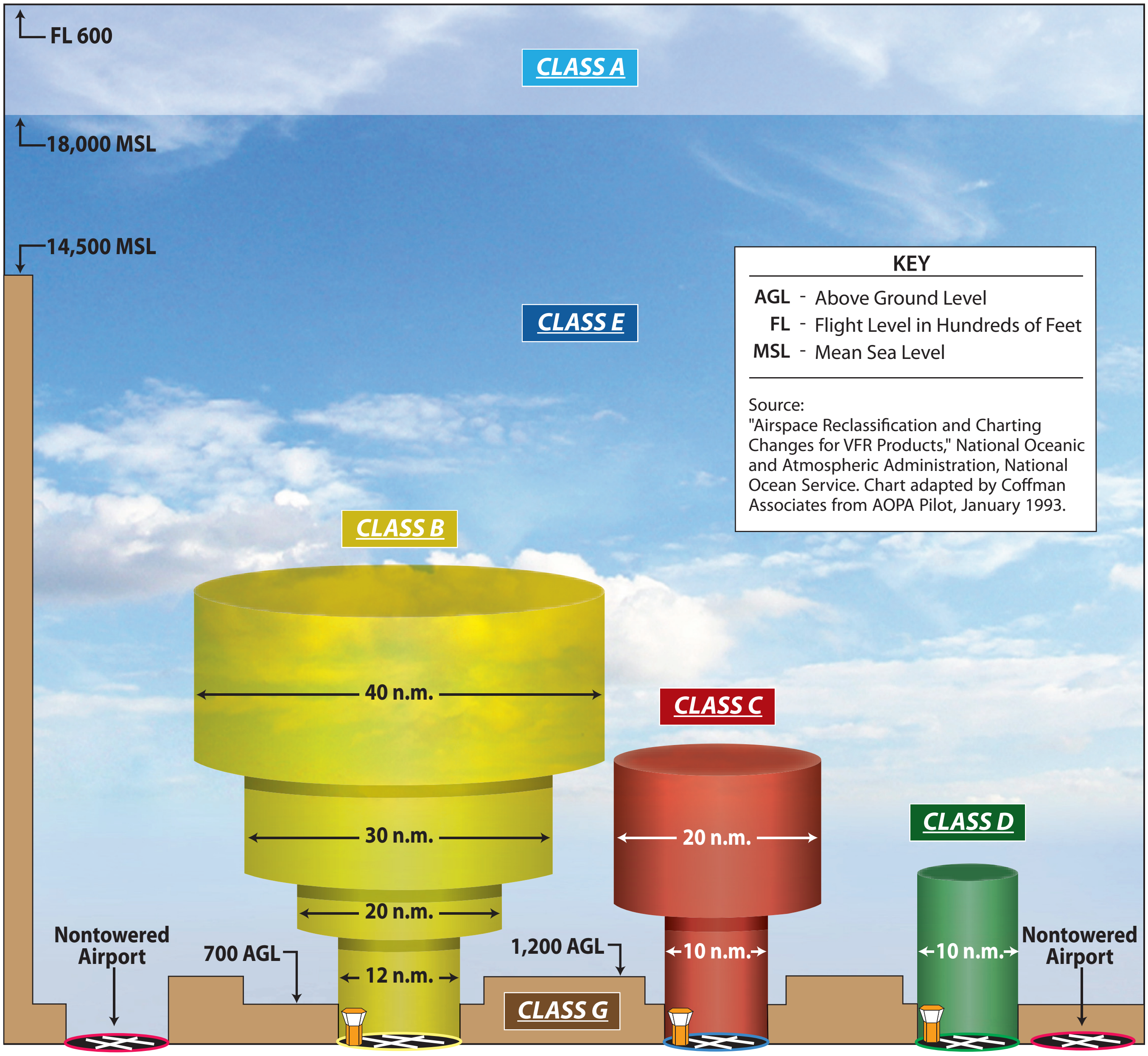
SANTA PAULA AIRPORT (SZP)

Airport NPIAS Classification	NA
FAA Asset Study Classification	NA
Location from OXR	11.4 nm NE
Elevation	248.0 ft
Weather Reporting	AWOS
ATCT	None
Annual Operations	97,090
Based Aircraft	309
Enplaned Passengers	None

Runways	**4-22**
Length	2,713'
Width	60'
Pavement Strength	
SWL	NA
DWL	NA
Lighting	None
Marking	Basic
Approach Aids	None
Instrument Approch Procedures	None

Services Provided: Aircraft tiedowns, 100LL fuel, major airframe and powerpland maintenance.

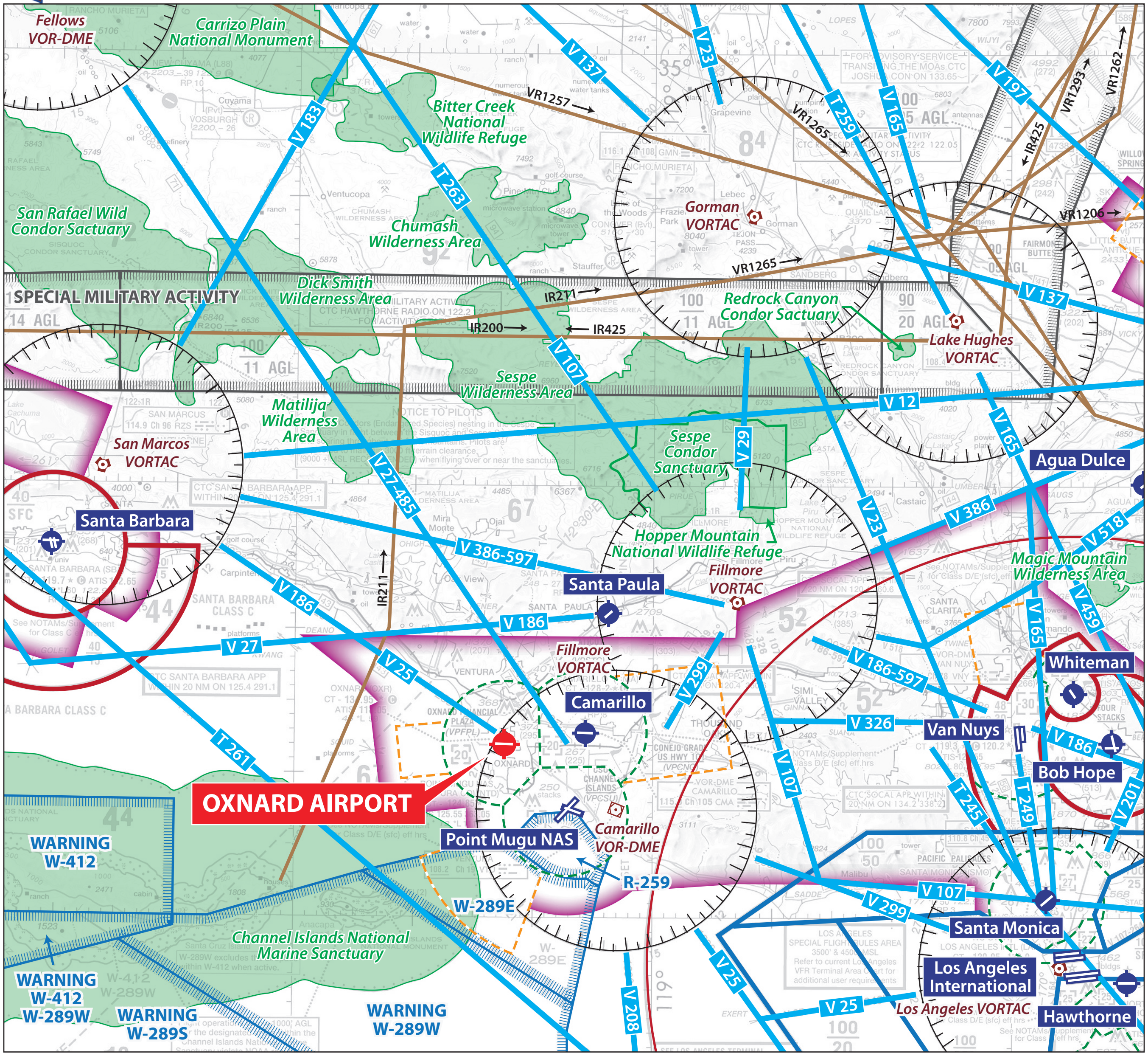
ASOS - Automated Surface Observation System
ATCT - Airport Traffic Control Tower
AWOS - Automated Weather Observation System
DWL - Dual Wheel Loading
GPS - Global Positioning System
MIRL - Medium Intensity Runway Lighting
NPI - Non-Precision Instrument
PAPI - Precision Approach Path Indicator
REIL - Runway End Identifier Lights
SWL - Single Wheel Loading
VOR - VHF Omni-Directional Range



DEFINITION OF AIRSPACE CLASSIFICATIONS

CLASS A	Generally airspace above 18,000 feet MSL up to and including FL 600.
CLASS B	Generally multi-layered airspace from the surface up to 10,000 feet MSL surrounding the nation's busiest airports.
CLASS C	Generally airspace from the surface to 4,000 feet AGL surrounding towered airports with service by radar approach control.
CLASS D	Generally airspace from the surface to 2,500 feet AGL surrounding towered airports.
CLASS E	Generally controlled airspace that is not Class A, Class B, Class C, or Class D.
CLASS G	Generally uncontrolled airspace that is not Class A, Class B, Class C, Class D, or Class E.

Exhibit E
AIRSPACE CLASSIFICATION PARAMETERS



LEGEND

	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'
	VORTAC
	VOR-DME
	Compass Rose
	Class B Airspace
	Class C Airspace
	Class D Airspace
	Class E Airspace
	Class E Airspace with floor 700 ft. above surface
	MODE C
	Victor Airways
	Military Training Routes
	Prohibited, Restricted, Warning and Alert Areas
	Wilderness Areas

NORTH

Source: US Department of Commerce, National Oceanic and Atmospheric Administration
Los Angeles Sectional Charts, 12/07/17

SPECIAL USE AIRSPACE

Special use airspace is defined as airspace where activities must be confined because of their nature or where limitations are imposed on aircraft not taking part in those activities. The designation of special use airspace identifies for other users the areas where military activity occurs, provides for segregation of that activity from other fliers, and allows charting to keep airspace users informed. These areas are depicted on **Exhibit F**.

Victor Airways: Victor Airways are designated navigational routes extending between VOR facilities. Victor Airways have a floor of 1,200 feet above ground level (AGL) and extend upward to an altitude of 18,000 feet MSL. Victor Airways are eight nm wide.

Numerous Victor Airways are in the vicinity of OXR. VOR facilities can also be coupled with tactical aircraft control and navigation facilities (VORTACs), as well as distance measuring equipment (VOR-DME). Victor Airways near OXR extend from the Camarillo and Fellows VOR-DMEs, as well as the San Marcos, Gorman, Lake Hughes, Fillmore, and Los Angeles VORTACs.

Military Training Routes: Military Training Routes (MTRs) are designated military flight paths that allow flight in excess of 250 knots at low altitude, typically below 10,000 feet MSL. MTRs can be designated for either visual flight rules (VFR) or IFR flight at altitudes below 1,500 feet or above 1,500 feet. Non-participating pilots are not restricted from utilizing MTRs; however, extreme caution and vigilance is recommended due to the nature of the participant aircraft using the MTRs. The FAA recommends contacting the nearest Flight Service Station (FSS) to obtain information regarding the activity status of the MTR. MTRs within the vicinity of OXR are located west, north, and northeast of the airport.

Military Operations Areas: Military Operating Areas (MOAs) are designated areas of airspace established outside Class A airspace to separate or segregate certain military activities, IFR traffic, and to identify VFR traffic where these activities are conducted. While the FAA does not prohibit civilian VFR traffic from transiting an active MOA, it is strongly discouraged. There are no MOAs in the vicinity of OXR.

Restricted Airspace: Restricted areas contain airspace in which the flight of aircraft, while not wholly prohibitive, is subject to restrictions. Activities within these areas must be confined because of their nature, and limitations to aircraft operations may be imposed on those aircraft that are not a part of these activities. Restricted airspace is off-limits for public use unless granted permission from the controlling agency.

The Air Route Traffic Control Center (ARTCC) facility having jurisdiction over the restricted airspace needs to authorize clearances to aircraft that cannot avoid the restricted area, unless the aircraft is on a previously approved altitude reservation mission or is part of the activity within the restricted area. If the restricted area is not active, the ARTCC facility will allow aircraft to transition through the airspace without issuing special clearances. Currently, restricted airspace in the vicinity of the airport includes R-259, which is associated with Point Mugu NAS located approximately 6.5 nm southeast.

Warning Areas: Warning areas are similar in nature to restricted areas; however, the United States government does not have sole jurisdiction over the airspace. A warning area is airspace of defined dimension, extending from three nm outward from the coast of the United States, containing activity that may be hazardous to nonparticipating aircraft. The purpose of such areas is to warn nonparticipating pilots of the potential danger. A warning area may be located over domestic or international waters or both. Warning areas in the vicinity of OXR include W-289E, W-289W, W-289S, and W-412 located over the Pacific Ocean, approximately eight nm to the southwest of OXR.

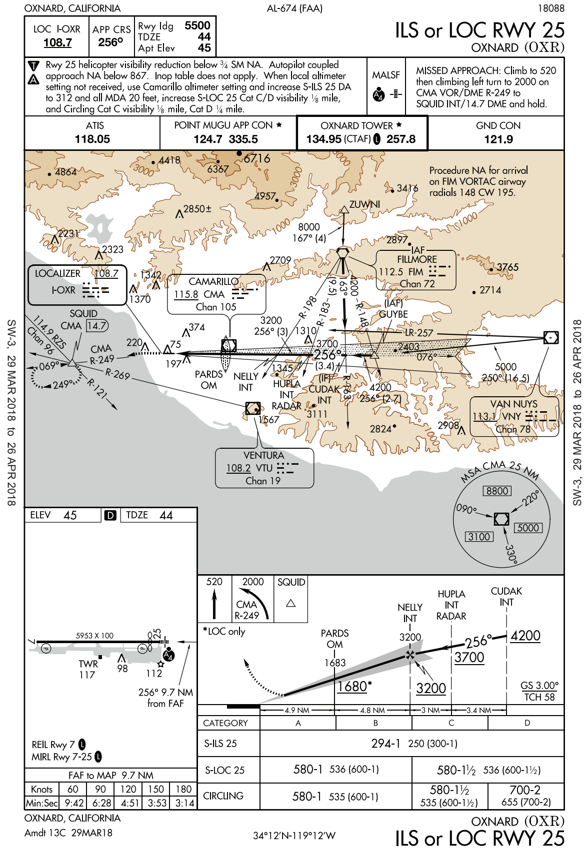
National Park Service, Recreation, and Wilderness Areas: 13 wilderness areas exist in proximity to OXR. Aircraft are requested to maintain a minimum altitude of 2,000 feet above the surface of designated Wilderness Areas, which can include National Park Recreation Areas and wildlife breeding grounds. FAA Advisory Circular (AC) 91-36D defines the "surface" as the highest terrain within 2,000 feet laterally of the route of flight or the uppermost rim of a canyon or valley. The airport is located in proximity to the Channel Islands National Marine Sanctuary, San Rafael Wilderness Area and Condor Sanctuary, Dick Smith Wilderness Area, Matilija Wilderness Area, Carrizo Plain National Monument, Bitter Creek National Wildlife Refuge, Chumash Wilderness Area, Sespe Wilderness Area and Condor Sanctuary, Hopper Mountain National Wildlife Refuge, Redrock Canyon Condor Sanctuary, and the Magic Mountain Wilderness Area.

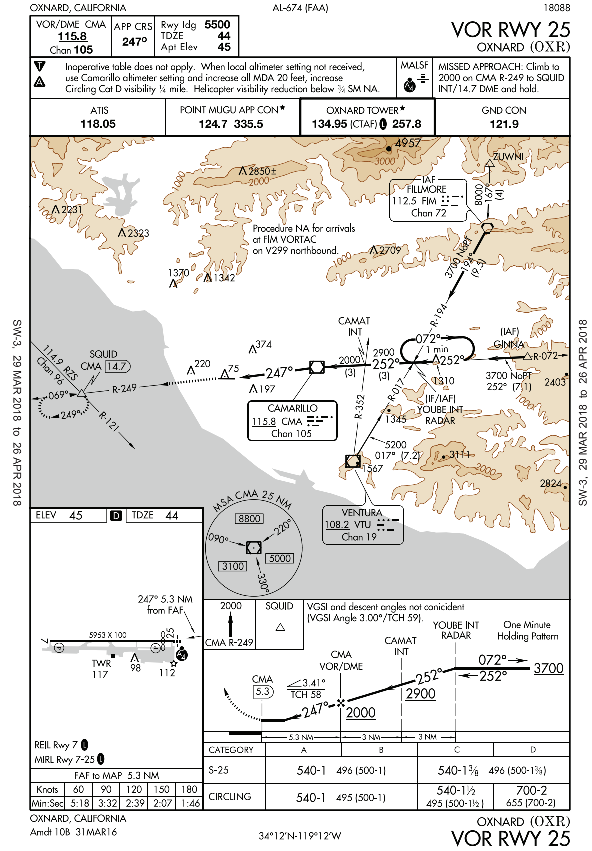
INSTRUMENT APPROACH PROCEDURES

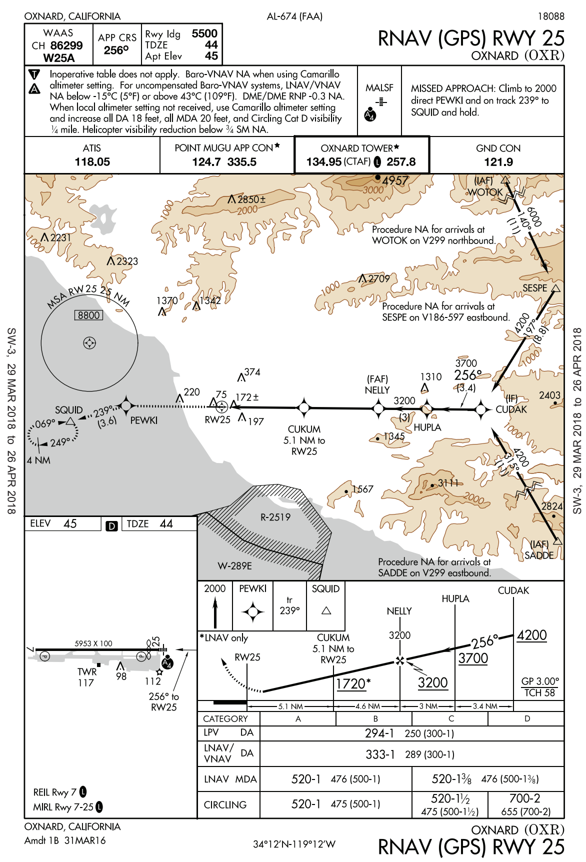
Instrument approach procedures are a series of predetermined maneuvers established by the FAA, using electronic navigational aids that assist pilots in locating and landing at an airport, especially during instrument flight conditions. There are currently four published instrument approach procedures, including a precision instrument landing system (ILS) instrument approach to Runway 25. Precision instrument approaches provide vertical descent information and course guidance information to the pilot. Non-precision approaches only provide course guidance to the pilot; however, the relatively new GPS localizer performance with vertical guidance (LPV) approaches are currently categorized by the FAA as a non-precision approach even though it provides vertical guidance.

The capability of an instrument approach procedure is defined by the visibility and cloud ceiling minimums associated with the approach. Visibility minimums define the horizontal distance the pilot must be able to see in order to complete the approach. Cloud ceilings define the lowest level a cloud layer (defined in feet above the ground) can be situated for the pilot to complete the approach. If the observed visibility or cloud ceilings are below the minimums prescribed for the approach, the pilot cannot complete the instrument approach. **Exhibit G** summarizes FAA approved and published instrument approach procedures, including associated weather minimums for OXR.

The most sophisticated instrument approach procedures at OXR are associated with the ILS to Runway 25. The ILS or localizer (LOC) Runway 25 approaches provide visibility minimums as low as 1-mile (5,000 feet runway visual range [RVR]) and cloud ceilings of 250 feet AGL. In addition, instrument approaches based on the global positioning system (GPS) have become very common across the country. GPS is inexpensive, as it does not require a significant investment in ground-based systems by the airport or FAA. Each runway end at OXR is served by GPS approaches with associated minima, as presented on


OXNARD, CALIFORNIA
AL-674 (FAA)
18088
LOC I-OXR 108.7
APP CRS 256°
Rwy ldg 5500
TDZE 44
Apt Elev 45
ILS or LOC RWY 25
OXNARD (OXR)
Rwy 25 helicopter visibility reduction below ¾ SM NA. Autopilot coupled approach NA below 867. Inop table does not apply. When local altimeter setting not received, use Camarillo altimeter setting and increase S-ILS 25 DA to 312 and all MDA 20 feet, increase S-LOC 25 Cat C/D visibility ⅛ mile, and Circling Cat C visibility ⅛ mile, Cat D ¼ mile.
MALSF
MISSED APPROACH: Climb to 520 then climbing left turn to 2000 on CMA VOR/DME R-249 to SQUID INT/14.7 DME and hold.
ATIS 118.05
POINT MUGU APP CON 124.7 335.5
OXNARD TOWER 134.95 (CTAF) 257.8
GND CON 121.9
Procedure NA for arrival on FIM VORTAC airway radials 148 CW 195.
ELEV 45
TDZE 44
REIL Rwy 7
MIRL Rwy 7-25
FAF to MAP 9.7 NM
CATEGORY A B C D
S-ILS 25 294-1 250 (300-1)
S-LOC 25 580-1 536 (600-1) 580-1½ 536 (600-1½)
CIRCLING 580-1 535 (600-1) 580-1½ 535 (600-1½) 700-2 655 (700-2)
Amdt 13C 29MAR18
34°12'N-119°12'W
ILS or LOC RWY 25
SW-3, 29 MAR 2018 to 26 APR 2018


OXNARD, CALIFORNIA
AL-674 (FAA)
18088
VOR/DME CMA 115.8 Chan 105
APP CRS 247°
Rwy ldg 5500
TDZE 44
Apt Elev 45
VOR RWY 25
OXNARD (OXR)
Inoperative table does not apply. When local altimeter setting not received, use Camarillo altimeter setting and increase all MDA 20 feet, increase Circling Cat D visibility ¼ mile. Helicopter visibility reduction below ¾ SM NA.
MALSF
MISSED APPROACH: Climb to 2000 on CMA R-249 to SQUID INT/14.7 DME and hold.
ATIS 118.05
POINT MUGU APP CON 124.7 335.5
OXNARD TOWER 134.95 (CTAF) 257.8
GND CON 121.9
Procedure NA for arrivals at FIM VORTAC on V299 northbound.
VGSI and descent angles not coincident (VGSI Angle 3.00°/TCH 59).
ELEV 45
TDZE 44
REIL Rwy 7
MIRL Rwy 7-25
FAF to MAP 5.3 NM
CATEGORY A B C D
S-25 540-1 496 (500-1) 540-1⅜ 496 (500-1⅜)
CIRCLING 540-1 495 (500-1) 540-1½ 495 (500-1½) 700-2 655 (700-2)
Amdt 10B 31MAR16
34°12'N-119°12'W
VOR RWY 25
SW-3, 29 MAR 2018 to 26 APR 2018


OXNARD, CALIFORNIA
AL-674 (FAA)
18088
WAAS CH 86299 W25A
APP CRS 256°
Rwy ldg 5500
TDZE 44
Apt Elev 45
RNAV (GPS) RWY 25
OXNARD (OXR)
Inoperative table does not apply. Baro-VNAV NA when using Camarillo altimeter setting. For uncompensated Baro-VNAV systems, LNAV/VNAV NA below -15°C (5°F) or above 43°C (109°F). DME/DME RNP -0.3 NA. When local altimeter setting not received, use Camarillo altimeter setting and increase all DA 18 feet, all MDA 20 feet, and Circling Cat D visibility ¼ mile. Helicopter visibility reduction below ¾ SM NA.
MALSF
MISSED APPROACH: Climb to 2000 direct PEWKI and on track 239° to SQUID and hold.
ATIS 118.05
POINT MUGU APP CON 124.7 335.5
OXNARD TOWER 134.95 (CTAF) 257.8
GND CON 121.9
Procedure NA for arrivals at WOTOK on V299 northbound.
Procedure NA for arrivals at SESPE on V186-597 eastbound.
Procedure NA for arrivals at SADDE on V299 eastbound.
ELEV 45
TDZE 44
REIL Rwy 7
MIRL Rwy 7-25
CATEGORY A B C D
LPV DA 294-1 250 (300-1)
LNAV/VNAV DA 333-1 289 (300-1)
LNAV MDA 520-1 476 (500-1) 520-1⅜ 476 (500-1⅜)
CIRCLING 520-1 475 (500-1) 520-1½ 475 (500-1½) 700-2 655 (700-2)
Amdt 1B 31MAR16
34°12'N-119°12'W
RNAV (GPS) RWY 25
SW-3, 29 MAR 2018 to 26 APR 2018

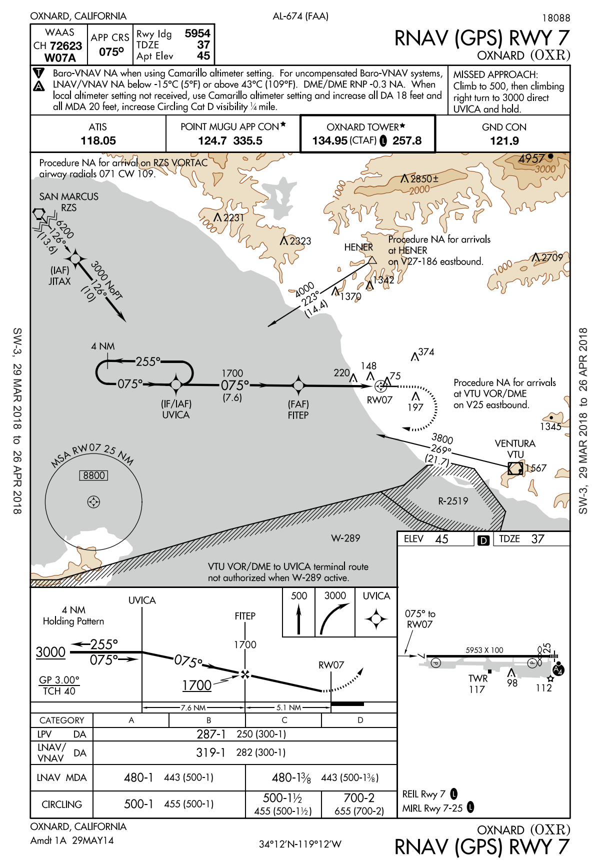

OXNARD, CALIFORNIA
AL-674 (FAA)
18088
WAAS CH 72623 W07A
APP CRS 075°
Rwy ldg 5954
TDZE 37
Apt Elev 45
RNAV (GPS) RWY 7
OXNARD (OXR)
Baro-VNAV NA when using Camarillo altimeter setting. For uncompensated Baro-VNAV systems, LNAV/VNAV NA below -15°C (5°F) or above 43°C (109°F). DME/DME RNP -0.3 NA. When local altimeter setting not received, use Camarillo altimeter setting and increase all DA 18 feet and all MDA 20 feet, increase Circling Cat D visibility ¼ mile.
MISSED APPROACH: Climb to 500, then climbing right turn to 3000 direct UVICA and hold.
ATIS 118.05
POINT MUGU APP CON 124.7 335.5
OXNARD TOWER 134.95 (CTAF) 257.8
GND CON 121.9
Procedure NA for arrival on RZS VORTAC airway radials 071 CW 109.
Procedure NA for arrivals at HENER on V27-186 eastbound.
Procedure NA for arrivals at VTU VOR/DME on V25 eastbound.
VTU VOR/DME to UVICA terminal route not authorized when W-289 active.
ELEV 45
TDZE 37
CATEGORY A B C D
LPV DA 287-1 250 (300-1)
LNAV/VNAV DA 319-1 282 (300-1)
LNAV MDA 480-1 443 (500-1) 480-1⅜ 443 (500-1⅜)
CIRCLING 500-1 455 (500-1) 500-1½ 455 (500-1½) 700-2 655 (700-2)
REIL Rwy 7
MIRL Rwy 7-25
Amdt 1A 29MAY14
34°12'N-119°12'W
RNAV (GPS) RWY 7
SW-3, 29 MAR 2018 to 26 APR 2018

Exhibit G. GPS LPV approaches provide both horizontal and vertical guidance information to pilots. Advancements in GPS technology has allowed for instrument approach procedures to provide minimums nearly as low as more traditional ILS systems. Currently, the GPS approaches to each runway include an LPV component. It should be noted that Runway 25 is also served by a VOR instrument approach providing straight-in and circling approaches.

The approved approaches for the airport are for Categories A, B, C and D aircraft. Category A aircraft are those with approach speeds of less than 91 knots. Category B aircraft have approach speeds of 91 knots or greater, but less than 121 knots. Category C aircraft have approach speeds of 121 knots or greater, but less than 141 knots. Category D aircraft have approach speeds of 141 knots or more but less than 166 knots.

NOISE ABATEMENT RULES AND PROCEDURES

In an effort to reduce noise impacts in areas adjacent to OXR, pilots are encouraged to adhere to voluntary noise abatement procedures. The airport has provided a list of rules and procedures to reduce the noise impacts on surrounding neighbors of the airport. **Table E** outlines these rules and procedures. It should be mentioned that noise abatement procedures are to be carried out during visual meteorological conditions (VMC) only. Pilots are requested to observe the noise abatement procedures unless:

- It is considered unsafe;
- Required by the applicable distance from cloud criteria;
- Required by the presence of other adverse weather phenomena; or
- Otherwise directed by ATC.

TABLE E | Voluntary Noise Abatement Program - Oxnard Airport

ALL AIRCRAFT
• Voluntary curfew from 11:00 p.m. to 6:00 a.m.
• Remain as high as practical over residential areas during overflight, approaches, and departures.
• Use best rate of climb when departing any runway.
• No formation takeoffs or landings without prior permission of the Airport Director.
• Touch and go's and stop and go's are prohibited between the hours of 8:00 p.m. and 7:00 a.m. (8:00 a.m. on weekends).
• Full stop/taxi back operations will be permitted only if the aircraft plans to depart the airport traffic area.
• No high-power engine run-ups for maintenance between 7:00 p.m. and 7:00 a.m.
RUNWAY 7-25 TRAFFIC PATTERN
• Published traffic pattern altitude (TPA): single engine aircraft 1043' MSL; twin engine/turbine aircraft 1443' MSL.
• Utilize best rate of climb, conditions permitting, turn crosswind when reaching the departure end of the runway and an altitude within 300' of pattern altitude.
• Maintain pattern altitude until turning base leg.
RUNWAY 25 DEPARTURE
• When departing the airport traffic area use best rate of climb; remain on runway heading until beyond the departure end of the runway and 700' AGL before proceeding on course.
RUNWAY 25 ARRIVAL
• Straight-in: cross Camarillo Airport at or above 2000' and remain as high as practical over the city until commencing final descent.
• Exercise extreme caution due to Camarillo traffic and instrument approaches being conducted to Oxnard's Runway 25.
RUNWAY 7 DEPARTURE
• Departures from the mid-field intersection (Taxiway C) are prohibited.
• When departing the airport traffic area use best rate of climb and remain on runway heading until reaching the airport boundary (Ventura Road) before proceeding on course.
• Exercise extreme caution due to opposite direction instrument approach traffic.

SOCIOECONOMIC CHARACTERISTICS

Socioeconomic characteristics can provide valuable information and insight with regard to growth and economic well-being of the study area. This information can contribute to the understanding and determination of the aviation service level requirements, as well as forecasting future operation and based aircraft levels.

POPULATION

Trends in population can provide an indication of the potential for the region to sustain growth in aviation activity. The historical population for the State of California was determined in 1990 by the California Department of Finance (DOF) to be approximately 29.56 million. As of January 1, 2017, the California DOF calculated a population total of approximately 39.52 million. This total represents a compound annual growth rate (CAGR) of roughly 1.08 percent from 1990-2017. Over the same period, Ventura County, which includes the City of Oxnard, as well as the entirety of the Oxnard-Thousand Oaks-Ventura metropolitan statistical area (MSA), experienced a population growth of 189,311 residents. This equates to a 0.93 percent CAGR. From 1990 to 2017, the City of Oxnard experienced a population CAGR of 1.46 percent, reaching an estimated 207,772 in 2017. From 1990-2017, the United States experienced a CAGR of approximately 1.03 percent. More recently, population growth rates for the State of California, Ventura County, and City of Oxnard have been somewhat lower. From 2010-2017, the State of California, Ventura County, and City of Oxnard experienced growth rates of 0.85, 0.54, and 0.70 percent, respectively, while the United States as a whole experienced a slightly higher growth rate of 0.88 percent. **Table F** further presents historical population information.

TABLE F | Historical Population

	Year				
	1990	2010	2017	CAGR (1990-2017)	CAGR (2010-2017)
City of Oxnard	140,400	197,899	207,772	1.46%	0.70%
Ventura County	666,800	824,441	856,111	0.93%	0.54%
State of California	29,558,000	37,253,956	39,523,613	1.08%	0.85%
United States	249,622,804	309,348,139	328,910,940	1.03%	0.88%

CAGR: Compound Annual Growth Rate

Source: State of California, Department of Finance Population, E-4 Population Estimates for Cities, Counties, and the State; The Complete Economic and Demographic Data Source, Woods and Poole 2018.

Population projections through 2038 retrieved from California DOF Demographic Research Unit and the 2018 Woods and Poole Complete Economic and Demographic Data Source are presented in **Table G**. As presented, the State of California is projected to grow at a CAGR of 0.96 percent through 2038, reaching a population total of approximately 48.30 million. The Ventura County population is forecasted to grow at a CAGR of 0.51 percent, resulting in a population of approximately 953,000 by 2038. The State of California is projected to grow at a CAGR greater than the United States, which is projected to grow at a CAGR of 0.84 percent.

TABLE G | Forecast Population

Area	2017	2023	2028	2038	CAGR (2017-2038)
Ventura County	856,111	884,148	909,352	953,170	0.51%
State of California	39,523,613	42,083,206	44,209,830	48,299,773	0.96%
United States	328,910,940	344,505,124	360,689,467	392,026,522	0.84%
CAGR: Compound Annual Growth Rate					

Source: State of California, Department of Finance, Demographic Research Unit, January 2018; The Complete Economic and Demographic Data Source, Woods and Poole 2018.

EMPLOYMENT AND PERSONAL INCOME

An overview of the community's employment and personal income base can provide pertinent information with regard to the economic health of the community. Generally speaking, the economic well-being of the community is greatly influenced by the variety and availability of employment opportunities, as well as wages offered by local employers. **Table H** summarizes employment and income data obtained from Woods and Poole Complete Economic and Demographic Data Source over the past 27 years for Ventura County, the State of California, and the United States.

TABLE H | Historical Employment and Income Data

	1990	2010	2017	CAGR (1990-2017)
Ventura County				
Total Employment	327,266	425,203	484,066	1.46%
PCPI (2009 Dollars)	33,091	44,824	50,600	1.59%
Mean Household Income (2009 Dollars)	100,048	44,824	145,295	1.39%
State of California				
Total Employment	16,834,550	19,654,390	24,018,650	1.32%
PCPI (2009 Dollars)	31,872	42,612	51,737	1.81%
Mean Household Income (2009 Dollars)	89,794	123,980	146,803	1.84%
United States				
Total Employment	138,331,900	173,034,700	198,989,700	1.36%
PCPI (2009 Dollars)	29,050	39,622	45,335	1.66%
Mean Household Income (2009 Dollars)	76,861	102,642	113,991	1.47%
CAGR: Compound Annual Growth Rate PCPI: Per Capita Personal Income				

Source: The Complete Economic and Demographic Data Source, Woods & Poole, 2018.

As presented in **Table H**, total employment in Ventura County has increased by 156,800 over a 27-year period, equating to a CAGR of 1.46 percent, outpacing the State of California and United States total employment CAGRs of 1.32 percent and 1.36 percent. Over the same time period, the county also experienced per capita personal income (PCPI) and mean household income CAGRs of 1.59 percent and 1.39 percent, respectively, while the state experienced growth rates of 1.81 percent and 1.84 percent.

During the 27-year timeframe, the State of California experienced PCPI and mean household income CAGRs of 1.81 percent and 1.84 percent, while the United States experienced CAGRs of 1.66 and 1.47 percent, respectively.

Table J presents forecasts for employment, PCPI, and mean household income in Ventura County, the State of California, and the United States. If realized, the projected employment growth could provide a base for increased aviation demand in the region. Moreover, PCPI is determined by dividing the total income by population. In order for PCPI to grow, income growth must outpace population growth significantly. Over the planning period, Ventura County's total employment is anticipated to grow at 1.45 percent CAGR, a rate greater than the State of California and the United States, which are projected to grow at 1.36 percent and 1.27 percent CAGR. PCPI and mean household income for the county are projected to grow at 0.89 percent and 1.06 percent CAGR, while the State of California is projected to grow at 0.93 percent and 1.15 percent CAGR. PCPI and mean household income for the United States is projected to grow at 1.03 percent and 1.20 percent CAGR, respectively.

TABLE J | Forecast Employment and Income Data

	2017	2023	2028	2038	CAGR (2017-2038)
Ventura County					
Total Employment	484,066	537,987	578,011	654,864	1.45%
PCPI (2009 Dollars)	50,600	54,519	57,081	60,975	0.89%
Mean Household Income (2009 Dollars)	145,295	155,569	164,622	181,314	1.06%
State of California					
Total Employment	24,018,650	26,414,200	28,350,840	31,907,900	1. 6%
PCPI (2009 Dollars)	51,737	55,660	58,542	62,882	0.93%
Mean Household Income (2009 Dollars)	146,803	157,376	167,711	186,752	1.15%
United States					
Total Employment	198,989,700	217,444,800	232,064,800	259,305,800	1.27%
PCPI (2009 Dollars)	45,335	49,081	51,873	56,228	1.03%
Mean Household Income (2009 Dollars)	113,991	122,600	130,962	146,464	1.20%

CAGR: Compound Annual Growth Rate
PCPI: Per Capita Personal Income

Source: The Complete Economic and Demographic Data Source, Woods & Poole, 2018.

FORECASTS OF AVIATION DEMAND

Facility planning requires a definition of demand that may be expected to occur during the useful life of the facility's crucial components. For OXR, this involves projecting aviation demand for a 20-year timeframe. In this report, forecasts of registered aircraft, based aircraft, based aircraft fleet mix, annual airport operations, and forecasts of airport peaking characteristics are projected.

The forecasts generated may be used for a multitude of purposes; including facility needs assessments as well as environmental evaluations. The forecasts will be submitted to the FAA for review and approval to ensure accuracy and reasonable projection of aviation activity. The intent of the projections is to enable Ventura County and OXR to make facility improvements to meet demand in the most efficient and cost-effective manner possible.

As previously mentioned, OXR has historically experienced commercial passenger service. In fact, the airport consistently experienced over 40,000 annual enplanements as recently as the early 2000s. However, the airport has not experienced this demand segment since 2010, at which time commercial passenger service began to suffer at OXR as it did at many smaller regional airports across the United States due to the recession and rising fuel prices, and shortly thereafter, the pilot shortage. It is important to note that the Regional Transportation Plan 2016-2040, conducted by the Southern California Association of Governments (SCAG) and adopted in 2016, does specifically identify OXR as potentially playing a role in accommodating forecast commercial passenger demands in the future. In fact, based on future economic conditions being forecasted in the region, the study estimates that OXR could expect approximately 200,000 annual passengers (100,000 enplanements) by 2040.

For this study, the forecasts of aviation demand to follow will focus primarily on the current aviation demand segment occurring at the airport, which is related to GA activity. With that said, it is important to note that airport staff has discussed efforts to restore commercial service activities as previously experienced at OXR and believes this demand segment could return in the near future. As such, it is important for this study to consider commercial passenger service and plan accordingly to accommodate this demand segment.

It should be noted that aviation activity can be affected by numerous outside influences on local, regional, and national levels. As a result, forecasts of aviation demand should be used only for advisory purposes. It is recommended that planning strategies remain flexible enough to accommodate any unforeseen facility needs.

FORECASTING APPROACH

Typically, the most accurate and reliable forecasting approach is derived from multiple analytical forecasting techniques. Analytical forecasting methodologies typically consist of regression analysis, trend analysis and extrapolation, market share or ratio analysis, and smoothing. Through the use of multiple forecasting techniques based upon each aviation demand indicator, an envelope of aviation demand projections can be generated. Generally, the preferred planning forecast will consist of a combination of forecasts as the averaged result of multiple forecasts are typically more accurate, although it is possible to use just one forecast result.

Regression analysis can be described as a forecasting technique that correlates certain aviation demand variables (such as passenger enplanements or operations) with economic measures. When using regression analysis, the technique should be limited to relatively simple models containing independent variables for which reliable forecasts are available (such as population or income forecasts).

Trend analysis and *extrapolation* is a forecasting technique that records historical activity (such as airport operations) and projects this pattern into the future. Oftentimes, this technique can be beneficial when local conditions of the study area are differentiated from the region or other airports.

Market share or *ratio analysis* can be described as a forecasting technique that assumes the existence of a top-down relationship between national, regional, and local forecasts. The local forecasts are presented as a market share of regional forecasts, and regional forecasts are presented as a market share of national forecasts. Typically, historical market shares are calculated and used as a base to project future market shares.

Smoothing is a statistical forecasting technique that can be applied to historical data, giving greater weight to the most recent trends and conditions. Generally, this technique is most effective when generating short-term forecasts.

NATIONAL GENERAL 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, GA, and FAA workload measures. The forecasts are prepared to meet budget and planning needs 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 2018-2038*, published in March 2018. The FAA primarily used 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. The following discussion is summarized from the FAA Aerospace Forecasts.

The FAA forecasts the fleet mix and hours flown for single engine piston aircraft, multi-engine piston aircraft, turboprops, business jets, piston and turbine helicopters, light sport, experimental, and others (gliders and balloons). The FAA forecasts "active aircraft," not total aircraft. An active aircraft is one that is flown at least one hour during the year. It is important to note that from 2010 through 2013, the FAA undertook an effort to have all aircraft owners re-register their aircraft. This effort resulted in a 10.5 percent decrease in the number of active general aviation aircraft, mostly in the piston category.

The long-term outlook for general aviation is stable to optimistic, as growth at the high-end offsets continuing retirements at the traditional low end of the segment. The active general aviation fleet is forecast to remain relatively stable between 2018 and 2038. While steady growth in both gross domestic product (GDP) and corporate profits results in continued growth of the turbine and rotorcraft fleets, the largest segment of the fleet – fixed-wing piston aircraft - continues to shrink over the FAA's forecast.

In 2017, the previous slow decline in aircraft deliveries of the general aviation industry reversed course with increases in the piston segment. Single engine piston deliveries by U.S. manufacturers were up 8.8 percent, while the smaller category of multi-engine piston deliveries went up by 24.2 percent. Business jet deliveries were about the same as the previous year, marginally down by 0.2 percent. Turboprop deliveries were also slightly down by 0.5 percent.

In 2017, the FAA estimated there were 143,265 piston-powered fixed-wing aircraft in the national fleet. The total number of fixed-wing piston-powered aircraft in the fleet is forecast to decline by 0.9 percent from 2017-2038, resulting in 119,645 by 2038. This includes -1.0 percent annually for single engine pistons and -0.4 percent for multi-engine pistons.

Total turbine aircraft are forecast to grow at an annual growth rate of 2.0 percent through 2038. The FAA estimates there were 30,905 turbine-powered aircraft in the national fleet in 2017, and there will be 46,160 by 2038. This includes annual growth rates of 1.7 percent for turboprops, 2.2 percent for business jets, and 1.9 percent for turbine helicopters.

While comprising a much smaller portion of the general aviation fleet, experimental aircraft, typically identified as home-built aircraft, are projected to grow annually by 0.8 percent through 2038. The FAA estimates there were 27,865 experimental aircraft in 2017, and these are projected to grow to 33,105 by 2038. Sport aircraft are forecast to grow 3.6 percent annually through the long-term, growing from 2,585 in 2017 to 5,440 by 2038. **Exhibit H** presents the historical and forecast U.S. active general aviation aircraft.

The FAA also forecasts total operations based upon activity at control towers across the United States. Operations are categorized as air carrier, air taxi/commuter, general aviation, and military. General aviation operations, both local and itinerant, declined significantly as a result of the 2008-2009 recession and subsequent slow recovery. Through 2038, total general aviation operations are forecast to grow 0.3 percent annually. Air taxi/commuter operations are forecast to decline by 2.1 percent through 2028, and then increase slightly through the remainder of the forecast period. Overall, air taxi/commuter operations are forecast to decline by 0.6 percent annually from 2017 through 2038.

General Aviation Aircraft Shipments and Revenue

The 2008-2009 economic recession has had a negative impact on general aviation aircraft production, and the industry has been slow to recover. Aircraft manufacturing declined for three straight years from 2008 through 2010. According to the General Aviation Manufacturers Association (GAMA), there is optimism that aircraft manufacturing will stabilize and return to growth, which has been evidenced since 2011. **Table K** presents historical data related to general aviation aircraft shipments.

Worldwide shipments of general aviation airplanes increased in 2017 with a total of 2,324 units delivered around the globe, compared to 2,268 units in 2016. However, worldwide general aviation billings were lower than the previous year. In 2017, $20.2 billion in new general aviation aircraft were shipped, but year-end results were mixed across the market segments. North America is the largest market for general aviation aircraft. The Asian-Pacific region is the second largest market for piston-powered aircraft, Latin America is the second largest market for turboprops, and Europe is the second largest market for business jets.

Business Jets: General aviation manufacturers business jet deliveries grew from 667 units in 2016 to 676 units in 2017. The North American market accounted for 63.8 percent of business jet deliveries, which is a 1.8 percent increase in market share compared to 2016.

Turboprops: Turboprop shipments were down from 582 in 2016 to 563 in 2017. North America's market share of turboprop aircraft dropped by 3.6 percent in the last year, while the European, Asian-Pacific, and Latin American markets increased their market share.

Pistons: In 2017, piston airplane shipments grew to 1,085 units over last year's shipment of 1,019 units for a 6.5 percent increase. However, North America's market share of piston aircraft deliveries dropped from 69.6 percent in 2016 to 65.6 percent in 2017. The Asian-Pacific market saw the largest increase in market share at 3.2 percent growth.

TABLE K | Annual General Aviation Airplane Shipments Manufactured Worldwide and Factory Net Billings

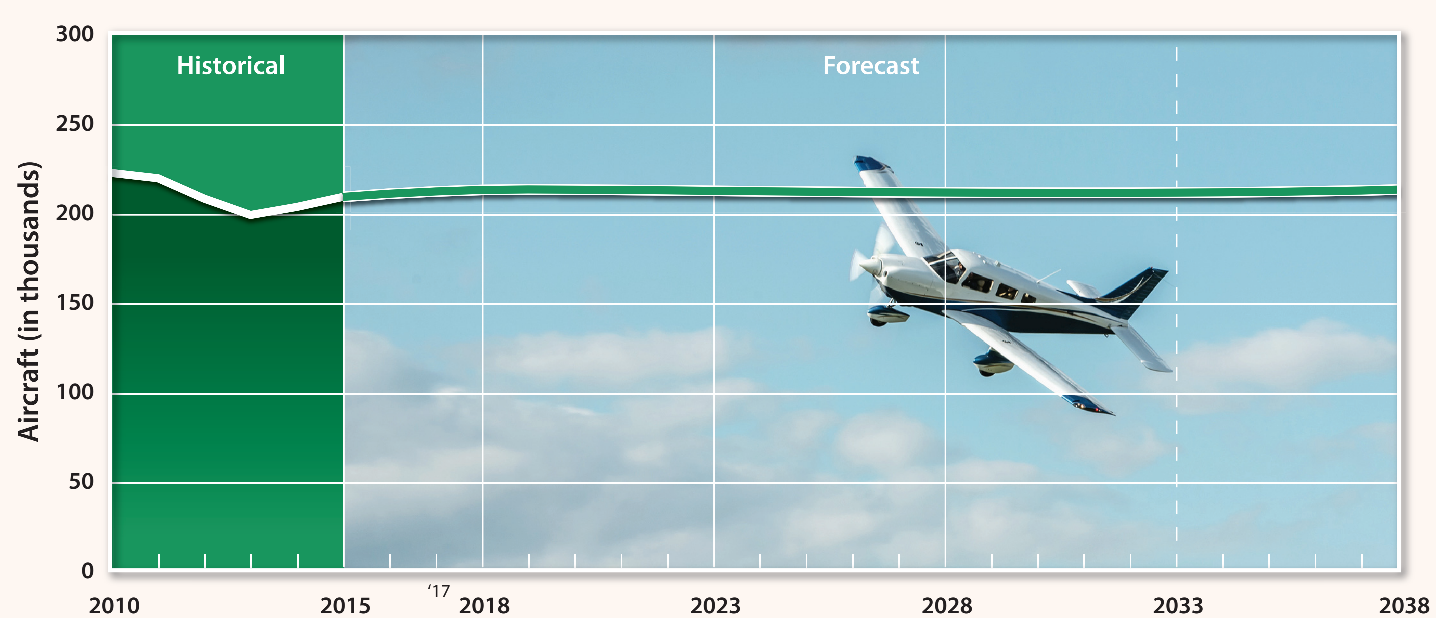
Year	Total	SEP	MEP	TP	J	Net Billings ($millions)
1994	1,132	544	77	233	278	3,749
1995	1,251	605	61	285	300	4,294
1996	1,437	731	70	320	316	4,936
1997	1,840	1043	80	279	438	7,170
1998	2,457	1508	98	336	515	8,604
1999	2,808	1689	112	340	667	11,560
2000	3,147	1,877	103	415	752	13,496
2001	2,998	1,645	147	422	784	13,868
2002	2,677	1,591	130	280	676	11,778
2003	2,686	1,825	71	272	518	9,998
2004	2,962	1,999	52	319	592	12,093
2005	3,590	2,326	139	375	750	15,156
2006	4,054	2,513	242	412	887	18,815
2007	4,277	2,417	258	465	1,137	21,837
2008	3,974	1,943	176	538	1,317	24,846
2009	2,283	893	70	446	874	19,474
2010	2,024	781	108	368	767	19,715
2011	2,120	761	137	526	696	19,042
2012	2,164	817	91	584	672	18,895
2013	2,353	908	122	645	678	23,450
2014	2,454	986	143	603	722	24,499
2015	2,331	946	110	557	718	24,129
2016	2,268	890	129	582	667	20,092
2017	2,324	936	149	563	676	20,197

SEP - Single Engine Piston; MEP - Multi-Engine Piston; TP - Turboprop; J - Turbofan/Turbojet

Source: General Aviation Manufacturers Association 2017 Annual Report.

U.S. ACTIVE GENERAL AVIATION AIRCRAFT

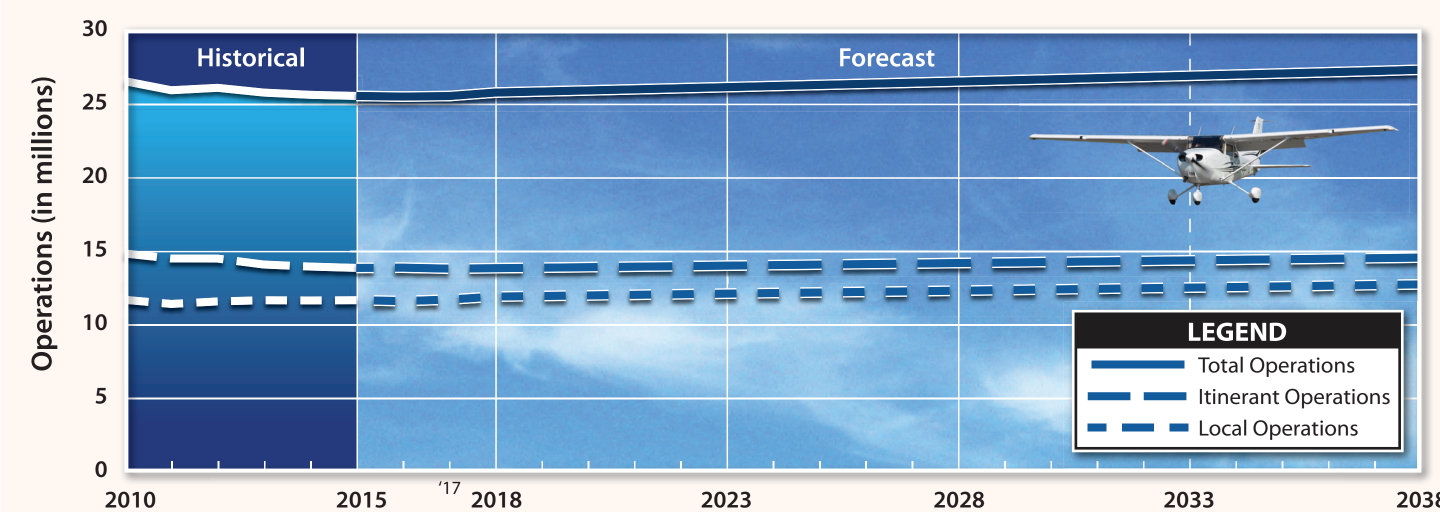
	2017 Estimate	2023	2028	2038	AAGR 2018-2038
Fixed Wing					
Piston					
Single Engine	130,330	125,330	118,740	107,800	-1.0%
Multi-Engine	12,935	12,720	12,465	11,845	-0.4%
Turbine					
Turboprop	9,430	9,025	9,870	12,855	1.7%
Turbojet	14,075	16,220	18,120	22,195	2.2%
Rotorcraft					
Piston	3,405	3,750	4,035	4,675	1.5%
Turbine	7,400	8,375	9,200	11,110	1.9%
Experimental					
	27,865	29,595	30,980	33,105	0.8%
Sport Aircraft					
	2,585	3,330	3,995	5,440	3.6%
Other					
	5,025	5,045	5,060	5,065	0.0%
Total Pistons	**146,670**	**141,800**	**135,240**	**124,320**	**-0.8%**
Total Turbines	**30,905**	**33,620**	**37,190**	**46,160**	**2.0%**
Total Fleet	**213,050**	**213,390**	**212,465**	**214,090**	**0.0%**



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

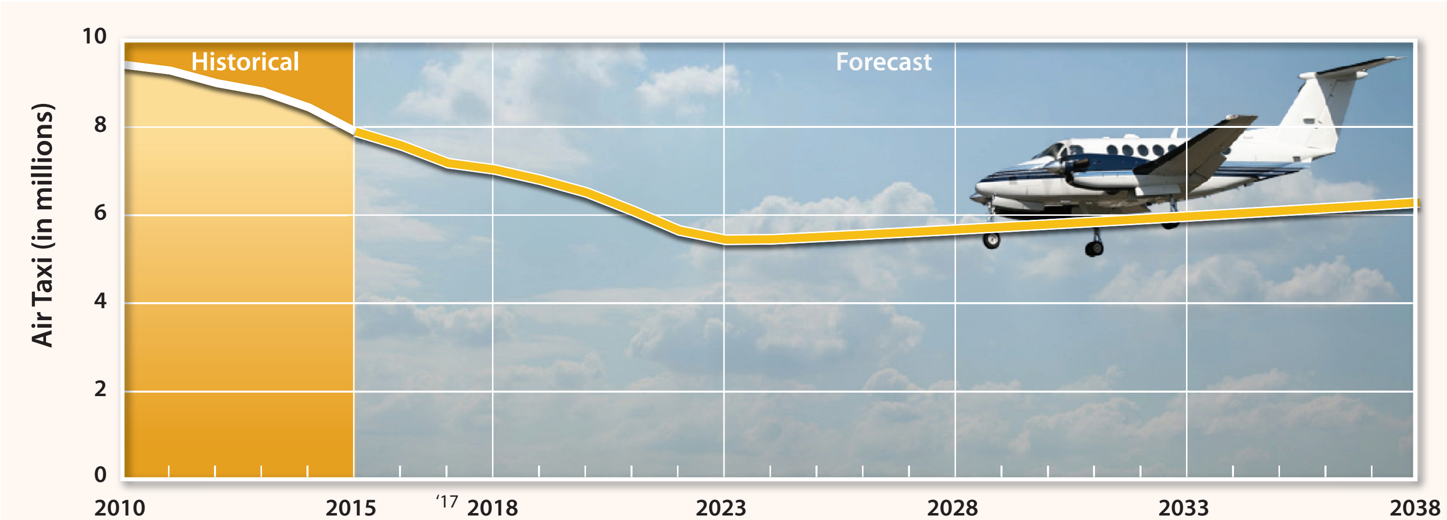
U.S. GENERAL AVIATION OPERATIONS

	2017 Estimate	2023	2028	2038	AAGR 2018-2038
Itinerant					
	13,838,029	14,039,925	14,217,031	14,587,442	0.3%
Local					
	11,731,596	12,135,595	12,338,286	12,763,556	0.3%
Total GA Operations	**25,569,625**	**26,175,520**	**26,555,317**	**27,350,998**	**0.3%**



U.S. GENERAL AVIATION AIR TAXI

	2017E	2023	2028	2038	AAGR 2018-2038
Air Taxi/Commuter Operations					
Itinerant	7,179,301	5,442,448	5,671,740	6,287,749	-0.6%



Source: FAA Aerospace Foreast - Fiscal Years 2018-2038

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AIRPORT SERVICE AREA

In determining aviation demand for an airport, it is necessary to identify the role of that airport. OXR is classified as a Regional GA airport in the NPIAS. According to the NPIAS and as previously described in the Airport Role section of this document, Regional airports are those that support regional economies, are located in metropolitan areas serving relatively large populations, and have high levels of activity with some jets and multi-engine propeller aircraft. While the airport is currently a GA facility, consideration should also be given to accommodating commercial passenger service as it has historically done. A brief summary of the service area tied to this demand segment is provided at the end of this section.

The primary role of the airport is to serve the needs of GA in the service area. GA is a term used to describe a diverse range of aviation activities, which includes all segments of the aviation industry except commercial air carriers and the military. GA is the largest component of the national aviation system and includes activities such as pilot training, recreational flying, and the use of sophisticated turboprop and jet aircraft for business and corporate use.

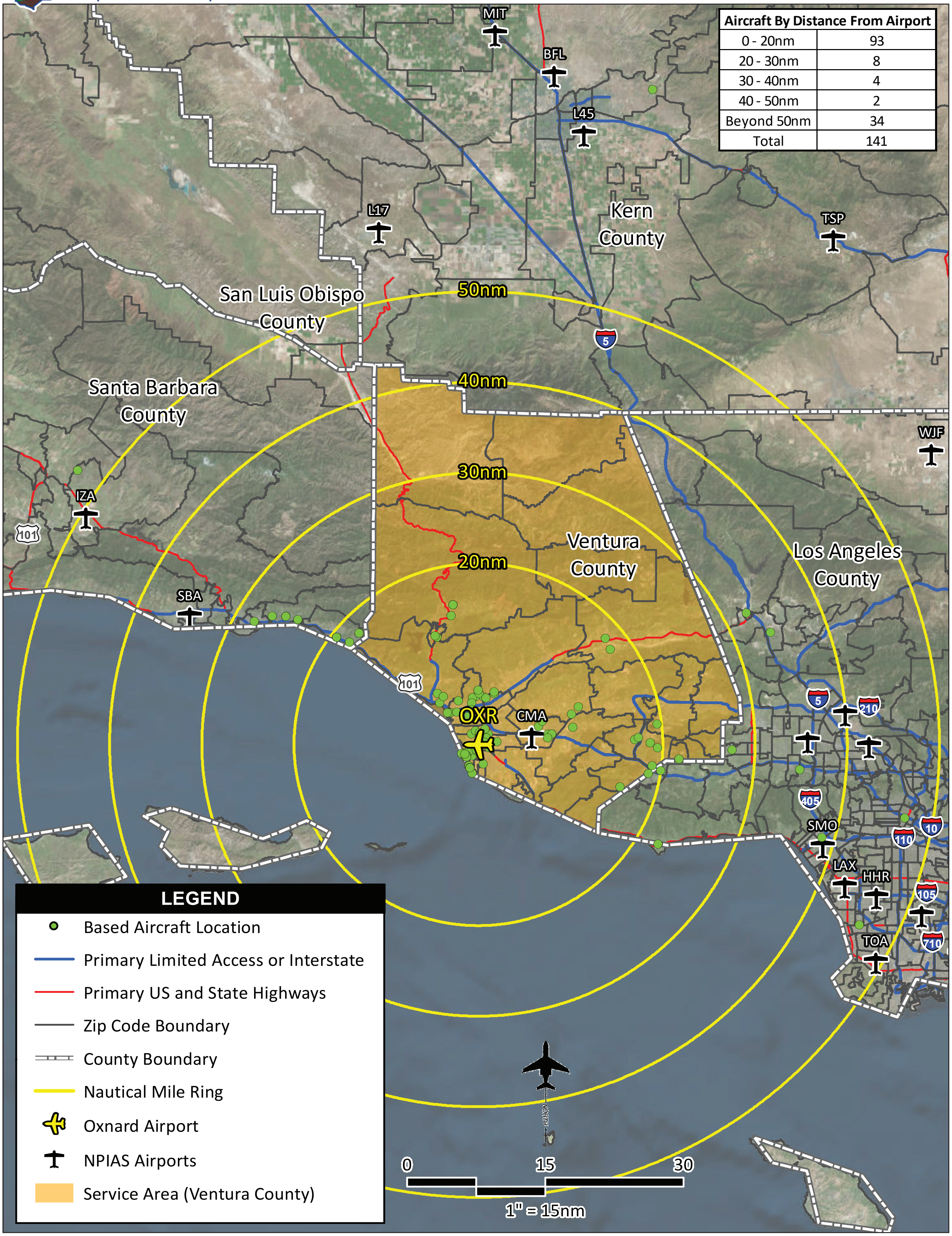
The initial step in determining the GA demand for an airport is to define its generalized service area. The airport service area is a generalized geographical area where there is a potential market for airport services, particularly based aircraft. Access to GA airports and transportation networks enter the equation to determine the size of a service area, as well as the quality of aviation facilities, distance, and other subjective criteria.

As in any business enterprise, the more attractive the facility is in terms of service and capabilities, the more competitive it will be in the market. If an airport's attractiveness increases in relation to nearby airports, so will the size of its service area. If facilities and services are adequate and/or competitive, some level of aviation activity might be attracted to an airport from more distant locales.

Typically, the service area for a local GA airport can range from a minimum of 30 miles, extending up to approximately 50 miles. The proximity and level of GA services are largely the defining factors when describing the GA service area. A description of nearby airports was previously completed in the Vicinity Airports section, as presented on **Exhibit D**. There are two public-use airports and one military airfield, which is owned and operated by the U.S. Navy, located within 30 nm of OXR. There are an additional 10 airports within 50 nm of OXR as previously mentioned in the Vicinity Airports section.

Of the two public-use airports within 30 nm of OXR, Camarillo Airport (CMA) is classified as National Reliever Airport within the NPIAS. In addition, Santa Paula Airport (SZP), located in close proximity to OXR, is a non-NPIAS airport that also serves GA demand mainly associated with small piston-powered aircraft. It should be noted that CMA and SPZ, combined, have captured a significant amount (approximately 78 percent) of Ventura County's based aircraft market share.

Given the surrounding competition for based aircraft and services offered, the most effective method of defining the airport's service area is by examining the based aircraft listing by their registered address. **Exhibit J** presents the number of OXR based aircraft located within the region by their registered address. It should be noted that 34 based aircraft are registered to addresses outside the regional area, many of which are registered out-of-state.



Aircraft By Distance From Airport	
0 - 20nm	93
20 - 30nm	8
30 - 40nm	4
40 - 50nm	2
Beyond 50nm	34
Total	141

Exhibit J
AIRPORT SERVICE AREA

Sources: ESRI Basemap Imagery (2016), FAA Registered Aircraft Database

As depicted on the exhibit, the most concentrated number of aircraft owners are located in the southern portion, particularly the southwest portion, of Ventura County, near the cities of Oxnard, Camarillo, and Ventura. When considering all 141 OXR based aircraft, approximately 62 percent are registered in Ventura County, with approximately eight percent being registered in Santa Barbara County and seven percent registered in Los Angeles County. The remaining 23 percent of based aircraft are registered to addresses outside of the regional area.

Although there is strong competition from airports within the region offering services similar to those available at OXR, most notably at CMA, the service area appears to be centered largely in the southern portion of Ventura County and extends northwest and southeast along the coastline. Given the services currently offered at OXR and the possibility for expansion to meet future demand, it is likely for the airport to remain competitive within the region. For the purposes of this study, the primary service area for OXR can be defined as the entirety of Ventura County, and more broadly defined as the 50 nautical mile radius extending farther north, east, and northwest as the secondary service area as depicted on **Exhibit J**.

While OXR does not currently accommodate commercial passenger service, airport staff does want to consider that this demand segment could return to the airport. As detailed earlier in this study, OXR currently maintains a Class III Title 14 Code of Federal Regulations (CFR) Part 139 Airport Operating Certificate, which is needed in order to accommodate commercial passenger service.

In addition, the SCAG's *Regional Transportation Plan 2016-2040* specifically identifies OXR as one of 12 airports in the region that can accommodate commercial passenger demands in the future. As such, an airport's commercial passenger service area is influenced by several factors such as competing transportation modes, levels of service, type of aircraft utilized, and destinations available. The primary source for passengers for the airport will be Ventura County, and given the strong residential and employment base totaling nearly one million people in the area, these socioeconomic and demographic indicators could support such activity returning to OXR. Furthermore, constraints on the overall transportation system in the region could extend the airport's service area into areas beyond Ventura County. As such, the County explored the potential return of commercial service activities and intends to plan airfield infrastructure accordingly to ultimately meet this demand segment.

REGISTERED AIRCRAFT FORECAST

Table L depicts the historical registered aircraft for Ventura County for years 1993 to 2017. The registered aircraft in the area shows a decreasing trend from years 1993 through 1999, then increasing through 2009. However, after 2009, the county has experienced a downward trend in aircraft registration. As previously noted, the FAA's effort to re-register aircraft during this timeframe likely contributed to the decrease in registered aircraft ownership in the region, as it did in much of the United States. The service area is currently at a 24-year registered aircraft low, with 971 registered aircraft. Although there are no recently prepared forecasts for the airport service area regarding registered aircraft, one was prepared for this study using market share projection and ratio projection methods.

When projecting the registered aircraft, it is helpful to calculate the service area's market share of the total active GA aircraft in the U.S. In conducting this market share analysis, comparison of Ventura County aircraft ownership trends against the nation's ownership trends can be carried out. **Table M** details the market share analysis, which shows the Ventura County market share of the U.S. active GA aircraft fleet has held a consistent declining trend, ranging from a high of 0.56 percent in 2009 to a low of 0.46 percent in 2017. Holding the 2017 market share of 0.46 percent constant, the market share can be applied to the forecast of U.S. active GA aircraft to generate the forecast registered aircraft in the airport service area, which is Ventura County. According to this projection, 985 aircraft could be registered in the service area by 2038, yielding a CAGR of 0.07 percent. In addition, an increasing market share percentage was also applied. Despite the declining market share trend, there could be potential for increased market share capturing historical values should the service area experience economic growth. Utilizing this forecasting technique, registered aircraft within the service area could reach 1,199 by 2038 and grow at a CAGR of 1.01 percent.

TABLE L | Historical Registered Aircraft - Ventura County

Year	Helicopter	MEP	Other*	SEP	Turbojet	Turboprop	Total
1993	45	92	21	878	25	13	1,074
1994	45	81	23	878	24	11	1,062
1995	43	80	26	866	24	10	1,049
1996	47	74	24	866	12	8	1,031
1997	47	71	26	863	14	8	1,029
1998	51	73	26	854	13	16	1,033
1999	53	76	26	836	14	13	1,018
2000	60	77	30	895	15	12	1,089
2001	63	68	31	895	15	48	1,120
2002	63	68	30	892	15	46	1,114
2003	67	61	36	870	21	74	1,129
2004	64	56	35	883	24	79	1,141
2005	63	60	37	930	28	80	1,198
2006	66	81	35	980	24	13	1,199
2007	64	89	43	1,005	24	19	1,244
2008	65	87	44	984	32	36	1,248
2009	70	85	44	991	28	37	1,255
2010	75	76	46	975	24	38	1,234
2011	71	72	45	957	21	31	1,197
2012	58	66	39	900	21	30	1,114
2013	50	63	50	819	22	30	1,034
2014	49	55	34	837	23	22	1,020
2015	48	52	39	815	23	18	995
2016	51	50	42	812	24	24	1,003
2017	49	52	41	788	23	18	971

MEP: Multi-Engine Piston
SEP: Single Engine Piston
* The "Other" aircraft category refers to aircraft such as gliders, electric aircraft, balloons, and dirigibles.

Source: FAA Registered Aircraft

Population trends have also been used to analyze and project aircraft registrations within the service area. This projection method analyzes the service area population as a ratio of the historical registered aircraft per 1,000 residents. In 2018, the California Department of Finance, Demographic Research Unit calculated the population of the service area to be approximately 856,111. Population within the service area is forecasted to increase to 953,170 by 2038. The ratio of registered aircraft to 1,000 population has been trending down from a high of 1.55 in 2007 to a low of 1.13 in 2017. A constant ratio projection maintaining the 2017 ratio of 1.13 yields 1,077 aircraft in the service area by 2038, growing at a CAGR of 0.49 percent.

Similar to the market share analysis, an increasing ratio projection was also utilized, which applies an increasing ratio of registered aircraft to the forecast population of the service area. By increasing the ratio to 1.20 over the planning horizon, a total of 1,144 aircraft could be registered by 2038, growing at a CAGR of 0.78 percent.

TABLE M | Registered Aircraft Forecast - Ventura County

Year	Ventura County Registered Aircraft	U.S. Active GA Aircraft	% of U.S. Active GA Aircraft	Ventura County Population	Aircraft per 1,000 Residents
2005	1,198	224,257	0.53%	795,962	1.51
2006	1,199	221,942	0.54%	799,049	1.50
2007	1,244	231,606	0.54%	803,572	1.55
2008	1,248	228,664	0.55%	808,970	1.54
2009	1,255	223,876	0.56%	815,284	1.54
2010	1,234	223,370	0.55%	824,441	1.50
2011	1,197	220,453	0.54%	831,606	1.44
2012	1,114	209,034	0.53%	836,782	1.33
2013	1,034	199,927	0.52%	842,964	1.23
2014	1,020	204,408	0.50%	848,038	1.20
2015	995	210,031	0.47%	852,199	1.17
2016	1,003	211,794	0.47%	853,673	1.17
2017	971	213,050	0.46%	856,111	1.13
Constant Market Share Projection of U.S. Active GA Aircraft (CAGR 0.07%)					
2023	982	213,390	0.46%	884,148	1.11
2038	977	212,465	0.46%	909,352	1.07
2038	985	214,090	0.46%	953,170	1.03
Increasing Market Share Projection of U.S. Active GA Aircraft (CAGR 1.01%)					
2023	1,024	213,390	0.48%	884,148	1.16
2038	1,105	212,465	0.52%	909,352	1.21
2038	1,199	214,090	0.56%	953,170	1.26
Constant Ratio Projection Per 1,000 Residents (CAGR 0.49%)					
2023	999	213,390	0.47%	884,148	1.13
2038	1,028	212,465	0.48%	909,352	1.13
2038	1,077	214,090	0.50%	953,170	1.13
INCREASING RATIO PROJECTION PER 1,000 RESIDENTS (CAGR 0.78%)—SELECTED					
2023	1,017	213,390	0.48%	884,148	1.15
2038	1,064	212,465	0.50%	909,352	1.17
2038	1,144	214,090	0.53%	953,170	1.20
Historical Average Ratio Projection Per 1,000 Residents (CAGR 1.42%)					
2023	1,211	213,390	0.57%	884,148	1.37
2038	1,246	212,465	0.59%	909,352	1.37
2038	1,306	214,090	0.61%	953,170	1.37

Source: Historical Registered Aircraft – FAA Aircraft Registry; Historical and Forecast U.S. Active GA Aircraft – FAA Aerospace Forecast, Fiscal Years 2018-2038; Historical and Forecast Population – California Department of Finance, Demographic Research Unit, January 2018.

An historical average ratio projection of 1.37 aircraft per 1,000 people was applied to the projected population to reflect a return to historic ratio levels. This projection yields a total of 1,306 registered aircraft and a CAGR of 1.42 percent.

The increasing ratio projection per capita was selected as the planning forecast as it is indicative of the forecast economic and population growth potential within the region. As such, a slight increase in market share is carried forward throughout the planning horizon to reflect a return to market share and registered aircraft levels last realized in the 2011-2012 timeframe.

BASED AIRCRAFT FORECAST

According to airport records, there are currently 141 aircraft based at the airport. Historical based aircraft data prior to 2017 was not readily available; therefore, the FAA's TAF historical based aircraft count for OXR was used to analyze historical based aircraft trends. Building upon the projections previously developed, market share analysis and trend line projection forecasting approaches were used to generate forecasts for the future based aircraft totals at OXR. As presented in **Table N**, the OXR market share of registered aircraft within the service area has experienced a downward trend from 2006 to 2012, reaching a low of 10.95 percent. From 2012 to 2016, the OXR market share has increased to 16.35 percent, then decreased slightly to 14.52 percent in 2017. Holding the current market share constant at 14.52 percent, future based aircraft projections were calculated by applying the service area registered aircraft projection to the market share of registered aircraft. This approach results in a projection of 166 based aircraft by the year 2038. The second projection assumes the airport's market share will increase throughout the planning period, reflecting the 2012 to 2016 five-year trend. An increasing market share projection results in 189 based aircraft by 2038 and a CAGR of 1.40 percent.

Additional projections were prepared by examining the ratio of based aircraft to population. Historic data shows that the ratio of based aircraft per 1,000 residents has followed a trend similar to the OXR based aircraft market share, reaching a low of 0.146 in 2012, then increasing to 0.194 in 2015. Since 2015, the ratio has decreased to 0.165 in 2017. Holding the current value of 0.165 based aircraft per 1,000 residents constant results in a projection of 157 based aircraft by 2038. An increasing ratio of based aircraft per 1,000 residents was also applied to the forecast service area population. Given that the service area population is projected to increase at a CAGR of 0.51 percent over the planning horizon, it is reasonable to assume that based aircraft within the service area could also experience some growth. Increasing the ratio of registered aircraft per 1,000 residents within the service area to 0.185 over the planning horizon results in a projection of 175 based aircraft by 2038 and a CAGR of 1.07 percent.

For comparative purposes, the FAA based aircraft forecast for OXR included within the TAF (which has a 2017 based aircraft count of 165) was also analyzed. The FAA's TAF increases OXR's based aircraft to 189 by year 2038 at a CAGR of 0.65 percent, generating a based aircraft market share of 16.52 percent and a ratio of based aircraft per 1,000 people of 0.198 throughout the planning horizon. As previously detailed, it is important to note that the FAA TAF is reporting 165 based aircraft for the base year (2017) of this study, which is significantly higher than the 141 based aircraft that are reported by airport staff.

TABLE N | Based Aircraft Forecast - Oxnard Airport

Year	OXR Based Aircraft	Ventura County Registrations	OXR Market Share	Service Area Population	Aircraft per 1,000 Residents
2005	137	1,198	11.44%	795,962	0.172
2006	184	1,199	15.35%	799,049	0.230
2007	184	1,244	14.79%	803,572	0.229
2008	178	1,248	14.26%	808,970	0.220
2009	157	1,255	12.51%	815,284	0.193
2010	157	1,234	12.72%	824,441	0.190
2011	157	1,197	13.12%	831,606	0.189
2012	122	1,114	10.95%	836,782	0.146
2013	147	1,034	14.22%	842,964	0.174
2014	157	1,020	15.39%	848,038	0.185
2015	165	995	16.58%	852,199	0.194
2016	164	1,003	16.35%	853,673	0.192
2017	141	971	14.52%	856,111	0.165
Constant Market Share Projection of Registered Aircraft (CAGR 0.78%)					
2023	148	1,017	14.52%	884,148	0.167
2028	154	1,064	14.52%	909,352	0.170
2038	166	1,144	14.52%	953,170	0.174
Increasing Market Share Projection of Registered Aircraft (CAGR 1.40%)					
2023	153	1,017	15.00%	884,148	0.173
2028	165	1,064	15.50%	909,352	0.181
2038	189	1,144	16.50%	953,170	0.198
Constant Ratio Projection Per 1,000 Residents (CAGR 0.52%)					
2023	146	1,017	14.34%	884,148	0.165
2028	150	1,064	14.10%	909,352	0.165
2038	157	1,144	13.75%	953,170	0.165
INCREASING RATIO PROJECTION PER 1,000 RESIDENTS (CAGR 1.07%)—SELECTED					
2023	150	1,017	14.78%	884,148	0.170
2028	159	1,064	14.96%	909,352	0.175
2038	176	1,144	15.41%	953,170	0.185
FAA Terminal Area Forecast (CAGR 0.65%)					
2023	174	1,017	17.11%	884,148	0.197
2028	179	1,064	16.82%	909,352	0.197
2038	189	1,144	16.52%	953,170	0.198

Note: 2017 OXR based aircraft number from current airport records. Historical based aircraft totals are derived from the FAA's *Terminal Area Forecast*.

Source: Historical Registered Aircraft – FAA Aircraft Registry; Historical and Forecast U.S. Active GA Aircraft – FAA Aerospace Forecast, Fiscal Years 2018-2038; Historical and Forecast Population – California Department of Finance, Demographic Research Unit, January 2018.

The forecasts summarized in **Table N** represent a reasonable planning envelope. The selected forecast considers the airport experiencing an increase in market share by 0.89 percent to a total of 15.41 percent and an increase in the ratio of the service area population by 0.20 percent to a total of 0.185 percent. The selected forecast is similar to the OXR based aircraft market share and ratio of based aircraft per 1,000 service area residents last experienced in 2014. By 2038, 176 aircraft are projected to be based at OXR. This forecast results in a 1.07 percent CAGR through the long-term planning period, returning to a market share and ratio of the service area population experienced in the recent past.

Future aircraft basing at the airport will depend on several factors, including the state of the economy, fuel costs, available facilities, competing airports, and adjacent development potential. Forecasts assume a reasonably stable and growing economy, as well as reasonable development of airport facilities necessary to accommodate aviation demand. Competing airports will play a role in deciding demand; however, OXR should fare well in this competition as it is served by a runway capable of handling the majority of general aviation aircraft and the airport's services and facilities currently offered. Furthermore, there is currently a hangar waiting list of approximately 30 aircraft, with the majority of those being aircraft currently not based at the airport.

BASED AIRCRAFT FLEET MIX

The current fleet mix based at OXR consists of 113 single engine piston aircraft, 15 multi-engine piston aircraft, four turboprops, and nine helicopters. Given that the total number of aircraft based at the airport is projected to increase, it is important to have an idea of the type of aircraft expected to utilize the airfield. A forecast of the fleet mix will ensure that adequate facilities are planned to accommodate these aircraft in the future.

The projection for the fleet mix of based aircraft was generated by comparing the existing fleet mix of based aircraft at OXR with the U.S. GA fleet trends. The forecast for the active U.S. GA fleet shows declining trends in the single and multi-engine categories; however, the larger and more sophisticated aircraft, such as turboprop and turbojet, are forecast to increase. In addition, both piston and turbine rotorcraft are projected to increase through 2038. Taking the national trends and airport communication into consideration regarding other aircraft, a projected based aircraft fleet mix has been prepared and is detailed in **Table P**.

TABLE P | Based Aircraft Fleet Mix - Oxnard Airport

Aircraft Type	2017	%	2023	%	2028	%	2038	%
Single Engine Piston	113	80.14%	117	78.00%	119	75.00%	126	71.75%
Multi-Engine Piston	15	10.64%	14	9.50%	12	7.50%	10	5.50%
Turboprop	4	2.84%	6	4.00%	8	5.00%	12	6.75%
Jet	0	0.00%	2	1.00%	5	3.00%	8	4.75%
Helicopters	9	6.38%	11	7.50%	15	9.50%	20	11.25%
Total	**141**	**100.00%**	**150**	**100.00%**	**159**	**100.00%**	**176**	**100.00%**

Source: Airport records; Coffman Associates' analysis

ANNUAL OPERATIONS

Aircraft operations are segregated into four general categories: air carrier, air taxi, military, and general aviation. Air carrier operations are performed by commercial airline aircraft with greater than 60 seats. Air taxi operations are generally associated with commuter aircraft, but also include for-hire general aviation aircraft. Military operations are those conducted by airplanes and helicopters with a military identification. General aviation includes all other aviation activity from small ultralights to large business jets.

Records of airport operational activities are essential for determining required facilities (types and sizes), as well as eligibility for federal funding. **Table Q** provides a summary of operational statistics over the past 20 years. According to the FAA's Operations Network (OPSNET), which reports ATCT counts for OXR, the airport had its peak air taxi operations levels in 1998 with almost 17,000 operations. Total operations were at their peak in 2005, at nearly 102,000 operations; however, total operations have since fluctuated, averaging approximately 65,900 over the last 10-year period. Total operations in 2017 were slightly higher than that average, at 66,932. It should be noted that all operations reported in the OPSNET system are confined to the operational hours of the ATCT serving OXR, which operates from 7:00 a.m. to 9:00 p.m. After hours operations occurring at OXR will be addressed later within this section.

TABLE Q | Aircraft Operational History - Oxnard Airport

Year	ITINERANT OPERATIONS					LOCAL OPERATIONS			Total Ops
	Air Carrier	Air Taxi	GA	Military	Subtotal	GA	Military	Subtotal	
1998	397	16,965	46,222	1,033	64,617	35,911	140	36,051	100,668
1999	0	16,929	44,274	1,539	62,742	27,372	94	27,466	90,208
2000	0	15,422	43,158	1,461	60,041	28,138	64	28,202	88,243
2001	0	14,046	44,506	958	59,510	26,885	37	26,922	86,432
2002	0	13,406	44,822	1,523	59,751	28,981	18	28,999	88,750
2003	0	11,529	41,369	822	53,720	29,730	0	29,730	83,450
2004	0	20,086	39,495	1,344	60,925	35,145	14	35,159	96,084
2005	0	10,456	49,979	1,240	61,675	40,183	4	40,187	101,862
2006	0	7,355	44,916	1,073	53,344	33,044	4	33,048	86,392
2007	0	6,586	25,025	359	31,970	36,931	16	36,947	68,917
2008	39	5,986	14,263	65	20,353	44,210	63	44,273	83,988
2009	0	5,222	26,201	115	31,538	29,839	25	29,864	61,402
2010	5	4,292	24,511	88	28,896	26,331	90	26,421	55,317
2011	14	3,620	24,957	198	28,789	27,629	367	27,996	56,785
2012	0	4,079	24,233	169	28,481	25,940	190	26,130	54,611
2013	8	5,498	23,846	218	29,570	29,457	468	29,925	59,495
2014	0	6,047	27,233	218	33,498	37,388	342	37,730	71,228
2015	1	5,397	28,371	178	33,947	40,506	292	40,798	74,745
2016	0	4,953	28,263	184	33,400	40,361	390	40,751	74,151
2017	0	4,629	25,366	187	30,182	36,594	156	36,750	66,932

Source: FAA Operations Network (OPSNET).

Military activity has constituted a very small percentage of annual aircraft operations during the past several years. This activity can include fixed-wing aircraft, as well as helicopter activity associated with military operations. The largest percentage of aircraft activity experienced at the airport falls within the general aviation category and can range from small aircraft conducting recreational flights, up to large corporate jets transporting passengers for business purposes.

Operations are further sub-categorized as either itinerant or local. Itinerant operations are those made by aircraft which arrive from or depart to destinations outside the local operating area. Typically, itinerant operations increase with business and commercial use since business aircraft are not usually used for large scale training activities. Local operations are associated primarily with touch-and-go or pilot training activity. Over the course of the past 10 years, itinerant operations have averaged approximately 48 percent of total operations, with local operations averaging approximately 52 percent.

An examination of monthly total operations at OXR from January 2008 through December 2017 shows no strong seasonal fluctuations over the course of the year; however, it does show that late fall and winter months typically have the lowest activity of the year, and spring months, March, April, and May, are typically the busiest in terms of operations. Over the 10-year time period, the airport has averaged 5,489 operations per month. So far this year, January through June 2018, the airport has experienced an average of 6,104 operations per month.

Itinerant General Aviation Operations Forecast

Five forecasts of itinerant general aviation operations have been developed and are presented in **Table R**. The forecasts presented consider the FAA TAF and examine and/or manipulate variables, such as the OXR market share of itinerant operations and operations per based aircraft. For planning purposes, forecasts have been rounded to the nearest hundred. The first projection considers the airport maintaining its market share of total U.S. itinerant general aviation operations at a constant level. In 2017, OXR accounted for 0.18 percent of U.S. itinerant operations. By carrying this percentage forward to the plan years of this study, a forecast emerges with a CAGR of 0.17 percent and 26,300 itinerant GA operations by year 2038. The second forecast considers an increasing OXR market share of national GA itinerant operations to 0.25 percent and produces a CAGR of 1.75 percent and 36,500 operations by 2038.

Additional forecasts were prepared by examining the airport's operations per based aircraft. By maintaining the current ratio of operations per based aircraft constant at 180 through the planning period, a forecast of 31,700 itinerant GA operations by 2038 results. Alternatively, the increasing operations per based aircraft grows the ratio to 190 and forecasts a CAGR of 1.32 percent and 33,400 itinerant GA operations by the year 2038.

Itinerant operations from the FAA TAF were also examined, which is slightly lower than the ATCT count at 25,308 itinerant operations for 2017. The TAF employs a decreasing forecast, projecting 24,201 itinerant GA operations by 2038 at a CAGR of -0.21 percent.

Ultimately, the constant operations per based aircraft projection has been carried forward as the selected forecast. Given the forecast potential for GA itinerant operations to increase moderately on a national level, it is possible for OXR to grow its market share within this operational segment. The selected forecast maintains a reasonable level of operations per based aircraft, while modestly increasing the airport's market share. Itinerant operations per based aircraft are projected to remain constant at 180 through the planning horizon, which ultimately increases OXR's itinerant GA operations market share to 0.22 percent by the long-term planning horizon. Each of these metrics are slightly above activity levels experienced in the recent past; however, each of these values are considered reasonable as historical trends (particularly itinerant GA operations market share) have shown steady growth.

TABLE R | Itinerant GA Operations Forecast - Oxnard Airport

Year	OXR Itinerant GA Operations	U.S. ATCT Itinerant GA Operations	Market Share of Itinerant Operations	OXR Based Aircraft	Itinerant Operations per Based Aircraft
2008	14,263	17,493,000	0.08%	178	80
2009	26,201	15,571,000	0.17%	157	167
2010	24,511	14,864,000	0.16%	157	156
2011	24,957	14,528,000	0.17%	157	159
2012	24,233	14,522,000	0.17%	122	199
2013	23,846	14,117,000	0.17%	147	162
2014	27,233	13,979,000	0.19%	157	173
2015	28,371	13,887,000	0.20%	165	172
2016	28,263	13,904,000	0.20%	164	172
2017	25,366	13,838,000	0.18%	141	180
Constant Market Share Projection (CAGR 0.17%)					
2023	25,300	14,040,000	0.18%	150	169
2028	25,600	14,217,000	0.18%	159	161
2038	26,300	14,587,000	0.18%	176	149
Increasing Market Share Projection (CAGR 1.75%)					
2023	28,100	14,040,000	0.20%	150	187
2028	31,300	14,217,000	0.22%	159	197
2038	36,500	14,587,000	0.25%	176	207
CONSTANT OPERATIONS PER BASED AIRCRAFT (CAGR 1.07%)—SELECTED					
2023	27,000	14,040,000	0.19%	150	180
2028	28,600	14,217,000	0.20%	159	180
2038	31,700	14,587,000	0.22%	176	180
Increasing Operations per Based Aircraft (CAGR 1.32%)					
2023	27,300	14,040,000	0.19%	150	182
2028	29,400	14,217,000	0.21%	159	185
2038	33,400	14,587,000	0.23%	176	190
FAA Terminal Area Forecast (CAGR -0.21%)					
2023	24,231	14,040,000	0.17%	150	162
2028	24,221	14,217,000	0.17%	159	152
2038	24,201	14,587,000	0.17%	176	138

Sources: Airport based aircraft information; FAA Aerospace Forecast 2018-2038, Fiscal Years 2018-2038; FAA Operations Network (OPSNET); Coffman Associates' analysis.

Local General Aviation Operations Forecast

A similar methodology was utilized to generate a planning forecast for local GA operations. Five forecasts were developed, with the first considering the airport maintaining a constant percentage of U.S. local GA operations. The second forecast applies an increasing market share percentage of U.S. local operations throughout the planning horizon. These forecasts generated CAGRs of 0.38 and 1.35 percent, respectively. Local GA operations forecasts are shown in **Table S**.

TABLE S | Local GA Operations Forecast - Oxnard Airport

Year	OXR Local GA Operations	U.S. ATCT Local GA Operations	Market Share of Local Operations	OXR Based Aircraft	Local Operations per Based Aircraft
2008	44,210	14,081,000	0.31%	178	248
2009	29,839	12,448,000	0.24%	157	190
2010	26,331	11,716,000	0.22%	157	168
2011	27,629	11,437,000	0.24%	157	176
2012	25,940	11,608,000	0.22%	122	213
2013	29,457	11,688,000	0.25%	147	200
2014	37,388	11,675,000	0.32%	157	238
2015	40,506	11,691,000	0.35%	165	245
2016	40,361	11,632,000	0.35%	164	246
2017	36,594	11,732,000	0.31%	141	260
Constant Market Share Projection (CAGR 0.38%)					
2023	37,600	12,136,000	0.31%	150	251
2028	38,200	12,338,000	0.31%	159	240
2038	39,600	12,764,000	0.31%	176	225
Increasing Market Share Projection (CAGR 1.35%)					
2023	38,800	12,136,000	0.32%	150	259
2028	41,900	12,338,000	0.34%	159	264
2038	48,500	12,764,000	0.38%	176	276
CONSTANT OPERATIONS PER BASED AIRCRAFT (CAGR 1.07%)—SELECTED					
2023	39,000	12,136,000	0.32%	150	260
2028	41,300	12,338,000	0.33%	159	260
2038	45,800	12,764,000	0.36%	176	260
Increasing Operations per Based Aircraft (CAGR 1.43%)					
2023	39,800	12,136,000	0.33%	150	265
2028	42,900	12,338,000	0.35%	159	270
2038	49,300	12,764,000	0.39%	176	280
FAA Terminal Area Forecast (CAGR 0.89%)					
2023	38,977	12,136,000	0.32%	150	260
2028	40,561	12,338,000	0.33%	159	255
2038	43,921	12,764,000	0.34%	176	250

Sources: Airport based aircraft information; FAA Aerospace Forecast 2018-2038, Fiscal Years 2018-2038; FAA Operations Network (OPSNET); Coffman Associates' analysis.

Forecasts manipulating variables, such as operations per based aircraft, were also prepared. Maintaining the constant operations per based aircraft at 260 projects a total of 45,800 local GA operations by year 2038 and a CAGR of 1.07 percent, while increasing the operations per based aircraft to 280 over the planning horizon projects 49,300 operations and a CAGR of 1.43 percent.

As a point of comparison, the FAA's TAF has been included which projects a CAGR of 0.89 percent and 43,921 local operations by 2038. It should be noted that the 2017 TAF GA local operations count is slightly lower than the ATCT count at 36,471.

The constant operations per based aircraft has been selected as the planning forecast. The potential for increases in based aircraft indicates possible growth for OXR's local operational levels and increased market share of national local GA operations. The selected forecast maintains the current level of local operations per based aircraft at 260. Although historical local operations per based aircraft have been increasing since 2013, this metric has been maintained throughout the planning horizon as increasing based aircraft will drive OXR's total local operations as well as market share. The selected long-term planning forecast projects a market share of 0.36 percent and local operations totaling 45,800 - activity levels that have been experienced as recent as 2016.

Other Air Taxi Operations Forecast

Air taxi operations are those with authority to provide "on-demand" transportation of persons or property via aircraft with fewer than 60 passenger seats. Air taxi includes a broad range of operations, including some smaller commercial service aircraft, some charter aircraft, air cargo aircraft, many fractional ownership aircraft, and air ambulance services.

The history of air taxi operations is included on **Table T**. As can be seen, air taxi operations at OXR have experienced a decreasing trend since 2014.

The FAA national air taxi forecast projects a 2.10 percent decrease in air taxi operations through 2028, followed by modest increases thereafter. The primary reason for this decrease is the transition by commuter airlines to larger aircraft with more than 60 passenger seats, which are then counted as air carrier operations. While air taxi operations that are represented by commuter airlines using aircraft with fewer than 60 seats are decreasing, the business jet segment of the air taxi category is expected to continue to grow nationally. The facilities and FBO services available at OXR are especially accommodating to operators of business jets. Therefore, it is reasonable to expect the business jet component of air taxi activity to increase moderately over time at OXR.

In addition, a total of eight business jets and 12 turboprops are forecast to base at the airport by 2038. **Table T** presents three forecasts for other air taxi operations at the airport. The first simply considers the airport capturing a constant market share of national air taxi operations, which results in a decreasing number of other air taxi operations. This forecast is not thought to reflect the local condition at OXR, considering the historical air taxi operations and the forecast potential for increased based turbine aircraft at the airport. The second forecast considers an increasing market share of air taxi operations, which produces a CAGR of 0.37 percent and 5,000 other air taxi operations by 2038.

The remaining forecast examines the FAA TAF, which has been selected as the most reasonable forecast. As was discussed, growth has been projected for this market segment due to the forecast potential for increased based turbine aircraft at OXR. As such, other air taxi operations are forecast to reach 6,400 by 2038 and grow at a CAGR of 1.36 percent. For planning purposes, the selected forecast has been rounded to the nearest hundred.

TABLE T | Other Air Taxi Operations Forecast - Oxnard Airport

Year	OXR Air Taxi Operations	U.S. Air Taxi Operations	OXR Market Share
2008	5,986	11,032,000	0.054%
2009	5,222	9,521,000	0.055%
2010	4,292	9,410,000	0.046%
2011	3,620	9,279,000	0.039%
2012	4,079	8,994,000	0.045%
2013	5,498	8,803,000	0.062%
2014	6,047	8,440,000	0.072%
2015	5,397	7,895,000	0.068%
2016	4,953	7,580,000	0.065%
2017	4,629	7,179,000	0.064%
Constant Market Share of U.S. Air Taxi Operations (CAGR -0.69%)			
2022	3,500	5,442,000	0.064%
2023	3,600	5,672,000	0.064%
2038	4,000	6,288,000	0.064%
Increasing Market Share of U.S. Air Taxi Operations (CAGR 0.37%)			
2022	3,800	5,442,000	0.070%
2023	4,300	5,672,000	0.075%
2038	5,000	6,288,000	0.080%
FAA TERMINAL AREA FORECAST (CAGR 1.36%)—SELECTED			
2022	5,233	5,442,000	0.096%
2023	5,600	5,672,000	0.099%
2038	6,413	6,288,000	0.102%
KEY: CAGR-Compound annual growth rate;			

Source: FAA Aerospace Forecast 2018-2038, Fiscal Years 2018-2038; FAA Operations Network (OPSNET); Coffman Associates' analysis.

Military Operations Forecast

Military aircraft utilize civilian airports across the country. The FAA TAF operational data identifies 518 annual military operations at OXR, with 214 being itinerant operations and the remaining 304 classified as local operations. Forecasting of military activity is inherently difficult because of the national security nature of their operations and the fact that missions can change on a daily basis. Thus, it is typical for the FAA to utilize a flat-line number for military operations, which has been applied at OXR. For the purposes of this study, 500 annual military operations will be considered throughout the planning horizon.

TOTAL OPERATIONS ADJUSTMENT AND FORECAST

The Oxnard Airport ATCT is not a 24-hour tower. Thus, its air traffic counts are not all-inclusive of aircraft operations at the airport. Some aspects of this study require that all airport activity be considered. For these evaluations, it is necessary to estimate and adjust for operations that occur when the tower is closed. The OXR tower operates daily from 7:00 a.m. to 9:00 p.m.

For planning purposes, operations that occur when the tower has closed are estimated from FAA OPSNET data. Over a five-year time period, from 2013-2017, approximately two percent of all operations occurring at OXR were after operational hours of the ATCT. As such, base year and forecast operations were increased by two percent to account for operations occurring at OXR after ATCT hours.

Table U presents a summary of the ATCT operations, as well as the adjusted operations, for all aircraft activity segments at OXR over the long-term planning horizon. The operational projections equate to a 1.10 percent CAGR.

TABLE U | Forecast Adjustment for ATCT After-Hours Operations - Oxnard Airport

	Base Year 2017	2023	2028	2038
ATCT OPERATIONS				
Itinerant	**30,182**	**32,400**	**34,400**	**38,300**
Air Taxi	4,629	5,200	5,600	6,400
General Aviation	25,366	27,000	28,600	31,700
Military	187	200	200	200
Local	**36,750**	**39,300**	**41,600**	**46,100**
General Aviation	36,594	39,000	41,300	45,800
Military	156	300	300	300
Total ATCT Operations	***66,932***	***71,700***	***76,000***	***84,400***
ADJUSTED OPERATIONS**				
Itinerant	**30,800**	**33,000**	**35,100**	**39,000**
Air Taxi	4,700	5,300	5,700	6,500
General Aviation	25,900	27,500	29,200	32,300
Military	200	200	200	200
Local	**37,500**	**40,100**	**42,400**	**47,000**
General Aviation	37,300	39,800	42,100	46,700
Military	200	300	300	300
Total Adjusted Operations	***68,300***	***73,100***	***77,500***	***86,000***

*ATCT records for period from January through December 2017
**Adjusted operations rounded to the nearest 100

Operations Forecast Summary

Table V presents the aggregate total of estimated current operational totals, as well as the operational forecasts for the planning horizon.

TABLE V | Operations Forecast Summary - Oxnard Airport

Year	Based Aircraft	Itinerant Air Taxi	Itinerant GA Operations	Local GA Operations	Itinerant Military Operations	Local Military Operations	Total Operations
2017	141	4,700	25,900	37,300	200	200	68,300
Forecast Planning Horizon							
2023	150	5,300	27,500	39,800	200	300	73,100
2028	159	5,700	29,200	42,100	200	300	77,500
2038	176	6,500	32,300	46,700	200	300	86,000
CAGR	1.06%	1.56%	1.06%	1.08%	0.00%	1.95%	1.10%

ANNUAL INSTRUMENT APPROACHES

Forecasts of annual instrument approaches (AIAs) provide guidance in determining an airport's requirements for navigational aid facilities. An instrument approach is defined by the FAA as "an approach to an airport with intent to land by an aircraft in accordance with an IFR flight plan, when visibility is less than three miles and/or when the ceiling is at or below the minimum approach altitude." To qualify as an instrument approach, aircraft must land at an airport after following one of the published instrument approach procedures. Forecasts of AIAs provide guidance in determining an airport's requirements for navigational aid facilities. Practice or training approaches do not count as AIAs, nor do instrument approaches that occur in visual conditions.

A review of historic AIAs utilizing the FAA's OPSNET system revealed that over the past five years, AIAs have constituted approximately 25 percent of the itinerant operations total at OXR. It is highly unusual for pilots to perform local operations when IFR conditions are in effect. AIAs may be expected to increase as itinerant operations and operations by more sophisticated aircraft (e.g., turboprops and business jets) increase through the planning period. For this reason, AIA projections consider a constant estimate of 25 percent of annual itinerant operations. The projections are presented in **Table W**.

TABLE W | Annual Instrument Approaches (AIAs) - Oxnard Airport

Year	AIAs	Itinerant Operations	Ratio
2017	7,700	30,800	25.00%
2023	8,250	33,000	25.00%
2028	8,775	35,100	25.00%
2038	9,750	39,000	25.00%

Source: Coffman Associates' analysis

PEAK PERIOD FORECASTS

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

- **Peak Month –** The calendar month when peak activity occurs.
- **Design Day –** The average day in the peak month.
- **Busy Day –** The busy day of a typical week in the peak month.
- **Design Hour –** The peak hour within the design day.

It is important to realize that only the peak month is an absolute peak within the year. Each of the other periods will be exceeded at various times during the year. However, each provides reasonable planning standards that can be applied without overbuilding or being too restrictive.

A review of tower reports obtained from OPSNET over the past 10 years shows that the peak month for operations has averaged 10.08 percent of total annual operations. This factor is carried to the plan years. The design day is simply the peak month divided by the number of days in that month. Over the last 10 years, the peak month has averaged 30.70 days; therefore, the peak month estimate is divided by 30.70 to arrive at the design day. The busy day is calculated as 43.30 percent higher than the design day, which is derived based on the average of the peak day for each week of the peak month. The design hour is an average of the peak hour of the peak day of each week in the peak month.

Hourly operations were also obtained from OPSNET. In order to calculate the design hour, the peak hour within the peak day of each week in the peak month was identified. This process was conducted for each year from 2008 through 2017. Peak hours from each year were then calculated as a percentage of the corresponding peak day and averaged in an effort to exclude extreme outliers. The percentage was then applied to the OXR ATCT operational data, which has been adjusted to account for operations occurring after the ATCT has closed, to generate the design hour. **Table X** presents the peaking characteristics for the planning horizon.

TABLE X | Peak Operations Forecast - Oxnard Airport

	2017	2023	2028	2038
Annual Operations	68,300	73,100	77,500	86,000
Peak Month	6,885	7,368	7,812	8,669
Busy Day	329	344	365	405
Design Day	229	240	254	282
Design Hour	57	60	64	71

Source: Coffman Associates analysis of OXR ATCT data.

FORECAST COMPARISON TO THE *TERMINAL AREA FORECAST*

The FAA will review the forecasts presented in this Narrative Report for consistency with the TAF. Typically, the local FAA Airport District Office (ADO) or Regional Airports Division (RO) are responsible for forecasting. When reviewing a sponsor's forecast, FAA must ensure that the forecast is based on reasonable planning assumptions, uses current data, and is developed using appropriate forecast methods. Forecasts of operations and based aircraft are considered consistent with the TAF if they differ by less than 10 percent in the five-year period and 15 percent in the 10-year forecast period. If the forecast is not consistent with the TAF, differences must be resolved if the forecast is to be used for FAA decision-making. **Table Y** presents the direct comparison of the master planning forecasts with the TAF published in January 2018.

The reason the FAA allows this differential is because the TAF forecasts are not meant to replace forecasts developed locally (i.e., in this study). While the TAF can provide a point of reference or comparison, their purpose is much broader in defining FAA national workload measures.

In examining the projections formulated for this study and FAA TAF projections of itinerant operations, the selected planning forecast differs from the TAF by 11.19 percent in the five-year forecast and 16.86 percent in the 10-year forecast. Thus, the forecast of itinerant operations is slightly outside of what would be considered to be consistent with the FAA TAF in the five-year forecast; however, the base year itinerant operations (as reported by OPSNET and adjusted for afterhours operations) are estimated at a 1.49 percent difference from the TAF. As shown in the table, local and total operations would generally be considered consistent with the TAF as the 5 and 10-year tolerances are not exceeded. For based aircraft, the TAF identifies a total of 165 based aircraft in 2018; however, this planning effort identified 141 based aircraft at OXR through the use of the FAA National Based Aircraft Inventory Program as well as a based aircraft list provided by airport management. As a result, the selected base year count has a –14.55 percent difference from the TAF. Ultimately, the selected based aircraft forecast decreases to a –13.79 percent difference from the TAF in the five-year forecast period and further decreases to –11.17 percent difference in the 10-year forecast.

TABLE Y | Forecast Comparison to the *Terminal Area Forecast* - Oxnard Airport

	BASE YEAR	FORECAST			CAGR
	2017	2023	2028	2038	2017-2038
Itinerant Operations					
ALP Narrative Forecast	30,800	33,000	35,100	39,000	1.13%
2018 FAA TAF	30,349	29,678	30,035	30,828	0.07%
% Difference	1.49%	11.19%	16.86%	26.51%	
Local Operations					
ALP Narrative Forecast	37,500	40,100	42,400	47,000	1.08%
2018 FAA TAF	36,775	39,281	40,865	44,225	0.88%
% Difference	1.97%	2.08%	3.76%	6.27%	
Total Operations					
ALP Narrative Forecast	68,300	73,100	77,500	86,000	1.10%
2018 FAA TAF	67,124	68,959	70,900	75,053	0.53%
% Difference	1.75%	6.01%	9.31%	14.59%	
Based Aircraft					
ALP Narrative Forecast	141	150	159	176	1.06%
2018 FAA TAF	165	174	179	189	0.65%
% Difference	-14.55%	-13.79%	-11.17%	-6.88%	
KEY: CAGR - Compound annual growth rate					

Source: Coffman Associates analysis

FORECAST SUMMARY

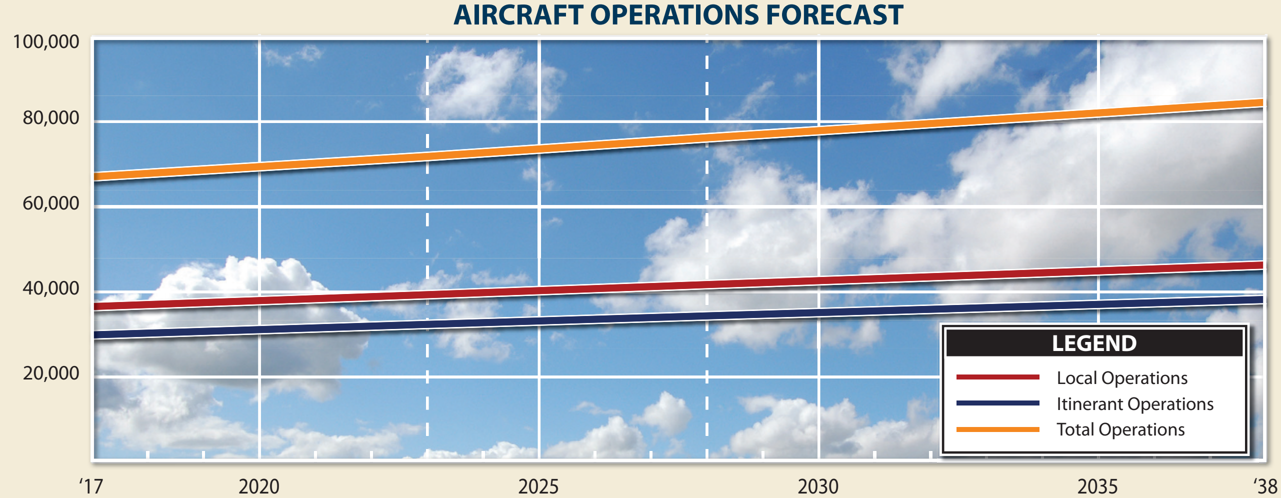
This section has provided demand-based forecasts of aviation activity at OXR over the next 20 years. An attempt has been made to define the projections in terms of short- (1-5 years), intermediate- (6-10 years), and long-term (11-20 years) planning horizons. **Exhibit K** presents a 20-year forecast summary. Elements such as local socioeconomic indicators, anticipated regional development, historical aviation data, and national aviation trends were all considered when determining future conditions.

AIRPORT/AIRCRAFT/RUNWAY CLASSIFICATION

The FAA has established multiple aircraft classification systems that group aircraft based upon performance (approach speed in landing configuration) and on design characteristics (wingspan and landing gear configuration). These classification systems are used to design certain airport elements, such as separation standards, safety areas, runways, taxiways, and aprons, based upon the aircraft expected to use the airport facilities most frequently.

	2017	2023	2028	2038
BASED AIRCRAFT				
Single Engine	113	117	119	126
Multi-Engine Piston	15	14	12	10
Turboprop	4	6	8	12
Jet	0	2	5	8
Rotor	9	11	15	20
TOTAL BASED AIRCRAFT	***141***	***150***	***159***	***176***
ANNUAL OPERATIONS*				
ITINERANT				
Air Taxi	4,700	5,300	5,700	6,500
General Aviation	25,900	27,500	29,200	32,300
Military	200	200	200	200
Total Itinerant	***30,800***	***33,000***	***35,100***	***39,000***
LOCAL				
General Aviation	37,300	39,800	42,100	46,700
Military	200	300	300	300
Total Local	***37,500***	***40,100***	***42,400***	***47,000***
TOTAL OPERATIONS	***68,300***	***73,100***	***77,500***	***86,000***
ANNUAL INSTRUMENT APPROACHES	***7,700***	***8,250***	***8,775***	***9,750***

AIRCRAFT OPERATIONS FORECAST



BASED AIRCRAFT FORECAST

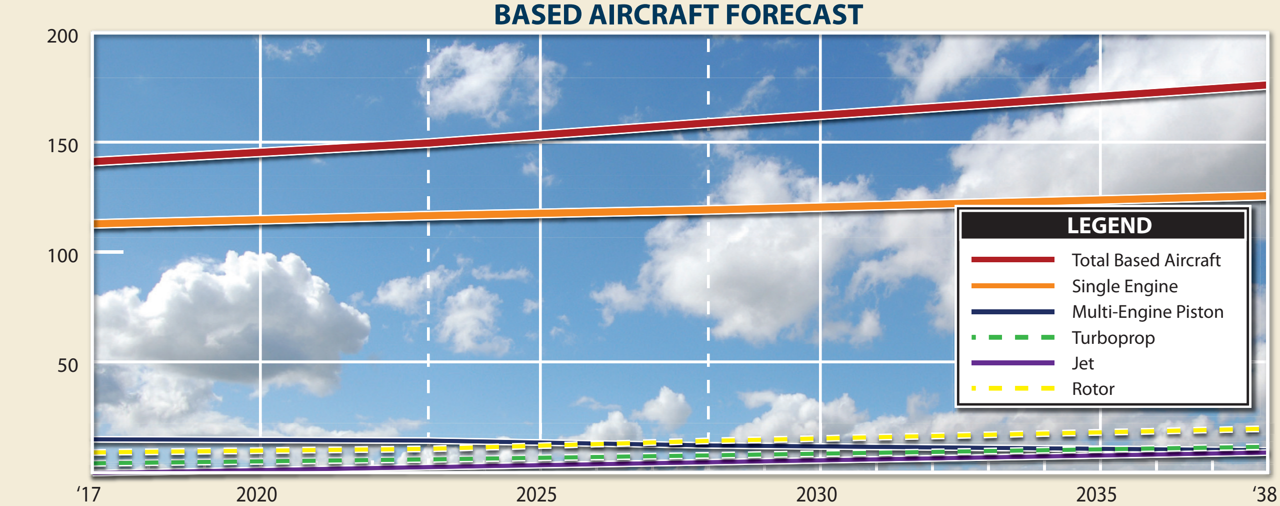


Exhibit K
FORECAST SUMMARY

*Annual operations have been adjusted to account for operations occurring after operational hours of the ATCT.

AIRCRAFT CLASSIFICATION

The use of appropriate FAA design standards is generally based upon the characteristics of aircraft commonly using, or expected to use, the airport facilities. The aircraft used to design the airport is designated as the critical aircraft. The design criteria used in the aircraft classification process are presented in **Exhibit L**. An airport's critical aircraft can be a single aircraft or a collection of multiple aircraft commonly using the airport that fit into a single aircraft category. The design aircraft or collection of aircraft is classified by three different categories: Aircraft Approach Category (AAC), Airplane Design Group (ADG), and Taxiway Design Group (TDG). The FAA Advisory Circular (AC) 150/5300-13A, *Airport Design,* describes the following classification systems and parameters.

Aircraft Approach Category (AAC): A grouping of aircraft based on a reference landing speed (VREF), if specified, or if VREF is not specified, 1.3 times stall speed (VSO) at the maximum certificated landing weight. VREF, VSO, and the maximum certificated landing weight are those values as established for the aircraft by the certification authority of the country of registry. The AAC generally refers to the approach speed of an aircraft in landing configuration. The higher the approach speed is, the more restrictive the design standards become. The AAC, depicted by letters A-E, represents the approach category and relates to the approach speed of the aircraft (operational characteristics). The AAC typically applies to runways and runway-related facilities, such as runway width, runway safety area (RSA), runway object free area (ROFA), runway protection zone (RPZ), and separation standards.

Airplane Design Group (ADG): The ADG, depicted by a Roman numeral I through VI, is a classification of aircraft which relates to the aircraft wingspan or tail height (physical characteristics). If the aircraft wingspan or tail height fall under two different classifications, the higher category is used. The ADG is used to establish design standards for taxiway safety area (TSA), taxiway obstacle free area (TOFA), taxilane object free area, apron wingtip clearance, and various other separation standards.

Taxiway Design Group (TDG): A classification of airplanes based on outer-to-outer main gear width (MGW) and cockpit to main gear (CMG) distance. The TDG relates to the dimensions of the under-carriage of the design aircraft. The taxiway design elements determined by the application of the TDG include the taxiway width, taxiway edge safety margin, taxiway shoulder width, taxiway fillet dimensions, and, in some cases, the separation distance between parallel taxiway/taxilanes. Other taxiway elements, such as the taxiway safety area (TSA), taxiway/taxilane object free area (TOFA), taxiway/taxilane separation to parallel taxiway/taxilanes or fixed or movable objects, and taxiway/taxilane wingtip clearances are determined solely based on the wingspan (ADG) of the design aircraft utilizing those surfaces. It is appropriate for a taxiway to be planned and built to different taxiway design standards based on expected use.

Exhibit M presents the aircraft classification of common aircraft in operation today.

AIRPORT AND RUNWAY CLASSIFICATION

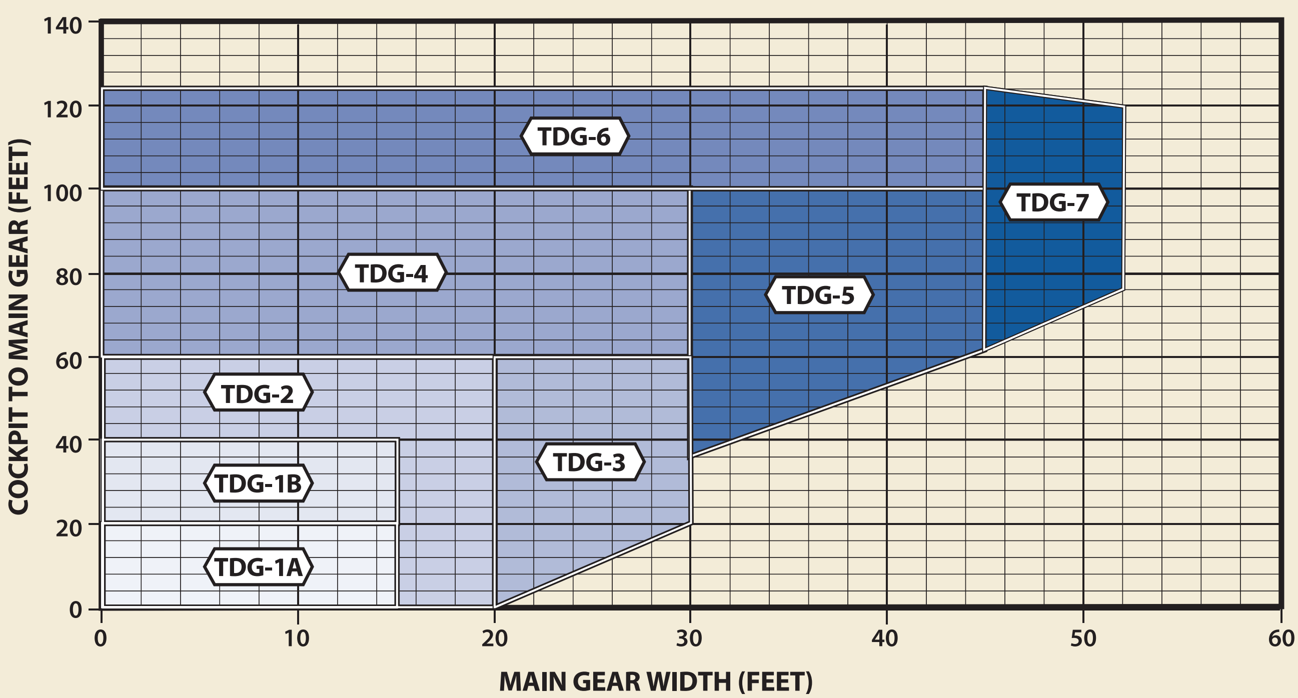
The airport and runway classifications, along with the aircraft classifications defined above, are used to determine the appropriate FAA design standards to which the airfield facilities are to be designed and built.

AIRCRAFT APPROACH CATEGORY (AAC)	
Category	**Approach Speed**
A	less than 91 knots
B	91 knots or more but less than 121 knots
C	121 knots or more but less than 141 knots
D	141 knots or more but less than 166 knots
E	166 knots or more

AIRPLANE DESIGN GROUP (ADG)		
Group #	**Tail Height (ft)**	**Wingspan (ft)**
I	<20	<49
II	20-<30	49-<79
III	30-<45	70-<118
IV	45-<60	118-<171
V	60-<66	171-<214
VI	66-<80	214-<262

VISIBILITY MINIMUMS	
RVR (ft)	**Flight Visibility Category (statute miles)**
VIS	3-mile or greater visibility minimums
5,000	Lower than 3 miles but not lower than 1-mile
4,000	Lower than 1-mile but not lower than ¾-mile (APV ≥ ¾ but < 1-mile)
2,400	Lower than ¾-mile but not lower than ½-mile (CAT-I PA)
1,600	Lower than ½-mile but not lower than ¼-mile (CAT-II PA)
1,200	Lower than ¼-mile (CAT-III PA)

TAXIWAY DESIGN GROUP (TDG)



KEY
APV: Approach Procedure with Vertical Guidance
PA: Precision Approach
RVR: Runway Visual Range
TDG: Taxiway Design Group

Source: FAA AC 150/5300-13A, Change 1, Airport Design

A-I

- Beech Baron 55
- **Beech Bonanza**
- Cessna 150
- Cessna 172
- Cessna Citation Mustang
- Eclipse 500/550
- Piper Archer
- Piper Seneca

C-I, D-I

- Beech 400
- **Lear** 31, **35**, 45, 60
- Israeli Westwind

B-I

- Beech Baron 58
- Beech King Air 100
- Cessna 402
- **Cessna 421**
- Piper Navajo
- Piper Cheyenne
- Swearingen Metroliner
- Cessna Citation I (525)

C-II, D-II

- **Cessna Citation X (750)**
- Gulfstream 100, 200,300
- Challenger 300/600
- ERJ-135, 140, 145
- CRJ-200/700
- Embraer Regional Jet
- Lockheed JetStar
- Hawker 800

B-II *less than 12,500 lbs.*

- **Super King Air 200**
- Cessna 441
- Cessna 208 Caravan
- DHC Twin Otter
- Pilatus PC-12

C-III, D-III *less than 100,000 lbs.*

- ERJ-170
- CRJ 705, 900
- Falcon 7X
- **Gulfstream 500**, 550, 650
- Global Express, Global 5000
- Q-400

B-I, B-II *more than 12,500 lbs.*

- Super King Air 350
- Beech 1900
- Jetstream 31
- Falcon 10, 20, 50
- Falcon 200, 900
- **Citation II**, III, IV, V
- Saab 340
- Embraer 120

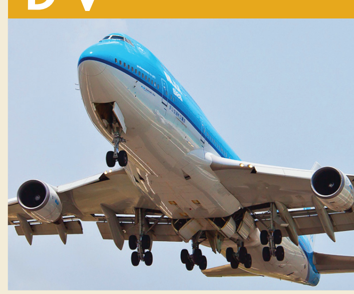
C-IV, D-IV

- B-757
- B-767
- **C-130 Hercules**
- DC-8-70
- MD-11

A-III, B-III

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

D-V



- **B-747-400**
- B-777
- B-787
- A-330, A-340

Exhibit M
AIRCRAFT REFERENCE CODES

Airport Reference Code (ARC): An airport designation that signifies the airport's highest runway design code (RDC), minus the third (visibility) component of the RDC. The ARC is used for planning and design purposes only and does not limit the aircraft's capability of operating safely on the airport. The current ALP, which was last updated and approved in March 2006 and will be updated as part of this study, indicates that the airport is currently designed to ARC D-II standards.

Runway Design Code (RDC): A code signifying the design standards to which the runway is to be built. The RDC is based upon planned development and has no operational component.

The AAC, ADG, and runway visual range (RVR) are combined to form the RDC of a particular runway. The RDC provides the information needed to determine certain design standards that apply. The first component, depicted by a letter, is the AAC and relates to aircraft approach speed (operational characteristics). The second component, depicted by a Roman numeral, is the ADG and relates to either the aircraft wingspan or tail height (physical characteristics), whichever is most restrictive. The third component relates to the visibility minimums expressed by RVR values in feet of 1,200 (⅛-mile), 1,600 (¼-mile), 2,400 (½-mile), 4,000 (¾-mile), and 5,000 (1-mile). The RVR values approximate standard visibility minimums for instrument approaches to the runways. The third component should read "VIS" for runways designed for visual approach use only.

Numerous airfield design standards are based upon the RDC. The RDC of any given runway is used to determine specific airfield design standards, which include imaginary surfaces established by the FAA to protect aircraft operational areas in order to keep them free of obstructions that could possibly affect the safe operation of aircraft. Airfield design standards at OXR are further described later in the report.

Approach Reference Code (APRC): A code signifying the current operational capabilities of a runway and associated parallel taxiway with regard to landing operations. Like the RDC, the APRC is composed of the same three components: the AAC, ADG, and RVR. The APRC describes the current operational capabilities of a runway under particular meteorological conditions where no special operating procedures are necessary, as opposed to the RDC, which is based upon planned development with no operational component. The APRC for a runway is established based upon the minimum runway to taxiway centerline separation.

Currently, the runway to taxiway centerline separation for Runway 7-25 is 365 feet. Given that Runway 7-25 is served by instrument approach procedures with minimums not lower than one mile, Runway 7-25 meets standards for APRC B/III/5000.

Departure Reference Code (DPRC): A code signifying the current operational capabilities of a runway and associated parallel taxiway with regard to take-off operations. The DPRC represents those aircraft that can take off from a runway while any aircraft are present on adjacent taxiways, under particular meteorological conditions with no special operating conditions. The DPRC is similar to the APRC but is composed of two components: AAC and ADG. A runway may have more than one DPRC depending on the parallel taxiway separation distance.

The runway to taxiway centerline separation for Runway 7-25 is currently 365 feet, which meets FAA design standards for DPRC B/III and D/II.

CRITICAL DESIGN AIRCRAFT

The selection of airport design criteria is based upon the aircraft currently using, or expected to use, the airport. The critical aircraft is used to establish the design parameters of the airport. These criteria are typically based upon the most demanding aircraft using the airfield facilities on a relatively frequent basis. The critical design aircraft can be a single aircraft or a composite of multiple aircraft that represent a collection of aircraft characteristics. Upon the selection of multiple aircraft, the most demanding aircraft characteristics are used to establish the design criteria of the airport based upon the AAC, ADG, and TDG. If the airport contains multiple runways, a critical design aircraft will be established for each runway.

The primary consideration for a critical design aircraft is to ensure safe operation of the aircraft using the airport. If an aircraft larger than the critical design aircraft is to operate at the airport, it may result in reduced safety margins, or an unsafe operation. However, airports typically do not establish design criteria based solely upon the largest aircraft using the airfield facilities if it operates on an infrequent basis.

The critical design aircraft can be defined as an aircraft, or grouping of aircraft with similar characteristics, conducting at least 500 itinerant annual operations at an airport or the most regularly scheduled aircraft in commercial service. When planning for future airport facilities, it is extremely important to consider the demands of aircraft operating at the airport in the future. As a result of the separation standards based upon the critical aircraft, caution must be exercised to ensure that short-term development takes into consideration the potential long-term needs of the airport. Thus, it is important to strike a balance between the facility needs of aircraft currently operating at the airport and the facility needs of aircraft projected to operate at the airport. Although precautions must be taken to ensure long-term airport development, airports with critical aircraft that do not use the airport facilities on a regular basis are unable to operate economically due to added development and maintenance expenses.

AIRPORT DESIGN AIRCRAFT

It is imperative to have an accurate understanding of what type of aircraft operate at the airport both now and in the future. The type of aircraft utilizing airport facilities can have a significant impact on numerous design criteria. Thus, an aircraft activity study by type and aircraft category can be beneficial in determining future airport standards that must be met in order to accommodate certain aircraft.

The FAA maintains the Traffic Flow Management System Count (TFMSC) database which documents aircraft operations at most NPIAS airports. Information is added to the TFMSC database when pilots file flight plans and/or when flights are detected by the National Airspace System, usually via radar. The database includes documentation of commercial traffic (air carrier and air taxi), general aviation, and military aircraft. Due to factors such as incomplete flight plans and limited radar coverage, TFMSC data does not account for all aircraft activity at an airport by a given aircraft type. Most VFR and some non-enroute IFR traffic is excluded. Therefore, it is likely that there are more operations at an airport than are captured by this methodology. Despite its shortcomings, the program is a valuable source of information when it comes to identifying the primary airport users and type of aircraft operating at the airport on a regular basis. TFMSC data for all turbine-powered aircraft (jets and turboprops) operating at OXR, presented in **Exhibit N**, is available and was utilized in this analysis.

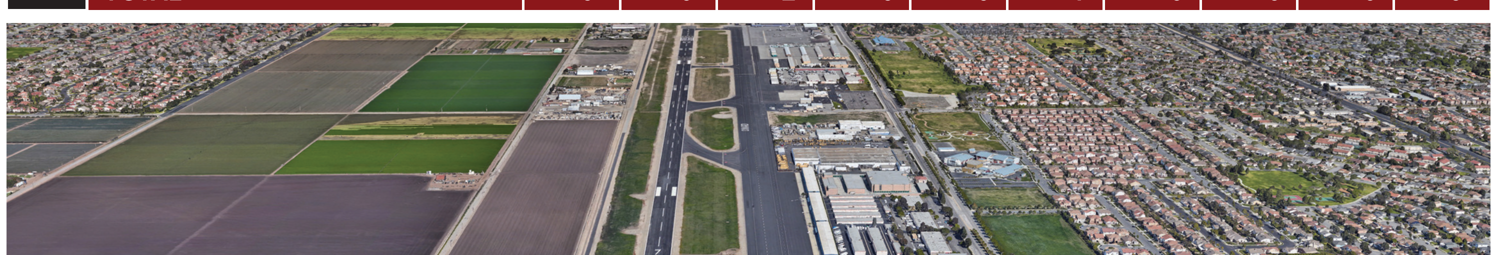
ARC	TDG	Aircraft Model	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
A-I	1A	Cirrus Vision Jet	0	0	0	0	0	0	0	0	0	1
	1A	Eclipse 400/500	20	8	31	37	27	24	39	26	33	40
	ND	Epic Dynasty	17	13	0	14	27	20	23	16	73	41
	1A	Kodiak Quest	0	6	9	0	0	0	0	9	1	0
	ND	Lancair 4	4	3	9	0	0	0	0	0	0	0
	ND	Lancair Evolution/Legacy	0	0	0	0	0	0	0	1	4	0
	1A	Mitsubishi MU-2	24	11	21	13	9	9	13	22	24	31
	ND	Pilatus PC-7	0	0	3	0	2	3	2	0	2	0
	1A	Piper Malibu/Meridian	46	54	84	94	80	64	18	13	15	24
	ND	Socata TBM 7/850/900	101	44	28	27	26	53	41	24	95	133
	TOTAL		*212*	*139*	*185*	*185*	*171*	*173*	*136*	*111*	*247*	*270*
A-II	1A	Cessna Caravan	3	9	4	9	2	27	3	5	8	5
	1A	De Havilland Twin Otter	21	15	0	7	1	0	0	0	0	2
	1A	Pilatus PC-12	56	49	43	8	38	39	201	214	309	446
	TOTAL		*80*	*73*	*47*	*24*	*41*	*66*	*204*	*219*	*317*	*453*
B-I	1A	Cessna 425 Corsair	52	4	8	0	6	3	13	0	1	1
	2	Aero Commander 690	4	13	20	12	7	9	5	1	1	4
	1A	Beech 99 Airliner	1	1	0	0	0	0	0	0	0	0
	1A	Beechjet 400	101	62	48	34	40	48	50	40	26	14
	ND	Cessna 526 Jet Trainer	13	0	0	0	0	0	0	0	0	0
	2	Citation CJ1/CJ2	64	45	80	97	89	130	174	122	60	137
	2	Citation I/SP	11	13	7	5	4	0	8	8	6	1
	1A	Citation M2	1	0	0	0	0	0	0	0	0	4
	1A	Citation Mustang	14	24	18	21	22	37	29	13	9	4
	1B	Falcon 10	14	0	2	4	0	2	0	2	0	2
	1B	Hawker 1000	1	0	0	2	0	0	2	0	0	3
	ND	Honda Jet	0	0	0	0	0	0	0	0	0	4
	1A	King Air 90/100	96	124	111	54	39	43	64	58	78	93
	1B	Phenom 100	0	14	5	16	20	22	42	30	34	42
	2	Piaggio Avanti	29	35	49	42	28	6	0	7	2	6
	2	Piper Cheyenne	11	8	3	9	6	4	3	5	5	4
	1A	Premier 1	12	5	6	10	2	4	9	4	4	28
	ND	Rockwell Sabre 40/60	0	1	0	0	0	13	1	0	2	0
	ND	Swearingen Merlin	21	260	483	484	410	458	524	410	366	437
	TOTAL		*445*	*609*	*840*	*790*	*673*	*779*	*924*	*700*	*594*	*784*

ARC	TDG	Aircraft Model	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
B-II	ND	BAe Jetstream	2	0	0	0	0	0	0	0	0	0
	2	Beech 1900	405	172	35	70	43	108	77	68	139	72
	1A	Cessna Conquest	22	8	9	4	3	6	13	3	1	0
	2	Citation CJ3/CJ4	61	30	21	28	27	41	91	39	31	33
	2	Citation II/SP/Latitude	147	105	40	59	38	37	23	21	20	10
	2	Citation V/VII/Sovereign	134	147	126	185	135	124	152	103	67	56
	1B	Citation X	50	24	14	17	24	34	25	33	21	16
	1B	Citation XLS	148	68	40	65	52	65	57	40	42	46
	ND	Dornier 328	0	0	0	0	0	0	2	2	2	0
	1B	Embraer 500/450 Legacy	0	0	0	0	0	0	0	0	0	8
	3	Embraer EMB-110/120	2,570	2,314	896	2	27	3	0	3	7	0
	1B	Falcon 20/50	21	26	34	16	26	18	21	28	13	7
	2	Falcon 2000	34	11	24	23	10	16	12	14	17	19
	2	Falcon 900	12	15	21	21	75	75	70	49	85	61
	2	King Air 200/300/350	603	639	604	500	613	555	504	540	520	417
	1A	King Air F90	11	21	7	13	8	3	5	2	4	8
	1B	Phenom 300	0	0	0	6	8	16	35	20	27	49
	ND	Saab 340	0	0	0	0	56	0	0	0	0	0
	ND	Shorts 330/360	1	0	0	0	0	0	0	0	0	0
	TOTAL		*4,221*	*3,580*	*1,871*	*1,009*	*1,145*	*1,101*	*1,087*	*965*	*996*	*802*
B-III	2	Bombardier Global 5000	0	0	0	0	0	0	2	2	0	8
	2	Bombardier Global Express	0	1	2	7	2	2	1	2	4	4
	ND	C-2 Greyhound	0	4	4	2	0	0	0	0	6	0
	2	Falcon 7X/8X	0	0	0	5	2	0	4	2	0	2
	ND	Grumman E-2 Hawkeye	0	4	1	1	2	0	0	1	0	0
	2	Gulfstream I Turboprop	1	0	0	0	0	0	0	0	0	0
	TOTAL		*1*	*9*	*7*	*15*	*6*	*2*	*7*	*7*	*10*	*14*
C-I	ND	BAe HS 125 Series	2	0	2	2	0	0	0	0	0	0
	1B	Learjet 20 Series	8	3	0	5	4	0	0	0	0	0
	1B	Learjet 31	2	2	7	8	0	12	10	8	6	8
	1B	Learjet 40 Series	13	10	8	8	18	16	32	84	93	59
	1B	Learjet 50 Series	5	6	6	11	4	10	8	8	10	4
	1B	Learjet 60 Series	41	20	16	37	24	37	37	23	30	21
	1B	Westwind II	17	6	4	5	4	6	0	2	4	2
	TOTAL		*88*	*47*	*43*	*76*	*54*	*81*	*87*	*125*	*143*	*94*

KEY: ND - No Data ***Source:*** Traffic Flow Management System Count (FAA Database)

Exhibit N
TURBINE-POWERED AIRCRAFT OPERATIONS BY REFERENCE CODE

ARC	TDG	Aircraft Model	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
C-II	1B	Bombardier CRJ 100/200/700	0	2	0	2	0	0	0	0	0	0
	1B	Challenger 300/600/604	46	52	55	36	30	70	65	86	103	112
	2	Embraer ERJ-135/140/145	2	2	2	2	2	2	0	4	2	8
	1B	Gulfstream 100/150	14	0	6	4	9	5	7	4	1	8
	1B	Gulfstream 200/280	30	15	26	17	29	17	8	40	34	26
	1B	Gulfstream G100	21	14	4	4	43	37	4	0	4	4
	2	Gulfstream G-III	24	16	22	1	9	1	5	2	0	4
	1B	Hawker 4000	0	0	0	0	0	0	0	0	8	4
	1B	Hawker 800	54	26	49	24	35	49	56	43	20	28
	1B	Learjet 70 Series	0	0	0	0	0	0	0	0	8	8
	TOTAL		*191*	*127*	*164*	*90*	*157*	*181*	*145*	*179*	*180*	*202*
C-III	3	Embraer EMB 170/175/190	0	0	0	0	0	0	0	0	0	1
	ND	P-3 Orion	0	0	1	0	0	0	0	0	0	0
	TOTAL		*0*	*0*	*1*	*0*	*0*	*0*	*0*	*0*	*0*	*1*
C-IV	ND	Boeing 707	1	0	0	0	1	0	0	0	0	0
	ND	Boeing C-17	0	0	0	0	1	0	0	0	0	0
	ND	C-130 Hercules	0	1	2	1	4	1	6	0	0	0
	TOTAL		*1*	*1*	*2*	*1*	*6*	*1*	*6*	*0*	*0*	*0*
D-I	ND	F/A-18 Hornet	1	1	0	1	0	0	0	0	0	0
	ND	F-15 Eagle	1	1	0	0	0	0	0	0	0	0
	1B	Learjet 35/36	37	26	30	8	30	23	17	25	20	16
	ND	T-38 Talon	2	0	1	0	2	0	0	0	1	0
	TOTAL		*41*	*28*	*31*	*9*	*32*	*23*	*17*	*25*	*21*	*16*
D-II	2	Gulfstream 450	39	24	28	52	68	61	55	47	50	50
	TOTAL		*39*	*24*	*28*	*52*	*68*	*61*	*55*	*47*	*50*	*50*
D-III	2	Gulfstream 500/600	29	16	34	31	27	18	20	29	10	16
	TOTAL		*29*	*16*	*34*	*31*	*27*	*18*	*20*	*29*	*10*	*16*
E-I	ND	Dornier Alpha Jet	0	0	2	0	0	0	0	0	0	0
	ND	F-16 Falcon/Viper	0	0	0	0	0	1	0	0	0	0
	TOTAL		*0*	*0*	*2*	*0*	*0*	*1*	*0*	*0*	*0*	*0*



ARC CODE SUMMARY

ARC Code	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
A-I	212	139	185	185	171	173	136	111	247	270
A-II	80	73	47	24	41	66	204	219	317	453
B-I	445	609	840	790	673	779	924	700	594	784
B-II	4,221	3,580	1,871	1,009	1,145	1,101	1,087	965	996	802
B-III	1	9	7	15	6	2	7	7	10	14
C-I	88	47	43	76	54	81	87	125	143	94
C-II	191	127	164	90	157	181	145	179	180	202
C-III	0	0	1	0	0	0	0	0	0	1
C-IV	1	1	2	1	6	1	6	0	0	0
D-I	41	28	31	9	32	23	17	25	21	16
D-II	39	24	28	52	68	61	55	47	50	50
D-III	29	16	34	31	27	18	20	29	10	16
E-I	0	0	2	0	0	1	0	0	0	0
Total	*5,348*	*4,653*	*3,255*	*2,282*	*2,380*	*2,487*	*2,688*	*2,407*	*2,568*	*2,702*

APPROACH CATEGORY

AC	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
A	292	212	232	209	212	239	340	330	564	723
B	4,667	4,198	2,718	1,814	1,824	1,882	2,018	1,672	1,600	1,600
C	280	175	210	167	217	263	238	304	323	297
D	109	68	93	92	127	102	92	101	81	82
E	0	0	2	0	0	1	0	0	0	0
Total	*5,348*	*4,653*	*3,255*	*2,282*	*2,380*	*2,487*	*2,688*	*2,407*	*2,568*	*2,702*

AIRPLANE DESIGN GROUP

ADG	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
I	786	823	1,101	1,060	930	1,057	1,164	961	1,005	1,164
II	4,531	3,804	2,110	1,175	1,411	1,409	1,491	1,410	1,543	1,507
III	30	25	42	46	33	20	27	36	20	31
IV	1	1	2	1	6	1	6	0	0	0
Total	*5,348*	*4,653*	*3,255*	*2,282*	*2,380*	*2,487*	*2,688*	*2,407*	*2,568*	*2,702*

TAXIWAY DESIGN GROUP

TDG	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
1A	480	401	399	304	277	307	457	409	513	701
1B	522	314	306	295	360	439	426	476	478	473
2	1,610	1,292	1,118	1,149	1,185	1,189	1,206	1,065	1,019	912
3	2,570	2,314	896	2	27	3	0	3	7	1
ND	166	332	536	532	531	549	599	454	551	615
Total	*5,348*	*4,653*	*3,255*	*2,282*	*2,380*	*2,487*	*2,688*	*2,407*	*2,568*	*2,702*

Exhibit N (continued)
TURBINE-POWERED AIRCRAFT OPERATIONS BY REFERENCE CODE

Numerous aircraft classified within the B-II category were reported by TFMSC as operating at OXR. Of the B-II aircraft identified, some have a maximum takeoff weight (MTOW) of less than 12,500 pounds, identifying with the small aircraft category, while others have MTOWs greater than 12,500 pounds which are classified as large aircraft. The operational characteristics of a sampling of the B-II category turbine aircraft operating at OXR are presented in **Table Z**.

Currently, ARC B-II aircraft make up the most demanding category of aircraft operating at OXR at least 500 times annually. According to TFMSC, ARC B-II aircraft conducted 802 operations at OXR in 2017 and have averaged 1,678 annual operations over the past 10 years. As reported by TFMSC, OXR experienced 202 operations by aircraft classified in the next most demanding ARC C-II, and a total of 379 operations by aircraft categorized in AAC C and D combined.

TABLE Z | Category B-II Aircraft Characteristics - Oxnard Airport

	MTOW (lbs)	Approach Speed (kts)	Wingspan (ft)	Tail Height (ft)
Beechcraft 1900	17,120	113	58.00	15.50
Beechcraft King Air 100	11,800	111	45.92	15.42
Beechcraft King Air 200	12,500	102	54.50	14.80
Beechcraft King Air 350	15,000	99	57.90	14.30
Beechcraft King Air 90	10,100	101	50.00	14.25
Cessna CJ4	17.110	107	50.83	15.42
Citation Excel/XLS	22,000	114	53.50	16.80
Citation II/Bravo	14,800	112	52.17	15.00
Citation Sovereign	30,775	112	72.33	20.33
Falcon 2000	41,000	107	70.17	23.17
Falcon/Mystère 50	40,780	113	61.92	22.92
Falcon 900LX	49,000	110	70.17	24.75

The 2006 ALP designates the existing ARC as D-II and identifies the critical aircraft as the Gulfstream IV, while the ultimate ARC is based upon D-II and B-III design standards with the Gulfstream IV and Dash 8 listed as the critical aircraft. Based upon the TFMSC analysis, as well as based aircraft records, Category D-II and/or B-III is not currently the most demanding ARC/RDC designation for OXR per FAA standards. It should be noted that the previous ARCs of D-II and B-III were highly dependent on the presence of commercial service at OXR. Given that OXR is not presently a commercial service facility, the existing ARC should be based on the most demanding operational aircraft utilizing the airport on a regular basis.

In addition, there are currently two category B-II aircraft based at OXR, including a Beechcraft King Air 90 and King Air 200. According to the TFMSC, the King Air 200/300/350 is the most demanding family of aircraft that has averaged over 500 operations annually during the past ten years. **As such, the existing critical design aircraft is identified as the Beechcraft King Air 200, which is an ARC B-II aircraft.**

Although aircraft more demanding than B-II were identified utilizing the airport (such as the Gulfstream V and VI), these aircraft do not currently conduct at least 500 annual operations to justify a larger critical design aircraft. It is important to note, however, that airport staff have been in recent communication with business entities who operate large business jet aircraft up to and including the Gulfstream 650

(RDC D-III aircraft) that are interested in basing at OXR in the future. Based upon recent airport observations and communications with potential tenants, future planning should account for the transition to larger aircraft with faster approach speeds and larger wingspans being more frequent operators at the airport. Such planning would ultimately ensure that opportunities remain viable for larger based business jet aircraft as mentioned above and/or the potential for reinstated commercial air service.

EXISTING RUNWAY DESIGN

As previously discussed, each runway has a designated RDC. The RDC relates to specific design criteria set forth by the FAA that should be met. The RDC is determined by the particular aircraft or category of aircraft expected to use each runway.

Existing Runway 7-25 Runway Design Code

Given that Runway 7-25 is the sole runway serving OXR, it should be designed to accommodate the critical design aircraft, which has been identified as the Beechcraft King Air 200. This runway is currently 5,953 feet in length and 100 feet wide. The runway is equipped with instrument approach procedures with visibility minimums not lower than one mile. As a result of these characteristics, the RDC of Runway 7-25 is currently B-II-5000.

Existing Taxiway Design Group

Exhibit N also details the TDG of each aircraft captured within the TFMSC data set. Based upon this data, the vast majority of aircraft operating at OXR fall within TDG categories 1A, 1B, and 2. As of 2017, the airport experienced 912 operations by aircraft within TDG 2. Each variant of the King Air, the 200, 300, and 350, is classified within TDG 2 due to the dimensions of the undercarriage of the aircraft. **Thus, the existing airport design aircraft is best described as B-II-2.**

FUTURE RUNWAY DESIGN

The aviation demand forecasts indicate the potential for continued growth in turbine activity at the airport. This includes eight based jets and 12 turboprops by the long-term planning horizon. The type and size of business jets and turboprops using the airport regularly can impact the design standards to be applied to the airport system. Therefore, it is important to have an understanding of what type of aircraft may use the airport in the future. Factors such as population and employment growth in the airport service area, the proximity to and level of service offered at other regional airports, and development at the airport can influence future activity.

Most operations throughout the planning period of this study are expected to be by aircraft within AACs A and B and within ADGs I and II. However, the trend toward manufacturing of a larger percentage of medium and large business jets in AACs C and D and ADGs II and III and the potential for reinstated commercial service (including aircraft in AAC C and ADGs II and III) may lead to greater utilization of these aircraft at OXR by the long-term planning horizon. This is a trend being realized by the FBOs currently serving OXR and airport staff as the frequency of operations by larger business jets and have been noted, as discussed in the previous section.

Future Runway 7-25 Runway Design Code

OXR currently experiences a large amount of operational activity from business jets and turboprop aircraft, and the forecasts call for a total of 20 turbine aircraft projected to base at OXR in the future. It is assumed that these based aircraft could include large business jets that fall within ARC D-III. The increasing trend of turboprop and business jet activity is not only being experienced on a local level, but on a national level, as reflected in the *FAA National Aerospace Forecasts* previously outlined. Based upon the FAA's forecasts, total turbine aircraft are forecast to grow at an annual growth rate of 2.0 percent through 2038. This includes annual growth rates of 1.7 percent for turboprops and 2.2 percent for business jets.

As previously mentioned, the airport has most recently experienced nearly 400 annual operations by aircraft within AAC C and D. With projected growth in based jets and the current AAC C and D aircraft operating at the airport on a more frequent basis, the AAC could transition to Category D. Moreover, airport staff has recently been in communication with businesses interested in basing RDC D-III aircraft, such as the Gulfstream 650, at OXR. At present, the County of Ventura Department of Airports has a Letter of Intent (LOI) on file from a private developer proposing a land lease and improvements for the construction of a privately owned and operated, non-commercial Part 91 flight department hangar on airport owned property. The LOI states that the premises shall include area sufficient for one hangar between 20,000 and 25,000 square feet with ramp apron/frontage and taxilane widths capable of accommodating aircraft such as the Gulfstream 650 and Global 7500.

The evidence pointing to a shift to AAC D also supports the currently approved ALP, which ultimately defines Runway 7-25 as ARC D-II and B-III. **As such, the ultimate critical design aircraft is the Gulfstream 650, which is an ARC D-III aircraft.** It should be noted that the previous ALP was based upon OXR remaining a commercial service airport. Future planning should take into consideration the potential for reinstated commercial air service.

Future Taxiway Design Group

Given the potential return of commercial service to OXR in the future, it is necessary to ensure the taxiway system is planned to adequately serve regional transport aircraft most commonly used. While the ultimate ARC of D-III will accommodate most regional transport aircraft, it is recommended that the taxiway system ultimately adhere to TDG 3 design standards, which would readily accommodate regional commercial service transport aircraft such as the Embraer ERJ 175. Moreover, Taxiways A, C, D, E, and F currently meet TDG 5 width standards of 75 feet, indicating that the taxiway system in place is currently capable of meeting ultimate TDG 3 standards. Prudent planning suggests that ultimate TDG 3 standards would right-size the existing taxiway infrastructure to meet ultimate demands by larger aircraft such as those supporting commercial air service. **As such, the ultimate airport design aircraft is D-III-3.**

DESIGN CHARACTERISTICS SUMMARY

The previous master plan calls for ultimate ½-mile instrument approaches to Runway 7-25. The Facility Requirements section of this study will make comparisons between the existing 1-mile approach minimums and the potential for not lower than ¾-mile approach minimums, as well as the potential impacts to the airport based upon the implementation of ½-mile instrument approaches, which are mainly tied to the RPZs. This planning effort will analyze ARC D-III as the future critical design category and the future RDC to be D-III-4000 and TDG 3 for Runway 7-25. The existing and ultimate RDC, APRC, and DPRC are presented in **Table AA**.

TABLE AA | Existing/Ultimate Design Characteristics

	RDC	APRC	DPRC	TDG
Existing	B-II-5000	B/III/5000	B/III D/II	2
Ultimate	D-III-4000	D/IV/4000 D/V/4000	D/IV D/V	3

FACILITY REQUIREMENTS

As previously mentioned in the report, components of an airport contain both airside and landside facilities. Airside facilities include facilities that are related to the approach, departure, and ground movement of aircraft on the airport. Airside facility components encompass runways, taxiways, navigational approach aids, airport signage, marking, and lighting. Landside facilities are needed on an airport to foster the interface of air and ground transportation. Landside facility components include terminal facilities, aircraft hangars and tiedowns, aircraft parking aprons, automobile parking, and airport support facilities.

AIRSIDE FACILITY REQUIREMENTS

Components included within the airside facility requirements section encompass the runway, safety area design standards, taxiways, navigational and approach aids, lighting, marking, and signage.

Runway Orientation

Currently, OXR is served by a single-runway system generally oriented in an east-west configuration. For the operational safety and efficiency of an airport, it is desirable for the runway to be oriented as close as possible to the direction of the prevailing wind. This reduces the impact of wind components perpendicular to the direction of travel of an aircraft that is landing or taking off.

FAA Advisory Circular 150/5300-13A, *Airport Design*, recommends that a crosswind runway be made available when the primary runway orientation provides for less than 95 percent wind coverage for specific crosswind components. The 95 percent wind coverage is computed on the basis of not exceeding a 10.5-knot (12 mph) component for RDC A-I and B-I; 13-knot (15 mph) component for RDC A-II and B-II; 16-knot (18 mph) component for RDC A-III, B-III, C-I through C-III, and D-I through D-III; and a 20-knot (23 mph) component for RDC A-IV through E-VI.

Data from the ASOS located at OXR was collected from the National Oceanic Atmospheric Administration (NOAA) National Climatic Data Center over a continuous 10-year period from January 1, 2008, through December 31, 2017. A total of 106,039 observations of wind direction and other data points were made. **Exhibit P** presents Runway 7-25 and its associated wind coverage.

In all-weather conditions, Runway 7-25 provides 99.55 percent coverage at 10.5 knots, 99.82 percent coverage at 13 knots, 99.97 percent coverage at 16 knots, and 99.99 percent coverage at 20 knots. Given that Runway 7-25 supports operations under IFR, wind observations under IFR conditions totaling 20,701 were also examined. The wind coverage for Runway 7-25 under IFR weather conditions accommodates 99.45 percent coverage at 10.5 knots, 99.73 percent coverage at 13 knots, and 99.93 percent coverage at 16 knots, and 99.98 percent at 20 knots. Runway 7-25 currently meets the 95 percent wind coverage requirement under all-weather and IFR conditions. Therefore, the existing runway orientation at OXR should be maintained as it is properly oriented to meet predominant winds, and a crosswind runway is not needed.

Runway Length Requirements

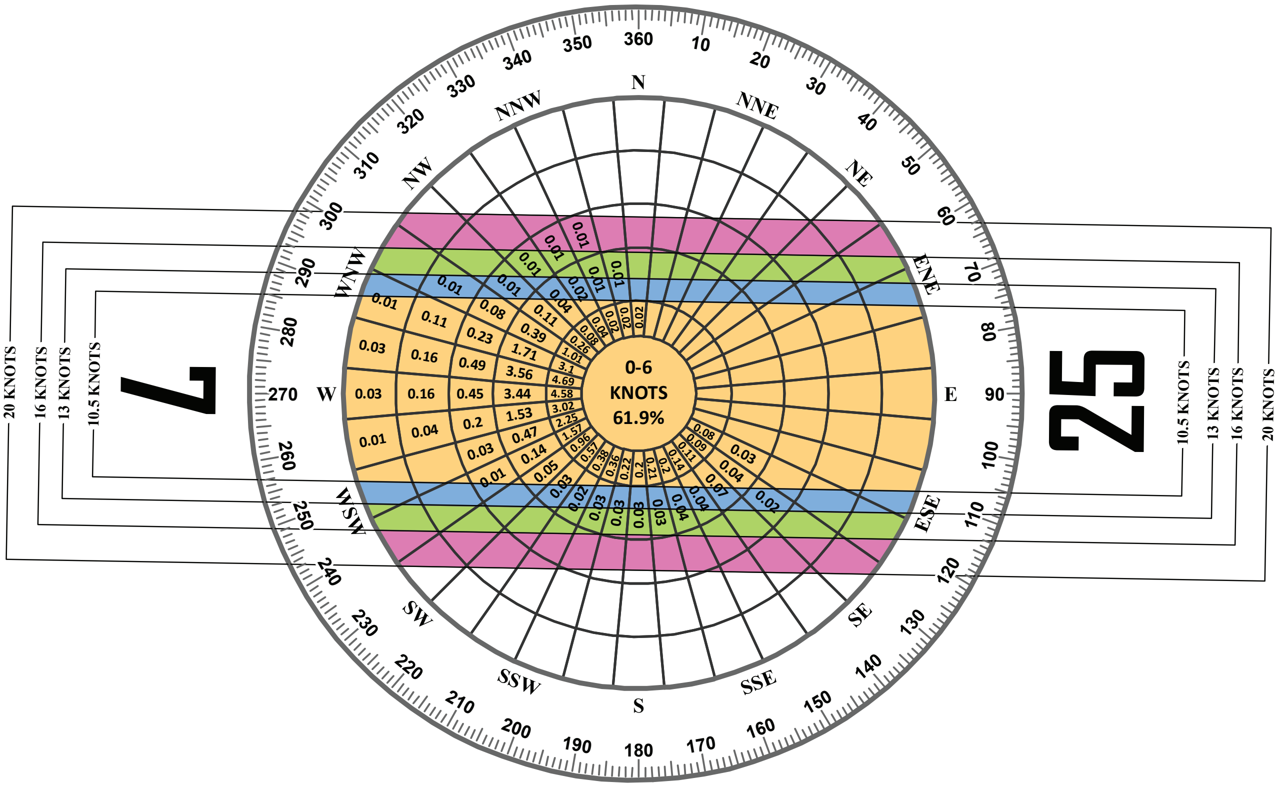
Runway length requirements for an airport typically are based on factors including airport elevation, mean daily maximum temperature of the hottest month, runway gradient (difference in runway elevation of each runway end), critical aircraft type expected to use the airport, and stage length (average distance flown per aircraft departure) of the longest non-stop trip destination. For aircraft with maximum certificated takeoff weights of less than 12,500 pounds, adjustments for runway gradient are not taken into account.

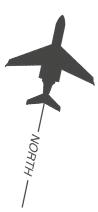
Aircraft performance declines as each of these factors increase. Summertime temperatures and stage lengths are the primary factors in determining runway length requirements. For calculating runway length requirements at OXR, the airport's elevation is 44.8 feet above mean sea level (MSL) and the mean maximum temperature of the hottest month (August) is 72.6 degrees Fahrenheit (F). The maximum difference in runway end elevation is 11.3 feet with a gradient of 0.2 percent.

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 FAA AC 150/5325-4B, *Runway Length Requirements for Airport Design*. A draft revision of this AC is currently available (150/5325-4C), and the FAA is utilizing the draft revision in most cases when evaluating runway length needs for airports. The FAA runway analysis groups general aviation aircraft into several categories, reflecting the percentage of the fleet within each category. The runway design should be based upon the most critical aircraft (or

ALL WEATHER WIND COVERAGE

Runways	10.5 Knots	13 Knots	16 Knots	20 Knots
Runway 7-25	99.55%	99.82%	99.97%	99.99%





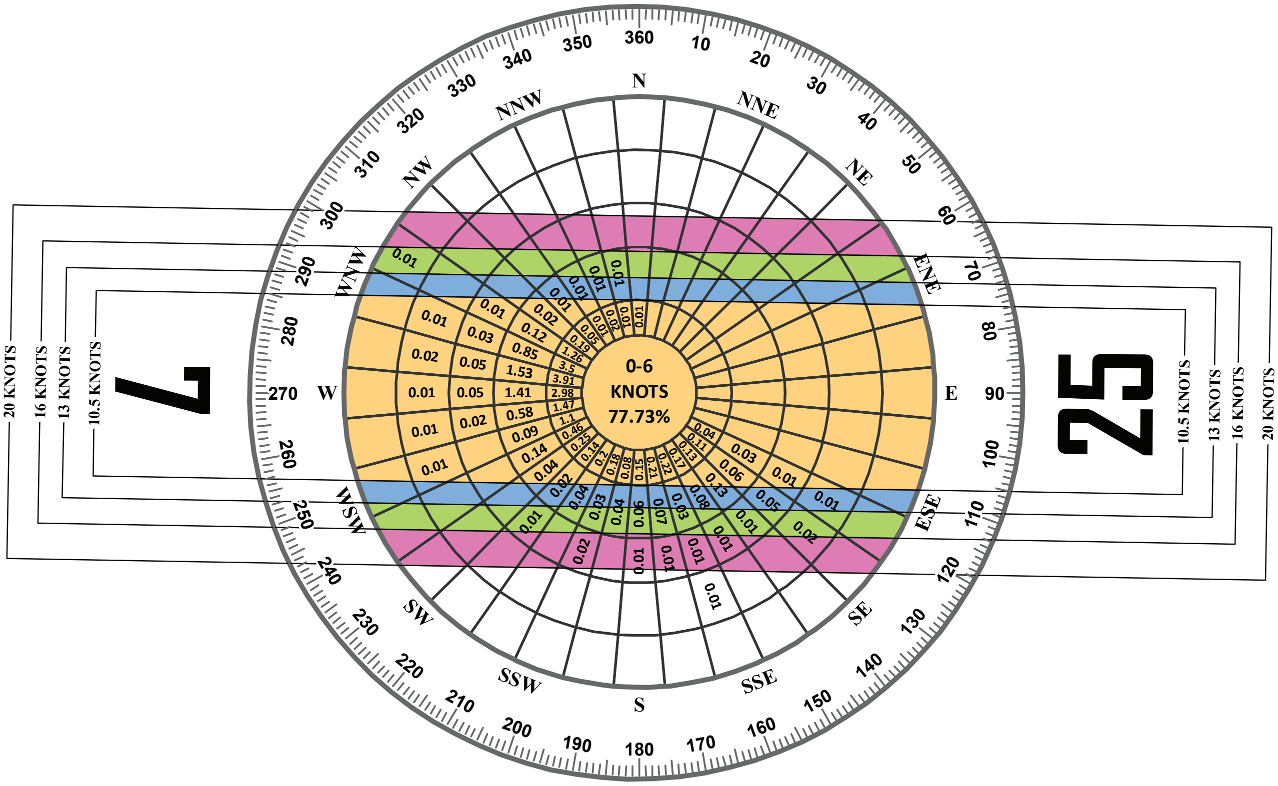
Magnetic Declination
12° 11' 00" East (April 2018)
Annual Rate of Change
00° 05' 00" West (April 2018)

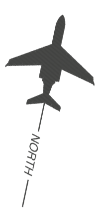
SOURCE:
NOAA National Climatic Center
Asheville, North Carolina
Oxnard Airport
Oxnard, California

OBSERVATIONS:
106,039 All Weather Observations
Jan. 1, 2008 - Dec, 31 2017

IFR WIND COVERAGE

Runways	10.5 Knots	13 Knots	16 Knots	20 Knots
Runway 7-25	99.45%	99.73%	99.93%	99.98%





Magnetic Declination
12° 11' 00" East (April 2018)
Annual Rate of Change
00° 05' 00" West (April 2018)

SOURCE:
NOAA National Climatic Center
Asheville, North Carolina
Oxnard Airport
Oxnard, California

OBSERVATIONS:
20,701 IFR Observations
Jan. 1, 2008 - Dec, 31 2017

group of aircraft) performing at least 500 annual itinerant operations. Future plans should be realistic and supported by the FAA-approved forecasts and should be based on the critical design aircraft (or family of aircraft).

The first step in evaluating runway length is to determine general runway length requirements for the majority of aircraft operating at the airport. The majority of operations at OXR are conducted using smaller single engine piston-powered aircraft weighing less than 12,500 pounds.

Table BB summarizes the FAA's generalized recommended runway lengths determined for OXR. FAA AC 150/5325-4B recommends that airports be designed to at least serve 95 percent of small airplanes. The advisory circular further defines the fleet categories as follows:

- 95 Percent of Small Airplane Fleet: Applies to airports that are primarily intended to serve medium-sized population communities with a diversity of usage and a greater potential for increased aviation activities. This category also includes airports that are primarily intended to serve low-activity locations, small population communities, and remote recreational areas.

- 100 Percent of Small Airplane Fleet: This type of airport is primarily intended to serve communities located on the fringe of a metropolitan area or a relatively large population community that is remote from a metropolitan area.

Based upon these calculations, Runway 7-25 at OXR satisfies the length requirements for 100 percent of small airplanes and small airplanes with 10 or more passenger seats with its current length of 5,953 feet. The airport is also utilized by aircraft weighing more than 12,500 pounds, including small to medium business jet and turboprop aircraft. The FAA runway length AC also includes methods to calculate recommended runway length for large aircraft. Runway length requirements for business jets weighing less than 60,000 pounds have also been calculated based on FAA AC 150/5325-4B. These calculations take into consideration the runway gradient and landing length requirements for contaminated runways (wet). Business jets tend to need greater runway length when landing on a wet surface because of their increased approach speeds.

TABLE BB | Runway Length Requirements

AIRPORT AND RUNWAY DATA	
Airport elevation	44.8 feet
Mean daily maximum temperature of the hottest month	72.6° F
Maximum difference in runway elevation	11.3 feet
RUNWAY LENGTHS RECOMMENDED FOR AIRPORT DESIGN	
Small airplanes with less than 10 passenger seats:	
95 percent of small airplanes	2,900 feet
100 percent of small airplanes	3,400 feet
Small airplanes with 10 or more passenger seats	3,900 feet

Source: FAA AC 150/5325-4B, Runway Length Requirements for Airport Design.

AC 150/5325-4B stipulates that runway length determinations for large aircraft consider a grouping of airplanes with similar operating characteristics. The AC provides two separate “family groupings of airplanes,” each based upon their representative percentage of aircraft in the national fleet. The first grouping is those business jets that make up 75 percent of the national fleet, and the second group is those making up 100 percent of the national fleet (75-100 percent of the national fleet). **Table CC** presents a representative list of aircraft for each aircraft grouping. A third group includes business jets weighing more than 60,000 pounds; however, runway length determination for these aircraft types must be based on the performance characteristics of the individual aircraft.

TABLE CC | Business Jet Fleet Mix Categories for Runway Length Determination

75 percent of the national fleet	MTOW	75-100 percent of the national fleet	MTOW	Greater than 60,000 pounds	MTOW
Lear 35	20,350	Lear 55	21,500	Gulfstream II	65,500
Lear 45	20,500	Lear 60	23,500	Gulfstream IV	73,200
Cessna 550	14,100	Hawker 800XP	28,000	Gulfstream V	90,500
Cessna 560XL	20,000	Hawker 1000	31,000	Global Express	98,000
Cessna 650 (VII)	22,000	Cessna 650 (III/IV)	22,000		
IAI Westwind	23,500	Cessna 750 (X)	36,100		
Beechjet 400	15,800	Challenger 604	47,600		
Falcon 50	18,500	IAI Astra	23,500		

MTOW: Maximum Take Off Weight

Source: FAA AC 150/5325-4B, Runway Length Requirements for Airport Design

Table DD presents the results of the runway length analysis for business jets developed following the guidance provided in AC 150/5325-4B. To accommodate 75 percent of the business jet fleet at 60 percent useful load, a runway length of 5,300 feet is recommended. This length is derived from a raw length of 4,564 feet that is adjusted, as recommended, for runway gradient, then rounded up to the nearest hundred feet (when the raw number is 30 feet or more). To accommodate 100 percent of the business jet fleet at 60 percent useful load, a runway length of 5,500 feet is recommended.

TABLE DD | Runway Length Requirements

Airport Elevation	44.8 feet MSL
Average High Monthly Temp.	72.6 °F (August)
Runway Gradient	11.3 feet

Fleet Mix Category	Raw Runway Length from FAA AC	Runway Length With Gradient Adjustment (+271')	Wet Surface Landing Length for Jets (+15%)*	Final Runway Length
75% of fleet at 60% useful load	4,564	4,677’	5,248’	5,300’
100% of fleet at 60% useful load	4,834’	4,947’	5,500’	5,500’

* Max 5,500' for 60% useful load in wet conditions

Source: FAA AC 150/5325-4B, Runway Length Requirements for Airport Design.

Another method to determine runway length requirements for jet and turbine powered aircraft at OXR is to examine each aircraft's flight planning manual under conditions specific to the airport. Several aircraft were analyzed for takeoff length required with a design temperature of 72.6 degrees Fahrenheit at a field elevation of 44.8 feet MSL.

Exhibit Q provides a detailed runway takeoff length analysis for the most common business jet and turboprop aircraft in the national fleet. This data was obtained from Ultranav software which computes operational parameters for specific aircraft based on its flight manual data. The runway length data is presented in a "gradient" format, with runway length requirement values shown in increasingly darker shades of red depending upon the amount of runway length required. Runway length values identified in bold text are longer than the existing runway length of 5,953 feet. Additionally, **Exhibit Q** specifies the designation "OL" to refer to aircraft that are out of limits at a specific useful load for the runway. The analysis includes the maximum takeoff weight (MTOW) allowable and the percent useful load from 60 percent to 100 percent. This analysis shows that Runway 7-25 can generally accommodate the types of business jets operating at OXR; however, will have difficulty accommodating large business jet aircraft at 100 percent useful load on design day temperatures. The average takeoff length needed for all business jets analyzed at 100 percent useful load is 4,797 feet. This is 1,156 feet shorter than the current length of Runway 7-25.

Exhibit Q also presents the runway length required for landing under three operational categories: Title 14 Code of Federal Regulations (CFR) Part 25, CFR Part 91k, and CFR Part 135. CFR Part 25 operations are those conducted by individuals or companies which own their aircraft. CFR Part 91k includes operations in fractional ownership programs which utilize their own aircraft under direction of pilots specifically assigned to said aircraft. CFR Part 135 applies to all for-hire charter operations, including most fractional ownership operations. Similar to the runway takeoff length requirements, the landing lengths are depicted in a gradient format with longer runway length requirements presented in increasingly darker shades of red. The bold text indicates a runway length requirement that exceeds 5,953 feet, which is the current length of Runway 7-25. The landing length analysis shows an average landing length of 5,418 feet for aircraft operating under CFR Part 91k during wet runway conditions and an average of 7,224 feet for aircraft operating under Part 135 during wet runway conditions. Certain aircraft, such as Gulfstream and Cessna Citation series aircraft, require over 8,000 feet of runway length for landing when operating at maximum landing weight under Part 135 during wet runway conditions.

As previously noted, the FAA will typically only support runway length planning to the 60 percent useful load factor unless it can be demonstrated that aircraft are frequently operating fully loaded (90 percent). Most business aircraft are capable of taking off on the runway at OXR at or above 90 percent useful load. Examples of aircraft that can still operate at 90 percent useful load include the Falcon 900, Challenger 600, and Gulfstream 550. For landing situations, over half of the aircraft analyzed require additional runway length when operating under Part 135 rules and wet runway conditions. In addition, approximately one-third of the aircraft analyzed require additional runway length when landing under Part 91k rules and wet runway conditions. Newer generation business aircraft tend to operate more efficiently, requiring shorter runway lengths.

Aircraft Name	MTOW lbs.	Payload lbs.	Takeoff Weight (lbs)	60% Useful Load Takeoff Length (ft.) Dry	70% Useful Load Takeoff Length (ft.) Dry	80% Useful Load Takeoff Length (ft.) Dry	90% Useful Load Takeoff Length (ft.) Dry	100% Useful Load Takeoff Length (ft.) Dry
King Air C90B	10,100	3,030	8,888	2,186	2,349	2,518	2,695	2,879
Citation CJ3	13,870	5,110	11,826	2,671	2,765	2,895	3,055	3,261
Citation I/SP	11,850	4,447	10,071	2,410	2,611	2,824	3,050	3,288
King Air 200 GT	12,500	3,720	11,012	3,053	3,129	3,206	3,285	3,365
Citation II (550)	13,300	5,100	11,260	2,503	2,728	2,965	3,212	3,471
King Air 350	15,000	5,115	12,954	2,896	3,009	3,113	3,276	3,533
Citation (525A) CJ2	12,375	4,575	10,545	2,818	2,962	3,169	3,394	3,631
Citation XLS	20,200	7,400	17,240	2,939	3,104	3,309	3,543	3,763
Citation 560 XL	20,000	7,300	17,080	2,943	3,148	3,359	3,585	3,828
Citation Sovereign	30,300	12,150	25,440	3,374	3,408	3,442	3,608	3,837
Citation (525) CJ1	10,600	3,730	9,108	2,627	2,817	3,092	3,521	3,959
Beechjet 400A	16,300	5,315	14,174	3,462	3,721	3,986	4,266	4,554
Beech 1900	17,120	6,120	14,672	3,824	4,054	4,301	4,619	4,944
Lear 40	21,000	7,400	18,040	3,794	4,035	4,342	4,687	5,057
Citation VII	23,000	8,750	19,500	4,182	4,446	4,734	5,028	5,332
Falcon 50	40,780	18,000	33,580	3,720	4,097	4,501	4,933	5,395
Citation III	21,500	9,689	17,624	3,996	4,343	4,704	5,079	5,468
Challenger 300	38,850	15,000	32,850	4,041	4,422	4,812	5,214	5,631
Citation X	35,700	13,236	30,406	4,070	4,468	4,893	5,315	5,743
Gulfstream 450	74,600	31,400	62,040	4,020	4,411	4,847	5,311	5,793
Falcon 900A	46,500	23,920	36,932	3,670	4,130	4,640	5,210	5,850
Hawker 800 (Non-T/R)	27,400	11,400	22,840	4,368	4,774	5,192	5,620	**6,060**
Lear 60	23,500	8,728	20,009	4,353	4,723	5,159	5,674	**6,255**
Challenger 604	48,200	21,015	39,794	4,329	4,775	5,270	5,795	**6,333**
Gulfstream 550	91,000	42,300	74,080	4,124	4,632	5,340	5,873	**6,475**
Gulfstream 200	35,450	15,250	29,350	4,600	5,019	5,578	**6,214**	**7,005**
Lear 35A	19,600	8,800	16,080	4,583	5,096	5,649	**6,238**	**O/L**

Aircraft Name	MLW lbs.	Landing Lengths Required for: CFR Part 25 Dry	CFR Part 25 Wet	CFR Part 91K Dry (.8)	CFR Part 91K Wet (.8)	CFR Part 135 Dry (.6)	CFR Part 135 Wet (.6)
King Air 200 GT	12,500	1,146	No Data	1,433	No Data	1,910	No Data
King Air C90B	9,600	1,182	No Data	1,478	No Data	1,970	No Data
Citation I/SP	11,350	2,325	2,674	2,906	3,343	3,875	4,457
King Air 350	15,000	2,776	3,193	3,470	3,991	4,627	5,322
Beech 1900	16,765	2,915	3,352	3,644	4,190	4,858	5,587
Falcon 50	35,715	2,928	3,367	3,660	4,209	4,880	5,612
Lear 40	19,200	2,732	3,445	3,415	4,306	4,553	5,742
Citation Sovereign	27,100	2,814	3,528	3,518	4,410	4,690	5,880
Hawker 800 (Non-T/R)	23,350	2,830	3,650	3,538	4,563	4,717	**6,083**
Citation (525) CJ1	9,800	2,823	3,828	3,529	4,785	4,705	**6,380**
Gulfstream 200	30,000	3,422	3,935	4,278	4,919	5,703	**6,558**
Citation CJ3	12,750	2,952	4,028	3,690	5,035	4,920	**6,713**
Falcon 900A	42,000	3,520	4,050	4,400	5,063	5,867	**6,750**
Citation VII	20,000	3,023	4,055	3,779	5,069	5,038	**6,758**
Challenger 604	38,000	2,784	4,166	3,480	5,208	4,640	**6,943**
Lear 35A	15,300	3,165	4,431	3,956	5,539	5,275	**7,385**
Citation (525A) CJ2	11,500	3,140	4,569	3,925	5,711	5,233	**7,615**
Lear 60	19,500	3,493	4,637	4,366	5,796	5,822	**7,728**
Gulfstream 550	75,300	2,775	4,829	3,469	**6,036**	4,625	**8,048**
Challenger 300	33,750	2,609	5,000	3,261	**6,250**	4,348	**8,333**
Citation 560 XL	18,700	3,253	5,143	4,066	**6,429**	5,422	**8,572**
Citation X	31,800	3,670	5,169	4,588	**6,461**	**6,117**	**8,615**
Citation XLS	18,700	3,347	5,270	4,184	**6,588**	5,578	**8,783**
Beechjet 400A	15,700	3,599	5,319	4,499	**6,649**	**5,998**	**8,865**
Gulfstream 450	66,000	3,261	5,404	4,076	**6,755**	5,435	**9,007**
Citation II (550)	12,700	2,316	5,596	2,895	**6,995**	3,860	**9,327**
Citation III	19,000	3,980	5,721	4,975	**7,151**	**6,633**	**9,535**

O/L: Out of Limits **MTOW**: Maximum Takeoff Weight **Bold values** exceed existing runway length.

MLW: Maximum Landing Weight **Bold values** exceed existing runway length.

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Many factors are considered when determining appropriate runway length for safe and efficient operations of aircraft at OXR. The airport should strive to accommodate business jets to the greatest extent possible as demand would dictate. Runway 7-25 is currently 5,953 feet long and can accommodate a diverse mix of business jets. The analysis notes that some aircraft are subject to weight restrictions at useful loads of 90 percent or greater during hot days.

Runway 7-25 Length Conclusion

The majority of operations taking place at OXR are conducted by smaller, single engine, fixed-wing aircraft weighing less than 12,500 pounds. Following guidance from AC 150/5325-4B, to accommodate 100 percent of these small aircraft, a runway length of at least 3,900 feet is recommended. However, the airport is also utilized by aircraft weighing more than 12,500 pounds, including small- to mid-sized business jet aircraft. AC 150/5325-4B stipulates that runway length determinations for business jets consider a grouping of airplanes with similar operating characteristics. As such, runway length calculations specific to OXR for business jets that make up 75 percent of the national fleet at 60 percent useful load require a 5,300-foot runway, and business jets that make up 100 percent of the national fleet at 60 percent useful load require a 5,500-foot runway. Therefore, runway length calculations for turbine aircraft operating at OXR, including the critical design aircraft, suggest that the current runway length is satisfactory. The additional runway length provided by Runway 7-25 allows for an increased safety margin for larger turbine-powered aircraft. As indicated by airport records, operations by larger business jet aircraft, such as the Gulfstream V, VI, and Falcon 900, have been increasing in recent years and are projected to continue to grow over the forecast period. Furthermore, the LOI currently on file with the County of Ventura for large hangar construction to support business jets such as the Gulfstream 650 and future planning within the SCAG for reinstated commercial service at OXR, present a future need to maintain the existing runway length, which is capable of accommodating large business jets as well as smaller regional jets and regional turboprops. As such, Runway 7-25 is deemed to be of adequate length and should be maintained through the long-term planning horizon. It should be noted that Runway 7 has an accelerate stop distance available (ASDA) and landing distance available (LDA) of 5,654 feet as a result of declared distances (to be discussed) that are in effect. The 453-foot displaced runway threshold serving Runway 25 reduces the usable LDA to 5,500 feet on Runway 25.

Runway Width

Runway width design standards are primarily based on the critical aircraft but can also be influenced by the visibility minimums of published instrument approach procedures. Runway 7-25 is currently 100 feet wide, which exceeds the 75-foot runway width standard for the existing RDC of B-II. It is recommended that the current runway width of 100 feet be maintained through the long-term planning horizon to account for OXR's ultimate planned upgrade to RDC D-III and the potential for improved approach minimums down to ½ or ¾-mile visibility. It should be noted that the runway width requirement for RDC D-III runways having critical design aircraft with a MTOW greater than 150,000 pounds is 150 feet. However, current FAA guidance indicates that a 100-foot runway width is sufficient for RDC D-III runways having critical aircraft weighing 150,000 pounds or less. Given that the Gulfstream 650 is planned as the ultimate critical aircraft and has an MTOW of 99,600 pounds, Runway 7-25 should be maintained at 100 feet wide.

Runway Pavement Strength

Airport pavement strength is very important as it must be able to withstand repeated operations by aircraft of significant weight. The strength rating of a runway does not preclude aircraft weighing more than the published strength rating from using the runway. All federally obligated airports must remain open to the public, and it is typically up to the pilot of the aircraft to determine if a runway can support their aircraft safely. An airport sponsor cannot restrict an aircraft from using the runway simply because its weight exceeds the published strength rating. On the other hand, the airport sponsor has an obligation to properly maintain the runway and protect the useful life of the runway, typically for 20 years. According to the FAA publication, *Chart Supplement*, "Runway strength rating is not intended as a maximum allowable weight or as an operating limitation. Many airport pavements are capable of supporting limited operations with gross weights in excess of the published figures." The directory goes on to say that those aircraft exceeding the pavement strength should contact the airport sponsor for permission to operate at the airport.

7-25 is 83,000 pounds S, 126,000 pounds D, and 238,000 pounds 2D. Based upon this runway strength rating, the runway can accommodate activity by the family of the critical design aircraft. The FAA has recently moved to implementing the International Civil Aviation Organization (ICAO) pavement classification number (PCN) for identifying strength of airport pavements. The PCN is a five-part code described as follows:

1) PCN Numerical Value: Indicates the load-carrying capacity of the pavement expressed as a whole number. The value is calculated based on a number of engineering factors, such as aircraft geometry and pavement usage.
2) Pavement Type: Expressed as either R for rigid pavement (most typically concrete) or F for flexible pavement (most typically asphalt).
3) Subgrade Strength: Expressed as A (High), B (Medium), C (Low), or D (Ultra Low). A subgrade of A would be considered very strong, like concrete-stabilized clay, and a subgrade of D would be very weak, like un-compacted soil.
4) Maximum Tire Pressure: Expressed as W (Unlimited/No Pressure Limit), X (High/254 psi), Y (Medium/181 psi), or Z (Low/72 psi), this indicates the maximum tire pressure the pavement can support. Concrete surfaces are usually rated W.
5) Process of Determination: Expressed as either T (technical evaluation) or U (physical evaluation), this indicates how the pavement was tested.

According to a pavement strength assessment completed on Runway 7-25 in September 2014, the PCN for Runway 7-25 is expressed as 44/F/A/W/T. This means that the underlying pavement's value, indicating load-carrying capacity, is 44 (unitless), is flexible (asphalt), is high sub-grade strength, has unlimited/no tire pressure limit, and was calculated through a technical evaluation. It should be noted, however, that the most current FAA Chart Supplement dated May 24, 2018 to July 19, 2018 reports a PCN value of 30/F/A/W/T.

While the pavement strength rating is not the maximum weight limit, aircraft weighing more than the certified strength should only operate on the runway on an infrequent basis. Frequent use by aircraft heavier than the pavement rating is not recommended as it will increase the rate of pavement degradation and shorten the lifespan of the pavement.

Airfield Design Standards

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 surfaces include the runway safety area (RSA), runway object free area (ROFA), runway obstacle free zone (ROFZ), and runway protection zone (RPZ).

The entire RSA, ROFA, and ROFZ must be under the direct ownership of the airport sponsor to ensure these areas remain free of obstacles and can be readily accessed by maintenance and emergency personnel. The RPZ should also be under airport ownership. An alternative to outright ownership of the RPZ is the purchase of avigation easements (acquiring control of designated airspace within the RPZ) or having sufficient land use control measures in place which ensure the RPZ remains free of incompatible development. The various airport safety areas are graphically presented on **Exhibit R** along with existing easement areas and property to be acquired.

Dimensional standards for the various safety areas associated with the runway are a function of the type of aircraft expected to use the runway as well as the instrument approach capability. **Table EE** presents the FAA design standards as they apply to Runway 7-25 at OXR. As identified in the previous section, the existing critical design aircraft is classified as B-II, and the ultimate critical design aircraft is classified as D-III. Furthermore, there is potential for OXR to transition from instrument approach visibility minimums of not lower than one-mile to approach visibility minimums lower than one-mile. Therefore, the design standards for RDC B-II-5000 are examined under existing conditions and RDC D-III-2400 or RDC D-III-4000 under ultimate conditions.

Runway Safety Area (RSA)

The RSA is defined in FAA AC 150/5300-13A, *Airport Design,* as a "surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of undershoot, overshoot, or excursion from the runway." The RSA is centered on the runway and dimensioned in accordance to the approach speed of the critical design aircraft using the runway. The FAA requires the RSA to be cleared and graded, drained by grading or storm sewers, capable of accommodating the design aircraft and fire and rescue vehicles, and free of obstacles not fixed by navigational purpose such as runway edge lights or approach lights.

The FAA has placed a higher significance on maintaining adequate RSA at all airports. Under Order 5200.8, effective October 1, 1999, the FAA established the *Runway Safety Area Program.* The Order states, "The objective of the Runway Safety Area Program is that all RSAs at federally obligated airports…shall conform to the standards contained in Advisory Circular 150/5300-13, *Airport Design*, to the extent practicable." Each Regional Airports Division of the FAA is obligated to collect and maintain data on the RSA for each runway at the airport and perform airport inspections.

TABLE EE | Runway Design Standards

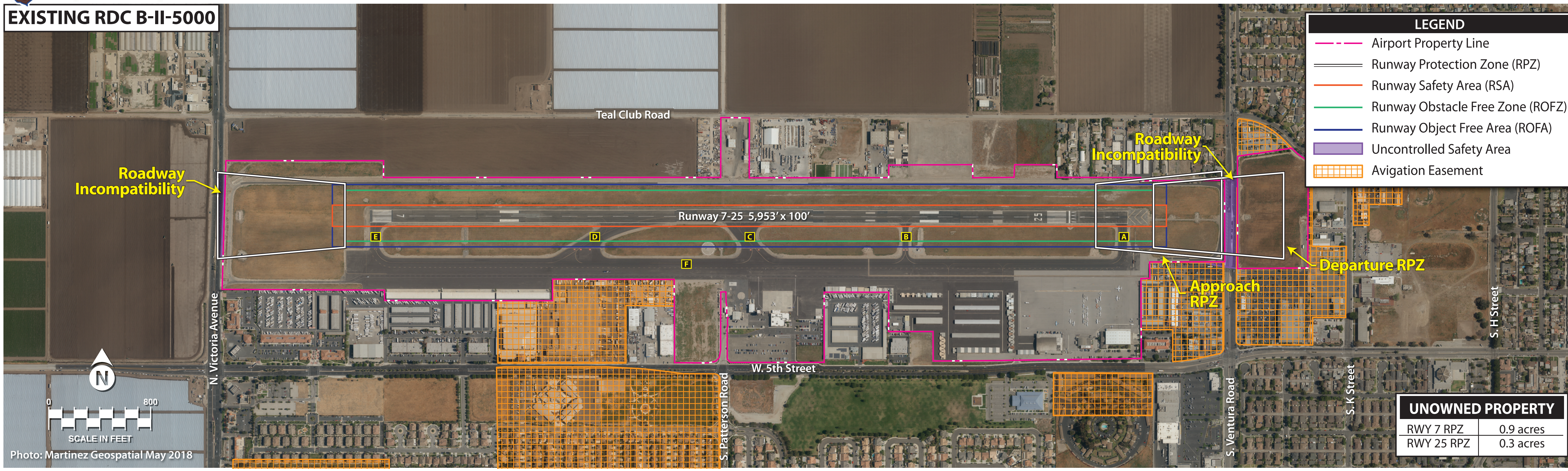
	Runway 7-25	
	Standard/Existing	**Ultimate**
RUNWAY CLASSIFICATION		
Runway Design Code	B-II-5000	D-III-2400 or 4000
Visibility Minimums	1-mile	½ or ¾-mile
RUNWAY DESIGN		
Runway Width	75 / 100	100[1]
Blast Pad Length x Width	150 x 95 / 150 x 120 (Runway 25)	150 x 140[1] (Runway 25)
RUNWAY PROTECTION		
Runway Safety Area (RSA)		
Width	150	500
Length Beyond Departure End	300	1,000
Length Prior to Threshold	300	600
Runway Object Free Area (ROFA)		
Width	500	800
Length Beyond Departure End	300	1,000
Length Prior to Threshold	300	600
Runway Obstacle Free Zone (ROFZ)		
Width	400	400
Length Beyond Departure End	200	200
Length Prior to Threshold	200	200
Approach Runway Protection Zone (RPZ)		
Length	1,000	2,500/1,700
Inner Width	500	1,000
Outer Width	700	1,750/1,510
Departure Runway Protection Zone (RPZ)		
Length	1,000	1,700
Inner Width	500	500
Outer Width	700	1,010
RUNWAY SEPARATION		
Runway Centerline to:		
Hold Position	200 / 250	250
Parallel Taxiway	240 / 365	400
Aircraft Parking Area	250 / 600	500

Note: All dimensions in feet

[1] For airplanes with maximum certificated takeoff weight of 150,000 pounds or less, the standard runway width is 100 feet and the runway blast pad width is 140.

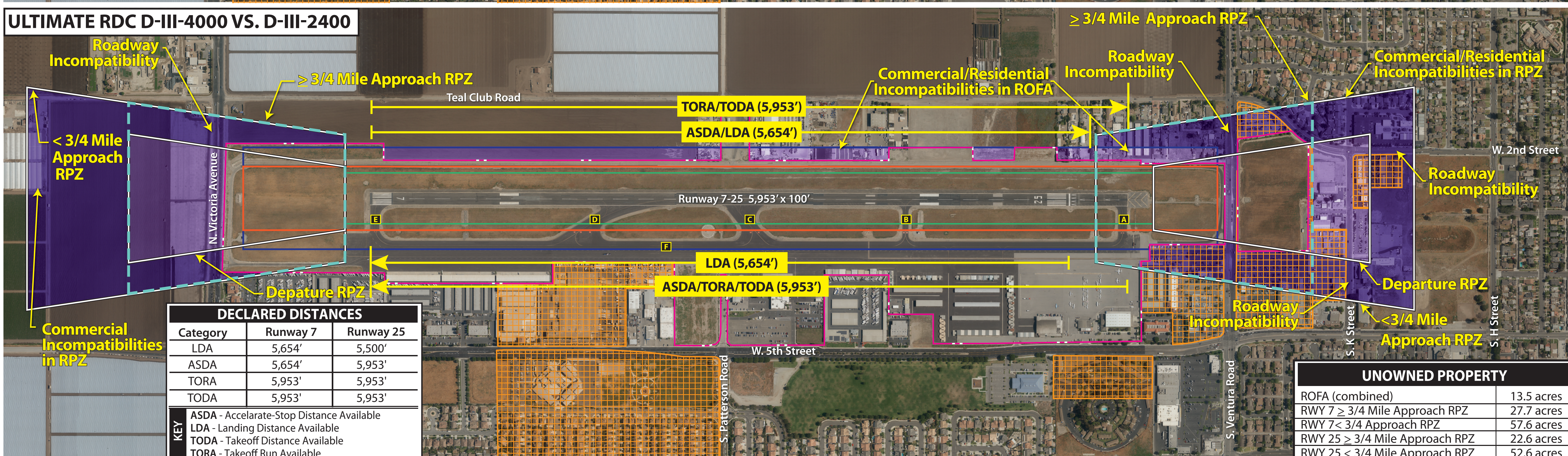
Source: FAA AC 150/5300-13A, Change 1, Airport Design

EXISTING RDC B-II-5000



UNOWNED PROPERTY	
RWY 7 RPZ	0.9 acres
RWY 25 RPZ	0.3 acres

ULTIMATE RDC D-III-4000 VS. D-III-2400



DECLARED DISTANCES

Category	Runway 7	Runway 25
LDA	5,654'	5,500'
ASDA	5,654'	5,953'
TORA	5,953'	5,953'
TODA	5,953'	5,953'

KEY
- ASDA - Accelarate-Stop Distance Available
- LDA - Landing Distance Available
- TODA - Takeoff Distance Available
- TORA - Takeoff Run Available

UNOWNED PROPERTY	
ROFA (combined)	13.5 acres
RWY 7 ≥ 3/4 Mile Approach RPZ	27.7 acres
RWY 7< 3/4 Approach RPZ	57.6 acres
RWY 25 ≥ 3/4 Mile Approach RPZ	22.6 acres
RWY 25 < 3/4 Mile Approach RPZ	52.6 acres

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The RDC B-II-5000 RSA serving Runway 7-25 is 150 feet wide and extends 300 feet beyond each end of the runway. Based on a site visit and airport records, there are no known obstructions to the existing RSA as presented on the top half of **Exhibit R**.

Under the ultimate RDC D-III-2400 or 4000 conditions, the RSA is enlarged to 500 feet wide and extends 1,000 feet beyond the departure end of the runway and 600 feet prior to the landing threshold. RDC D-III-2400 and 4000 conditions, presented on the bottom half of **Exhibit R**, depict the RSA serving Runway 7-25. It should be noted that the ultimate RSA serving the departure end of Runway 7 has been altered through the use of declared distances, a tool that may be utilized to obtain additional RSA and/or ROFA and limit or increase runway length. Declared distances imposed on Runway 7-25 are presented on **Exhibit R** and in **Table FF**.

TABLE FF | Runway 7-25 Declared Distances

Category	Runway 7	Runway 25
TORA	5,953'	5,953'
TODA	5,953'	5,953'
ASDA	5,654	5,953'
LDA	5,654'	5,500'

TORA: Takeoff Run Available
TODA: Takeoff Distance Available
ASDA: Accelerate Stop Distance Available
LDA: Landing Distance Available

Source: Coffman Associates' analysis.

Declared distances represent the maximum distances available and suitable for meeting takeoff, rejected takeoff, and landing distance performance requirements for turbine powered aircraft. Declared distances include takeoff run available (TORA) and takeoff distance available (TODA), which apply to takeoff; accelerate stop distance available (ASDA), which applies to a rejected takeoff; and landing distance available (LDA), which applies to landing. Each declared distance can be defined as follows:

- TORA: the distance to accelerate from brake release to lift-off, plus safety factors.
- TODA: the distance to accelerate from brake release past lift-off to takeoff climb, plus safety factors.
- ASDA: the distance to accelerate from brake release to takeoff decision speed and then decelerate to a stop, plus safety factors.
- LDA: the distance from the threshold to complete the approach, touchdown, and decelerate to a stop, plus safety factors.

By limiting the LDA and ASDA serving Runway 7 to 5,654 feet, the 1,000-foot RSA serving the departure end of the runway can be kept clear of a roadway incompatibility that would otherwise occur via South Ventura Road located directly east of the airfield. It should be noted that the ultimate declared distances serving Runway 7-25 are also depicted on the airport's currently approved ALP, which shows an existing RDC of D-II-5000 utilizing declared distances to meet safety area standards. However, as previously discussed, this study identifies B-II-5000 as OXR's current RDC. Essentially, the declared distances previously implemented to meet D-II-5000 standards would be reintroduced under ultimate conditions to meet RDC D-III-2400 or 4000 standards.

Under ultimate conditions, there are no known RSA incompatibilities. Future planning should ensure that the RSA is maintained clear of obstructions.

Runway Object Free Area (ROFA)

The ROFA can be described as a two-dimensional surface area that surrounds all airfield runways. This area must remain clear of obstructions aside from those that are deemed “fixed by function,” such as runway lighting systems. This safety area does not have to be level or graded as the RSA does. However, the ROFA must be clear of any penetrations of the lateral elevation of the RSA. Much like the RSA, the ROFA is centered upon the runway centerline and its size is determined based upon the critical design aircraft using the runway.

Currently, RDC B-II-5000 FAA standards call for the ROFA serving Runway 7-25 to be 500 feet wide and extend 300 feet beyond each end of the runway. The Runway 7-25 ROFA currently meets FAA dimensional and obstruction standards as depicted on the top half of **Exhibit R**.

ROFA dimensional standards for RDC D-III-2400 and RDC D-III-4000, also presented on **Exhibit R**, are 800 feet wide and extend 1,000 feet beyond each end of the runway. Similar to the RSA, only 600 feet of ROFA is needed prior to the landing threshold. Under ultimate conditions, the ROFA would be obstructed by the lighted wind indicator associated with the segmented circle, the supplemental windcones serving each runway end, anemometer, and the ASOS. In addition, the ROFA would extend beyond the airport property boundary along the north side of the runway, encompassing approximately 13.5 acres of combined uncontrolled property as well as buildings associated with commercial and residential use. These obstructions and incompatibilities to the ultimate ROFA should be mitigated prior to upgrading to RDC D-III-2400 or 4000 standards. Similar to the RSA discussion above, declared distances from the currently approved ALP have been implemented on ultimate Runway 7, limiting the LDA and ASDA to 5,654 feet, to maintain the 1,000-foot ROFA serving the departure end of the runway. Without the use of declared distances, the ultimate ROFA would extend to the east across South Ventura Road.

Runway Obstacle Free Zone (ROFZ)

An ROFZ can be defined as a portion of airspace centered about the runway, and its elevation at any point is equal to the elevation of the closest point on the runway centerline. The ROFZ extends 200 feet past each end of the runway on the runway centerline. The width of the ROFZ is determined by the critical aircraft utilizing the runway. The ROFZ width for runways accommodating large aircraft is 400 feet. The function of the ROFZ is to ensure the safety of aircraft conducting operations by preventing object penetrations to this portion of airspace. Potential penetrations to this airspace also include taxiing and parked aircraft. Any obstructions within this portion of airspace must be mounted on frangible couplings and be fixed in its position by its function. If the ROFZ is obstructed, an airport’s approaches could be removed, or approach minimums could be increased.

The established FAA dimensions for a B-II runway serving large aircraft (over 12,500 pounds) require the ROFZ to be 400 feet in width and extend 200 feet beyond each end of the runway. Runway 7-25 meets the ROFZ design standards for B-II runways serving large aircraft. ROFZ standards for ultimate RDC D-III-2400 or 4000 serving Runway 7-25 would remain the same as the existing ROFZ dimensions; thus, no change would be required.

Runway Protection Zone (RPZ)

An RPZ can be described as a trapezoidal area centered on the extended runway centerline and generally begins 200 feet from the end of the runway. This safety area has been established to protect the end of the runway from airspace penetrations and incompatible land uses. The RPZ is divided into two different portions: the central portion and the controlled activity area. The central portion of the RPZ extends from the beginning to the end of the RPZ, is centered on the runway centerline, and is the same width as the ROFA. The RPZ dimensions are based upon the critical design aircraft using the runway and the visibility minimums serving the runway.

While the RPZ is intended to be clear of incompatible objects or land uses, some uses are permitted with conditions and other land uses are prohibited. According to AC 150/5300-13A, the following land uses are permissible within the RPZ:

- Farming that meets the minimum buffer requirements.
- Irrigation channels as long as they do not attract birds.
- Airport service roads, as long as they are not public roads and are directly controlled by the airport operator.
- Underground facilities, as long as they meet other design criteria, such as RSA requirements, as applicable.
- Unstaffed navigational aids (NAVAIDs) and facilities, such as required for airport facilities that are fixed-by-function in regard to the RPZ.

Any other land uses considered within RPZ land owned by the airport sponsor must be evaluated and approved by the FAA Office of Airports. The FAA has published *Interim Guidance on Land Uses within a Runway Protection Zone* (September 27, 2012), which identifies several potential land uses that must be evaluated and approved prior to implementation. The specific land uses requiring FAA evaluation and approval include:

- Buildings and structures (residences, schools, churches, hospitals or other medical care facilities, commercial/industrial buildings, etc.).
- Recreational land use (golf courses, sports fields, amusement parks, other places of public assembly, etc.).
- Transportation facilities (rail facilities, public roads/highways, vehicular parking facilities, etc.).
- Fuel storage facilities (above and below ground).
- Hazardous material storage (above and below ground).
- Wastewater treatment facilities.
- Above-ground utility infrastructure (i.e., electrical substations), including any type of solar panel installations.

The *Interim Guidance on Land within a Runway Protection Zone* states, "RPZ land use compatibility also is often complicated by ownership considerations. Airport owner control over the RPZ land is emphasized to achieve the desired protection of people and property on the ground. Although the FAA recognizes that in certain situations the airport sponsor may not fully control land within the RPZ, the FAA expects airport sponsors to take all possible measures to protect against and remove or mitigate incompatible land uses."

Currently, the RPZ review standards are applicable to any new or modified RPZ. The following actions or events could alter the size of an RPZ, potentially introducing an incompatibility:

- An airfield project (e.g., runway extension, runway shift).
- A change in the critical design aircraft that increases the RPZ dimensions.
- A new or revised instrument approach procedure that increases the size of the RPZ.
- A local development proposal in the RPZ (either new or reconfigured).

Currently, the approach and departure RPZs associated with Runway 7-25 begin 200 feet from the end of each runway and are 500 feet in width at the inner portion, 700 feet at the outer portion, and 1,000 feet in length and encompass 13.77 acres of property. Currently, Runway 25 has a landing threshold displacement of 453 feet. In light of this, the Runway 25 end has differing locations for the approach RPZ serving Runway 25 and the departure RPZ serving Runway 7. The approach RPZ extends off airport property to the north and encompasses approximately 0.3 acres of uncontrolled property, as depicted on the top half of **Exhibit R**. While the departure RPZ serving Runway 7 remains on airport property, it is traversed by South Ventura Road. The approach RPZ serving Runway 7 extends beyond airport property to the west, encompassing approximately 0.9 acres of uncontrolled property, and is traversed by North Victoria Avenue.

Ultimate approach RPZ design standards for D-III-2400 runways are 1,000 feet in width at the inner portion, 1,750 feet at the outer portion, and 2,500 feet in length and encompass 78.91 acres of property. Similarly, the approach RPZ design standards for D-III-4000 runways are 1,000 feet in width at the inner portion, 1,510 feet at the outer portion, and 1,700 in length and encompass 48.98 acres of property. The departure RPZ serving category D-III-2400 and D-III-4000 runways are 500 feet in width at the inner portion, 1,010 feet at the outer portion, and 1,700 feet in length and encompass 29.46 acres of property. Under ultimate conditions depicted on the bottom half of **Exhibit R**, the approach RPZs associated with instrument approach minimums as low as ½-mile and instrument approach minimums not lower than ¾-mile serving the Runway 25 end will extend off airport property to the east, containing approximately 52.6 and 22.6 acres of uncontrolled property, respectively. Each RPZ will be traversed by South Ventura Road, South K Street, West 2nd Street, and contain numerous commercial and residential properties. It should be noted, however, that the airport does have an avigation easement in place for a portion of the uncontrolled property associated with the Runway 25 approach RPZ and Runway 7 departure RPZ. Similar to the Runway 25 end, the ultimate RPZs associated with instrument approach minimums as low as ½-mile and not lower than ¾-mile serving Runway 7 will extend off airport property to the west, encompassing approximately 57.6 and 27.7 acres of uncontrolled property, respectively. Each RPZ will encompass buildings associated with an agricultural operation, a portion of Teal Club Road, and would be completely traversed by North Victoria Avenue.

The FAA recommends that an airport have ownership of the RPZ land where feasible that could include outright fee simple ownership or an avigation easement. If an airport cannot fully control the entirety of the RPZ, the RPZ land use standards have recommendation status for that portion of the RPZ not controlled by the airport owner. In essence, this means that the FAA can require a change to the runway environment to properly secure the entirety of the RPZ. Objects such as public roads have been allowed within RPZs under previous guidance unless they posed an airspace obstruction. FAA's current guidance, however, does not readily allow for public roads in the RPZ.

Since the new RPZ guidance addresses new or modified RPZs, existing incompatibilities may be grandfathered under certain conditions. For example, roads that are in the current RPZ are typically allowed to remain as grandfathered unless the runway environment changes, which would include a change in the RDC as well as instrument approach visibility minimums. The airport sponsor should take reasonable actions to meet RPZ design standards to the extent practicable. Further discussion will be had with airport management related to the ultimate disposition of the RPZs in relation to instrument approach capabilities. The conclusion will be presented in the Development Concept section of this document.

Taxiways

The taxiway system of an airport is primarily to facilitate aircraft movements to and from the runway system. While some taxiways are constructed to simply provide access from the apron to the runway, other taxiways are constructed to increase the allowable frequency of aircraft operations as air traffic increases.

Taxiway Design Considerations

FAA AC 150/5300-13A, Change 1, *Airport Design*, provides guidance on recommended taxiway and taxilane layouts to enhance safety by avoiding runway incursions. A runway incursion is defined as "any occurrence at an airport involving the incorrect presence of an aircraft, vehicle, or person on the protected area of a surface designated for the landing and takeoff of aircraft."

The taxiway system at Oxnard Airport generally provides for the efficient movement of aircraft; however, recently published AC 150/5300-13A, Change 1, *Airport Design*, provides recommendations for taxiway design. The following is a list of the taxiway design guidelines and the basic rationale behind each recommendation:

1. **Taxi Method:** Taxiways are designed for "cockpit over centerline" taxiing with pavement being sufficiently wide to allow a certain amount of wander. On turns, sufficient pavement should be provided to maintain the edge safety margin from the landing gear. When constructing new taxiways, upgrading existing intersections should be undertaken to eliminate "judgmental oversteering." This is where the pilot must intentionally steer the cockpit outside the marked centerline in order to assure the aircraft remains on the taxiway pavement.

2. **Steering Angle:** Taxiways should be designed such that the nose gear steering angle is no more than 50 degrees, the generally accepted value to prevent excessive tire scrubbing.

3. **Three-Node Concept:** To maintain pilot situational awareness, taxiway intersections should provide a pilot with a maximum of three choices of travel. Ideally, these are right and left angle turns and a continuation straight ahead.

4. **Intersection Angles:** Design turns to be 90 degrees wherever possible. For acute angle intersections, standard angles of 30, 45, 60, 120, 135, and 150 degrees are preferred.

5. **Runway Incursions:** Design taxiways to reduce the probability of runway incursions.
   - *Increase Pilot Situational Awareness*: A pilot who knows where he/she is on the airport is less likely to enter a runway improperly. Complexity leads to confusion. Keep taxiway systems simple using the "three node" concept.
   - *Avoid Wide Expanses of Pavement*: Wide pavements require placement of signs far from a pilot's eye. This is especially critical at runway entrance points. Where a wide expanse of pavement is necessary, avoid direct access to a runway.
   - *Limit Runway Crossings*: The taxiway layout can reduce the opportunity for human error. The benefits are twofold – through simple reduction in the number of occurrences, and through a reduction in air traffic controller workload.
   - *Avoid "High Energy" Intersections*: These are intersections in the middle third of runways. By limiting runway crossings to the first and last thirds of the runway, the portion of the runway where a pilot can least maneuver to avoid a collision is kept clear.
   - *Increase Visibility*: Right angle intersections, both between taxiways and runways, provide the best visibility. Acute angle runway exits provide greater efficiency in runway usage but should not be used as runway entrance or crossing points. A right angle turn at the end of a parallel taxiway is a clear indication of approaching a runway.
   - *Avoid "Dual Purpose" Pavements*: Runways used as taxiways and taxiways used as runways can lead to confusion. A runway should always be clearly identified as a runway and only a runway.
   - *Indirect Access*: Do not design taxiways to lead directly from an apron to a runway. Such configurations can lead to confusion when a pilot typically expects to encounter a parallel taxiway.
   - *Hot Spots*: Confusing intersections near runways are more likely to contribute to runway incursions. These intersections must be redesigned when the associated runway is subject to reconstruction or rehabilitation. Other hot spots should be corrected as soon as practicable.

6. **Runway/Taxiway Intersections:**
   - *Right Angle*: Right angle intersections are the standard for all runway/taxiway intersections, except where there is a need for a high-speed exit. Right-angle taxiways provide the best visual perspective to a pilot approaching an intersection with the runway to observe aircraft in both the left and right directions. They also provide optimal orientation of the runway holding position signs, so they are visible to pilots.

- *Acute Angle*: Acute angles should not be larger than 45 degrees from the runway centerline. A 30-degree taxiway layout should be reserved for high speed exits. The use of multiple intersecting taxiways with acute angles creates pilot confusion and improper positioning of taxiway signage.
- *Large Expanses of Pavement*: Taxiways must never coincide with the intersection of two runways. Taxiway configurations with multiple taxiway and runway intersections in a single area create large expanses of pavement, making it difficult to provide proper signage, marking, and lighting.

7. **Taxiway/Runway/Apron Incursion Prevention:** Apron locations that allow direct access into a runway should be avoided. Increase pilot situational awareness by designing taxiways in such a manner that forces pilots to consciously make turns. Taxiways originating from aprons and forming a straight line across runways at mid-span should be avoided.
   - *Wide Throat Taxiways*: Wide throat taxiway entrances should be avoided. Such large expanses of pavement may cause pilot confusion and make lighting and marking more difficult.
   - *Direct Access from Apron to a Runway*: Avoid taxiway connectors that cross over a parallel taxiway and directly onto a runway. Consider a staggered taxiway layout that forces pilots to make a conscious decision to turn.
   - *Apron to Parallel Taxiway End*: Avoid direct connection from an apron to a parallel taxiway at the end of a runway.

The existing taxiway system at OXR is found to be adequate in meeting existing and future air traffic demand. However, the existing taxiway geometry conflicts with the current FAA taxiway design standards established in AC 150/5300-13A, including:

- Direct apron access provided from Taxiways A, B, C, D, and E to Runway 7-25.
- Taxiways C and D are acutely angled and could be considered wide throat taxiways as each taxiway exceeds widths of 110 and 100 feet, respectively.

Solutions to correct these non-standard taxiway layouts will be presented in the Development Concept section of this report. Analysis will also consider improvements which could be implemented on the airfield to minimize runway incursion potential, improve efficiency, and conform to FAA standards for taxiway design. Any future taxiways planned will also take into consideration the taxiway design standards. It should be noted, however, that the ATCT has expressed significant interest in maintaining the acutely angled Taxiway D as it serves as a high-speed exit taxiway for large business jets currently operating at the airport. Furthermore, the acutely angled Taxiway D historically provided increased efficiency when commercial service operators were serving OXR. Given the airport's future potential for reinstated commercial service operations as well as based aircraft fleet mix changes to larger business jets, the existing orientation of Taxiway D could benefit the airport in the future.

Runway/Taxiway Separation

The design standard for the required separation between runways and parallel taxiways is a function of the critical design aircraft and the instrument approach visibility minimum. The separation design standard for RDC B-II with not lower than one-mile visibility minimums is 240 feet from the runway centerline to the parallel taxiway centerline. Currently, parallel Taxiway F is 365 feet from the runway (centerline to centerline). Therefore, the location of parallel Taxiway F exceeds the current RDC B-II-5000 design standard serving Runway 7-25. Proposed ultimate RDC D-III-2400 or D-III-4000 standards require a runway to taxiway centerline separation of 400 feet. As such, the airport should consider increasing the existing runway to taxiway separation by 35 feet to comply with ultimate design standards.

Aircraft Parking Area Separation

For RDC B-II standards with not lower than one-mile visibility approach minimums, aircraft parking areas should be at least 250 feet from the Runway 7-25 centerline. Under ultimate RDC D-III-2400 or D-III-4000 design standards, the FAA requires a separation of at least 500 feet from runway centerline to aircraft parking areas. Currently, the nearest aircraft parking area is approximately 600 feet from runway centerline. Thus, all aircraft parking areas at OXR are in compliance with ultimate planning and should be maintained accordingly.

Instrument, Navigational, and Approach Aids

Runway 25 is accommodated by an ILS or LOC precision instrument approach, a GPS based non-precision instrument approach, and a VOR approach, all providing visibility minimums of not lower than one-mile. In addition, Runway 7 is served by a non-precision GPS approach with visibility minimums of not lower than one mile. These systems allow properly equipped aircraft to navigate to the runway in reduced visibility conditions. As previously mentioned, Runway 25 is equipped with a MALSF, while Runway 7 is equipped with REILs to guide aircraft to the approach end of each runway. Lighting systems such as these can be beneficial when the airfield environment is contaminated with lights from the surrounding area, making it difficult for pilots to distinguish the end of the runway. As such, the existing approach lighting system and REILs should be maintained through the planning horizon. If Runway 7-25 is to be served by precision instrument approaches with visibility minimums lower than ¾-mile, consideration should be given to implementing a medium intensity approach lighting system with runway alignment indicator lights (MALSR) serving each end of Runway 7-25.

It is worth noting that while ultimate planning gives consideration to precision instrument approach visibility minimums of ½-mile, the airport could achieve instrument approach visibility minimums of not lower than ¾-mile with minimal investment in navaids. As such, the existing MALSF serving Runway 25 could be maintained and a less extensive approach lighting system, such as a MALS, could be implemented serving Runway 7. For runways served by instrument approach visibility minimums of not lower than ¾-miles, the FAA recommends an approach lighting system; however, it is not required. Further coordination with the airport will dictate ultimate planned instrument approach minimums and approach aids serving OXR and will be detailed in the Development Concept section of this report.

Supplemental to the instrument approaches, MALSF and REIL systems, Runways 7 and 25 are also equipped with PAPI-4 visual approach aids. This is a system consisting of four lights that are color-coded to indicate whether the approaching aircraft is on, above, or below the designated glide slope. Depending upon the aircraft's position relative to the predetermined glide slope, the lights will change colors to inform the pilot of their position. The existing PAPI-4s should also be maintained through the long-term planning horizon.

Airfield Marking, Lighting, and Signage

Currently, Runway 7 is marked with non-precision runway markings, while Runway 25 is marked with precision runway markings. Runway 25 markings should be maintained through the long-term planning horizon; however, under proposed ultimate D-III-2400 or D-III-4000 conditions, the airport should consider precision runway markings on Runway 7.

Given that Runway 7-25 is currently designated as B-II (runways accommodating large aircraft [over 12,500 pounds]), FAA separation standards, as stated in AC 150/5300-13A, maintain that runways of this designation must have at least 200 feet of separation between runway centerline and any holding position. Holding positions are markings on taxiways leading to runways, which provide for adequate runway clearance for holding aircraft. Currently, all taxiways serving Runway 7-25 contain hold position markings at runway intersections, located 250 feet from the runway centerline which exceeds the RDC B-II standard. In the future, it is recommended that any additional holding positions be placed at a minimum of 250 feet from the runway centerline to conform to future RDC D-III standards. As such, the existing hold position markings should remain in their current location to adhere to ultimate planning.

Runway and taxiway lighting systems serve as a primary means of navigation in reduced visibility and night-time operations. Currently, Runway 7-25 is equipped with MIRL, a common runway lighting system, that can be controlled by pilots via the CTAF when the ATCT is closed.

Taxiways supporting the runway system are served by medium intensity taxiway lighting, which should be maintained through the long-term planning horizon.

Airfield signage serves as another means of navigation for pilots. Airfield signage informs pilots of their location on the airport, as well as directs them to major airport facilities, such as runways, certain taxiways, and aprons. Currently, the airport has appropriate signage to facilitate safe navigation; however, the airport signage system should be updated based on any changes to the runway/taxiway environment.

LANDSIDE FACILITY 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 capacity of the various components of each element was examined in relation to projected demand to identify future landside facility needs. At OXR, this includes components for general aviation needs such as:

- General Aviation Terminal Facilities and Automobile Parking
- Aircraft Storage
- Aircraft Parking Aprons
- Airport Support Facilities

Terminal Facility and Automobile Parking Requirements

GA terminal facilities at an airport are often the first impression of the community that corporate officials and other visitors will encounter. These facilities typically provide space for passenger waiting, pilots' lounge, pilot flight planning, concessions, management, storage, and various other needs. This space is not necessarily limited to a single, separate terminal building, but can include space offered by FBOs and other specialty operators for these functions and services. At this time, Aspen Helicopters/Oxnard Jet Center and Golden West Jet Center are the only GA terminal service providers located on the airfield. Furthermore, OXR maintains its own terminal building, which is primarily designed for commercial aviation use. This building should continue to be maintained as commercial passenger service could be reinstated in the future.

The methodology used in estimating GA terminal facility needs was based upon the number of airport users expected to utilize GA facilities during the design hour. Space requirements for terminal facilities were based on providing 125 square feet per design hour itinerant passenger. A multiplier of 2.2 in the short-term, increasing to 2.5 in the long-term, was also applied to terminal facility needs in order to better determine the number of passengers associated with each itinerant aircraft operation. This increasing multiplier indicates an expected increase in business and recreational operations through the long-term. These operations often support larger turboprop and jet aircraft which accommodate an increasing passenger load factor.

Table GG outlines the space requirements for GA terminal services at OXR through the long-term planning period. As shown in the table, the existing terminal facilities are sufficient for the long-term planning horizon. Currently, OXR offers approximately 26,600 square feet of terminal space, which includes the OXR commercial service terminal. It should be noted that without the OXR terminal, approximately 11,500 square feet of GA terminal space is provided by FBOs, which is also sufficient for the long-term planning horizon. These spaces include designated areas for flight planning areas, pilots' lounge, restroom facilities, quiet rooms, and other amenities.

Other specialty aviation operators on the airfield also provide space for pilots and passengers. It can be assumed that adequate services and space is provided to accommodate their customers.

General aviation vehicular parking demands have also been determined for OXR. Space determinations for itinerant passengers were based on an evaluation of existing airport use, as well as standards set forth to help calculate projected terminal facility needs.

TABLE GG | General Aviation Terminal Area and Automobile Parking - Oxnard Airport

	Currently Available	Short Term Need	Intermediate Term	Long Term Need
Design Hour Itinerant Operations	23	27	29	32
Passenger Multiplier	2.0	2.2	2.3	2.5
Design Hour Itinerant Passengers	46	60	66	80
Terminal Facility Area (sf)	26,600[1]	7,500	8,300	10,000
Vehicle Parking Spaces	285[2]	135	146	168
Total Vehicle Parking Area (sf)	165,600	47,300	51,100	58,800

[1] Includes approximate space offered by OXR and FBOs at the airport.
[2] Approximate number of total marked vehicle parking spaces at the airport.
Source: Coffman Associates analysis

The parking requirements of based aircraft owners should also be considered. Although some owners prefer to park their vehicles in their hangar, safety can be compromised when automobile and aircraft movements are intermixed. For this reason, separate parking requirements, which consider half of based aircraft at the airport plus design hour itinerant passengers, are applied to general aviation automobile parking space requirements. Utilizing this methodology, parking requirements for general aviation activity call for approximately 135 spaces in the short-term, increasing to approximately 168 spaces in the long-term planning horizon. It is estimated that there are 285 marked vehicle parking spaces at OXR currently serving various airport activities, including the FBO and other GA functions. As such, the existing automobile parking is adequate to support forecast demand through the long-term planning horizon.

Aircraft Storage Hangars and Maintenance Requirements

The demand for aircraft hangars typically depends on local climate, security, and owner preferences. The trend in general aviation aircraft, whether single or multi-engine, is toward more sophisticated aircraft (and, consequently, more expensive aircraft); therefore, many aircraft owners prefer enclosed hangar space to outside tiedowns.

This demand is also dependent upon the number and type of aircraft expected to be based at an 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 the majority of aircraft owners prefer enclosed aircraft storage, a number of based aircraft will still use outdoor tiedown spaces (due to lack of hangar availability, hangar rental rates, and/or operational needs). Therefore, enclosed hangar facilities do not necessarily need to be planned for each based aircraft. At OXR, it is estimated that approximately 15 percent of aircraft are currently based on aircraft parking aprons, with the remainder housed in hangar spaces. The percentage of based aircraft housed in hangar spaces is projected to remain constant throughout the planning horizon.

There are a variety of aircraft storage options typically available at an airport including shade hangars, T-hangars, linear box hangars, executive/box hangars, and bulk storage conventional hangars. Shade hangars are the most basic form of aircraft protection and are common in warmer climates. These structures provide a roof covering, but no walls or doors. There are no shade hangars at OXR, and for purposes of planning, any future shade hangars are included in the T-hangar need forecast. An explanation of hangar facilities at the airport was provided earlier in this report.

T-hangars and Port-A-Port hangars are intended to accommodate one small single engine piston aircraft or, in some cases, one multi-engine piston aircraft. Port-A-Port hangars are named for their portable nature, often being a small stand-alone structure capable of accommodating one small aircraft. Often times, Port-A-Port hangars are placed in a layout similar to T-hangars. T-hangars are so named because they are in the shape of a "T," providing a space for the aircraft nose and wings, but no space for turning the aircraft within the hangar. Essentially, the aircraft can be parked in only one position. T-hangars are commonly "nested" with several individual storage units to maximize hangar space. In these cases, taxiway access is needed on both sides of the nested T-hangar facility. T-hangars are popular with aircraft owners with tighter budgets as they tend to be the least expensive enclosed hangar space to build and lease. Currently, OXR has a total of 99,800 square feet of T-hangar and Port-A-Port storage capacity. For planning purposes, any future Port-A-Port hangars will be included in the T-hangar storage space forecast. User and developer preferences will dictate the ultimate styles selected at the airport.

The next type of aircraft hangar common for storage of GA aircraft is the executive/box hangar. Executive/box hangars typically provide a larger space, generally with an area between 2,500 and 6,000 square feet. This type of hangar can provide for maneuverability within the hangar, can accommodate more than one aircraft, and may have a small office and utilities. Executive/box hangars may be connected in a row of units with doors facing a taxilane. Executive box hangars may also be stand-alone hangars. These hangars are typically utilized by a corporate/business entity or to support an on-airport business. OXR currently has 103,400 square feet of aircraft storage capacity dedicated to executive style hangars.

Conventional hangars are the large, clear span hangars typically located facing the main aircraft apron at airports. These hangars provide for bulk aircraft storage and are often utilized by airport businesses, such as a fixed base operator (FBO) and/or aircraft maintenance business. Conventional hangars are generally larger than executive/box hangars and can range in size from 6,000 square feet to more than 20,000 square feet. Often, a portion of a conventional hangar is utilized for non-aircraft storage needs such as maintenance or office space. There is currently 53,000 square feet of aircraft hangar storage space dedicated to conventional hangars at OXR.

Planning for future aircraft storage needs is based on typical owner preferences and standard sizes for hangar space. For determining future aircraft storage needs, a planning standard of 1,200 square feet per based aircraft is utilized for T-hangars. For conventional hangars, a planning standard of 3,000 square feet is utilized for turboprop aircraft, 6,000 square feet is utilized for business jet aircraft, and 1,500 square feet is utilized for helicopter storage needs.

In total, there is approximately 256,600 square feet of hangar, maintenance, and office space provided on the airport for GA activities. Future hangar requirements for the airport are summarized in **Table HH**. Some based aircraft owners will continue to utilize aircraft parking apron space instead of hangar facilities. Thus, the overall percentage of aircraft seeking hangar space is held constant throughout the long-term planning period. Since portions of the hangars are known to be used for aircraft maintenance servicing, requirements for maintenance/service hangar area were estimated using a planning standard of 125 square feet per based aircraft.

TABLE HH | Aircraft Hangar Requirements - Oxnard Airport

	Currently Available	Short Term Need	Intermediate Term Need	Long Term Need
Total Based Aircraft	141	150	159	176
Aircraft to be Hangared	119	127	135	150
Hangar Area Requirements				
T-Hangar/Box/Port-A-Port Area (sf)	99,800	101,900	100,400	103,400
Executive Box/Corporate Hangar Area (sf)	103,400	109,400	115,400	127,400
Conventional Hangar Area (sf)	53,000	68,000	92,000	117,500
Office/Maintenance Area (sf)	-	15,900	32,800	51,600
Total Hangar Area (sf)	**256,200***	**295,200**	**340,600**	**399,900**

Note: *Includes total hangar and maintenance area currently at the airport
Source: Coffman Associates analysis

Due to the projected increase in based aircraft, annual GA operations, and hangar storage needs, facility planning will consider additional hangars at OXR. The analysis indicates that there is a potential need for over 143,700 square feet of hangar storage space to be offered through the long-term planning period. This includes a mixture of hangar, maintenance, and office areas. It is expected that the aircraft storage hangar requirements will continue to be met through a combination of hangar types.

It should be noted that hangar requirements are general in nature and based on the aviation demand forecasts. This analysis utilizes industry standards, and actual need could vary based on individual user requirements and desires. The actual need for hangar space will further depend on the actual usage within hangars. For example, some hangars may be utilized entirely for non-aircraft storage, such as maintenance; yet from a planning standpoint, they have an aircraft storage capacity. Therefore, the needs of an individual user may differ from the calculated space necessary.

Aircraft Parking Apron

FAA Advisory Circular 150/5300-13A, *Airport Design*, suggests a methodology by which transient apron requirements can be determined from knowledge of busy-day operations. At OXR, the number of itinerant spaces required was determined to be approximately 15 percent of the busy-day itinerant operations for general aviation operations. A planning criterion of 800 square yards per aircraft was applied to determine future transient apron requirements for single and multi-engine aircraft. For business jets (which can be much larger), a planning criterion of 1,600 square yards per aircraft position was used. In addition, OXR has based aircraft that utilize outside aircraft tiedowns for storage. It is assumed that these aircraft require less space than transient aircraft; therefore, a planning criterion of 650 square yards per aircraft was applied. Apron parking requirements are presented in **Table JJ**. Transient apron parking needs are divided into business jet needs and smaller single and multi-engine aircraft needs.

TABLE JJ | Aircraft Parking Apron Requirements - Oxnard Airport

	Available	Short Term	Intermediate Term	Long Term
Based GA Aircraft Positions	31	23	24	26
Transient Single/Multi-Engine Aircraft Positions	11	23	25	28
Transient Business Jet Positions	-	3	4	5
Total Positions	42*	49	53	59
Total Apron Area (sy)	49,300	38,900	41,600	46,900

*Available parking only includes marked positions.

The airport currently has 42 marked tiedown positions and approximately 49,300 square yards (sy) of aircraft apron and movement area. The total aircraft apron and movement area is made up of several different apron designations including the terminal apron (historically used for commercial service operations), east and west itinerant GA aprons, and the based aircraft apron area, which is located in between the itinerant GA aprons serving Aspen Helicopters/Oxnard Jet Center and Golden West Jet Center. The long-term forecast indicates that the existing apron areas are sufficient if maintained properly throughout the planning horizon, although additional marked tiedown positions could be needed. It should be noted, however, that local demands will ultimately dictate apron area and marked tiedown position needs.

SUPPORT REQUIREMENTS

Various other landside facilities that play a supporting role in overall airport operations have also been identified. These support facilities provide certain functions related to the overall operation of the airport and include aircraft rescue and firefighting, aviation fuel storage, airport maintenance facilities, utilities, and perimeter fencing and gates.

Aircraft Rescue and Firefighting

Currently, the airport maintains and staffs an ARFF facility located immediately east of the ATCT, as detailed in the Title 14 CFR Part 139 Certification section of this study. Per the airport's Part 139 certification, it is required to maintain a fleet of equipment and properly trained personnel consistent with ARFF Index A, which includes aircraft less than 90 feet in length. As discussed, the airport maintains two ARFF vehicles: one primary and one reserve. The primary ARFF vehicle has a 1500-gallon water capacity and is equipped with 205 gallons of AFFF. The reserve ARFF vehicle has a 650-gallon water capacity and 110-gallon AFFF capacity.

The airport currently meets the ARFF requirements levied by its Part 139 certification. As such, it is recommended that the airport maintain its Part 139 certification given the potential return of commercial service to OXR. Ultimately, this would maintain current safety measures in place and eliminate potential barriers (operationally and financially) to fully comply with Part 139 ARFF equipment and personnel requirements upon the potential return of commercial service.

Aviation Fuel Storage

As outlined in the Landside Facilities section, fuel storage and dispensing facilities are owned by Ventura County Department of Airports and are operated by Aspen Helicopters/Oxnard Jet Center and Golden West Jet Center. Fuel is stored in four underground 12,000-gallon tanks (two tanks designated for Jet-A and the other two for 100LL) that are used to dispense fuel to fuel service trucks operated by Aspen Helicopters/Oxnard Jet Center and Golden West Jet Center. These include two 3,000-gallon Jet A, one 5,000-gallon Jet A, one 1,000-gallon 100LL, and one 750-gallon 100LL fuel truck. For planning purposes, only permanent fuel storage facilities will be considered in the fuel capacity analysis.

Maintaining a 14-day fuel supply would allow the airport to limit the impact of a disruption of fuel delivery. Currently, the airport has enough static fuel storage to meet the 14-day supply criteria for both Jet A and 100LL fuel.

Historic fuel flowage data was utilized to project future fuel storage capacity needs. In 2017, the airport pumped 304,921 gallons of Jet A fuel and 80,946 gallons of 100LL. This works out to approximately 4.46 gallons per turbine operation and 1.19 gallons per piston operation. Over a five-year period ranging from 2013 to 2017, the airport averaged approximately 4.23 gallons per turbine operation and 1.04 per piston operation. Based upon projected operational growth, maintaining the five-year average ratios constant through the forecast period results in total flowage increasing to 434,400 gallons for Jet A and 105,900 gallons of 100LL. According to this analysis, which is summarized on **Table KK**, existing fuel storage capacity should be adequate through the long-term planning horizon.

TABLE KK | Fuel Storage Requirements - Oxnard Airport

			PLANNING HORIZON		
	Available	Current Usage	Short Term	Intermediate Term	Long Term
Jet A					
Daily Usage (gal.)		835	1,010	1,070	1,190
14-Day Supply (gal.)	24,000	13,600	14,200	15,000	16,700
Annual Usage (gal.)		304,921	368,700	390,600	434,400
100LL					
Daily Usage (gal.)		220	250	260	290
14-Day Supply (gal.)	24,000	3,300	3,500	3,700	4,100
Annual Usage (gal.)		80,946	91,300	94,900	105,900

Assumptions:
- *Jet A*: 4.23 gallons per turbine operation
- *100LL*: 1.04 gallons per piston operation

Given that full service fueling is the only option currently available at OXR, it may be beneficial for the airport to offer self-service fueling facilities. While the past five years show strong fuel sales at OXR, offering a self-service option may be beneficial in capturing a higher market share of fuel sales. Ultimately, the Development Concept will identify a location(s) for self-service fueling facilities and above-ground fuel storage facilities.

Maintenance/Storage Facilities

The airport currently has building space dedicated to maintenance and/or storage located to the north of Runway 7-25, along Teal Club Road. These facilities appear to be sufficient to meet current demands and should be maintained and expanded as necessary to meet future demands.

Utilities

The availability and capacity of the utilities serving the airport are factors in determining the development potential of the airport property, as well as the land immediately adjacent to the facility. As discussed in the Landside Facilities section, the availability of water, gas, sewer, and power sources are of primary concern when assessing available utilities. Currently, the airport's electrical needs are served by Southern California Edison, while the City of Oxnard provides the airport's potable water and wastewater needs. Natural gas service is provided by Southern California Gas Company. Given the forecast potential for future landside facility growth, the utility infrastructure serving the airport may need to be expanded to serve future development.

Perimeter Fencing and Gates

Perimeter fencing is used at airports primarily to secure the aircraft operational area and reduce wildlife incursions. The physical barrier of perimeter fencing has the following functions:

- Gives notice of the legal boundary of the outermost limits of a facility or security-sensitive area.
- Assists in controlling and screening authorized entries into a secured area by deterring entry elsewhere along the boundary.
- Supports surveillance, detection, assessment, and other security functions by providing a zone for installing intrusion-detection equipment and closed-circuit television (CCTV).
- Deters casual intruders from penetrating a secured area by presenting a barrier that requires an overt action to enter.
- Demonstrates the intent of an intruder by their overt action of gaining entry.
- Causes a delay to obtain access to a facility, thereby increasing the possibility of detection.
- Creates a psychological deterrent.
- Optimizes the use of security personnel, while enhancing the capabilities for detection and apprehension of unauthorized individuals.
- Demonstrates a corporate concern for facility security.
- Limits inadvertent access to the aircraft operations area by wildlife.

The airport has perimeter fencing which serves both operational security and as a deterrent to wildlife accessing the airfield movement areas. The existing fencing, which is regularly inspected, is eight-feet tall with three strand barbed-wire affixed to the top. Several controlled-access and manual gates associated with the fencing lead to different areas on the airfield. This fencing should be maintained through the long-term planning horizon.

FACILITY REQUIREMENTS SUMMARY

The intent of this document has been to outline the facilities required to meet potential aviation demands projected for OXR for the planning horizon, as well as to determine a direction of development which best meets projected needs. In an effort to provide a more flexible plan, the yearly forecasts from the Forecasts of Aviation Demand section have been converted to planning horizon levels. The short-term horizon roughly corresponds to a 5-year timeframe, the intermediate-term horizon is approximately 10 years, and the long-term horizon is 20 years. By utilizing these planning horizons, airport management can focus on demand indicators for initiating projects and grant requests rather than on specific dates in the future. A summary of the airside and landside requirements are presented on **Exhibit S**. Ultimately, an overall airport development plan that presents a vision to accommodate the short-term and long-term planning horizons will be prepared and further detailed in the next section.

RECOMMENDED DEVELOPMENT CONCEPT

Exhibit T depicts the Recommended Development Concept for OXR. The assessment in the previous section identified both airside and landside needs, as well as several facility deficiencies. The purpose of this section is to consider the actual physical facilities which are needed to accommodate future demand and meet the program requirements. It is important to note that the concept provides for anticipated facility needs over the five-year planning horizon, as well as establishing a vision and direction for meeting facility needs beyond the short-term planning period of this study. A phased program to achieve the Recommended Development Concept is presented in the next section. When assessing development needs, this section has separated into airside and landside functional areas. The following discussion describes the Recommended Development Concept in detail.

AIRSIDE RECOMMENDED DEVELOPMENT CONCEPT

The airside plan generally considers those improvements related to the runway and taxiway system and often requires the greatest commitment of land area to meet the physical layout of an airport. Operational activity at OXR is anticipated to grow through the long-term planning horizon of this study, and the airport is projected to continue to serve the full range of general aviation, business aviation, in addition to the potential for reinstated commercial aviation activities. The principal airfield recommendations should always focus first upon safety and security. Of key importance is to ensure that proposed airfield improvements will be designed to meet all appropriate FAA airport design standards. Recommendations are then designed to improve the operational efficiency, circulation, and capability of the airfield. The major airside issues addressed in the Recommended Development Concept include the following:

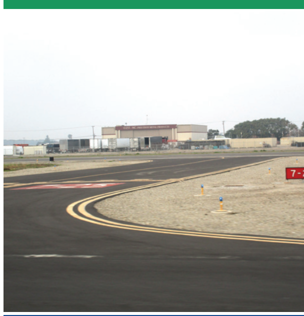
RUNWAYS

RUNWAY 7-25

CATEGORY	EXISTING	ULTIMATE
Runway Design Code (RDC)	B-II-5000	D-III-2400 or 4000
Dimensions	5,953′ x 100′	5,953′ x 100′
Pavement Strength	83,000 lbs S 126,000 lbs D 238,000 lbs 2D	Maintain

TAXIWAYS

RUNWAY 7-25



CATEGORY	EXISTING	ULTIMATE
Parallel Taxiway	Yes	Maintain
Parallel Taxiway Separation from Runway	365'	Consider Increasing to 400′
Widths	50'-110'	Evaluate During Future Rehabilitation Projects
Holding Position Locations from Runway	250'	Maintain

NAVIGATIONAL AND WEATHER AIDS

CATEGORY	EXISTING	ULTIMATE
Instrument Approaches	Not Lower than 1-Mile	Consider Less than ¾-Mile
Weather Aids	ASOS, Lighted Wind Cone, Anemometer, and Beacon	Maintain

LIGHTING, MARKING, AND SIGNAGE

RUNWAY 7-25

CATEGORY	EXISTING	ULTIMATE
Runway Lighting	MIRL	Same
Runway Marking	NPI (7), PI (25)	Maintain/PI (7)
Taxiway Lighting	MITL	Maintain
Approach Aids	PAPI-4, REILs (7), MALSF (25)	Maintain PAPI-4s/ Consider MALSRs

KEY:

ASOS: Automated Surface Observation System
D: Double Wheel Loading
2D: Double Wheel Tandem Loading
MALSF: Medium Intensity Approach Lighting System with Sequenced Flashing Lights
MALSR: Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights
NPI: Non-Precision Instrument
PAPI-4: Four-Box Precision Approach Path Indicator
PI: Precision Instrument
REILs: Runway End Identifier Lights
S: Single Wheel Loading

Exhibit S
AIRSIDE FACILITIES SUMMARY

AIRCRAFT STORAGE

	Available	Short-Term	Intermediate-Term	Long-Term
T-Hangar/Box/Port-A-Port (s.f.)	99,800	101,900	100,400	103,400
Executive Box/Corporate Hangar Area (s.f.)	103,400	109,400	115,400	127,400
Conventional Hangar Area (s.f.)	53,000	68,000	92,000	117,500
Office/Maintenance Area (s.f.)	-	15,900	32,800	51,600
Total Hangar Storage Area (s.f.)	**256,200***	**295,200**	**340,600**	**399,900**

AIRCRAFT APRON

	Available	Short-Term	Intermediate-Term	Long-Term
Single, Multi-Engine Transient Aircraft Positions	11	23	25	28
Transient Business Jet Positions	-	3	4	5
Locally Based Aircraft Positions	31	23	24	26
Total Positions	**42****	**49**	**53**	**59**
Total Apron Area (s.y.)	**49,300**	**38,900**	**41,600**	**46,900**

TERMINAL FACILITY AND AUTOMOBILE PARKING REQUIREMENTS

	Available	Short-Term	Intermediate-Term	Long-Term
GA Terminal Building Space (s.f.)	26,600	7,500	8,300	10,000
GA Terminal Parking Spaces	-	60	66	80
Based Aircraaft Auto Spaces	-	75	80	88
Total GA Auto Parking Spaces	**285**	**135**	**146**	**168**
Total Parking Area (s.f.)	**165,600**	**47,300**	**51,100**	**58,800**

SUPPORT FACILITIES

	Available	Short-Term	Intermediate-Term	Long-Term
14-Day Fuel Storage Capacity (gal.) 100LL	24,000	3,500	3,700	4,100
14-Day Fuel Storage Capacity (gal.) Jet A	24,000	14,200	15,000	16,700
Security Fencing/Gates	8' Fencing with Barbed-Wire	Maintain		
Airport Maintenance Facilities	Yes	Maintain		

*Hangar and Maintenance Area **Marked Tiedown Positions Only

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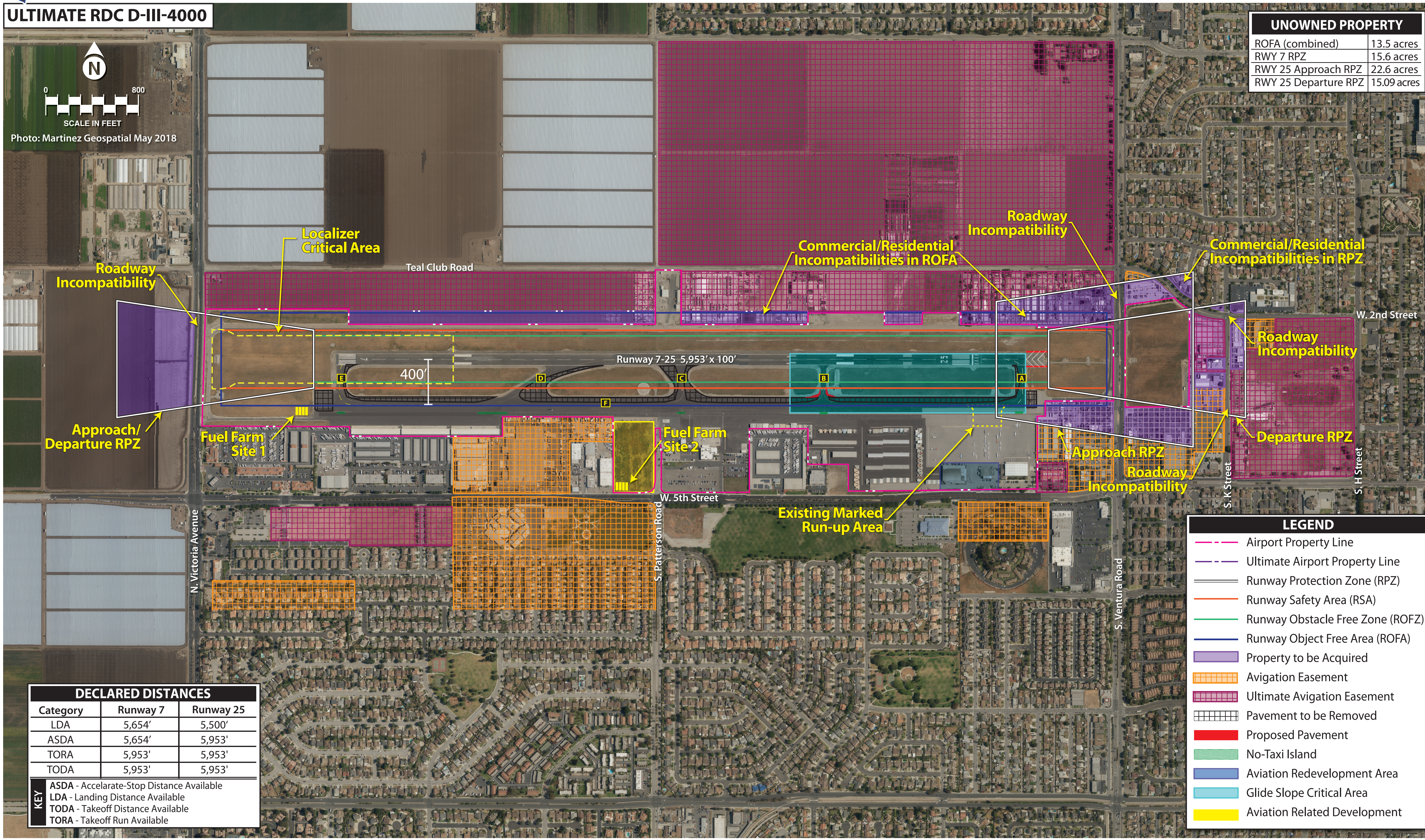

UNOWNED PROPERTY

ROFA (combined)	13.5 acres
RWY 7 RPZ	15.6 acres
RWY 25 Approach RPZ	22.6 acres
RWY 25 Departure RPZ	15.09 acres

DECLARED DISTANCES

Category	Runway 7	Runway 25
LDA	5,654'	5,500'
ASDA	5,654'	5,953'
TORA	5,953'	5,953'
TODA	5,953'	5,953'

KEY
- ASDA - Accelarate-Stop Distance Available
- LDA - Landing Distance Available
- TODA - Takeoff Distance Available
- TORA - Takeoff Run Available

LEGEND
- Airport Property Line
- Ultimate Airport Property Line
- Runway Protection Zone (RPZ)
- Runway Safety Area (RSA)
- Runway Obstacle Free Zone (ROFZ)
- Runway Object Free Area (ROFA)
- Property to be Acquired
- Avigation Easement
- Ultimate Avigation Easement
- Pavement to be Removed
- Proposed Pavement
- No-Taxi Island
- Aviation Redevelopment Area
- Glide Slope Critical Area
- Aviation Related Development

Exhibit T
RECOMMENDED DEVELOPMENT CONCEPT

Acreage calculations are approximated for planning purposes only and not tied to legal descriptions.

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- Upgrade to ultimate RDC D-III-4000 safety area standards on Runway 7-25.
- Analyze property acquisition needed to protect the ultimate runway environment including airspace and safety areas adjacent to and beyond both ends of Runway 7-25.
- Realign non-standard Taxiway C to meet FAA airfield geometry standards, implement FAA taxiway fillet geometry standards, reduce the taxiway width to 50 feet on all taxiways in accordance with TDG 3 standards, and shift parallel Taxiway F 35 feet to the south for an ultimate runway-to-taxiway centerline separation of 400 feet.
- Implement instrument approach visibility minimums of not lower than ¾-mile serving Runway 25 and maintain the existing instrument approach visibility minimums of not lower than one mile serving Runway 7.

Runway 7-25

Runway 7-25 is 5,953 feet long, 100 feet wide, and oriented in an east-west manner. The runway's existing pavement strength is 83,000 pounds S, 126,000 pounds D, and 238,000 pounds 2D. Based upon the aviation demand forecasts, previously presented in this study, the existing runway strength and width should be maintained throughout the planning horizon. As discussed in the Facility Requirement section, a 5,300-foot runway will accommodate business jets that make up 75 percent of the national fleet at 60 percent useful load, while a 5,500-foot runway will accommodate business jets that make up 100 percent of the national fleet at 60 percent useful load. Based upon these runway length calculations, the current runway length should be maintained throughout the planning horizon as it currently accommodates existing and forecast aviation demand segments, which includes the potential for reinstated commercial service.

Under ultimate D-III-4000 conditions, the RSA is enlarged to 500 feet wide and extends 1,000 feet beyond the departure end of the runway and 600 feet prior to the landing threshold. Similarly, the ultimate ROFA is enlarged to 800 feet wide and also extends 1,000 feet beyond the departure end of the runway and 600 feet prior to the landing threshold. Under these conditions the ultimate RSA and ROFA would extend to the east, across South Ventura Road. As discussed in the Facility Requirement section, declared distances from the currently approved ALP have been reintroduced under ultimate conditions on Runway 7, limiting the LDA and ASDA to 5,654 feet, to maintain the 1,000-foot RSA and ROFA serving the departure end of the runway. Furthermore, the Runway 25 threshold has been displaced due to a controlling obstacle in the approach to the runway, thereby limiting the LDA to 5,500. Declared distances imposed on Runway 7-25 are presented on **Exhibit T** and previously presented in **Table FF**.

In addition to the use of declared distances, the ROFA would be obstructed by the lighted wind indicator associated with the segmented circle, the supplemental windcones serving each runway end, anemometer, and the ASOS. Furthermore, the ROFA would extend beyond the airport property boundary along the north side of the runway, encompassing approximately 13.5 acres of combined uncontrolled property as well as buildings associated with commercial and residential use. The relocation of any of the weather or navigational facilities located within the ultimate ROFA would require the acquisition of additional property and would likely require less than optimal siting for any of the relocated facilities due surrounding development and limited land availability. It should be noted that the currently approved ALP allows for the above stated facilities to remain in the ultimate ROFA. At minimum, the airport should acquire the 13.5 acres of uncontrolled property within the ultimate ROFA.

As presented on **Exhibit T**, the RPZ serving the ultimate Runway 7 end extends beyond airport property to the west, encompassing approximately 15.6 acres of uncontrolled property and is traversed by North Victoria Avenue. Under ultimate conditions, the Recommended Development Concept considers the acquisition of the 15.6 acres of uncontrolled property and maintaining North Victoria Avenue in its existing location, as shown on the currently approved ALP. Likewise, the departure RPZ serving Runway 7 and the ultimate approach RPZ serving Runway 25 extend to the east beyond airport property encompassing approximately 15.09 and 22.6 acres of uncontrolled property, respectively. Each RPZ will be traversed by South Ventura Road, South K Street, West 2nd Street, and contain numerous commercial and residential properties. It should be noted, however, that the airport does have an avigation easement in place for a portion of the uncontrolled property associated with the Runway 25 approach RPZ and Runway 7 departure RPZ. It is recommended that the airport acquire, at minimum, an easement over the remaining uncontrolled property and where possible, the airport should acquire uncontrolled property in fee.

In any event, airport officials and Ventura County Department of Airports should continue to monitor activity within the existing and proposed safety areas and RPZs serving Runway 7-25 and maintain them free of incompatible land uses to the extent practicable. Continued coordination with CALTRANS and FAA officials will be important when implementing projects that could require changes to the existing RPZs at OXR.

Furthermore, the *California Airport Land Use Planning Handbook* states, "many airports have historically acquired avigation easements on property where noise impacts are substantial or where limitations on the height of structures and trees is essential to protection of runway approaches. Airports have also obtained easements as a condition for airport-financed installation of noise insulation in structures. These continue to be highly appropriate functions for avigation easements". As such, consideration is given to the acquisition of approximately 266 acres of avigation easements in the vicinity of OXR, which have been carried forward form the currently approved ALP.

Instrument Approaches and Visual Approach Aids

At present, Runway 25 is accommodated by an ILS or LOC precision instrument approach, a GPS based non-precision instrument approach, and a VOR approach, all providing visibility minimums of not lower than one mile. Runway 7 is served by a non-precision GPS approach with visibility minimums of not lower than one mile, which is planned to be maintained throughout the planning horizon. The Facility Requirement section examined the potential for ultimate instrument approaches down to ½-mile serving Runway 7-25. Due to significant incompatibilities that would be introduced to the runway environment, improved instrument approach visibility minimums not lower than ¾-mile are ultimately planned to serve Runway 25. Given that Runway 25 is currently served by a MALSF, the existing approach lighting system should be maintained. Furthermore, the existing REILs serving Runway 7, and the PAPI-4s serving Runway 7-25, should be maintained throughout the planning horizon.

Taxiway Design and Geometry Enhancements

While no significant airfield capacity improvements should be necessary during the planning period, portions of the existing airfield taxiway geometry conflict with the current FAA taxiway design standards established in AC 150/5300-13A, *Airport Design*. The Recommended Development Concept considers improving airfield safety and efficiency through the reorientation or relocation of taxiways and the implementation of no-taxi islands. Ultimately, the taxiway system is planned to be upgraded to RDC D-III-4000 and TDG 3 standards for all taxiways, which calls for a runway to taxiway separation of 400 feet and taxiway width of 50 feet. Given that the existing runway to taxiway centerline separation is 365 feet, it is recommended that Taxiway F be relocated 35 feet south to comply with ultimate runway to taxiway separation standards of 400 feet.

Currently, there is direct access to Runway 7-25 from Taxiways A, B, C, D, and E serving the apron area and hangar units to the south. Direct access connections such as this have been linked to increased risk of a runway incursion and should be considered for modification. To mitigate this incompatibility, it is recommended that the airport implement no-taxi islands proceeding each direct access linkage. No-taxi islands can be developed using markings around the island, green paint to identify the island, and lighting around the island; or the island can be developed by removing the pavement altogether. Either option will present an obstruction which will require a pilot to navigate a turn prior to entering a runway environment. Additionally, Taxiway C has been identified as an unnecessary acute angled taxiway. The Recommended Development Concept considers straightening Taxiway C to a standard 90-degree angle to Runway 7-25. The Development Concept also considers the reduction of all taxiway widths to 50 feet wide and implementing the standard taxiway fillet geometry as outlined in AC 150/5300-13A and in accordance with ultimate TDG 3 standards.

As previously discussed, the ATCT has expressed significant interest in maintaining the acutely angled Taxiway D as it provides increased efficiency for large business jets currently and forecast to operate at the airport. Given the airport's future potential for reinstated commercial service operations as well as based aircraft fleet mix changes to include larger business jets, it is proposed that the orientation of Taxiway D be maintained over the course of the planning horizon.

LANDSIDE RECOMMENDED DEVELOPMENT CONCEPT

The primary goal of landside facility planning is to provide adequate space to meet reasonably anticipated aviation needs, while also optimizing operational efficiency and land use. Achieving these goals yields a development scheme which segregates functional uses, while maximizing the airport's revenue potential. The Facility Requirements section identified several opportunities to improve the existing landside facilities to better accommodate future aviation demand. This section will specify the recommended improvements pertaining to landside facilities. Landside facilities can include terminal buildings, hangars, aircraft parking aprons, and aviation support services, as well as the utilization of remaining airport property to provide revenue support and to benefit the economic well-being of the airport and regional area. Also important is identifying the overall land use classification of airport property to preserve the aviation purpose of the facility well into the future. **Exhibit T** presents the planned landside development for OXR.

As a Regional GA airport, most of the landside development proposed within the Recommended Development Concept will accommodate the general aviation owners and operators as well as current and future service providers at OXR. At present, general aviation landside facilities are located along the southern side of the airfield and include 85 separate hangar facilities providing approximately 256,200 sf of hangar capacity, as well as aircraft apron space totaling approximately 49,300 sy of usable aircraft apron area.

The Recommended Development Concept provides a compilation of proposed landside facilities and development areas which attempt to maximize potential aviation development space on the airfield. Primarily, proposed development areas planned near existing facilities to take advantage of existing infrastructure availability and reduce future development costs.

The major landside issues addressed in the Recommended Development Concept include the following:

- Designate areas that can accommodate aviation development potential within the existing bounds of airport property.
- Designate existing developed areas for potential aviation redevelopment.
- Examine locations for the construction and relocation of an above-ground fuel farm.

Aircraft Storage Hangars and Future Aviation Development

Analysis in the Facility Requirements section indicated that an additional 134,7000 sf of aircraft storage hangar capacity may be needed through the long-term planning period in order to meet potential aviation demand. To accommodate future aviation demand, approximately five acres is designated for aviation related development located immediately west of the Aspen Helicopters facility and south of Taxiway F. Furthermore, to maximize the use of existing airport property, the redevelopment of two existing hangar facilities is proposed directly west of the Golden West Jet Center FBO. As presented on **Exhibit T**, future demands will ultimately dictate the layout, size, and type of hangar facilities that could be built.

As previously described, aviation fuel is currently stored in four underground 12,000-gallon tanks located immediately east of the Golden West Jet Center FBO. Two of the underground fuel tanks are designated for Jet A fuel, while the other two are designated for 100LL fuel. Fuel is dispensed from the underground tanks to fuel trucks operated by Aspen Helicopters/Oxnard Jet Center and Golden West Jet Center. Based upon recent communication with airport staff, it is of interest to the airport to relocate and construct an above ground fuel farm, which would ease and improve tank maintenance and inspection as well as reduce the risk of contaminating the environment due to a fuel leak. As a result, two locations for the relocated fuel farm are presented on **Exhibit T**. Each potential above ground fuel farm location considers four 12,000-gallon tanks, two designated for Jet A and two designated for 100LL. The first location is on the west end of the airfield, north of the perimeter service road. The second fuel farm location is proposed in the southwest corner of the aviation related development area, immediately west of the Aspen Helicopter facility.

Finally, any significant landside development, particularly in the proposed aviation development and redevelopment areas, could be limited by the existing utility infrastructure, or the lack thereof. Minimum water flow requirements (for sprinkler and firefighting purposes) may vary depending upon the type of hangars and facilities built, requiring water storage and pumping capabilities. All future development should consider enhancements to utility infrastructure that could include increased water storage and pumping capacity, sewer, and improved electrical and natural gas capabilities.

CAPITAL IMPROVEMENT PROGRAM

The analyses completed in the preceding section outlined airside and landside development needs to meet projected aviation demand based on forecast activity, facility requirements, safety standards, and operational efficiency. This section will provide a description and overall cost of each project identified in the capital improvement program (CIP) and development schedule. The program outlined has been evaluated from a variety of perspectives and represents a comparative analysis of basic budget factors, demand, and priority assignments.

The CIP is developed following FAA and CALTRANS guidelines for airport planning and primarily identifies those projects that are likely eligible for FAA and/or CALTRANS funding assistance. Other aviation projects that are not programmed to receive federal and/or state funding participation are also presented.

While the FAA requires the airport to submit a five-year Airport Capital Improvement Program (ACIP) each year, the planning effort affords the opportunity to examine projects (and their potential financing) beyond the short-term planning horizon. Several factors may influence the timing of projects beyond the short-term planning period. Therefore, greater flexibility must be considered with regard to their implementation. The timing for capacity-related projects, such as hangar construction or aviation redevelopment, will need to be based upon activity levels (e.g., operations, based aircraft) and the types of aircraft using the facility. Other projects, such as property acquisition for the protection of the airfield safety areas, focus on meeting FAA design standards and providing a safe operating environment. Finally, over the course of any ACIP, consideration must be given to the ongoing maintenance and preservation of airfield pavements. Consequently, this planning document must remain flexible to unforeseen changes which may occur over time. The OXR five-year ACIP as well as projects beyond the short-term CIP are shown on **Exhibit U**, while **Exhibit V** graphically depicts the CIP overlaid onto the airport aerial photograph and broken out into planning horizons.

CAPITAL IMPROVEMENT SUMMARY

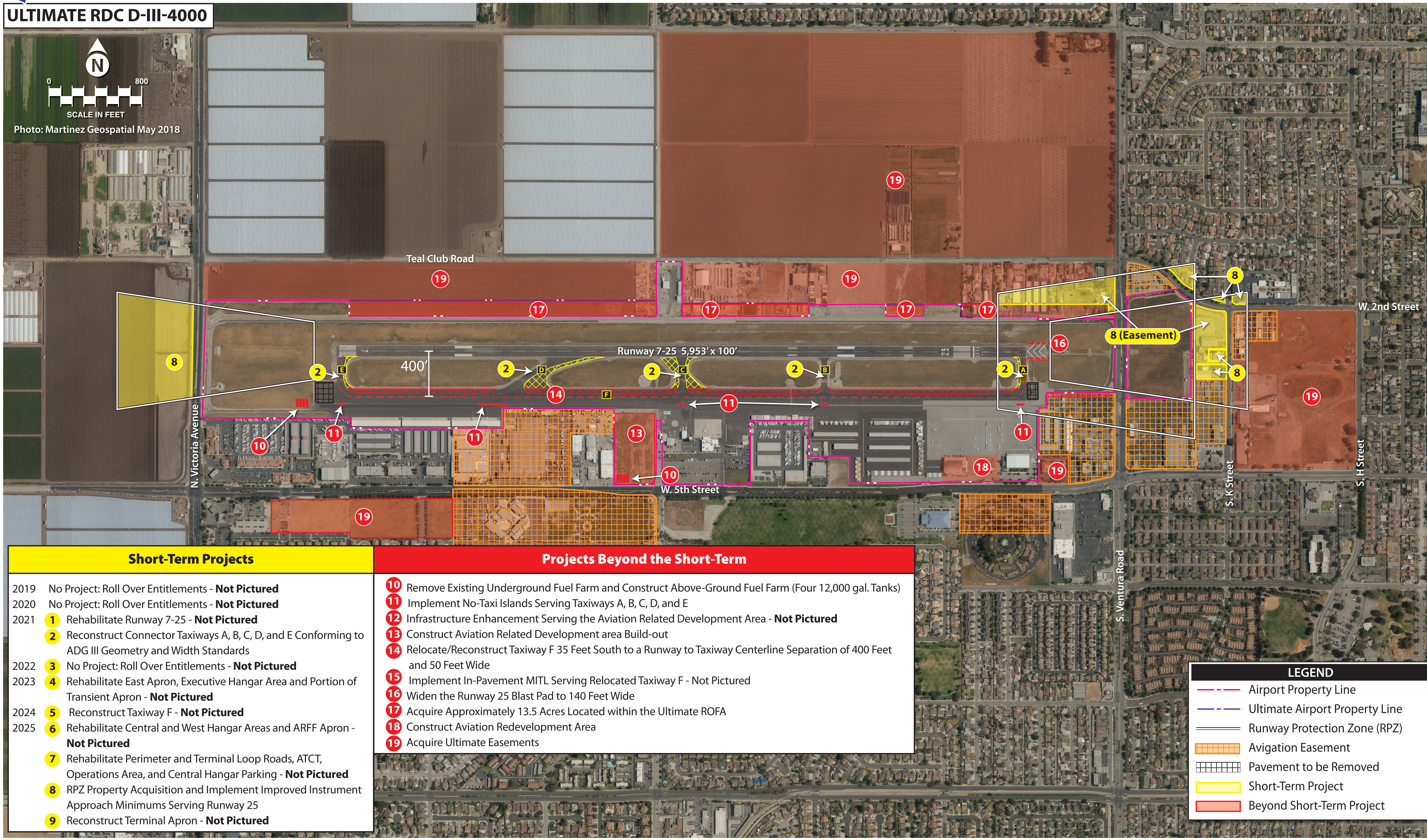
The CIP is intended as a road map of airport improvements to help guide the Ventura County Department of Airports, the FAA, and CALTRANS. The plan as presented will help accommodate increases in forecast demand at OXR over the next five years and beyond. The sequence of projects may change due to availability of funds or changing priorities. Nonetheless, this is a comprehensive list of capital projects the airport should consider in the next 5+ years.

Program	Project Year		Project Number and Description	Project Category	Federal Funding	State Fuding	Airport/Local Share	Total Project Cost Estimate
Short Term Program	2019	-	No Project: Roll Over Entitlements	N/A	$-	$-	$-	$-
			2019 Total		***$-***	***$-***	***$-***	***$-***
	2020	-	No Project: Roll Over Entitlements	N/A	$-	$-	$-	$
			2020 Total		***$-***	***$-***	***$-***	***$-***
	2021	1	Rehabilitate Runway 7-25	SS/MN	$11,652,242	$582,612	$712,081	$12,946,935
		2	Reconstruct Connector Taxiways A, B, C, D, and E Conforming to ADG III Geometry and Width Standards	SS/MN	$5,000,400	$250,020	$305,580	$5,556,000
			2021 Total		***$16,652,642***	***$832,632***	***$1,017,661***	***$18,502,935***
	2022	3	No Project: Roll Over Entitlements	N/A	$-	$-	$-	$-
			2022 Total		***$-***	***$-***	***$-***	***$-***
	2023	4	Rehabilitate East Apron, Executive Hangar Area and Portion of Transient Apron	SS/MN	$793,800	$39,690	$48,510	$882,000
			2023 Total		***$793,800***	***$39,690***	***$48,510***	***$882,000***
	2024	5	Reconstruct Taxiway F	SS/MN	$6,285,240	$314,262	$384,098	$6,983,600
			2024 Total		***$6,285,240***	***$314,262***	***$384,098***	***$6,983,600***
	2025	6	Rehabilitate Central and West Hangar Areas and ARFF Apron	SS/MN	$550,448	$27,522	$33,638	$611,609
		7	Rehabilitate Perimeter and Terminal Loop Roads, ATCT, Operations Area, and Central Hangar Parking	MN	$721,436	$36,072	$44,088	$801,596
		8	RPZ Property Acquisition and Implement Improved Instrument Approach Minimums Serving Runway 25	SS	$7,690,500	$384,525	$469,975	$8,545,000
		9	Reconstruct Terminal Apron	SS/MN	$2,523,600	$126,180	$154,220	$2,804,000
			2025 Total		***$11,485,985***	***$574,299***	***$701,921***	***$12,762,205***
			Total Short Term Program		**$35,217,666**	**$1,760,883**	**$2,152,191**	**$39,130,740**
Projects Beyond Short Term Program		10	Remove Existing Underground Fuel Farm and Construct Above-Ground Fuel Farm (Four 12,000 gal. Tanks)	DM/OP	$1,111,410	$55,571	$67,920	$1,234,900
		11	Implement No-Taxi Islands Serving Taxiways A, B, C, D, and E	SS	$23,130	$1,157	$1,414	$25,700
		12	Infrastructure Enhancement Serving the Aviation Related Development Area	DM/OP	$-	$-	$385,000	$385,000
		13	Construct Aviation Related Development area Build-out	DM/OP	$-	$-	$7,000,000	$7,000,000
		14	Relocate/Reconstruct Taxiway F 35 Feet South to a Runway to Taxiway Centerline Separation of 400 Feet and 50 Feet Wide	MN	$4,428,540	$221,427	$270,633	$4,920,600
		15	Implement In-Pavement MITL Serving Relocated Taxiway F	SS	$495,900	$30,305	$24,795	$551,000
		16	Widen the Runway 25 Blast Pad to 140 Feet Wide	SS	$32,310	$1,975	$1,616	$35,900
		17	Acquire Approximately 13.5 Acres Located within the Ultimate ROFA	SS	$5,740,920	$350,834	$287,046	$6,378,800
		18	Construct Aviation Redevelopment Area	DM/OP	$-	$-	$3,010,000	$3,010,000
		19	Acquire Ultimate Easements	OP	$56,558,250	$3,456,338	$2,827,913	$62,842,500
			Projects Beyond Short Term Program Total		**$68,390,460**	**$4,117,605**	**$13,876,335**	**$86,384,400**
			Capital Improvement Program Total		**$103,608,126**	**$5,878,488**	**$16,028,526**	**$125,515,140**

Category Legend:

SS - Safety/Security | EN - Environmental | MN - Maintenance | EF - Efficiency | DM - Demand | OP - Opportunity | N/A - Not Applicable

ULTIMATE RDC D-III-4000



Short-Term Projects

2019		No Project: Roll Over Entitlements - **Not Pictured**
2020		No Project: Roll Over Entitlements - **Not Pictured**
2021	1	Rehabilitate Runway 7-25 - **Not Pictured**
	2	Reconstruct Connector Taxiways A, B, C, D, and E Conforming to ADG III Geometry and Width Standards
2022	3	No Project: Roll Over Entitlements - **Not Pictured**
2023	4	Rehabilitate East Apron, Executive Hangar Area and Portion of Transient Apron - **Not Pictured**
2024	5	Reconstruct Taxiway F - **Not Pictured**
2025	6	Rehabilitate Central and West Hangar Areas and ARFF Apron - **Not Pictured**
	7	Rehabilitate Perimeter and Terminal Loop Roads, ATCT, Operations Area, and Central Hangar Parking - **Not Pictured**
	8	RPZ Property Acquisition and Implement Improved Instrument Approach Minimums Serving Runway 25
	9	Reconstruct Terminal Apron - **Not Pictured**

Projects Beyond the Short-Term

10. Remove Existing Underground Fuel Farm and Construct Above-Ground Fuel Farm (Four 12,000 gal. Tanks)
11. Implement No-Taxi Islands Serving Taxiways A, B, C, D, and E
12. Infrastructure Enhancement Serving the Aviation Related Development Area - **Not Pictured**
13. Construct Aviation Related Development area Build-out
14. Relocate/Reconstruct Taxiway F 35 Feet South to a Runway to Taxiway Centerline Separation of 400 Feet and 50 Feet Wide
15. Implement In-Pavement MITL Serving Relocated Taxiway F - Not Pictured
16. Widen the Runway 25 Blast Pad to 140 Feet Wide
17. Acquire Approximately 13.5 Acres Located within the Ultimate ROFA
18. Construct Aviation Redevelopment Area
19. Acquire Ultimate Easements

Acreage calculations are approximated for planning purposes only and not tied to legal descriptions.

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Total, the five-year CIP proposes approximately $39.1 million in airport development needs. Of this total, approximately $35.2 million could be eligible for federal and $1.8 million for state funding assistance. The local funding estimate for the proposed CIP is $2.2 million. For projects planned beyond the short-term planning period, the CIP proposes an estimated $125.5 million in airport development.

FUNDING SOURCES

Through federal legislation over the years, various grant-in-aid programs have been established to develop and maintain a system of public-use airports across the United States. The purpose of this system and its federally based funding is to maintain national defense and to promote interstate commerce. Recent legislation affecting federal funding was enacted on February 17, 2012 and was titled, the *FAA Modernization and Reform Act of 2012*. The law authorized FAA appropriations (AIP) at $3.35 billion for fiscal years 2012 through 2015. In 2016, Congress passed legislation (H.R. 636, *FAA Extension, Safety, and Security Act of 2016*) amending the law to expire on September 30, 2017. Subsequently, Congress passed a bill (H.R. 3823, *Disaster Tax Relief and Airport and Airway Extension Act of 2017*) authorizing appropriations to the FAA through March 31, 2018, and the *Consolidated Appropriations Act, 2018*, extended FAA's funding and authority through September 30, 2018. In October 2018, Congress passed legislation entitled, *FAA Reauthorization Act of 2018*, which will fund the FAA's AIP at $3.35 billion annually until 2023.

Several projects identified in the CIP are eligible for FAA funding through the AIP, which provides entitlement funds to airports based, in part, on their annual enplaned passengers and pounds of landed cargo weight. Additional AIP funds, designated as discretionary, may also be used for eligible projects based on the FAA's national priority system. Although the AIP has been reauthorized several times and the funding formulas have been periodically revised to reflect changing national priorities, the program has remained essentially the same. Public use airports that serve civil aviation, like OXR, may receive AIP funding for eligible projects, as described in FAA's *Airport Improvement Program Handbook.* The airport must fund the remaining project costs using a combination of other funding sources, as discussed further below.

Eligible airports, which include those in the *National Plan of Integrated Airport Systems* (NPIAS), such as OXR, can apply for airport improvement grants. **Table LL** presents the approximate distribution of the AIP funds as described in FAA Order 5100.38D, Change 1, *Airport Improvement Program Handbook*, issued February 26, 2019. Currently, the airport is eligible to apply for grants which may be funded through several categories.

Funding for AIP-eligible projects is undertaken through a cost-sharing arrangement in which the FAA share varies by airport size and is generally 75 percent for large and medium hub airports and 90 percent for all other airports. As a Regional GA airport, the federal share of eligible capital improvement projects for OXR is 90 percent. In exchange for this level of funding, the airport sponsor is required to meet various Grant Assurances, including maintaining the improvement for its useful life, usually 20 years.

AIP funds are sourced from the Aviation Trust Fund, which was established in 1970 to provide funding for aviation capital investment programs (aviation development, facilities and equipment, and research and development). The Aviation Trust Fund also finances the operation of the FAA and is funded by user fees, including taxes on airline tickets, aviation fuel, and various aircraft parts.

TABLE LL | Federal AIP Funding Distribution

Funding Category	Percent of Total	Funds*
Apportionment/Entitlement		
Passenger Entitlements	27.01%	$904,840,000
Cargo Entitlements	3.50%	$117,250,000
Alaska Supplemental	0.67%	$22,450,000
Nonprimary Entitlements	12.01%	$402,340,000
State Apportionment	7.99%	$267,670,000
Carryover	22.85%	$765,480,000
Small Airport Fund		
Small Hubs	2.33%	$78,060,000
Nonhubs	4.67%	$156,450,000
Nonprimary (GA and Reliever)	9.33%	$312,560,000
Discretionary		
Capacity/Safety/Security/Noise	4.36%	$146,060,000
Pure Discretionary	1.45%	$48,580,000
Set Asides		
Noise and Environmental	3.37%	$112,900,000
Military Airports Program	0.39%	$13,070,000
Reliever	0.06%	$2,010,000
Totals	**100.00%**	**$3,350,000,000**

* FAA *Modernization and Reform Act of 2018*
AIP: Airport Improvement Program
Source: FAA Order 5100.38D, Change 1, Airport Improvement Program Handbook

Apportionment (Entitlement) Funds

AIP provides funding for eligible projects at airports through an apportionment (entitlement) program. Primary commercial service airports receive a guaranteed minimum level of federal assistance each year, based on their enplaned passenger levels and Congressional appropriation levels. A primary airport is defined as any commercial service airport enplaning at least 10,000 passengers annually. If the threshold is met, the airport receives $1 million annually in entitlement funds. OXR is not eligible as it is not enplaning passengers. Other entitlement funds are distributed to cargo service airports, states and insular areas (state apportionment), and Alaska airports.

Non-primary airports included in the NPIAS, such as OXR, can receive up to $150,000 each year in non-primary entitlement (NPE) funds. These funds can be carried over and combined for up to four years, thereby allowing for completion of a more expensive project.

The FAA also provides a state apportionment based on a federal formula that considers area and population. The FAA then distributes these funds for projects at various airports throughout the state.

Small Airport Fund

If a large or medium hub commercial service airport chooses to institute a passenger facility charge (PFC), which is a fee of up to $4.50 on each airline ticket for funding of capital improvement projects, then their apportionment is reduced. A portion of the reduced apportionment goes to the small airport fund. The small airport fund is reserved for small-hub primary commercial service airports, nonhub commercial service airports, reliever, and general aviation airports. As a Regional GA airport, OXR is eligible for funds from this source.

Discretionary Funds

In a number of cases, airports face major projects that will require funds in excess of the airport's annual entitlements. Thus, additional funds from discretionary apportionments under AIP become desirable. The primary feature about discretionary funds is that they are distributed on a priority basis. The priorities are established by the FAA, utilizing a priority code system. Under this system, projects are ranked by their purpose. Projects ensuring airport safety and security are ranked as the most important priorities, followed by maintaining current infrastructure development, mitigating noise and other environmental impacts, meeting standards, and increasing system capacity.

It is important to note that competition for discretionary funding is not limited to airports in the State of California or those within the FAA Western Pacific Region. The funds are distributed to all airports in the country and, as such, are more difficult to obtain as competition for these grants is high. High priority projects will often fare favorably, while lower priority projects may not receive discretionary grants.

Set-Aside Funds

Portions of AIP funds are set-asides designed to achieve specific funding minimums for noise compatibility planning and implementation, select former military airfields (Military Airports Program), and select reliever airports. OXR is not eligible for this funding category as a Regional GA airport.

FAA Facilities and Equipment (F&E) Program

The Airway Facilities Division of the FAA administers the Facilities and Equipment (F&E) Program. This program provides funding for the installation and maintenance of various navigational aids and equipment of the national airspace system. Under the F&E program, funding is provided for FAA airport traffic control towers (ATCTs), en route navigational aids, on-airport navigational aids, and approach lighting systems.

While F&E still installs and maintains some navigational aids, on-airport facilities at general aviation airports have not been a priority. Therefore, airports often request funding assistance for navigational aids through AIP and then maintain the equipment on their own[1].

[1] Guidance on the eligibility of a project for federal AIP grant funding can be found in FAA Order 5100.38D, *Airport Improvement Program Handbook*, which can be accessed at: http://www.faa.gov/airports/aip/aip_handbook/media/AIP-Handbook-Order-5100-38D

STATE FUNDING PROGRAMS

All state grant programs for airports are funded from the Aeronautics Account in the California 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.

The Revenue and Taxation Code spells out the priority for expenditure of funds:

- Administration and collection of taxes;
- Operations of Division of Aeronautics; and
- Grants to airports.

The Public Utilities Code further specifies the priority allocation of Aeronautics Account funds to airports:

- Annual Credit Grants;
- AIP Matching; and
- Acquisition and Development (A&D) grants.

Annual Credit Grants

To receive an Annual Credit, an airport cannot be designated by the FAA as a reliever or commercial service airport. The Annual Credit can fund projects for airport and aviation purposes as defined in the *State Aeronautics Act*. It can also be used to fund operations, fueling facilities, restrooms, aircraft wash racks, and to match federal AIP grants. The annual funding level is $10,000; up to five years' worth of Annual Credits may be accrued at the sponsor's discretion. No local match is required. As a general aviation airport, OXR is eligible for Annual Credits.

AIP Matching Grants

An FAA AIP grant can be matched with state funds; the current matching rate is five percent of the federal portion of the total project cost. 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 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. State matching is limited to non-commercial service airports, such as OXR. In the past, the Airport has received State AIP matching funds.

Acquisition and Development (A&D) Grants

This grant program is open to general aviation, reliever, and commercial service airports. A city or county may also 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 airport 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 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 is typical. The Annual Credits may not be used for the local match to an A&D grant. **Table MM** presents a list of eligible projects for the Annual Credit and A&D Grant programs.

TABLE MM | Eligible Projects for Caltrans Funds

Eligible for Annual Credits and A&D Grants	
A	Obstruction Removal. Removal of obstructions from runway safety areas, RPZs or approach surfaces, and other imaginary surfaces, if they have been determined by the FAA or the Department to be a hazard.
B	Radios. Aviation radio equipment and facilities.
C	Land. Acquisition of land and avigation easements.
D	Lighting. Purchase and installation of runway, taxiway, boundary, or obstruction lights, with directly related electrical equipment, to meet general aviation needs.
E	Fencing. Minimum security fencing around the perimeter of an airport for general aviation purposes.
F	Transient Parking. Construction/reconstruction of transient general aviation aircraft parking areas.
G	Bond Service. Servicing of revenue or general obligation bonds that have been issued to finance airport capital improvements.
H	Navaids. Air navigation aids, including rotating beacons, runway end identifier lights, and localizer transmitters.
I	Airport marking systems, such as segmented circles, wind socks, traffic pattern indicators, and wind tees.
J	Noise monitoring equipment to meet general aviation needs.
K	Project Services. Engineering for eligible construction projects; appraisal and escrow fees for land acquisition.
L	Runways and Taxiways. Construction and reconstruction.
M	Service roads that are not open to the public.
N	Surfacing of runways, taxiways, and aircraft parking areas to GA standards.
O	Water supply and sanitary disposal systems for airport use.
P	ALP Update and Narrative Reports and airport layout plans.
Q	Comprehensive Land Use Plan (CLUP). Activities of an airport land use commission (ALUC) to prepare or update a CLUP.
Eligible for Annual Credits but not A&D Grants	
R	Operations and Maintenance (wages/salaries, utilities, service vehicles, and all other noncapital expenditures).
S	GA fueling facilities.
T	Restrooms/showers.
U	GA airplane wash racks.

Source: CALTRANS

California Airport Loan Program

The Local Airport Loan Program provides low interest discretionary state loans to eligible airports for projects that enhance an airport's ability to provide general aviation services (e.g., hangars, GA terminals, utilities, GA fuel facilities, A&D eligible projects, etc.). A loan may also provide the local share for an AIP grant. Such loans can be used in conjunction with state-funded AIP matching grants. The maximum term of a loan is 17 years.

There are three different types of loans available under this program.

1. Revenue Generation
2. Matching Funds
3. Airport Development

Loans are subject to state audit. Records that substantiate the expenditure of loan monies should be retained until three years after the retirement of the loan. Funds may have to be repaid by the sponsor if an audit finds that state law or generally accepted accounting principles have been violated.

LOCAL FUNDING

The balance of project costs, after consideration has been given to grants, must be funded through local resources. A goal for any airport is to generate enough revenue to cover all operating and capital expenditures, if possible.

There are several local financing options to consider when funding future development at airports, including airport revenues, issuance of a variety of bond types, and leasehold financing. These strategies could be used to fund the local matching share or complete a project if grant funding cannot be arranged. Below is a brief description of the most common local funding options.

Airport Revenues

The airport's daily operations are conducted through the collection of various rates and charges. These airport revenues are generated specifically by airport operations. There are restrictions on the use of revenues collected by the airport. All receipts, excluding bond proceeds or related grants and interest, are irrevocably pledged to the punctual payment of operating and maintenance expenses, payment of debt service for as long as bonds remain outstanding, or for additions or improvements to airport facilities.

All airports should establish standard basis rates for various leases. All lease rates should be set to adjust to a standard index, such as the consumer price index (CPI), to assure that fair and equitable rates continue to be charged into the future. Many factors will impact what the standard lease rate should be for a particular facility or ground parcel. For example, ground leases for aviation-related facilities should have a different lease rate than for non-aviation leases. When airports own hangars, a separate facility lease rate should be charged. The lease rate for any individual parcel or hangar can vary due to availability of utilities, condition, location, and other factors. Nonetheless, standard lease rates should fall within an acceptable range.

Bonding

Bonding is a common method to finance large capital projects at airports. A bond is an instrument of indebtedness of the bond issuer to the bond holders, thus a bond is a form of loan or IOU. While bond terms are negotiable, typically the bond issuer is obligated to pay the bond holder interest at regular intervals and/or repay the principal at a later date.

Leasehold Financing

Leasehold financing refers to a developer or tenant financing improvements under a long-term ground lease. The advantage of this arrangement is that it relieves the airport of the responsibility of having to raise capital funds for the improvement. As an example, an FBO might consider constructing hangars and charging fair market lease rates, while paying the airport for a ground lease. A fuel farm can be undertaken in the same manner with the developer of the facility paying the airport a fuel flowage fee.

Customer Facility Charge (CFC)

A CFC is the imposition of an additional fee charged to customers for the use of certain facilities. The most common example is when an airport constructs a consolidated rental car facility and imposes a fee for each rental car contract. That fee is then used by the airport to pay down the debt incurred from building the facility.

Non-Aviation Development

In addition to generating revenue from traditional aviation sources, airports with excess land can permit compatible non-aviation development. Generally, an airport will extend a long-term lease for land not anticipated to be needed for aviation purposes in the future. The developer then pays the monthly lease rate and constructs and uses the compatible facility. Certain areas at OXR are available for non-aviation development. It should be noted that each individual proposed non-aviation development must be reviewed and approved by the FAA.

Special Events

Another common revenue-generating option is permitted use of airport property for temporary or single events. For example, OXR has historically hosted a fly-in that attracts thousands of spectators from around the region. Airports can also permit portions of their facility to be utilized for non-aviation special events, such as car shows or video production of commercials. This type of revenue generation must be approved by the FAA.

PLAN IMPLEMENTATION

When implementing the CIP, the airport must recognize that planning is a continuous process and does not end with the approval of this document. It is recommended that the airport establish measures to track certain demand indicators, such as based aircraft, hangar demand, and operations.

It should be noted that actual need for facilities is best established by activity levels rather than a specified date. For example, projections have been made as to when additional hangars may be needed at the airport. In reality, the timeframe in which the development is needed may be substantially different. Actual demand may be slower to develop than expected. On the other hand, high levels of demand may establish the need to accelerate development. Although every effort has been made in this planning process to conservatively estimate facility development, aviation demand will dictate timing of facility improvements.

In summary, the planning process requires the Ventura County Department of Airports to consistently monitor the progress of OXR in terms of based aircraft, hangar demand, and operations. Analysis of aircraft demand is critical to the timing and need for new airport facilities.

APPENDIX A
GLOSSARY OF TERMS

COUNTY of VENTURA
Department of Airports

GLOSSARY OF TERMS

A

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) transports 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.

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 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 Traffic Control System Command Center: A facility operated by the FAA which is responsible for the central flow control, the central altitude reservation system, the airport reservation position system, and the air traffic service contingency command for the air traffic control system.

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.

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

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

Aircraft Operations Area (AOA): 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 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.

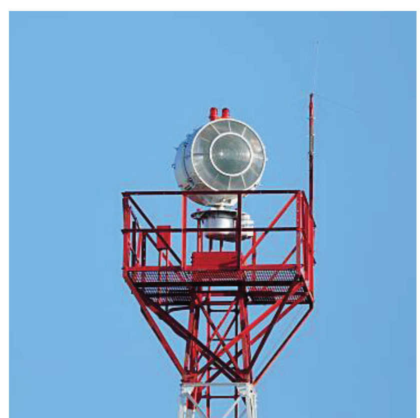
Airline Hub: An airport at which an airline concentrates a significant portion of its activity and which often has a significant amount of connecting traffic.

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 Beacon

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 Improvement Program: A program authorized by the Airport and Airway Improvement Act of 1982 that provides funding for airport planning and development.

Airport Layout Drawing (ALD): The drawing of the airport showing the layout of existing and proposed airport facilities.

Airport Layout Plan (ALP): A scaled drawing of the existing and planned land and facilities necessary for the operation and development of the airport.

Airport Layout Plan Drawing Set: A set of technical drawings depicting the current and future airport conditions. The individual sheets comprising the set can vary with the complexities of the airport, but the FAA-required drawings include the Airport Layout Plan (sometimes referred to as the Airport Layout Drawing (ALD), the Airport Airspace Drawing, and the Inner Portion of the Approach Surface Drawing, On-Airport Land Use Drawing, and Property Map.

Airport Master Plan: A local planning document that serves as a guide for 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 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.

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

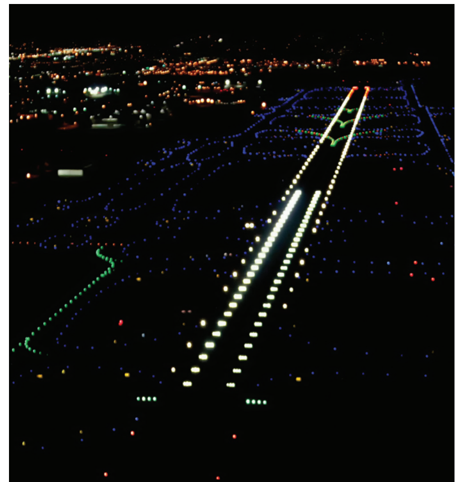
Airspace: The volume of space above the surface of the ground that is provided for the operation of aircraft.

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 final approach and landing.


Approach Lighting System

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.

Automatic Weather Observation System (AWOS): Equipment used to automatically record weather conditions (i.e., cloud height, visibility, wind speed and direction, temperature, dew point, 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).

B

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.


Blast Fence

C

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.

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 (CTAF): 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.

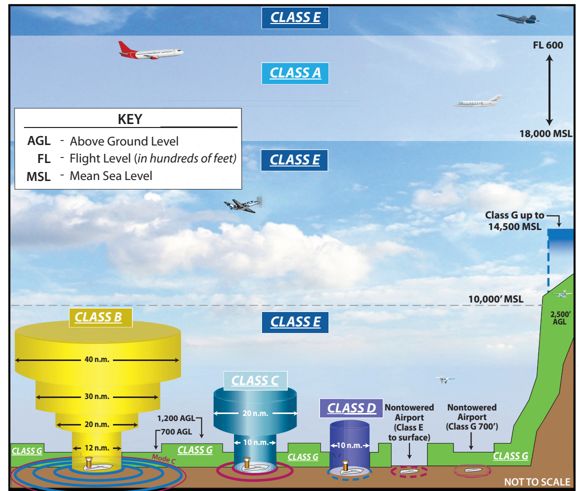
Compass Locator (LOM): A low power, low/medium frequency radio-beacon installed in conjunction with the instrument landing system at one or two of the marker sites.

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.



Airspace Classifications

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 airport elevation (charted as MSL) surrounding those airports that have an operational control tower. Class D airspace is individually tailored and configured to encompass published instrument approach procedure. 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."

D

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

Decision Height/Decision Altitude: 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:

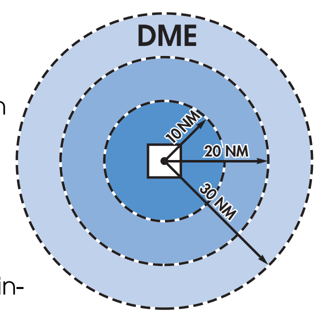
- **Takeoff Run Available (TORA):** The runway length declared available and suitable for the ground run of an airplane taking off.
- **Takeoff Distance Available (TODA):** The TORA plus the length of any remaining runway and/or clear way beyond the far end of the TORA.
- **Accelerate-stop Distance Available (ASDA):** The runway plus stopway length declared available for the acceleration and deceleration of an aircraft aborting a takeoff.
- **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 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."

E

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 nonscheduled 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 or 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.

F

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.

Federal Inspection Services: The provision of customs and immigration services including passport inspection, inspection of baggage, the collection of duties on certain imported items, and the inspections for agricultural products, illegal drugs, or other restricted items.

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."

Final Approach and Takeoff Area (FATO): A defined area over which the final phase of the helicopter approach to a hover, or a landing is completed and from which the takeoff is initiated.

Final Approach Fix: The designated point at which the final approach segment for an aircraft landing on a runway begins for a non-precision approach.

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 measure of altitude used by aircraft flying above 18,000 feet. Flight levels are indicated by three digits representing the pressure altitude in hundreds of feet. An airplane flying at flight level 360 is flying at a pressure altitude of 36,000 feet. This is expressed as FL 360.

Flight Service Station (FSS): 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 preflight 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.

G

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.

General Aviation Airport: An airport that provides air service to only general aviation.

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

- Electronic components emitting signals which provide vertical guidance by reference to airborne instruments during instrument approaches such as ILS; or
- Visual ground aids, such as PAPI, 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 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.

Ground Based Augmentation System (GBAS): A program that augments the existing GPS system by providing corrections to aircraft in the vicinity of an airport in order to improve the accuracy of these aircrafts' GPS navigational position

H

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

High Intensity Runway Lights (HIRL): 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: An acute-angled exit taxiway forming a 30 degree angle with the runway centerline, designed to allow an aircraft to exit a runway without having to decelerate to typical taxi speed.

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.

Hot Spot: A location on an airport movement area with a history of potential risk of collision or runway incursion, and where heightened attention by pilots and drivers is necessary.

I

Initial Approach Fix: The designated point at which the initial approach segment begins for an instrument approach to a 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	3. Outer Marker	5. Approach Lights
2. Glide Slope	4. Middle Marker	

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 arriving from outside the traffic pattern or departing the airport traffic pattern.

K

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

L

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 Operations: Aircraft operations performed by aircraft 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. 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.


Localizer

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.

M

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.

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:

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

N

National Airspace System (NAS): The network of air traffic control facilities, air traffic control areas, and navigational facilities through the U.S.

National Plan Of Integrated Airport Systems (NPIAS): 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.)

Navigational Aid: A facility used as, available for use as, or designed for use as an aid to air navigation.

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 their 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 Air Missions (NOTAM): 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.

O

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: The take-off, landing, or touch-and-go procedure by an aircraft on a runway at an airport.

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.

P

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 minimal less than Category II.

Precision Approach Path Indicator (PAPI): A lighting system providing visual approach slope guidance to aircraft during a landing approach. A PAPI normally consists of four light units but an abbreviated system of two lights is acceptable for some categories of aircraft.


Precision Approach Path Indicator

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 Zone (POFZ): 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 POFZ is a clearing standard which requires the POFZ to be kept clear of above ground objects protruding above the runway safety area edge elevation (except for frangible NAVAIDS). The POFA is only in effect when the approach includes vertical guidance, the reported ceiling is below 250 feet, and an aircraft is on final approach within two miles of the runway threshold.

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 Service Volume. PVC conditions exist when the cloud ceiling is less than 500 feet and visibility is less than one mile.

R

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 (RAIL): 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 Design Code: A code signifying the FAA design standards to which the runway is to be built.

Runway End Identification Lighting (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.

REIL

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 minimal.

Runway Reference Code: A code signifying the current operational capabilities of a runway and taxiway.

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 sight 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.

S

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, often co-located with a wind cone.

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 Aircraft: An aircraft 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 Instrument Departure Procedures: A published standard flight procedure to be utilized following takeoff to provide a transition between the airport and the terminal area or enroute airspace.

Standard Terminal Arrival Route (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.

T

Tactical Air Navigation (TACAN): An ultrahigh 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: A taxiway designed for low speed and precise taxiing. Taxilanes are usually, but not always, located outside the movement area and provide access to from taxiways to aircraft parking positions and other terminal areas.

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

Taxiway Design Group: A classification of airplanes based on outer to outer Main Gear Width (MGW) and Cockpit to Main Gear (CMG) distance.

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 enroute 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.

Tetrahedron

Threshold: The beginning of that portion of the runway available for landing. In some instances, the 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.

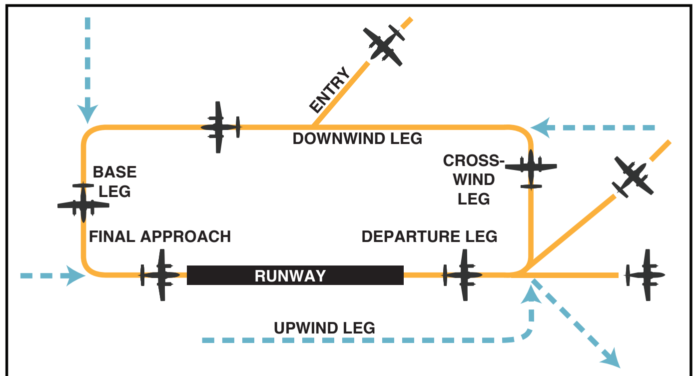
Touchdown and Lift-off Area (TLOF): A load bearing, generally paved area, normally centered in the FATO, on which a helicopter lands or takes off.

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 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.



Traffic Pattern

U

Uncontrolled Airport: An airport without an airport 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 UNICOMs 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."

V

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

Very High Frequency/ Omnidirectional Range (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 Omnidirectional Range/ Tactical Air Navigation (VORTAC): A navigation aid providing VOR azimuth, TACAN azimuth, and TACAN distance-measuring equipment (DME) at one site.

Victor Airway: A system of established routes that run along specified VOR radials, from one VOR station to another.

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. The VASI is now obsolete and is being replaced with the PAPI.

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.

Visual Runway: A runway without an existing or planned instrument approach.

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

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

W

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.

Windsock/Windcone: A visual aid that indicates the prevailing wind direction and intensity at a particular location.

Windsock/Windcone

Abbreviations

AC: advisory circular

ACIP: airport capital improvement program

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)

AOA: Aircraft Operation Area

APRC: approach reference code

APV: instrument approach procedure with vertical guidance

ARC: airport reference code

ARFF: aircraft rescue and fire fighting

ARP: airport reference point

ARTCC: air route traffic control center

ASDA: accelerate-stop distance available

ASR: airport surveillance radar

ASOS: automated surface observation station

ATC: airport traffic control

ATCT: airport traffic control tower

ATIS: automated terminal information service

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

AWOS: automatic weather observation station

BRL: building restriction line

CFR: Code of Federal Regulation

CIP: capital improvement program

DME: distance measuring equipment

DNL: day-night noise level

DPRC: departure reference code

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

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

FAA: Federal Aviation Administration

FAR: Federal Aviation Regulation

FBO: fixed base operator

FY: fiscal year

GA: general aviation

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

LNAV: lateral navigation

LOC: localizer

LOM: compass locator at outer marker

LP: localizer performance

LPV: localizer performance with vertical guidance

MALS: medium intensity approach lighting system

MALSR: MALS with runway alignment indicator lights

MALSF: MALS with sequenced flashers

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

MTOW: maximum takeoff weight

NAVAID: navigational aid

NDB: nondirectional radio beacon

NEPA: National Environmental Policy Act

NM: nautical mile (6,076.1 feet)

NPDES: National Pollutant Discharge Elimination System

NPIAS: National Plan of Integrated Airport Systems

NPRM: notice of proposed rule making

ODALS: omnidirectional approach lighting system

OFA: object free area

OFZ: obstacle free zone

OM: outer marker

PAPI: precision approach path indicator

PFC: porous friction course

PFC: passenger facility charge

PCI: pavement condition index

PCL: pilot-controlled lighting

PIW: public information workshop

POFZ: precision object free zone

PVC: poor visibility and ceiling

RCO: remote communications outlet

RDC: runway design code

REIL: runway end identification 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 runway alignment indicator lights

STAR: standard terminal arrival route

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

TACAN: tactical air navigational aid

TAF: Federal Aviation Administration (FAA) Terminal Area Forecast

TDG: taxiway design group

TLOF: Touchdown and lift-off

TDZ: touchdown zone

TDZE: touchdown zone elevation

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

WAAS: wide area augmentation system

APPENDIX B

FORECAST APPROVAL

COUNTY of VENTURA
Department of Airports

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

Western-Pacific Region
Airports Division
Los Angeles Airports District Office

777 S. Aviation Blvd, Suite 105
El Segundo, CA 90245

December 3, 2019

Erin Powers
Projects Administrator—County of Ventura, Department of Airports
555 Airport Way, Suite B
Camarillo, CA 93010

Oxnard Airport (OXR)
Aviation Activity Forecast Approval

Dear Ms. Powers,

The Federal Aviation Administration (FAA) has reviewed the aviation forecast for Oxnard Airport (OXR) dated November 5, 2019. The FAA approves this forecast for airport planning purposes. This approval replaces the previous forecast approval from January 17, 2019 which presented forecasts that did not expect to accommodate commercial service activities in the short-term planning horizon. As described in your letter (enclosed), OXR has since developed a scenario which evaluated the return of commercial service.

Draft documents of the Forecasts for Aviation Demand submittal analyze the design aircraft and concludes that OXR's most demanding group of aircraft that conducted at least 500 operations in 2017 is the Beechcraft King Air 200, which has an Airport Reference Code (ARC) of B-II. Based on FAA review of the Traffic Flow Management System Counts and FAA Advisory Circular 150/5000-17 *Critical Aircraft and Regular Use Determination*, the FAA agrees that OXR's ARC may change to D-III in the future, represented by the Gulfstream 650.

It is important to note that the approval of this forecast does not guarantee future funding for capital improvements as future projects will need to be justified by current activity levels reached at the time the projects are proposed for implementation and will need to be further analyzed for Airport Improvement Program eligibility purposes.

If you have any questions about this forecast approval, please call me at 424-405-7276.

Sincerely,

Brenda Perez
Digitally signed by Brenda Perez
Date: 2019.12.03 14:26:31 -08'00'

Brenda Pérez
Community Planner

Enc. Oxnard Airport ALP Update/Narrative Report—Forecast Submittal for Re-Approval of Ultimate Critical Design Aircraft

COUNTY OF VENTURA
OXR CMA
DEPARTMENT OF AIRPORTS

555 AIRPORT WAY, SUITE B
CAMARILLO, CA 93010
PHONE: (805) 388-4274
FAX: (805) 388-4366
WWW.VENTURA.ORG/AIRPORTS
WWW.IFLYOXNARD.COM

November 5, 2019

Ms. Brenda Perez, LAX-600.10
Community Planner
Federal Aviation Administration
Western-Pacific Region, Airports Division
Los Angeles Airports District Office
777 S Aviation Boulevard, Suite 150
El Segundo, CA 90245

Re: Oxnard Airport ALP Update/Narrative Report – Forecast Submittal for Re-Approval of Ultimate Critical Design Aircraft

Dear Ms. Perez:

The Ventura County Department of Airports is writing to request review and re-approval of the aviation forecasts as it relates to the ultimate critical design aircraft for the Airport Layout Plan (ALP) Update/Narrative Report study that is currently in progress for Oxnard Airport (OXR).

The original forecasts associated with this study were approved in a letter from the FAA dated January 17, 2019. Enclosed please find documents that provide a summary comparison of the study forecasts to the FAA *Terminal Area Forecast* (TAF) for Oxnard Airport. These documents are the same as those submitted with the original forecast as previously approved. Additional details regarding the study forecasts are outlined in the *Forecasts of Aviation Demand* "draft" working papers which are included with this package.

The following forecasts associated with annual aircraft operations and based aircraft are consistent with those included in the January 17, 2019, forecast approval letter. Annual aircraft operations at Oxnard Airport were derived from the FAA's Operations Network (OPSNET), which reports operational data for airports equipped with an airport traffic control tower (ATCT).

Currently, the ATCT at Oxnard Airport does not operate on a 24-hour basis. Thus, its air traffic counts are not all-inclusive of aircraft operations at the airport. For the purposes of this study, it is necessary to estimate and adjust for operations that occur when the tower is closed from 9:00 p.m. to 7:00 a.m. (local). Over a five-year period, from 2013 to 2017, approximately two percent of all operations occurring at Oxnard Airport were after operational hours of the ATCT.

To properly include this new information, the base year and resulting forecast operations were increased by two percent to account for operations occurring at Oxnard Airport after ATCT hours. The results of this calculation yield an estimate of 68,300 annual operations in the base year (2017), which is 1.8 percent higher than the TAF.

The TAF indicates modest growth in operations (0.53 percent compound annual growth rate [CAGR]), while this study forecasts slightly more growth (1.10 percent CAGR) due to a projected increase in based aircraft, future airport development, the potential for enhanced aviation services to be offered at the airport over the next several years, and the efforts underway for the resurgence of commercial airline operations at OXR. It is important to note that although the TAF and this submittal are not projecting formal forecasts for commercial service activity (aircraft operations or passenger enplanements), in the event that this activity were to be re-introduced to OXR, the associated operations would not have an impact on the overall number of annual aircraft operations forecasted given the nature and frequency of potential commercial service activity. When taking these factors into consideration, the 5-year forecast is 6.0 percent higher than the TAF, and the 10-year forecast is 9.3 percent higher than the TAF.

For based aircraft, the TAF identifies a total of 165 based aircraft in 2018; however, this planning effort identified 141 based aircraft at OXR through the use of the FAA National Based Aircraft Inventory Program as well as a based aircraft list provided by airport management. As a result, the base year count has a -14.5 percent difference from the TAF. Ultimately, the selected based aircraft forecast decreases to a -13.8 percent difference from the TAF in the five-year forecast period and further decreases to a -11.2 percent difference in the 10-year forecast.

As previously discussed, the purpose of this request is to seek re-approval of the ultimate critical design aircraft for airport planning and ALP development. The study has analyzed the Airport Reference Code (ARC) and Runway Design Code (RDC) based on existing and projected aircraft use at Oxnard Airport. For Runway 7-25, the existing ARC is B-II based on the Beechcraft King Air family of aircraft serving as the most demanding aircraft to operate at least 500 times annually at the airport over the past ten years. The study is now requesting approval for ARC D-III (Gulfstream 650) as the ultimate critical aircraft design.

This ultimate scenario is preferred by the Ventura County Department of Airports to help position Oxnard Airport for both current needs being proposed and future development potential. The based aircraft forecast associated with this study that was previously approved on January 17, 2019, indicates the potential for eight additional based jets during the 20-year planning period of this study.

Those projects also assume the inclusion of larger business jets within ARC D-III. The airport has recently been in communication with businesses interested in basing larger business jet aircraft such as the Gulfstream 650, and the County of Ventura Department of Airports has a Letter of Intent (LOI) on file from a private developer proposing a land lease and improvements for the construction of a large hangar and support facilities capable of accommodating aircraft such as the Gulfstream 650 and Global 7500 (ARC D-III aircraft).

Furthermore, Airport staff is currently working aggressively on the potential return of commercial service to Oxnard Airport. This includes planning for regional jets such as the Embraer 175 which exhibit Taxiway Design Group (TDG) 3 qualities. As such, the ultimate RDC is D-III-4000 and the ultimate Taxiway Design Group (TDG) is planned to TDG 3 design standards. Consideration of ARC D-III and TDG 3 will allow Oxnard Airport to preserve airfield infrastructure and properly plan to meet applicable design standards in order to maximize the facility's ultimate development potential.

As previously mentioned, the *Forecasts of Aviation Demand* "draft" working papers further detail the forecasts that have been prepared for this study as well as the existing and revised ultimate critical design aircraft determination. Thank you in advance for taking time to review these forecasts and I look forward to hearing back from you on this matter in the near future. Please feel free to contact myself or Matt Quick (Coffman Associates) if you have any questions.

Sincerely,

Erin Powers
Projects Administrator

C: Kip Turner – Director of Airports
Jorge Rubio – Deputy Director of Airports
Matt Quick – Coffman Associates

Enclosures: *Forecasts of Aviation Demand* "draft" working papers
2018 FAA TAF for Oxnard Airport
Airport Forecast vs. TAF Comparison templates

APPENDIX C

AIRPORT LAYOUT PLANS

COUNTY of VENTURA
Department of Airports

AIRPORT LAYOUT PLANS
OXNARD AIRPORT

DRAWING INDEX

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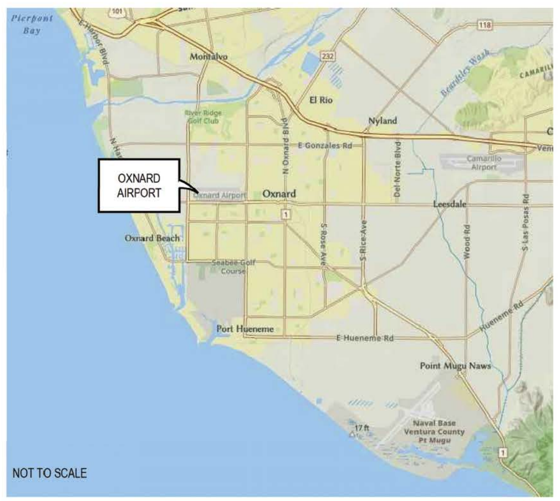
2. AIRPORT DATA SHEET
3. EXISTING AIRPORT LAYOUT PLAN DRAWING
4. ULTIMATE AIRPORT LAYOUT PLAN DRAWING
5. AIRPORT AIRSPACE DRAWING
6. AIRPORT AIRSPACE APPROACH FAN FOR RUNWAY 25
7. AIRPORT AIRSPACE PROFILES DRAWING I RUNWAY 7-25
8. AIRPORT AIRSPACE PROFILE DRAWING II RUNWAY 25
9. INNER PORTION OF THE APPROACH SURFACE FOR RUNWAY 7-25 DRAWING
10. RUNWAY 7-25 DEPARTURE SURFACE DRAWING
11. TERMINAL AREA DRAWING
12. AIRPORT LAND USE DRAWING
13. EXHIBIT "A" PROPERTY MAP

VICINITY MAP



LOCATION MAP

COUNTY MAP

FAA APPROVAL STAMP

CATHRYN G CASON
Digitally signed by CATHRYN G CASON
Date: 2022.02.14 17:12:48 -08'00'

Approved conditionally____________
Subject to comments contained in our letter dated:____________
FEDERAL AVIATION ADMINISTRATION
Western-Pacific Region
By Cathryn Cason, Manager, FAA Los Angeles Airports District Office

PREPARED FOR THE
COUNTY OF VENTURA

FOR APPROVAL BY:
Ventura County
APPROVED BY: ON THE DATE OF:
Keith Freitas
Digitally signed by Keith Freitas
Date: 2022.02.14 10:04:03 -08'00'

No.	REVISIONS	DATE	BY	APP'D.
5				
4				
3	--	--	--	--
2	--	--	--	--
1	ALP UPDATE	01/2022	--	--

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 OF 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 THE APPROPRIATE PUBLIC LAWS.

OXNARD AIRPORT

TITLE SHEET

OXNARD, CALIFORNIA

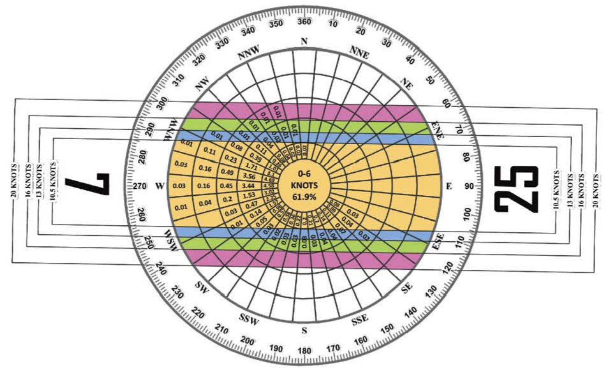
PLANNED BY: Matt Quick
DETAILED BY: Maggie Beaver
APPROVED BY: Tim Kahmann

January 2022 SHEET 1 OF 13

Coffman Associates
Airport Consultants
www.coffmanassociates.com

ALL WEATHER WIND COVERAGE

Runways	10.5 Knots	13 Knots	16 Knots	20 Knots
Runway 7-25	99.55%	99.82%	99.97%	99.99%



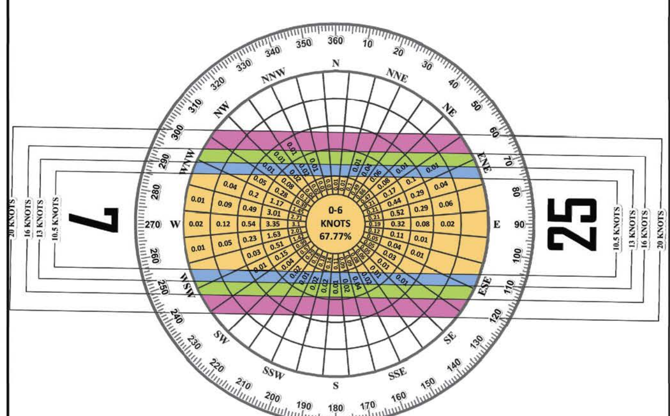
Magnetic Declination
12° 11' 00" East (April 2018)
Annual Rate of Change
00° 05' 00" West (April 2018)

SOURCE:
NOAA National Climatic Center
Asheville, North Carolina
Oxnard Airport
Oxnard, California

OBSERVATIONS:
106,039 All Weather Observations
Jan. 1, 2008 - Dec, 31 2017

VFR WEATHER WIND COVERAGE

Runways	10.5 Knots	13 Knots	16 Knots	20 Knots
Runway 7-25	99.61%	99.86%	99.98%	100.00%



SOURCE:
NOAA National Climatic Center
Asheville, North Carolina
Oxnard Airport
Oxnard, California

OBSERVATIONS:
85,363 VFR Weather Observations
Jan. 1, 2011 - Dec, 31 2020

AIRPORT DATA

CITY: OXNARD	COUNTY: VENTURA	OWNER: COUNTY OF VENTURA
OXNARD AIRPORT-(OXR)	EXISITNG	ULTIMATE
AIRPORT REFERENCE CODE (ARC)	B II	D-III
MEAN MAXIMUM TEMPERATURE OF HOTTEST MONTH	75° F (July)	SAME
AIRPORT ELEVATION (NAVD 88)	44.79'	SAME
AIRPORT NAVIGATIONAL AIDS	PAPI-4 (NTL)	SAME
	REILs 7 (State)	SAME
	MALSF(25) (State)	SAME
	ILS(25) (FAA)	SAME
	BEACON	SAME
AIRPORT REFERENCE POINT (ARP)	Latitude N34° 12' 02.900" N	SAME
COORDINATES (NAD 83)	Longitude W119° 12' 26.010" W	SAME
MISCELLANEOUS FACILITIES	ASOS	SAME
	ANEMOMETER	SAME
	ATCT	SAME
DESIGN CRITICAL AIRCRAFT	KINGAIR 200	GULFSTREAM 650
WINGSPAN OF DESIGN AIRCRAFT (FEET)	54.50'	99.58'
APPROACH SPEED OF DESIGN AIRCRAFT (KNOTS)	98	145
UNDERCARRIAGE WIDTH OF DESIGN AIRCRAFT (FEET)	15.00'	45.00'
MAGNETIC DECLINATION (DEGREES)	12°09'E	SAME
MAGNETIC DECLINATION DATE & SOURCE	4/17/2019	SAME
NPIAS CODE	RELIEVER	SAME
STATE SYSTEM PLAN ROLE	METROPOLITAN GA	SAME

RUNWAY DATA TABLE

RUNWAY DATA TABLE		RUNWAY 7 - 25			
		EXISITING		ULTIMATE	
RUNWAY IDENTIFICATION		7	25	7	25
RUNWAY DESIGN CODE (RDC)		B-II-5000		D-III-4000	
APPROACH REFERENCE CODE (APRC)		B-III-5000		D/IV/4000 D/V/4000	
DEPARTURE REFERENCE CODE (DPRC)		B-II D/II		D/IV D/V	
RUNWAY SURFACE MATERIAL		ASPHALT		SAME	
RUNWAY PAVEMENT STRENGTH WHEEL (IN THOUSAND LBS. #1)		83(S)/126(D)/238(2D)		SAME	
RUNWAY PAVEMENT STRENGTH PCN		30F/A/W/T		SAME	
RUNWAY PAVEMENT SURFACE TREATMENT		ASPHALT		SAME	
RUNWAY EFFECTIVE GRADIENT		0.019		SAME	
RUNWAY WIND COVERAGE	10.5 knots	99.55%		SAME	
	13 knots	99.82%		SAME	
	16 knots	99.97%		SAME	
RUNWAY DIMENSIONS (L X W)		5,953' x 100'		SAME *	
RUNWAY SHOULDERS		20'		SAME *	
RUNWAY CENTERLINE TO PARALLEL TAXIWAY CENTERLINE		365'		400'	
RUNWAY BLAST PAD		NA	120' x 160'	SAME	140' X 160' *
RUNWAY DISPLACED THRESHOLD ELEVATION (NAVD88)		NA	44.79'	SAME	SAME
RUNWAY SAFETY AREA DIMENSION DESIGN STANDARD (W x LENGTH BEYOND END)		150' x 300'	150' x 300'	500' x 1,000' X 600'	500' x 1,000' X 600'
RUNWAY SAFETY AREA DIMENSION ACTUAL (W x LENGTH BEYOND END x LENGTH PRIOR TO THRESHOLD)		150'x 300' X 300'	150'x 300' X 300'	500' x 1,000'	500'x 1,000'
RUNWAY SAFETY AREA LENGTH PRIOR TO DEPARTURE END		300'	300'	600'	547'
RUNWAY END COORDINATES	LAT	N34°12'03.17"	N32°12'02.63"	SAME	SAME
	LONG	W119°13'01.45"	W119°11'50.58"	SAME	SAME
DISPLACED THRESHOLD COORDINATES	LAT	NONE	N32°12'02.67"	SAME	SAME
	LONG	NONE	W119°11'55.97"	SAME	SAME
RUNWAY LIGHTING TYPE		MIRL		SAME	
APPROACH RUNWAY PROTECTION ZONE DIMENSIONS		500' x 700' x 1,000'	500' x 700' x 1,000'	500' x 1,010' x 1,700'	1,000' x 1,510' x 1,700'
DEPARTURE RUNWAY PROTECTION ZONE DIMENSIONS		500' x 700' x 1,000'	500' x 700' x 1,000'	500' x 1,010' x 1,700'	500' x 1,010' x 1,700'
RUNWAY MARKING TYPE		NON-PREC	PRECISION	SAME	SAME
14 CFR PART 77 APPROACH SLOPE		30:1	50:1/40:1	SAME	SAME
14 CFR PART 77 APPROACH TYPE		NON-PREC	PRECISION	SAME	SAME
VISIBILITY MINIMUMS		≥1 MILE	≥1 MILE	≥1 MILE	≥3/4 MILE
TYPE OF AERONAUTICAL SURVEY REQUIRED FOR APPROACH		VG		SAME	
DEPARTURE SURFACE (YES/NO)		YES		SAME	
RUNWAY OBSTACLE FREE AREA DIMENSION DESIGN STANDARD (W x LENGTH BEYOND END)		500' x 300'	500' x 300'	800' x 1,000'	800' x 1,000'
RUNWAY OBSTACLE FREE AREA DIMENSION ACTUAL (W x LENGTH BEYOND END)		500' x 300'	500' x 300'	800' x 1,000'	800' x 1,000'
RUNWAY OBJECT FREE ZONE DIMENSION DESIGN STANDARD (W x LENGTH BEYOND END)		400' x 200'	400' x 200'	400' x 200'	400' x 200'
RUNWAY OBJECT FREE ZONE DIMENSION ACTUAL (W x LENGTH BEYOND END)		400' x 200'	400' x 200'	400' x 200'	400' x 200'
OBSTACAL CLEARANCE SURFACE (OCS) (EB 99, Updated 2018)		4/6	4/6	SAME	SAME
RUNWAY VISUAL AND INSTRUMENT NAVAIDS		PAPI-4, REILs, GPS	PAPI-4, MALSF, GPS	SAME	SAME
TOUCHDOWN ZONE ELEVATION (TDZE)		37.18'	43.60'	SAME	SAME
TAXIWAY WIDTH		50'-130'		50'	
TAXIWAY SAFETY AREA DIMENSIONS		79'		118'	
TAXIWAY OBJECT FREE AREA DIMENSIONS		131'		186'	
TAXIWAY CENTERLINE TO FIXED OR MOVABLE OBJECT		65.5'		93'	
TAXIWAY LIGHTING		MITL		SAME	
VERTICAL DATUM		NAVD 88			
HORIZONTAL DATUM		NAD 83			

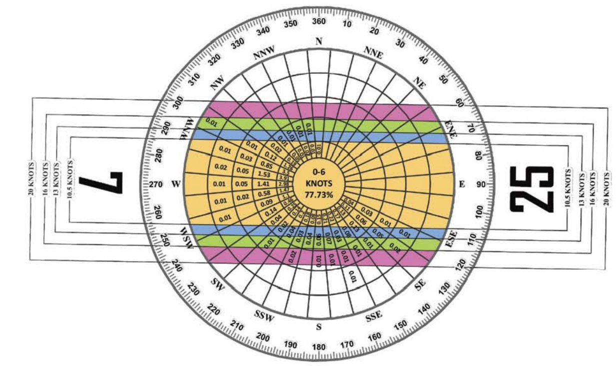
* Per FAA AC 150/5300-13A, Table A7-9, Footnote 12, "for airplanes with maximum certificated takeoff weight of 150,000 lbs or less, the standard runway width is 100 feet, the shoulder width is 20 feet, and the runway blast pad width is 140 feet." The critical aircraft (Gulfstream G650) has a maximum takeoff weight of 99,600 pounds; therefore, this footnote applies.

ULTIMATE NON-STANDARD CONDITIONS

DESCRIPTION	DESIGN STANDARD	REQUIRED	EXISTING	ACTION
Commercial Parking Lot	Runway Object Free Area	400' South of Runway Centerline	350' South of Runway Centerline	Continue to Pursue Land Acquisition
Fence Line and Non-Airport Property	Runway Object Free Area	400' North of Runway Centerline	300' North of Runway Centerline	Continue to Pursue Land Acquisition
Perimeter Service Road / Ventura Road	Extended Object Free Area	1000' Beyond Runway End	701' Beyond Runway End	Declared Distances
Perimeter Service Road / Ventura Road	Extended Runway Safety Area	1000' Beyond Runway End	701' Beyond Runway End	Declared Distances
Segmented Circle	Runway Object Free Area	400' South of Runway Centerline	200' South of Runway Centerline	Location Approved by FAA (2012-AWP-1163-NRA)
Windcone	Runway Object Free Area	400' South of Runway Centerline	255.5' South of Runway Centerline	Continue to Pursue Land Acquisition
ASOS	Runway Object Free Area	400' South of Runway Centerline	247.0' South of Runway Centerline	Continue to Pursue Land Acquisition
Anemometer	Runway Object Free Area	400' South of Runway Centerline	250.0' South of Runway Centerline	Continue to Pursue Land Acquisition
Glide Slope	Runway Object Free Area	400' South of Runway Centerline	256.7' South of Runway Centerline	Pursue Modifications to Standards
Parallel Taxiway "F"	Taxiway Centerline to Runway Centerline	400' from Runway Centerline	365' from Runway Centerline	Relocate Parallel Taxiway "F" to 400'

IFR WIND COVERAGE

Runways	10.5 Knots	13 Knots	16 Knots	20 Knots
Runway 7-25	99.45%	99.73%	99.93%	99.98%



Magnetic Declination
12° 11' 00" East (April 2018)
Annual Rate of Change
00° 05' 00" West (April 2018)

SOURCE:
NOAA National Climatic Center
Asheville, North Carolina
Oxnard Airport
Oxnard, California

OBSERVATIONS:
20,701 IFR Observations
Jan. 1, 2008 - Dec, 31 2017

MODIFICATIONS TO STANDARDS APPROVAL TABLE

APPROVAL DATE	AIRSPACE CASE NUMBER	STANDARD MODIFICATION	DESCRIPTION
NONE	NA	NA	NA

DECLARED DISTANCES DATA

DECLARED DISTANCES DATA	EXISTING		ULTIMATE	
	7	25	7	25
TORA - TAKEOFF RUN AVAILABLE	5953'	5953'	SAME	SAME
TODA - TAKEOFF DISTANCE AVAILABLE	5953'	5953'	SAME	SAME
ASDA - ACCELERATE-STOP DISTANCE AVAILABLE	5654'	5953'	SAME	SAME
LDA - LANDING DISTANCE AVAILABLE	5654'	5500'	SAME	SAME

TAXIWAY/TAXILANE DATA TABLE

Taxiway/Taxilane Designation		Width		Taxiway Design Group (TDG)		Taxiway Safety Area (TSA)		Taxiway Object Free Area (TOFA)		Lighting	
Existing	Ultimate	Existing	Ultimate	Existing	Ultimate	Existing	Ultimate	Existing	Ultimate	Existing	Ultimate
A	Same	75'	50'	2	2	79'	118'	131'	186'	MITL	MITL
B	Same	50'	Same	2	2	79'	118'	131'	186'	MITL	MITL
C	Same	130'	50'	2	2	79'	118'	131'	186'	MITL	MITL
D	Same	105'	50'	2	2	79'	118'	131'	186'	MITL	MITL
E	Same	75'	50'	2	2	79'	118'	131'	186'	MITL	MITL
F	Same	75'	50'	2	2	79'	118'	131'	186'	MITL	MITL

RUNWAY SEPARATION TABLE

RUNWAY SEPARATION	Existing	Ultimate
Parallel Runway Centerline	N/A	N/A
Holding Position	250'	250'
Taxilane Centerline to Parallel Taxilane Centerline	N/A	N/A
Parallel taxiway/taxilane centerline	240'	400'
Aircraft Parking Area	250'	500'

TAXIWAY SEPARATION TABLE

Taxiway Separation	Existing	Ultimate
Taxiway Centerline to Parallel Taxiway Centerline	N/A	N/A
Taxiway Centerline to Fixed or Movable Object	65.5'	93'
Taxilane Centerline to Parallel Taxilane Centerline	N/A	N/A
Taxilane Centerline to Fixed or Movable Object	57.5'	81'
Taxiway Wingtip Clearance	26'	34'
Taxilane Wingtip Clearance	18'	22'

No.	REVISIONS	DATE	BY	APP'D.
5				
4				
3	--	--	--	--
2	--	--	--	--
1	ALP UPDATE	01/2022	--	--

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 OF 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 THE APPROPRIATE PUBLIC LAWS.

OXNARD AIRPORT

DATA SHEET

OXNARD, CALIFORNIA

PLANNED BY: Matt Quick
DETAILED BY: Maggie Beaver
APPROVED BY: Tim Kahmann

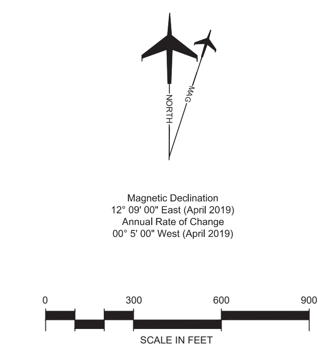
January 2022 SHEET 2 OF 13

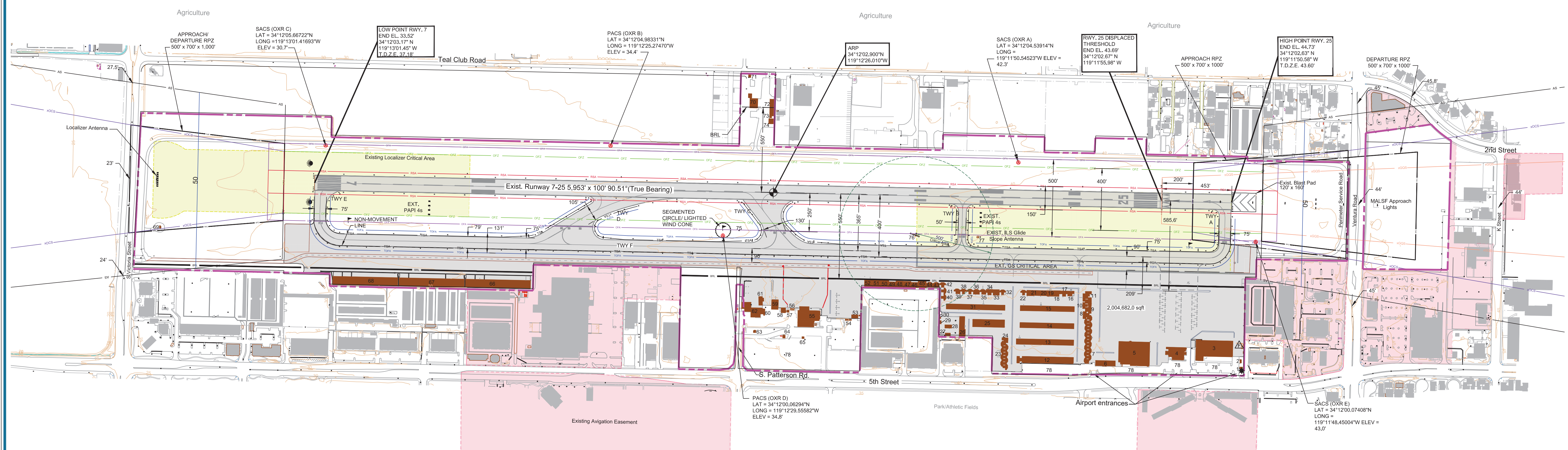
EXISTING AIRPORT FACILITIES

NO.	DESCRIPTION	ELEV. (MSL)
1	Beacon and Utility Building	110.40'
2	Trash Stall	52.80'
3	Golden West Jet Center	83.00'
4	Light Helicopter Depot	80.80'
5	Aspen Helicopters and Oxnard Jet Center	77.50'
6	Executive Hangars	59.40'
7	Port-a-Port Hangar Row (14)	53.90'
8	Port-a-Port Hangar	55.50'
9	Port-a-Port Hangar	55.50'
10	Port-a-Port Hangar	52.00'
11	Port-a-Port Hangar	54.70'
12	Executive Hangars	70.30'
13	T-Hangars	59.60'
14	T-Hangars	57.80'
15	T-Hangars	57.60'
16	Port-a-Port Hangar	51.80'
17	Port-a-Port Hangar	52.60'
18	Port-a-Port Hangar	52.70'
19	Port-a-Port Hangar	61.20'
20	Port-a-Port Hangar	55.80'
21	Port-a-Port Hangar	56.60'
22	Port-a-Port Hangar	51.20'
23	Port-a-Port Hangar	51.50'
24	Port-a-Port Hangar	56.70'
25	T-Hangars	60.30'
26	T-Hangars	58.50'
27	FAA Facility	52.50'
28	FAA Facility	52.10'
29	FAA Facility	50.00'
30	FAA Facility	48.70'
31	T-Hangars	56.50'
32	Port-a-Port Hangar	50.20'
33	Port-a-Port Hangar	50.40'
34	Port-a-Port Hangar	51.80'
35	Port-a-Port Hangar	51.90'
36	Port-a-Port Hangar	58.30'
37	Port-a-Port Hangar	50.20'
38	Port-a-Port Hangar	51.40'
39	Port-a-Port Hangar	50.00'
40	Port-a-Port Hangar	51.10'
41	Port-a-Port Hangar	49.90'
42	Port-a-Port Hangar	49.80'
43	Port-a-Port Hangar	49.20'
44	Port-a-Port Hangar	49.10'
45	Executive Hangar	61.80'
46	Executive Hangar	51.70'
47	Executive Hangar	57.41'
48	Executive Hangar	54.50'
49	Executive Hangar	51.20'
50	Executive Hangar	58.20'
51	Executive Hangar	55.90'
52	Executive Hangar	59.90'
53	Wash Rack	49.50'
54	Rental Car Service Bay	48.80'
55	Terminal Building	64.20'
56	Building	42.80'
57	Building	47.00'
58	Air Traffic Control Tower	116.90'
59	ARFF	61.60'
60	Aspen Helicopters	46.20'
61	Aspen Helicopters	-
62	Aspen Helicopters	74.00'
63	Building	45.10'
64	Building and Tank	47.00'
65	Rental Car Shack	46.60'
66	Executive Hangar	56.30'
67	Executive Hangar	55.10'
68	Executive Hangar	59.20'
69	FAA Equipment Fault	42.60'
70	Airport Maintenance	58.40'
71	Airport Well	55.10'
72	Airport Maintenance	56.80'
73	Airport Maintenance	50.00'
74	Airport Maintenance	61.10'
75	Anemometer	57.00'
76	ASOS	63.10'
77	Glide Slope	51.00'
78	Auto Parking	NA
79	-	-

DECLARED DISTANCES DATA

	EXISTING 7	EXISTING 25
TORA - TAKEOFF RUN AVAILABLE	5953'	5953'
TODA - TAKEOFF DISTANCE AVAILABLE	5953'	5953'
ASDA - ACCELERATE-STOP DISTANCE AVAILABLE	5654'	5953'
LDA - LANDING DISTANCE AVAILABLE	5654'	5500'





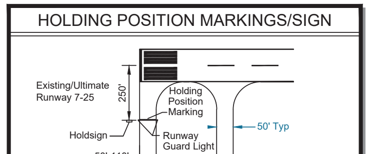
LEGEND

EXISTING	DESCRIPTION
	AIRPORT PROPERTY LINE
	SECTION CORNERS
	AIRPORT REFERENCE POINT (ARP)
	AIRPORT ROTATING BEACON
	FUEL FARM
	BUILDING RESTRICTION LINE
	STRUCTURES ON AIRPORT
N/A	ABANDON/REMOVE BUILDING
	AUTOMATED SURFACE OBSERVING SYSTEM
	AIRPORT PAVEMENT
N/A	ABANDON/REMOVE PAVEMENT
	FENCE LINE
	HOLD MARKING
	RUNWAY OBJECT FREE AREA
	RUNWAY SAFETY AREA
	RUNWAY OBSTACLE FREE ZONE
	RUNWAY PROTECTION ZONE
	TAXIWAY OBJECT FREE AREA
	TAXIWAY SAFETY AREA
	RUNWAY APPROACH SURFACE
	OBSTACLE CLEARANCE SURFACE
	LOCALIZER
	TIE-DOWNS
	PAPI-4
	RUNWAY END IDENTIFIER LIGHTS (REILS)
	WINDSOCK
	TOPOGRAPHIC CONTOURS
	PACs AND SACs
	AVIGATION EASEMENT
	CRITICAL AREA
	GUTTERS

TAXIWAY DESIGN GROUP

	EXISTING	TDG
TWY A	75'	2
TWY B	50'	2
TWY C	130'	2
TWY D	105'	2
TWY E	75'	2
TWY F	75'	2

HOLDING POSITION MARKINGS/SIGN



FAA APPROVAL STAMP

FOR APPROVAL BY:

COUNTY OF VENTURA

APPROVED BY: Keith Freitas — Digitally signed by Keith Freitas Date: 2022.02.14 10:05:07 -08'00'

ON THE DATE OF:

--

Director of Airports

General Notes:

1. Features and objects, including related elevations and clearances, within the runway protection zones are depicted on the INNER PORTION APPROACH SURFACE DRAWINGS.
2. Details concerning terminal improvements are depicted on the TERMINAL AREA DRAWINGS.
3. Recommended land uses are depicted on the AIRPORT LAND USE DRAWING.
4. All Elevations are in NAVD 88, all Horizontal Coordinates are in NAD 83.
6. No Obstacle Free Zone (OFZ) Object Penetrations.
7. The TOFA width is 131' and the TESM width is 7.5' they are not shown to keep the drawing legible.

No.	REVISIONS	DATE	BY	APP'D
5				
4				
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2	--	--	--	--
1	ALP UPDATE	01/2022	--	--

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 THE APPROPRIATE PUBLIC LAWS.

OXNARD AIRPORT

EXISTING AIRPORT LAYOUT PLAN DRAWING

OXNARD, CALIFORNIA

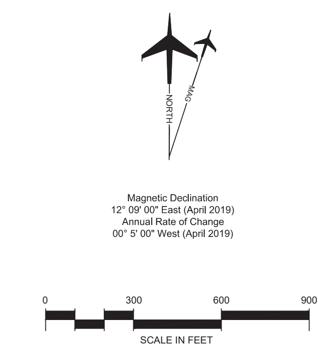
PLANNED BY: Matt Quick
DETAILED BY: Maggie Beaver
APPROVED BY: Tim Kahmann
Coffman Associates Airport Consultants www.coffmanassociates.com

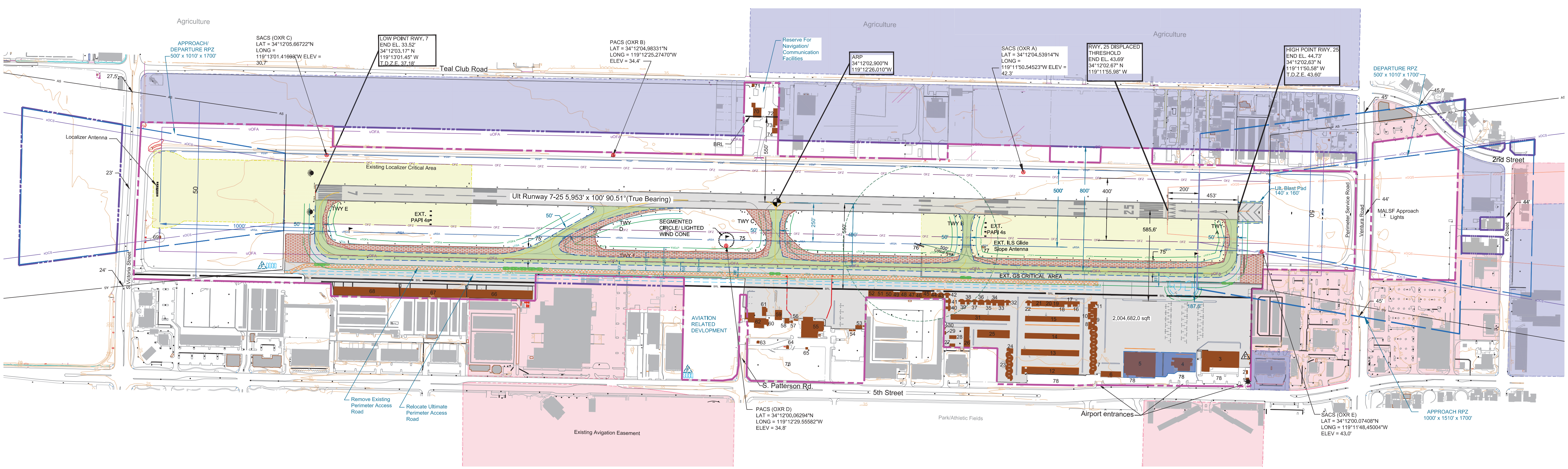
January 2022

SHEET 3 OF 13

EXISTING AIRPORT FACILITIES			EXISTING AIRPORT FACILITIES			EXISTING AIRPORT FACILITIES			EXISTING AIRPORT FACILITIES		
NO.	DESCRIPTION	ELEV. (MSL)	NO.	DESCRIPTION	ELEV. (MSL)	NO.	DESCRIPTION	ELEV. (MSL)	NO.	DESCRIPTION	ELEV. (MSL)
1	Beacon and Utility Building	110.40'	20	Port-a-Port Hangar	55.80'	40	Port-a-Port Hangar	51.10'	60	Aspen Helicopters	46.20'
2	Trash Stall	52.80'	21	Port-a-Port Hangar	56.60'	41	Port-a-Port Hangar	49.90'	61	Aspen Helicopters	-
3	Golden West Jet Center	83.00'	22	Port-a-Port Hangar	51.20'	42	Port-a-Port Hangar	49.80'	62	Aspen Helicopters	74.00'
4	Light Helicopter Depot	80.80'	23	Port-a-Port Hangar	51.50'	43	Port-a-Port Hangar	49.20'	63	Building	45.10'
5	Aspen Helicopters and Oxnard Jet Center	77.50'	24	Port-a-Port Hangar	56.70'	44	Port-a-Port Hangar	49.10'	64	Building and Tank	47.00'
			25	T-Hangars	60.30'	45	Executive Hangar	61.80'	65	Rental Car Shack	46.60'
6	Executive Hangars	59.40'	26	T-Hangars	58.50'	46	Executive Hangar	51.70'	66	Executive Hangar	56.30'
7	Port-a-Port Hangar Row (14)	53.90'	27	FAA Facility	52.50'	47	Executive Hangar	57.41'	67	Executive Hangar	55.10'
8	Port-a-Port Hangar	55.50'	28	FAA Facility	52.10'	48	Executive Hangar	54.50'	68	Executive Hangar	59.20'
9	Port-a-Port Hangar	55.50'	29	FAA Facility	50.00'	49	Executive Hangar	51.20'	69	FAA Equipment Fault	42.60'
10	Port-a-Port Hangar	52.00'	30	FAA Facility	48.70'	50	Executive Hangar	58.20'	70	Airport Maintenance	58.40'
11	Port-a-Port Hangar	54.70'	31	T-Hangars	56.50'	51	Executive Hangar	55.90'	71	Airport Well	55.10'
12	Executive Hangars	70.30'	32	Port-a-Port Hangar	50.20'	52	Executive Hangar	59.90'	72	Airport Maintenance	56.80'
13	T-Hangars	59.60'	33	Port-a-Port Hangar	50.40'	53	Wash Rack	49.50'	73	Airport Maintenance	50.00'
14	T-Hangars	57.80'	34	Port-a-Port Hangar	51.80'	54	Rental Car Service Bay	48.80'	74	Airport Maintenance	61.10'
15	T-Hangars	57.60'	35	Port-a-Port Hangar	51.90'	55	Terminal Building	64.20'	75	Anemometer	57.00'
16	Port-a-Port Hangar	51.80'	36	Port-a-Port Hangar	58.30'	56	Building	42.80'	76	ASOS	63.10'
17	Port-a-Port Hangar	52.60'	37	Port-a-Port Hangar	50.20'	57	Building	47.00'	77	Glide Slope	51.00'
18	Port-a-Port Hangar	52.70'	38	Port-a-Port Hangar	51.40'	58	Air Traffic Control Tower	116.90'	78	Auto Parking	NA
19	Port-a-Port Hangar	61.20'	39	Port-a-Port Hangar	50.00'	59	ARFF	61.60'	79	-	-

DECLARED DISTANCES DATA	ULTIMATE	
	7	25
TORA - TAKEOFF RUN AVAILABLE	5953'	5953'
TODA - TAKEOFF DISTANCE AVAILABLE	5953'	5953'
ASDA - ACCELERATE-STOP DISTANCE AVAILABLE	5654'	5953'
LDA - LANDING DISTANCE AVAILABLE	5654'	5500'

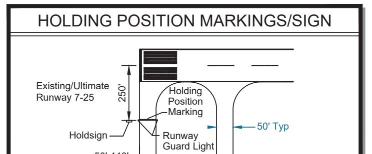




LEGEND		
EXISTING	ULTIMATE	DESCRIPTION
		AIRPORT PROPERTY LINE
		SECTION CORNERS
		AIRPORT REFERENCE POINT (ARP)
	SAME	AIRPORT ROTATING BEACON
		FUEL FARM
X/U BRL		BUILDING RESTRICTION LINE
		STRUCTURES ON AIRPORT
N/A		ABANDON/REMOVE BUILDING
	SAME	AUTOMATED SURFACE OBSERVING SYSTEM
		AIRPORT PAVEMENT
N/A		ABANDON/REMOVE PAVEMENT
		FENCE LINE
		HOLD MARKING
OFA	uOFA	RUNWAY OBJECT FREE AREA
RSA	RSA(U)	RUNWAY SAFETY AREA
OFZ	uOFZ	RUNWAY OBSTACLE FREE ZONE
RPZ		RUNWAY PROTECTION ZONE
TOFA	uTOFA	TAXIWAY OBJECT FREE AREA
TSA	uTSA	TAXIWAY SAFETY AREA
AS	AS(U)	RUNWAY APPROACH SURFACE
execs	uOCS	OBSTACLE CLEARANCE SURFACE
	SAME	LOCALIZER
	SAME	TIE-DOWNS
	SAME	PAPI-4
	SAME	RUNWAY END IDENTIFIER LIGHTS (REILS)
	SAME	WINDSOCK
4380	SAME	TOPOGRAPHIC CONTOURS
	SAME	PACs AND SACs
		AVIGATION EASEMENT
	SAME	CRITICAL AREA
		AVIATION REDEVELOPMENT AREA
		PAVEMENT MARKINGS TO BE REMOVED
		NO TAXI ISLAND
	SAME	GUTTERS

TAXIWAY DESIGN GROUP	ULTIMATE	TDG
TWY A	50'	2
TWY B	50'	2
TWY C	50'	2
TWY D	50'	2
TWY E	50'	2
TWY F	50'	2

HOLDING POSITION MARKINGS/SIGN



FAA APPROVAL STAMP

CATHRYN G CASON
Digitally signed by CATHRYN G CASON
Date: 2022.02.14 17:08:13 -08'00'

FOR APPROVAL BY:

COUNTY OF VENTURA

APPROVED BY: Keith Freitas

ON THE DATE OF: Digitally signed by Keith Freitas Date: 2022.02.14 10:05:07 -08'00'

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Director of Airports

General Notes:

1. Features and objects, including related elevations and clearances, within the runway protection zones are depicted on the INNER PORTION APPROACH SURFACE DRAWINGS.
2. Details concerning terminal improvements are depicted on the TERMINAL AREA DRAWINGS.
3. Recommended land uses are depicted on the AIRPORT LAND USE DRAWING.
4. All Elevations are in NAVD 88, all Horizontal Coordinates are in NAD 83.
6. No Obstacle Free Zone (OFZ) Object Penetrations.
7. The TOFA width is 131' and the TESM width is 7.5' they are not shown to keep the drawing legible.

No.	REVISIONS	DATE	BY	APP'D.
5				
4				
3	--	--	--	--
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1	ALP UPDATE	1/2022	--	--

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OXNARD AIRPORT

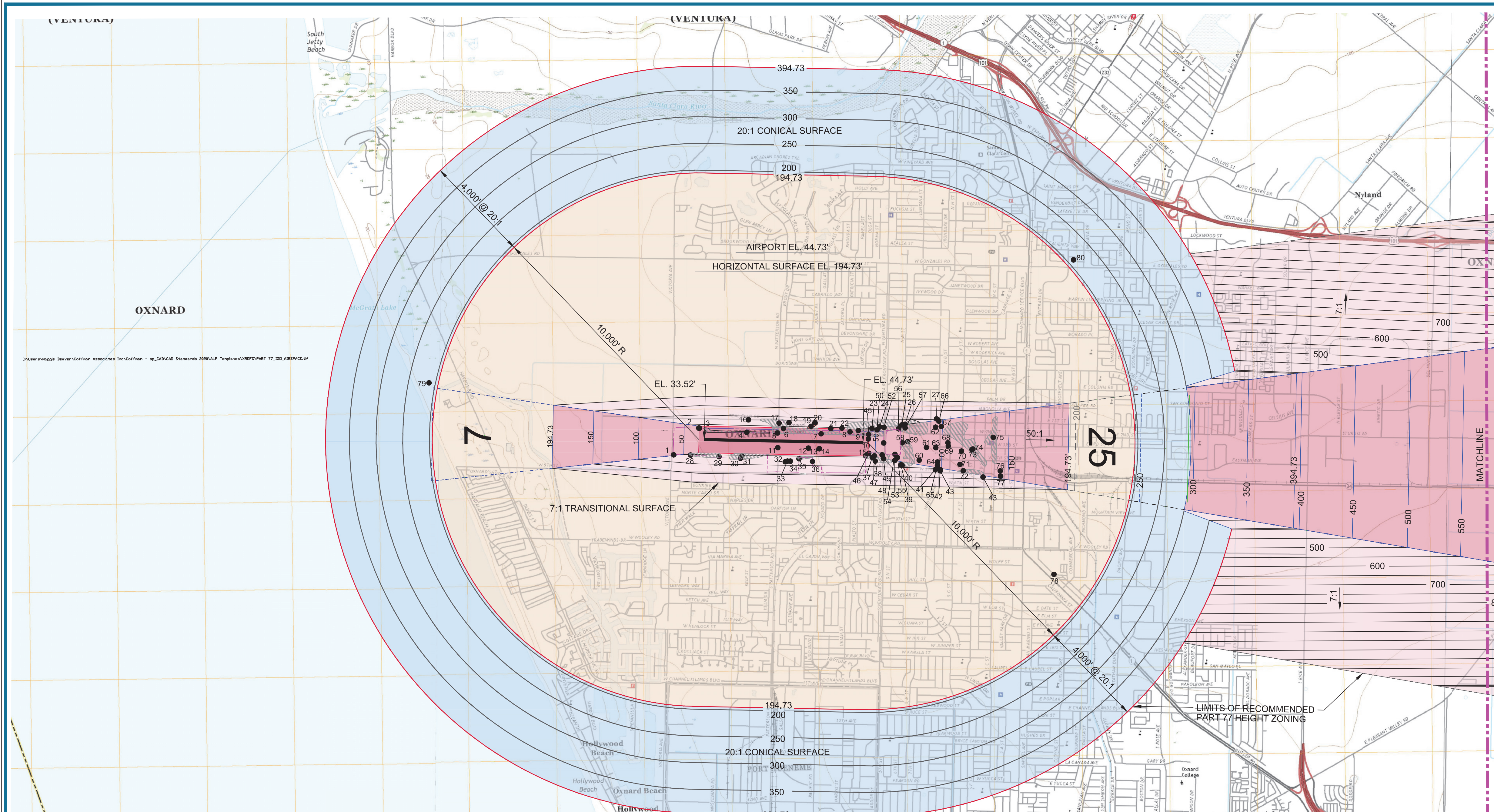
ULTIMATE AIRPORT LAYOUT PLAN DRAWING

OXNARD, CALIFORNIA

PLANNED BY: Matt Quick
DETAILED BY: Maggie Beaver
APPROVED BY: Tim Kahmann

January 2022 SHEET 4 OF 13

Coffman Associates Airport Consultants www.coffmanassociates.com



Magnetic Declination
12° 09' 00" East (April 2019)
Annual Rate of Change
00° 5' 00" West (April 2019)

0 2000 4000
SCALE IN FEET

OBSTRUCTION LEGEND

- 1● OBSTRUCTION HIGH POINT
- GROUP or MULTIPLE OBSTRUCTIONS

OBSTRUCTION TABLE

Obj. No.	Object Description	Top Object Elevation	Obstructed Part 77 Surface	Surface Elevation	Object Penetration	Proposed Object Disposition
1	Treetop	63.72' MSL	Runway 7 Approach	61.06' MSL	2.66'	Top or Remove
2	Fence	36.06' MSL	Runway 7 Approach	33.51' MSL	2.52'	To Be Determined
3	Fence	36.65' MSL	Primary Surface	33.51' MSL	3.14'	To Be Determined
4	Man Made High Point Group	42.70' MSL	Primary Surface	35.02' MSL	7.68'	To Be Determined
5	Natural High Point Group	56.01' MSL	Primary Surface	36.52' MSL	19.49'	To Be Determined
6	Man Made High Point Group	61.29' MSL	Primary Surface	37.08' MSL	24.21'	To Be Determined
7	Man Made High Point Group	46.78' MSL	Primary Surface	40.68' MSL	6.12'	To Be Determined
8	Natural High Point Group	78.69' MSL	Primary Surface	43.60' MSL	35.09'	Top or Remove
9	Man Made High Point Group	73.11' MSL	Primary Surface	44.35' MSL	28.76'	To Be Determined
10	Ground	45.39' MSL	Primary Surface	44.73' MSL	0.66'	Level
11	Antenna	56.70' MSL	Primary Surface	36.46' MSL	20.24'	To Be Determined
12	Antenna	63.63' MSL	Primary Surface	39.53' MSL	24.10'	To Be Determined
13	Glideslope Equipment Bldg.	51.28' MSL	Primary Surface	40.54' MSL	10.74'	Fixed by Function
14	Glideslope Antenna	73.05' MSL	Primary Surface	40.57' MSL	32.48'	Fixed by Function
15	Man Made High Point Group	55.05' MSL	Primary Surface	44.73' MSL	10.32'	To Be Determined
16	Utility Pole	74.79' MSL	Transitional Surface	73.70' MSL	1.09'	To Be Determined
17	Man Made High Point Group	77.49' MSL	Transitional Surface	70.54" MSL	16.95'	To Be Determined
18	Natural High Point Group	106.35' MSL	Transitional Surface	65.76' MSL	40.59'	Top or Remove
19	Man Made High Point Group	83.43' MSL	Transitional Surface	50.26' MSL	33.17'	To Be Determined
20	Natural High Point Group	78.69' MSL	Transitional Surface	70.29' MSL	8.40'	Top or Remove
21	Fence	46.28' MSL	Transitional Surface	42.25' MSL	4.03'	To Be Determined
22	Treetop	47.55' MSL	Transitional Surface	46.14' MSL	1.41'	To Be Determined
23	Man Made High Point Group	84.60' MSL	Transitional Surface	50.12' MSL	34.48'	To Be Determined
24	Natural High Point Group	104.07' MSL	Transitional Surface	58.09' MSL	45.98'	Top or Remove
25	Man Made High Point Group	71.34' MSL	Transitional Surface	70.35' MSL	0.99'	To Be Determined
26	Natural High Point Group	113.70' MSL	Transitional Surface	74.23' MSL	39.47'	Top or Remove
27	Treetop	104.31' MSL	Transitional Surface	104.30' MSL	0.01'	Top or Remove
28	Natural High Point Group	62.73' MSL	Transitional Surface	49.75' MSL	12.98'	Top or Remove
29	Man Made High Point Group	54.99' MSL	Transitional Surface	52.88' MSL	2.11'	Top or Remove
30	Man Made High Point Group	82.41' MSL	Transitional Surface	79.72' MSL	21.69'	Fixed By Function
31	Natural High Point Group	62.97' MSL	Transitional Surface	56.40' MSL	16.57'	Top or Remove
32	Antenna	113.38' MSL	Transitional Surface	76.45' MSL	36.93'	To be Determined
33	Light Pole	79.47' MSL	Transitional Surface	72.98' MSL	6.49'	To Be Determined
34	Light Pole	79.89' MSL	Transitional Surface	72.40' MSL	7.05'	To Be Determined
35	Man Made High Point Group	71.07' MSL	Transitional Surface	60.47' MSL	10.60'	To Be Determined
36	Treetop	75.21' MSL	Transitional Surface	74.95' MSL	0.26'	Top or Remove
37	Man Made High Point Group	75.39' MSL	Transitional Surface	51.19' MSL	24.20'	To Be Determined
38	Natural High Point Group	90.09' MSL	Transitional Surface	70.64' MSL	19.45'	To Be Determined
39	Natural High Point Group	109.11' MSL	Transitional Surface	85.99' MSL	23.12'	To Be Determined
40	Man Made High Point Group	120.30' MSL	Transitional Surface	89.77' MSL	30.00'	To Be Determined

OBSTRUCTION TABLE

Obj. No.	Object Description	Top Object Elevation	Obstructed Part 77 Surface	Surface Elevation	Object Penetration	Proposed Object Disposition
41	Treetop	124.17' MSL	Transitional Surface	106.57' MSL	17.60'	Top or Remove
42	Treetop	128.07' MSL	Transitional Surface	106.74' MSL	21.33'	Top or Remove
43	Treetop	127.53' MSL	Transitional Surface	113.08' MSL	14.45	Top or Remove
44	Treetop	140.22' MSL	Transitional Surface	139.80' MSL	0.42'	Top or Remove
45	Little Farms Road	59.27' MSL	Runway 25 Approach	44.83' MSL	14.41'	To Be Determined
46	Light Pole	60.96' MSL	Runway 25 Approach	45.21' MSL	15.75'	To Be Determined
47	Man Made High Point Group	66.96' MSL	Runway 25 Approach	49.36' MSL	17.60'	To Be Determined
48	Natural High Point Group	74.61' MSL	Runway 25 Approach	55.21' MSL	19.40'	To Be Determined
49	Ventura Road	60.15' MSL	Runway 25 Approach	56.12' MSL	4.02'	To Be Determined
50	Natural High Point Group	99.84' MSL	Runway 25 Approach	51.02' MSL	48.82'	To Be Determined
51	Ventura Road	61.49' MSL	Runway 25 Approach	56.25' MSL	5.23'	To Be Determined
52	Ventura Road	61.76' MSL	Runway 25 Approach	56.25' MSL	5.50'	To Be Determined
53	Treetop	65.25' MSL	Runway 25 Approach	64.87' MSL	0.38'	Top or Remove
54	Treetop	67.59' MSL	Runway 25 Approach	64.83' MSL	2.76'	Top or Remove
55	Treetop	71.97' MSL	Runway 25 Approach	67.72' MSL	4.25'	Top or Remove
56	Man made High Point Group	78.18' MSL	Runway 25 Approach	67.13' MSL	11.05'	To Be Determined
57	Natural High Point Group	107.79' MSL	Runway 25 Approach	72.09' MSL	35.70'	To Be Determined
58	Natural High Point Group	87.00' MSL	Runway 25 Approach	70.21' MSL	16.79'	To Be Determined
59	Man Made High Point Group	89.08' MSL	Runway 25 Approach	74.13' MSL	14.95'	To Be Determined
60	Treetop	109.05' MSL	Runway 25 Approach	83.54' MSL	25.96'	Top or Remove
61	Treetop	96.72' MSL	Runway 25 Approach	88.36' MSL	8.36'	Top or Remove
62	Utility Pole	95.68' MSL	Runway 25 Approach	94.88' MSL	0.80'	To Be Determined
63	Treetop	100.32' MSL	Runway 25 Approach	95.37' MSL	4.95'	Top or Remove
64	Treetop	102.39' MSL	Runway 25 Approach	96.80' MSL	5.59'	Top or Remove
65	Treetop	112.59' MSL	Runway 25 Approach	96.80' MSL	15.79'	Top or Remove
66	Treetop	131.37' MSL	Runway 25 Approach	97.25' MSL	34.12'	Top or Remove
67	Treetop	152.79' MSL	Runway 25 Approach	99.16' MSL	53.63'	Top or Remove
68	Treetop	135.57' MSL	Runway 25 Approach	104.36' MSL	31.21'	Top or Remove
69	Treetop	105.90' MSL	Runway 25 Approach	104.65' MSL	1.25'	Top or Remove
70	Treetop	121.59' MSL	Runway 25 Approach	114.68' MSL	6.91'	Top or Remove
71	Treetop	140.61' MSL	Runway 25 Approach	113.71' MSL	26.90'	Top or Remove
72	Natural High Point Group	137.79' MSL	Runway 25 Approach	116.18' MSL	21.61'	Top or Remove
73	Man Made High Point Group	162.93' MSL	Runway 25 Approach	122.54' MSL	40.39'	Light
74	Natural High Point Group	177.60' MSL	Runway 25 Approach	123.20' MSL	54.40'	Top Or Remove
75	Natural High Point Group	178.71' MSL	Runway 25 Approach	138.28' MSL	40.43'	Top or Remove
76	Treetop	151.67' MSL	Runway 25 Approach	144.03' MSL	7.64'	Top or Remove
77	Treetop	174.24' MSL	Runway 25 Approach	144.24' MSL	30.00'	Top or Remove
78	Tower	195.66' MSL	Horizontal Surface	194.73' MSL	0.93'	Light
79	Industrial Smoke Stack	214.35' MSL	Conical Surface	211.68' MSL	2.67'	Light
80	Treetop	218.99' MSL	Conical Surface	209.68' MSL	9.31'	Top or Remove

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, 15 for non-interstate roads, 17' for interstate roads, and 23' for railroads.
2. Depiction of features and objects within the outer portion of the approach surfaces, is illustrated on the Outer Approach Surface for Runway 7-25 Sheet 5 of these plans.
3. Depiction of features and objects within the inner portion of the approach surfaces, is illustrated on the Inner Approach Surface for Runway 7-25 Sheet 6 of these plans.
4. Existing and future height and hazard ordinances are to be amended and/or referenced upon approval of updated PART 77 Airspace Plan.
5. Base map USGS Quadrangle maps, Camarillo, Oxnard and Oxnard OE W 2018
6. Obstruction data based on May 7, 2018 aerial survey by MTZ Geospatial.
7. Obstruction Data for groups represent the tallest object (Natural or Man Made) in the group.
8. Per Ventura County Non-Coastal Zoning Ordinance Section 8106-7.3 adopted March 19, 2019: Height limits as set fourth in Federal Aviation Administration (FAA)regulations shall be adhered to within the approach and turning areas of any Ventura County Airport.

No.	REVISIONS	DATE	BY	APP'D.
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1	ALP UPDATE	01/2022	--	--

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OXNARD AIRPORT

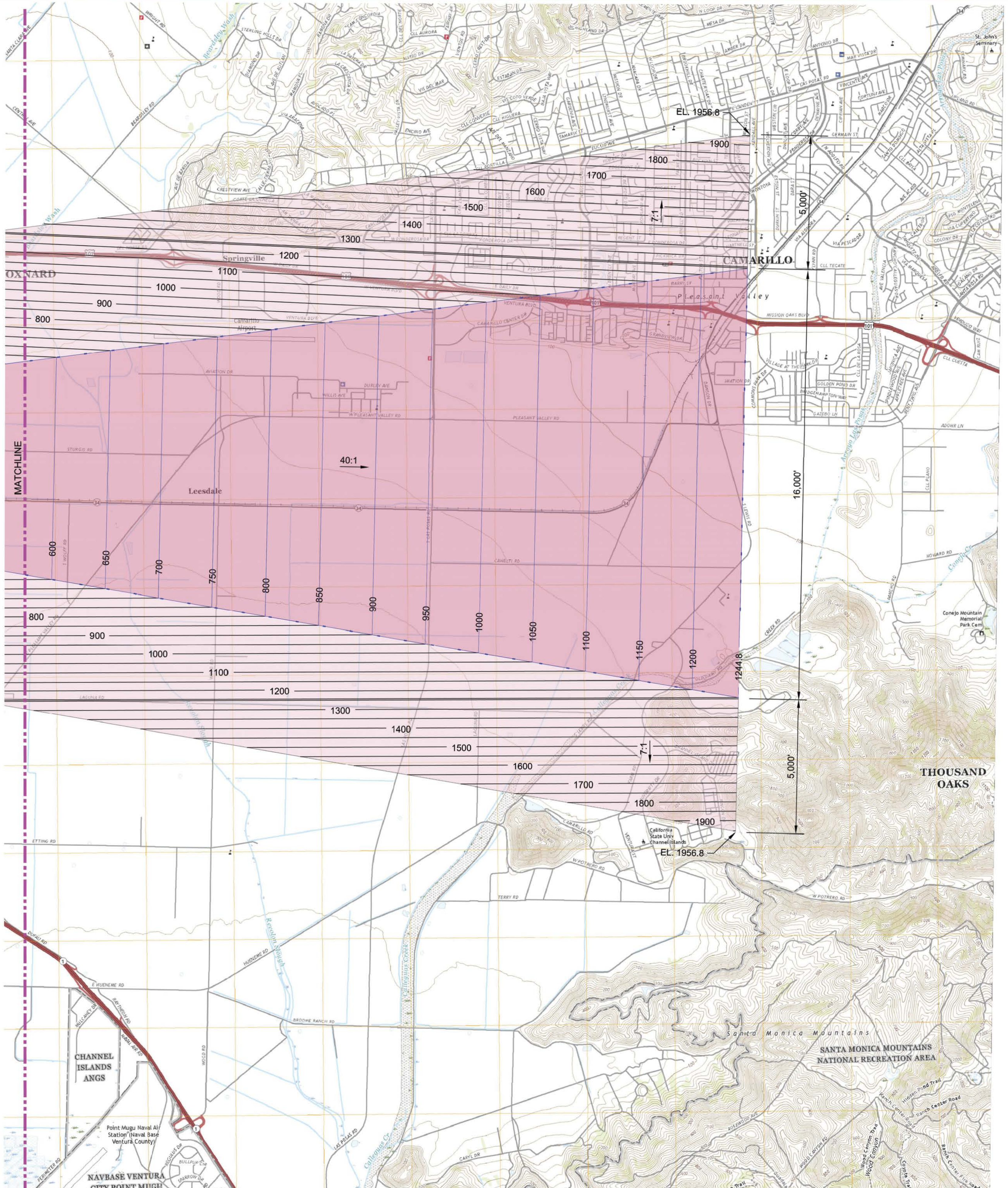
AIRPORT AIRSPACE DRAWING

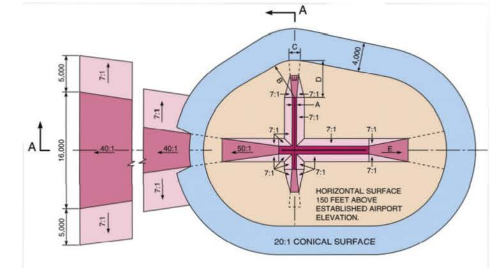
OXNARD, CALIFORNIA

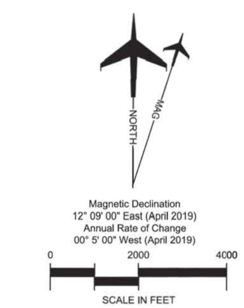
PLANNED BY: Matt Quick
DETAILED BY: Maggie Beaver
APPROVED BY: Tim Kahmann

January 2022 SHEET 5 OF 13

Coffman Associates
Airport Consultants
www.coffmanassociates.com

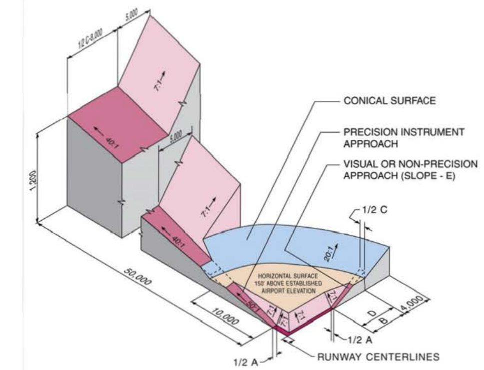






DIM	ITEM	DIMENSIONAL STANDARDS (FEET)					
		VISUAL RUNWAY		NON-PRECISION INSTRUMENT RUNWAY			PRECISION INSTRUMENT RUNWAY
		A	B	A	B		
					C	D	
A	WIDTH OF PRIMARY SURFACE AND APPROACH SURFACE WIDTH AT INNER END	250	500	500	500	1,000	1,000
B	RADIUS OF HORIZONTAL SURFACE	5,000	5,000	5,000	10,000	10,000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

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



ISOMETRIC VIEW OF SECTION A-A

OBSTRUCTION LEGEND

1● OBSTRUCTION HIGH POINT

●1 GROUP or MULTIPLE OBSTRUCTIONS

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, 15 for non-interstate roads, 17' for interstate roads, and 23' for railroads.
2. Depiction of features and objects within the outer portion of the approach surfaces, is illustrated on the Outer Approach Surface for Runway 7-25 Sheet 5 of these plans.
3. Depiction of features and objects within the inner portion of the approach surfaces, is illustrated on the Inner Approach Surface for Runway 7-25 Sheet 6 of these plans.
4. Existing and future height and hazard ordinances are to be amended and/or referenced upon approval of updated PART 77 Airspace Plan.
5. Base map USGS Quadrangle maps, Camarillo, Oxnard and Oxnard OE W 2018
6. Obstruction data based on May 7, 2018 aerial survey by MTZ Geospatial.
7. Obstruction Data for groups represent the tallest object (Natural or Man Made) in the group.
8. Per Ventura County Non-Coastal Zoning Ordinance Section 8106-7.3 adopted March 19, 2019: Height limits as set fourth in Federal Aviation Administration (FAA)regulations shall be adhered to within the approach and turning areas of any Ventura County Airport.

OBSTRUCTION TABLE

Obj. No.	Object Description	Top Object Elevation	Obstructed Part 77 Surface	Surface Elevation	Object Penetration	Proposed Object Disposition
1	Treetop	63.72' MSL	Runway 7 Approach	61.06' MSL	2.66'	Top or Remove
2	Fence	36.06' MSL	Runway 7 Approach	33.51' MSL	2.52'	To Be Determined
3	Fence	36.65' MSL	Primary Surface	33.51' MSL	3.14'	To Be Determined
4	Man Made High Point Group	42.70' MSL	Primary Surface	35.02' MSL	7.68'	To Be Determined
5	Natural High Point Group	56.01' MSL	Primary Surface	36.52' MSL	19.49'	To Be Determined
6	Man Made High Point Group	61.29' MSL	Primary Surface	37.08' MSL	24.21'	To Be Determined
7	Man Made High Point Group	46.78' MSL	Primary Surface	40.68' MSL	6.12'	To Be Determined
8	Natural High Point Group	78.69' MSL	Primary Surface	43.60' MSL	35.09'	Top or Remove
9	Man Made High Point Group	73.11' MSL	Primary Surface	44.35' MSL	28.76'	To Be Determined
10	Ground	45.39' MSL	Primary Surface	44.73' MSL	0.66'	Level
11	Antenna	56.70' MSL	Primary Surface	36.46' MSL	20.24'	To Be Determined
12	Antenna	63.63' MSL	Primary Surface	39.53' MSL	24.10'	To Be Determined
13	Glideslope Equipment Bldg.	51.28' MSL	Primary Surface	40.54' MSL	10.74'	Fixed by Function
14	Glideslope Antenna	73.05' MSL	Primary Surface	40.57' MSL	32.48'	Fixed by Function
15	Man Made High Point Group	55.05' MSL	Primary Surface	44.73' MSL	10.32'	To Be Determined
16	Utility Pole	74.79' MSL	Transitional Surface	73.70' MSL	1.09'	To Be Determined
17	Man Made High Point Group	77.49' MSL	Transitional Surface	70.54" MSL	16.95'	To Be Determined
18	Natural High Point Group	106.35' MSL	Transitional Surface	65.76' MSL	40.59'	Top or Remove
19	Man Made High Point Group	83.43' MSL	Transitional Surface	50.26' MSL	33.17'	To Be Determined
20	Natural High Point Group	78.69' MSL	Transitional Surface	70.29' MSL	8.40'	Top or Remove
21	Fence	46.28' MSL	Transitional Surface	42.25' MSL	4.03'	To Be Determined
22	Treetop	47.55' MSL	Transitional Surface	46.14' MSL	1.41'	To Be Determined
23	Man Made High Point Group	84.60' MSL	Transitional Surface	50.12' MSL	34.48'	To Be Determined
24	Natural High Point Group	104.07' MSL	Transitional Surface	58.09' MSL	45.98'	Top or Remove
25	Man Made High Point Group	71.34' MSL	Transitional Surface	70.35' MSL	0.99'	To Be Determined
26	Natural High Point Group	113.70' MSL	Transitional Surface	74.23' MSL	39.47'	Top or Remove
27	Treetop	104.31' MSL	Transitional Surface	104.30' MSL	0.01'	Top or Remove
28	Natural High Point Group	62.73' MSL	Transitional Surface	49.75' MSL	12.98'	Top or Remove
29	Man Made High Point Group	54.99' MSL	Transitional Surface	52.88' MSL	2.11'	Top or Remove
30	Man Made High Point Group	82.41' MSL	Transitional Surface	79.72' MSL	21.69'	Fixed By Function
31	Natural High Point Group	62.97' MSL	Transitional Surface	56.40' MSL	16.57'	Top or Remove
32	Antenna	113.38' MSL	Transitional Surface	76.45' MSL	36.93'	To be Determined
33	Light Pole	79.47' MSL	Transitional Surface	72.98' MSL	6.49'	To Be Determined
34	Light Pole	79.89' MSL	Transitional Surface	72.40' MSL	7.05'	To Be Determined
35	Man Made High Point Group	71.07' MSL	Transitional Surface	60.47' MSL	10.60'	To Be Determined
36	Treetop	75.21' MSL	Transitional Surface	74.95' MSL	0.26'	Top or Remove
37	Man Made High Point Group	75.39' MSL	Transitional Surface	51.19' MSL	24.20'	To Be Determined
38	Natural High Point Group	90.09' MSL	Transitional Surface	70.64' MSL	19.45'	To Be Determined
39	Natural High Point Group	109.11' MSL	Transitional Surface	85.99' MSL	23.12'	To Be Determined
40	Man Made High Point Group	120.30' MSL	Transitional Surface	89.77' MSL	30.00'	To Be Determined

OBSTRUCTION TABLE

Obj. No.	Object Description	Top Object Elevation	Obstructed Part 77 Surface	Surface Elevation	Object Penetration	Proposed Object Disposition
41	Treetop	124.17' MSL	Transitional Surface	106.57' MSL	17.60'	Top or Remove
42	Treetop	128.07' MSL	Transitional Surface	106.74' MSL	21.33'	Top or Remove
43	Treetop	127.53' MSL	Transitional Surface	113.08' MSL	14.45	Top or Remove
44	Treetop	140.22' MSL	Transitional Surface	139.80' MSL	0.42'	Top or Remove
45	Little Farms Road	59.27' MSL	Runway 25 Approach	44.83' MSL	14.41'	To Be Determined
46	Light Pole	60.96' MSL	Runway 25 Approach	45.21' MSL	15.75'	To Be Determined
47	Man Made High Point Group	66.96' MSL	Runway 25 Approach	49.36' MSL	17.60'	To Be Determined
48	Natural High Point Group	74.61' MSL	Runway 25 Approach	55.21' MSL	19.40'	To Be Determined
49	Ventura Road	60.15' MSL	Runway 25 Approach	56.12' MSL	4.02'	To Be Determined
50	Natural High Point Group	99.84' MSL	Runway 25 Approach	51.02' MSL	48.82'	To Be Determined
51	Ventura Road	61.49' MSL	Runway 25 Approach	56.25' MSL	5.23'	To Be Determined
52	Ventura Road	61.76' MSL	Runway 25 Approach	56.25' MSL	5.50'	To Be Determined
53	Treetop	65.25' MSL	Runway 25 Approach	64.87' MSL	0.38'	Top or Remove
54	Treetop	67.59' MSL	Runway 25 Approach	64.83' MSL	2.76'	Top or Remove
55	Treetop	71.97' MSL	Runway 25 Approach	67.72' MSL	4.25'	Top or Remove
56	Man made High Point Group	78.18' MSL	Runway 25 Approach	67.13' MSL	11.05'	To Be Determined
57	Natural High Point Group	107.79' MSL	Runway 25 Approach	72.09' MSL	35.70'	To Be Determined
58	Natural High Point Group	87.00' MSL	Runway 25 Approach	70.21' MSL	16.79'	To Be Determined
59	Man Made High Point Group	89.08' MSL	Runway 25 Approach	74.13' MSL	14.95'	To Be Determined
60	Treetop	109.05' MSL	Runway 25 Approach	83.54' MSL	25.96'	Top or Remove
61	Treetop	96.72' MSL	Runway 25 Approach	88.36' MSL	8.36'	Top or Remove
62	Utility Pole	95.68' MSL	Runway 25 Approach	94.88' MSL	0.80'	To Be Determined
63	Treetop	100.32' MSL	Runway 25 Approach	95.37' MSL	4.95'	Top or Remove
64	Treetop	102.39' MSL	Runway 25 Approach	96.80' MSL	5.59'	Top or Remove
65	Treetop	112.59' MSL	Runway 25 Approach	96.80' MSL	15.79'	Top or Remove
66	Treetop	131.37' MSL	Runway 25 Approach	97.25' MSL	34.12'	Top or Remove
67	Treetop	152.79' MSL	Runway 25 Approach	99.16' MSL	53.63'	Top or Remove
68	Treetop	135.57' MSL	Runway 25 Approach	104.36' MSL	31.21'	Top or Remove
69	Treetop	105.90' MSL	Runway 25 Approach	104.65' MSL	1.25'	Top or Remove
70	Treetop	121.59' MSL	Runway 25 Approach	114.68' MSL	6.91'	Top or Remove
71	Treetop	140.61' MSL	Runway 25 Approach	113.71' MSL	26.90'	Top or Remove
72	Natural High Point Group	137.79' MSL	Runway 25 Approach	116.18' MSL	21.61'	Top or Remove
73	Man Made High Point Group	162.93' MSL	Runway 25 Approach	122.54' MSL	40.39'	Light
74	Natural High Point Group	177.60' MSL	Runway 25 Approach	123.20' MSL	54.40'	Top Or Remove
75	Natural High Point Group	178.71' MSL	Runway 25 Approach	138.28' MSL	40.43'	Top or Remove
76	Treetop	151.67' MSL	Runway 25 Approach	144.03' MSL	7.64'	Top or Remove
77	Treetop	174.24' MSL	Runway 25 Approach	144.24' MSL	30.00'	Top or Remove
78	Tower	195.66' MSL	Horizontal Surface	194.73' MSL	0.93'	Light
79	Industrial Smoke Stack	214.35' MSL	Conical Surface	211.68' MSL	2.67'	Light
80	Treetop	218.99' MSL	Conical Surface	209.68' MSL	9.31'	Top or Remove

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OXNARD AIRPORT

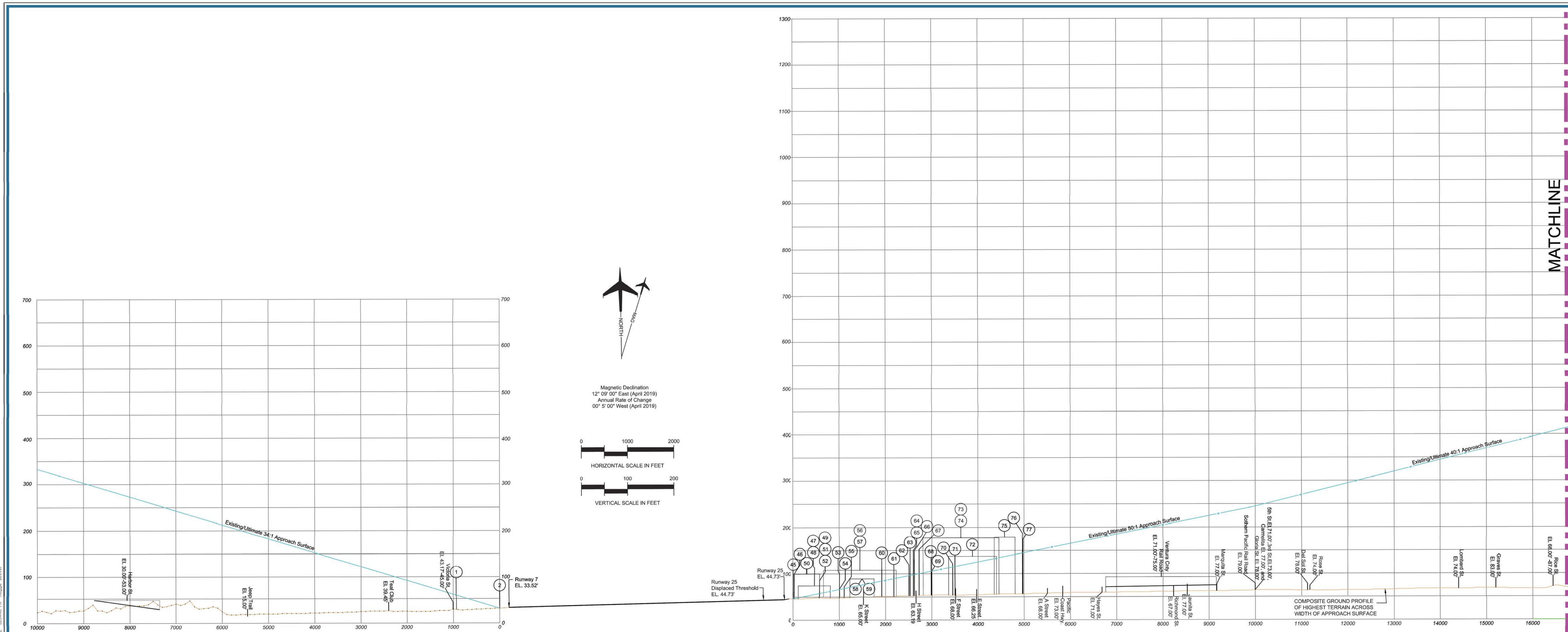
AIRPORT AIRSPACE APPROACH FAN FOR RUNWAY 25

OXNARD, CALIFORNIA

PLANNED BY: Matt Quick
DETAILED BY: Maggie Beaver
APPROVED BY: Tim Kahmann

January 2022 SHEET 6 OF 13

Coffman Associates Airport Consultants www.coffmanassociates.com



RUNWAY 7-25

OBSTRUCTION TABLE						
Obj. No.	Object Description	Top Object Elevation	Obstructed Part 77 Surface	Surface Elevation	Object Penetration	Proposed Object Disposition
1	Treetop	63.72' MSL	Runway 7 Approach	61.06' MSL	2.66'	Top or Remove
2	Fence	36.06' MSL	Runway 7 Approach	33.51' MSL	2.52'	To Be Determined

OBSTRUCTION TABLE						
Obj. No.	Object Description	Top Object Elevation	Obstructed Part 77 Surface	Surface Elevation	Object Penetration	Proposed Object Disposition
45	Little Farms Road	59.27' MSL	Runway 25 Approach	44.83' MSL	14.41'	To Be Determined
46	Light Pole	60.96' MSL	Runway 25 Approach	45.21' MSL	15.75'	To Be Determined
47	Man Made High Point Group	66.96' MSL	Runway 25 Approach	49.36' MSL	17.60'	To Be Determined
48	Natural High Point Group	74.61' MSL	Runway 25 Approach	55.21' MSL	19.40'	To Be Determined
49	Ventura Road	60.15' MSL	Runway 25 Approach	56.12' MSL	4.02'	To Be Determined
50	Natural High Point Group	99.84' MSL	Runway 25 Approach	51.02' MSL	48.82'	To Be Determined
51	Ventura Road	61.49' MSL	Runway 25 Approach	56.25' MSL	5.23'	To Be Determined
52	Ventura Road	61.76' MSL	Runway 25 Approach	56.25' MSL	5.50'	To Be Determined
53	Treetop	65.25' MSL	Runway 25 Approach	64.87' MSL	0.38'	Top or Remove
54	Treetop	67.59' MSL	Runway 25 Approach	64.83' MSL	2.76'	Top or Remove
55	Treetop	71.97' MSL	Runway 25 Approach	67.72' MSL	4.25'	Top or Remove
56	Man made High Point Group	78.18' MSL	Runway 25 Approach	67.13' MSL	11.05'	To Be Determined
57	Natural High Point Group	107.79' MSL	Runway 25 Approach	72.09' MSL	35.70'	To Be Determined
58	Natural High Point Group	87.00' MSL	Runway 25 Approach	70.21' MSL	16.79'	To Be Determined
59	Man Made High Point Group	89.08' MSL	Runway 25 Approach	74.13' MSL	14.95'	To Be Determined
60	Treetop	109.05' MSL	Runway 25 Approach	83.54' MSL	25.96'	Top or Remove
61	Treetop	96.72' MSL	Runway 25 Approach	88.36' MSL	8.36'	Top or Remove
62	Utility Pole	95.68' MSL	Runway 25 Approach	94.88' MSL	0.80'	To Be Determined
63	Treetop	100.32' MSL	Runway 25 Approach	95.37' MSL	4.95'	Top or Remove
64	Treetop	102.39' MSL	Runway 25 Approach	96.80' MSL	5.59'	Top or Remove
65	Treetop	112.59' MSL	Runway 25 Approach	96.80' MSL	15.79'	Top or Remove
66	Treetop	131.37' MSL	Runway 25 Approach	97.25' MSL	34.12'	Top or Remove
67	Treetop	152.79' MSL	Runway 25 Approach	99.16' MSL	53.63'	Top or Remove
68	Treetop	135.57' MSL	Runway 25 Approach	104.36' MSL	31.21'	Top or Remove
69	Treetop	105.90' MSL	Runway 25 Approach	104.65' MSL	1.25'	Top or Remove
70	Treetop	121.59' MSL	Runway 25 Approach	114.68' MSL	6.91'	Top or Remove
71	Treetop	140.61' MSL	Runway 25 Approach	113.71' MSL	26.90'	Top or Remove
72	Natural High Point Group	137.79' MSL	Runway 25 Approach	116.18' MSL	21.61'	Top or Remove
73	Man Made High Point Group	162.93' MSL	Runway 25 Approach	122.54' MSL	40.39'	Light
74	Natural High Point Group	177.60' MSL	Runway 25 Approach	123.20' MSL	54.40'	Top Or Remove
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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, 15 for non-interstate roads, 17' for interstate roads, and 23' for railroads.
2. Depiction of features and objects within the inner portion of the approach surfaces, is illustrated on the Inner Approach Surface for Runway 7-25 Sheet 8 of these plans.
3. Existing and future height and hazard ordinances are to be amended and/or referenced upon approval of updated PART 77 Airspace Plan.
4. Obstruction data based on May 7, 2018 aerial survey MTZ Geospactial.
5. Obstruction Data for groups represent the tallest object (Natural or Man Made) in the group.
6. Obstruction survey accuracy conforms to requirements listed in AC150/5300-18bfor the Obstacle feature class.

No.	REVISIONS	DATE	BY	APP'D
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OXNARD AIRPORT

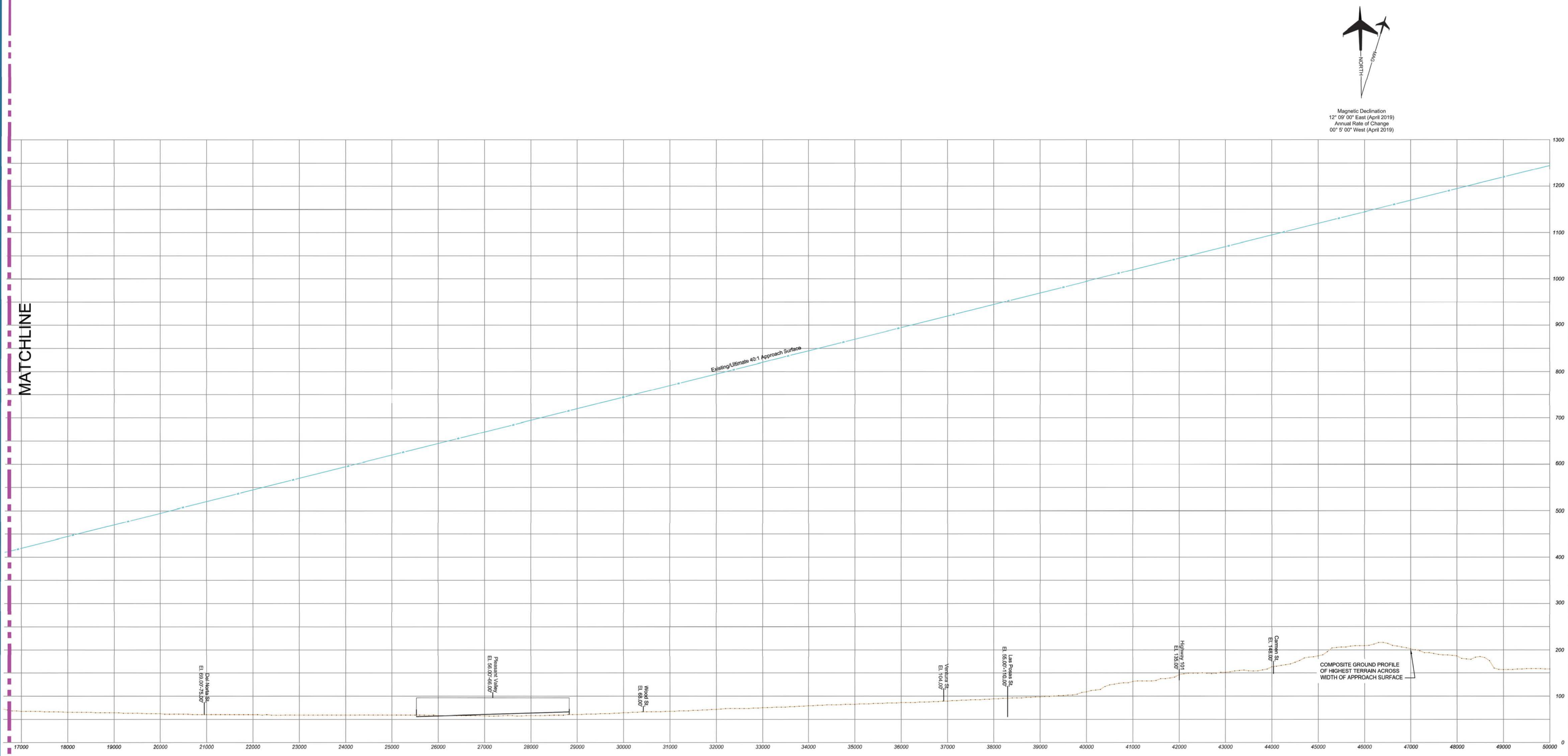
AIRPORT AIRSPACE PROFILE DRAWING I
RUNWAY 7-25

OXNARD, CALIFORNIA

PLANNED BY: Matt Quick
DETAILED BY: Maggie Beaver
APPROVED BY: Tim Kahmann

January 2022

Coffman Associates
Airport Consultants
www.coffmanassociates.com



OBSTRUCTION TABLE							
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48	Natural High Point Group	74.61' MSL	Runway 25 Approach	55.21' MSL	19.40'	To Be Determined
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50	Natural High Point Group	99.84' MSL	Runway 25 Approach	51.02' MSL	48.82'	To Be Determined
51	Ventura Road	61.49' MSL	Runway 25 Approach	56.25' MSL	5.23'	To Be Determined
52	Ventura Road	61.76' MSL	Runway 25 Approach	56.25' MSL	5.50'	To Be Determined
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54	Treetop	67.59' MSL	Runway 25 Approach	64.83' MSL	2.76'	Top or Remove
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74	Natural High Point Group	177.60' MSL	Runway 25 Approach	123.20' MSL	54.40'	Top Or Remove
75	Natural High Point Group	178.71' MSL	Runway 25 Approach	138.28' MSL	40.43'	Top or Remove
76	Treetop	151.67' MSL	Runway 25 Approach	144.03' MSL	7.64'	Top or Remove
77	Treetop	174.24' MSL	Runway 25 Approach	144.24' MSL	30.00'	Top or Remove

RUNWAY 25 OUTER APPROACH

0 1000 2000
HORIZONTAL SCALE IN FEET

0 100 200
VERTICAL SCALE IN FEET

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, 15 for non-interstate roads, *17' for interstate roads*, and 23' for railroads.
2. Depiction of features and objects within the inner portion of the approach surfaces, is illustrated on the Inner Approach Surface for Runway 7-25 Sheet 8 of these plans.
3. Existing and future height and hazard ordinances are to be amended and/or referenced upon approval of updated PART 77 Airspace Plan.
4. Obstruction cata based on May 7, 2018 aerial survey MTZ Geospactial.
5. Obstruction Data for groups represent the tallest object (Natural or Man Made) in the group.
6. Obstruction survey accuracy conforms to requirements listed in AC150/5300-18bfor the Obstacle feature class.

No.	REVISIONS	DATE	BY	APP'D.
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1	ALP UPDATE	01/2022	--	--

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OXNARD AIRPORT

AIRPORT AIRSPACE PROFILE DRAWING II
RUNWAY 25

OXNARD, CALIFORNIA

PLANNED BY: Matt Quick
DETAILED BY: Maggie Beaver
APPROVED BY: Tim Kahmann

January 2022 SHEET 8 OF 13

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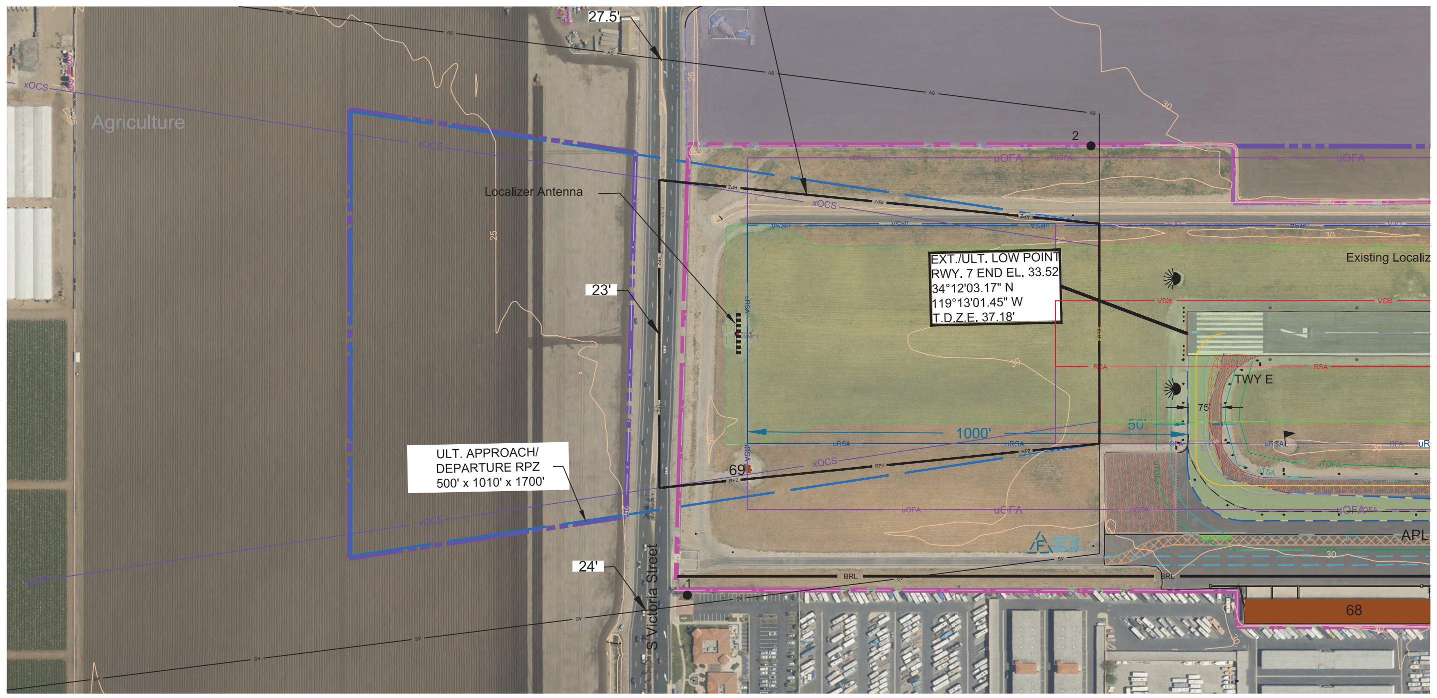
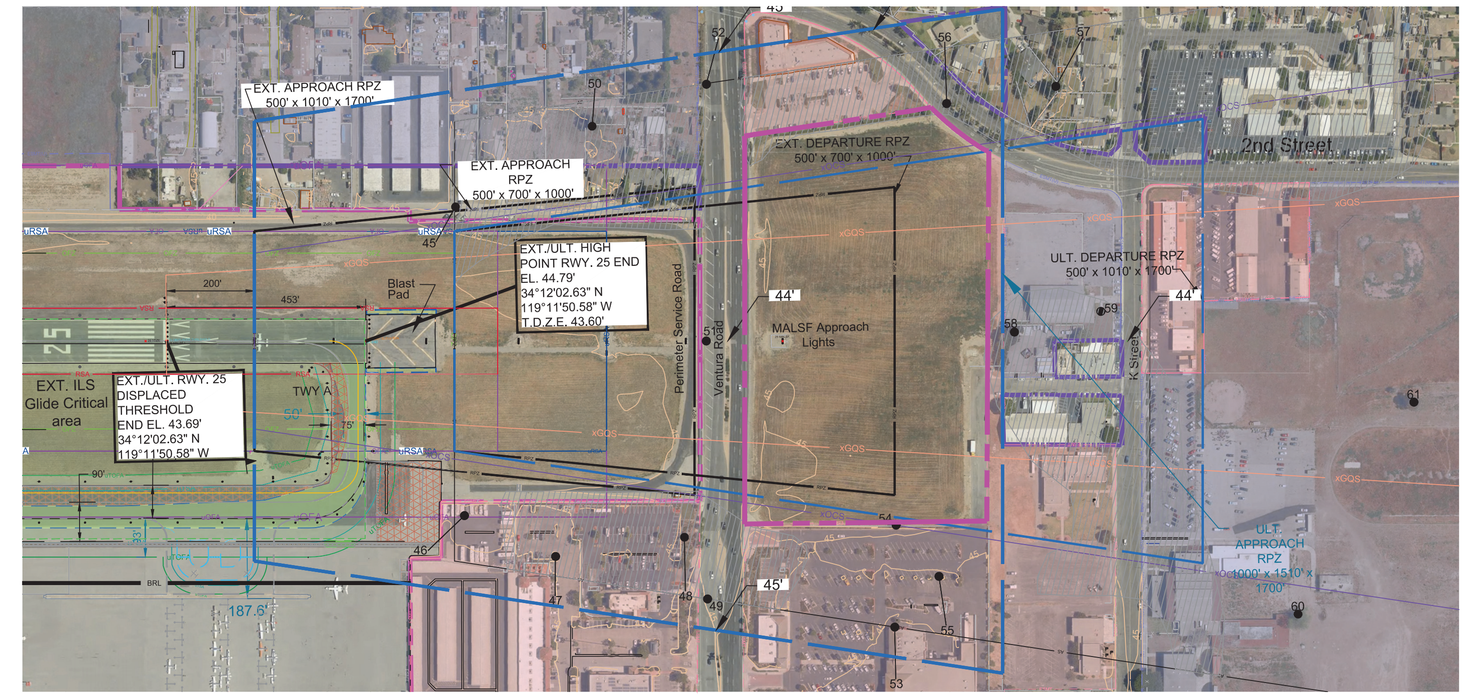
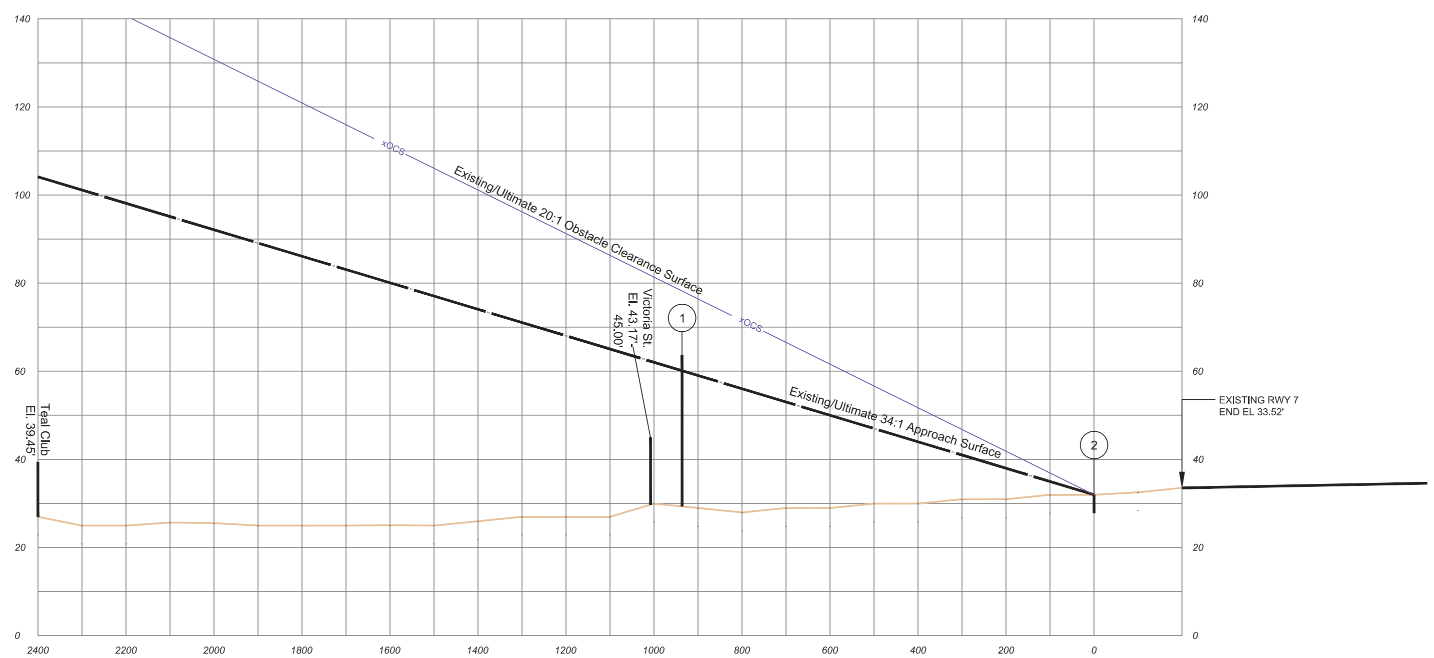
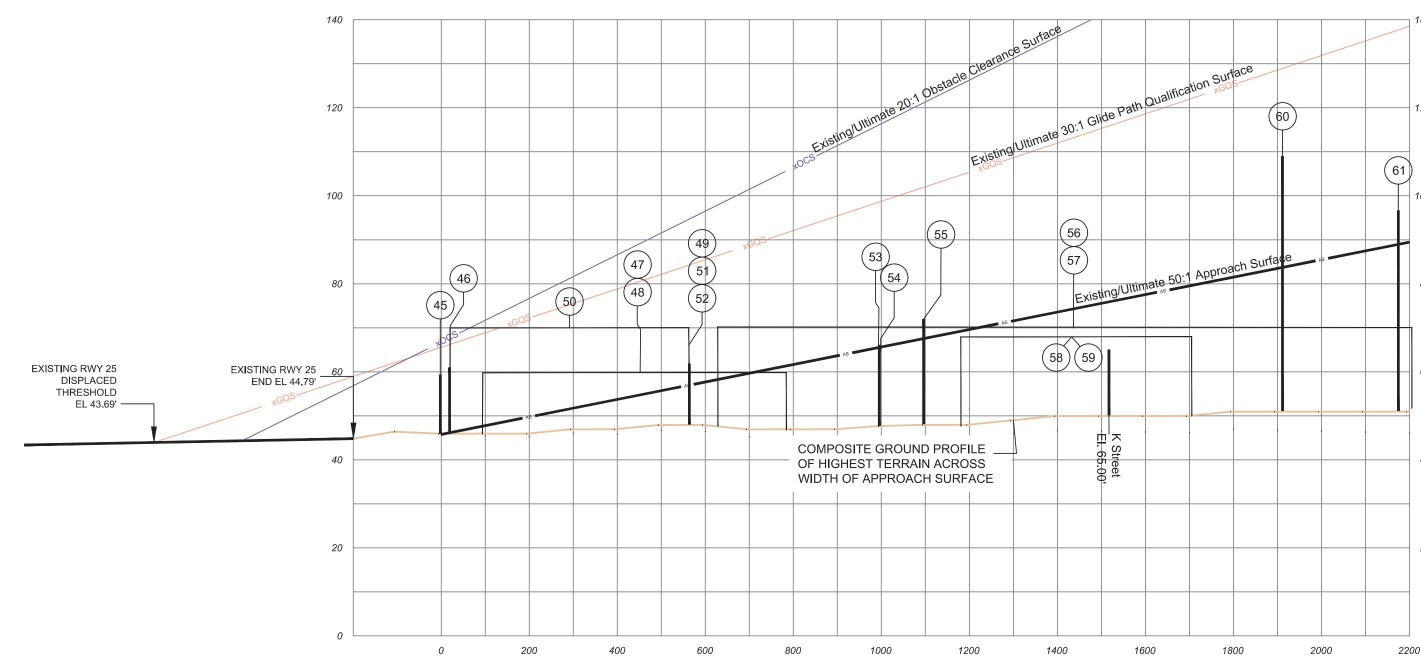


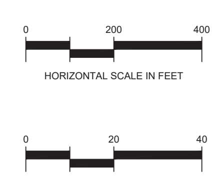


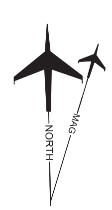




OBSTRUCTION TABLE						
Obj. No.	Object Description	Top Object Elevation	Obstructed Part 77 Surface	Surface Elevation	Object Penetration	Proposed Object Disposition
1	Treetop	63.72' MSL	Runway 7 Approach	61.06' MSL	2.66'	Top or Remove
2	Fence	36.06' MSL	Runway 7 Approach	33.51' MSL	2.52'	To Be Determined

RUNWAY 7-25





Magnetic Declination
12° 09' 00" East (April 2019)
Annual Rate of Change
00° 5' 00" West (April 2019)

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, 15 for non-interstate roads, 17' for interstate roads, and 23' for railroads.
2. Depiction of features and objects within the inner portion of the approach surfaces, is illustrated on the Inner Approach Surface for Runway 7-25 Sheet 8 of these plans.
3. Existing and future height and hazard ordinances are to be amended and/or referenced upon approval of updated PART 77 Airspace Plan.
4. Obstruction data based on May 7, 2018 aerial survey MTZ Geospactial.
5. Obstruction Data for groups represent the tallest object (Natural or Man Made) in the group.

OBSTRUCTION TABLE						
Obj. No.	Object Description	Top Object Elevation	Obstructed Part 77 Surface	Surface Elevation	Object Penetration	Proposed Object Disposition
45	Little Farms Road	59.27' MSL	Runway 25 Approach	44.83' MSL	14.41'	To Be Determined
46	Light Pole	60.96' MSL	Runway 25 Approach	45.21' MSL	15.75'	To Be Determined
47	Man Made High Point Group	66.96' MSL	Runway 25 Approach	49.36' MSL	17.60'	To Be Determined
48	Natural High Point Group	74.61' MSL	Runway 25 Approach	55.21' MSL	19.40'	To Be Determined
49	Ventura Road	60.15' MSL	Runway 25 Approach	56.12' MSL	4.02'	To Be Determined
50	Natural High Point Group	99.84' MSL	Runway 25 Approach	51.02' MSL	48.82'	To Be Determined
51	Ventura Road	61.49' MSL	Runway 25 Approach	56.25' MSL	5.23'	To Be Determined
52	Ventura Road	61.76' MSL	Runway 25 Approach	56.25' MSL	5.50'	To Be Determined
53	Treetop	65.25' MSL	Runway 25 Approach	64.87' MSL	0.38'	Top or Remove
54	Treetop	67.59' MSL	Runway 25 Approach	64.83' MSL	2.76'	Top or Remove
55	Treetop	71.97' MSL	Runway 25 Approach	67.72' MSL	4.25'	Top or Remove
56	Man made High Point Group	78.18' MSL	Runway 25 Approach	67.13' MSL	11.05'	To Be Determined
57	Natural High Point Group	107.79' MSL	Runway 25 Approach	72.09' MSL	35.70'	To Be Determined
58	Natural High Point Group	87.00' MSL	Runway 25 Approach	70.21' MSL	16.79'	To Be Determined
59	Man Made High Point Group	89.08' MSL	Runway 25 Approach	74.13' MSL	14.95'	To Be Determined
60	Treetop	109.05' MSL	Runway 25 Approach	83.54' MSL	25.96'	Top or Remove
61	Treetop	96.72' MSL	Runway 25 Approach	88.36' MSL	8.36'	Top or Remove
62	Utility Pole	95.68' MSL	Runway 25 Approach	94.88' MSL	0.80'	To Be Determined
63	Treetop	100.32' MSL	Runway 25 Approach	95.37' MSL	4.95'	Top or Remove
64	Treetop	102.39' MSL	Runway 25 Approach	96.80' MSL	5.59'	Top or Remove
65	Treetop	112.59' MSL	Runway 25 Approach	96.80' MSL	15.79'	Top or Remove
66	Treetop	131.37' MSL	Runway 25 Approach	97.25' MSL	34.12'	Top or Remove
67	Treetop	152.79' MSL	Runway 25 Approach	99.16' MSL	53.63'	Top or Remove
68	Treetop	135.57' MSL	Runway 25 Approach	104.36' MSL	31.21'	Top or Remove
69	Treetop	105.90' MSL	Runway 25 Approach	104.65' MSL	1.25'	Top or Remove
70	Treetop	121.59' MSL	Runway 25 Approach	114.68' MSL	6.91'	Top or Remove
71	Treetop	140.61' MSL	Runway 25 Approach	113.71' MSL	26.90'	Top or Remove
72	Natural High Point Group	137.79' MSL	Runway 25 Approach	116.18' MSL	21.61'	Top or Remove
73	Man Made High Point Group	162.93' MSL	Runway 25 Approach	122.54' MSL	40.39'	Light
74	Natural High Point Group	177.60' MSL	Runway 25 Approach	123.20' MSL	54.40'	Top Or Remove
75	Natural High Point Group	178.71' MSL	Runway 25 Approach	138.28' MSL	40.43'	Top or Remove
76	Treetop	151.67' MSL	Runway 25 Approach	144.03' MSL	7.64'	Top or Remove
77	Treetop	174.24' MSL	Runway 25 Approach	144.24' MSL	30.00'	Top or Remove

No.	REVISIONS	DATE	BY	APP'D.
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1	ALP UPDATE	01/2022	--	--

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OXNARD AIRPORT

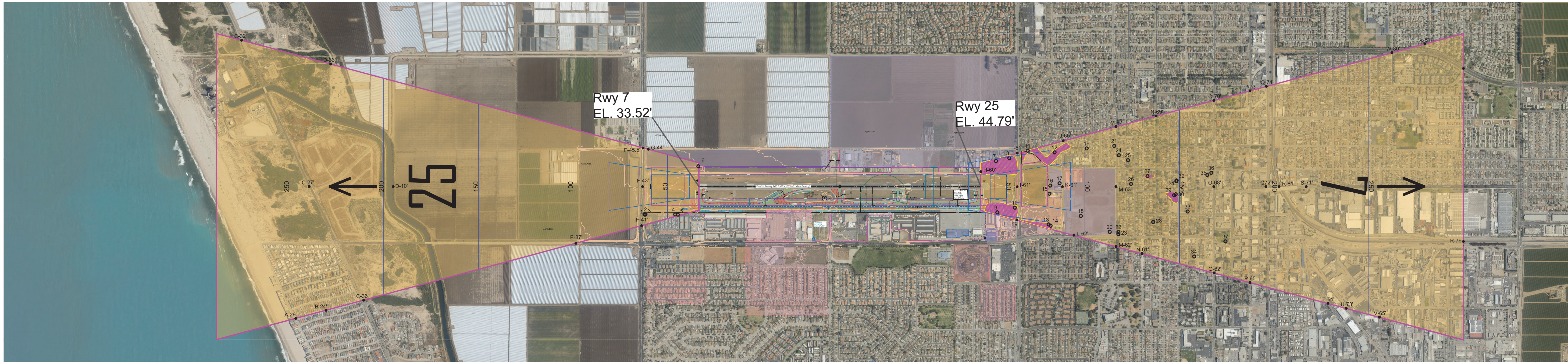
INNER APPROACH RUNWAY 7-25 DRAWING

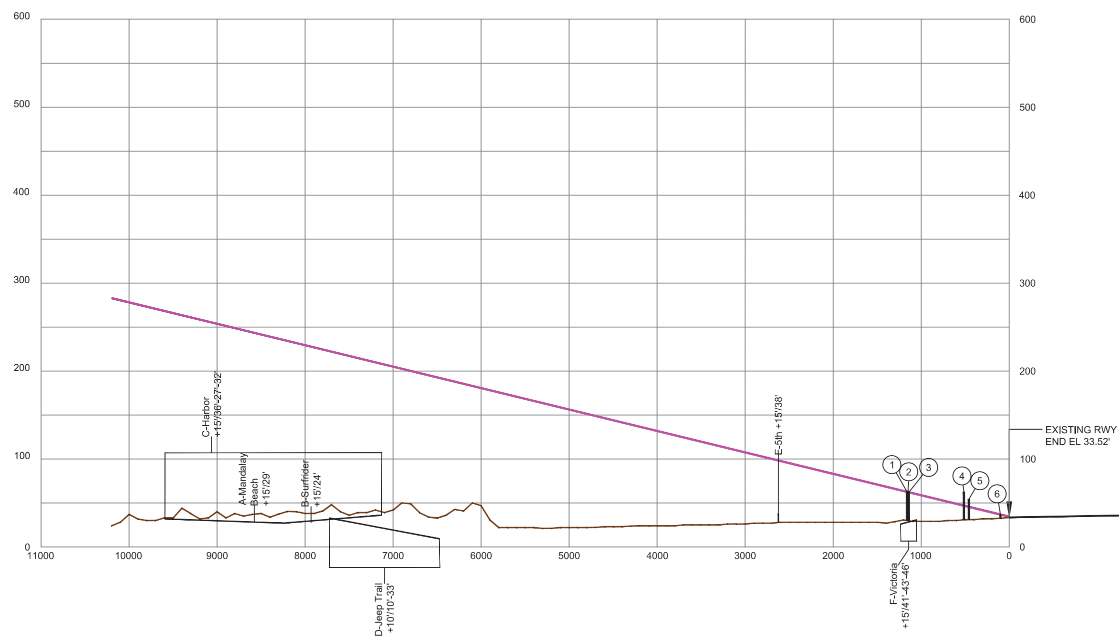
OXNARD, CALIFORNIA

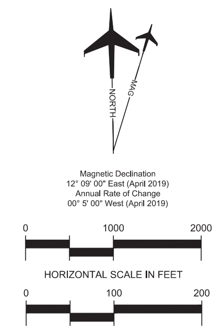
PLANNED BY: Matt Quick
DETAILED BY: Maggie Beaver
APPROVED BY: Tim Kahmann

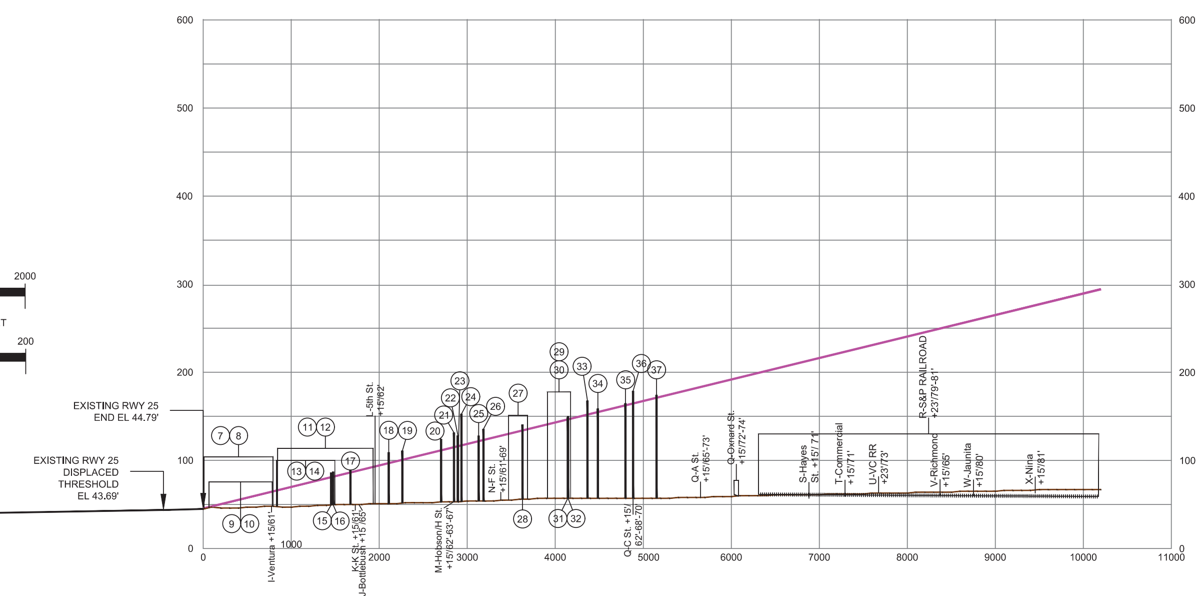
Coffman Associates
Airport Consultants
www.coffmanassociates.com

January 2022









RUNWAY 25 DEPARTURE OBSTRUCTION TABLE						
Obj. No.	Object Description	Top Object Elevation	Obstructed Departure Surface	Surface Elevation	Object Penetration*	Proposed Object Disposition
1	Tree Top	62.64' MSL	Rwy 25 Departure	62.26' MSL	0.38'	Trim or Remove
2	Tree Top	63.72' MSL	Rwy 25 Departure	60.93' MSL	1.79'	Trim or Remove
3	Tree Top	62.07' MSL	Rwy 25 Departure	61.73' MSL	0.34'	Trim or Remove
4	Tree Top	62.73' MSL	Rwy 25 Departure	46.07' MSL	16.66'	Trim or Remove
5	Tree Top	54.30' MSL	Rwy 25 Departure	61.73' MSL	44.65'	Trim or Remove
6	Fence	36.50' MSL	Rwy 25 Departure	33.76' MSL	2.74'	To Be Determined

RUNWAY 7 DEPARTURE OBSTRUCTION TABLE						
Obj. No.	Object Description	Top Object Elevation	Obstructed Departure Surface	Surface Elevation	Object Penetration	Proposed Object Disposition
7	Man Made High Point Group	84.60' MSL	Rwy 7 Departure	52.84' MSL	37.76'	To Be Determined
8	Natural High Point Group	104.07' MSL	Rwy 7 Departure	59.91' MSL	44.16'	Trim or Remove
9	Man Made High Point Group	75.39' MSL	Rwy 7 Departure	53.64' MSL	21.75'	To Be Determined
10	Natural High Point Group	74.61' MSL	Rwy 7 Departure	62.83' MSL	11.78'	Trim or Remove
11	Man Made High Point Group	77.25' MSL	Rwy 7 Departure	69.62' MSL	7.63'	To Be Determined
12	Natural High Point Group	113.76' MSL	Rwy 7 Departure	83.84' MSL	29.92'	Trim or Remove
13	Natural High Point Group	109.10' MSL	Rwy 7 Departure	80.69' MSL	28.41'	Trim or Remove
14	Man Made High Point Group	120.33' MSL	Rwy 7 Departure	81.71' MSL	38.62'	To Be Determined
15	Trees	87.00' MSL	Rwy 7 Departure	81.57' MSL	5.43'	Trim or Remove
16	Tree Top	86.03' MSL	Rwy 7 Departure	81.07' MSL	4.96'	Trim or Remove
17	Flag Pole	89.08' MSL	Rwy 7 Departure	86.48' MSL	2.60'	To Be Determined
18	Tree Top	109.05' MSL	Rwy 7 Departure	97.68' MSL	11.37'	Trim or Remove
19	Tree Top	110.88' MSL	Rwy 7 Departure	100.80' MSL	10.08'	Trim or Remove
20	Tree Top	124.17' MSL	Rwy 7 Departure	112.95' MSL	11.22'	Trim or Remove
21	Tree Top	131.37' MSL	Rwy 7 Departure	115.39' MSL	15.98'	Trim or Remove
22	Tree Top	128.07' MSL	Rwy 7 Departure	117.61' MSL	10.46'	Trim or Remove
23	Tree Top	127.53' MSL	Rwy 7 Departure	117.54' MSL	9.99'	Trim or Remove
24	Tree Top	152.79' MSL	Rwy 7 Departure	117.76' MSL	35.03'	Trim or Remove
25	Tree Top	127.95' MSL	Rwy 7 Departure	122.61' MSL	5.34'	Trim or Remove
26	Tree Top	135.57' MSL	Rwy 7 Departure	124.27' MSL	11.30'	Trim or Remove
27	Natural High Point Group	151.11' MSL	Rwy 7 Departure	132.93' MSL	18.18'	Trim or Remove

RUNWAY7 DEPARTURE OBSTRUCTION TABLE						
Obj. No.	Object Description	Top Object Elevation	Obstructed Departure Surface	Surface Elevation	Object Penetration	Proposed Object Disposition
28	Tree Top	140.61' MSL	Rwy 7 Departure	135.96' MSL	4.65'	Trim or Remove
29	Man Made High Point Group	162.93' MSL	Rwy 7 Departure	146.99' MSL	15.94'	To Be Determined
30	Natural High Point Group	177.60' MSL	Rwy 7 Departure	147.81' MSL	29.79'	Trim or Remove
31	Tree Top	148.98' MSL	Rwy 7 Departure	148.20' MSL	0.78'	Trim or Remove
32	Tree Top	149.85' MSL	Rwy 7 Departure	148.30' MSL	1.55'	Trim or Remove
33	Tree Top	167.73' MSL	Rwy 7 Departure	154.14' MSL	13.59'	Trim or Remove
34	Tree Top	158.76' MSL	Rwy 7 Departure	157.57' MSL	1.19'	Trim or Remove
35	Tree Top	164.76' MSL	Rwy 7 Departure	164.55' MSL	0.21'	Trim or Remove
36	Tree Top	178.71' MSL	Rwy 7 Departure	166.31' MSL	12.40'	Trim or Remove
37	Tree Top	174.24' MSL	Rwy 7 Departure	174.12' MSL	0.12'	Trim or Remove

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, 15 for non-interstate roads, 17' for interstate roads, and 23' for railroads.
2. Depiction of features and objects within the inner portion of the approach surfaces, is illustrated on the Inner Approach Surface for Runway 7-25 Sheet 8 of these plans.
3. Existing and future height and hazard ordinances are to be amended and/or referenced upon approval of updated PART 77 Airspace Plan.
4. Obstruction data based on May 7, 2018 aerial survey MTZ Geospactial.
5. Obstruction Data for groups represent the tallest object (Natural or Man Made) in the group.

No.	REVISIONS	DATE	BY	APP'D.
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1	ALP UPDATE	01/2022	--	--

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OXNARD AIRPORT

RUNWAY 7-25 DEPARTURE SURFACE DRAWING

OXNARD, CALIFORNIA

PLANNED BY: Matt Quick
DETAILED BY: Maggie Beaver
APPROVED BY: Tim Kahmann

January 2022

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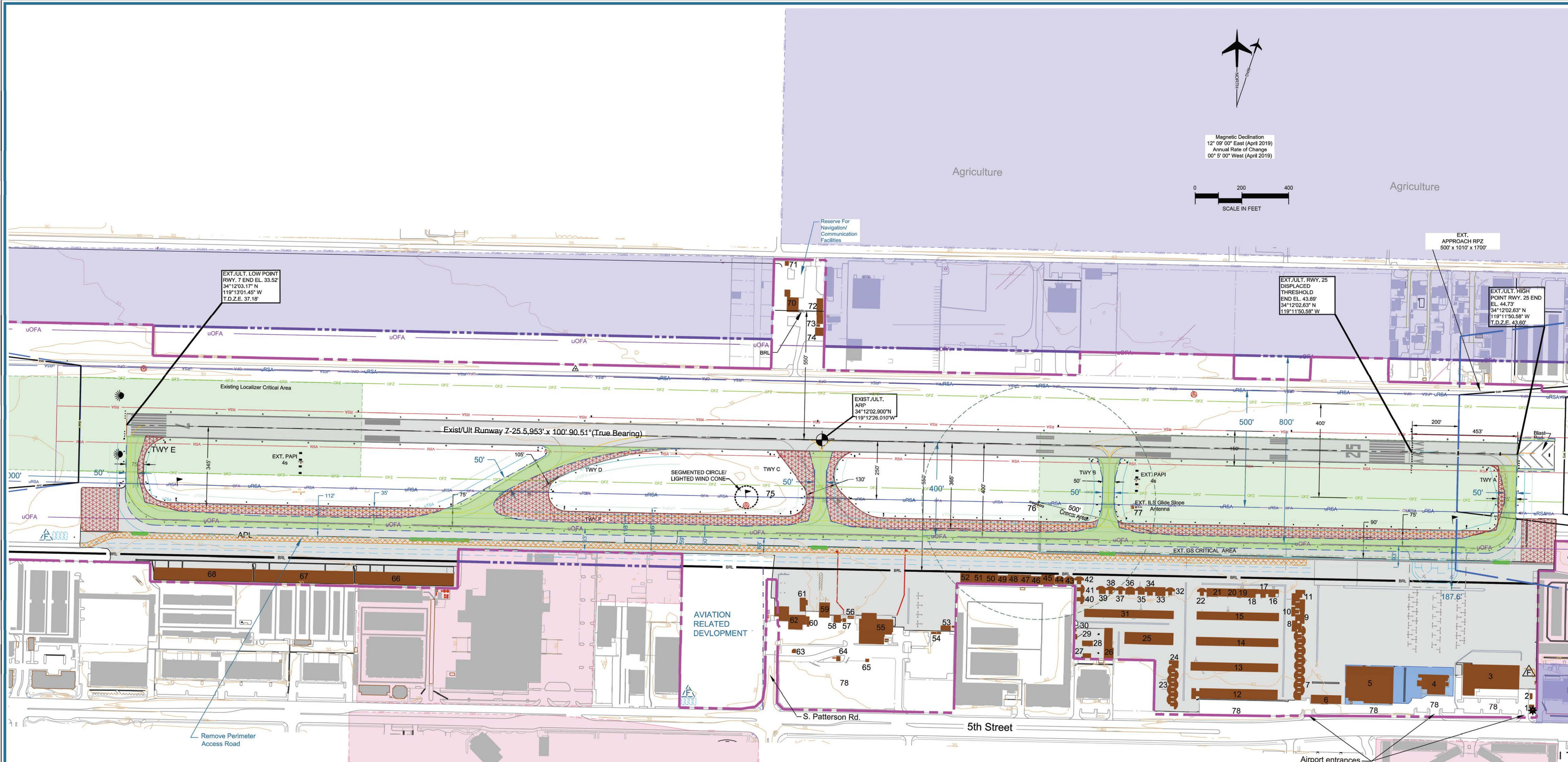

LEGEND		
EXISTING	ULTIMATE	DESCRIPTION
		AIRPORT PROPERTY LINE
		SECTION CORNERS
		AIRPORT REFERENCE POINT (ARP)
	SAME	AIRPORT ROTATING BEACON
		FUEL FARM
X/U BRL		BUILDING RESTRICTION LINE
		STRUCTURES ON AIRPORT
N/A		ABANDON/REMOVE BUILDING
	SAME	AUTOMATED SURFACE OBSERVING SYSTEM
		AIRPORT PAVEMENT
N/A		ABANDON/REMOVE PAVEMENT
		FENCE LINE
		HOLD MARKING
OFA	uOFA	RUNWAY OBJECT FREE AREA
RSA	RSA(U)	RUNWAY SAFETY AREA
OFZ	uOFZ	RUNWAY OBSTACLE FREE ZONE
RPZ		RUNWAY PROTECTION ZONE
TOFA	uTOFA	TAXIWAY OBJECT FREE AREA
TSA		TAXIWAY SAFETY AREA
AS	AS(U)	RUNWAY APPROACH SURFACE
xOCS	uOCS	OBSTACLE CLEARANCE SURFACE
	SAME	LOCALIZER
	SAME	TIE-DOWNS
	SAME	PAPI-4
	SAME	RUNWAY END IDENTIFIER LIGHTS (REILS)
	SAME	WINDSOCK
	SAME	TOPOGRAPHIC CONTOURS
	SAME	PACs AND SACs
		AVIGATION EASEMENT
	SAME	CRITICAL AREA
		AVIATION REDEVELOPMENT AREA
		PAVEMENT MARKINGS TO BE REMOVED
		NO TAXI ISLAND

EXISTING AIRPORT FACILITIES			EXISTING AIRPORT FACILITIES			EXISTING AIRPORT FACILITIES			EXISTING AIRPORT FACILITIES		
NO.	DESCRIPTION	ELEV. (MSL)	NO.	DESCRIPTION	ELEV. (MSL)	NO.	DESCRIPTION	ELEV. (MSL)	NO.	DESCRIPTION	ELEV. (MSL)
1	Beacon and Utility Building	110.40'	20	Port-a-Port Hangar	55.80'	40	Port-a-Port Hangar	51.10'	60	Aspen Helicopters	46.20'
2	Trash Stall	52.80'	21	Port-a-Port Hangar	56.60'	41	Port-a-Port Hangar	49.90'	61	Aspen Helicopters	-
3	Golden West Jet Center	83.00'	22	Port-a-Port Hangar	51.20'	42	Port-a-Port Hangar	49.80'	62	Aspen Helicopters	74.00'
4	Light Helicopter Depot	80.80'	23	Port-a-Port Hangar	51.50'	43	Port-a-Port Hangar	49.20'	63	Building	45.10'
5	Aspen Helicopters and Oxnard Jet Center	77.50'	24	Port-a-Port Hangar	56.70'	44	Port-a-Port Hangar	49.10'	64	Building and Tank	47.00'
			25	T-Hangars	60.30'	45	Executive Hangar	61.80'	65	Rental Car Shack	46.60'
6	Executive Hangars	59.40'	26	T-Hangars	58.50'	46	Executive Hangar	51.70'	66	Executive Hangar	56.30'
7	Port-a-Port Hangar Row (14)	53.90'	27	FAA Facility	52.50'	47	Executive Hangar	57.41'	67	Executive Hangar	55.10'
8	Port-a-Port Hangar	55.50'	28	FAA Facility	52.10'	48	Executive Hangar	54.50'	68	Executive Hangar	59.20'
9	Port-a-Port Hangar	55.50'	29	FAA Facility	50.00'	49	Executive Hangar	51.20'	69	FAA Equipment Fault	42.60'
10	Port-a-Port Hangar	52.00'	30	FAA Facility	48.70'	50	Executive Hangar	58.20'	70	Airport Maintenance	58.40'
11	Port-a-Port Hangar	54.70'	31	T-Hangars	56.50'	51	Executive Hangar	55.90'	71	Airport Well	55.10'
12	Executive Hangars	70.30'	32	Port-a-Port Hangar	50.20'	52	Executive Hangar	59.90'	72	Airport Maintenance	56.80'
13	T-Hangars	59.60'	33	Port-a-Port Hangar	50.40'	53	Wash Rack	49.50'	73	Airport Maintenance	50.00'
14	T-Hangars	57.80'	34	Port-a-Port Hangar	51.80'	54	Rental Car Service Bay	48.80'	74	Airport Maintenance	61.10'
15	T-Hangars	57.60'	35	Port-a-Port Hangar	51.90'	55	Terminal Building	64.20'	75	Anemometer	57.00'
16	Port-a-Port Hangar	51.80'	36	Port-a-Port Hangar	58.30'	56	Building	42.80'	76	ASOS	63.10'
17	Port-a-Port Hangar	52.60'	37	Port-a-Port Hangar	50.20'	57	Building	47.00'	77	Glide Slope	51.00'
18	Port-a-Port Hangar	52.70'	38	Port-a-Port Hangar	51.40'	58	Air Traffic Control Tower	116.90'	78	Auto Parking	NA
19	Port-a-Port Hangar	61.20'	39	Port-a-Port Hangar	50.00'	59	ARFF	61.60'	79	-	-

General Notes:

1. Features and objects, including related elevations and clearances, within the runway protection zones are depicted on the INNER PORTION APPROACH SURFACE DRAWINGS.
2. Details concerning terminal improvements are depicted on the TERMINAL AREA DRAWINGS.
3. Recommended land uses are depicted on the AIRPORT LAND USE DRAWING.
4. All Elevations are in NAVD 88, all Horizontal Coordinates are in NAD 83.
6. No Obstacle Free Zone (OFZ) Object Penetrations.
7. The TOFA width is 131' and the TESM width is 7.5' they are not shown to keep the drawing legible.

No.	REVISIONS	DATE	BY	APP'D.
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1	ALP UPDATE	01/2022	--	--

OXNARD AIRPORT

TERMINAL AREA DRAWING

OXNARD, CALIFORNIA

PLANNED BY: Matt Quick
DETAILED BY: Maggie Beaver
APPROVED BY: Tim Kahmann

January 2022 SHEET 11 OF 13

Coffman Associates
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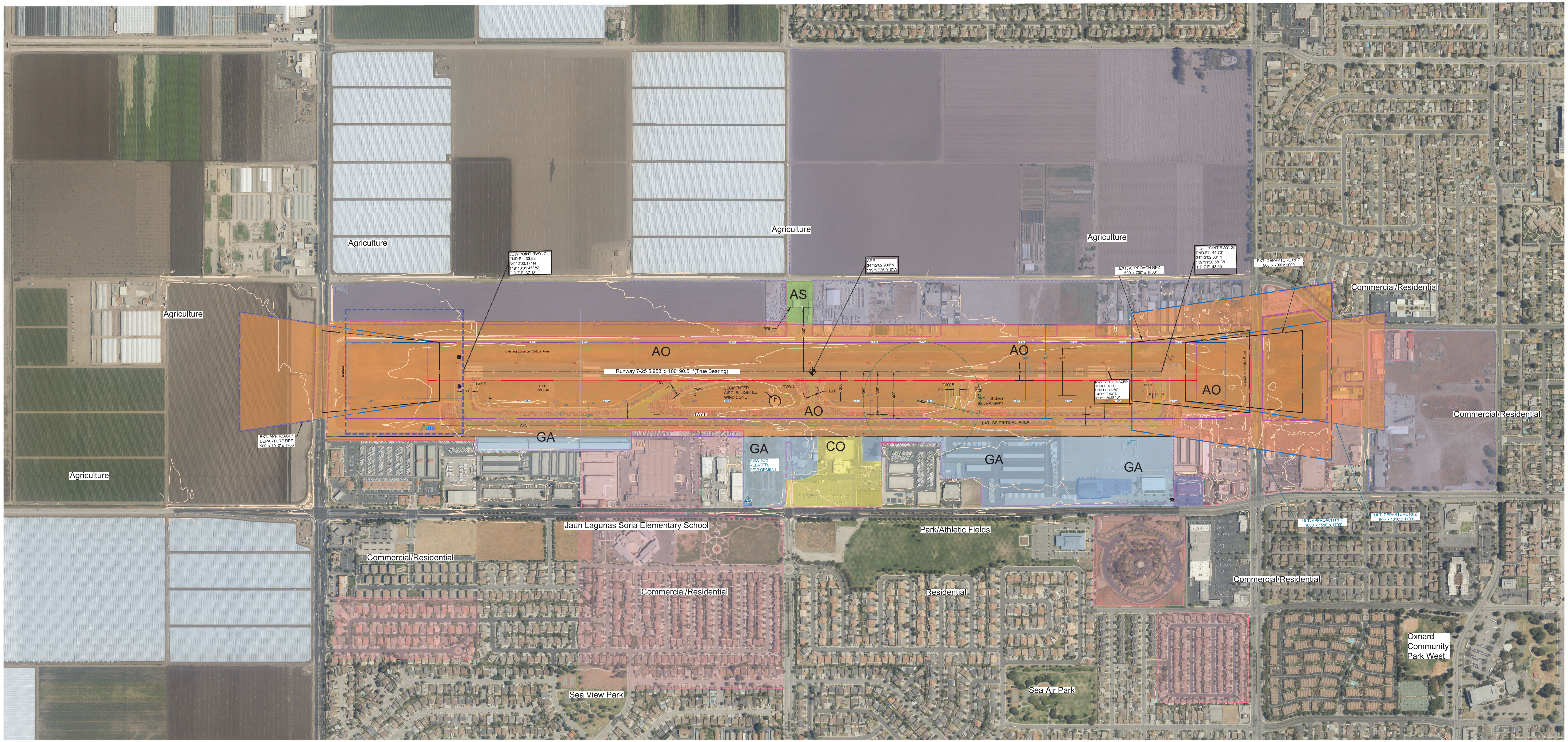
ON-AIRPORT
LAND USE LEGEND

AO	AIRFIELD OPERATIONS	GA	GENERAL AVIATION AREA
AS	AVIATION SUPPORT	CO	FUTURE COMMERCIAL AREA
	EXISTING AIRPORT AVIGATION EASMENT		ULTIMATE AIRPORT AVIGATION EASMENT
	ULTIMATE CROP RESTRICTION LINE		

BASE MAP: AERIAL PHOTO FROM MTZ GEOSPACIAL DATED MAY 17,2018

Magnetic Declination
12° 09' 00" East (April 2019)
Annual Rate of Change
00° 5' 00" West (April 2019)

0 400 800
SCALE IN FEET



GENERAL NOTES:

1. Obstruction survey accuracy conforms to requirements listed in AC150/5300-18b for the Obstacle feature class.

2. Per Ventura County Non-Coastal Zoning Ordinance Section 8106-7.3 adopted March 19, 2019: Height limits as set fourth in Federal Aviation Administration (FAA)regulations shall be adhered to within the approach and turning areas of any Ventura County Airport.

No.	REVISIONS	DATE	BY	APP'D.
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1	ALP UPDATE	01/2022	--	--

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OXNARD AIRPORT

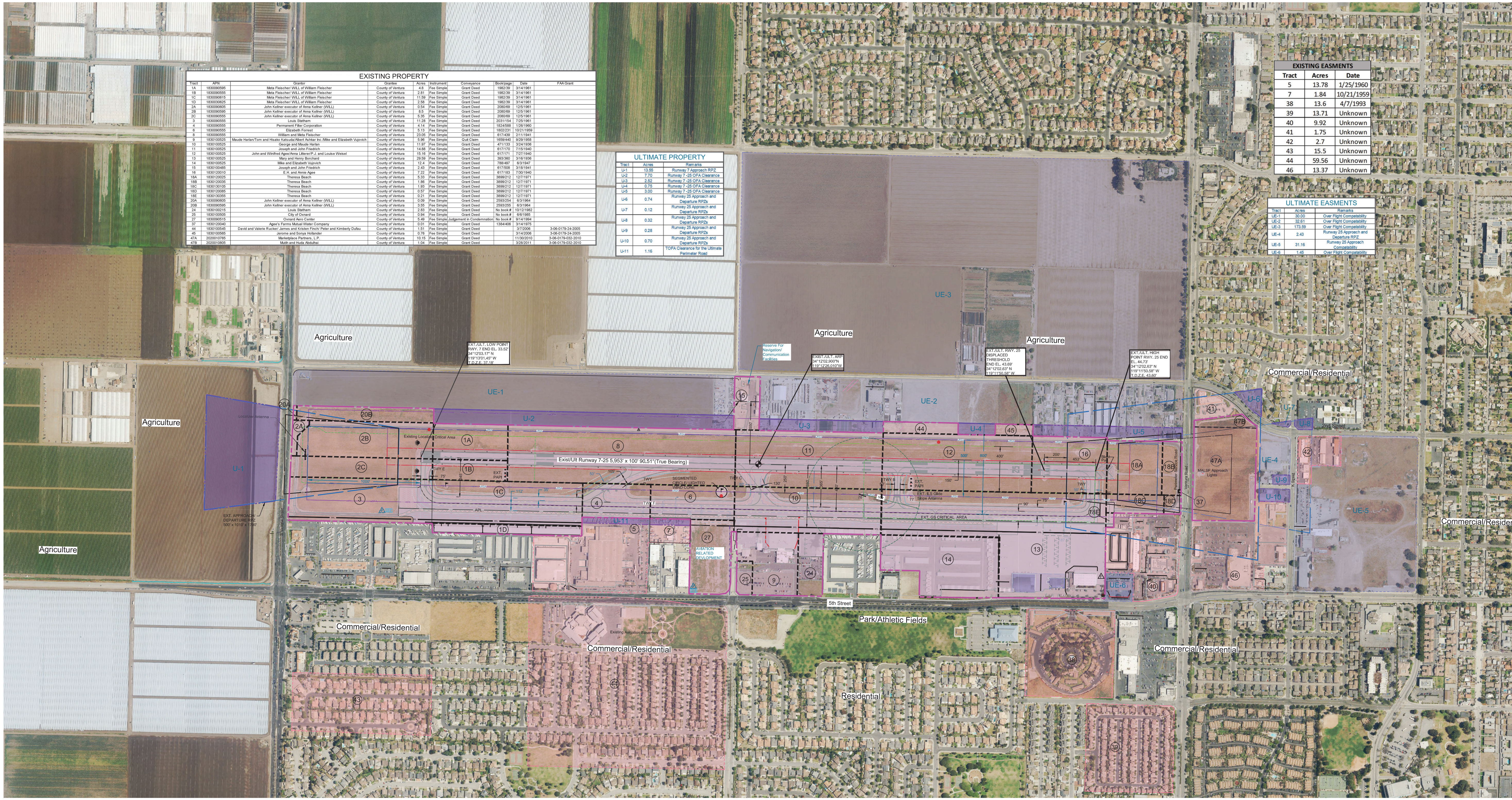
AIRPORT LAND USE DRAWING

OXNARD, CALIFORNIA

PLANNED BY: Matt Quick
DETAILED BY: Maggie Beaver
APPROVED BY: Tim Kahmann

January 2022 SHEET 12 OF 13

Coffman Associates
Airport Consultants
www.coffmanassociates.com



EXISTING PROPERTY

Tract	APN	Grantor	Grantee	Acres	Instrument	Conveyance	Book/page	Date	FAA Grant
1A	1830090595	Meta Fleischer/ WILL of William Fleischer	County of Ventura	4.8	Fee Simple	Grant Deed	1982/39	3/14/1961	
1B	1830090555	Meta Fleischer/ WILL of William Fleischer	County of Ventura	2.81	Fee Simple	Grant Deed	1982/39	3/14/1961	
1C	1830090615	Meta Fleischer/ WILL of William Fleischer	County of Ventura	11.59	Fee Simple	Grant Deed	1982/39	3/14/1961	
1D	1830030625	Meta Fleischer/ WILL of William Fleischer	County of Ventura	2.58	Fee Simple	Grant Deed	1982/39	3/14/1961	
2A	1830090605	John Kellner executor of Anna Kellner (WILL)	County of Ventura	0.54	Fee Simple	Grant Deed	2080/69	12/5/1961	
2B	1830090595	John Kellner executor of Anna Kellner (WILL)	County of Ventura	8.5	Fee Simple	Grant Deed	2080/69	12/5/1961	
2C	1830090555	John Kellner executor of Anna Kellner (WILL)	County of Ventura	5.35	Fee Simple	Grant Deed	2080/69	12/5/1961	
3	1830090555	Louis Statham	County of Ventura	11.28	Fee Simple	Grant Deed	2031/154	7/25/1961	
4	1830090555	Permanent Filter Corporation	County of Ventura	4.14	Fee Simple	Grant Deed	1824/588	1/26/1960	
6	1830090555	Elizabeth Forrest	County of Ventura	5.13	Fee Simple	Grant Deed	1802/231	10/21/1959	
8	1830090555	William and Meta Fleischer	County of Ventura	23.05	Fee Simple	Grant Deed	617/439	2/11/1941	
9	1830100525	Maude Harlan/Tom and Hisako Katsuda/Albert Ashkar Inc./Mike and Elizabeth Vujovich	County of Ventura	5.96	Fee Simple	Quit Claim	1659/440	9/29/1958	
10	1830100525	George and Maude Harlan	County of Ventura	11.97	Fee Simple	Grant Deed	471/133	3/24/1936	
11	1830100525	Joseph and John Friedrich	County of Ventura	14.88	Fee Simple	Grant Deed	617/170	7/15/1940	
12	1830100525	John and Winifred Agee/Anna Litterer/P.J. and Louise Weisel	County of Ventura	15.16	Fee Simple	Grant Deed	617/171	7/27/1940	
13	1830100525	Mary and Henry Borchard	County of Ventura	29.59	Fee Simple	Grant Deed	393/360	3/16/1936	
14	1830100525	Mike and Elizabeth Vujovich	County of Ventura	12.4	Fee Simple	Grant Deed	788/497	6/3/1947	
15	1830100485	Joseph and John Friedrich	County of Ventura	2.43	Fee Simple	Grant Deed	617/508	3/18/1941	
16	1830120010	E.H. and Annie Agee	County of Ventura	7.22	Fee Simple	Grant Deed	617/183	7/30/1940	
18A	1830120025	Theresa Beach	County of Ventura	5.33	Fee Simple	Grant Deed	3899/212	12/7/1971	
18B	1830120035	Theresa Beach	County of Ventura	1.86	Fee Simple	Grant Deed	3899/212	12/7/1971	
18C	1830130105	Theresa Beach	County of Ventura	1.93	Fee Simple	Grant Deed	3899/212	12/7/1971	
18D	1830120085	Theresa Beach	County of Ventura	0.57	Fee Simple	Grant Deed	3899/212	12/7/1971	
18E	1830130355	Theresa Beach	County of Ventura	0.21	Fee Simple	Grant Deed	3899/212	12/7/1971	
20A	1830090605	John Kellner executor of Anna Kellner (WILL)	County of Ventura	0.09	Fee Simple	Grant Deed	2593/254	6/3/1964	
20B	1830090595	John Kellner executor of Anna Kellner (WILL)	County of Ventura	3.55	Fee Simple	Grant Deed	2593/255	6/3/1964	
24	1830100215	Louis Statham	County of Ventura	2.83	Fee Simple	Grant Deed	No book #	10/12/1982	
25	1830100505	City of Oxnard	County of Ventura	0.94	Fee Simple	Grant Deed	No book #	6/6/1985	
27	1830090515	Oxnard Aero Center	County of Ventura	5.49	Fee Simple	Judgement in Condemnation	No book #	9/14/1994	
37	1830120040	Agee's Farms Mutual Water Company	County of Ventura	0.01	Fee Simple	Grant Deed	1384/406	3/14/1975	
44	1830100545	David and Valerie Rucker/ James and Kristen Finch/ Peter and Kimberly Dufau	County of Ventura	1.51	Fee Simple	Grant Deed		3/7/2006	3-06-0179-24-2005
45	1830100565	Jerome and Sonya Hollander	County of Ventura	0.76	Fee Simple	Grant Deed		3/14/2006	3-06-0179-24-2005
47A	2020010765	Marketplace Partners, L.P.	County of Ventura	10.15	Fee Simple	Grant Deed		11/30/2010	3-06-0179-032-2010
47B	2020010805	Mutih and Huda Abdulhai	County of Ventura	1.04	Fee Simple	Grant Deed		3/28/2011	3-06-0179-032-2010

ULTIMATE PROPERTY

Tract	Acres	Remarks
U-1	13.55	Runway 7 Approach RPZ
U-2	7.70	Runway 7 -25 OFA Clearance
U-3	2.52	Runway 7 -25 OFA Clearance
U-4	0.75	Runway 7 -25 OFA Clearance
U-5	3.00	Runway 7 -25 OFA Clearance
U-6	0.74	Runway 25 Approach and Departure RPZs
U-7	0.12	Runway 25 Approach and Departure RPZs
U-8	0.32	Runway 25 Approach and Departure RPZs
U-9	0.28	Runway 25 Approach and Departure RPZs
U-10	0.70	Runway 25 Approach and Departure RPZs
U-11	1.16	TOFA Clearance for the Ultimate Perimeter Road

EXISTING EASMENTS

Tract	Acres	Date
5	13.78	1/25/1960
7	1.84	10/21/1959
38	13.6	4/7/1993
39	13.71	Unknown
40	9.92	Unknown
41	1.75	Unknown
42	2.7	Unknown
43	15.5	Unknown
44	59.56	Unknown
46	13.37	Unknown

ULTIMATE EASMENTS

Tract	Acres	Remarks
UE-1	30.00	Over Flight Compatability
UE-2	32.61	Over Flight Compatability
UE-3	173.59	Over Flight Compatability
UE-4	2.43	Runway 25 Approach and Departure RPZ
UE-5	31.16	Runway 25 Approach Compatability
UE-6	1.45	Over Flight Compatability

LEGEND

EXISTING	ULTIMATE	DESCRIPTION
		AIRPORT PROPERTY LINE
		SECTION CORNERS
		AIRPORT REFERENCE POINT (ARP)
	SAME	AIRPORT ROTATING BEACON
		FUEL FARM
X/U BRL		BUILDING RESTRICTION LINE
	SAME	AUTOMATED SURFACE OBSERVING SYSTEM
		AIRPORT PAVEMENT
N/A		ABANDON/REMOVE PAVEMENT
		FENCE LINE
		HOLD MARKING
OFA	uOFA	RUNWAY OBJECT FREE AREA
RSA	RSA(U)	RUNWAY SAFETY AREA
OFZ	uOFZ	RUNWAY OBSTACLE FREE ZONE
RPZ		RUNWAY PROTECTION ZONE
TOFA	uTOFA	TAXIWAY OBJECT FREE AREA
TSA	uTSA	TAXIWAY SAFETY AREA
AS	AS(U)	RUNWAY APPROACH SURFACE
xOCS	uOCS	OBSTACLE CLEARANCE SURFACE
	SAME	LOCALIZER
	SAME	TIE-DOWNS
	SAME	PAPI-4
	SAME	RUNWAY END IDENTIFIER LIGHTS (REILS)
	SAME	WINDSOCK
	SAME	TOPOGRAPHIC CONTOURS
	SAME	PACs AND SACs
		AVIGATION EASMENT
	SAME	CRITICAL AREA
		AVIATION REDEVELOPMENT AREA

KEY:

- Existing Airport Property
- Existing Airport Avigation Easement
- Ultimate Land Acquisition
- Ultimate Airport Avigation Easement
- Parcel Boundary

FOR APPROVAL BY:

COUNTY OF VENTURA

APPROVED BY: Keith Freitas — Director of Airports

ON THE DATE OF: Digitally signed by Keith Freitas Date: 2022.02.14 10:05:07 -08'00'

0 400 800

SCALE IN FEET

Magnetic Declination
12° 09' 00" East (April 2019)
Annual Rate of Change
00° 5' 00" West (April 2019)

No.	REVISIONS	DATE	BY	APP'D.
5				
4				
3	--	--	--	--
2	--	--	--	--
1	ALP UPDATE	01/2022	--	--

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OXNARD AIRPORT

EXHIBIT "A" PROPERTY MAP

OXNARD, CALIFORNIA

PLANNED BY: Matt Quick

DETAILED BY: Maggie Beaver

APPROVED BY: Tim Kahmann

January 2022

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