ELOY
MUNICIPAL AIRPORT

AIRPORT MASTER PLAN

RESOLUTION NO.: 11- 1239

A RESOLUTION OF THE MAYOR AND CITY COUNCIL OF THE CITY OF ELOY, ARIZONA DECLARING ITS INTENT TO ADOPT A CITY OF ELOY MUNICIPAL AIRPORT MASTER PLAN.

WHEREAS, This Master Plan is an update of the previous Eloy Municipal Airport Master Plan adopted in April, 2001; and,

WHEREAS, The updated Master Plan intends to meet Federal Aviation Administration design and safety standards; and,

WHEREAS, The Master Plan update has been undertaken to evaluate the airport's capabilities and role, to forecast future aviation demand, and to plan for the timely development of new or expanded facilities to meet that demand; and,

WHEREAS, The City of Eloy recognizes the importance of air transportation to the area; and,

WHEREAS, the Master Plan recognizes the importance of economic development partners and existing agreements with said partners; and

WHEREAS, The Master Plan provides systematic guidelines for the future development, operation and maintenance of the airport; and,

WHEREAS, The City of Eloy Airport Advisory Board approved the Municipal Airport Master Plan during their meeting on May 31, 2011;

THEREFORE, BE IT RESOLVED by the Mayor and City Council of the City of Eloy, Arizona:

THAT the City adopts a City of Eloy Municipal Airport Master Plan (February 2011) prepared by Coffman Associates, Inc.

PASSED AND ADOPTED by the Mayor and City Council of the City of Eloy, Arizona on this 25TH day of July 2011.

APPROVED:

Byron Jackson, Mayor

ATTEST:

Mary Myers, City Clerk

APPROVED AS TO FORM;

Stephen R. Cooper, City Attorney

AIRPORT MASTER PLAN

for

ELOY MUNICIPAL AIRPORT
Eloy, Arizona

Prepared for

THE CITY OF ELOY

by

Coffman Associates, Inc.

May 2013

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Eloy, Arizona

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INTRODUCTION

ELOY MUNICIPAL AIRPORT

Introduction

The Eloy Municipal Airport Master Plan Update has been undertaken to evaluate the airport's capabilities and role, to forecast future aviation demand, and to plan for the timely development of new or expanded facilities that may be required to meet that demand. The ultimate goal of the Master Plan is to provide systematic guidelines for the future development, operation, and maintenance of the airport.

The Master Plan is intended to be a proactive document which identifies and then plans for future facility needs well in advance of the actual need. This is done to ensure that the City of Eloy can coordinate project approvals, design, financing, and construction in a timely manner, prior to experiencing the negative effects of inadequate facilities.

An important result of the Master Plan is reserving sufficient areas for future facility needs. This protects development areas and allows the airport to readily meet future demands when required. The intended result is a detailed land use concept which outlines specific uses for all areas of airport property.

The preparation of this Master Plan is evidence that the City of Eloy recognizes the importance of air transportation to the area and the associated challenges inherent in providing for its unique operating improvement needs. The cost of maintaining an airport is an investment which yields impressive benefits for the community. With a sound and realistic Master Plan, Eloy Municipal Airport can maintain its role as an important link to the national air transportation system for the community.

Eloy Municipal Airport is located approximately three miles northwest of downtown Eloy. The airport provides a vital economic base for the local community having several aviation related businesses

dependant on its facilities to operate. Skydive Arizona, the primary airport user, is one of the busiest skydiving operators in the United States, attracting visitors from all over the country. As such, Eloy Municipal Airport should be carefully and thoughtfully planned and subsequently developed in a manner which matches the development goals of the community. The City of Eloy initiated this Master Plan as an update to the previous Master Plan for Eloy Municipal Airport completed in 2001. Since that time, the City of Eloy has invested significant funds into the continued growth and development of the airport.

MASTER PLAN GOALS AND OBJECTIVES

The primary objective of the Eloy Municipal Airport Master Plan is to develop a financially feasible, long term development program which will satisfy aviation demand and be compatible with area development, other transportation modes, and the environment. Accomplishing this objective requires an evaluation of the existing airport so as to make a determination of what actions should be taken to maintain adequate, safe, and reliable airport facilities. The completed Master Plan provides a detailed development plan which provides responsible officials with a schedule of future capital needs to aid in planning, scheduling, and budgeting.

An Airport Master Plan must be developed according to Federal Aviation Administration (FAA) requirements which contain specific components. These components, to be detailed in the following section, are guidelines which allow for a systematic and technical approach to reach the final development plan.

The Master Plan provides a vision for the airport covering the next 20 years and beyond. With this vision, the City of Eloy will have advance notice of potential future airport funding needs so that appropriate steps can be taken to ensure that adequate funds are budgeted and planned.

Specific goals and objectives of the Eloy Municipal Airport Master Plan Update are:

- **Preserve Public and Private Investments**

The City of Eloy, the FAA, and the Arizona Department of Transportation (ADOT)-Aeronautics Group have made considerable investments in the airport's infrastructure. Private individuals and businesses have made investments in buildings and other facilities. The Master Plan will provide for continued maintenance as well as necessary improvements to the airport's infrastructure to ensure maximum utility of public and private facilities at Eloy Municipal Airport.

- **Be Reflective of Community Goals and Objectives**

Eloy Municipal Airport is a public facility serving the needs of the local residents and businesses. The Master Plan needs to be reflective of the goals and visions of the City, especially those related to quality of life, business and development, and land use. As a result, the Master Plan incorporates existing planning efforts by the City of Eloy into the ultimate design and use of the airport.

- **Maintain Safety**

Safety is an essential consideration in the planning and development at the airport.

The Master Plan focuses on maintaining the highest levels of safety for airport users, visitors, employees, and the surrounding community in general.

- **Preserve the Environment**

Protection and preservation of the local environment are essential concerns in the Master Plan. Any improvements called for are mindful of environmental sensitivities.

- **Attract Public Participation**

To ensure that the Master Plan reflects the concerns of the public, the local community, airport tenants, airport users, and businesses throughout the region, the Master Plan process included an active public outreach program. The intent of the program was to solicit comments and suggestions which then were included in the final Master Plan report, as appropriate.

- **Strengthen the Economy**

In continuing support of the area's economy, the Master Plan is aimed at retaining and increasing jobs and revenue for the area and its businesses.

MASTER PLAN TASKS

The Master Plan accomplished these objectives by carrying out the following:

- Examined the projected aviation demand and identified the facilities necessary to accommodate the demand.
- Determined projected needs of airport users for the next 20 years by which to support airport development alternatives.
- Recommended improvements that will enhance the airport's safety and capacity to the maximum extent possible.
- Established a schedule of development priorities and a program for the improvements proposed in the Master Plan Update.
- Prioritized the airport capital improvement program.
- Prepared a new Airport Layout Plan in accordance with FAA and ADOT guidelines.
- Conducted active and productive public involvement throughout the planning process.

BASELINE ASSUMPTIONS

A study such as this typically requires some baseline assumptions to be used throughout the planning process. The baseline assumptions for the Eloy Municipal Airport Master Plan are as follows:

- Eloy Municipal Airport will continue to operate as a general aviation airport serving the City of Eloy and surrounding area.
- Eloy Municipal Airport intends to seek general aviation and commercial business aviation based tenants and transient operations.
- The aviation industry on the national level will grow as forecast by the FAA in its annual Aerospace Forecasts.
- The socioeconomic characteristics of the region will remain as forecast (see Chapter Two).

- Both a federal and a state program will be in place through the planning period to assist in funding future capital development needs.

MASTER PLAN ELEMENTS AND PROCESS

The Eloy Municipal Airport Master Plan was prepared in a systematic fashion following FAA guidelines and industry-accepted principles and practices. The master plan has six chapters that are intended to assist in the discovery of future facility needs and provide the supporting rationale for their implementation.

Chapter One - Inventory summarizes the inventory efforts. The inventory efforts are focused on collecting and assembling relevant data pertaining to the airport and the area it serves. Information is collected on existing airport facilities and operations. Local economic and demographic data is collected to define the local growth trends. Planning studies which may have relevance to the master plan are also collected.

Chapter Two - Forecasts examines the potential aviation demand for aviation activity at the airport. This analysis reviews and updates the Eloy Municipal Airport demand forecasts previously prepared for the City of Eloy in the 2001 *Eloy Municipal Airport Master Plan*. The forecast effort takes into account local socio-economic information, as well as national air transportation trends to quantify the levels of aviation activity which can reasonably be expected to occur at Eloy Municipal Airport through the year 2029. The results of this effort are used to determine the types and sizes of facilities which will be required to meet the projected aviation demands on the airport through the planning period.

Chapter Three - Facility Requirements comprises the demand/capacity and facility requirements analyses. The intent of these analyses is to compare the existing facility capacities to forecast aviation demand and determine where deficiencies in capacities (as well as excess capacities) may exist. Where deficiencies are identified, the size and type of new facilities to accommodate the demand are identified. The airfield analysis focuses on improvements needed to serve the type of aircraft expected to operate at the airport in the future, as well as navigational aids to increase the safety and efficiency of operations. This element also examines the terminal area facilities, general aviation facilities, and support needs.

Chapter Four - Alternatives considers a variety of solutions to accommodate the projected facility needs. This element proposes various facility and site plan configurations which can meet the projected facility needs. An analysis is completed to identify the strengths and weaknesses of each proposed development alternative, with the intention of determining a conceptual direction for development.

Chapter Five – Recommended Master Plan Concept provides both a graphic and narrative description of the recommended plan for the use, development, and operation of the airport. The Master Plan also supports the official Airport Layout Plan (ALP) and detailed technical drawings depicting related airspace, land use, and property data.

Chapter Six - Financial Plan establishes the capital needs program, which defines

the schedules and costs for the recommended development projects. The plan then evaluates the potential funding sources to analyze financial strategies for successful implementation of the plan.

Appendices – Appendices are included in the final Master Plan report. This includes a glossary of aviation terms used in the study in Appendix A.

A review of the potential environmental impacts associated with proposed airport improvements as well as federal environmental requirements applicable to Eloy Municipal Airport is included as an Appendix B.

The official ALP drawings used by the FAA and ADOT-Aeronautics Group in determining grant eligibility and funding is included as Appendix C in the Master Plan.

Finally, the FAA's official approval letter of the aviation demand forecasts prepared for this Master Plan is included as Appendix D.

COORDINATION

Eloy Municipal Airport is of interest to many within the local community and surrounding area. This includes local citizens, community organizations, airport users, airport tenants, area-wide planning agencies, and aviation organizations. As an important component of the regional, state, and national aviation systems, the Master Plan is of importance to both state and federal agencies responsible for overseeing air transportation.

To assist in the development of the Eloy Municipal Airport Master Plan Update, a cross-section of interested persons was identified to act in an advisory role. As members of this Planning Advisory Committee (PAC), the committee members reviewed phase reports and provided comments throughout the study to help ensure that a realistic, viable plan was developed.

To assist in the review process, a series of draft phase reports were prepared at various milestones in the planning process, as shown on **Exhibit IA**. The draft phase reports allow for input and review during each step of the Master Plan process to ensure that all Master Plan issues are fully addressed as the recommended program develops.

One public information workshop was also included as part of the plan coordination. The public information workshop allowed the public to provide input and learn about general information concerning the Master Plan. The Master Plan report was also made available on the internet via a website dedicated to the study: www.eloymp.airportstudy.com.

SUMMARY AND RECOMMENDATIONS

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

Recognizing this reality, the Master Plan is keyed more towards potential demand "horizon" levels than future dates in time. These "planning horizons" were estab-

lished as levels of activity that will call for consideration of the implementation of ation demand levels instead of specific points in time, the airport will serve as a safe and efficient aviation facility, which will meet the operational demands of its users while being developed in a cost effi-

the next step in the Master Plan program. By developing the airport to meet the avicient manner. This program allows the City of Eloy to adjust specific development in response to unanticipated needs or demand. The forecast planning horizons are summarized in **Table A**.

TABLE A
Aviation Demand Planning Horizons
Eloy Municipal Airport

	Base Demand	Short Term	Intermediate Term	Long Term
ANNUAL OPERATIONS				
Military	100	100	100	100
General Aviation				
Itinerant	9,900	10,500	12,200	16,400
Local	18,550	20,300	22,300	29,000
Total Operations	28,550	30,900	34,600	45,500
Based Aircraft	41	50	60	100

The Airport Layout Plan set has also been updated to act as a blueprint for everyday use by management, planners, programmers, and designers. These plans were prepared on computer to help ensure their continued use as an everyday working tool for airport management.

This Master Plan is an update of the previous *Eloy Municipal Airport Master Plan* completed in April 2001. Recommended airfield improvements included widening the runway to 75 feet and increasing the runway/taxiway centerline separation distance to 240 feet. Runway 2-20 was planned to be strengthened from 12,000 pounds single-wheel loading to 30,000 pounds dual-wheel loading. It was also recommended that Runway 2-20 be extended by 1,600 feet to the northeast to a length of 5,500 feet to accommodate anticipated corporate aircraft users. Landside recommendations included additional aircraft storage hangar facilities and a general aviation terminal facility. Since the completion of the previous master plan, Runway 2-20 has been widened to 75 feet and strengthened to 27,500 pounds single-wheel loading.

The updated Master Plan focuses on meeting FAA design and safety standards; improving Runway 2-20 and Taxiway A to accommodate the long range fleet mix of aircraft to include increased operations by Beechcraft King Air turboprops and small to medium size business jets such as the Cessna Mustang very light jet (VLJ), Cessna 560XL (Citation Excel), and the Hawker Beechjet 400. Recommended landside development focuses on identifying locations for hangar and apron development and the installation of an onsite automated weather observation station (AWOS) and an aircraft wash rack. **Exhibit IB** depicts the updated plan.

With a single asphalt runway measuring 3,900 feet, the airport currently operates as a general aviation airport. To accommodate the fleet mix of aircraft anticipated to use the airport in the future, the master plan recommends extending the runway 650 feet in both directions to 5,200 feet.

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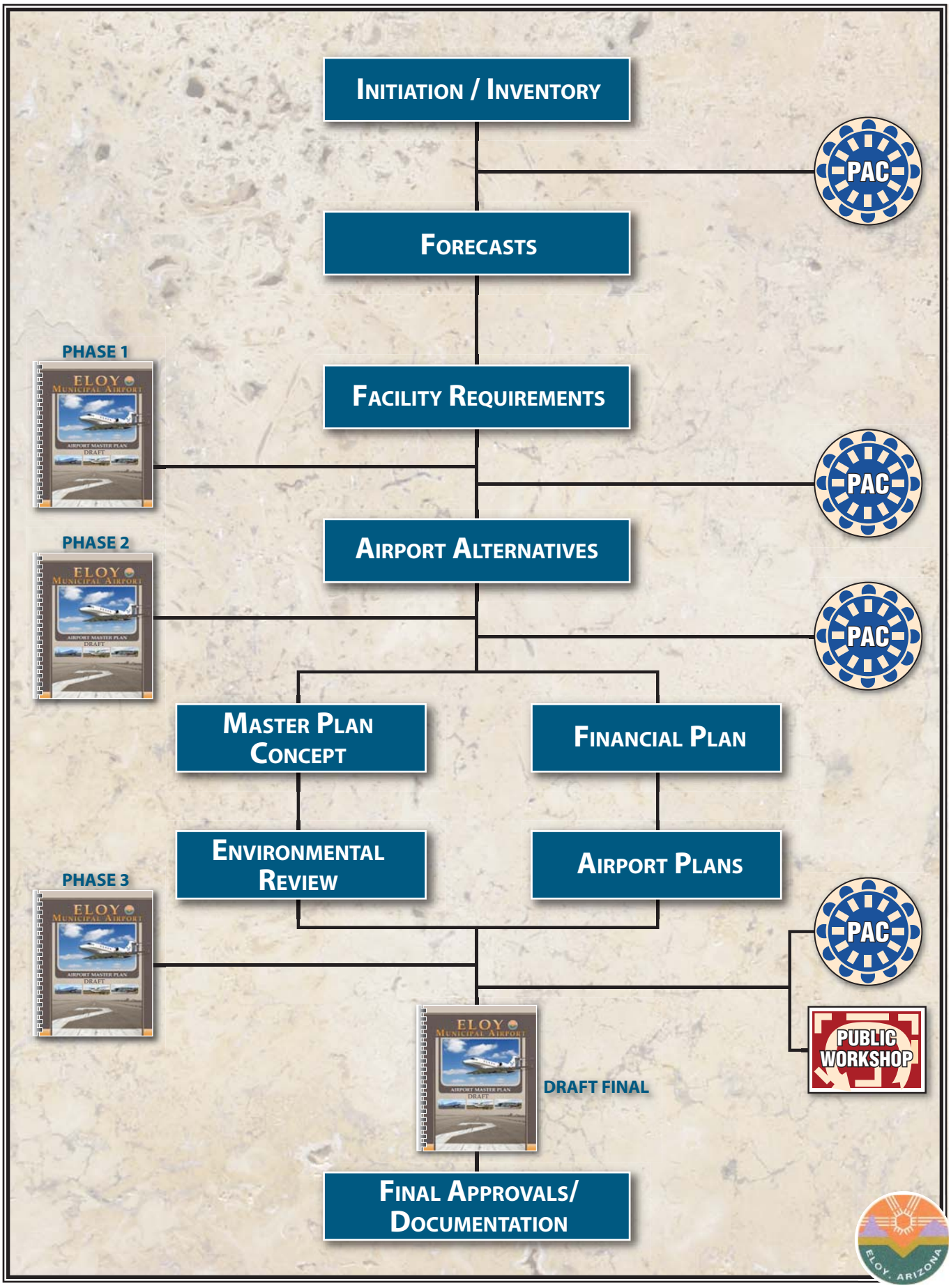

Exhibit IA
PROJECT WORK FLOW

09MP03-B1-02/02/11

0 500 1000
SCALE IN FEET

NORTH

Huachuca Rd.

Coahuila Street

Tweedy Road

RPZ
500' x 700' x 1,000'

Note:
Potential Through the Fence Access
Subject to City & FAA Approval

Relocated Segmented Circle /
Lighted Wind Cone

1.38
Acres

AWOS

RPZ
500' x 700' x 1,000'

650' Extension

9.65 Acres

2
11
2

Runway 2-20 (3,900' x 75') Ultimate (5,200' x 75')

Taxiway A

650' Extension

20
2
0

300'

35'

5.37
Acres

1.33 Acres

2.81
Acres

Holding
Apron
1.33 Acres

Helicopter Parking

H

4.22 Acres

Holding
Apron

Note:
Potential Through the Fence Access
Subject to City & FAA Approval

N Lear Dr.

Terminal / Airport
Maintenance Facility

See Inset

N. Tumbleweed Dr.

LEGEND

- Airport Property Line
- Ultimate Airport Property Line
- City Owned Property
- Ultimate Airport Pavement
- Ultimate Airport Roads / Parking
- Ultimate Airport Building
- Property Acquisition
- Easement
- Pavement to be Removed
- Runway Safety Area (RSA)
- Object Free Area (OFA)
- Taxiway OFA
- Obstacle Free Zone (OFZ)
- Collector - 2 Lanes
- Minor Arterial - 4 Lanes
- Runway Protection Zone (RPZ)
- **AWOS** Automated Weather Observation System

Inset

10 Unit
T-Hangars

Aircraft
Wash Rack

2,500 ft² Conventional
Hangars

4.0 Acres

5.5 Acres

0 300
SCALE IN FEET

ELOY, ARIZONA

Exhibit IB
RECOMMENDED MASTER PLAN CONCEPT

Airfield facilities are planned to meet Airport Reference Code (ARC) B-II FAA airfield design standards, which meets the needs of most small to medium sized turboprop and business jet aircraft. The master plan also allows for the potential future expansion of airside facilities to meet the needs of faster business jet aircraft by relocating Taxiway A to a 300 foot separation distance from the runway centerline. Landside facilities have also been planned to an appropriate separation distance to allow for the future transition to applicable airfield design standards for faster business jet aircraft.

The protection of the future expansion of airfield facilities and of the runway approaches requires the acquisition of approximately 32 acres via fee simple acquisition or by avigation easement. In addition, a four-acre parcel of city owned property located along Taxiway A will be transferred to the airport for the development of hangar facilities.

Additional airfield improvements recommended include the establishment of GPS localizer performance with vertical guidance (LPV) one-mile visibility non-precision instrument approaches to both runway ends, the restoration of the precision approach path indicator (PAPI-2), rotating beacon, and runway end identification lighting (REIL) systems that are currently out of service, and the installation of on-site automated weather observation system (AWOS).

The development of additional aircraft storage hangars, parking aprons, a dual-use terminal/maintenance facility to provide general aviation services and the construction of an aircraft wash rack have been planned to provide adequate facilities for existing and forecast users of the airport.

SHORT TERM PLANNING HORIZON IMPROVEMENTS

- Acquire 26 acres for the expansion of airfield facilities
- Relocate Taxiway A
- Relocate segmented circle/lighted wind cone
- Install AWOS
- Construct aircraft storage hangars
- Extend Runway 2-20 & Taxiway A 650 feet southwest
- Construct terminal/maintenance facility
- Rehab and preservation of existing airfield pavements

INTERMEDIATE TERM PLANNING HORIZON IMPROVEMENTS

- Acquire six acres for the expansion of landside facilities
- Construct aircraft storage hangars
- Construct aircraft parking apron at southwest end of the airfield
- Construct aircraft wash rack
- Pavement preservation

LONG TERM PLANNING HORIZON IMPROVEMENTS

- Extend Runway 2-20 and Taxiway A 650 feet northeast
- Construct aircraft storage hangars
- Pavement preservation

Detailed costs were prepared for each development item included in the capital improvement program. As shown in **Table B**, implementation of the total program will require a total financial commitment of approximately $17.5 million dollars over the long-term planning hori-

zon. Over 92 percent of the recommended program funding could be funded through state or federal grant-in-aid programs. The source for federal monies is through the Airport Improvement Program (AIP), administered by the FAA, which was established to maintain the integrity of the air transportation system. Federal monies could come from the Aviation Trust Fund, which is the depository for federal aviation taxes such as those from airline tickets, aviation fuel, aircraft registrations, and other aviation-related fees. Federal AIP funding of 95 percent can be received from the FAA for eligible projects.

TABLE B
Development Funding Summary
Eloy Municipal Airport

PLANNING HORIZON	Total Costs	FAA Share	ADOT Share	Local Share
Short Term Program	$8,570,000	$6,518,425	$1,709,188	$342,388
Intermediate Term Program	$3,672,450	$3,013,828	$79,311	$579,311
Long Term Program	$5,251,200	$4,798,640	$126,280	$326,280
TOTAL PROGRAM COST	$17,493,650	$14,330,893	$1,914,779	$1,247,979

ADOT also provides a separate state funding mechanism which receives annual funding appropriation from collection of statewide aviation related taxes. Eligible projects can receive up to 90 percent funding from ADOT for non-federally funded projects, and one-half (2.5 percent) of the local share for projects receiving federal AIP funding. The following table depicts the breakdown of federal, state, and local funding for the implementation of the short term capital improvement program.

With the airport master plan completed, the most important challenge is implementation. The cost of developing and maintaining aviation facilities is an investment which yields impressive benefits for the community. This plan and associated development program provides the tools the City of Eloy will require to meet the challenges of the future. By providing a safe and efficient facility, Eloy Municipal Airport will continue to be a valuable asset to the City of Eloy and the surrounding region.

CHAPTER ONE

INVENTORY

Inventory

The initial step in the preparation of the airport master plan for Eloy Municipal Airport (E60) is the collection of information pertaining to the airport and the area it serves. The information summarized in this chapter will be used in subsequent analyses in this study. It includes:

- Physical inventories and descriptions of the facilities and services currently provided at the airport, including the regional airspace, air traffic control, and aircraft operating procedures.
- Background information pertaining to Pinal County and the Eloy community, including descriptions of the regional climate, surface transportation systems, Eloy Municipal Airport's role in the regional, state, and national aviation systems, and development that has taken place recently at the airport.
- Population and other significant socioeconomic data which can provide an indication of future trends that could influence aviation activity at the airport.
- A review of existing local and regional plans and studies to determine their potential influence on the development and implementation of the airport master plan.

The information in this chapter was obtained from several sources, including on-site inspections, interviews with City staff and airport tenants, airport records, related studies, the Federal Aviation Administration (FAA), and a number of internet sites. A complete listing of the data sources is provided at the end of this chapter.

AIRPORT SETTING

Situated on 97 acres northwest of downtown Eloy, the Eloy Municipal Airport serves as one of six general aviation public-use airport facilities in Pinal County. Pinal County encompasses approximately 5,374 square miles of south central Arizona. Eloy is located in the Sonoran Desert in the Lower Santa Cruz Valley, an alluvial plain, and is surrounded by the Picacho Mountains to the east, the Silver Bell Mountains to the southeast, the Sawtooth Mountains to the southwest, the Casa Grande Mountains to the west, and the Sacaton Mountains to the northwest. According to the most recent population estimates generated by the Arizona Department of Commerce, Eloy's population of 16,163 accounts for 4.6 percent of the total County population of 350,558 in 2008. Pinal County contains part of the Tohono O'odham National Native American Reservation, as well as the Gila River Indian Reservation. The airport's local and regional settings are depicted on **Exhibit 1A**.

OWNERSHIP AND MANAGEMENT

Eloy Municipal Airport is owned, operated, and maintained by the City of Eloy. An Airport Advisory Committee has advisory and oversight responsibilities for policies, fees, and general operations. The Airport Advisory Board is made up of five members appointed by the City Council who serve three-year terms. The Eloy City Manager currently serves as the airport manager.

AIRPORT HISTORY

Eloy Municipal Airport was constructed in 1969 with assistance from the Federal Aid to Airports Program. Initial construction included a lighted 3,000-foot long by 60-foot wide asphalt runway, and 300-foot by 150-foot aircraft parking apron. The airport served as a primary training base for Air Force T-41 aircraft for several years after initial construction. During the period the Air Force used Eloy Municipal Airport, they constructed a terminal building and hangar which are still in use and leased currently. Crop dusting operations were the dominant use at the airport through the late 1970s and 1980s. Skydive Arizona located at Eloy Municipal Airport in the early 1990s. Skydiving operations and related activities continue to be the most common use of the airport today.

GRANT HISTORY

To assist in funding capital improvements, the FAA has provided funding assistance to Eloy Municipal Airport through the Airport Improvement Program (AIP). The AIP is funded through 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 Trust Fund also finances a portion of the operation of the FAA. It is funded by user fees, taxes on airline tickets, aviation fuel, and various aircraft parts.

Table 1A summarizes more than $1.8 million in FAA AIP grants received by Eloy Municipal Airport since 2001.

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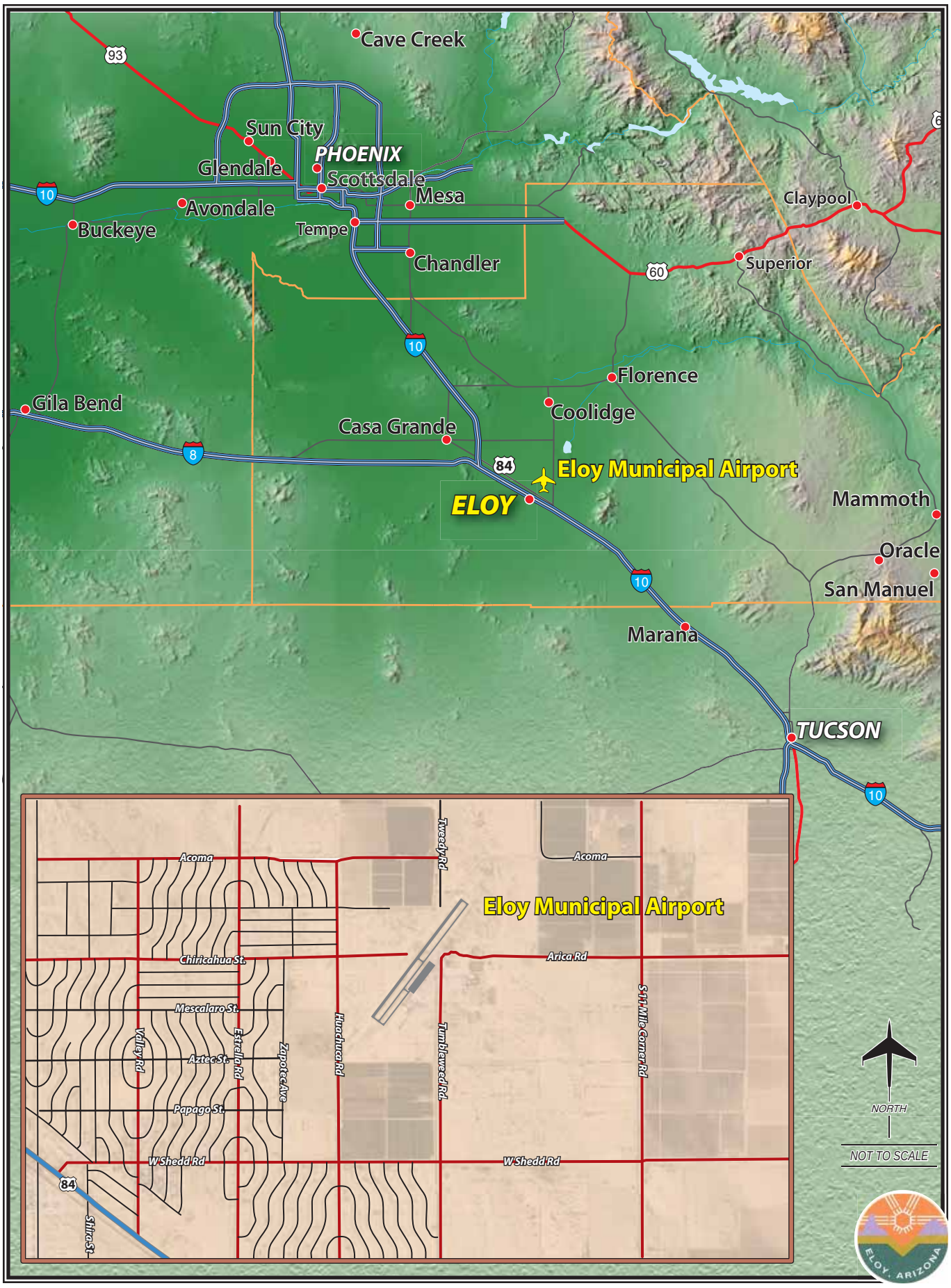

Exhibit 1A
LOCATION MAP

TABLE 1A
Recent AIP Grants for Eloy Municipal Airport

Year	AIP Grant Number	Project Description	Grant Funds
2001	3-04-0014-04	Install PAPI's and REIL's and Acquire Land	$150,000
2003	3-04-0014-05	Runway Rehabilitation – Design Only	$150,000
2004	3-04-0014-06	Reconstruct and Widen Runway 2-20	$1,365,900
2005	3-04-0014-07	Install Perimeter Fencing	$171,000
Total Grant Funds			$1,836,900

Source: Airport Records

Table 1B summarizes Arizona Department of Transportation (ADOT), Aeronautics Division project grants received by the City of Eloy for airport improvements since 2001.

TABLE 1B
Recent ADOT Grants for Eloy Municipal Airport

Year	ADOT Grant Number	Project Description	Grant Funds
2001	E3F27	Install PAPI's and REIL's and Acquire Land	$4,905
2003	E5F54	Runway Rehabilitation – Design Only	$7,363
2004	E5F55	Reconstruct and Widen Runway 2-20	$35,946
2005	E7F76	Install Perimeter Fencing	$4,500
2005	E5S12	Runway 2-20 Extension – Design Only	$247,500
2006	E6S35	Rates and Charges Study and Environmental Assessment	$121,500
2008	E8S27	Install New Rotating Beacon	$36,000
Total Grant Funds			$457,714

Source: Airport Records

THE AIRPORT'S SYSTEM ROLE

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

The previous *Eloy Municipal Airport Master Plan* was approved in 2001. Primary recommendations included the extension of Runway 2-20 to an ultimate length of 5,500 feet and widening to 75 feet. Runway 2-20 was also planned to be strengthened to 30,000 pounds dual wheel loading (DWL) to accommodate forecasted corporate aircraft operations. One-mile visibility minimum global positioning system (GPS) instrument approach capabilities were planned to each end of the runway. Taxiway A was planned to be reconstructed at a runway centerline distance of 240 feet to meet ARC B-II design standards. Landside improvements recommended included the construction of hangar facilities, the development of terminal facilities, and improvements to airport access roads and vehicle parking areas. Since the completion of the previous master plan, Runway 2-20 has been strengthened to 27,500 pounds single wheel loading (SWL) and widened to 75 feet, and runway end identifier lights (REILs) have been installed at each end of the runway.

At the state level, Eloy Municipal Airport is included in the *Arizona State Airports System Plan* (SASP). The 2008 SASP is a comprehensive update to the 2000 Arizona State Aviation Needs Study (SANS) study. The study provides direction for state aviation system planning for years to come. The purpose of the plan is to provide a framework for the integrated planning, operation, and development of Arizona's aviation assets. A part of the 2008 SASP was to assign all system airports to functional roles. Those roles then determined the level of recommended development needed since not all airports in the state should be treated the same.

Eloy Municipal Airport is one of 82 airports in the 2008 SASP, which includes nine primary commercial service airports, three commercial service airports, eight reliever airports, thirty-eight general aviation airports, and twenty-four non-NPIAS airports. Eloy Municipal Airport is classified as a general aviation airport in the 2008 SASP.

At the national level, Eloy Municipal Airport is a part of the FAA's *National Plan of Integrated Airport Systems* (NPIAS). Inclusion within the NPIAS is required to be eligible for Federal AIP funding. Eloy Municipal Airport is classified as a general aviation (GA) airport in the NPIAS. There are 3,356 existing and 55 proposed airports included in the NPIAS. Eloy Municipal Airport is one of 59 NPIAS Arizona airports, and one of 39 of the State's airports with a GA classification.

AIRPORT FACILITIES

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

AIRSIDE FACILITIES

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

Runway

Eloy Municipal Airport has a single asphalt runway that measures 3,900 feet in length and 75 feet in width. Runway 2-20 is oriented northeast-southwest and has a pavement strength rating of 27,500 pounds SWL. SWL refers to aircraft with a single wheel on each main landing gear. Runway 2-20 slopes downward from the Runway 2 end (1,513 feet mean sea level [MSL]) to the Runway 20 end (1,507 feet MSL). Thus, the runway gradient (elevation difference between runway high and low points divided by the length of the runway) is 0.2 percent.

Taxiways

The existing taxiway system consists of a full-length parallel taxiway (Taxiway A) constructed of asphalt. Taxiway A measures 40 feet in width and has a runway centerline separation distance of 200 feet. Taxiway A has three entrance/exit taxiways connecting to Runway 2-20. The taxiway system is not equipped with holding aprons at either end of the runway, nor is it equipped with a lighting system.

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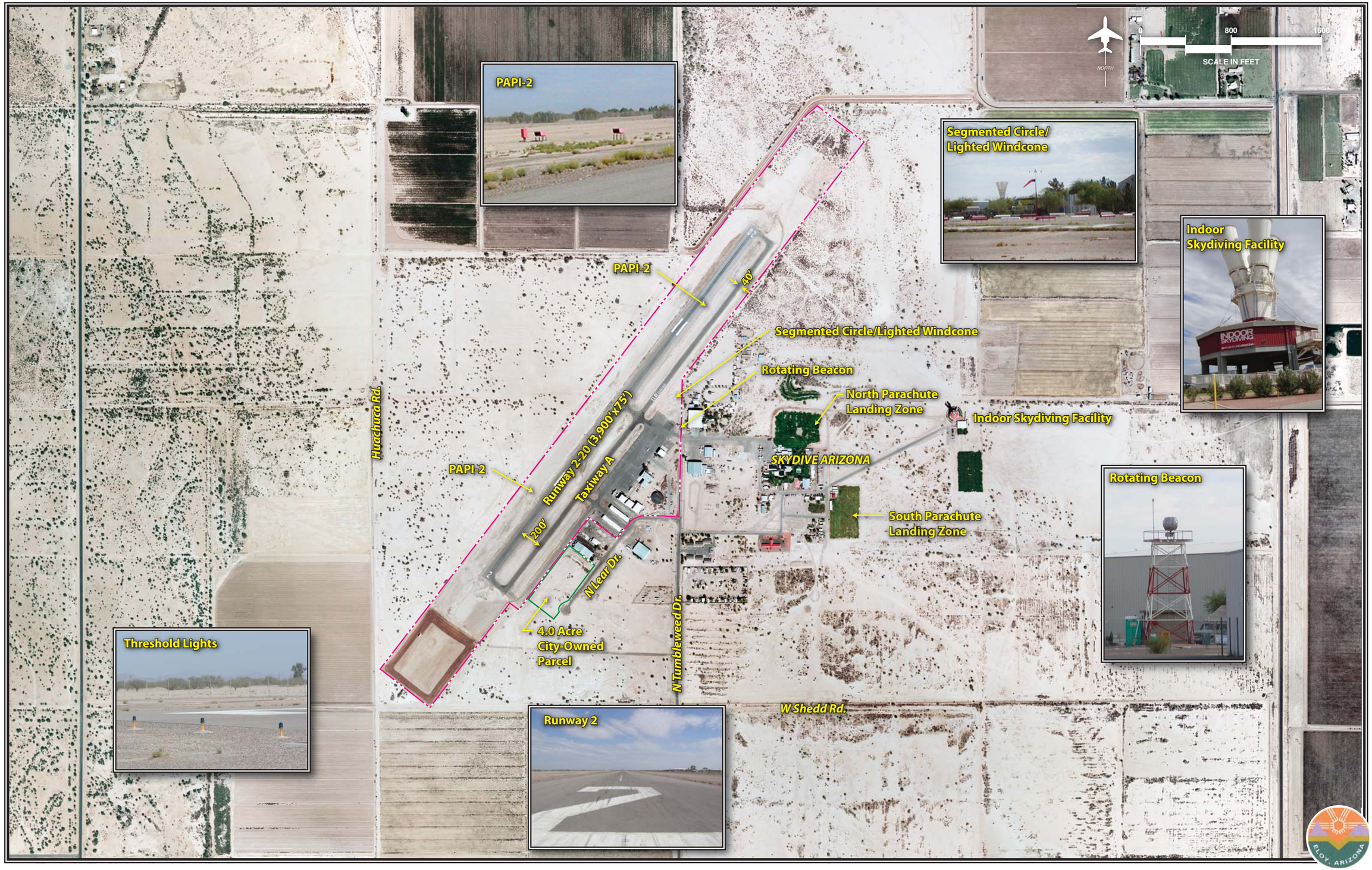

Exhibit 1B
AIRFIELD FACILITIES

TABLE 1C
Airside Facility Data
Eloy Municipal Airport

	Runway 2-20	
Length (ft.)	3,900	
Width (ft.)	75	
Surface Material	Asphalt	
Load Bearing Strength (lbs.) Single Wheel Loading (SWL)	27,500	
Instrument Approach Procedures	None	
Runway Edge Lighting	Medium Intensity	
Pavement Markings	Basic	
Taxiway Edge Lighting	None	
Approach Aids	**Rwy 2**	**Rwy 20**
Global Positioning System (GPS)	Yes	Yes
Precision Approach Path Indicators (PAPI)	Yes*	Yes*
Runway End Identifier Lights (REIL)	Yes*	Yes*
Approach Lighting System	No	No
End Elevation (ft.)	1,513	1,507
Fixed-Wing Aircraft Traffic Pattern	Left	Right
Weather or Navigational Aids	AWOS-III at CGZ; Segmented Circle; Lighted Wind Cone; Rotating Beacon*	

Source: 5010 Airport Master Record, 2009 Arizona State Airports System Plan Airport Inventory & Data Survey.
*Out of service indefinitely.

Pavement Condition

As a condition of receiving federal funds for the development of the airport, the FAA requires the airport sponsor receiving and/or requesting federal funds for pavement improvement projects to implement a pavement maintenance management program.

Part of the pavement maintenance management program is to develop a Pavement Condition Index (PCI) rating. The rating is based on the guidelines contained in FAA Advisory Circular (AC) 150/5380-6, *Guidelines and Procedures for Maintenance of Airport Pavements*.

The PCI procedure was developed to collect data that would provide engineers and managers with a numerical value indicating overall pavement conditions and that would reflect both pavement structural integrity and operational surface condition. A PCI survey is performed by measuring the amount and severity of certain distresses (defects) observed within a pavement sample unit.

In March 2006, a pavement inspection was conducted at Eloy Municipal Airport by ADOT. Runway 2-20 received a PCI rating of 100 out of a possible 100. The runway had recently been rehabilitated and was found to be in excellent condition. Taxiway A and the apron had also recently been rehabilitated and received a PCI rating of 98 and 96, respectively. Both Taxiway A and the apron were observed to have low severity longitudinal and transverse cracking. The taxilane pavement adjacent to the T-hangar facili-

ties at the southwest end of the apron was found to have a PCI rating of 70. Observed conditions included moderate amounts of high and medium-severity raveling and weathering, low-severity patching, and low-severity longitudinal and transverse cracking.

Airfield Lighting

Airfield lighting systems extend an airport's usefulness into periods of darkness and/or poor visibility. A variety of lighting systems is installed at the airport and is summarized as follows:

Identification Lighting: The location of an airport at night is universally identified by a rotating beacon. A rotating beacon projects two beams of light, one white and one green, 180 degrees apart. Eloy Municipal Airport's beacon is located at the northeast end of the apron, as shown on **Exhibit 1B**. The rotating beacon is currently out of service indefinitely.

Pavement Edge Lighting: Pavement edge lighting utilizes light fixtures placed to define the lateral limits of the pavement. This lighting is essential for safe operations at night and/or times of low visibility in order to maintain safe and efficient access to and from the runway and aircraft parking areas. Runway 2-20 is equipped with medium intensity runway lighting (MIRL).

Pilot-Controlled Lighting: Airfield lighting systems can be controlled through a pilot-controlled lighting system (PCL). PCL allows pilots to turn on or increase the intensity of the airfield lighting systems from the aircraft with the use of the aircraft's radio transmitter. The Runway 2-20 MIRLs are connected to the PCL system at Eloy Municipal Airport and can be activated using the airport's common traffic advisory frequency (CTAF).

Visual Approach Lighting: Two-unit precision approach path indicators (PAPI-2s) are installed at each end of the runway; however, they are currently out of service for an indefinite period of time. PAPIs provide approach path guidance by giving the pilot an indication of whether their approach is above, below, or on-path, through a pattern of red and white lights visible from the light units.

Airfield Signs: Airfield identification signs assist pilots in identifying their location on the airfield and directing them to their desired location. Current airfield signage includes runway/taxiway intersection identification signage.

Pavement Markings

Pavement markings aid in the movement of aircraft along airport surfaces and identify closed or hazardous areas on the airport. Runway 2-20 is equipped with basic markings that identify the runway centerline, designation, and aircraft holding positions.

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

Aircraft hold positions are marked at each runway/taxiway intersection. All hold position markings are located 120 feet from the runway centerline.

Weather Reporting

Common airport weather reporting equipment includes the automated weather observation system (AWOS) and automated surface observation system (ASOS). AWOS stations are operated and controlled by the FAA, while ASOS stations are operated and controlled collectively by the FAA, national weather service, and the department of defense. AWOS and ASOS stations provide automated aviation weather observations 24 hours per day. The system updates weather observations every minute, continuously reporting significant weather changes as they occur. These weather stations report cloud ceiling, visibility, temperature, dew point, wind direction, wind speed, altimeter setting (barometric pressure), and density altitude (airfield elevation corrected for temperature). Some stations with additional sensors will report freezing rain and lighting within the vicinity of the station.

Eloy Municipal Airport is not equipped with a weather reporting station. The nearest station is the AWOS-3 station located at Casa Grande Municipal Airport, approximately 13 nautical miles northwest of Eloy Municipal Airport. Pilots operating at Eloy are encouraged to get current weather information from the Casa Grande AWOS prior to entering Eloy airspace and prior to departure from the airport.

Eloy Municipal Airport is equipped with a lighted wind cone and segmented circle. The wind cone provides wind direction and speed information to pilots. The segmented circle provides aircraft traffic pattern information. This equipment is located at the northeast end of the apron.

Area Airspace and Air Traffic Control

The *Federal Aviation Administration* (FAA) *Act of 1958* established the FAA as the responsible agency for the control and use of navigable airspace within the United States. The FAA has established the National Airspace System (NAS) to protect persons and property on the ground and to establish a safe and efficient airspace environment for civil, commercial, and military aviation. The NAS covers the common network of U.S. airspace, including air navigation facilities; airports and landing areas; aeronautical charts; associated rules, regulations, and procedures; technical information; and personnel and material. The system also includes components shared jointly with the military.

Airspace Structure

Airspace within the United States is broadly classified as either "controlled" or "uncontrolled." The difference between controlled and uncontrolled airspace relates primarily to requirements for pilot qualifications, ground-to-air communications, navigation and air traffic services, and weather conditions. Six classes of airspace have been designated in the United States, as shown on **Exhibit 1C**. Airspace designated as Class A, B, C, D, or E is considered controlled airspace. Aircraft operating within controlled airspace are subject to varying requirements for positive air traffic control. Airspace in the vicinity of Eloy Municipal Airport is depicted on **Exhibit 1D**.

Class A Airspace: Class A airspace includes all airspace from 18,000 feet MSL to flight level (FL) 600 (approximately

60,000 feet MSL). This airspace is designated in Federal Aviation Regulation (F.A.R.) Part 71.193 for positive control of aircraft. The Positive Control Area (PCA) allows flights governed only under instrument flight rules (IFR) operations. The aircraft must have special radio and navigation equipment, and the pilot must obtain clearance from an air traffic control (ATC) facility to enter Class A airspace. In addition, the pilot must possess an instrument rating.

Class B Airspace: Class B airspace has been designated around some of the country's major airports to separate arriving and departing aircraft. Class B airspace is designed to regulate the flow of uncontrolled traffic, above, around, and below the arrival and departure airspace required for high-performance, passenger-carrying aircraft at major airports. This airspace is the most restrictive controlled airspace routinely encountered by pilots operating under visual flight rules (VFR) in an uncontrolled environment. The nearest Class B airspace to Eloy Municipal Airport is located at Phoenix Sky Harbor International Airport.

In order to fly within Class B airspace, an aircraft must be equipped with the appropriate radio and navigational equipment and must obtain clearance from air traffic control. To operate within the Class B airspace of Phoenix Sky Harbor International Airport, a pilot must have at least a private pilot's certificate or be a student pilot who has met the requirements of F.A.R. Part 61.95, which requires special ground and flight training for the Class B airspace. Helicopters do not need special navigation equipment or a transponder if they operate at or below 1,000 feet and have made prior arrangements in the form of a Letter of Agreement with the FAA controlling agency. Aircraft are also required to have and utilize a Mode C transponder within a 30-nautical mile (NM) range of the center of the Class B airspace. A Mode C transponder allows the airport traffic control tower (ATCT) to track the location of the aircraft. Eloy Municipal Airport lies approximately 13 nautical mile southeast of this 30-nautical mile radius.

The Phoenix Terminal Radar Approach Control Facility (TRACON) controls all aircraft operating within the Phoenix Class B airspace. The TRACON operates 24 hours per day.

Class C Airspace: The FAA has established Class C airspace at 120 airports around the country as a means of regulating air traffic in these areas. Class C airspace is designed to regulate the flow of uncontrolled traffic above, around, and below the arrival and departure airspace required for high-performance, passenger-carrying aircraft at major airports. In order to fly inside Class C airspace, the aircraft must have a two-way radio, an encoding transponder, and have established communication with ATC. Aircraft may fly below the floor of the Class C airspace or above the Class C airspace ceiling without establishing communication with ATC. The nearest Class C airspace to Eloy Municipal Airport encompasses Tucson International Airport and Davis Monthan Air Force Base in Tucson.

Class D Airspace: Class D airspace is controlled airspace surrounding airports with an ATCT. The Class D airspace typically constitutes a cylinder with a horizontal radius of four or five NM from the airport, extending from the surface up to a designated vertical limit, typically set at approximately 2,500 feet above the airport elevation. If an airport has an instrument approach or departure, the

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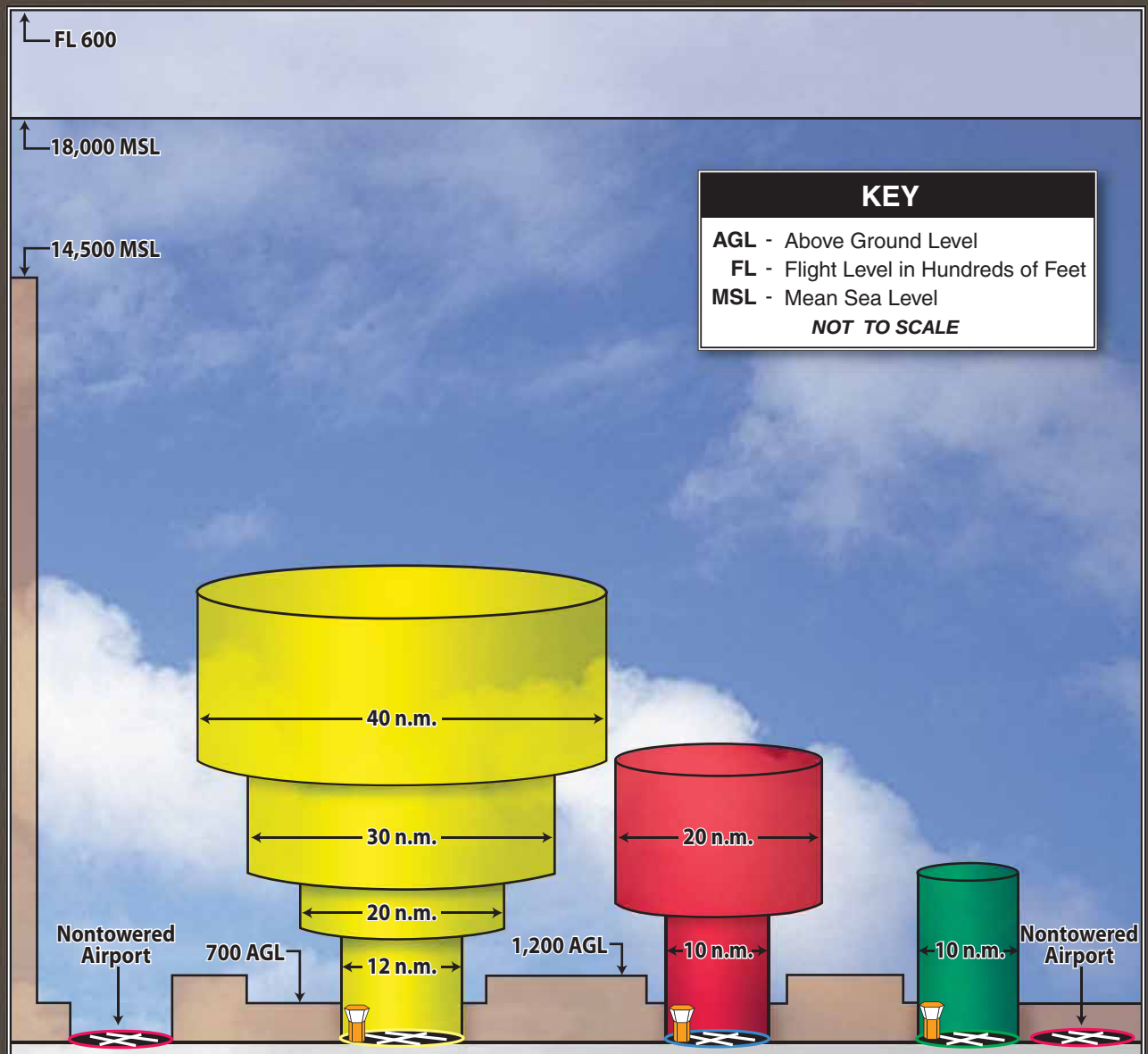
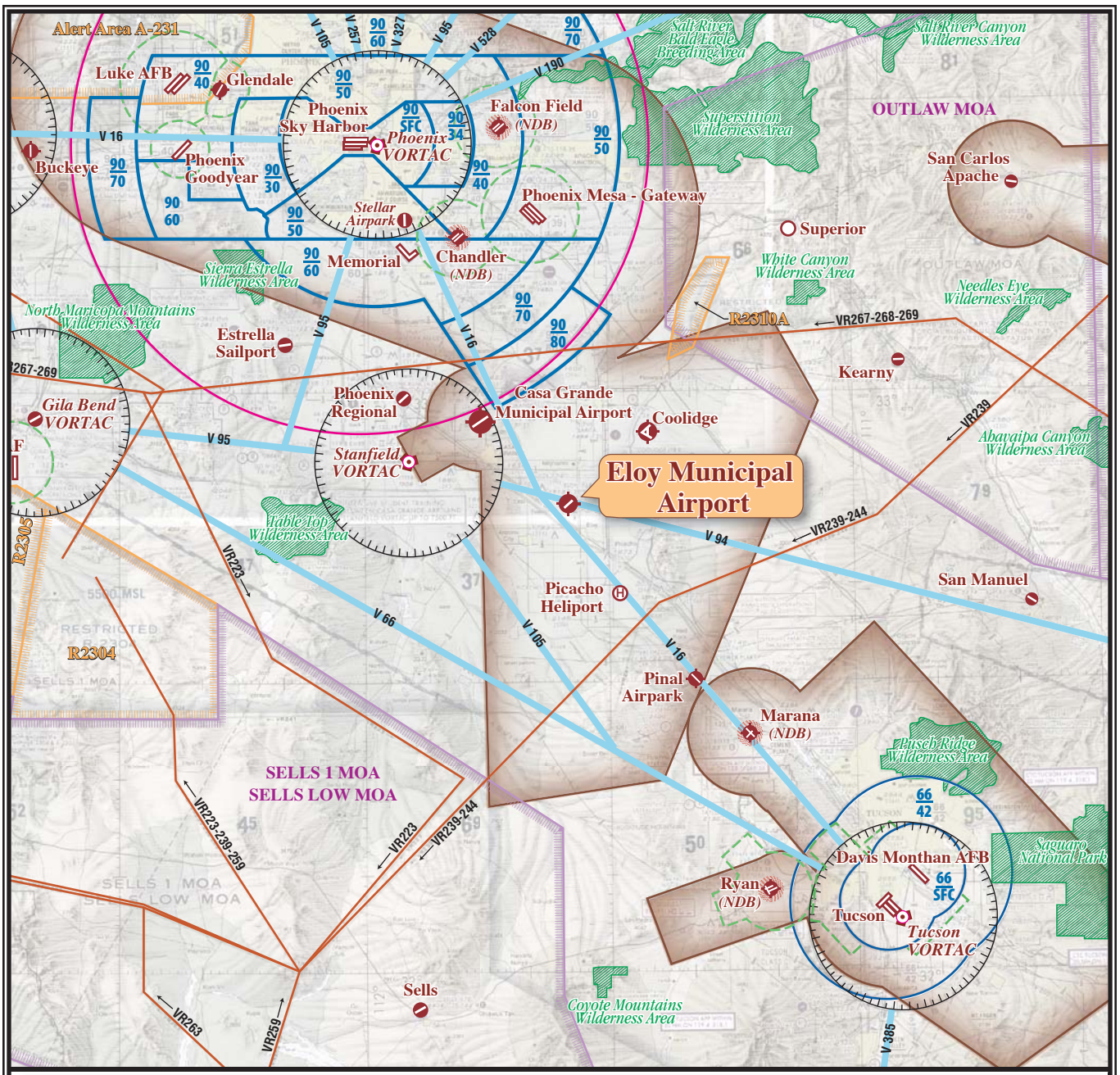


CLASSIFICATION	DEFINITION
CLASS A	Generally airspace above 18,000 feet MSL up to and including FL 600.
CLASS B	Generally multi-layered airspace from the surface up to 10,000 feet MSL surrounding the nation's busiest airports.
CLASS C	Generally airspace from the surface to 4,000 feet AGL surrounding towered 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.

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

Exhibit 1C
AIRSPACE CLASSIFICATION

09MP03-1D-7/20/10



LEGEND

- Airport with other than hard-surfaced runways
- Military Heliport
- 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
- Non-Directional Radiobeacon (NDB)
- Compass Rose
- Military Operations Area (MOA)
- Prohibited, Restricted, Warning and Alert Areas
- Wilderness Areas
- Mode C
- Military Training Routes
- Victor Airways
- Class B Airspace
- Class D Airspace
- Class C Airspace
- Class E Airspace with floor 700' above surface

Source:
Phoenix Sectional Chart,
US Department of Commerce,
National Oceanic and Atmospheric Administration, 5/7/09

NORTH

NOT TO SCALE

Exhibit 1D
VICINITY AIRSPACE

Class D airspace sometimes extends along the approach or departure path.

The Phoenix metropolitan area has seven public-use airports in Class D airspace including: Chandler Municipal Airport, Phoenix-Mesa Gateway Airport, Mesa-Falcon Field Airport, Scottsdale Municipal Airport, Phoenix Deer Valley Airport, Glendale Municipal Airport, and Phoenix Goodyear Airport. The closest of these airports to Eloy Municipal Airport is Chandler Municipal Airport, located 30 nautical miles north of the airport.

Class E Airspace: Class E airspace consists of controlled airspace designed to contain IFR operations near an airport and while aircraft are transitioning between the airport and enroute environments. Unless otherwise specified, Class E airspace terminates at the base of the overlying airspace. Only aircraft operating under IFR are required to be in contact with air traffic control when operating in Class E airspace. While aircraft conducting visual flights in Class E airspace are not required to be in radio communication with air traffic control facilities, visual flight can only be conducted if minimum visibility and cloud ceilings exist.

Eloy Municipal Airport is in Class E airspace. This area of controlled airspace has a floor of 700 feet above the surface and extends to Class A airspace. This transition area is intended to provide protection for aircraft transitioning from enroute flights to the airport for landing.

Class G Airspace: Airspace not designated as Class A, B, C, D, or E is considered uncontrolled, or Class G, airspace. Air traffic control does not have the authority or responsibility to exercise control over air traffic within this airspace. Class G airspace lies between the surface and the overlaying Class E airspace (700 to 1,200 feet above ground level [AGL]). Class G airspace extends below the floor of the Class E airspace transition area at Eloy Municipal Airport.

While aircraft may technically operate within Class G airspace without any contact with ATC, it is unlikely that many aircraft will operate this low to the ground. Furthermore, federal regulations specify minimum altitudes for flight. F.A.R. Part 91.119*, Minimum Safe Altitudes*, generally states that except when necessary for takeoff or landing, pilots must not operate an aircraft over any congested area of a city, town, or settlement, or over any open air assembly of persons, at an altitude of less than 1,000 feet above the highest obstacle within a horizontal radius of 2,000 feet of the aircraft. Over less congested areas, pilots must maintain an altitude of 500 feet above the surface, except over open water or sparsely populated areas. In those cases, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure. Finally, this section states that helicopters may be operated at less than the minimums prescribed above if the operation is conducted without hazard to persons or property on the surface. In addition, each person operating a helicopter shall comply with any routes or altitudes specifically prescribed for helicopters by the FAA.

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. These areas are depicted on **Exhibit 1D** by yellow and purple-

hatched lines, as well as with the use of green shading.

Military Operating Areas: Military Operating Areas (MOAs) are depicted in **Exhibit 1D** with purple-hatched lines. MOAs in the vicinity of Eloy Municipal Airport include the Outlaw MOA to the east and the Sells 1 and Sells Low MOAs to the southwest. The Outlaw MOA is used at altitudes of 8,000 feet MSL or 3,000 AGL, whichever is higher. Its scheduled use can fluctuate from 7:00 a.m. to 6:00 p.m., and 6:00 p.m. to 10:00 p.m. (notification by Notice to Airmen [NOTAM] Monday through Friday, with intermittent weekend use (notification by NOTAM). The Sells 1 MOA is used at 10,000 feet MSL from 6:00 a.m. to 7:00 p.m. Monday through Friday. The Sells Low MOA is used at 3,000 feet AGL up to but not including 10,000 feet MSL from 6:00 a.m. to 7:00 p.m. Monday through Friday.

Military Training Routes: Military training routes near Eloy Municipal Airport are identified with the letters VR and a four-digit number or with IR and a three-digit number. The arrows on the route show the direction of travel. Military aircraft travel on these routes below 10,000 feet MSL and at speeds in excess of 250 knots.

Wilderness Areas: As depicted on **Exhibit 1D**, several wilderness areas exist around the Eloy area. Aircraft are requested to maintain a minimum altitude of 2,000 feet above the surface of designated National Park areas, which includes wilderness areas and designated breeding grounds. FAA AC 91-36C 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.

Victor Airways: For aircraft arriving or departing the regional area using very high frequency omnidirectional range (VOR) facilities, a system of Federal Airways, referred to as Victor Airways, has been established. Victor Airways are corridors of airspace eight miles wide that extend upward from 1,200 feet AGL to 18,000 feet MSL and extend between VOR navigational facilities. Victor Airways are shown with solid blue lines on **Exhibit 1D**.

Restricted/Alert Areas: Restricted and alert areas are depicted on **Exhibit 1D** with yellow-hatched lines. Restricted airspace is off-limits for public-use unless granted permission from the controlling agency. The restricted areas in the vicinity of Eloy Municipal Airport are used by the military for training purposes. The controlling agency for each of these restricted areas is the Albuquerque Air Route Traffic Control Center (ARTCC).

Restricted area R-2305, located west of Eloy, is used up to FL 240 (24,000 feet MSL) from 7:00 a.m. to 11:00 p.m. daily. Restricted area R-2304, located west of Eloy, is used up to FL 240 from 7:00 a.m. to 10:00 p.m. daily. Restricted area R-2310A, located northeast of Eloy, is used up to 10,000 feet MSL intermittently by NOTAM 48 hours in advance of use. Alert area A-231 is located around Luke Air Force Base northwest of Eloy. It is in use from 500 feet AGL to 6,500 feet MSL continuously.

Airspace Control

The FAA is responsible for the control of aircraft within the Class A, Class C, Class D, and Class E airspace described above.

The Albuquerque ARTCC controls aircraft operating in Class A airspace. The Albuquerque ARTCC controls IFR aircraft entering or leaving the Eloy Municipal Airport area. The area of jurisdiction for the Albuquerque center includes most of the states of New Mexico and Arizona, and portions of Texas, Colorado, and Oklahoma.

Navigational Aids

Navigational aids are electronic devices that transmit radio frequencies which pilots of properly equipped aircraft translate into point-to-point guidance and position information. The types of electronic navigational aids available for aircraft flying to or from Eloy Municipal Airport include the VOR, Loran-C, and GPS.

The VOR provides azimuth readings to pilots of properly equipped aircraft by transmitting a radio signal at every degree to provide 360 individual navigational courses. Frequently, distance measuring equipment (DME) is combined with a VOR facility to provide distance as well as direction information to the pilot. Military tactical air navigation aids (TACANs) and civil VORs are commonly combined to form a VORTAC. A VORTAC provides distance and direction information to civil and military pilots.

The nearest VORTAC to Eloy Municipal Airport is the Stanfield VORTAC, located approximately 17 nautical miles northwest of the airfield. This navigational facility is identified on **Exhibit 1D**.

Loran-C is a ground-based enroute navigational aid which utilizes a system of transmitters located in various locations across the continental United States. Loran-C allows pilots to navigate without using a specific facility. With a properly equipped aircraft, pilots can navigate to any airport in the United States using Loran-C.

GPS was initially developed by the United States Department of Defense for military navigation around the world. However, GPS is now used extensively for a wide variety of civilian uses, including the civil aircraft navigation.

GPS uses satellites placed in orbit around the globe to transmit electronic signals, which pilots of properly equipped aircraft use to determine altitude, speed, and navigational information. This provides more freedom in flight planning and allows for more direct routing to the final destination.

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. Eloy Municipal Airport does not have any published precision or non-precision instrument approaches.

Visual Flight Procedures

All flights into and out of Eloy Municipal Airport are conducted under VFR. Under VFR flight, the pilot is responsible for collision avoidance. Typically, the pilot will make radio calls announcing his/her intentions and the position of the aircraft relative to the airport.

In most situations, under VFR and basic radar services, the pilot is responsible for

navigation and choosing the arrival and departure flight paths to and from the airport. The results of individual pilot navigation for sequencing and collision avoidance are that aircraft do not fly a precise flight path to and from the airport. Therefore, aircraft can be found flying over a wide area around the airport for sequencing and safety reasons.

While aircraft can be expected to operate over most areas of the airport, the density of aircraft operations is higher near the airport. This is the result of aircraft following the established traffic patterns for the airport. The traffic pattern is the traffic flow that is prescribed for aircraft landing or taking off from an airport. The components of a typical traffic pattern are upwind leg, crosswind leg, downwind leg, base leg, and final approach.

a. Upwind Leg - A flight path parallel to the landing runway in the direction of landing.

b. Crosswind Leg - A flight path at right angles to the landing runway off its upwind end.

c. 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.

d. 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.

e. 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.

Essentially, the traffic pattern defines the side of the runway on which aircraft will operate. For example, at Eloy Municipal Airport, Runway 2 has an established left-hand traffic pattern. For this runway, aircraft make a left turn from base leg to final for landing. Runway 20 has an established right-hand traffic pattern. Therefore, aircraft operating to either runway will remain northwest of the runway. This flight pattern orientation has been established so that aircraft do not fly through the heavily used parachuting area immediately east of the runway.

While the traffic pattern defines the direction of turns that an aircraft will follow on landing or departure, it does not define how far from the runway an aircraft will operate. The distance laterally from the runway centerline an aircraft operates or the distance from the end of the runway is at the discretion of the pilot, based on the operating characteristics of the aircraft, number of aircraft in the traffic pattern, and meteorological conditions. The actual ground location of each leg of the traffic pattern varies from operation to operation for the reasons of safety, navigation, and sequencing, as described above. The distance that the downwind leg is located laterally from the runway will vary, based mostly on the speed of the aircraft. Slower aircraft can operate closer to the runway as their turn radius is smaller.

The traffic pattern altitude (TPA) for the airport is 1,000 feet AGL, or 2,513 feet MSL. The TPA is the altitude at which aircraft operating in the traffic pattern fly when on the downwind leg. The TPA is established so that aircraft have a predictable descent profile on base leg to final for landing.

Area Airports

A review of public-use airports within the vicinity of Eloy Municipal Airport has been made to identify and distinguish the type of air service provided in the area surrounding the airport. Information pertaining to each airport was obtained from FAA records.

Coolidge Municipal Airport (P08), located approximately 11 nautical miles northeast of Eloy Municipal Airport, is owned and managed by the City of Coolidge. P08 is equipped with a dual asphalt runway system. The greatest runway length at P08 is provided by Runway 5-23 at a length of 5,528 and a width of 150 feet. According to the master plan update currently in progress, P08 experiences approximately 18,500 operations annually and has 31 aircraft based at the airport. 100LL Avgas and Jet A fuel are available for purchase at the airport. Transient hangar and tiedown storage is available as well as minor airframe and powerplant services.

Casa Grande Municipal Airport (CGZ), located approximately 13 nautical miles northwest of Eloy Municipal Airport, is owned and managed by the City of Casa Grande. CGZ has a single asphalt runway measuring 5,200 feet long and 100 feet wide. According to the airport's master plan, CGZ has approximately 114 based aircraft and experiences more than 119,000 operations annually. A full range of general aviation services are available at CGZ including: transient tiedowns, self-service 100LL Avgas and Jet A fueling facilities, and major airframe and powerplant maintenance services.

Phoenix Regional Airport (A39), located approximately 20 nautical miles northwest of Eloy Municipal Airport, is privately owned and managed by the Ak Chin Indian Community. A39 has a single asphalt runway measuring 5,000 feet long and 50 feet wide. According to the airport's FAA Form 5010 Airport Master Record, the airport reports 12 based aircraft and 10 total ultralight operations annually. There are no general aviation services provided at A39.

Pinal Airpark Airport (MZJ), located approximately 22 nautical miles southeast of Eloy Municipal Airport, is owned and operated by Pinal County. MZJ has a single asphalt runway measuring 6,849 feet long and 150 feet wide. According to the airport's 5010 Airport Master Record, there are no reported based aircraft at MZJ, and annual operations total just over 10,600. General aviation services available include: 100LL Avgas, Jet A fueling services, transient tiedowns, major airframe and powerplant maintenance.

Chandler Municipal Airport (CHD), located approximately 29 nautical miles northwest of Eloy Municipal Airport, is owned and managed by the City of Chandler. CHD has a parallel asphalt runway system, the longest of which, Runway 4R-22L, measures 4,870 feet long and 75 feet wide. CHD is also equipped with a concrete helipad. According to the airport's 5010 Airport Master Record, CHD has 378 based aircraft and experiences approximately 265,400 operations annually. A full range of general aviation services are available at CHD including: 100LL Avgas, Jet A, transient tiedowns, major airframe and powerplant services, bottled oxygen, and aircraft charters and rentals.

Marana Regional Airport (AVQ), located approximately 30 nautical miles southeast of Eloy Municipal Airport, is owned and operated by the Town of Marana. AVQ is equipped with a dual asphalt runway system, the longest of which (Runway 12-30) measures 6,901 feet in length and 100 feet in width. According to the airport's 5010 Airport Master Record,

AVQ has 302 based aircraft and experiences approximately 112,000 operations annually. A full range of general aviation services are available at AVQ, including 100LL Avgas and Jet A fuel and major airframe and minor power plant maintenance.

Phoenix-Mesa Gateway Airport (IWA), located approximately 30 nautical miles north of Eloy Municipal Airport, is owned and managed by the Phoenix-Mesa Gateway Airport Authority. IWA is equipped with three parallel runways. The concrete Runway 12R-30L is the longest at 10,401 feet long and 150 feet wide. According to the airport's 5010 Airport Master Record, IWA has 96 based aircraft and experienced over 230,000 operations in 2008. General aviation services include: 100LL Avgas, Jet A, transient hangar and tie-down storage, minor airframe service, bottled oxygen, and aircraft charters and rentals.

Phoenix Sky Harbor International Airport (PHX), located approximately 43 nautical miles northwest of Eloy Municipal Airport, is owned and managed by the City of Phoenix. PHX is equipped with three parallel concrete runways, the longest, Runway 8-26, measures 11,489 feet long and 150 feet wide. PHX was the 9th busiest commercial service airport in the United States in 2008 with 19.5 million enplanements. According to the airport's 5010 Airport Master Record, PHX has 90 based aircraft and experienced 502,499 operations in 2008. PHX offers a full range of commercial airline services as well as general aviation services.

LANDSIDE FACILITIES

Landside facilities are the ground-based facilities that support the aircraft and pilot/passenger handling functions. These facilities typically include aircraft storage/maintenance hangars, aircraft parking aprons, and support facilities such as fuel storage, automobile parking, and roadway access. Landside facilities are identified on **Exhibit 1E**.

Airport Tenants

There are several specialty operators at the airport that provide a variety of services. Each of these specialty operators is located on airport property as shown on **Exhibit 1E**. Each specialty operator and a brief description of the business are listed below:

- **Airborne Systems** is a parachute manufacturer located in Hangar #4. Hangar #4 is used for the storage of parachute equipment.

- **Brunetto Flying Service** conducts maintenance services on single-engine and multi-engine aircraft out of Hangar #5, which is leased from Skydive Arizona Arizona. Brunetto Flying Service has one employee.

- **High But Dry Balloons** occupies two T-hangar units for the storage of six hot air balloons. High But Dry Balloons conducts its operations off airport property, often in conjunction with Skydive Arizona, averaging two operations per week. High But Dry Balloons has one employee.

- **Rigging Innovations, Inc.** leases Hangar #1 and Hangar #3 in which it operates a full service facility which includes packing and general maintenance of parachute equipment, canopy overhaul, harness overhaul and drop test programs. Rigging Innovations employs approximately 30 people.

Several aviation-related businesses are located off airport property but have ac-

cess to airfield facilities via "through-the-fence" agreements with the City of Eloy. These off-airport businesses are identified on **Exhibit 1E**.

- **Skydive Arizona** is located immediately east of airport property. Skydive Arizona is one of the busiest sky diving centers in the country conducting more than 150,000 jumps annually. Its facilities consist of three conventional hangars used for the maintenance and storage of its aircraft, an indoor skydiving facility, and numerous facilities used for office space, training centers, and lodging units for customers. Skydive Arizona began operations in 1990 and now employs over 100 individuals, and their aircraft fleet includes four Super Twin Otters, four Skyvans, one DC-3, one Beech 18, and one Pilatus Porter. Skydive Arizona owns the self-service fuel facility located on the aircraft parking apron on airport property. This above-ground self-service fuel facility consists of two 6,000 gallon tanks that provide 100LL Avgas and Jet A fuel. Skydive Arizona also leases Hangar #2 located on airport property.

- **Aero Specialists**, located immediately east of airfield property, is operated in association with Skydive Arizona and conducts maintenance on its aircraft.

- **Arizona Aeropainting** is an aircraft painting operator located southwest of the T-hangar facilities. Arizona Aeropainting has over 10,000 square feet of hangar and office space.

- **Crop First Aviation** is an aerial crop dusting operator that occupies the facility adjacent to the Arizona Aeropainting hangars. Crop First Aviation is based out of Stanfield, Arizona and operates a single Thrush agricultural aircraft at Eloy Municipal Airport during the summer months.

An aircraft maintenance and restoration operator is located in the 12,000 square foot hangar formerly occupied by Al-Don Dusting. This unnamed operator also stores four single-engine piston aircraft, which are used for recreational purposes.

Aircraft Hangar Facilities

Aircraft storage hangar facilities located on Eloy Municipal Airport property consist of two T-hangars and five conventional hangars. Each 8,000 square foot T-hangar building has six individual aircraft storage units. Each of these facilities is identified on **Exhibit 1E**. The five conventional hangars are currently occupied by tenants that either utilize the hangar space for aircraft storage, maintenance, or other aviation-related uses including parachute equipment storage. These conventional hangar facilities provide a total of approximately 20,400 square feet of aircraft storage space. The City of Eloy maintains a hangar waiting list with approximately 18 individuals.

Apron and Aircraft Parking

The aircraft parking apron at Eloy Municipal Airport is approximately 18,950 square yards and provides 28 aircraft tie-down spaces. Fees paid by aircraft owners for use of the aircraft tie-downs are collected by Skydive Arizona and paid to the City. The self-service fuel storage facility is located on the southeast end of the apron adjacent to Hangar #5.

Fueling Facilities

Skydive Arizona owns the fuel storage facilities at Eloy Municipal Airport. The

above ground facility consists of a 6,000 gallon 100LL Avgas tank and a 6,000 gallon Jet A tank. Fuel is delivered to individual aircraft via a self-service delivery system co-located with the storage tanks.

Maintenance and Aircraft Rescue and Firefighting

Regular airport maintenance is conducted by City of Eloy personnel and equipment. There are no aircraft rescue and firefighting (ARFF) facilities located on the airport. The Eloy Fire District, located approximately three miles from the airport in downtown Eloy, responds to on-airport emergencies.

Utilities

The availability of utilities at the airport is an important factor in determining the development potential of the airport property. Of primary concern in the inventory investigation is the availability of water, sanitary sewer, and electricity. Some, if not all, of these utilities will be necessary for any future development. Water is provided by the City of Eloy. New 12-inch water lines and a 1.0 million gallon water tank have recently been constructed on the airport to provide for increased water flow for existing and future airport facilities. Electricity is provided by Arizona Public Service and natural gas is provided by Southwest Gas. Sanitary sewer output is handled by septic tanks. Hangars 1 and 2 have separate septic tank systems. Hangars 3, 4, and 5 share a septic system.

Security Fencing and Gates

The majority of the airfield perimeter is equipped with eight-foot security fencing with three strands of barbed wire. A small segment of the airfield perimeter is equipped with four-foot barbed wire fencing. The terminal and apron area are protected by a six-foot chain link fence. An electronic gate, identified on **Exhibit 1E**, is located at the main entrance to the airport. Numerous manual access gates are located at various points in the terminal area.

ACCESS AND CIRCULATION

The airport is located approximately three statute miles northwest of downtown Eloy. Eloy is located approximately halfway between the Phoenix and Tucson metropolitan areas. The airport is accessible via Tumbleweed Road, which extends south from the airport where it intersects with State Highway 84 (Casa Grande-Picacho Highway). State Highway 84 is accessible from Interstate Highway 10, which runs parallel to the highway. The City of Eloy is served by four Interstate Highway 10 interchanges at Sunland Gin Road, Toltec Road, Sunshine Boulevard, and State Route 87. State Route 87 extends from Interstate Highway 10 north to the City of Coolidge.

The Sunset Route mainline of the Union Pacific Railroad (UPRR) parallels Interstate Highway 10 through the City of Eloy, and the Phoenix subdivision of the UPRR parallels State Route 87 from its Picacho junction with the mainline north toward the City of Coolidge and the Phoenix area.

Exhibit 1F depicts the existing and recommended roadway networks from the *City of Eloy Small Area Transportation Study*, 2009. Currently, the roadways in the immediate vicinity of Eloy Municipal Airport are classified as minor arterials and collector roads. The "Recommended 2030 Roadway Plan" takes into account anticipated population and economic growth in the local area. Ultimately,

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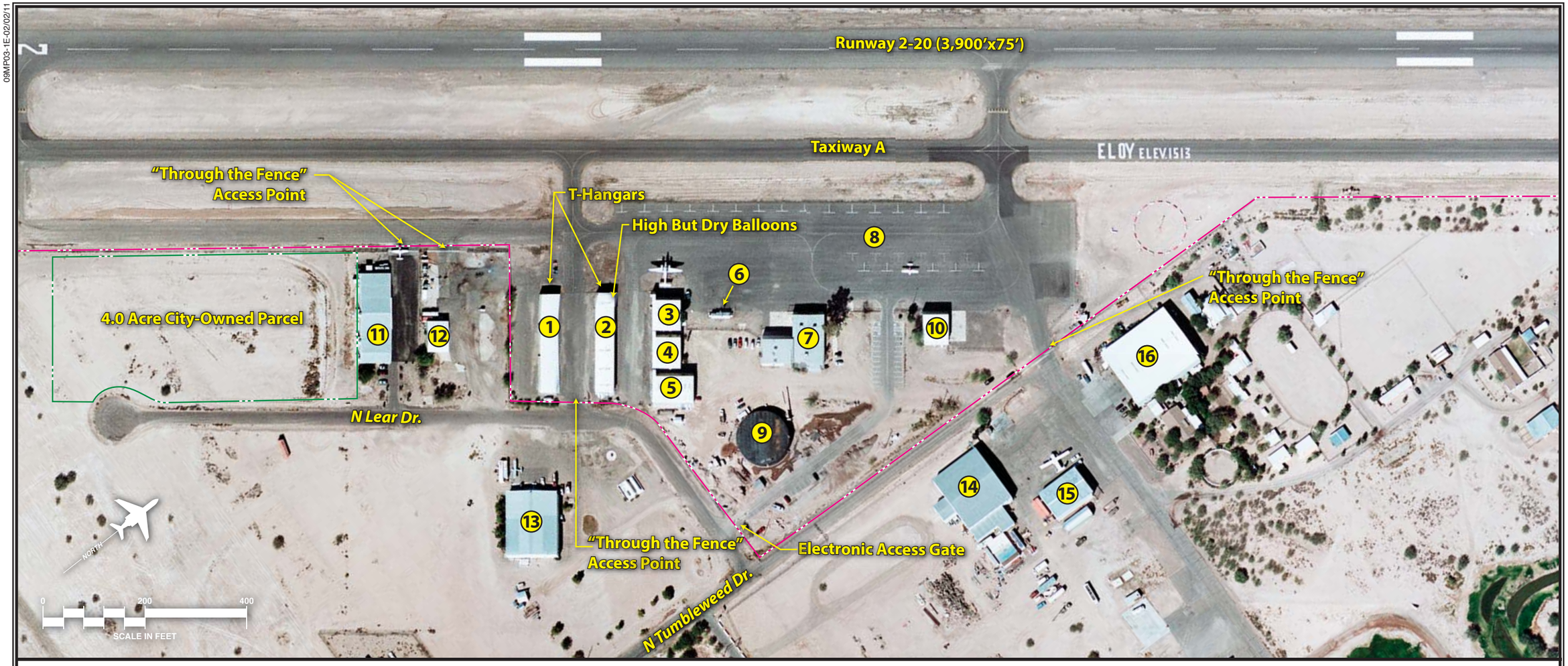


1 T-Hangar


2 T-Hangar


3 Hangar # 5 Brunetto Flying Service


4 Hangar # 4 Airborne Systems


5 Hangar # 3 Rigging Innovations


6 Fuel Storage


7 Hangar #1 Rigging Innovations


8 Aircraft Parking Apron


9 Water Tank


10 Hangar # 2 Skydive Arizona


11 Arizona Aeropainting


12 Crop First Aviation


13 Aircraft Maintenance & Restoration Facility


14 Skydive Arizona/ Aero Specialists


15 Skydive Arizona/ Aero Specialists


16 Skydive Arizona/ Aero Specialists

Exhibit 1E
LANDSIDE FACILITIES

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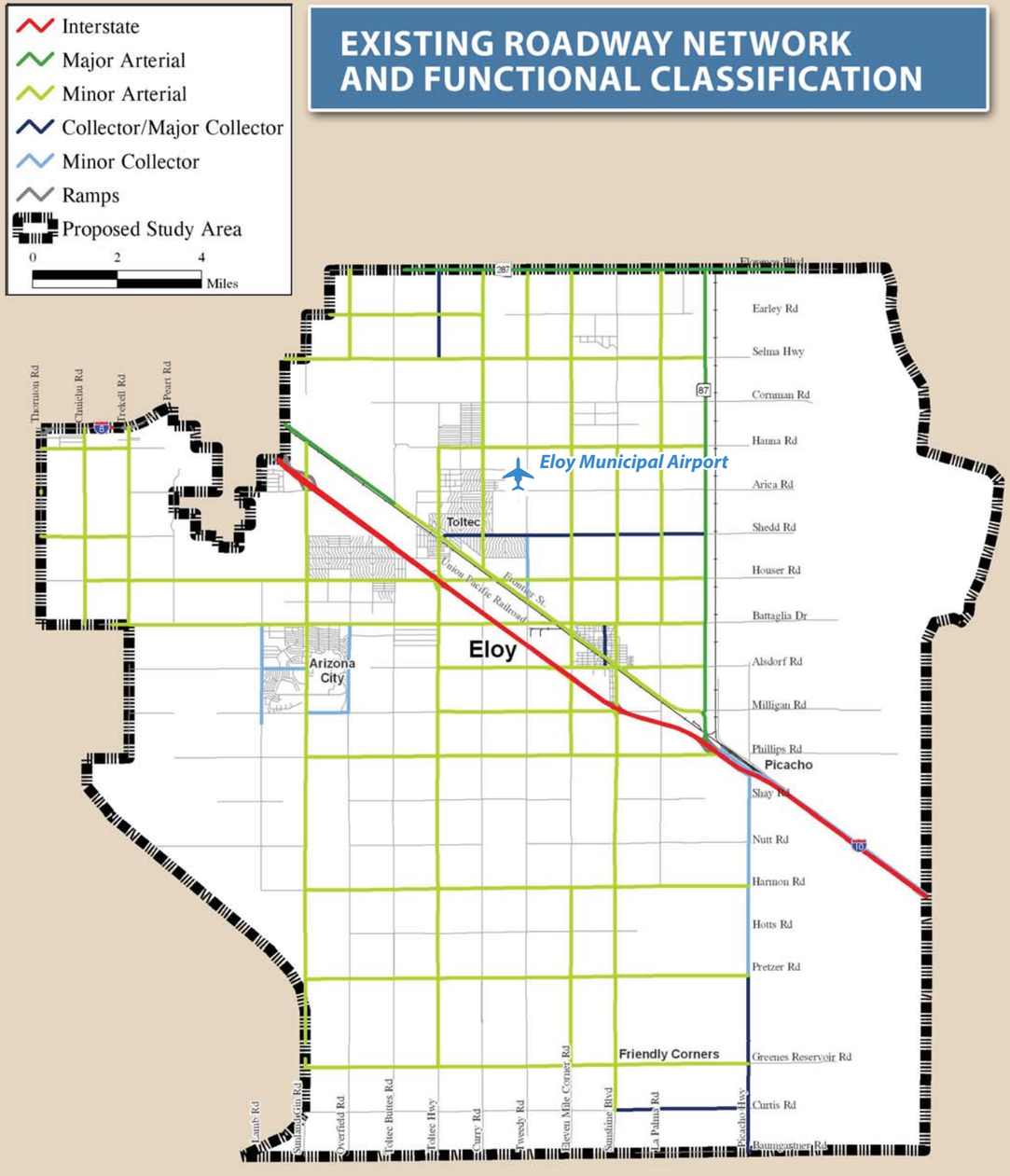
EXISTING ROADWAY NETWORK AND FUNCTIONAL CLASSIFICATION



Source: City of Eloy Small Area Transportation Study, 2009

RECOMMENDED 2030 ROADWAY PLAN

Potential improvements to the state highway system can be made only after in-depth planning and engineering studies are conducted by ADOT, and upon approval of the State Transportation Board (STB). All traffic interchange improvements must be approved by the Federal Highway Administration (FHWA).

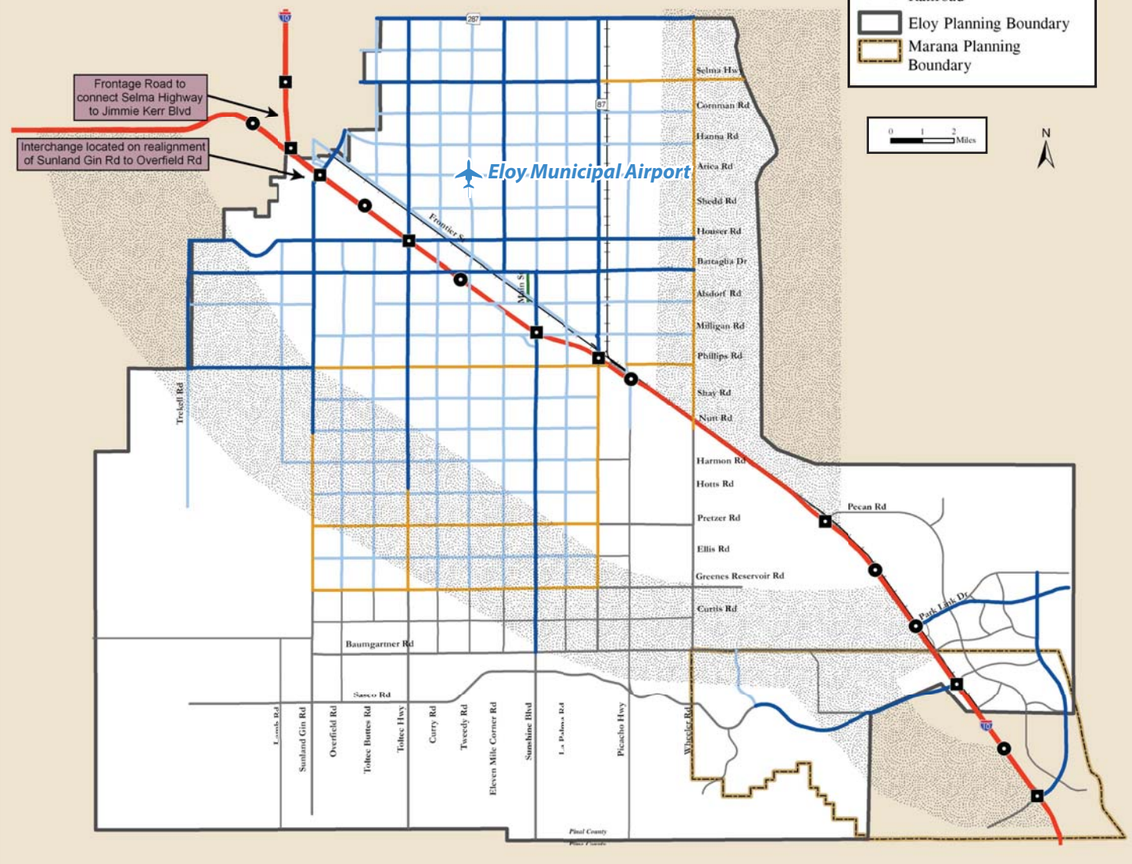


Exhibit 1F
EXISTING AND RECOMMENDED ROADWAY NETWORK AND FUNCTIONAL CLASSIFICATION

Tumbleweed Road is depicted as a minor arterial roadway, widened to four lanes up to where it reaches the airport.

AUTOMOBILE PARKING

A paved and marked parking lot providing 24 automobile parking spots, including four handicapped spots, is located northeast of Hangar #1. An additional five parking spaces are located immediately east of the water tank. An unpaved parking lot is located in between Hangar #5 and Hangar #1, immediately east of the self-service fuel storage tank. Several of the off-airport, aviation-related businesses have parking lots adjacent to their facilities.

SOCIOECONOMIC PROFILE

The socioeconomic profile provides a general look at the socioeconomic makeup of the community that utilizes Eloy Municipal Airport. It also provides an understanding of the dynamics for growth and the potential changes that may affect aviation demand. Aviation demand forecasts are often directly related to the population base, economic strength of the region, and the ability of the region to sustain a strong economic base over an extended period of time. Current demographic and economic information was collected from the Central Arizona Association of Governments (CAAG), Pinal County, Arizona Department of Economic Security, and the United States Department of Commerce.

POPULATION

Population is a basic demographic element to consider when planning for future needs of the airport. The State of Arizona has been one of the fastest growing states in the country in recent history. Recent economic conditions have dampened projected population estimates in certain parts of Arizona, however strong growth is still anticipated in the future. **Table 1D** shows the total population growth since 1960 for the State of Arizona, Pinal County, and the City of Eloy. Since 2000, the population growth rate for both the County and the City has accelerated to its fastest pace during the represented time period. Since 2000, the State of Arizona has grown at a slower annual average rate (3.0 percent) than Pinal County and the City of Eloy (7.9 and 7.0 percent, respectively). The recent Pinal County growth can be attributed to the urban sprawl of the Phoenix and Tucson metropolitan areas. As these metropolitan areas grow, development along Interstate 10, which connects Phoenix and Tucson, can be expected to increase.

TABLE 1D
Eloy Area Population Trends

Year	State of Arizona	Avg. Annual % Change	Pinal County	Avg. Annual % Change	City of Eloy	Avg. Annual % Change
1960	1,302,161	--	62,673	--	4,899	--
1970	1,770,900	3.1%	67,916	0.8%	5,381	0.9%
1980	2,718,215	4.4%	90,918	3.0%	6,240	1.5%
1990	3,665,228	3.0%	116,379	2.5%	7,211	1.5%
2000	5,130,632	3.4%	179,727	4.4%	10,375	3.7%
2009	6,683,129	3.0%	356,303	7.9%	19,005	7.0%

Sources: U.S. Census Bureau (1960-2000)
Arizona Department of Commerce (2009)

EMPLOYMENT & HOUSING

Employment opportunities affect migration to the area and population growth. As shown in **Table 1E**, the City of Eloy's unemployment rate more than doubled from 2007 to 2008, and through September 2009, exceeds 15 percent. This is well above the state and national rates, indicating that the local job market has dropped off considerably.

TABLE 1E
Historical Unemployment Rate
United States, State of Arizona, Pinal County, City of Eloy

Year	United States	State of Arizona	Pinal County	Eloy
2000	4.0%	4.0%	4.6%	4.3%
2001	4.7%	4.7%	5.3%	5.0%
2002	5.8%	6.0%	7.2%	6.8%
2003	6.0%	5.7%	7.0%	6.5%
2004	5.5%	4.9%	5.9%	5.5%
2005	5.1%	4.6%	5.5%	5.2%
2006	4.6%	4.1%	5.0%	4.7%
2007	4.6%	3.7%	4.8%	4.5%
2008	5.8%	5.5%	6.8%	10.1%
2009*	9.1%	8.3%	10.9%	15.8%

Source: Arizona Department of Economic Security
* Through September

Table 1G summarizes total employment and housing for Pinal County and the City of Eloy.

Increases in housing units typically indicate that people are migrating to the local area and that residential housing developments are taking place. Growth in total employment generally follows growth in housing units.

TABLE 1G
Employment & Housing Units

	2000	2005	2010	Avg. Annual % Change
Pinal County				
Housing Units	81,154	114,281	156,740	6.8%
Total Employment	48,038	56,196	63,116	2.8%
City of Eloy				
Housing Units	5,080	6,956	8,672	5.5%
Total Employment	2,717	3,144	3,469	2.5%

Source: CAAG Pinal Projections Study, 2009

PER CAPITA PERSONAL INCOME

Per capita personal income (PCPI) for the United States, the State of Arizona, and Pinal County is summarized in **Table 1H**. PCPI is determined by dividing total income by population. For PCPI to grow significantly, income growth must outpace population growth. As shown in the table, PCPI average annual growth in Pinal County (1.1 percent) has been outpaced by PCPI growth in the state (1.7 percent) and the nation (2.0 percent) since 1970. Historic PCPI figures for Pinal County have also been considerably lower than the state and national levels.

TABLE 1H
Per Capita Personal Income (2004 $)
United States, State of Arizona, Pinal County

Year	United States	Arizona	Pinal County
1970	$16,725	$15,679	$12,814
1980	$21,052	$19,836	$16,006
1990	$26,226	$22,898	$16,417
2000	$32,352	$27,809	$19,153
2008	$35,438	$29,375	$19,774
Avg. Annual Growth Rate (1970-2008)	2.0%	1.7%	1.1%

Source: Woods & Poole Economics, CEDDS 2010

CLIMATE

Weather plays an important role in the operational capabilities of an airport. Temperature is an important factor in determining runway length required for aircraft operations. The percentage of time that VFR weather conditions are in effect is a major factor in determining the use of instrument approach aids.

Temperatures typically range from 67 to 105 degrees Fahrenheit (F) during the summer months. The hottest month is typically July with an average high of 105.2 degrees. The Sonoran Desert experiences two distinct rainy seasons. During the winter, the Jet Stream dips down through Arizona, bringing with it Pacific Storms from the west. During the summer, the monsoon season occurs when the wind direction shifts, bringing moisture northwest from the Gulf of Mexico. Monsoon storms are brief, sometimes violent thunderstorms that usually peak in August. August is the wettest month averaging 1.64 inches of precipitation annually. January is the coldest month with average minimum temperatures around 36.3 degrees.

VFR weather is in effect when cloud ceilings are at 1,000 feet AGL or greater, and when visibility is three statute miles or greater. Eloy experiences ideal flying conditions year round, averaging 99.5 percent VFR weather conditions annually. **Table 1J** summarizes typical weather conditions for the Eloy region.

TABLE 1J
Temperature and Precipitation Data
Eloy, Arizona

	Temperature (Fahrenheit)		
	Mean Maximum	Mean Minimum	Precipitation (Inches)
January	67.8	36.3	0.92
February	71.5	39.8	0.91
March	77.1	44.2	0.97
April	85.7	50.4	0.27
May	94.6	58.5	0.19
June	103.6	67.1	0.12
July	105.2	74.3	1.04
August	102.5	73.3	1.64
September	99.4	67.1	0.76
October	89.5	55.3	0.86
November	76.5	43.0	0.74
December	67.9	36.4	1.10
Annual	86.8	53.8	9.51

Source: Western Regional Climate Center

ENVIRONMENTAL INVENTORY

Available information about the existing environmental conditions at Eloy Municipal Airport has been derived from internet resources, agency maps, and existing literature. The intent of this task is to inventory potential environmental sensitivities that might affect future improvements at the airport.

Air Quality

The U.S. Environmental Protection Agency (EPA) has adopted air quality standards that specify the maximum permissible short-term and long-term concentrations of various air contaminants. The National Ambient Air Quality Standards (NAAQS) consist of primary and secondary standards for six criteria pollutants which include: Ozone (O_3), Carbon Monoxide (CO), Sulfur Dioxide (SO_2), Nitrogen Oxide (NO), Particulate matter (PM_{10} and $PM_{2.5}$), and Lead (Pb). Various levels of review apply within both NEPA and permitting requirements. Potentially significant air quality impacts, associated with an FAA project or action, would be demonstrated by the project or action exceeding one or more of the NAAQS for any of the time periods analyzed.

The airport is located within the portion of Pinal County which is classified by the EPA as in attainment for all criteria pollutants. An attainment classification indicates that the area meets all NAAQS.

Fish, Wildlife, and Plants

The Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) are charged with overseeing the requirements contained within Section 7 of the *Endangered Species Act*. This Act was put into place to protect animal or plant species whose populations are threatened by human activities. Along with the FAA, the FWS and the NMFS review projects to determine if a significant impact to these protected species will result with implementation of a proposed project. Significant impacts occur when the proposed action could jeopardize the continued existence of a protected species, or would result in the destruction or adverse modification of federally designated critical habitat in the area.

In a similar manner, states are allowed to prepare statewide wildlife conservation plans through authorizations contained within the *Sikes Act*. Airport improvement projects should be checked for consistency with the State or Department of Defense (DOD) Wildlife Conservation Plans where such plans exist.

According to the *City of Eloy Small Area Transportation Study*, 2009, the native vegetation in the area is described as Temperate Scrubland, or Chaparral, and Creosote-Bursage. A search of the Arizona Heritage Data Management System online environmental review tool identified the occurrence of critical habitat for the Western Burrowing Owl within two miles of the airport.

According to the U.S. Fish and Wildlife Service, numerous threatened, endangered, and candidate species have suitable habitat within Pinal County. These species are identified in **Table 1K**.

TABLE 1K
Federally listed Threatened, Endangered, and Candidate Species with Habitat in Pinal County

COMMON NAME	SCIENTIFIC NAME	HABITAT	STATUS
Arizona Hedgehog Cactus	Echinocereus triglochidiatus var. arizonicus	Ecotone between interior chapparal and madrean evergreen woodland.	Endangered
Brown Pelican	Pelecarnus occidentalis	Coastal land and islands; species found around many Arizona lakes and rivers.	Endangered
Desert Pupfish	Cyprinodon macularius	Shallow springs, small streams, and marshes. Tolerates saline and warm water.	Endangered
Gila Chub	Gila intermedia	Pools, springs, cienegas, and streams.	Endangered
Lesser Long-nosed Bat	Leptonycteris curasoae yerbabuenae	Desert scrub habitat with agave and columnar cacti present as food plants.	Endangered
Loach Minnow	Tiaroga cobitis	Small to large perennial streams with swift shallow water over cobble and gravel.	Threatened
Mexican Spotted Owl	Strix occidentalis lucida	Nests in canyons and dense forests with multilayered foliage structure.	Threatened
Nichol Turk's Head Cactus	Echinocactus horizonthalonius var. nicholii	Sonoran desert scrub.	Endangered
Razorback Sucker	Xyrauchen texanus	Riverine and lacustrine areas, generally not in fast moving water and may use backwaters.	Endangered
Southwestern Willow Flycatcher	Empidonax traillii extimus	Cottonwood/willow and tasmarisk vegetation communities along rivers and streams.	Endangered
Spikedance	Meda fulgida	Moderate to large perennial streams with gravel substrates and moderate to swift velocities over sand and gravel substitutes.	Threatened
Yuma Clapper Rail	Rallus longirostris yumanensis	Fresh water and brackish marshes	Endangered
Acuna Cactus	Echinomastus erectocentrus var. acunensis	Well drained knolls and gravel ridges in Sonoran desertscrub.	Candidate
Northern Mexican Garternsnake	Thamnophis eques megalops	Source-area wetlands.	Candidate
Yellow-billed Cuckoo	Coccyzus americanus	Large blocks of riparian woodlands (cottonwood, willow, or tamarisk galleries).	Candidate

Source: U.S. Fish and Wildlife Service, Pinal County Species List. November 2009

Floodplains

Floodplains are defined in Executive Order 11988, *Floodplain Management*, as "the lowland and relatively flat areas adjoining inland and coastal waters… including at a minimum, that area subject to a one percent or greater chance of flooding in any given year" (i.e., that area would be inundated by a 100-year flood). Federal agencies, including the FAA, are directed to "reduce the risk of loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains." According to the Federal Emergency Management System (FEMA) Federal Insurance Rate

Map (FIRM) panel number 04021C1590E, the airport is not located within a 100-year floodplain.

Wetlands and Waters of the U.S.

The U.S. Army Corps of Engineers regulates the discharge of dredged and/or fill material into waters of the United States, including adjacent wetlands, under Section 404 of the *Clean Water Act*. Wetlands are defined in Executive Order 11990, *Protection of Wetlands*, as "those areas that are inundated by surface or groundwater with a frequency sufficient to support and under normal circumstances does or would support a prevalence of vegetation or aquatic life that requires saturated or seasonably saturated soil conditions for growth and reproduc-tion." Categories of wetlands include swamps, marshes, bogs, sloughs, potholes, wet meadows, river overflows, mud flats, natural ponds, estuarine areas, tidal overflows, and shallow lakes and ponds with emergent vegetation. Wetlands exhibit three characteristics: hydrology, hydrophytes (plants able to tolerate various degrees of flooding or frequent saturation), and poorly drained soils. Waters of the U.S. also include washes.

Correspondence from the U.S. Army Corps of Engineers included in the previous Eloy Municipal Airport master plan indicates that there are no Waters of the United States within the airport vicinity.

Historical, Architectural, and Cultural Resources

Determination of a project's impact to historical and cultural resources is made in compliance with the *National Historic Preservation Act* (NHPA) *of 1966*, as amended for federal undertakings. Two State acts also require consideration of cultural resources. The NHPA requires that an initial review be made of an undertaking's *Area of Potential Effect* (APE) to determine if any properties in, or eligible for inclusion in, the National Register of Historic Places (NRHP) are present in the area.

In 1990, as part of the preparation of a Preliminary Draft Environmental Assessment for a runway extension at Eloy Municipal Airport, SWCA, Inc. completed an Archaeological Resource Survey of the area north of the runway. They identified one site which was potentially eligible for listing on the National Register of Historic Places. SWCA recommended the site be avoided; if this was not possible, archaeological testing would be required.

In 1998, as part of a proposed Environmental Assessment, Archaeological Consulting Services, Inc. (ACS) was contracted to perform an Archaeological Resource Survey of additional properties in the vicinity of Eloy Municipal Airport, mapped as three separate parcels. This study surveyed both areas north and south of the existing runway centerline and the area planned for landside improvements. The results of this survey expanded the boundaries of the site originally identified in 1990, but found no new sites eligible for listing on the National Register. ACS recommended the site be avoided; if this was not possible, they recommended additional archaeological testing be performed.

Coordination with the Arizona State Historic Preservation Office (SHPO) has occurred in relation to this project. In a September 1997 response to the initial agency coordination request, the SHPO confirmed that the identified site north of

the airport is considered eligible for inclusion on the National Register of Historic Places. They noted that, back in 1991, they had recommended archaeological excavations of the area to be impacted, and that the project was subsequently dropped. In a second response, in October 1997, the SHPO noted that, because of known sites in the vicinity of Eloy Municipal Airport, there was a greater than usual chance of other sites being in the area and recommended a survey of all areas to be impacted by the proposed project that had not been previously surveyed.
In November 1998, upon receipt of the ACS report, the SHPO identified that archaeological testing of the site to the north would be necessary in order to determine whether or not intact subsurface archaeological deposits were present and would be disturbed by the proposed expansion. The letter continued that the SHPO preferred the alternative which provided for the runway expansion to take place exclusively at the south end in order to avoid the identified archaeological site on the north end. If this was not possible, the additional archaeological investigation would be necessary prior to further pursuing this alternative.

Impacts to historic and cultural resources resulting from implementation of the runway extension are considered potentially significant. Further survey work and possibly data recovery activities are required.

Department of Transportation Act: Section 4(f)

Section 4(f) properties include publicly owned land from a public park, recreational area, or wildlife and waterfowl refuge of national, state, or local significance; or any land from a historic site of national, state, or local significance.

An archaeological site on the airport has been identified as a potential candidate for listing on the National Register of Historic Places. This site, located north of the runway, would ultimately be impacted by grading standards for the runway safety area (RSA) off the end of the extended Runway 20 threshold. Section 4(f) does not apply to archaeological resources where the responsible FAA official, after consultation with the State Historic Preservation Office (SHPO) determines that the archaeological resource is important chiefly for data recovery, and is not important for preservation in place. Therefore, consultation with the SHPO should occur to determine if the archaeological site on the airport is important chiefly for data recovery. Previous consultation with the SHPO in 1991 resulted in the recommendation that archaeological excavations of the site be undertaken.

LAND USE

Exhibit 1G depicts the general land use plan for the City of Eloy as derived from the 2009 *Eloy General Plan*. The land encompassed by airport property is designated as light industrial use, while the land immediately adjacent to airport property is designated as residential or community commercial.

The City of Eloy has adopted a zoning ordinance, which establishes a non-residential buffer zone within a 3,000-foot line running generally parallel to either side of the runway. This Airport Overlay Zone is depicted on **Exhibit 1H**.

SUMMARY

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

DOCUMENT SOURCES

A variety of sources were used in the inventory of existing facilities. The following listing presents a partial list of reference documents. The list does not reflect some information collected by airport staff or through interviews with airport personnel.

AirNAV Airport information, website: http://www.airnav.com

Airport/Facility Directory, Southwest U.S., U.S. Department of Transportation, Federal Aviation Administration, National Aeronautical Charting Office, October 22, 2009 Edition

Arizona Department of Economic Security

Arizona Department of Transportation

Eloy Municipal Airport, Airport Master Plan; 2001

Central Arizona Association of Governments, *Pinal Projections Study*; 2009

City of Eloy, Arizona
City of Eloy Small Area Transportation Study, 2009

FAA 5010 Form, Airport Master Record; August, 2009

National Plan of Integrated Airport Systems (NPIAS), U.S. Department of Transportation, Federal Aviation Administration, 2009-2013

U.S. Census Bureau

U.S. Department of Commerce, Bureau of Economic Analysis

U.S. Fish and Wildlife Service, *Pinal County Species List*, November, 2009

Western Regional Climate Center

Woods & Poole Economics, *The Complete Economic and Demographic Data Source; 2010*

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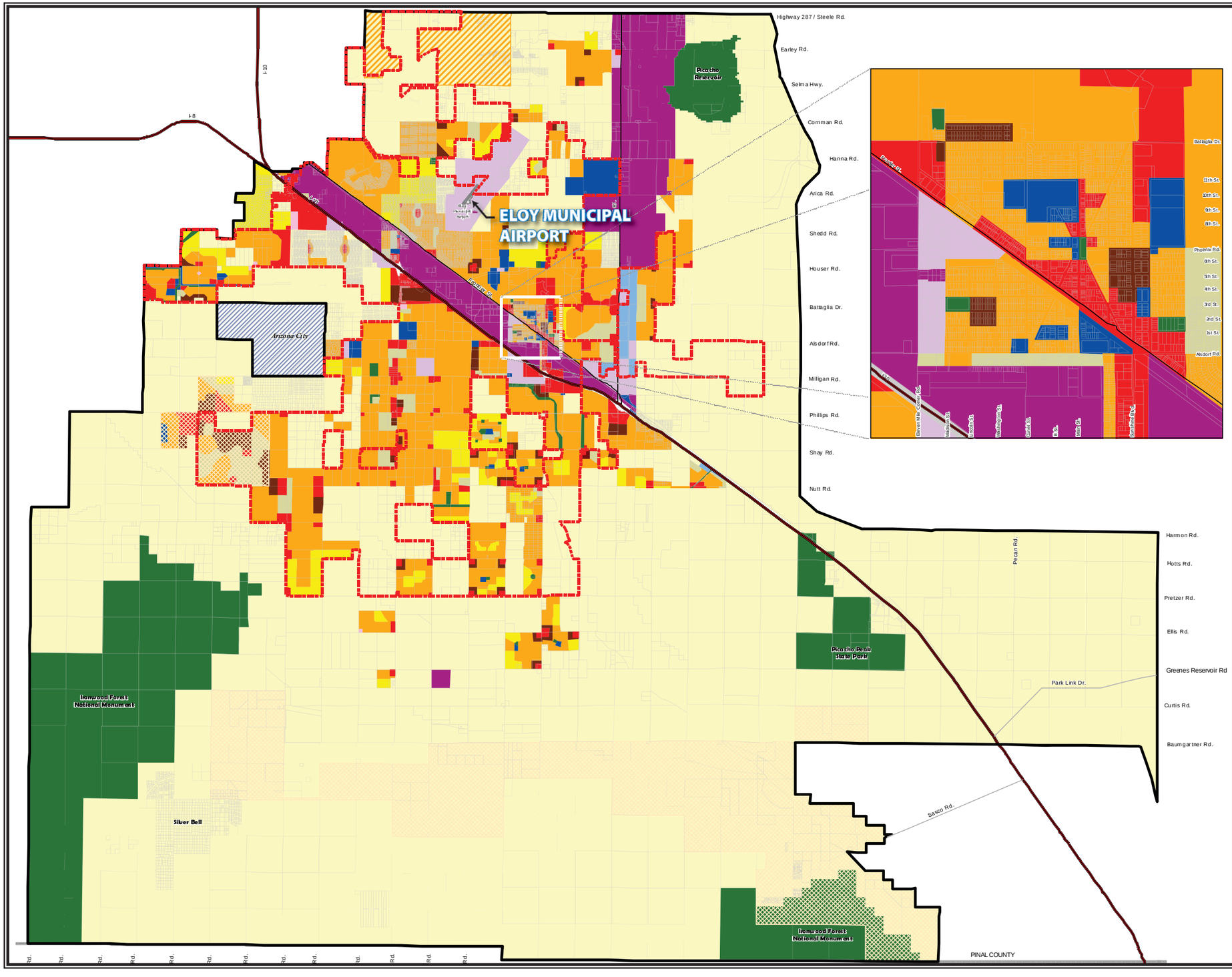
CITY OF ELOY



Legend

Land Use Designations

- Estate Density Residential (0.2 to 1.0 du/ac)
- Low Density Residential (1.0 to 3.0 du/ac)
- Medium Density Residential (3.0 to 6.0 du/ac)
- Medium-High Density Residential (6.0 to10 du/ac)
- High Density Residential (10 to 24 du/ac)
- Neighborhood Commercial
- Community Commercial
- Public/Institutional
- Mixed-Use
- Light Industrial
- General Industrial
- Parks/Open Space
- Planned Community Area
- City Limits 2009
- Planning Area Boundary
- Overlapped Planning Areas
- Interstate Highway
- State and County Highways
- Unincorporated Arizona City

0 0.5 1 2 3 4 Miles

Source: City of Eloy, General Plan - 2009

Exhibit 1G
GENERAL LAND USE PLAN

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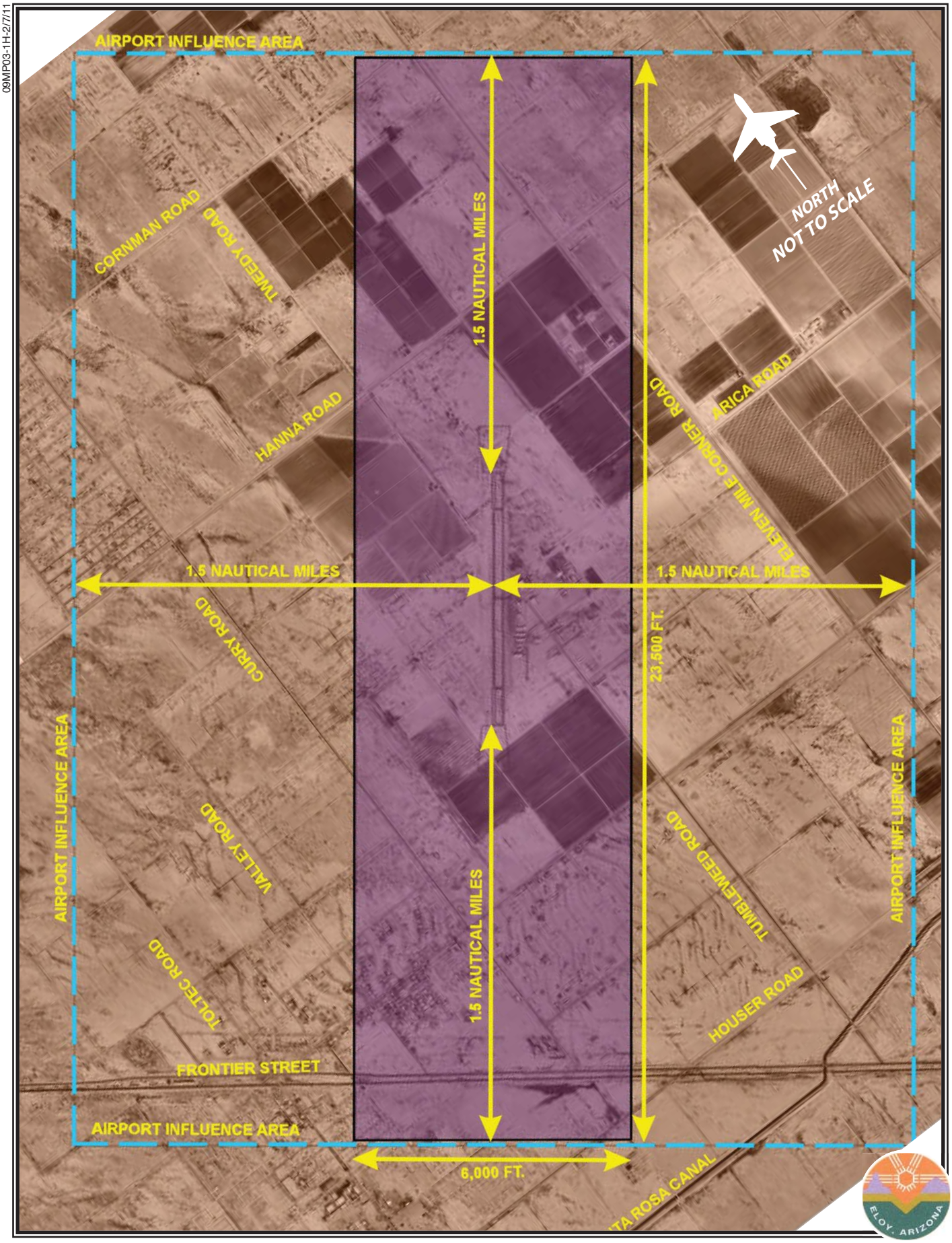

Exhibit 1H
AIRPORT OVERLAY ZONE

CHAPTER TWO

FORECASTS

Forecasts

An important factor in facility planning involves a definition of demand that may reasonably be expected to occur during the useful life of the facility's key components. For Eloy Municipal Airport, this involves projecting potential aviation demand for a 20-year timeframe. In this Master Plan, forecasts of based aircraft, based aircraft fleet mix, aircraft operations, peaking characteristics, and instrument approaches will be considered which will serve as the basis for facility planning.

The aviation demand forecasts presented in this chapter have been prepared using airport-specific data provided by airport management, as well as data compiled by the Federal Aviation Administration (FAA). Updated national forecasts in the publication F*AA Aerospace Forecast – Fiscal Years 2010-2030* were also referenced for industry trends.

The FAA has oversight responsibility to review and approve aviation forecasts that are submitted to the agency in conjunction with airport planning, including Master Plans. The FAA reviews such forecasts with the objective of including them in its *Terminal Area Forecasts* (TAF) and the *National Plan of Integrated Airport Systems* (NPIAS). In addition, aviation activity forecasts are an important input to the benefit-cost analyses associated with airport development, and the FAA reviews these analyses when federal funding requests are submitted.

As stated in FAA Order 5090.3C, *Field Formulation of the National Plan of Integrated Airport Systems,* dated December 4, 2004, forecasts should be:

- Realistic.
- Based on the latest available data.
- Reflective of current conditions at the airport.

- Supported by information in the study.
- Capable of providing adequate justification for airport planning and development.

Recognizing this, it is intended to develop a Master Plan for Eloy Municipal Airport that will be demand-based rather than time-based. As a result, the reasonable levels of activity potential that are derived from this forecasting effort will be related to the planning horizon levels rather than dates in time. These planning levels will be established as levels of activity from which specific actions for the airport to consider will be presented.

The demand-based manner in which this Master Plan is being prepared is intended to accommodate variations in demand at the airport. Demand-based planning relates capital improvements to demand factors such as based aircraft operations, instead of points in time. This allows the airport to address capital improvement needs according to actual demand occurring at the airport. Therefore, should growth in aircraft operations or based aircraft slow or decline, it may not be necessary to implement some improvement projects. However, should the airport experience accelerated growth, the plan will have accounted for that growth and will be flexible enough to respond accordingly.

In order to fully assess current and future aviation demand for Eloy Municipal Airport, an examination of several key factors is needed. These include national and regional aviation trends, historical and forecast socioeconomic and demographic information of the area, and competing transportation modes and facilities. Consideration and analysis of these factors will ensure a comprehensive outlook for future aviation demand at Eloy Municipal Airport.

NATIONAL AVIATION TRENDS

Each year, the FAA updates and publishes a national aviation forecast. Included in this publication are forecasts for passengers, airlines, air cargo, general aviation, and FAA workload measures. The forecasts are prepared to meet the budget and planning needs of the constituent units of the FAA and to provide information that can be used by state and local authorities, the aviation industry, and the general public.

The current edition when this chapter was prepared was FAA *Aerospace Forecast - Fiscal Years 2010-2030*, published in March 2010. The forecasts use the economic performance of the United States as an indicator of future aviation industry growth. Similar economic analyses are applied to the outlook for aviation growth in international markets.

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

In the seven years prior to the events of September 11, 2001, the U.S. civil aviation industry experienced unprecedented

growth in demand and profits. The impacts to the economy and aviation industry from the events of 9/11 were immediate and significant. The economic climate and aviation industry had been recovering until early 2008 when it became clear that an economic downturn was underway. High oil prices and an economic recession caused general aviation activity at FAA air traffic facilities to fall sharply in 2008, declining by 5.6 percent. The downturn in the economy has dampened the near-term prospects for the general aviation industry. As the U.S. and world economy recovers, general aviation demand is anticipated to rebound and grow.

The National Bureau of Economic Research announced that the U.S. economy entered into recession in December 2007. As the economic downturn gathered momentum, the new Administration and Congress passed the American Recovery and Reinvestment Act (ARRA) in February, 2009 which was estimated to have a total fiscal impact of $787 billion. Data shows that the bottom of the recession was hit in June 2009 and the freefall in economic activity tempered during the 3Q of 2009. The U.S. economy grew for the first time in 4Q 2009 with output increasing by 2.2 percent. Economic growth is expected to be slow and not strong enough to halt the decline in jobs until later in 2010. Sustained economic growth above three percent is not expected until 2011. Beyond 2015 U.S. real GDP growth slows to around 2.6 percent annually through the forecast period.

In 2009, there were an estimated 229,149 active general aviation aircraft in the United States. **Exhibit 2A** depicts the FAA forecast for active general aviation aircraft. The FAA projects an average annual increase of 0.9 percent through 2030, resulting in 278,723 active aircraft. Active piston-powered aircraft are expected to decline through 2017, then gradually increase to 172,613 by 2030 for an overall average annual increase of 0.2 percent. This is driven primarily by a 3.4 percent annual increase in piston-powered rotorcraft and growth in experimental and sport aircraft, as single engine fixed-wing piston aircraft are projected to increase at just 0.2 percent annually and multi-engine fixed-wing piston aircraft are projected to decrease by 0.8 percent per year. This is due, in part, to declining numbers of multi-engine piston aircraft and the expectation that the new, light sport aircraft and the relatively inexpensive microjets will dilute or weaken the replacement market for piston aircraft.

New models of business jets are also stimulating interest for the high-end market. The FAA expects the business segment to expand at a faster rate than personal/sport flying. Safety and security concerns combined with increased processing time at commercial terminals make business/corpo-rate flying an attractive alternative. Turbine-powered aircraft (turboprop and jet) are expected to grow at an average annual rate of 3.1 percent over the forecast period. Even more significantly, the jet portion of this fleet is expected to grow at an average annual growth rate of 4.2 percent. The total number of jets in the general aviation fleet is projected to grow from 11,418 in 2009, to 27,035 by 2030.

With the advent of a relatively inexpensive twin-engine very light jet (VLJ), many questions have arisen as to the future impact they may have. The lower acquisition and operating costs of the VLJs were believed to have the potential to revolutionize the business jet market, particularly by being able to sustain a true on-demand air-taxi service. While initial forecasts called for over 400 aircraft to be

delivered a year, events such as the recession along with the bankruptcy of Eclipse and DayJet have led the FAA to temper more recent forecasts. The introduction of the Embraer's Phenom 100 to the market has helped boost the turbine market. Despite that, the impacts of the recession have led to dampened expectations. VLJs are forecast to grow by 440 aircraft through 2013 then average 216 aircraft per year through the remainder of the forecast period.

Owners of ultralight aircraft began registering their aircraft as "light sport" aircraft in 2005. At the end of 2008, a total of 6,811 aircraft were estimated to be in this category. The FAA estimates this fleet will increase by approximately 825 aircraft per year until 2013, and then taper off to about 335 per year. By 2030, a total of 16,311 light sport aircraft are projected to be in the fleet.

Aircraft utilization rates are projected to increase through the forecast period. The number of general aviation hours flown is projected to increase at 2.5 percent annually. Similar to active aircraft projections, there is projected disparity between piston and turbine aircraft hours flown. Hours flown in turbine aircraft are expected to increase at 4.1 percent annually, compared with 1.1 percent for piston-powered aircraft. Jet aircraft hours flown are projected to increase at 6.1 percent annually over the next 20 years. The sport aircraft fleet is anticipated to experience a 5.9 percent average annual growth rate in hours flown through 2030.

The total general aviation pilot population is projected to increase by 52,000 in the next 20 years reaching 501,875 in 2030, which represents an average annual growth rate of 0.5 percent. The student pilot population is forecast to increase at an annual rate of 0.8 percent, reaching a total of 86,050 in 2030. Growth rates for other pilot categories over the forecast period are as follows: recreational pilots remaining constant; private pilots increasing by 0.2 percent; commercial pilots increasing 0.5 percent; airline transport pilots increasing 0.6 percent; rotorcraft-only pilots increasing 1.6 percent; and glider-only pilots increasing 0.2 percent. The sport pilot is expected to grow significantly through 2030 at 7.2 percent annually.

Over the past several years, the general aviation industry has launched a series of programs and initiatives whose main goals are to promote and assure future growth within the industry. Several programs are intended to promote growth in new pilot starts and introduce people to general aviation. "Project Pilot," sponsored by the Aircraft Owners and Pilots Association (AOPA), promotes the training of new pilots in order to increase and maintain the size of the pilot population. The Experimental Aircraft Association (EAA) promotes the "Young Eagles" program which introduces young children to aviation by offering them a free airplane ride courtesy of aircraft owners who are part of the association. Over the years, programs such as these have played an important role in the success of general aviation and will continue to be vital to its growth in the future.

AIRPORT SERVICE AREA

In determining the aviation demand for an airport, it is necessary to identify the role of that airport. Eloy Municipal Airport is classified as a general aviation airport in the NPIAS. As such, the primary role of Eloy Municipal Airport is to serve the needs of general aviation in the area.

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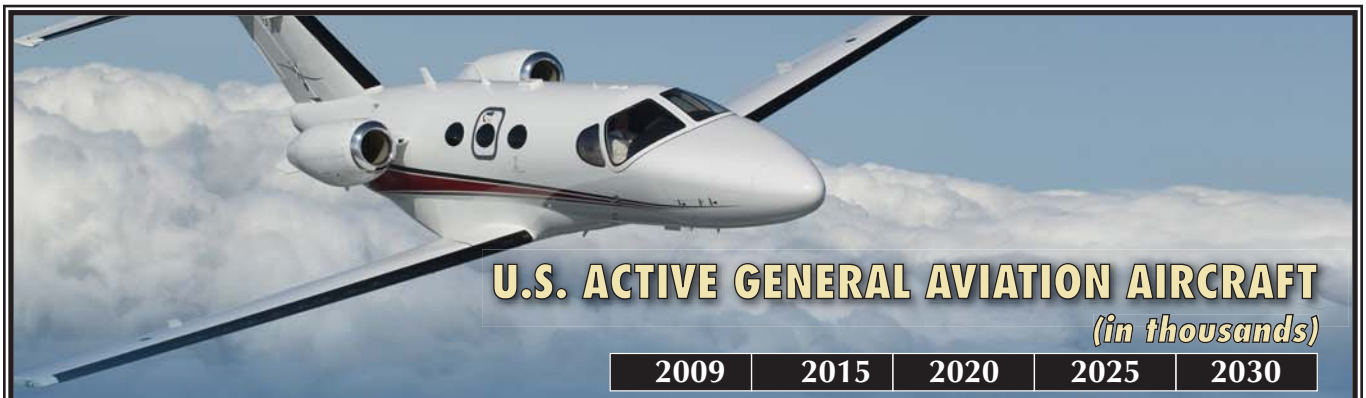
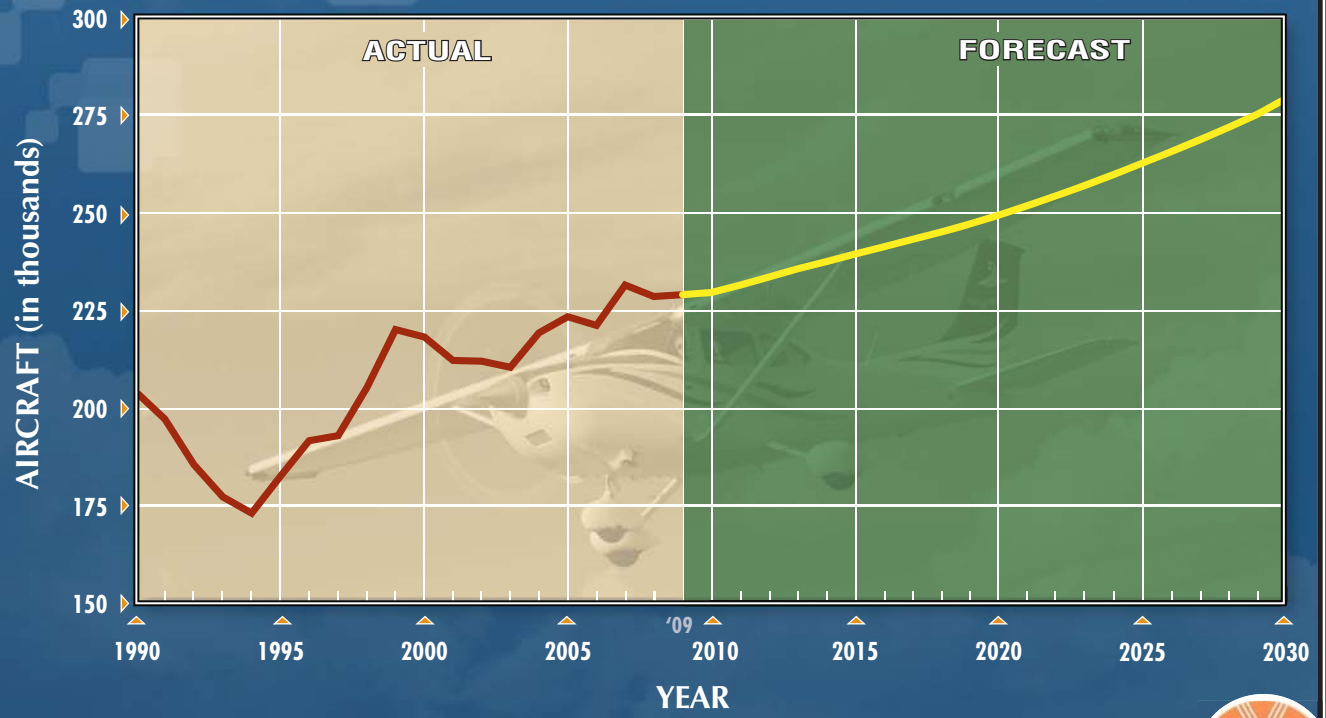


U.S. ACTIVE GENERAL AVIATION AIRCRAFT

(in thousands)

	2009	2015	2020	2025	2030
FIXED WING					
PISTON					
Single Engine	144.7	141.9	142.1	145.3	150.6
Multi-Engine	17.4	16.5	15.8	15.2	14.6
TURBINE					
Turboprop	9.0	9.8	10.5	11.3	12.0
Turbojet	11.4	14.5	17.9	22.1	27.0
ROTORCRAFT					
Piston	3.7	4.7	5.6	6.5	7.4
Turbine	6.5	7.8	8.8	9.8	10.8
EXPERIMENTAL	23.4	27.0	29.8	32.2	34.4
SPORT AIRCRAFT	7.3	11.6	13.3	14.8	16.3
OTHER	5.7	5.7	5.6	5.6	5.6
TOTAL	229.1	239.5	249.4	262.8	278.7



Source: FAA Aerospace Forecasts, Fiscal Years 2010-2030.

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

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

General aviation 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 military. General aviation 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 airport does not currently serve nor is it expected to serve scheduled commercial activity in the future.

The initial step in determining the general aviation 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, in particular based aircraft. Access to general aviation airports and transportation networks enter into the equation to determine the size of a service area, as well as the quality of aviation facilities, distance, and other subjective criteria.

Typically, the service area for a general aviation airport can extend up to 30 miles. The proximity and level of general aviation services are largely the defining factors when describing the general aviation service area. A description of nearby airports was previously provided in Chapter One. Eloy Municipal Airport is one of several airports in the region, and one of seven public-use airports in Pinal County. Five airports are located within 30 miles of Eloy Municipal Airport including Coolidge Municipal Airport, Casa Grande Municipal Airport, Phoenix Regional Airport, Pinal Airpark, and Chandler Municipal Airport. Several other airports are located within 50 miles of Eloy including Phoenix Sky Harbor International Airport.

Most of the above-mentioned airports present competitive services for aviation demand in the immediate region by providing aircraft fuel, hangars, and maintenance. Coolidge Municipal Airport and Casa Grande Municipal Airport, both located within 15 miles of Eloy Municipal Airport, present the most competitive facilities in terms of aviation services and facilities in respect to their close proximity. 100LL Avgas and Jet A fuel, aircraft maintenance, storage hangars, and tiedowns are among several types of aviation services offered at these airports. Coolidge Municipal Airport and Casa Grande Municipal Airport, as well as the other airports in the region, will limit the reaches of the Eloy Municipal Airport general aviation service area.

When discussing the general aviation service area, two primary demand segments need to be addressed. The first component is the airport's ability to attract based aircraft. Almost universally, aircraft owners choose to base at an airport nearer their home or business. Convenience is the most common reason for basing in close proximity. Therefore, it can be assumed that the majority of based aircraft owners reside in Eloy or the immediately surrounding rural area. The second segment is itinerant aircraft operations. In most cases, transient aircraft operators will also elect to utilize airports nearer their intended destination. This is highly dependent on the airport's capabilities to accommodate the aircraft operator. As a result, the more attractive the facility, the more likely an airport will be to attract a larger portion of the region's itinerant aircraft operations.

Given these considerations, the primary general aviation service area for Eloy Mu-

nicipal Airport includes the City of Eloy. The secondary service area extends into the surrounding areas, especially those with limited general aviation services and/or areas nearer to Eloy Municipal Airport. Casa Grande Municipal Airport and Coolidge Municipal Airport are located within 15 miles, northwest and northeast of Eloy Municipal Airport, respectively. The nearest public-use airport south of Eloy is Pinal Airpark approximately 22 miles away. Therefore, Eloy Municipal Airport's service area would extend further to the south rural areas than to the north.

The potential for increased aviation demand for Eloy Municipal Airport lies in the growing population and promising service and business growth within the City of Eloy and surrounding areas. The forecast analyses conducted in the following sections take into consideration the expected local and regional growth.

FORECASTING APPROACH

The development of aviation forecasts proceeds through both analytical and judgmental processes. A series of mathematical relationships is tested to establish statistical logic and rationale for projected growth. However, the judgment of the forecast analyst, based upon professional experience, knowledge of the aviation industry, and assessment of the local situation, is important in the final determination of the preferred forecast.

The most reliable approach to estimating aviation demand is through the utilization of more than one analytical technique. Methodologies frequently considered include trend line projections, correlation/regression analysis, and market share analysis.

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

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

Regression analysis measures the statistical relationship between dependent and independent variables yielding a correlation coefficient. The correlation coefficient (Pearson's "r") measures association between the changes in a dependent variable and independent variable(s). If the r-squared (r^2) value (coefficient determination) is greater than 0.90, it indicates good predictive reliability. A value below 0.90 may be used with the understanding that the predictive reliability is lower.

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

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

A wide range of factors is known to influence the aviation industry and can have significant impacts on the extent and nature of air service provided in both the local and national markets. Technological advances in aviation have historically altered, and will continue to change, the growth rates in aviation demand over time. The most obvious example is the impact of jet aircraft on the aviation industry, which resulted in a growth rate that far exceeded expectations. Such changes are difficult, if not impossible, to predict, and there is simply no mathematical way to estimate their impacts. Using a broad spectrum of local, regional, and national socio-economic and aviation information, and analyzing the most current aviation trends, forecasts are presented in the following sections.

The following forecast analysis examines each of the aviation demand categories expected at Eloy Municipal Airport through 2029. Each segment will be examined individually, and then collectively, to provide an understanding of the overall aviation activity at Eloy Municipal Airport during the next 20 years.

GENERAL AVIATION FORECASTS

To determine the types and sizes of facilities that should be planned to accommodate general aviation activity, certain elements of this activity must be forecast. Indicators of general aviation demand include:

- Based Aircraft
- Based Aircraft Fleet Mix
- Annual Operations
- Peaking Characteristics
- Annual Instrument Approaches

The remainder of this chapter will examine historical trends with regard to these areas of general aviation and project future demand for these segments of general aviation activity at Eloy Municipal Airport.

BASED AIRCRAFT

The number of based aircraft is the most basic indicator of general aviation demand. By first developing a forecast of based aircraft, other demand elements can be projected based upon this trend. An effective method of forecasting based aircraft at an airport is to first examine aircraft ownership in the surrounding area. The forecasting effort will begin by analyzing historical trends and projecting future demand for registered aircraft in Pinal County. As a result, this information can then be related to the historical trends at Eloy Municipal Airport and future based aircraft projections can be made.

Registered Aircraft Forecasts

Historical records of aircraft ownership in Pinal County, presented on **Table 2A**, were obtained from the U.S. Census of Civil Aircraft for the years 1989 through 1992; Aviation Goldmine for the years 1993 through 2000; Avantext, Inc., Aircraft & Airmen for the years 2001 to 2007; and the FAA for years 2008 and 2009. Since 1989, registered general aviation aircraft in the county has grown from 236 to 429, for an annual average growth rate of 3.0 percent.

TABLE 2A
Registered Aircraft and Independent Variables
Pinal County

Year	Registered Aircraft	U.S. Active Aircraft	% of U.S. Market	Population	PCPI (2004 $)	AC Per 1,000 Residents
1989	236	N/A	N/A	112,200	18,503	2.10
1990	245	N/A	N/A	116,379	17,621	2.10
1991	228	N/A	N/A	119,650	17,849	1.91
1992	235	185,650	0.127%	122,600	17,601	1.92
1993	231	177,120	0.130%	127,225	17,739	1.82
1994	243	172,935	0.141%	132,225	17,659	1.84
1995	251	182,605	0.137%	139,050	17,488	1.81
1996	259	187,312	0.138%	144,150	17,739	1.80
1997	277	189,328	0.146%	150,375	17,962	1.84
1998	268	205,700	0.130%	157,675	18,706	1.70
1999	293	219,500	0.133%	165,400	19,198	1.77
2000	310	217,533	0.143%	179,727	19,153	1.72
2001	305	211,446	0.144%	184,853	20,259	1.65
2002	307	211,244	0.145%	193,978	20,147	1.58
2003	305	209,606	0.146%	204,807	20,294	1.49
2004	327	219,319	0.149%	227,213	20,769	1.44
2005	335	224,350	0.149%	253,617	22,095	1.32
2006	356	221,939	0.160%	291,714	21,812	1.22
2007	407	231,606	0.176%	325,693	21,165	1.25
2008	416	228,668	0.182%	344,110	19,774	1.21
2009	429	229,149	0.187%	361,398*	19,558	1.21
Constant Market Share of U.S. Active Aircraft						
2014	444	237,577	0.187%	346,177*	20,135	1.28
2019	462	247,206	0.187%	420,836*	21,497	1.10
2024	486	259,812	0.187%	570,020*	23,202	0.85
2029	515	275,210	0.187%	776,908*	25,217	0.66
Decreasing Aircraft Registrations Per 1,000 Population						
2014	439	237,577	0.175%	346,177*	20,135	1.20
2019	474	247,206	0.196%	420,836*	21,497	1.15
2024	513	259,812	0.219%	570,020*	23,202	1.00
2029	622	275,210	0.254%	776,908*	25,217	0.90

Sources:
Registered Aircraft – U.S. Census of Civil Aircraft (1989-1992), Aviation Goldmine (1993-2000), Avantext, Inc., Aircraft & Airmen (2001-2007), FAA (2008-2009).
U.S. Active Aircraft – FAA *Aerospace Forecast – Fiscal Years 2010-2030*
Population – Arizona Department of Commerce (1989, 1991-1999,) CAAG Pinal Projection Study, 2009 [Adjusted "Most Likely" scenario] (2001-2009, 2014-2029);
Census Bureau (1990, 2000)
PCPI – U.S. Department of Commerce, Bureau of Economic Analysis (1987-1999),
Woods & Poole *CEDDS*, 2010 (2000-2009, 2014-2029).
* - Interpolation/Extrapolation

Table 2A also compares registered aircraft to active general aviation aircraft in the United States. The method used by the FAA to tabulate active general aviation aircraft changed in 1992, which is why annual counts before this time were not included in this study. The Pinal County share of the U.S. market of general aviation aircraft has grown from 0.127 percent in 1992 to 0.187 percent in 2009.

Socioeconomic Trends

Pinal County historical trends for key socioeconomic variables provide an indicator of the potential for creating growth in aviation activities at an airport. Typical variables used in evaluating potential for traffic growth include population and per capita personal income (PCPI). This data is readily available on an annual historic basis at the county level.

Table 2A presents historical population data for Pinal County from 1989 to 2009. Population growth has been strong over the past several years with an increase of 242,645 residents from 1989 to 2009 equating to an average annual percentage increase of 5.9 percent. Much of the recent growth can be attributed to the urban sprawl of the Phoenix metropolitan area. Coffman Associates coordinated with the Central Arizona Association of Governments (CAAG) to adjust published population projections for both Pinal County and the City of Eloy presented in *Pinal Projection Study*, 2009. Due to recent economic conditions it was determined that the published "Most Likely" scenario projections needed to be adjusted to reflect current trends. Due to struggling economic conditions in the region, the adjusted population figures project the county population to contract slightly through 2015 then return to growth after 2015 through the planning period of this master plan.

Historical and projected PCPI for the County is also presented on **Table 2A** and are inflation-adjusted to year 2004 dollars. Inflation-adjusted PCPI for the County has been growing slowly at an annual average of 0.3 percent over the last 20 years and has actually declined each year since 2005. Projected numbers through 2029 show PCPI growing at an increased average annual rate of 1.3 percent.

Registered Aircraft Projections

Based on the historical registered aircraft, U.S. active aircraft, county population, and PCPI data, projections of registered aircraft in Pinal County have been prepared and are shown in **Table 2A**. Several analytical techniques were examined for their applicability to projecting registered aircraft in Pinal County. These included market share analysis, time-series extrapolation, and regression analyses.

First, a market share analysis was developed, which keeps Pinal County's share of U.S. active aircraft constant through 2029 at 0.187 percent, resulting in a 0.9 percent annual growth rate. This constant market share projection yields 515 registered aircraft in Pinal County by 2029.

The population of Pinal County was also used as a comparison with registered aircraft in the county. The forecast examines the history of registered aircraft as a ratio of residents in Pinal County. The 2009 population for the county was 354,845, resulting in a ratio of 1.21 registered aircraft per 1,000 residents. Maintaining the current ratio would yield a projection of 940 registered aircraft in Pinal County by 2029. It should be noted that the ratio of county registered aircraft per 1,000 resi-

dents has gradually declined since 1989, as depicted on **Table 2A**. A decreasing ratio projects 699 registered aircraft in Pinal County by 2029.

A time-series extrapolation of registered aircraft was developed based upon the period from 1989 to 2009. The correlation coefficient, (r^2), was determined to be 0.88 for this trend line projection, which yields 581 registrations by 2029. As previously discussed, the correlation coefficient (Pearson's "r") measures the association between changes in the dependent variable (registered aircraft) and the independent variable(s). An "r^2" greater than 0.90 generally indicates good predictive reliability. A lower value may be used with the understanding that the predictive reliability is lower.

Several other regression analyses were also prepared to determine the association between U.S. active aircraft, socioeconomic indicators (population and PCPI), and registered aircraft growth. This association is represented by the correlation coefficient. The separate regression analyses project registered aircraft in Pinal County to increase to between 714 and 757 aircraft through 2029. **Table 2B** presents the resulting regression projections for comparison with the market share and ratio projections previously discussed.

TABLE 2B
Registered Aircraft Projections
Pinal County

	r^2	2009	2014	2019	2024	2029	Avg. Annual Growth Rate
Market Share Projection							
Constant Market Share of U.S. Active Aircraft		429	444	462	486	515	0.9%
Decreasing Aircraft Registrations Per 1,000 Population		429	415	484	570	699	2.5%
Regression Analysis Projections							
Time-Series 1989-2009	0.88	429	439	487	534	581	1.5%
U.S. Active Aircraft & Population 1992-2009	0.98	429	419	473	578	722	2.6%
Population 1989-2009	0.97	429	419	477	594	757	2.9%
Population & PCPI 1989-2009	0.97	429	417	477	594	756	2.9%
Population, U.S. Active Aircraft & PCPI 1992-2009	0.98	429	427	477	576	714	2.6%
Selected Forecast		**429**	**439**	**475**	**575**	**715**	**2.6%**

The results of the regression analysis indicate that the socioeconomic factor that associates closest with registered aircraft change is population. The time-series analysis resulted in a projection that was considerably lower than the other four regressions and projects a 1.5 percent annual increase through 2029. The multiple regressions that analyzed the independent variables of population, U.S. active aircraft, and PCPI since 1992 produced the highest "r^2" values at 0.98 that equated to a 2.6 percent annual growth rate for registered aircraft.

Registered Aircraft Summary

Table 2B and the top half of **Exhibit 2B** provide a summary of all registered aircraft forecasts previously discussed. It is determined that the constant market share of U.S. active aircraft and the time-series extrapolation understate growth

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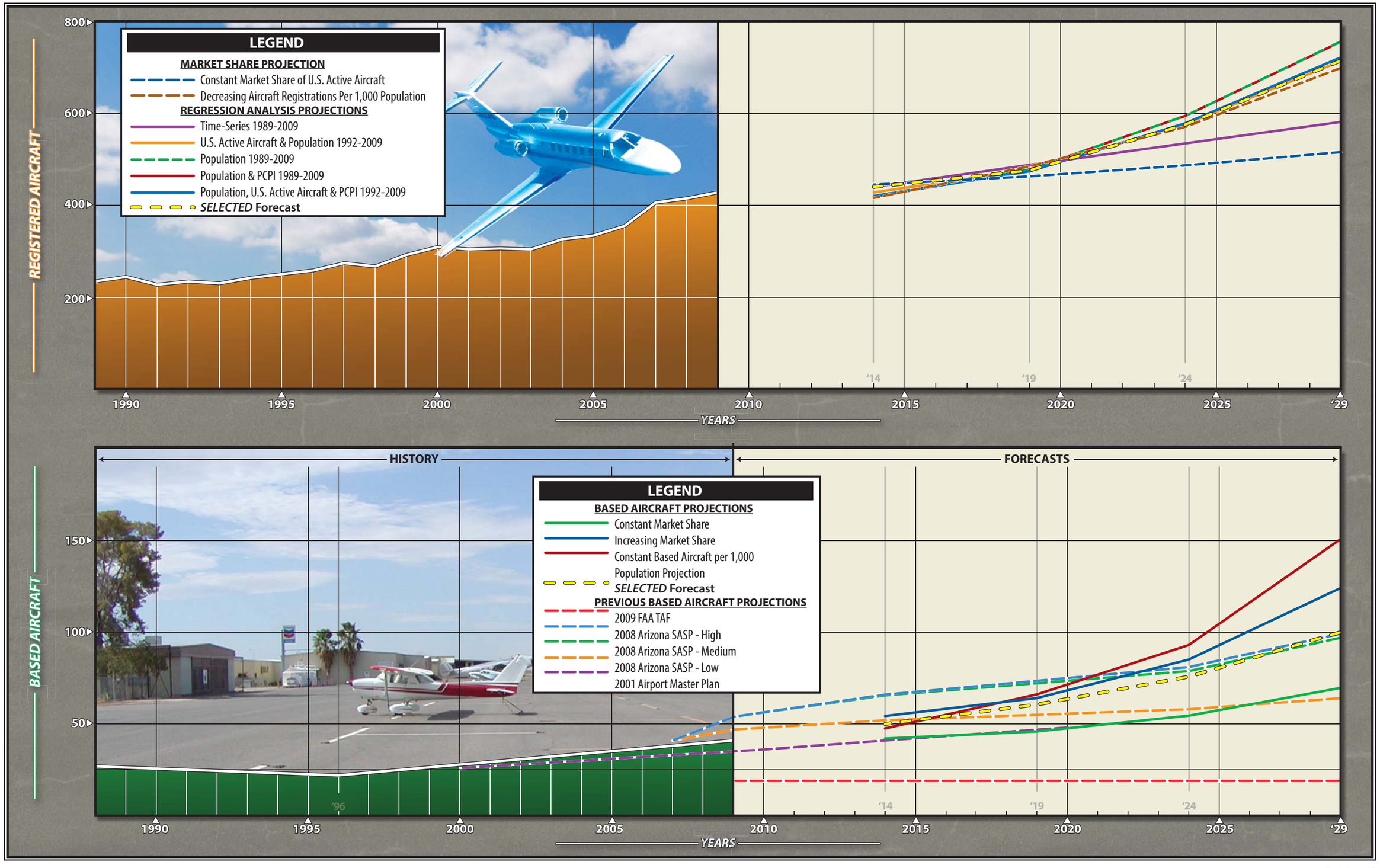

Exhibit 2B
REGISTERED AND BASED
AIRCRAFT PROJECTIONS

potential, as the historical trend in registered aircraft indicates the larger growth rate projections are more feasible. The selected registered aircraft forecast closely mirrors the regression analysis comparing county population, U.S. active aircraft, and PCPI to registered aircraft, which yielded the highest "r^2" value of 0.98. The selected forecast has registered aircraft reaching 715 by 2029 at an average annual growth rate of 2.6 percent. This is a slightly slower pace than the previous 20 years due to current economic conditions and their anticipated impact on aircraft ownership in the short-term horizon.

Based Aircraft Forecasts

Determining the number of based aircraft at an airport can be a challenging task. It can be especially difficult at Eloy Municipal Airport since several based aircraft are located in hangars off-airport property. City of Eloy records indicate that the airport has 41 based aircraft currently, which includes those stored on airport property and those associated with off-airport businesses. Unfortunately, an exact count does not exist for previous years. Thus, historical based aircraft data was retrieved from previous master plan studies.

Before preparing new forecasts for based aircraft, previous based aircraft projections were reviewed for current validity. These included the 2008 FAA TAF, 2008 *Arizona State Airports System Plan* (SASP), and the previous *Eloy Municipal Airport Master Plan* from 2001. Each of the previous forecasts use different base years as well as projection years. For comparison, these forecasts were interpolated and extrapolated to correlate with this Master Plan's projection years. Each of these previous based aircraft forecasts are presented in **Table 2C**.

TABLE 2C
Previous Based Aircraft Projections
Eloy Municipal Airport

	Current	Base Year	2014	2019	2024	2029
Airport Records	41					
2008 FAA TAF		19	19	19	19	19**
2008 Arizona SASP – High		41	54*	66*	81*	99*
2008 Arizona SASP – Medium		41	54*	66*	80*	98*
2008 Arizona SASP – Low		41	47*	52*	58*	64*
2001 Airport Master Plan		26	41**	47**	N/A	N/A

*Interpolated; **Extrapolated

Since each of these comparative studies was prepared at different times, it is expected that they will be different from each other and may not match recent historical counts. According to airport records, the current based aircraft count is 41. The 2008 SASP also considered 41 aircraft for its base year. The FAA TAF projection has based aircraft at Eloy Municipal Airport remaining constant at 19 through the planning period. Finally, the previous Master Plan Update identified 26 based aircraft at the airport during its base year of 2000. Extrapolated figures from the previous Master Plan Update forecasted based aircraft to reach 41 in 2014. This indicates the previous Master

Plan forecast under-estimated based aircraft growth.

Having forecast the aircraft ownership demand in Pinal County, the historic based aircraft figures at Eloy Municipal Airport were reviewed to examine the change in market share over the years. **Table 2D** examines Eloy Municipal Airport's historical share of county registered aircraft.

TABLE 2D
Updated Based Aircraft Projections
Eloy Municipal Airport

Year	County Registered Aircraft	Eloy Based Aircraft	% of Registered Aircraft	Eloy Population	AC per 1,000 Residents
1988	228	27	11.8%	6,100	4.43
1996	259	22	8.5%	9,045	2.43
2009	429	41	9.6%	19,005	2.16
Average Annual Increase		2.0%		5.6%	
Constant Market Share Projection					
2014	439	42	9.6%	22,272	1.89
2019	475	46	9.6%	29,204	1.56
2024	575	55	9.6%	42,511	1.30
2029	715	69	9.6%	69,299	0.99
Average Annual Increase		2.6%		6.7%	
Increasing Market Share Projection					
2014	439	53	12.0%	22,272	2.37
2019	475	62	13.0%	29,204	2.11
2024	575	86	15.0%	42,511	2.03
2029	715	122	17.0%	69,299	1.75
Average Annual Increase		5.6%		6.7%	
Constant Based Aircraft Per 1,000 Population Projection					
2014	439	48	11.0%	22,272	2.16
2019	475	63	13.9%	29,204	2.16
2024	575	92	13.9%	42,511	2.16
2029	715	150	13.7%	69,299	2.16
Average Annual Increase		6.7%		6.7%	
Selected Forecast					
2014	439	50	11.4%	22,272	1.71
2019	475	60	12.6%	29,204	1.53
2024	575	75	13.0%	42,511	1.44
2029	715	100	14.0%	69,299	1.37
Average Annual Increase		4.6%		6.7%	

Source: Based Aircraft –Eloy Municipal Airport Master Plan, 1988 (1988); Eloy Municipal Airport Master Plan, 2001 (1996), Airport Records, (2009).
Eloy Population – Arizona Department of Commerce (1988, 1996, 2009); CAAG *Pinal Projections Study*, 2009 [Adjusted "Most Likely" scenario] (2014-2029).

Between 1988 and 2009, Eloy Municipal Airport's based aircraft grew from 27 to 41, at a rate of 2.0 percent annually. As presented in the table, however, the increase in based aircraft did not follow a gradual increasing trend, since between 1988 and 1996 based aircraft declined to 22. During that time period, Eloy Municipal Airport's share of registered aircraft in the county declined from 11.8 percent in 1988 to 8.5 percent in 1996. Since 1996, Eloy Municipal Airport's market share has grown to 9.6 percent. Three market share projections were generated based from historical trends. The first projection keeps the current market

share static at 9.6 percent, resulting in 69 based aircraft by 2029 and an annual average growth rate of 2.6 percent.

A second forecast was prepared, which maintains the trend of an increasing market share. This forecast represents a projection based on the large population growth anticipated in the local Eloy area. This forecast results in 122 based aircraft by 2029.

A third forecast was prepared which maintains Eloy Municipal Airport's ratio of based aircraft per 1,000 residents. This results in a very aggressive 6.7 percent annual growth rate which yields 150 based aircraft by 2029.

Based Aircraft Summary

Future based aircraft at Eloy Municipal Airport will depend on several factors, including the state of the economy, fuel costs, available airport facilities, and competing airports. The adjusted CAAG population forecasts for the City of Eloy project significant population and economic growth in the City of Eloy through 2029. This socioeconomic growth will bring aircraft owners into Eloy Municipal Airport's direct service area. Assuming the city develops the airport's facilities as necessary to accommodate the demand, based aircraft growth could be substantial.

Deciding which forecast or combination of forecasts to use to arrive at a final based aircraft forecast involves more than just statistical analysis. Consideration must be given to the current and future aviation conditions at the airport in the short term. For example, Eloy Municipal Airport is heavily used for skydiving with parachute landing areas immediately adjacent to the airfield. This kind of activity can result in some operators utilizing neighboring airports to avoid conflict with parachuters in the airport's airspace. Conversely, this kind of activity can also draw aircraft owners to the airport.

The city has indicated that it plans to continue strong support of its airport and, as such, the constant market share projection appears to be too conservative given that the market share of registered aircraft has increased over the previous 13 years. Considering the City of Eloy's historical and projected population growth, the airport should be fully capable of maintaining at least an increasing market share trend. The constant ratio of based aircraft per 1,000 residents' projection appears to be too aggressive given existing economic conditions and resultant strong market share return when compared to the historical trend.

The selected based aircraft forecast is presented in **Table 2D** and depicted on the bottom half of **Exhibit 2B**. The projection remains fairly conservative through 2019 growing by 19 in the next ten years. Assuming improved economic conditions, the latter half of the projection anticipates larger growth in based aircraft with the addition of 40 aircraft. As detailed, the forecast considers 50 aircraft by 2014, 60 aircraft by 2019, 75 aircraft by 2024, and 100 aircraft by 2029. This equates to a 4.6 percent average annual growth rate in based aircraft.

BASED AIRCRAFT FLEET MIX

Knowing the aircraft fleet mix expected to utilize the airport is necessary to properly plan for facilities that will best serve the level of activity and the type of activities occurring at the airport. The existing

based aircraft fleet mix is comprised of 29 single engine aircraft, four multi-engine piston aircraft, and eight turboprop aircraft.

As detailed previously, the national trend is toward a larger percentage of sophisticated turboprop aircraft, jet aircraft, and helicopters in the national fleet. Active multi-engine piston aircraft are expected to be the only category of aircraft which shows a decrease in annual growth. Growth within each based aircraft category at the airport has been determined by comparison with national projections (which reflect current aircraft production) and consideration of local economic conditions.

The based aircraft fleet mix at Eloy Municipal Airport, as shown on **Table 2E**, was compared to the existing and forecast U.S. general aviation fleet mix trends as presented in FAA *Aerospace Forecast - Fiscal Years 2010-2030*. The FAA expects business jets will continue to be the fastest growing general aviation aircraft type in the future. Single engine piston aircraft (including sport aviation and experimental aircraft), helicopter, and turboprop aircraft are expected to grow at slower rates. The number of multi-engine piston aircraft in the U.S. will actually decline slightly as older aircraft are retired, according to FAA forecasts.

TABLE 2E
Based Aircraft Mix Forecast
Eloy Municipal Airport

	2009		2014		2019		2024		2029	
	#	%	#	%	#	%	#	%	#	%
Eloy Municipal Airport Based Aircraft										
Single Engine Piston	29	70.7%	35	70.0%	40	66.7%	49	65.3%	65	65.0%
Multi-Engine Piston	4	9.8%	4	8.0%	5	8.3%	5	6.7%	6	6.0%
Turboprop	8	19.5%	9	18.0%	11	18.3%	14	18.7%	18	18.0%
Jet	0	0.0%	1	2.0%	2	3.3%	4	5.3%	6	6.0%
Rotorcraft	0	0.0%	1	2.0%	2	3.3%	3	4.0%	5	5.0%
Totals	**41**	**100.0%**	**50**	**100.0%**	**60**	**100.0%**	**75**	**100.0%**	**100**	**100.0%**
U.S. Active Aircraft (from FAA Aerospace Fiscal Years [2010-2030])										
Single Engine Piston	175,491	76.6%	179,676	75.6%	183,999	74.4%	190,710	73.4%	199,264	72.4%
Multi-Engine Piston	17,351	7.6%	16,656	7.0%	15,955	6.5%	15,299	5.9%	14,711	5.3%
Turboprop	9,010	3.9%	9,650	4.1%	10,370	4.2%	11,108	4.3%	11,870	4.3%
Jet	11,418	5.0%	13,827	5.8%	17,191	7.0%	21,175	8.2%	25,979	9.4%
Rotorcraft	10,206	4.5%	12,105	5.1%	14,060	5.7%	15,920	6.1%	17,815	6.5%
Other	5,673	2.5%	5,663	2.4%	5,631	2.3%	5,600	2.2%	5,571	2.0%
Totals	**229,149**	**100.0%**	**237,577**	**100.0%**	**247,206**	**100.0%**	**259,812**	**100.0%**	**275,210**	**100.0%**

Note: Experimental and sport aircraft are included under single engine piston.
Total percentages may not equal 100.0 due to rounding.

ANNUAL OPERATIONS

General aviation operations are classified as either local or itinerant. A local operation is a take-off or landing performed by an aircraft that operates within sight of the airport, or which executes simulated approaches or touch-and-go operations at the airport. Generally, local operations are characterized by training operations. Eloy Municipal Airport experiences a significant amount of skydiving operations which are considered local operations. Itinerant operations are those performed by aircraft with a specific origin or destination away from the airport.

Eloy Municipal Airport operations are comprised mainly of general aviation operations. Since Eloy Municipal Airport is

not a towered airport, precise operations records are not available. Sources for estimated operational activity at Eloy Municipal Airport such as the FAA Form 5010, Airport Master Record, the FAA TAF, and the SASP have largely varying accounts of operational traffic. Therefore, for this study, an FAA-approved statistical methodology for estimating general aviation operations using local variables was utilized to update the operations count.

This method, the *Model for Estimating General Aviation Operations at Non-Towered Airports*, was prepared for the FAA Statistics and Forecast Branch in July 2001. This report develops and presents a regression model for estimating general aviation operations at non-towered airports. The model was derived using a combined data set for small towered and non-towered general aviation airports and incorporates a dummy variable to distinguish the two airport types. In addition, the report applies the model to estimate activity at 2,789 non-towered general aviation airports contained in the FAA *Terminal Area Forecast*. The estimate of annual operations at Eloy Municipal Airport was computed using the recommended equation (#15) for non-towered airports. Independent variables used in the equation include airport characteristics (i.e., number of based aircraft, number of flight schools), population totals, and geographic location. This equation yields an annual general aviation operations estimate of approximately 17,500 for 2009. This estimate does not take into account an estimated 10,950 annual local general aviation operations conducted by Skydive Arizona. With these estimated specialty operations included, a baseline general aviation operations count of 28,450 can be established. Local and itinerant operation percentages for 2009 were derived from the Arizona SASP estimates (65 percent and 35 percent, respectively).

Itinerant Operations

Table 2F depicts estimated general aviation itinerant operations at Eloy Municipal Airport for 2009. This data shows a market share of 0.064 percent of all general aviation itinerant operations reported at airports with an airport traffic control tower. This also equates to 241 itinerant operations per based aircraft.

In FAA *Aerospace Forecast - Fiscal Years 2010-2030*, the FAA projects itinerant general aviation operations at towered airports. **Table 2F** presents this forecast, as well as a projection for Eloy Municipal Airport, based upon maintaining its current share of the itinerant general aviation operations market. This forecast has itinerant operations reaching 12,268 by 2029.

The table also displays the findings of an analysis that examined the relationship of annual operations to based aircraft. The second projection in **Table 2F** reflects the itinerant operational levels that could be expected if the operations per based aircraft ratio were to remain constant into the future. This forecast results in 24,100 itinerant general aviation operations by 2029.

The 2008 SASP produced three scenarios for operational growth at Eloy Municipal Airport based on low, medium, and high range operations envelopes. The SASP "Low Range" forecast projects itinerant general aviation operations to be lower in 2014 than the estimated current activity level, which indicates the SASP baseline operational estimates may be underestimated. The SASP annual itinerant operations are projected to range from a low of 10,649 to a high of 18,653 by 2029. For comparison, the FAA TAF projections are also presented and keep annual itinerant operations static at 1,200 through 2029.

The selected Master Plan itinerant general aviation operations forecast takes into account the existing airport activities as well as growth potential associated with the Eloy community and surrounding areas. Eloy Municipal Airport's heavy use for sky diving and parachuting activities may dampen its attractiveness to itinerant aircraft operators. However, as the area's population and economy grow, Eloy Municipal Airport's market share of itinerant general aviation operations should also grow. As the airport facilities and services improve over the planning period, it can be expected that more itinerant general aviation aircraft will choose to utilize Eloy Municipal Airport over other airports in the region. The selected Master Plan forecast, shown at the bottom of **Table 2F**, has itinerant general aviation operations at Eloy Municipal Airport growing to 10,500 by 2014; 12,200 by 2019; 13,400 by 2024; and 16,400 by 2029. This equates to a 2.6 percent average annual growth rate.

TABLE 2F
General Aviation Itinerant Operations Forecast
Eloy Municipal Airport

Year	Itinerant Operations	U.S. ATCT GA Itinerant (millions)	Eloy Market Share	Eloy Based Aircraft	Itinerant Ops Per Based Aircraft
2009	9,900	15.6	0.064%	41	241
Constant Market Share Projection					
2014	10,075	15.74	0.064%	50	201
2019	10,752	16.80	0.064%	60	179
2024	11,481	17.94	0.064%	75	153
2029	12,268	19.17	0.064%	100	123
Constant Operations Per Based Aircraft Projection					
2014	12,050	15.74	0.077%	50	241
2019	14,460	16.80	0.086%	60	241
2024	18,075	17.94	0.101%	75	241
2029	24,100	19.17	0.126%	100	241
2008 Arizona State Airports System Plan – High Range					
2014	10,484	15.74	0.067%	54	194
2019	12,702	16.80	0.076%	66	192
2024	15,392	17.94	0.086%	81	190
2029	18,653	19.17	0.097%	99	188
2008 Arizona State Airports System Plan – Medium Range					
2014	9,204	15.74	0.058%	54	170
2019	10,180	16.80	0.061%	66	154
2024	11,258	17.94	0.063%	80	141
2029	12,449	19.17	0.065%	98	127
2008 Arizona State Airports System Plan – Low Range					
2014	8,758	15.74	0.056%	47	186
2019	9,357	16.80	0.056%	52	180
2024	9,982	17.94	0.056%	58	172
2029	10,649	19.17	0.056%	64	166
FAA Terminal Area Forecast					
2014	1,200	15.74	0.008%	19	63
2019	1,200	16.80	0.007%	19	63
2024	1,200	17.94	0.007%	19	63
2029	1,200	19.17	0.006%	19	63
Master Plan Forecast					
2014	10,500	15.74	0.067%	50	210
2019	12,200	16.80	0.073%	60	203
2024	13,400	17.94	0.075%	75	179
2029	16,400	19.17	0.086%	100	164

Note: The 2008 SASP figures were interpolated by Coffman Associates.

Local Operations

A similar methodology was utilized to forecast local general aviation operations. **Table 2G** depicts estimated local operations at Eloy Municipal Airport in 2009 and examines its market share of general aviation local operations at towered airports in the United States. In 2009, Eloy Municipal Airport experienced 0.149 percent of all local general aviation operations at towered airports. This also equates to 452 local general aviation operations per based aircraft. Typically, airports with active flight training schools can average up to 500 local operations per based aircraft. Eloy Municipal Airport does not have an active flight school located on the field; however, the number of local aircraft operations conducted by Skydive Arizona, related to its sky diving operations, plays a direct role in maintaining a rather high number of local operations per based aircraft.

TABLE 2G
General Aviation Local Operations Forecast
Eloy Municipal Airport

Year	Local Operations	U.S. ATCT GA Local (millions)	Eloy Market Share	Eloy Based Aircraft	Local Ops Per Based Aircraft
2009	18,550	12.42	0.149%	41	452
Constant Market Share Projection					
2014	18,964	12.73	0.149%	50	379
2019	20,173	13.54	0.149%	60	336
2024	21,504	14.43	0.149%	75	287
2029	22,990	15.43	0.149%	100	230
Constant Operations Per Based Aircraft Projection					
2014	22,660	12.73	0.178%	50	452
2019	27,120	13.54	0.200%	60	452
2024	21,504	14.43	0.235%	75	452
2029	45,200	15.43	0.293%	100	452
2008 Arizona State Airports System Plan – High Range					
2014	19,642	12.73	0.154%	54	319
2019	23,798	13.54	0.176%	66	289
2024	28,839	14.43	0.200%	81	264
2029	34,947	15.43	0.226%	99	238
2008 Arizona State Airports System Plan – Medium Range					
2014	17,244	12.73	0.135%	54	319
2019	19,073	13.54	0.141%	66	289
2024	21,092	14.43	0.146%	80	264
2029	23,324	15.43	0.151%	98	238
2008 Arizona State Airports System Plan – Low Range					
2014	16,408	12.73	0.129%	47	349
2019	17,530	13.54	0.129%	52	337
2024	18,702	14.43	0.130%	58	322
2029	19,952	15.43	0.129%	64	312
FAA Terminal Area Forecast					
2014	14,100	12.73	0.111%	19	742
2019	14,100	13.54	0.104%	19	742
2024	14,100	14.43	0.098%	19	742
2029	14,100	15.43	0.091%	19	742
Master Plan Forecast					
2014	20,300	12.73	0.159%	50	406
2019	22,300	13.54	0.165%	60	372
2024	25,000	14.43	0.173%	75	333
2029	29,000	15.43	0.188%	100	290

Note: The 2008 SASP figures were interpolated by Coffman Associates.

Table 2G presents a market share projection based upon carrying forward a constant share of 0.149 percent. This projection results in 22,990 local general aviation operations by 2029.

The second projection in **Table 2G** examines local operations based on the operations per based aircraft remaining static at 452 through the planning period. This projection results in 45,200 local operations by 2029.

The 2008 SASP was again used for comparison purposes. The interpolated 2029 projections for local general aviation operations ranged between 19,952 and 34,947. The FAA TAF also projects annual local operations. As with forecast itinerant operations, the TAF shows no growth in local operations through 2029.

It is anticipated that Skydive Arizona will continue to be the primary operator at Eloy Municipal Airport, contributing the majority of the local general aviation operations. The level of local activity will also be dependent upon the number of aircraft basing at the airport and the potential for flight schools to utilize the airport in the future. The selected Master Plan local general aviation operations forecast, shown at the bottom of **Table 2G**, has local operations growing to 20,300 by 2014; 22,300 by 2019; 25,000 by 2024; and 29,000 by 2029. This is a growth rate of 2.3 percent annually.

Annual General Aviation Operations Summary

Table 2H depicts estimated 2009 general aviation operations at Eloy Municipal Airport, as well as the updated Master Plan projections. Total general aviation operations are projected to reach 45,400 annually by 2029. This yields a growth rate of 2.4 percent over the planning period. Itinerant operations are projected to remain essentially static at approximately 36 percent of total operations by the end of the planning period. This percentage share is consistent with the type of activity at the airport.

TABLE 2H
General Aviation Operations Forecast Summary
Eloy Municipal Airport

Year	Total Operations	Itinerant Operations	Local Operations	Based Aircraft	Itinerant Ops/BA	Local Ops/BA
2009	28,450	9,900	18,550	41	241	452
Master Plan Forecast						
2014	30,800	10,500	20,300	50	210	406
2019	34,500	12,200	22,300	60	203	372
2024	38,400	13,400	25,000	75	179	333
2029	45,400	16,400	29,000	100	164	290

Military

Military operations account for the smallest portion of the operational traffic at Eloy Municipal Airport. Military activity has been estimated at approximately 100 operations annually. Unless there is an unforeseen mission change in the area, a significant change from these military operational levels is not anticipated. Therefore, annual military operations have been projected at 100 throughout the planning period. This is consistent with

typical industry practices for projecting military operations.

PEAKING CHARACTERISTICS

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

- **Peak Month** – The calendar month when peak passenger enplanements or aircraft operations occur.
- **Design Day** – The average day in the peak month. This indicator is derived by dividing the peak month operations or passenger enplanements by the number of days in the month.
- **Busy Day** – The busy day of a typical week in the peak month.
- **Design Hour** – The peak hour within the design day.

Without an ATCT, adequate operational information is not available to directly determine peak operational activity at the airport. Therefore, peak period forecasts have been determined according to trends experienced at similar airports and by examining the operational counts estimated at the airport in 2009.

Typically, the peak month for activity at general aviation airports approximates 10 to 15 percent of the airport's annual operations. For planning purposes, peak month operations have been estimated at 12 percent of annual operations at Eloy Municipal Airport. The design day operations were calculated by dividing the peak month by 30. The design day is primarily used in airfield capacity calculations.

The busy day provides information for use in determining aircraft parking apron requirements. The busiest day of each week accounts for approximately 18 percent of weekly operations. Thus, to determine the typical busy day, the design day is multiplied by 1.25, which represents approximately 18 percent of the days in a week. Design hour operations were determined at 15 percent of the design day operations. **Table 2J** summarizes peak general aviation operations forecasts for the airport.

TABLE 2J
Peak Period Forecasts
Eloy Municipal Airport

	2009	2014	2019	2024	2029
Annual Operations (General Aviation)	28,450	30,800	34,500	38,400	45,400
Peak Month	3,414	3,696	4,140	4,608	5,448
Design Day	114	123	138	154	182
Busy Day	142	154	173	192	227
Design Hour	17	18	21	23	27

Source: Coffman Associates analysis

ANNUAL INSTRUMENT APPROACHES

An instrument approach, as defined by the FAA, is "an approach to an airport with the intent to land by an aircraft in accordance with an Instrument Flight Rule (IFR) flight plan, when visibility is less than three miles and/or when the ceiling is at or below the minimum initial approach altitude." To qualify as an instrument approach at Eloy Municipal Airport, aircraft must land at the airport after following the published instrument approach procedure and then properly close their flight plan on the ground. The approach must be conducted in weather conditions which necessitate the use of the instrument approach. If the flight plan is closed prior to landing, then the instrument approach is not counted in the records. It should be noted that practice or training approaches do not count as annual instrument approaches.

The increased availability of low-cost navigational equipment could allow smaller and less sophisticated aircraft to utilize instrument approaches. National trends indicate an increasing percentage of approaches given the greater availability of approaches at airports with GPS and the availability of more cost-effective equipment.

Eloy is not currently equipped for instrument approach operations and weather conditions rarely necessitate an instrument approach. Visual flight rule (VFR) weather conditions occur approximately 99.5 percent of the year. For the Eloy area, one-half percent of itinerant operations has been utilized to estimate potential instrument approaches. This results in approximately 82 annual instrument approaches by 2029.

SUMMARY

This chapter has provided demand-based forecasts of aviation activity at Eloy Municipal Airport 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 (11-20 years) term expectations. Elements such as local socioeconomic indicators, anticipated regional development, and historical aviation data, as well as national aviation trends, were all considered when determining future conditions.

The next step in the master planning process will be to assess the capacity of existing facilities, their ability to meet forecast demand, and to identify changes to the airfield and/or landside facilities which will create a more functional aviation facility. A summary of aviation forecasts is depicted on **Exhibit 2C**.

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Annual Operations

	2009	2014	2019	2024	2029
General Aviation					
Itinerant	9,900	10,500	12,200	13,400	16,400
Local	18,550	20,300	22,300	25,000	29,000
Military	100	100	100	100	100
Total Operations	**28,550**	**30,900**	**34,600**	**38,500**	**45,500**

Based Aircraft

	2009	2014	2019	2024	2029
Single Engine	29	35	40	49	65
Multi-Engine	4	4	5	5	6
Turbo Prop	8	9	11	14	18
Jet	0	1	2	4	6
Helicopters	0	1	2	3	5
Total Based Aircraft	**41**	**50**	**60**	**75**	**100**

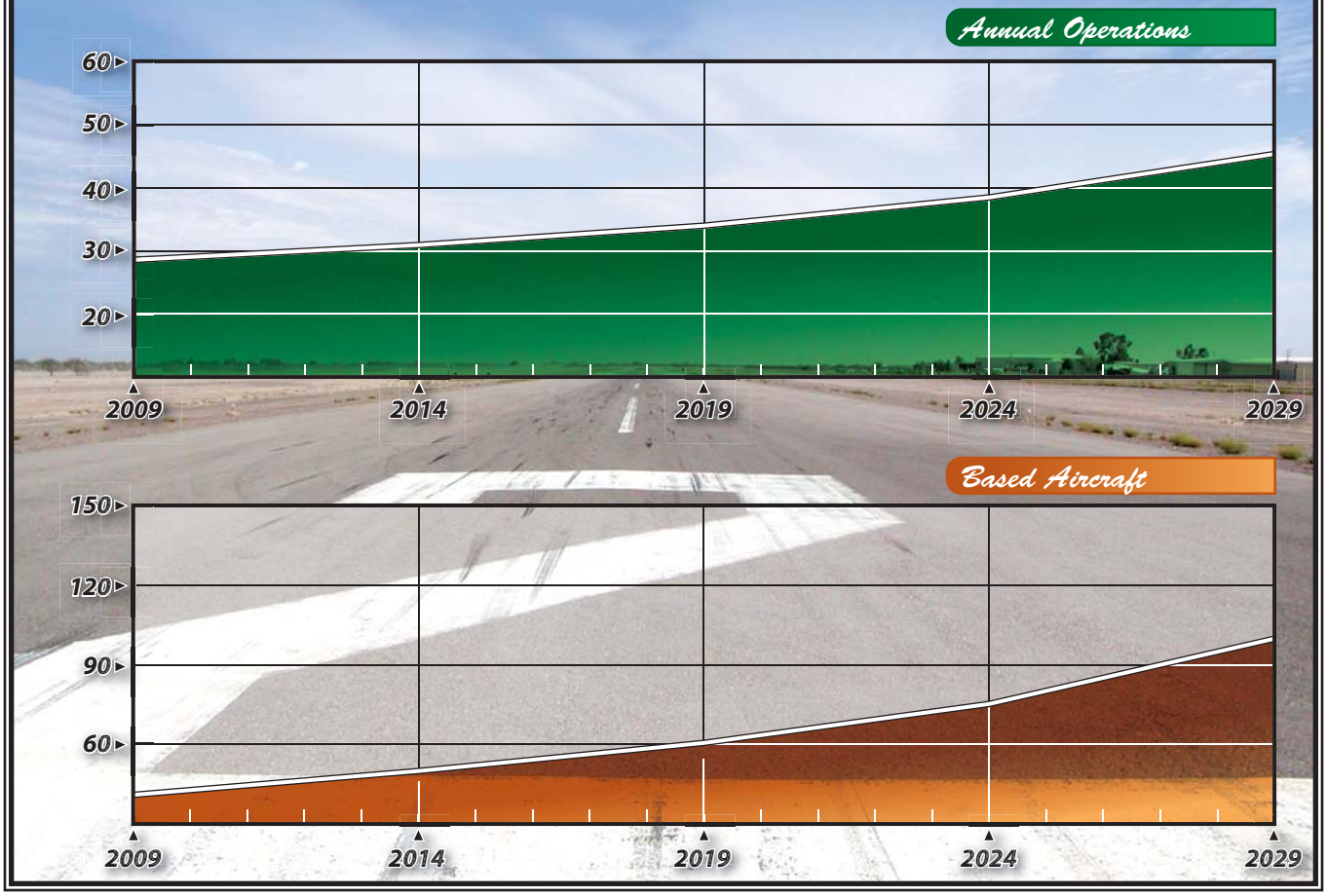


Exhibit 2C
FORECAST SUMMARY

CHAPTER THREE

FACILITY REQUIREMENTS

Facility Requirements

To properly plan for the future of Eloy Municipal Airport, it is necessary to translate forecast aviation demand into the specific types and quantities of facilities that can adequately serve this identified demand. This chapter uses the results of the forecasts conducted in Chapter Two, as well as established planning criteria, to determine the airside (i.e., runways, taxiways, navigational aids, marking and lighting) and landside (i.e., terminal building, hangars, aircraft parking apron, and automobile parking) facility requirements.

The objective of this effort is to identify, in general terms, the adequacy of the existing airport facilities, outline what new facilities may be needed, and when these may be needed to accommodate forecast demands. Having established these facility requirements, alternatives for providing these facilities will be evaluated in Chapter Four to determine the most cost-effective and efficient means for implementation.

PLANNING HORIZONS

The cost-effective, efficient, and orderly development of an airport should rely more upon actual demand at an airport than on a time-based forecast figure. In order to develop a Master Plan that is demand-based rather than time-based, a series of planning horizon milestones have been established for Eloy Municipal Airport that take into consideration the reasonable range of aviation demand projections prepared in the previous chapter.

It is important to consider that the actual activity at the airport may be higher or lower than projected activity levels. By planning according to activity milestones, the resulting plan can accommodate unexpected shifts, or changes, in the area's

aviation demand. It is important that the plan accommodate these changes so that airport staff can respond to unexpected changes in a timely fashion. These milestones provide flexibility, while potentially extending this plan's useful life if aviation trends slow over time.

The most important reason for utilizing milestones is that they allow the airport to develop facilities according to need generated by actual demand levels. The demand-based schedule provides flexibility in development, as development schedules can be slowed or expedited according to actual demand at any given time during the planning period. The resulting plan provides airport officials with a financially responsible and need-based program. **Table 3A** presents the planning horizon milestones for each aircraft activity category. The planning milestones of short, intermediate, and long term generally correlate to the five, ten, and 20-year periods used in the previous chapter.

TABLE 3A
Planning Horizon Activity Levels
Eloy Municipal Airport

	2009	Short Term	Intermediate Term	Long Term
Itinerant Operations				
General Aviation	9,900	10,500	12,200	16,400
Military	100	100	100	100
Total Itinerant	10,000	10,600	12,300	16,500
Local Operations				
General Aviation	18,550	20,300	22,300	29,000
Total Local	18,550	20,300	22,300	29,000
TOTAL OPERATIONS	**28,550**	**30,900**	**34,600**	**45,500**
TOTAL BASED AIRCRAFT	**41**	**50**	**60**	**100**

AIRFIELD PLANNING CRITERIA

The selection of appropriate Federal Aviation Administration (FAA) design standards for the development and location of airport facilities is based primarily upon the characteristics of the aircraft which are currently using or are expected to use the airport. The critical design aircraft is used to define the design parameters for the airport. The critical design aircraft is defined as the most demanding category of aircraft, or family of aircraft, which conducts at least 500 operations per year at the airport. Planning for future aircraft use is of particular importance since design standards are used to plan many airside and landside components. These future standards must be considered now to ensure that short term development does not preclude the long range potential needs of the airport.

The FAA has established a coding system to relate airport design criteria to the operational and physical characteristics of aircraft expected to use the airport. This airport reference code (ARC) has two components. The first component, depicted by a letter, is the aircraft approach category and relates to aircraft approach speed (operational characteristic). The second component, depicted by a Roman numeral, is the airplane design group (ADG) and relates to aircraft wingspan

and tail height (physical characteristics). Generally, aircraft approach speed applies to runways and runway-related facilities, while aircraft wingspan and tail height primarily relates to separation criteria involving taxiways, taxilanes, and land-side facilities. **Exhibit 3A** summarizes representative aircraft by ARC.

According to FAA Advisory Circular (AC) 150/5300-13, Change 14, *Airport Design*, an aircraft's approach category is based upon 1.3 times its stall speed in landing configuration at that aircraft's maximum certificated weight. The five approach categories used in airport planning are as follows:

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

The ADG is based upon either the aircraft's wingspan or tail height, whichever is greater. For example, an aircraft may fall in ADG II for wingspan at 70 feet, but ADG III for tail height at 33 feet. This aircraft would be classified under ADG III. **Table 3B** describes the six ADGs used in airport planning.

TABLE 3B
Airplane Design Groups

Airplane Design Group	Tail Height (feet)	Wingspan (feet)
I	Less than 20	Less than 49
II	Greater than 20 but less than30	Greater than 49 but less than 79
III	Greater than 30 but less than 45	Greater than 79 but less than 118
IV	Greater than 45 but less than 60	Greater than 118 but less than 171
V	Greater than 60 but less than 66	Greater than 171 but less than 214
VI	Greater than 66 but less than 80	Greater than 214 but less than 262

Source: FAA AC 150/5300-13, Change 14, *Airport Design*

The FAA recommends designing airport functional elements to meet the requirements for the most demanding ARC for that airport. The majority of aircraft currently operating at the airport are small single engine aircraft weighing less than 12,500 pounds. The airport also has a number of turboprop aircraft operations due to its regular use by Skydive Arizona.

In order to determine airfield design requirements, the critical aircraft and critical ARC should first be determined, and then appropriate airport design criteria can be applied. This process begins with a review of aircraft currently using the airport and those expected to use the airport through the long term planning period.

CRITICAL AIRCRAFT

As previously discussed, the critical design aircraft is defined as the most demanding category or family of aircraft which conducts at least 500 annual operations at the airport. In some cases, more than one specific make and model of aircraft comprises the airport's critical design aircraft. For example, one category of aircraft may be the most critical in

terms of approach speed, while another is most critical in terms of wingspan. The majority of the 41 aircraft currently based at the airport fall within approach categories A and ADG I. Skydive Arizona, the airport's primary user, operates five different types of aircraft including the DHC-6 Twin Otter (ARC A-II), Shorts SC.7 Skyvan (ARC A-II), McDonnell Douglas DC-3 (ARC A-III), Beechcraft 18 (ARC A-II), and a Pilatus PC-6 Porter (ARC A-II). It has been indicated that there is potential in the future for Skydive Arizona to operate a Lockheed C-130 Hercules, which is an ARC C-IV aircraft.

An examination of aircraft that have filed flight plans operating either to or from Eloy Municipal Airport over the past year indicates limited use by turboprop aircraft, which included the Beechcraft King Air 100 (ARC B-I), and no reported jet operations. Flight plan data was acquired for this study from the subscription service *Airport IQ*. The data available includes documentation of flight plans that are opened or closed on the ground at the airport. Flight plans that are opened or closed from the air are not credited to the airport. Therefore, it is likely that there are more turboprop and potentially some jet operations at the airport that are not captured by this methodology.

Critical Aircraft Design Conclusion

Eloy Municipal Airport is currently utilized by all types of general aviation aircraft ranging from small single engine piston-powered aircraft up to turboprop aircraft. The largest based aircraft in terms of ARC will often account for the design standard to be applied to the airport. The largest aircraft currently based at Eloy Municipal Airport is the McDonnell Douglas DC-3 aircraft operated by the sky diving operator, which is categorized as an ARC A-III aircraft. According to Skydive Arizona, the DC-3 does not reach the 500 or more annual operation threshold to make it the airport's critical aircraft. The most demanding aircraft in the Skydive Arizona fleet that conducts more than 500 annual operations is the DHC-6 Twin Otter, an ARC A-II aircraft.

The analysis also examined the itinerant aircraft operating at the airport. At non-towered airports, determining a reasonable operational count by aircraft type can be difficult. Data provided by *Airport IQ* gave an indication of the types of transient aircraft utilizing the airport. As previously discussed, this database recorded several transient operations by turboprop aircraft in ARC B-I; however, reported operations were well below the 500 annual operations threshold. Given these considerations, the current critical aircraft at Eloy Municipal Airport is the DHC-6 Twin Otter that falls within ARC A-II design criteria.

The aviation demand forecasts indicate the potential for growth in jet and turboprop aircraft activity at the airport. This includes the addition of 10 based turboprops and six based jets through the long term planning period. Itinerant business jet and turboprop activity can also be expected to increase at the airport due to the potential for increased support of aviation use in the airport's service area. Future jet and turboprop aircraft which could base and/or operate at the airport will likely include Beechcraft King Air turboprops and small to medium size business jets such as the Cessna Mustang very light jet (VLJ), Cessna 560XL (Citation Excel), and the Hawker Beechjet 400. These aircraft are included in approach category B.

09MP03-3A-12/14/09

A-I

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

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

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

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

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

B-I, B-II *over 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

A-III, B-III

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

C-I, D-I

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

C-II, D-II

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

C-III, D-III

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

C-IV, D-IV

- **B-757**
- B-767
- C-130
- DC-8-70
- DC-10
- MD-11
- L1011

D-V

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

Note: Aircraft pictured is identified in bold type.

ELOY, ARIZONA

Exhibit 3A
AIRPORT REFERENCE CODES

In addition, the potential exists for Skydive Arizona to operate the Lockheed C-130 (ARC C-IV) turboprop aircraft in the future provided that the airfield is designed to meet the demands of the aircraft. Considering the future transient aircraft mix and the potential for the Lockheed C-130 aircraft, ultimate planning should conform to ARC C-IV design standards. If during the alternatives analysis it is determined that ARC C-IV design standards are not feasible, the airfield should be designed to at least ARC B-II design standards to meet the needs of increased business jet activities anticipated to occur at Eloy Municipal Airport.

The airfield facility requirements outlined in this chapter correspond to the design standards described in FAA's AC 150/5300-13, Change 14, *Airport Design*. The following airfield facilities are outlined to describe the scope of facilities that would be necessary to accommodate the airport's role throughout the planning period.

AIRFIELD CAPACITY

A demand/capacity analysis measures the capacity of the airfield facilities (i.e., runways and taxiways) in order to identify a plan for additional development needs. The capacity of the airfield is affected by several factors, including airfield layout, meteorological conditions, aircraft mix, runway use, aircraft arrivals, aircraft touch-and-go activity, and exit taxiway locations. An airport's airfield capacity is expressed in terms of its annual service volume (ASV). ASV is a reasonable estimate of the maximum level of aircraft operations that can be accommodated in a year.

Pursuant to FAA guidelines detailed in the FAA AC 150/5060-5, *Airport Capacity and Delay*, the annual service volume of a single runway configuration is approximately 230,000 operations at general aviation airports similar to Eloy Municipal Airport. Since the forecasts for the airport indicate that activity throughout the planning period will remain well below 230,000 annual operations, the capacity of the existing airfield system will not be reached and the airfield is expected to accommodate the forecasted operational demands. Therefore, no additional runways or taxiways are needed for capacity reasons.

AIRSIDE REQUIREMENTS

Airside requirements include the need for those facilities related to the arrival and departure of aircraft. The adequacy of existing airside facilities at Eloy Municipal Airport has been analyzed from a number of perspectives, including:

- Runways
- Safety Area Design Standards
- Taxiways
- Airfield Lighting, Marking, and Signage
- Navigational Aids and Instrument Approach Procedures
- Weather Reporting Aids
- Air Traffic Control

RUNWAYS

Runway conditions such as orientation, length, pavement strength, and width at Eloy Municipal Airport were analyzed. From this information, requirements for runway improvements were determined for the airport.

Runway Orientation

The airport is served by Runway 2-20, orientated in a northeast/southwest manner. For the operational safety and efficiency of an airport, it is desirable for the primary runway to be orientated 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 (defined as a crosswind).

FAA AC 150/5300-13, Change 14, *Airport Design*, recommends that a crosswind runway should be made available when the primary runway orientation provides for less than 95 percent wind coverage for specific crosswind conditions. The 95 percent wind coverage is computed on the basis of the crosswind component not exceeding 10.5 knots (12 mph) for ARC A-I and B-I; 13 knots (15 mph) for ARC A-II and B-II; 16 knots (18 mph) for ARC C-I through D-II; and 20 knots for ARC A-IV through D-VI.

Wind data necessary for this analysis was not available at Eloy Municipal Airport. Therefore, data was obtained from the AWOS-3 weather station at Casa Grande Municipal Airport, which is located approximately 13 nautical miles northwest of Eloy Municipal Airport. This data is graphically depicted on the wind rose on **Exhibit 3B**.

As depicted on the exhibit, primary Runway 2-20 provides 96.16 percent wind coverage for 10.5 knot crosswinds, 98.33 percent at 13 knots, 99.72 percent at 16 knots, and 99.95 percent at 20 knots. As evidenced on the exhibit, Runway 2-20 provides greater than 95 percent wind coverage for the current and future critical design aircraft. Therefore, no additional runway orientations should be planned at the airport.

Runway Length

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

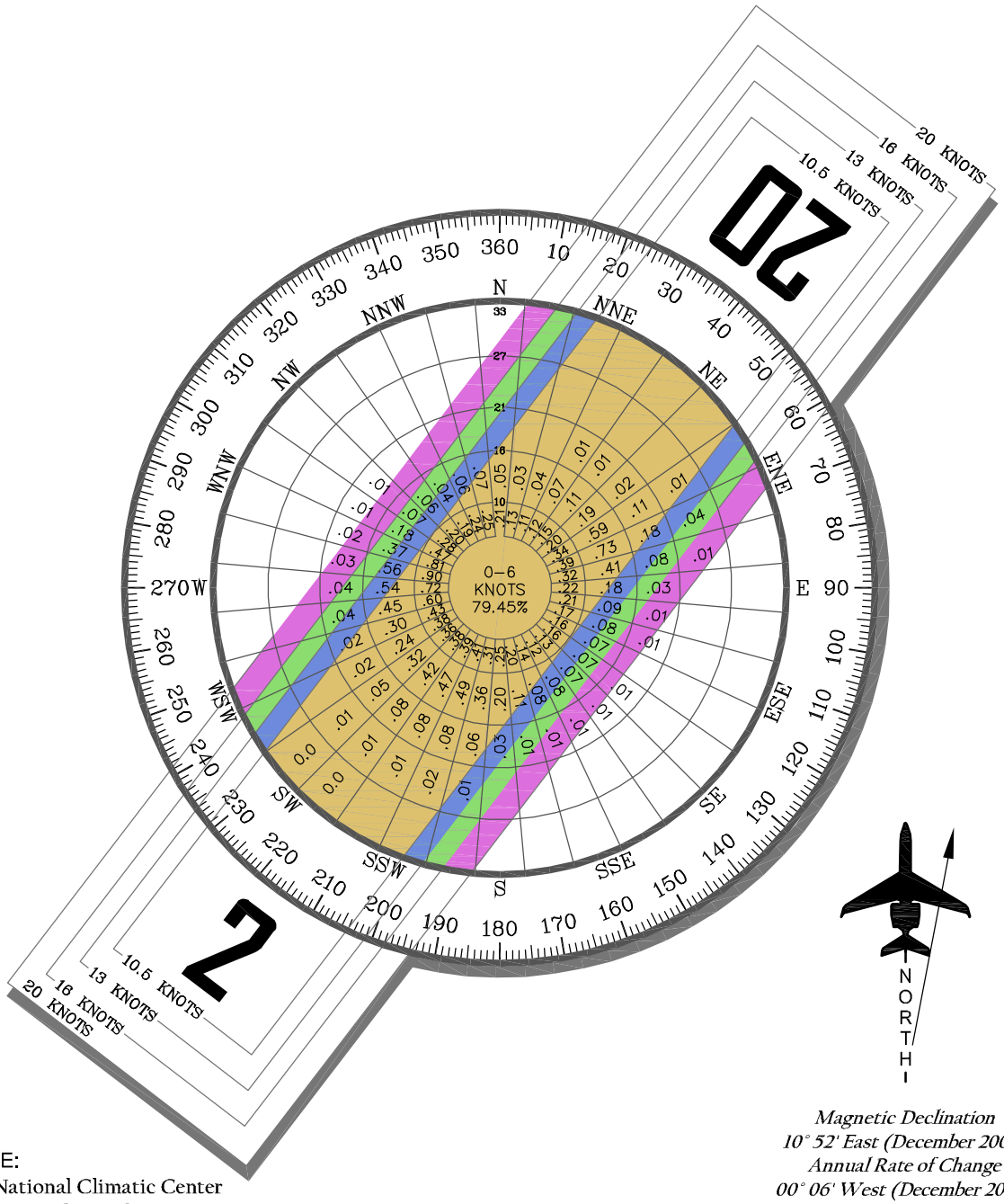
- Mean maximum temperature of the hottest month
- Airport elevation
- Runway gradient
- Critical aircraft type expected to use the airport
- Stage length of the longest nonstop destination (specific to larger aircraft)

The mean maximum daily temperature of the hottest month for Eloy Municipal Airport is 105 degrees Fahrenheit (F). The airport elevation is 1,513 feet above mean sea level (MSL). The runway end elevation difference is six feet for Runway 2-20, resulting in a longitudinal gradient of 0.2 percent, which conforms to FAA design standards. For aircraft in approach categories A and B, the runway longitudinal gradient cannot exceed two percent. For aircraft in approach categories C and D, the maximum allowable longitudinal runway gradient is 1.5 percent.

The first step in evaluating runway length requirements is to determine general runway length requirements for the majority of aircraft operating at the airport. Many operations at Eloy Municipal Airport consist of small aircraft weighing less than 12,500 pounds. According to runway length adjustment charts in AC 150/5325-4B, *Runway Length Requirements for Airport Design*, when adjusting for the elevation and temperature at Eloy Municipal Airport, 95 percent of small aircraft can operate on a 3,800-foot long runway. At 3,900 feet, Runway 2-20 ex-

ALL WEATHER WIND COVERAGE

Runways	10.5 Knots	13 Knots	16 Knots	20 Knots
Runway 2-20	*96.16%*	*98.33%*	*99.72%*	*99.95%*



Magnetic Declination
10° 52' East (December 2009)
Annual Rate of Change
00° 06' West (December 2009)

SOURCE:
NOAA National Climatic Center
Asheville, North Carolina
Casa Grande Municipal Airport (CGZ)
Casa Grande, Arizona

OBSERVATIONS:
268,546 All Weather Observations
1992-2009

Exhibit 3B
WINDROSE

ceeds this length requirement. The 95 percent of the small aircraft fleet category applies to airports that are primarily intended to serve medium size population communities with a diversity of usage and a greater potential for increased aviation activities.

A second category, 100 percent of the small aircraft fleet, applies to airports that are primarily intended to serve communities located on the fringe of a metropolitan area or a relatively large population remote from a metropolitan area. As it was discussed in previous chapters, the Phoenix metropolitan area is anticipated to grow closer to the City of Eloy in the future, potentially placing it within this 100 percent of the fleet category. The runway length requirement for 100 percent of the fleet at Eloy's elevation and temperature is 4,500 feet. **Table 3C** outlines the runway length requirements for various classifications of aircraft that utilize Eloy Municipal Airport.

TABLE 3C
Runway Length Requirements
Eloy Municipal Airport

Airport and Runway Data	
Airport elevation	1,513
Mean daily maximum temperature of the hottest month	105 degrees F
Maximum difference in runway centerline elevation	6 feet
Runway Length Recommended for Airport Design	
Small airplanes with less than 10 passenger seats	
95 percent of these small airplanes	3,800
100 percent of these small airplanes	4,500
Small airplanes with 10 or more passenger seats	4,800
Large airplanes of 60,000 pounds or less	
75 percent of business jets at 60 percent useful load	**5,200**
75 percent of business jets at 90 percent useful load	8,000
100 percent of business jets at 60 percent useful load	6,900
100 percent of business jets at 90 percent useful load	11,100

Source: Chapters Two and Three of AC 150/5325-4B, *Runway Length Requirements for Airport Design*

Based upon the forecast of aircraft fleet mix through the long range planning period, Runway 2-20 should be designed to accommodate current aircraft using the airport, including the DHC-6 Twin Otter, as well as larger aircraft such as the Lockheed C-130 and various business jet aircraft. According to Skydive Arizona, Runway 2-20's length of 3,900 feet would accommodate the Lockheed C-130 takeoff and landing requirements.

The majority of business jets fall within ADG I and II and range between approach categories B through D. According to the analysis presented in **Table 3C**, 75 percent of large airplanes weighing less than 60,000 pounds with 60 percent useful load require 5,200 feet of runway length. To accommodate 100 percent of business jets at 60 percent useful load, the runway should be at least 6,900 feet long. Aircraft types that make up this category include the Cessna 650 and 750, Challenger 600, and several models of Lear jets, which fall into approach categories C and D. While a longer runway could be desirable for some aircraft operators, it is not needed for the majority of aircraft operations at Eloy Municipal Airport at the current

time. Future operations are projected to include an increasing share of business jets that fall within 75 percent of the business jet fleet. Given these considerations, analysis in the following chapter will examine the potential for extending Runway 2-20 to at least 5,200 feet. This runway length will accommodate most all small to medium sized business jet aircraft from a Cessna Citation I up to a Learjet 45. It should be clearly understood, however, that any runway extension will require specific aircraft operational justification prior to FAA funding assistance.

Runway Width

Primary Runway 2-20 is currently 75 feet wide, which meets ADG II design standards. Ultimately, should the critical design aircraft fall within ADG IV, the runway width requirement would be 150 feet. The Alternatives Analysis to follow will determine whether meeting ADG IV design standards is feasible.

Runway Strength

The officially published pavement strength rating for Runway 2-20 is 27,500 pounds single wheel loading (SWL). As previously mentioned, SWL refers to the aircraft weight based upon the landing gear configuration with a single wheel on each landing strut. Pavement core samples have not been evaluated to determine the runway's dual wheel loading (DWL) pavement strength. DWL includes the design of aircraft landing gear with additional wheels on each landing gear strut which distributes more of the aircraft weight on the runway and taxiway surfaces; thus, the surface itself can support a greater total aircraft 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.

According to the FAA publication, *Airport/Facility Directory*, "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.

The strength rating of a runway can change over time. Regular usage by heavier aircraft can decrease the strength rating, while periodic runway resurfacing can increase the strength rating. The current strength rating of Runway 2-20 is adequate to serve the existing mix of aircraft. The potential ultimate design aircraft, Lockheed C-130, can weigh up to 155,000 pounds when landing. Core samples of the runway should be studied to determine whether the existing pavement will accommodate this DWL weight. If it is determined that the runway is not strong enough to support C-130 operations, should they occur in the future, the runway should be strengthened up to 155,000 pounds DWL.

SAFETY AREA DESIGN STANDARDS

The FAA has established several safety surfaces to protect aircraft operational areas and keep them free from obstructions that could affect the safe operation of aircraft. These include the runway safety area (RSA), object free area (OFA), obstacle free zone (OFZ), and runway protection zone (RPZ). The dimensions of these safety areas are dependent upon the critical aircraft and, thus, the ARC of the runway. The current critical aircraft is in ARC A-II, as previously determined. Ultimate planning should conform to ARC C-IV design standards if feasible. At a minimum, the airfield should conform to A-II/B-II design standards. The existing ARC A-II safety areas are depicted on **Exhibit 3C**.

Runway Safety Area

The RSA is defined in FAA AC 150/5300-13, Change 14, *Airport Design*, as a "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." The RSA is centered on the runway, dimensioned in accordance to the approach speed of the critical 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.

The FAA has placed a higher significance on maintaining adequate RSAs at all airports due to recent aircraft accidents. Under Order 5200.8, effective October 1, 1999, the FAA established a *Runway Safety Area Program*. The Order states, "The 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.

ARC A-II standards for runways with not lower than ¾-mile approach visibility minimums require RSAs to be 150 feet wide, extending 300 feet beyond the runway end. For ARC C-IV, standards require RSAs to be 500 feet wide, extending 1,000 feet beyond the runway end. As depicted on **Exhibit 3C**, no objects appear to obstruct the existing RSA. Analysis in the next chapter will further examine the RSAs associated with each runway.

Object Free Area

The runway OFA is "a two-dimensional ground area, surrounding runways, taxiways, and taxilanes, which is clear of objects except for objects whose location is fixed by function (i.e., airfield lighting)." The OFA is centered on the runway, extending out in accordance to the critical aircraft design category utilizing the runway.

FAA standards for ARC A-II OFAs regarding runways call for the OFA to be 500 feet wide and extend 300 feet beyond each runway end, matching the length of the RSA, only wider. As shown on **Exhibit 3C**, the OFA falls within airport property.

Ultimately, Runway 2-20 may potentially need to conform to ARC C-IV design standards, which call for the OFA to have a width of 800 feet and extend 1,000 feet beyond each runway end. These OFA di-

mensions would encompass current privately owned property beyond the airport property boundary, resulting in potential obstructions. Alternatives for mitigating ultimate obstructions to the OFA will be analyzed in Chapter Four.

Obstacle Free Zone

The OFZ is an imaginary surface which precludes object penetrations, including taxiing and parked aircraft. The only allowance for OFZ obstructions is navigational aids mounted on frangible bases which are fixed in their location by function, such as airfield signs. The OFZ is established to ensure the safety of aircraft operations. If the OFZ is obstructed, the airport's approaches could be removed or approach minimums could be increased.

The FAA's criterion for runways utilized by small airplanes (those weighing less than 12,500 pounds) with approach speeds greater than 50 knots requires a clear OFZ to extend 200 feet beyond the runway ends, by 250 feet wide (125 feet on either side of the runway centerline). The OFZ width increases to 400 feet (200 feet on either side of the runway centerline) for runways serving aircraft over 12,500 pounds. Currently, Runway 2-20 meets the 400-foot width to accommodate aircraft weighing more than 12,500 pounds.

Runway Protection Zone

The RPZ is a trapezoidal area centered on the runway, typically beginning 200 feet beyond the runway end. The RPZ has been established by the FAA to provide an area clear of obstructions and incompatible land uses in order to enhance the protection of approaching aircraft, as well as people and property on the ground. The dimensions of the RPZ vary according to the visibility requirements serving the runway and the type of aircraft operating on the runway.

Eloy Municipal Airport does not have published instrument approaches at this time; therefore, all approaches to the runway are conducted visually without the aid of instruments. The corresponding RPZ dimension calls for a 500-foot inner width, extending outward 1,000 feet to a 700-foot outer width on each runway end. **Exhibit 3C** depicts the RPZs for each runway end.

The majority of the existing RPZs for Runway 2-20 are fully contained on existing airport property. A portion of each RPZ extends beyond airport property over privately owned vacant land. If a lower than one mile visibility approach was implemented on either end of Runway 2-20 in the future, the corresponding RPZ would widen and encompass additional area outside existing airport property.

Whenever possible, the airport should maintain positive control over the RPZ through fee simple acquisition; however, avigation easements (acquiring control of designated airspace rights within the RPZ) can be pursued if fee simple acquisition is not feasible. According to records, there are no avigation easements controlling areas of the existing RPZs that extend outside airport property. **Table 3D** presents existing and ultimate RPZ dimension data as well as other airfield requirements discussed in the previous sections.

09MP03-3C-02/02/11

Exhibit 3C
EXISTING SAFETY AREAS

TABLE 3D
Airfield Design Standards
Eloy Municipal Airport

	Existing Runway 2-20	Ultimate Runway 2-20
Airport Reference Code (ARC)	A-II/B-II	C-IV
Approach Visibility Minimums	None	One-Mile
Runway Length (feet)	3,900	**5,200**
Runway Width (feet)	75	**150**
Runway Safety Area		
Width (feet)	150	**500**
Length Beyond Runway End (feet)	300	**1,000**
Object Free Area		
Width (feet)	500	**800**
Length Beyond Runway End (feet)	300	**1,000**
Obstacle Free Zone		
Width (feet)	400	400
Length Beyond Runway End (feet)	200	200
Runway Protection Zone		
Inner Width (feet)	500	500
Outer Width (feet)	**700**	**1,010**
Length (feet)	1,000	**1,700**
Runway Centerline to:		
Holding Positions (feet)	**200**	**250**
Parallel Taxiway Centerline (feet)	**240**	**400**
Taxiways		
Width (feet)	35	**75**
Object Free Area Width (feet)	131	**259**
Centerline to Fixed or Moveable Object (feet)	65.5	**129.5**

Source: FAA AC 150/5300-13, Change 14, *Airport Design*
*** Boldface indicates existing conditions do not meet standards.**

TAXIWAYS

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

As detailed in Chapter One, the taxiway system at Eloy Municipal Airport consists of a full-length parallel Taxiway A and entrance/exit taxiways serving Runway 2-20. All existing taxiways are 40 feet wide. Consideration should be given to the addition of taxiways, as needed, to improve airfield circulation, efficiency, and safety. If Runway 2-20 were to be extended, additional taxiway pavement should be constructed and another exit taxiway added.

Taxiway width is determined by the ADG of the most demanding aircraft to use the taxiway. As mentioned previously, the current critical aircraft for the airport falls within ADG II. FAA criteria call for a width of 35 feet for taxiways serving aircraft within ADG II. As previously discussed, all taxiways on the airfield have a width of 40 feet. The potential ultimate

ADG IV taxiway width design requirement is 75 feet. Further study in the next chapter will analyze the possibilities of additional taxiways.

FAA AC 150/5300-13, Change 14, *Airport Design*, also discusses separation distances between aircraft and various areas on the airport. The separation distances are a function of the approaches approved for the airport and the runway's designated ARC. Under current and ultimate conditions for Runway 2-20 (ARC A-II and approaches not lower than one mile), parallel taxiways would need to be at least 240 feet from the Runway 2-20 centerline. Aircraft parking areas are required to be at least 250 feet from the runway centerline. Taxiway A (as identified in Chapter One) is located 200 feet southeast of the runway centerline. The aircraft parking apron is located 300 feet southeast of the runway centerline.

If feasible, ultimate separation standards will need to conform to ARC C-IV design standards, which call for a runway/taxiway separation distance of 400 feet and a runway/aircraft parking area separation distance of 500 feet. Alternatives for conforming to these design standards will be discussed in the next chapter.

AIRFIELD LIGHTING, MARKING, AND SIGNAGE

There are a number of lighting and pavement marking aids serving pilots using the airport. These aids assist pilots in locating the airport and runway at night or in poor visibility conditions. They also assist in the ground movement of aircraft.

Airport Identification Lighting

The location of the airport at night is universally indicated by a rotating beacon. For civil airports, a rotating beacon projects two beams of light, one white and one green, 180 degrees apart. The existing beacon is currently inoperable and should be restored or replaced.

Runway and Taxiway Lighting

Runway identification lighting provides the pilot with a rapid and positive identification of the runway and its alignment. Runway 2-20 is equipped with medium intensity runway lighting (MIRL). The MIRL system will be adequate to serve the runway and should be maintained through the planning period. MIRL should be installed along any future runway extension.

The taxiway system is not currently equipped with a lighting system. During the course of the planning period, MITL should be installed along all taxiways. This system is vital for safe and efficient ground movements of aircraft during nighttime and/or poor weather conditions.

Visual Approach Lighting

In most instances, the landing phase of any flight must be conducted in visual conditions. To provide pilots with visual guidance information during landings to the runway, electronic visual approach aids are commonly provided at airports. Currently, Runway 2-20 is equipped with two-box precision approach path indica-

tor (PAPI-2); however, these systems are inoperable at this time. These lighting systems should be restored or replaced with four-box PAPI systems. The four-box systems are better to serve faster aircraft because they are more visible.

Runway End Identification Lighting

Runway end identification lights (REILs) are flashing lights located at each runway end that facilitate identification of the runway end at night and during poor visibility conditions. REILs provide pilots with the ability to identify the runway ends and distinguish the runway end lighting from other lighting on the airport and in the approach areas. The FAA indicates that REILs should be considered for all lighted runway ends not planned for a more sophisticated approach lighting system. The REILs presently installed on each end of Runway 2-20 are inoperable and should be restored.

Pilot-Controlled Lighting

Eloy Municipal Airport is equipped with pilot-controlled lighting (PCL). With PCL, a pilot can control the intensity of airfield lights from their aircraft through a series of clicks with their radio transmitter. PCL also provides for more efficient use of energy. This system should be maintained through the planning period.

Airfield Signage

Airfield identification signs assist pilots in identifying their location on the airfield and directing them to their desired location. Signs located at intersections of taxiways provide crucial information to avoid conflicts between moving aircraft and potential runway incursions. Directional signage also instructs pilots as to the location of taxiways and apron areas. Currently, the airfield is equipped with signage referring to runway and taxiway designations and runway exits. Holding position and routing/directional signage is not available. Future planning should consider implementing these airfield signs to better accommodate aircraft movement on the airfield.

Distance Remaining Signs

Distance remaining signage should be planned for Runway 2-20. These lighted signs are placed in 1,000-foot increments along the runway to notify pilots of the length of runway remaining.

Pavement Markings

Runway markings are designed according to the type of instrument approach available on the runway. FAA AC 150/5340-1F, *Marking of Paved Areas on Airports*, provides guidance necessary to design airport markings. Runway 2-20 is served by basic markings. In the future, non-precision markings should be planned for this runway.

The current hold positions associated with Runway 2-20 are marked 120 feet from the runway centerline, which do not meet the ARC A-II standard of 200 feet. Future planning will consider relocating the hold position markings to the ultimate ARC C-IV design standard of 250 feet if determined to be feasible during the Alternatives Analysis.

NAVIGATIONAL AIDS AND INSTRUMENT APPROACH PROCEDURES

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

Navigational Aids

Navigational aids are electronic devices that transmit radio frequencies, which properly equipped aircraft and pilots translate into point-to-point guidance and position information. The very high frequency omnidirectional range (VOR), global positioning system (GPS), and LORAN-C are available for pilots to navigate to and from Eloy Municipal Airport. These systems are sufficient for navigation to and from the airport; therefore, no other navigational aids are needed at the airport.

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 during low visibility and cloud ceilings. At Eloy Municipal Airport, there are no published precision or non-precision approaches. Only on rare occasions does the visibility drop below three miles and/or cloud ceilings fall below 1,000 feet MSL resulting in the need for an instrument approach.

A GPS modernization effort is underway by the FAA and focuses on augmenting the GPS signal to satisfy requirements for accuracy, coverage, availability, and integrity. For civil aviation use, this includes the continued development of the Wide Area Augmentation System (WAAS), which was initially launched in 2003. The WAAS uses a system of reference stations to correct signals from the GPS satellites for improved navigation and approach capabilities. Where the non-WAAS GPS signal provides for enroute navigation and limited instrument approach (lateral navigation) capabilities, WAAS provides for approaches with both course and vertical navigation. This capability was historically only provided by an ILS, which requires extensive on-airport facilities. After 2015, the WAAS upgrades are expected to allow for the development of approaches to most airports with cloud ceilings as low as 200 feet above the ground and visibilities restricted to one-half mile.

Nearly all new instrument approach procedures in the United States are being developed with GPS. GPS approaches are currently categorized as to whether they provide only lateral (course) guidance or a combination of lateral and vertical (descent) guidance. An approach procedure with vertical guidance (APV) GPS approach provides both course and descent guidance. A lateral navigation (LNAV) approach only provides course guidance. In the future, as WAAS is upgraded, precision approaches similar in capability to an instrument landing system (ILS) approach will become available. These approaches are currently categorized as the Global Navigation Satellite System Landing System (GLS). A GLS approach may be able to provide for approaches with one-half mile visibility and 200-foot cloud ceilings.

Both course guidance and descent information is desirable for an instrument approach to each end of Runway 2-20 at Eloy Municipal Airport. The GPS APV approach does not require the installation of costly navigation equipment at the airport and will provide the airport with adequate instrument approach capabilities.

WEATHER REPORTING AIDS

Eloy Municipal Airport has a lighted wind cone and segmented circle. The lighted wind cone provides information to pilots regarding wind conditions, such as direction and speed. The segmented circle consists of a system of visual indicators designed to provide traffic pattern information to pilots. A wind cone and segmented circle are required since the airport is not served by an airport traffic control tower (ATCT). These should be maintained throughout the planning period.

Two types of automated weather observing systems are currently deployed at airports across the country. Automated Surface Observation Systems (ASOS) and Automated Weather Observation Systems (AWOS) both measure and process surface weather observations 24 hours per day, with reporting varying from one minute to hourly. These systems provide near real-time measurements of atmospheric conditions.

ASOS systems are typically commissioned by the National Weather Service, while AWOS systems are often commissioned by the FAA. Future consideration should be given to the installation of an AWOS at Eloy Municipal Airport in order to provide current weather conditions at the airport.

AIR TRAFFIC CONTROL

As previously mentioned, Eloy Municipal Airport is not served by an ATCT. Forecast operational levels are not expected to approach the level necessary to justify federal funding for the construction and/or operation of an ATCT. Generally, airports must experience more than 100,000 operations to be considered for an ATCT facility. Most airports do not qualify for a federally funded ATCT until operations exceed 150,000. As such, the development of an ATCT will not be considered as a part of this study.

LANDSIDE FACILITIES

Landside facilities are those necessary for handling general aviation aircraft and passengers while on the ground. This section is devoted to identifying future landside facility needs during the planning period for the following types of facilities normally associated with general aviation service areas:

- Aircraft Storage Hangars
- Aircraft Parking Apron
- General Aviation Services
- Support Requirements

AIRCRAFT STORAGE HANGARS

The demand for hangar facilities typically depends on the number and type of aircraft expected to be based at the airport. Hangar facilities are generally classified as T-hangars and conventional hangars. T-hangars are typically nested single aircraft storage units which provide a more economical aircraft storage solution for aircraft owners. Conventional hangars

can include standard individual box hangars or multi-aircraft hangars. These different types of hangars offer varying levels of privacy, security, and protection from the elements. Aircraft storage units at Eloy Municipal Airport are presently made up of T-hangars and multi-aircraft conventional hangars.

Demand for hangars varies with the number of aircraft based at the airport. Another important factor is the type of based aircraft. Smaller single-engine aircraft usually prefer T-hangars, while larger, more expensive and sophisticated aircraft will prefer conventional hangars. The weather also plays a role in the demand for hangar facilities. The hot summers that are experienced in the Eloy area create a high demand for enclosed or shaded parking spaces. Rental costs will also be a factor in the choice.

There are a total of 39 aircraft stored in hangars that are located both on and off airport property. On-airport property hangar area totals approximately 36,400 square feet. Each on-airport hangar is fully occupied with anywhere from single to multiple aircraft stored in a single unit. Several off-airport hangars provide additional storage space of approximately 60,300 square feet. The majority of the off-airport hangar space is cross-utilized for aircraft storage and maintenance or other aircraft services. Taking into account each aircraft currently stored in the hangars results in 39 aircraft storage positions. Airport management has indicated that there is an aircraft hangar waiting list for storage space at the airport.

An analysis of future aircraft storage hangar requirements examined the number of storage units and the size of storage units typical for the future aircraft fleet mix of Eloy Municipal Airport. The planning standards for future stored aircraft include 1,200 square feet per single engine aircraft, 2,500 square feet per multi-engine and turbine aircraft, and 1,500 square feet per rotorcraft. The future aircraft storage hangar requirements analysis is summarized on **Table 3E**.

TABLE 3E
Hangar Storage Requirements
Eloy Municipal Airport

	Available	Current Need	Short Term	Intermediate Term	Long Term
BASED AIRCRAFT					
Piston	33		39	45	71
Turbine	8		10	13	24
Rotor	0		1	2	5
Total	41		50	60	100
AIRCRAFT TO BE HANGARED					
Piston		31	36	40	63
Turbine		8	10	13	24
Rotor		0	1	2	5
Total		39	47	55	92
HANGAR POSITIONS					
Total Hangar Positions	39	39	47	55	92
HANGAR AREA REQUIREMENTS (s.f.)					
Total Hangar Area	96,700	57,200	69,700	83,500	143,100
Maintenance Area	15,000	7,175	8,750	10,500	17,500

The analysis shows that existing hangar storage space of 96,700 square feet exceeds the short and intermediate term demand; however, this is the result of either under-utilized storage space due to single aircraft stored in hangars that could potentially be used for the storage of multiple aircraft or hangar space being cross-utilized for other aircraft services or the storage of materials other than aircraft.

The airport has two businesses that conduct general aviation aircraft maintenance services, one of which is located off-airport property. Hangar space dedicated by these two businesses to maintenance services totals approximately 15,000 square feet. Requirements for a maintenance area were estimated at 175 square feet per based aircraft resulting in a long term need for 17,500 square feet of general aviation maintenance service hangar area.

AIRCRAFT PARKING APRON

A parking apron should be provided for at least the number of locally based aircraft that are not stored in hangars. It should also be capable of accommodating transient aircraft during the busy day of the peak month. The 18,950 square-yard apron at Eloy Municipal Airport has 28 tiedown positions, two of which are occupied by locally based aircraft.

FAA AC 150/5300-13, *Airport Design*, suggests a methodology by which transient apron requirements can be determined from knowledge of busy-day itinerant operations. At Eloy Municipal Airport, the number of transient spaces required was determined to be approximately 17.5 percent of busy-day itinerant operations. A planning criterion of 360 square yards per small local aircraft parking space and 500 square yards per transient parking space was used to determine future apron requirements. The number of local and itinerant tiedowns and apron space for the planning period is presented in **Table 3F**.

While this analysis indicates that Eloy Municipal Airport has adequate apron area, additional marked apron positions will be needed in the long term planning horizon.

TABLE 3F
General Aviation Apron Requirements
Eloy Municipal Airport

	Available	Current Need	Short Term	Intermediate Term	Long Term
Based Aircraft in Tiedowns		2	3	5	8
Busy Day Itinerant Operations		50	53	61	82
Local Apron Positions	--	2	3	5	8
Transient Apron Positions	--	9	9	11	14
Total Apron Positions	28	11	12	16	22
Apron Area (s.y.)	18,950	5,100	5,700	7,200	10,100

GENERAL AVIATION SERVICES

General aviation service facilities are often the first impression of the community that air travelers or tourists will encounter. General aviation service facilities at an airport provide space for passenger waiting, a pilots' lounge and flight planning, concessions, management, storage, and various other needs. Eloy Municipal

Airport does not currently have a dedicated general aviation services provider.

The methodology used in estimating terminal facility needs was based upon the number of airport users expected to utilize the terminal facilities during the design hour, as well as FAA guidelines. Space requirements for terminal facilities were based on providing 90 square feet per design hour itinerant passenger. **Table 3G** outlines the space requirements for terminal services at Eloy Municipal Airport through the long term planning horizon.

TABLE 3G
General Aviation Terminal Area Facilities
Eloy Municipal Airport

	Available	Current Need	Short Term	Intermediate Term	Long Term
General Aviation Services Building Area (s.f.)	--	1,000	1,000	1,200	1,600
Design Hour Itinerant Passengers	--	11	11	13	18
Auto Parking Spaces	29	30	32	38	57

Automobile parking at Eloy Municipal Airport is made up of a paved vehicle parking lot at the airport entrance consisting of 24 spaces, five spaces located immediately east of the water tank, and a large gravel parking lot between Hangar #1 and Hangar #5. Vehicle parking requirements were examined based on an evaluation of existing airport use, as well as industry standards. Vehicle parking spaces were calculated at 25 percent of based aircraft, plus the product of design hour itinerant passengers and the industry standard of 1.8. Automobile parking requirements are summarized in **Table 3G**.

SUPPORT REQUIREMENTS

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

- Airport Access
- Interior Access
- Aviation Fuel Storage
- Aircraft Wash Facility
- Perimeter Fencing
- Aircraft Rescue and Firefighting
- Airport Maintenance Building
- Utilities
- Security

Airport Access

In airport facility planning, both on-and off-airport vehicle access is important. For the convenience of the user (and to provide maximum capacity), access to the airport should include (to the extent practical) connections to the major arterial roadways near the airport.

Access to Eloy Municipal Airport is available via Tumbleweed Road, which extends south from the airport where it intersects with State Highway 84 (Casa Grande-Picacho Highway).

The capacity of a roadway is the maximum number of vehicles that can pass over a given section of roadway during a given time period. It is normally preferred that a roadway operate below capacity to provide reason-able flow and minimize delay to the vehicles using it.

As with the airfield, the means of describing the operational efficiency of a given roadway segment is defined in terms of six descriptive service levels. These various levels of service (LOS) range from A to F and are defined as follows:

- **LOS A** – Free flowing traffic with minimal delays.
- **LOS B** - A stable flow of traffic, with occasional delays due to the noticeable presence of others in the traffic stream.
- **LOS C** – Still stable flow, but operations become more significantly affected by the traffic stream. Periodic delays are experienced.
- **LOS D** – Flow becomes more high density, and speed and freedom to maneuver become severely restricted. Regular delays are experienced.
- **LOS E** – Maximum capacity operating conditions. Delays are extended and speeds are reduced to a low, relatively uniform level.
- **LOS F** – Forced flow with excessive delays. A condition where more traffic is approaching a point than can traverse the point.

Level of Service "D" is generally considered as the threshold of acceptable traffic conditions during peak periods in an urban area and is commonly used by Pinal County in transportation planning.

According to information included in the *City of Eloy Small Area Transportation Study*, Tumbleweed Road will not exceed LOS A through 2030. The long-range recommended development plan for Tumbleweed Road includes widening it from two to four lanes to accommodate anticipated traffic increases.

Interior Access

Occasionally, private vehicles use the apron and taxilanes for movement as there is no dedicated interior access road. The segregation of vehicle and aircraft operational areas is supported by FAA guidance established in June 2002. FAA AC 50/5210-20, *Ground Vehicle Operations on Airports*, states, "The control of vehicular activity on the airside of an airport is of the highest importance." The AC further states, "An airport operator should limit vehicle operations on the movement areas of the airport to only those vehicles necessary to support the operational activity of the airport."

Service roads are typically used to segregate vehicles from the aircraft operational areas. The alternatives analysis will examine options for interior access roads to serve hangar facilities as well as a paved service road extending around the runway and airport perimeter for airport maintenance vehicles.

Aviation Fuel Storage

Skydive Arizona owns a self-service fuel storage facility with the capacity to hold 6,000 gallons of 100LL Avgas and 6,000 gallons of Jet A fuel. This fuel is utilized by based and transient aircraft. Skydive Arizona as well as other off-airport operators also have private fuel storage facilities, which are not used for public fuel vending.

Fuel storage requirements are typically based upon keeping a two-week supply of fuel during an average month; however, more frequent deliveries can reduce the fuel storage capacity requirement. Historic fuel sale information was not available from Eloy Municipal Airport; therefore, fuel sale information from similar general aviation airports was used to determine average fuel flowage per operation. An average of 2.6 gallons per piston operation was used to project Avgas fuel storage requirements.

Turbine aircraft operations at Eloy Municipal Airport are comprised mainly of turboprop fixed wing aircraft used by Skydive Arizona. Skydive Arizona has private fuel storage for these aircraft, resulting in the self-service Jet A fuel delivery system to be used primarily by itinerant turbine aircraft. As the Phoenix metropolitan area continues to develop towards the City of Eloy and surrounding areas, and with the shift in the active general aviation aircraft fleet mix towards a greater increase of turbine aircraft, additional activity from turbine aircraft can be expected.

Projections of future Jet A fuel storage requirements were based upon a ratio of 160 gallons per turbine operation. Turbine operations other than those conducted by Skydive Arizona were estimated at two percent of annual operations currently, increasing to approximately five percent of the annual operations in the long term planning horizon.

100LL Avgas and Jet A fuel storage requirements are summarized in **Table 3H**. Available fuel storage meets the current demand levels at Eloy Municipal Airport, but will need to be expanded over the planning horizon.

TABLE 3H
Fuel Storage Requirements
Eloy Municipal Airport

	Available	Current Need	Short Term	Intermediate Term	Long Term
Two-Week Fuel Storage Requirements					
100LL Avgas (gal)	6,000	4,100	4,400	4,900	6,300
Jet A (gal)	6,000	3,200	4,500	6,700	17,900

Aircraft Wash Facility

Presently, there is not a designated aircraft wash facility on the airport. Consideration should be given to establishing an aircraft wash facility at the airport to collect aircraft cleaning fluids used during the cleaning process.

Perimeter Fencing

Perimeter fencing is used at airports primarily to secure the aircraft operations area. The physical barrier of perimeter fencing provides 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.

- Provides a cost-effective method of protecting facilities.

- Limits inadvertent access to the aircraft operations area by wildlife.

The majority of the airport perimeter is equipped with eight-foot security fencing with three-strand barbed-wire. A portion of the perimeter is equipped with four-foot barbed-wire fencing. The hangar and apron area are protected by six-foot chain link fencing. An electronic access gate is located at the airport's entrance south of the water tank. Manual access gates are located at various locations in the hangar area and along the airport's perimeter. Those portions of the airport's perimeter equipped with barbed-wire fencing should be updated to eight-foot security fencing.

Aircraft Rescue and Firefighting

Eloy Municipal Airport is not currently served by a dedicated aircraft rescue and firefighting facility (ARFF). The airport is provided with rescue and fire assistance from the Eloy fire district, which is located approximately three miles south of the airport. Federal regulations do not require ARFF services to be located on the airport. ARFF services are required only at FAA-certified airports providing scheduled passenger service with greater than nine passenger seats. Unless federal regulations change, there will not be a regulatory requirement for ARFF facilities on the airport. Emergency services will continue to be met with off-airport vehicles. Therefore, no additional requirements for ARFF services are needed at Eloy Municipal Airport.

Airport Maintenance Building

Presently, there is not a dedicated airport maintenance facility at the airport. Consideration should be given to developing a maintenance facility for the storage of maintenance equipment and to provide work areas for maintenance personnel.

Utilities

Electrical, water, and telecommunications services are available at the airport. Sanitary sewer output is handled by septic tanks. A new 1.0 million gallon water tank is being constructed at the airport to improve water flow. Utility extensions to new hangar areas will be needed through the planning period.

Security

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

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

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

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

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

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

Table 3J summarizes the recommended airport characteristics and ranking criterion. The TSA suggests that an airport rank its security posture according to this scale to determine the types of security enhancements that may be appropriate.

Table 3J also ranks Eloy Municipal Airport according to this scale. As shown in the table, the Eloy Municipal Airport ranking on this scale is 17. Points are assessed for the airport having more than 26 based aircraft, having based aircraft over 12,500 pounds, having a runway greater than 2,001 feet in length but less than 5,001 feet, having a paved runway surface, having Part 137 agricultural operations, and for conducting maintenance and repair on large aircraft.

As shown in **Table 3K**, a rating of 17 points places Eloy Municipal Airport in the second tier ranking of security measures by the TSA. This rating clearly illustrates that emerging security needs are recommended at Eloy Municipal Airport as the activity at the airport grows. The Eloy Municipal Airport ranking could easily extend into the third tier with the addition of aircraft flight training, rental or charter services. Several of these activities could be expected to occur during the planning period of this study.

TABLE 3J
Airport Characteristics Measurement Tool

	Assessment Scale	
Security Characteristics	**Public Use Airport**	**Eloy Airport**
Location		
Within 20 nm of mass population areas[1]	5	0
Within 30 nm of a sensitive site[2]	4	0
Falls within outer perimeter of Class B airspace	3	0
Falls within boundaries of restricted airspace	3	0
Based Aircraft		
Greater than 101 based aircraft	3	0
26-100 based aircraft	2	2
11-25 based aircraft	1	0
10 or fewer based aircraft	0	0
Based aircraft over 12,500 pounds	3	3
Runways		
Runway length greater than 5,001 feet	5	0
Runway length less than 5,000 feet, greater than 2,001 feet	4	4
Runway length 2,000 feet or less	2	0
Asphalt or concrete runway	1	1
Operations		
Over 50,000 annual operations	4	0
Part 135 operations	3	0
Part 137 operations	3	3
Part 125 operations	3	0
Flight training	3	0
Flight training in aircraft over 12,500 pounds	4	0
Rental aircraft	4	0
Maintenance, repair, and overhaul facilities conducting long-term storage of aircraft over 12,500 pounds	4	4
Totals		**17**

Source: *Security Guidelines for General Aviation Airports*

1 An area with a total population over 100,000

2 Sensitive sites include military installations, nuclear and chemical plants, centers of government, national monuments, and/or international ports

TABLE 3K
Recommended Security Enhancements Based on Airport Characteristics Assessment Results

	Points Determined Through Airport Characteristics Assessment			
Security Enhancements	**> 45**	**25-44**	**15-24**	**0-14**
Fencing	✓	--	--	--
Hangars	✓	--	--	--
Closed-Circuit Television (CCTV)	✓	--	--	--
Intrusion Detection System	✓	--	--	--
Access Controls	✓	✓	--	--
Lighting System	✓	✓	--	--
Personal ID System	✓	✓	--	--
Challenge Procedures	✓	✓	--	--
Law Enforcement Support	✓	✓	✓	--
Security Committee	✓	✓	✓	--
Transient Pilot Sign-in/Sign-Out Procedures	✓	✓	✓	--
Signs	✓	✓	✓	✓
Documented Security Procedures	✓	✓	✓	✓
Positive/Passenger/Cargo/Baggage ID	✓	✓	✓	✓
Aircraft Security	✓	✓	✓	✓
Community Watch Program	✓	✓	✓	✓
Contact List	✓	✓	✓	✓

Source: *Security Guidelines for General Aviation Airports*

Based upon the results of the security assessment, the TSA recommends 13 potential security enhancements for Eloy Municipal Airport should the airport ultimately fall within the third tier. These enhancements are shown in **Table 3K**.

A review of each recommended security procedure is below.

Access Controls: To delineate and adequately protect security areas from unauthorized access, it is important to consider boundary measures such as fencing, walls, or other physical barriers, electronic boundaries (e.g., sensor lines, alarms), and/or natural barriers. Physical barriers can be used to deter and delay the access of unauthorized persons onto sensitive areas of airports. Such structures are usually permanent and are designed to be a visual and psychological deterrent as well as a physical barrier. As it was previously discussed, the majority of the airport's perimeter is equipped with security fencing. The portions of the airport perimeter that are not currently equipped with security fencing should be updated to enhance access control.

Lighting System: Protective lighting provides a means of continuing a degree of protection from theft, vandalism, or other illegal activity at night. Security lighting systems should be connected to an emergency power source, if available.

Personal ID System: This refers to a method of identifying airport employees or authorized tenant access to various areas of the airport through badges or biometric controls.

Vehicle ID System: This refers to an identification system which can assist airport personnel and law enforcement in identifying authorized vehicles. Vehicles can be identified through use of decals, stickers, or hang tags.

Challenge Procedures: This involves an airport watch program which is implemented in cooperation with airport users and tenants to be on guard for unauthorized and potentially illegal activities at Eloy Municipal Airport. This is particularly important at airports with significant "through-the-fence" operations as there are typically more access points to the airport's perimeter, which can result in easier entry for unauthorized individuals.

Law Enforcement Support: This involves establishing and maintaining a liaison with appropriate law enforcement agencies at the local, state, and federal levels. These organizations can better serve the airport when they are familiar with airport operating procedures, facilities, and normal activities. Procedures may be developed to have local law enforcement personnel regularly or randomly patrol ramps and aircraft hangar areas, with increased patrols during periods of heightened security.

Security Committee: This committee should be composed of airport tenants and users drawn from all segments of the airport community. The main goal of this group is to involve airport stakeholders in developing effective and reasonable security measures and disseminating timely security information.

Transient Pilot Sign-in/Sign-Out Procedures: This involves establishing procedures to identify non-based pilots and aircraft using their facilities, and implementing sign-in/sign-out procedures for all transient operators and associating them with their parked aircraft. Having assigned spots for transient parking areas

can help to easily identify transient aircraft on an apron.

Signs: The use of signs provides a deterrent by warning of facility boundaries as well as notifying of the consequences for violation.

Documented Security Procedures: This refers to having a written security plan. This plan would include documenting the security initiatives already in place at Eloy Municipal Airport, as well as any new enhancements. This document could consist of, but is not be limited to, airport and local law enforcement contact information, including alternates when available, and utilization of a program to increase airport user awareness of security precautions such as an airport watch program.

Positive/Passenger/Cargo/Baggage ID: A key point to remember regarding general aviation passengers is that the persons on board these flights are generally better known to airport personnel and aircraft operators than the typical passenger on a commercial airliner. Recreational general aviation passengers are typically friends, family, or acquaintances of the pilot in command. Charter/sightseeing passengers typically will meet with the pilot or other flight department personnel well in advance of any flights. Suspicious activities, such as use of cash for flights or probing or inappropriate questions, are more likely to be quickly noted and authorities could be alerted. For corporate operations, typically all parties onboard the aircraft are known to the pilots. Airport operators should develop methods by which individuals visiting the airport can be escorted into and out of aircraft movement and parking areas.

Aircraft Security: The main goal of this security enhancement is to prevent the intentional misuse of general aviation aircraft for terrorist purposes. Proper securing of aircraft is the most basic method of enhancing general aviation airport security. Pilots should employ multiple methods of securing their aircraft to make it as difficult as possible for an unauthorized person to gain access to it. Some basic methods of securing a general aviation aircraft include: ensuring that door locks are consistently used to prevent unauthorized access or tampering with the aircraft; using keyed ignitions where appropriate; storing the aircraft in a hangar, if available; locking hangar doors, using an auxiliary lock to further protect aircraft from unauthorized use (i.e., propeller, throttle, and/or tie-down locks); and ensuring that aircraft ignition keys are not stored inside the aircraft.

Community Watch Program: The vigilance of airport users is one of the most prevalent methods of enhancing security at general aviation airports. Typically, the user population is familiar with those individuals who have a valid purpose for being on the airport property. Consequently, new faces are quickly noticed. A watch program should include elements similar to those listed below. These recommendations are not all-inclusive. Additional measures that are specific to each airport should be added as appropriate, including:

- Coordinate the program with all appropriate stakeholders including airport officials, pilots, businesses and/or other airport users.

- Hold periodic meetings with the airport community.

- Develop and circulate reporting procedures to all who have a regular presence on the airport.

- Encourage proactive participation in aircraft and facility security and heightened awareness measures. This should include encouraging airport and line staff to "query" unknowns on ramps, near aircraft, etc.
- Post signs promoting the program, warning that the airport is watched. Include appropriate emergency phone numbers on the sign.

- Install a bulletin board for posting security information and meeting notices.

- Provide training to all involved for recognizing suspicious activity and appropriate response tactics.

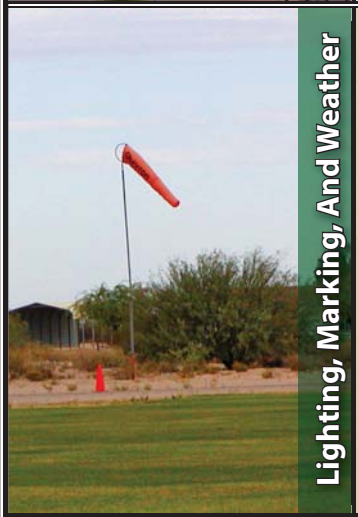
Contact List: This involves the development of a comprehensive list of responsible personnel/agencies to be contacted in the event of an emergency procedure. The list should be distributed to all appropriate individuals. Additionally, in the event of a security incident, it is essential that first responders and airport management have the capability to communicate. Where possible, coordinate radio communication and establish common frequencies and procedures to establish a radio communications network with local law enforcement.

SUMMARY

The intent of this chapter has been to outline the facilities required to meet potential aviation demands projected for Eloy Municipal Airport through the planning horizon. A summary of the airside and landside requirements is presented on **Exhibits 3D** and **3E**.

Following the facility requirements determination, the next step is to determine a direction of development which best meets these projected needs through a series of airport development alternatives. The remainder of the Master Plan will be devoted to outlining this direction, its schedule, and its cost.

09MP03-3D-02/02/11

	Available	Short Term Need	Long Term Need
 Runway	**Runway 2-20** 3,900' x 75' Asphalt 27,500 #SWL ARC - A-II	**Runway 2-20** 3,900' x 100' Asphalt 27,500 #SWL Improve RPZs ARC A-II	**Runway 2-20** 5,200' x 150' Asphalt 27,500 #SWL 155,000 #DWL* ARC C-IV* * If feasible
 Taxiways	**Taxiway A** 40' Wide Full Length Parallel 200' Runway Separation Distance 3 Entrance / Exit Taxiways	**Taxiway A** 40' Wide Full Length Parallel 240' Runway Separation Distance 5 Entrance / Exit Taxiways Holding Aprons	**Taxiway A** 75' Wide* Full Length Parallel 400' Runway Separation Distance* 6 Entrance / Exit Taxiways Holding Aprons * If feasible
 Navigational Aids	GPS VOR LORAN-C	GPS APV Approach One-Mile Visibility (both ends)	Same
 Lighting, Marking, And Weather	Rotating Beacon (out of service) Lighted Wind Cone Segmented Circle PCL **Runway 2-20** Basic Markings MIRL PAPI-2 (out of service) Hold Positions - 130' REILs (out of service)	Restore Rotating Beacon Install AWOS Add MITL on all Taxiways **Runway 2-20** Restore PAPI-2s & REILs Non-Precision Markings Hold Positions - 200'	Add Distance Remaining Signage **Runway 2-20** Upgrade to PAPI-4s Hold Positions - 250'

APV: approach procedure with vertical guidance
ARC: airport reference code
AWOS: automated weather observation station
DWL: aircraft with dual-wheel type landing gear
GPS: global positioning system
MIRL: medium intensity runway lighting
MITL: medium intensity taxiway lighting
PAPI: precision approach path indicator
PCL: pilot-controlled lighting
REIL: runway end identifier lighting
RPZ: runway protection zone
SWL: aircraft with single-wheel tandem type landing gear
VOR: very high frequency omni-directional range

ELOY, ARIZONA

Exhibit 3D
AIRFIELD SUMMARY

	Available	Short Term	Intermediate Term	Long Term
AIRCRAFT STORAGE HANGARS				
Total Hangar Positions	39	47	55	92
Total Hangar Storage Area (s.f.)	96,700	69,700	83,500	143,100
Maintenance Area (s.f.)	15,000	8,750	10,500	17,500

AIRCRAFT PARKING APRON				
Transient Ramp Positions	--	9	11	14
Local Ramp Positions	--	3	5	8
Total Ramp Positions	28	12	16	22
Apron Area (s.y.)	18,950	5,700	7,200	10,100

GENERAL AVIATION SERVICE FACILITIES				
General Aviation Services Area (s.f.)	NA	1,000	1,200	1,600
Automobile Parking Spaces	29	32	38	57

FUEL STORAGE (TWO-WEEK REQUIREMENTS)				
100LL Avgas (gal.)	6,000	4,400	4,900	6,300
Jet A (gal.)	6,000	4,500	6,700	17,900
OTHER				
	None	Wash Rack Enhaced Security Measures	Same	Maintenance Facility

Exhibit 3E
LANDSIDE FACILITY REQUIREMENTS

CHAPTER FOUR

AIRPORT DEVELOPMENT ALTERNATIVES

Airport Development Alternatives

Prior to defining a development program for Eloy Municipal Airport, it is important to consider development potential and constraints at the airport. The purpose of this chapter is to consider potential solutions for accommodating projected demand and meeting the program requirements as previously defined in Chapter Three, Aviation Facility Requirements.

In this chapter, a number of airport development alternatives are considered for the airport. For each alternative, different physical facility layouts are presented for the purposes of evaluation. The ultimate goal is to develop the underlying rationale which supports the final recommended master plan development concept. Through this process, an evaluation of the highest and best uses of airport property is made while considering local development goals, physical and environmental constraints, and appropriate federal airport design standards.

Any development proposed by a master plan evolves from an analysis of projected needs. Though the needs were determined by the best methodology available, it cannot be assumed that future events will not alter these needs. Therefore, to ensure flexibility in planning and development to respond to unforeseen needs, the landside alternatives consider the maximum development potential of airport property.

The alternatives presented in this chapter have been formulated as potential means to meet the overall program objectives for the airport in a balanced manner. Through coordination with the City of Eloy, the Planning Advisory Committee (PAC), and the public, the alternatives (or

combination thereof) will be refined and modified as necessary into a recommended development concept. Therefore, the alternatives presented in this chapter can be considered a beginning point in the evolution of a recommended concept for the future of Eloy Municipal Airport.

REVIEW OF PREVIOUS PLANNING DOCUMENTS

The most recent planning document prepared for Eloy Municipal Airport was the *Eloy Municipal Airport Master Plan* completed in April 2001. The master plan study considered multiple alternatives, including non-development and transfer of services alternatives, before ultimately recommending the continued development of the existing airport into the long-term horizon. The airport layout plan (ALP) drawing shown on **Exhibit 4A** depicts the airside and landside improvements recommended in the previous master plan.

Recommended airfield improvements included maintaining Airport Reference Code (ARC) B-II airport design standards for Runway 2-20, which would require widening the runway to 75 feet and increasing the runway/taxiway centerline separation distance to 240 feet. Runway 2-20 was planned to be strengthened from 12,000 pounds single-wheel loading (SWL) to 30,000 pounds dual-wheel loading (DWL). It was also recommended that Runway 2-20 be extended by 1,600 feet to the northeast in two 800-foot phases to a length of 5,500 feet to accommodate anticipated corporate aircraft users. Landside recommendations included additional aircraft storage hangar facilities and a general aviation terminal facility. Since the completion of the previous master plan, Runway 2-20 has been widened to 75 feet and strengthened to 27,500 pounds SWL.

NO-BUILD/DO NOTHING ALTERNATIVE

In analyzing and comparing the advantages and disadvantages of various development alternatives, it is important to consider the consequences of no future development at Eloy Municipal Airport. The "no-build" or "do nothing" alternative essentially considers keeping the airport in its present condition, not providing any type of expansion or improvement to the existing facilities (other than general airfield, City-owned hangar, and building maintenance projects). The primary result of this alternative would be the inability of the airport to accommodate the projected aviation demands of the airport service area.

Eloy Municipal Airport and the businesses dependent on the airport facilities serve as vital economic assets to the local community and to the regional area. Not improving Eloy Municipal Airport to meet general aviation needs could inhibit economic growth for the City of Eloy and surrounding areas.

The potential for increased aviation activity at Eloy Municipal Airport can be related to the growing population within the airport's service area and growth within the general aviation industry as a whole. The diversified economic base in the region that will continue to grow as the Phoenix and Tucson metropolitan areas expand closer to Eloy and increase the potential for additional private and business general aviation activity. While overall general aviation growth will be steady but slow nationally, the demand for higher performance aircraft for busi-

09MP03-4A-03/02/10

AIRPORT DATA

ELOY MUNICIPAL AIRPORT/E60

TOWN: ELOY, ARIZONA — COUNTY: PINAL, ARIZONA

RANGE: 7 EAST/SEC. 23 TOWNSHIP: 7 SOUTH — CIVIL TOWNSHIP: GILA — ACREAGE: 97.72

		EXISTING	ULTIMATE
NATIONAL PLAN of INTEGRATED AIRPORT SYSTEMS (NPIAS) SERVICE LEVEL		GENERAL AVIATION	SAME
DESIGN AIRCRAFT		CESSNA CITATION III	SAME
AIRPORT REFERENCE CODE (ARC): RUNWAY CATEGORY/DESIGN GROUP		B-II	SAME
AIRPORT ELEVATION (ABOVE MEAN SEA LEVEL)		1513.3' MSL	SAME
MEAN MAXIMUM TEMPERATURE OF HOTTEST MONTH		95°F (July)	SAME
AIRPORT REFERENCE POINT (ARP) COORDINATES (NAD 83)	Latitude	32°48'25.22"N ◁	32°48'31.486"N
	Longitude	111°35'12.444"W ◁	111°35'06.716"W
AIRPORT and TERMINAL NAVIGATIONAL AIDS		ROTATING BEACON --	GPS --
GPS APPROACH		NONE	YES

◁ Existing Airport Reference Point (ARP) coordinates are from FAA Form 5010, AIRPORT MASTER RECORD (last FAA inspection 02/08/2001). Form 5010 notes that these coordinates are "Estimated". In addition, these coordinates are published in the FAA's AIRPORT/FACILITY DIRECTORY, SOUTHWEST U.S. (effective 05/17/2001 to 07/12/2001). See GENERAL NOTES for further information regarding all latitude and longitude coordinates depicted on this and subsequent drawings.

LEGEND

EXISTING	ULTIMATE	DESCRIPTION
		AIRPORT PROPERTY LINE
		AIRPORT REFERENCE POINT (ARP)
		AIRPORT ROTATING BEACON
		BUILDING CONSTRUCTION
BRL	BRL	BUILDING RESTRICTION LINE (BRL)
		DIRT ROAD
		FACILITY CONSTRUCTION
		FENCING
▪ ▪ PAPI-4	▪ ▪ PAPI-4	NAVIGATIONAL AID INSTALLATION
		RUNWAY END IDENTIFICATION LIGHTS (REIL)
		RUNWAY THRESHOLD LIGHTS
		RUNWAY EDGE LIGHTING - MIRL/HIRL
		SECTION CORNER
		SEGMENTED CIRCLE/WIND INDICATOR
1500	1500	TOPOGRAPHIC CONTOURS

RUNWAY END COORDINATES (NAD 83)*		EXISTING	INTERIM	ULTIMATE
RUNWAY 2	Latitude	32°48'09.949"N	SAME	SAME
	Longitude	111°35'26.406"W	SAME	SAME
RUNWAY 20	Latitude	32°48'40.492"N	32°48'46.757"N	32°48'53.022"N
	Longitude	111°34'58.481"W	111°34'52.752"W	111°34'47.023"W

*See General Notes: Note 1.

BUILDINGS/FACILITIES

EXISTING	ULTIMATE	DESCRIPTION
1	1	FUEL STORAGE
2		AL-DON DUSTING
3		AC-ARBO
4		T-HANGARS
5		DMI, INC. (Rigging Innovations)
6		AERO COMMUNICATIONS COMPANY
7		HIGH and DRY BALLOONS
8		PARA-FLITE, INC.
9		AREO SPECIALIST
10		ARIZONA AEROPAINTING
	21	T-HANGARS (6 units)
	22	T-HANGARS (6 units)
	23	T-HANGARS (6 units)
	24	CONVENTIONAL HANGAR (PBO)
	25	CONVENTIONAL HANGAR (PBO)
	26	CONVENTIONAL HANGAR (PBO)
	27	TERMINAL BUILDING

RUNWAY DATA

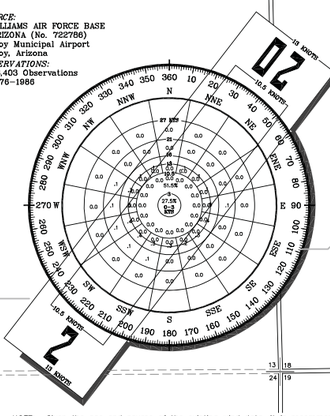
	RUNWAY 2-20 EXISTING	RUNWAY 2-20 ULTIMATE
RUNWAY CATEGORY/AIRCRAFT DESIGN GROUP	B-II	SAME
RUNWAY AZIMUTH	20	---
RUNWAY BEARING (TRUE)	N37.671667°E	SAME
RUNWAY DIMENSIONS (SEE GENERAL NOTES: 1)	3,900' X 60'	5,500' X 75'
MAXIMUM RUNWAY ELEVATION (above MSL)	1513.3'	SAME
WIND COVERAGE (in %)	S E E W I N D R O S E	SAME
APPROACH VISIBILITY MINIMUMS (ERE)	1 MILE	SAME
FAR PART 77 CATEGORY (ERE)	VISUAL/VISUAL	SAME
RUNWAY INSTRUMENTATION (ERE)	NONE	SAME
RUNWAY APPROACH SURFACES (ERE)	20:1/20:1	SAME
RUNWAY THRESHOLD DISPLACEMENT	NONE	SAME
RUNWAY STOPWAY	NONE	SAME
RUNWAY SAFETY AREA (RSA)	4,500' X 150'	6,100' X 150'
RSA DISTANCE BEYOND EACH RUNWAY END	300'	300'
RUNWAY OBSTACLE FREE ZONE (OFZ)	4,300' X 400'	5,900' X 400'
RUNWAY OBJECT FREE AREA (OFA)	4,500' X 500'	6,100' X 500'
RUNWAY PAVEMENT MATERIAL	ASPHALT	SAME
RUNWAY PAVEMENT SURFACE TREATMENT	NONE	SAME
PAVEMENT STRENGTH (in thousand lbs.)	12(S)	12(S)/30(D)
RUNWAY EFFECTIVE GRADIENT (in %) [1]	0.1615%	0.0500%
RUNWAY LIGHTING	MIRL	SAME
RUNWAY MARKINGS (ERE)	BASIC/VISUAL	SAME
RUNWAY APPROACH LIGHTING	ODALS(non-operative)	NONE
TAXIWAY PAVEMENT MATERIAL	ASPHALT	SAME
TAXIWAY LIGHTING	NONE	MITL
TAXIWAY MARKING	CENTERLINE	SAME
NAVIGATIONAL AIDS	-- -- --	GPS(RWY. 20) --- ---
VISUAL AIDS	-- -- --	PAPI-2 REIL ---

[1] Pavement strengths are expressed in Single(S) and/or Dual(D) wheel loading capacities.

ALL WEATHER WIND COVERAGE

Eloy Municipal Airport	10.5 KNOTS (12 MPH)	13 KNOTS (15 MPH)
Runway 2-20	97.7%	99.86%

SOURCE: WILLIAMS AIR FORCE BASE ARIZONA (No. 722786) Eloy Municipal Airport Eloy, Arizona
OBSERVATIONS: 53,403 Observations 1976-1986



NOTE: Given the age and source of the existing wind data, it is recommended that the Airport begin/continue to collect ambient wind data until the FAA minimum 10 years of data for windrose construction is met.

DEVIATIONS FROM FAA AIRPORT DESIGN STANDARDS

DEVIATION DESCRIPTION	EFFECTED DESIGN STANDARD	STANDARD	EXISTING	PROPOSED DISPOSITION
RUNWAY TO PARALLEL TAXIWAY SEPARATION	AC 150/5300-13	240'	200'	CONSTRUCT ULT. PARALLEL TAXIWAY "A" 40' TO THE SOUTHEAST
RUNWAY WIDTH	AC 150/5300-13	75'	60'	WIDEN RUNWAY 2-20 TO ULTIMATE 75' WIDTH

GENERAL NOTES (Unless Otherwise Specified):

1. All geodetic coordinates (latitude/longitude) shown, except for the existing ARP (See AIRPORT DATA block), were calculated using the GEODETIC CALCULATOR (Vers. 1.70) written by Thomas A. Hilquist, January 1996. The reference point utilized in these calculations is the existing ARP. All coordinates and elevations, therefore, are subject to field/survey verification.
2. Ultimate runway extension may be completed in stages. Minimum initial extension 800' to 4,700' interim length.
3. Depiction of features and objects, including related elevations and clearances, within the RPZ are depicted on the APPROACH PROFILES AND RUNWAY PROTECTION ZONES RUNWAY 2-20 drawing.
4. Details concerning terminal improvements are depicted on the TERMINAL AREA PLAN.
5. Building Restriction Line (BRL) is established in accordance with F.A.R. Part 77. Building Restriction Line location may vary in accordance with Part 77 criteria, or other clearance standards.
6. No OFZ object penetrations, and no threshold sitting surface object penetrations.
7. Electronic USGS Map base Edited and Published by Sylvan Ascent Inc. Map base used by permission (license agreement) of Sylvan Ascent Inc. Transportation and Hydrography Source data from U.S. Census Bureau TIGER 1995 Files. Feature names from USGS Geographical Names Information System (GNIS). Map Accuracy is Identical with that specified for these source files. See Sylvan Ascent Inc. TopoDepot(tm) Documentation for details. (www.topodepot.com) North American Datum of 1983. Coordinate System: Arizona Central 202
8. Runway 2-20 meets RUNWAY VISIBILITY ZONE standards as set forth in FAA ADVISORY CIRCULAR (AC) 150/5300-13, AIRPORT DESIGN (Chapter 5, Section 503, LINE OF SIGHT STANDARDS).

11.7017° E (May 2001)
MAGNETIC VARIANCE
(-8.74° W) Year

0 400 800 1200
SCALE IN FEET

LOCATION MAP
Not To Scale

VICINITY MAP

NOT TO SCALE

No.	REVISIONS	DATE	BY	APP'D.
1	F. A. A. Approved ALP	9/24/92	--	--

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

SUBMITTED BY: Coffman Associates — ON THE DATE OF:
FOR APPROVAL BY:
CITY OF ELOY
APPROVED BY: — ON THE DATE OF:
BEN CRUZ
MAYOR

FAA APPROVAL STAMP

ELOY MUNICIPAL AIRPORT

AIRPORT LAYOUT PLAN

ELOY, ARIZONA

PLANNED BY: W. B. Holland
DETAILED BY: Maggie Rogers
APPROVED BY: James M. Harris, P.E.
June 5, 2001 — SHEET 1 OF 6

Exhibit 4A
2001 ELOY MUNICIPAL AIRPORT ALP

ness uses is experiencing the strongest growth rate. With heightened interest in commercial aviation security, corporate general aviation could expect demand for private aircraft to grow even more.

Aviation demand forecasts and analysis of facility requirements indicated a future need for improved facilities at Eloy Municipal Airport. Improvements recommended in the previous chapter include extending Runway 2-20, increasing the runway/taxiway centerline separation distance, constructing additional entrance/exit taxiways, improving instrument approach procedures, protecting runway approaches by land acquisition, constructing additional hangar facilities, and improving navigational aids. Several of these improvements are necessary to meet existing airport design standards and to enhance the overall safety of operations at the airport. Without these improvements, regular users of the airport will be constrained from taking maximum advantage of the airport's air transportation capabilities.

The unavoidable consequences of the "no-build/do nothing" alternative would involve the airport's ability to attract potential airport users and expand economic development in the City of Eloy and the surrounding region. Corporate aviation plays a major role in the transportation of business leaders and key employees. If the airport does not have the capability to meet the needs of potential users, the City's capability to attract the major sector businesses that rely on air transportation could be diminished.

Following the "no-build/do nothing" alternative would also not support the private businesses that have made investments at Eloy Municipal Airport. As these businesses grow, the airport will need to be able to accommodate the infrastructure needs associated with their growth. Each of the businesses on or adjacent to the airport provides jobs for local residents, creates positive economic benefits for the community, and pays taxes for local government operations.

The City of Eloy is charged with the responsibility of developing aviation facilities necessary to accommodate aviation demand and minimize operational constraints. Flexibility must be programmed into airport development to assure adequate capacity should market conditions change unexpectedly.

To propose no further development at Eloy Municipal Airport could adversely affect the long term viability of the airport, resulting in negative economic effects on the City of Eloy and surrounding communities. The "no-build/do nothing" alternative is also inconsistent with the long term goals of the FAA and Arizona Department of Transportation (ADOT) – Aeronautics Group, which are to enhance local and interstate commerce. Therefore, this alternative is not considered to be prudent or feasible and will no longer be considered in this study.

AIRSIDE DEVELOPMENT CONSIDERATIONS

The purpose of this section is to identify and evaluate various airside development considerations at Eloy Municipal Airport to meet program requirements set forth in Chapter Three. Airfield facilities are, by nature, the focal point of an airport complex. Because of their primary role and the fact that they physically dominate airport land use, airfield facility needs are often the most critical factor in the determination of viable airport develop-

ment alternatives. In particular, the runway system requires the greatest commitment of land area and defines minimum building set-back distances from the runways and object clearance standards. These criteria, depending upon the areas around the airport, must be defined first in order to ensure that the fundamental needs of the airport are met. Therefore, airside requirements will be considered prior to detailing land use development alternatives.

The issues to be considered in this analysis are summarized on **Exhibit 4B**. These issues are the result of the findings of the Aviation Demand Forecasts and Aviation Facility Requirements evaluations, and they include input from the PAC and City of Eloy staff.

RUNWAY LENGTH

The facility requirements indicated the primary runway should be planned with a runway length of 5,200 feet to accommodate 75 percent of large aircraft at 60 percent useful load. This recommended runway length is consistent with the FAA runway length requirements contained in FAA AC 150/5325-4A, *Runway Length Requirements for Airport Design*. At 5,200 feet, Eloy Municipal Airport would be capable of accommodating operations by jet aircraft ranging from the Cessna Citation I to the Cessna Citation 680 Sovereign and the Learjet 45. Increasing the runway length will enhance the appeal of Eloy Municipal Airport to business jet operators as well as other general aviation operators.

The previous master plan recommended an extension of Runway 2-20 to the northeast. As was discussed in the environmental inventory in Chapter One, previous planning efforts identified a site north of the runway that is potentially eligible for listing on the National Register of Historic Places. The Arizona State Historic Preservation Office (SHPO) has previously preferred runway extension alternatives that place the extension on the southwest end of the runway avoiding the identified archeological site on the northeast end. An extension to the northeast would require additional archaeological investigations. Since there is available land both to the northeast and to the southwest of existing airport property, this analysis will include alternatives that consider extensions in both directions for discussion purposes.

AIRFIELD CAPACITY

The capacity analysis that was conducted in the aviation facility requirements chapter indicated that no additional runways or taxiways would be necessary for capacity reasons. Forecast operational levels remain well below the annual service volume (ASV) for Eloy Municipal Airport. However, some improvements to the taxiway system, including the construction of additional entrance/exit taxiways and holding aprons are recommended to improve the overall efficiency and safety of aircraft operations. Runway 2-20 is currently served by three entrance/exit taxiways. The airfield alternatives analysis will examine locations for up to three additional entrance/exit taxiways including those associated with an extension to Runway 2-20.

Holding aprons provide a location for aircraft to conduct preflight engine run-ups away from aircraft parking aprons and allow other aircraft to safely bypass at the end of the parallel taxiway. The alternatives analysis will propose the construc-

AIRFIELD CONSIDERATIONS

- Extend Runway 2-20 to 5,200 feet.
- Meet ARC B-II design standards on Runway 2-20 at a minimum and up to ARC C-IV design standards if feasible.
- Increase runway/taxiway centerline separation distance to meet ARC B-II design standards at a minimum and up to ARC C-IV design standards if feasible.
- Construct additional entrance/exit taxiways to improve overall airfield efficiency.
- Improve instrument approach capabilities utilizing global positioning system (GPS) technology.
- Protection of runway approaches.

LANDSIDE CONSIDERATIONS

- Locations for aircraft storage hangar development.
- Apron expansion.
- Vehicle parking lot expansion.
- Locations for aircraft wash rack.
- Location for an airport maintenance facility.

Exhibit 4B
KEY PLANNING ISSUES

tion of holding aprons at each end of Taxiway A.

AIRPORT REFERENCE CODE (ARC) DESIGNATION

The design of airfield facilities is based, in part, on the physical and operational characteristics of aircraft using the airport. The FAA utilizes the ARC system to relate airport design requirements to the physical (wingspan) and operational (approach speed) characteristics of the largest and fastest aircraft conducting 500 or more itinerant operations annually at the airport. While this can at times be represented by one specific make and model of aircraft, most often the airport's ARC is represented by several different aircraft, which collectively conduct more than 500 annual itinerant operations at the airport.

It was determined in Chapter Three, Facility Requirements, that the current ARC at Eloy Municipal Airport is A-II. The airport meets most of the ARC A-II design standards; however, the existing runway/taxiway centerline separation distance (200 feet) does not meet the design standard of 240 feet and certain areas of both runway protection zones (RPZs) are not controlled by the airport sponsor. Ultimately, as business jet activity at Eloy Municipal Airport increases, the airport's design aircraft will likely shift to an ARC B-II aircraft. ARC A-II and B-II airport design standards are identical; therefore, this shift in ARC will not require the airport to make any improvements other than those already identified as deficient.

The facility requirements chapter identified the Lockheed C-130 aircraft as a potential future based aircraft conducting local skydiving operations. The Lockheed C-130 aircraft is an ARC C-IV design aircraft. Meeting ARC C-IV design standards at Eloy Municipal Airport would require the reconstruction of the entire airfield system (runway and taxiways) due to the runway/taxiway centerline separation standard (400 feet) and the significant increases in airport safety area dimensions. Additionally, it is unlikely that the Lockheed C-130 would reach the level of 500 annual operations to qualify it as the airport's design aircraft. Therefore, airfield development alternatives will focus on meeting potential business jet demands including those within ARC B-II and potentially up to ARC C-II design standards. **Table 4A** summarizes ARC B-II and C-II design standards for Runway 2-20.

TABLE 4A
Airfield Safety and Facility Dimensions (in feet)

	Existing/Ultimate Runway 2-20	Potential Ultimate Runway 2-20
Airport Reference Code (ARC)	B-II	C-II
Runway		
Length	5,200	5,200
Width	75	100
Runway Safety Area (RSA)		
Width	150	**500**
Length Beyond Runway End	300	**1,000**
Object Free Area (OFA)		
Width	500	**800**
Length Beyond Runway End	300	**1,000**
Obstacle Free Zone (OFZ)		
Width	400	400
Length Beyond Runway End	200	200
Runway Centerline To:		
Hold Line	**200**	**250**
Parallel Taxiway Centerline	**240**	**300**
Edge of Aircraft Parking Apron	250	**400**
Runway Protection Zone (RPZ)		
One mile or greater visibility		
Inner Width	500	500
Outer Width	**700**	**1,010**
Length	1,000	**1,700**
Obstacle Clearance	34:1	34:1
Taxiways		
Width	35	35
Safety Area Width	79	79
Object Free Area Width	131	131
Taxiway Centerline To:		
Parallel Taxiway/Taxilane	105	105
Fixed or Moveable Object	65.5	65.5
Taxilanes		
Taxilane Centerline To:		
Parallel Taxilane Centerline	97	97
Fixed or Moveable Object	57.5	57.5
Taxilane Object Free Area	115	115

Source: FAA Advisory Circular (AC) 150/5300-13, *Airport Design* - Change 15*;* 14 CFR Part 77, *Objects Affecting Navigable Airspace*

Boldface indicates existing conditions do not meet FAA airport design standards.

INSTRUMENT APPROACH

The facility requirements analysis indicated a need for improved instrument approach capabilities at Eloy Municipal Airport. There are currently no published precision or non-precision instrument approaches to Eloy Municipal Airport. It is desirable to establish instrument approach capabilities to both runway ends as this will attract a wider range of corporate aircraft that typically operate only to airports with instrument approach capabilities.

The most common instrument approach procedures being implemented at airports in the United States are those utilizing global positioning system (GPS) technologies. GPS approaches are currently categorized as to whether they provide only lateral (course) guidance or a combination of lateral and vertical (descent) guidance. An approach procedure with

vertical guidance (APV), GPS approach provides both course and descent guidance. A lateral navigation (LNAV) approach only provides course guidance. Both course guidance and descent information is desirable at Eloy Municipal Airport. The GPS APV approach would not require an approach lighting system, nor would it require the installation of costly navigation equipment at the airport. Each end of Runway 2-20 is planned for one mile GPS APV instrument approaches, which would meet the FAA recommendation that all runway ends be equipped with a GPS instrument approach.

LAND ACQUISITIONS

When considering different alternatives for airfield expansion, it is common that ultimate facilities and safety areas may extend beyond current airport property boundaries. In these cases, it is recommended that land beyond current airport property boundaries that may be needed for future projects or for the protection of runway approaches is acquired through fee simple acquisition. Each airfield alternative will plan for the acquisition or easement of various land areas depending on the proposed airfield developments. An alternative to fee simple acquisition is to acquire an avigation easement from the land owner to prevent incompatible development. Although fee simple acquisition is preferred, avigation easements can allow the land owner to maintain limited use of the property. Should the cost of the easement approach the cost of fee simple acquisition, the fee simple becomes more desirable once more.

AIRSIDE ALTERNATIVES

AIRFIELD ALTERNATIVE I

The proposed airside configuration of Airfield Alternative I is shown at the top of **Exhibit 4C**. This alternative incorporates the following:

1. Extension of Runway 2-20 1,300 feet to the northeast.

2. Reconstructing Taxiway A 240 feet from the centerline of Runway 2-20 to meet ARC B-II airport design standards.

3. Runways 2 and 20 are planned for one-mile GPS APV instrument approaches.

4. Construction of holding aprons at each end of Taxiway A.

5. Land acquisition of approximately 25.73 acres.

Airfield Alternative I essentially presents the airfield development plan from the previous master plan. This plan includes the full runway extension to the northeast and reconstructing Taxiway A at a runway/taxiway centerline separation distance of 240 feet. As previously mentioned, any extension of Runway 2-20 to the northeast would require further archeological and environmental study due to the existence of a site that is potentially eligible for listing on the National Register of Historic Places.

A full extension to the northeast would place the irrigation canal within the ultimate runway safety area (RSA), obstacle free zone (OFZ), and object free area (OFA). The canal would need to be realigned outside these critical safety areas.

The reconstruction of Taxiway A would shift the taxiway object free area (TOFA) 40 feet to the southeast. This shift would not impact existing aircraft parking positions or apron area; however, additional property would need to be acquired to ensure the TOFA is controlled by the airport sponsor.

Holding aprons are proposed at the end of each runway. These holding aprons will help reduce taxiway congestion, while providing a location for pre-flight engine run-ups.

Proposed property acquisition in Airfield Alternative I includes land for the extension of Runway 2-20 and lands where safety areas and RPZs extend beyond existing airport boundaries. Land acquisition in this alternative totals approximately 25.7 acres. The bulk of this is located northeast of existing airport property. Uncontrolled lands encompassed by runway protection zones (RPZs) that are not also encompassed by the RSA, OFZ, or OFA may be considered for avigation easement rather than fee simple acquisition.

AIRFIELD ALTERNATIVE II

The proposed airside configuration of Airfield Alternative II is shown in the middle of **Exhibit 4C**. The following projects proposed in Airfield Alternative II differ from Airfield Alternative I:

1. The 1,300-foot extension would be split evenly (650 feet) in both directions.

2. Taxiway A would be maintained in its present location with Runway 2-20 shifted 40 feet to the northwest to meet the ARC B-II runway/taxiway centerline separation distance design standard of 240 feet.

3. The shift in the runway centerline to the northwest would require property acquisition to meet OFA standards.

4. Additional entrance/exit taxiways are planned to reduce runway occupancy time, enhancing airfield efficiency and safety.

Airfield Alternative II examines the possibility of extending Runway 2-20 650 feet in both the northeasterly and southwesterly directions. A shorter runway extension may limit the impact to the identified archeological site northeast of the runway. The airport safety areas would also remain within airport property off each end of the runway. The runway OFA, however, would extend beyond airport property due to the shift of the runway to the northwest. This would require acquisition. The Central Arizona Project Irrigation Canal would essentially meet the boundary of the OFA along the northwest section. Additional fee simple land acquisitions or avigation easements would be needed to protect the RPZs and small portions of the TOFA. Land acquisition in Airfield Alternative II is approximately 26.3 acres.

Additional entrance/exit taxiways are planned to expedite aircraft exit from the runway. These taxiways are planned with

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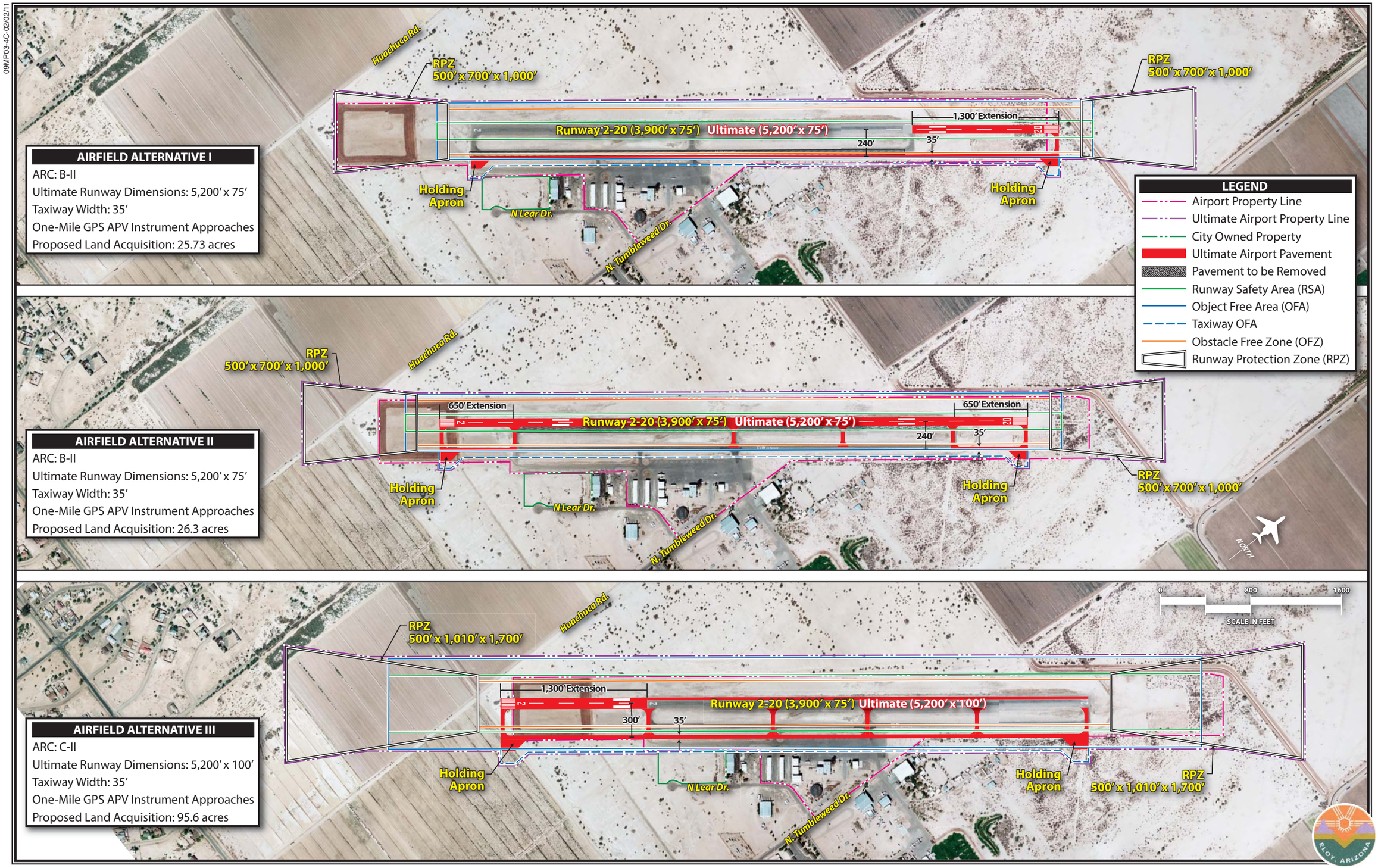


AIRFIELD ALTERNATIVE I

ARC: B-II
Ultimate Runway Dimensions: 5,200' x 75'
Taxiway Width: 35'
One-Mile GPS APV Instrument Approaches
Proposed Land Acquisition: 25.73 acres

AIRFIELD ALTERNATIVE II

ARC: B-II
Ultimate Runway Dimensions: 5,200' x 75'
Taxiway Width: 35'
One-Mile GPS APV Instrument Approaches
Proposed Land Acquisition: 26.3 acres

AIRFIELD ALTERNATIVE III

ARC: C-II
Ultimate Runway Dimensions: 5,200' x 100'
Taxiway Width: 35'
One-Mile GPS APV Instrument Approaches
Proposed Land Acquisition: 95.6 acres

Exhibit 4C
AIRFIELD ALTERNATIVES I, II, & III

at least an 800-foot separation from other existing or proposed taxiways, where possible, to maximize their effectiveness.

A benefit of this alternative is that due to the shorter runway extension to the northeast, the airport safety areas would not impact the canal necessitating its realignment. This will reduce overall cost of the extension and eliminate potential environmental issues associated with the canal's realignment. However, this alternative proposes slightly more land acquisition than Airfield Alternative I, which would increase the cost of its implementation.

AIRFIELD ALTERNATIVE III

The proposed airside configuration of Airfield Alternative III is shown at the bottom of **Exhibit 4C**. The following projects proposed in Airfield Alternative III differ from the previous airfield alternatives:

1. Planning the airfield to meet ARC C-II design standards. This would include widening Runway 2-20 to 100 feet and increasing the runway/taxiway centerline separation distance to 300 feet.

2. Extending Runway 2-20 1,300 feet to the southwest.

Planning to ARC C-II design standards would allow the airport to safely accommodate operations from a wider range of business jet aircraft in the future while still meeting the existing needs of the airport. ARC C-II design standards increase the runway/taxiway centerline separation distance to 300 feet. To meet this design standard, this alternative proposes widening Runway 2-20 by 25 feet to the northwest and reconstructing Taxiway A 87.5 feet to the southeast. Reconstructing Taxiway A in this location would eliminate approximately 16 existing aircraft tiedown positions on the apron.

The larger ARC C-II design standards would extend the OFA and TOFA into a significant portion of the existing apron, rendering it unusable for aircraft parking. It will also increase the amount of land acquisition needed to protect the safety areas. This alternative would require the construction of new apron areas to make up for the lost parking positions due to the OFA and TOFA and the irrigation canal would need to be realigned outside of the OFA. Huachuca Road, which extends north-south off the end of Runway 2, would need to be realigned outside of the RSA, OFA, and OFZ. Total land acquisition proposed in this alternative is approximately 95.6 acres, which is significantly more than the previous two alternatives.

A benefit of this alternative is that the extension to Runway 2-20 would be entirely to the southwest. This will avoid the identified archeological site northeast of the runway and potentially limit the project's environmental impact. This alternative will also open the airport up to a wider range of business jet aircraft in the future. As the national general aviation aircraft fleet shifts towards more complex and faster business jet aircraft, Eloy Municipal Airport will be equipped to accommodate that demand.

LANDSIDE DEVELOPMENT CONSIDERATIONS

The purpose of this section is to identify and evaluate various viable landside development alternatives at Eloy Municipal Airport to meet program requirements set forth in Chapter Three. While the air-

field is comprised of facilities where aircraft movement occurs (runways, taxiways), other "landside" functions occur outside of this area. The primary functions to be accommodated on the landside of Eloy Municipal Airport include terminal services, aircraft storage hangar development, aircraft parking aprons, and automobile parking and access. The interrelationship of these functions is important to defining a long-range landside layout for general aviation uses at the airport. Runway frontage should be reserved for those uses with a high level of airfield interface or need of exposure. Other uses with lower levels of aircraft movements or little need for runway exposure can be planned in more isolated locations.

Landside development considerations are summarized on **Exhibit 4B**. The following sections briefly describe proposed landside facility improvements.

TERMINAL SERVICES

Eloy Municipal Airport currently has several specialty operators that provide individual general aviation services. There is no dedicated fixed base operator (FBO) or terminal services provider. Typical terminal services provided at general aviation airports include passenger waiting areas, a pilots' lounge and flight planning area, concessions, management, storage, and various other needs. The facility requirements analysis identified an ultimate need for 2,200 square feet of terminal service space. The landside alternatives analysis will identify potential locations for FBO development to meet the projected terminal service needs. Since FBO operators are commonly located within hangar facilities, the landside alternative exhibits will depict conventional hangars, which could ultimately be cross-utilized by an FBO for aircraft storage and terminal services.

AIRCRAFT STORAGE HANGARS

The facility requirements analysis indicated a need for the development of various types of aircraft storage hangars. This includes single aircraft storage facilities such as T-hangars and clearspan conventional hangars for accommodating several aircraft simultaneously. Limited utility services are needed for these areas. Typically, this involves electricity, but may also include water and sanitary sewer. Due to the limited amount of existing airport property available for development, the alternatives analysis will identify potential property to acquire for future development.

AIRCRAFT PARKING APRON

As the number of transient and based aircraft increase through the planning period, it will be important to provide adequate aircraft parking positions. It will be particularly important as turboprop and jet aircraft operations increase at Eloy Municipal Airport that there is adequate parking for these larger, heavier aircraft.

AUTOMOBILE PARKING

As based aircraft and operations at Eloy Municipal Airport grow, automobile parking spaces will need to be increased. Existing paved automobile parking spaces at the airport are located southeast of the apron. A large unpaved parking lot is located adjacent to the self-service fuel facility. Future areas of automobile parking expansion will be examined in each land-

side alternative. This will primarily consist of parking lots adjacent to the larger conventional hangar developments.

AIRCRAFT WASH RACK

Consideration is given to developing an aircraft wash/maintenance facility to provide a suitable area for the washing of aircraft. This location would also provide for the proper disposal of aircraft cleaning fluids.

AIRPORT MAINTENANCE FACILITY

The airport does not currently have a dedicated facility on-site for the storage of airport maintenance equipment and office space. An airport maintenance facility's size can vary depending on the type and size of equipment the airport sponsor utilizes, and also depending on whether office or shop space is needed for the maintenance workers. An airport maintenance facility may also be cross-utilized for other uses such as general storage or terminal services. Each landside alternative identifies a potential location for an airport maintenance facility.

FUEL STORAGE EXPANSION

The facility requirements chapter identified a potential long-term need for expanded fuel storage at Eloy Municipal Airport. Existing fuel storage is located between Hangar #1 and Hangar #5 on the aircraft parking apron. This site could be readily expanded to provide additional fuel storage capacity in the future. Therefore, it is anticipated that this site will continue to serve as the fuel storage area. If an FBO or other specialty operator should begin fuel services in the future, additional fuel storage facilities should be located adjacent to that operator's facility.

LANDSIDE ALTERNATIVES

LANDSIDE ALTERNATIVE I

The layout for Landside Alternative I is shown on **Exhibit 4D**. Depicted on this landside alternative and each subsequent landside alternative is a four acre parcel of land owned by the City of Eloy. The City purchased this parcel for the purpose of providing a location for hangar development expansion. Therefore, it is anticipated that this parcel would be developed prior to the acquisition of additional property.

Hangar development in this alternative includes a combination of T-hangar and 5,625 square foot conventional hangar facilities. The city-owned parcel would be developed with three T-hangar units and an apron area with direct access to a taxilane leading to Taxiway A. These T-hangar units would provide a total of 34 storage units at approximately 1,440 square feet per unit. Beyond this parcel, this alternative would acquire an additional 13.2 acres of property for further hangar development. The hangar layout would wrap around the existing Lear Drive cul-de-sac, where the development of an additional 68 individual T-hangar storage units would occur.

Eight 5,625 square foot conventional hangars are planned along the southwestern edge of an apron area. These conventional hangars could be utilized for the storage of a single large aircraft or multiple small aircraft. They could also be cross-utilized as an FBO or specialty operator, as well as aircraft storage hangar space. Roadway access to these hangars

would extend from a new access road constructed from Tumbleweed Drive. This access road would lead to a parking lot that would extend southwest of the hangars.

Approximately 14,200 square yards of apron would be located between the T-hangar facilities and the conventional hangar facilities. An aircraft wash rack is planned at the southwest corner of the apron.

An airport maintenance facility is planned immediately southwest of the paved automobile parking lot. If the maintenance facility were planned for cross-utilization with terminal services, this location would be ideal due to the location along the apron and adjacent to the airport's access road and parking lot.

Landside Alternative I provides for an additional 102 individual T-hangar storage units, 45,000 square feet of conventional hangar space, and apron expansion of approximately 14,200 square yards. Total land proposed for acquisition is approximately 13.2 acres.

LANDSIDE ALTERNATIVE II

The layout for Landside Alternative II is shown on **Exhibit 4E**. The focus of future development in this alternative is on providing a variety of hangar sizes within the city-owned property. This alternative proposes two 5,625 square foot conventional hangars that could be utilized by an FBO or specialty operator and another 3,600 square foot conventional hangar. Three 10-unit T-hangar facilities are located southwest of the conventional hangars. A small 6,600 square yard apron is planned adjacent to the conventional hangars with an aircraft wash rack along the northern edge. The existing cul-de-sac on Lear Drive would be expanded into a parking lot serving the conventional hangars.

The T-hangars proposed in this alternative are slightly smaller (approximately 960 square feet per unit) than those proposed in Landside Alternative I (approximately 1,440 square feet per unit). Having smaller T-hangars will allow for a greater number of units, while the larger T-hangars will allow for the storage of larger aircraft.

Beyond the four acre city-owned parcel, an additional 4.8 acres are proposed for acquisition to allow for further T-hangar development. This hangar development would shift to the east with an additional five 10-unit T-hangar facilities.

The airport maintenance facility is proposed south of Hangar #2 adjacent to the paved automobile parking lot. This site would be less desirable for co-located terminal services due to its location away from the apron. This site would, however, provide easy access to the airfield and other landside facilities for maintenance workers.

Landside Alternative II provides for an additional 80 individual T-hangar storage units and 14,850 square feet of conventional hangar space. Apron expansion in this alternative totals approximately 6,600 square yards. Total proposed land acquisition in this alternative totals approximately 4.8 acres.

LANDSIDE ALTERNATIVE III

The layout for Landside Alternative III is depicted on **Exhibit 4F**. The focus of this alternative was to expand apron and hangar facilities along the flight line to the

09MP03-4D-02/02/11

Runway 2-20 (3,900'x75')

Taxiway A

ELOY ELEV 1513

10 Unit T-Hangars

12 Unit T-Hangars

Aircraft Wash Rack

Airport Maintenance

N Lear Dr.

5,625 ft² Conventional Hangars

10 Unit T-Hangars

12 Unit T-Hangars

N Tumbleweed Dr.

NORTH

0 200 400

SCALE IN FEET

LEGEND

- Airport Property Line
- Ultimate Airport Property Line
- City Owned Property
- Ultimate Airport Pavement
- Ultimate Airport Building
- Ultimate Airport Roads / Parking

ELOY, ARIZONA

Exhibit 4D
LANDSIDE ALTERNATIVE I

09MP03-4E-02/02/11

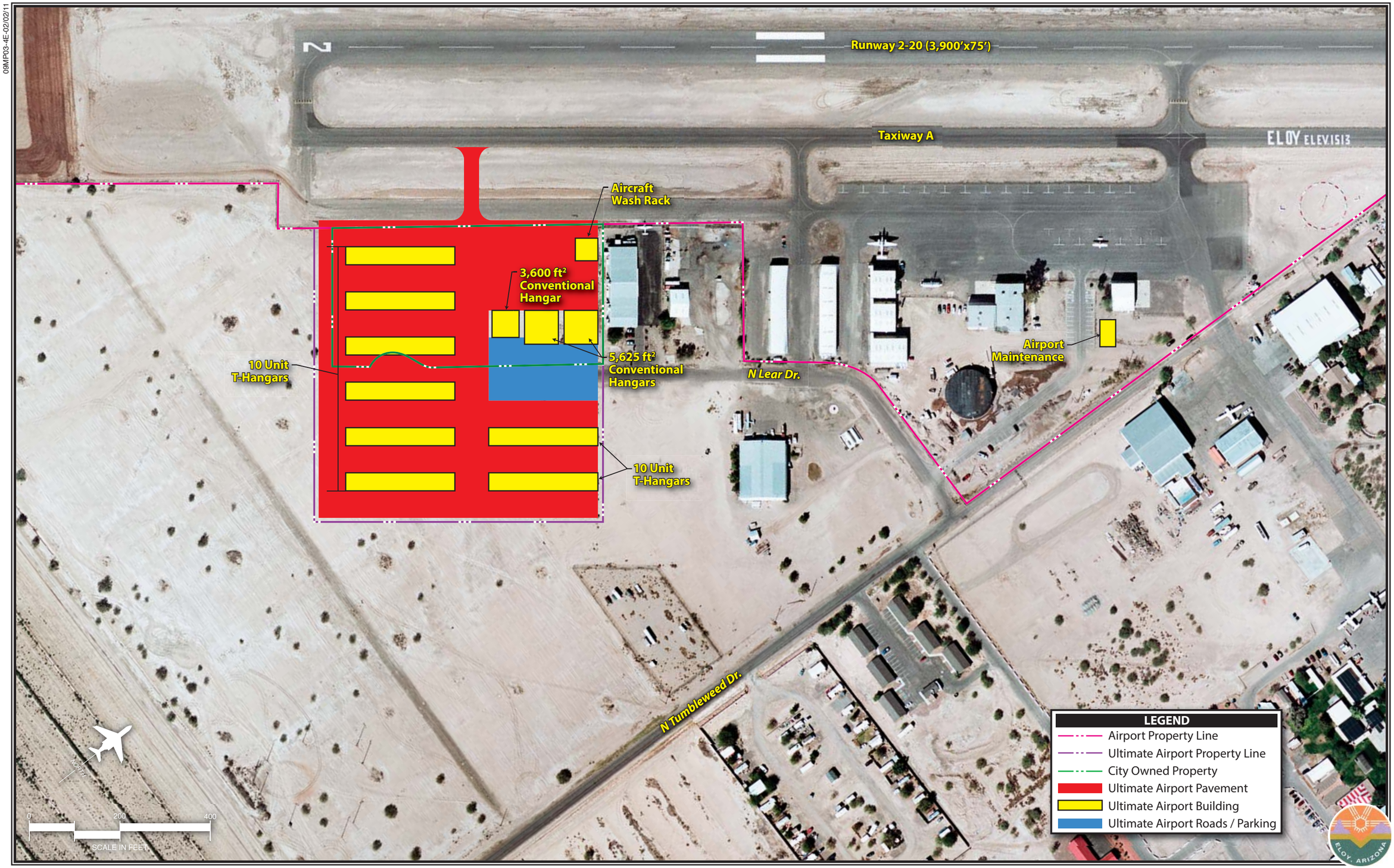


Exhibit 4E
LANDSIDE ALTERNATIVE II

09MP03-4F-02/02/11

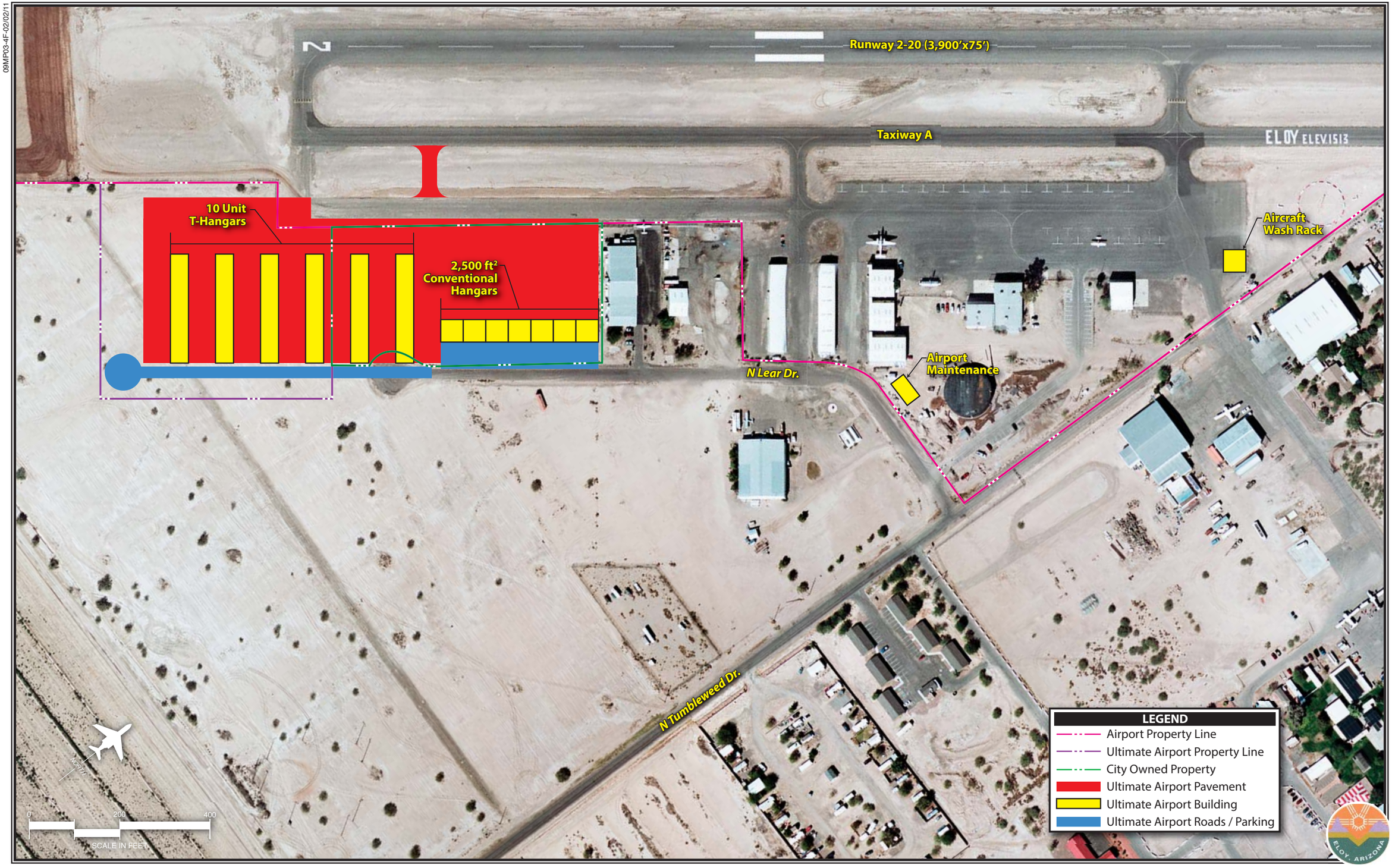


Exhibit 4F
LANDSIDE ALTERNATIVE III

greatest extent possible while remaining northwest of Lear Drive.

This alternative proposes the construction of seven 2,500 square foot conventional hangars and two 10-unit T-hangars (approximately 960 square feet per unit) within the four acre city-owned parcel. These conventional hangars are considerably smaller than the conventional hangars proposed in the previous alternatives and would likely serve a smaller number of aircraft. A 9,700 square yard apron is proposed northwest of the conventional hangar facilities for expanded aircraft parking.

The aircraft wash rack is proposed at the north end of the existing apron. The airport maintenance facility in this alternative is located east of Hangar #3, adjacent to the water tank. Like in the previous landside alternative, this site would not be ideal if terminal services are co-located in this facility due to its location away from the aircraft parking apron.

Beyond the city-owned parcel, this alternative proposes the acquisition of an additional 5.5 acres of land for the development of an additional four 10-unit T-hangar facilities. Lear Drive would be expanded to the southwest along the back of this hangar expansion, and access gates would be provided so that vehicular access to the hangar facilities could be gained.

Landside Alternative III provides for an additional 60 individual T-hangar storage units and 17,500 square feet of conventional hangar space. Apron expansion in this alternative totals approximately 9,700 square yards. Total land acquisition proposed is approximately 5.5 acres.

SUMMARY

The process utilized in assessing airside and landside development alternatives involved a detailed analysis of short and long-term requirements, as well as future growth potential. Current airport design standards were considered at each stage of development.

These alternatives present an ultimate configuration of the airport that would need to be able to be developed over a long period of time. The next phase of the Master Plan will define a reasonable phasing program to implement a preferred master plan development concept over time.

Upon review of this chapter by the City of Eloy and the PAC, a final Master Plan concept can be formed. The resultant plan will represent an airside facility that fulfills safety and design standards, and a landside complex that can be developed as demand dictates.

The preferred master plan development concept for the airport must represent a means by which the airport can grow in a balanced manner, both on the airside as well as the landside, to accommodate forecast demand. In addition, it must provide for flexibility in the plan to meet activity growth beyond the 20-year planning period.

The remaining chapters will be dedicated to refining these basic alternatives into a final development concept with recommendations to ensure proper implementation and timing for a demand-based program.

CHAPTER FIVE

AIRPORT PLANS

Airport Plans

The planning process for the Eloy Municipal Airport Master Plan has included several analytic efforts in the previous chapters intended to project potential aviation demand, establish airside and landside facility needs, and evaluate options for improving the airport to meet those airside and landside facility needs. The process, thus far, has included the presentation of two draft phase reports (representing the first four chapters of the Master Plan) to the Planning Advisory Committee (PAC) and the City of Eloy. A plan for the use of Eloy Municipal Airport has evolved considering their input. The purpose of this chapter is to describe, in narrative and graphic form, the plan for the future use of Eloy Municipal Airport.

AIRFIELD PLAN

The airfield plan for Eloy Municipal Airport was formulated to meet projected increased usage by small to medium sized business jets over the course of the next 20-year period. Airfield development focuses on meeting Federal Aviation Administration (FAA) design and safety standards, extending Runway 2-20, reconstructing Taxiway A at a 300-foot separation distance from the runway centerline, property acquisition to protect the runway approaches, and establishing instrument approach capabilities to both runway ends utilizing global positioning system (GPS) technology.

Exhibit 5A graphically depicts the proposed airfield improvements. The following text summarizes the elements of the airfield plan.

- **The extension of Runway 2-20 to 5,200 feet.**

The master plan development concept proposes a 1,300-foot extension of Run-

way 2-20 to a runway length of 5,200 feet. This runway length is consistent with the FAA runway length requirements contained in FAA AC 150/5325-4A, *Runway Length Requirements for Airport Design* for meeting 75 percent of large aircraft at 60 percent useful load. The extension is planned to be split into two 650-foot extensions of both runway ends. The 650-foot extension to the northeast may be short enough to avoid impacting an identified site potentially eligible for listing on the National Register of Historic Places. However, additional archaeological investigations will be necessary prior to an extension of the runway to the northeast.

The proposed extension to Runway 2-20 is included in this Master Plan for planning purposes only. This is to aid in local land use planning to ensure that appropriate land use measures are put into place to allow for this extension in the future if it is needed. By planning for a runway extension, the City and County can take appropriate measures to ensure there are no hazards or obstacle penetrations to the Title 14 Code of Federal Regulations (CFR) Part 77 airspace in the future that could prevent the extension, and to allow for compatible land use to be planned in the extended runway approach/departure area. Detailed justification for constructing the runway extension will be required with the environmental assessment (EA) and benefit-cost analysis. This justification will require letters of support from users detailing 500 annual operations by the critical aircraft requiring the additional runway length.

- **Maintain Airport Reference Code (ARC) B-II design standards on Runway 2-20.**

The FAA has established design criterion to define the physical dimensions of runways and taxiways and the surrounding imaginary surfaces that protect the safe operation of aircraft at the airport. FAA design standards also define the separation criteria for the placement of landside facilities. As discussed previously in Chapter Three, FAA design criteria are a function of the critical design aircraft's (the most demanding aircraft or "family" of aircraft which will conduct 500 or more operations [take-offs and landings] per year at the airport) wingspan and approach speed, and in some cases, the runway approach visibility minimums. The FAA has established the Airport Reference Code (ARC) to relate these factors to airfield design standards.

Eloy Municipal Airport is currently used by a wide variety of general aviation aircraft ranging from small single engine piston recreational aircraft up to turboprop and occasional business jet aircraft. The skydiving operator that uses the airport conducts the greatest number of operations utilizing McDonnell Douglas DC-3 aircraft (ARC A-III), DHC-6 Twin Otters (ARC A-II), Shorts SC.7 Skyvans (ARC A-II), one Beechcraft 18 (ARC A-II), and one Pilatus PC-6 Porter aircraft (ARC A-II). The Facility Requirements chapter identified the DHC-6 Twin Otter as the current critical design aircraft. Ultimately, it is anticipated that the fleet mix of aircraft operating at Eloy Municipal Airport will expand to include increased use by

09MP03-5A-08/03/11

0 500 1000
SCALE IN FEET

NORTH

Huachuca Rd.

Coahuila Street

Tweedy Road

RPZ
500' x 700' x 1,000'

Note:
Potential Through the Fence Access
Subject to City & FAA Approval

Relocated Segmented Circle /
Lighted Wind Cone

1.38 Acres

AWOS

RPZ
500' x 700' x 1,000'

650' Extension

9.65 Acres

2

Runway 2-20 (3,900' x 75') Ultimate (5,200' x 75')

20

650' Extension

5.37 Acres

1.33 Acres

2.81 Acres

Taxiway A

300'

35'

Holding Apron

1.33 Acres

Note:
Potential Through the Fence Access
Subject to City & FAA Approval

4.22 Acres

Holding Apron

N Lear Dr.

Terminal / Airport
Maintenance Facility

See Inset

N. Tumbleweed Dr.

LEGEND

- Airport Property Line
- Ultimate Airport Property Line
- City Owned Property
- Ultimate Airport Pavement
- Ultimate Airport Roads / Parking
- Ultimate Airport Building
- Ultimate Property Acquisition
- Ultimate Easement Acquisition
- Pavement to be Removed
- Runway Safety Area (RSA)
- Object Free Area (OFA)
- Taxiway OFA
- Obstacle Free Zone (OFZ)
- Collector - 2 Lanes
- Minor Arterial - 4 Lanes
- Runway Protection Zone (RPZ)
- **AWOS** Automated Weather Observation System

Inset

10 Unit
T-Hangars

Aircraft
Wash Rack

2,500 ft² Conventional
Hangars

4.0 Acres

5.5 Acres

0 300
SCALE IN FEET

ELOY, ARIZONA

Exhibit 5A
RECOMMENDED MASTER PLAN CONCEPT

Beechcraft King Air turboprops and small to medium size business jets such as the Cessna Mustang very light jet (VLJ), Cessna 560XL (Citation Excel), and the Hawker Beechjet 400. These aircraft are included in approach category B.

Previous planning efforts have identified ARC B-II as the existing and ultimate design standards for the Eloy Municipal Airport. The updated fleet mix forecast projects a mix of aircraft ranging from ARC A-I up to ARC B-II category. Therefore, Runway 2-20 is planned to meet all ARC B-II design standards.

It is anticipated that beyond the long range planning horizon of this master plan, faster business jets in approach category C may potentially become the critical design aircraft for the airport. While the majority of the airfield facilities will be designed to ARC B-II design standards, the runway/taxiway centerline separation distance and landside facilities will be planned at the appropriate separation distance to allow for the future transition to approach category C airfield design standards. Planning the runway/taxiway centerline separation distance to 300 feet and setting back the landside facilities to allow for the growth in safety areas will allow the airport to more easily transition to approach category C airfield design standards in the future. Relocating Taxiway A to the southeast will also shift the taxiway object free area (TOFA). As depicted on **Exhibit 5A**, the TOFA will encompass a portion of the existing apron and the segmented circle and lighted wind indicator. As a result, the portion of the apron that is encompassed by the TOFA will no longer be usable for aircraft parking and the segmented circle and lighted wind indicator will need to be relocated northwest of the runway on ultimate airport property.

The existing airfield meets most of the ARC B-II design standards. Presently, the runway safety area (RSA), object free area (OFA), and the obstacle free zone (OFZ) meet FAA standards. The runway centerline to hold line separation needs to be extended from 130 feet from the runway centerline to 200 feet. The land encompassed by the runway protection zones (RPZs) off both ends of the runway are presently partially owned-in-fee by the City of Eloy. Approximately 1.3 acres of the Runway 2 RPZ and approximately 1.5 acres of the Runway 20 RPZ lay beyond airport property. If no project to extend Runway 2-20 is undertaken, these 2.8 acres of uncontrolled land encompassed by RPZs should be acquired to protect the approach paths into the runway.

- **Acquire lands for runway approach protection and future airport expansion.**

The expansion of the airfield both to the northeast and southwest will require the acquisition of property to protect the approach path into the runway. Ultimately, as depicted on **Exhibit 5A**, the Runway 2 RPZ will encompass approximately 9.65 acres of property uncontrolled by the airport. This land should be acquired via fee-simple acquisition. The Runway 20 RPZ will ultimately extend beyond airport property, encompassing approximately 9.51 acres of property uncontrolled by the airport. Approximately 8.18 acres of the ultimate RPZ is proposed for fee-simple acquisition, while an avigation easement of 1.33 acres is planned for the drainage canal that passes through the RPZ.

An additional 5.55 acres is proposed for acquisition, allowing for the relocation of Taxiway A and the construction of hold-

ing aprons. The acquisition boundary coincides with the taxiway OFA, which will ultimately extend beyond airport property. The relocation of the segmented circle and the installation of an automated weather observation system (AWOS) will require an additional 1.38 acres of property acquisition northwest of the runway.

Due to limited developable airport property, the recommended master plan concept proposes the transfer of a 4.0 acre parcel of city owned property to the airport. This 4.0 acre parcel is located at the southwest end of the airport and is proposed for T-hangar development. Once this parcel is developed, an additional 5.5 acres of property is proposed for acquisition to allow for the expansion of aircraft parking apron capacity and conventional hangar storage.

In total, the recommended master plan concept proposes the acquisition of approximately 30.26 acres of property, 1.33 acres of avigation easement, and the transfer of 4.0 acres of city owned property to the airport.

- **Establishing LPV non-precision instrument approaches to each runway end.**

The airfield plan reserves the potential for the FAA to establish localizer performance with vertical guidance (LPV) one-mile visibility non-precision instrument approaches to each runway end. The implementation of the LPV instrument approach would not require the installation of expensive equipment and would provide near-precision minimums. LPV approaches would attract corporate aviation users that typically require instrument approach capabilities at airports.

- **Restore PAPI-2 visual approach lighting systems.**

Runway 2-20 is equipped with precision approach path indicator (PAPI-2) lighting systems, which are currently out of service. These approach lighting systems should be restored to active use to provide pilots with an accurate approach slope. Ultimately, as the fleet mix shifts to more small and medium sized business jet and turboprop aircraft, the airport should consider the installation of PAPI-4 approach lighting systems, which provide a more accurate approach slope to pilots of larger and faster aircraft.

- **Holding apron construction.**

Piston-powered aircraft must complete a series of engine run-up tests before departure. Holding aprons at the runway ends allow these activities to take place off the active taxiway surface, allowing ready-for-departure aircraft to bypass those aircraft holding or completing engine run-up tests. Holding aprons are planned at each end of Taxiway A.

- **Distance Remaining Signage**

Distance remaining signage is installed along runways to notify pilots of the distance from their position to the runway end. This signage is installed at 1,000-foot increments to improve safety of operations. This signage system is planned to be installed on Runway 2-20.

- **Restore Rotating Beacon and Runway End Identification Lighting**

Presently the airport's rotating beacon and runway end identification lighting

(REIL) are out of service. The City of Eloy received a grant in 2010 to replace the airport's rotating beacon. The REIL lighting systems should also be restored to active use and relocated to the ultimate pavement ends after the extension to the runway.

- **Install AWOS**

The nearest weather reporting station to Eloy Municipal Airport is an automated weather observation System (AWOS-3) at Casa Grande Municipal Airport, approximately 13 nautical miles northwest. To provide pilots with on-site weather information, an AWOS should be installed on the airport. The AWOS is planned to be located on ultimate airport property northwest of the runway in a location outside of the runway safety areas and where its instruments will be unobstructed by buildings.

LANDSIDE PLAN

Examples of landside facilities include aircraft storage hangars, terminal buildings, aircraft parking aprons, hangar and apron access taxilanes, and vehicle parking lots. The landside plan for Eloy Municipal Airport has been devised to efficiently accommodate potential aviation demand and provide revenue enhancement possibilities by designating the use of certain portions of airport property for aviation-related uses.

The development of landside facilities will be demand-based. In this manner, the facilities will only be constructed if required by verifiable demand. For example, T-hangars will only be constructed if an adequate number of new based aircraft owners desire enclosed aircraft storage. The landside plan is based on projected needs that can change over time and was planned with flexibility in mind to ensure the orderly development of the airport should this demand materialize.

The landside plan focuses landside development along the Taxiway A flight line, which will maintain good visibility from the airfield and coincides with existing landside developments. The development plan provides for the expansion of aircraft storage hangar facilities, aircraft parking aprons, automobile parking, construction of an aircraft wash rack, and designated helicopter parking. Landside improvements are shown in detail on **Exhibit 5A** and summarized below.

- **Aircraft storage hangar development.**

Due to limited developable airport property, hangar development is proposed on City owned property and property planned for acquisition. Existing hangar demand is primarily for T-hangar storage. Therefore, the 4.0 acre parcel of City property, which is planned to be transferred to airport property, should be developed for T-hangar storage. Five 10-unit T-hangar facilities would fit within this 4.0 acre parcel. The acquisition of approximately 5.5 acres southwest of the City owned property will allow for the construction of an additional T-hangar facility as well as seven 2,500 square foot conventional hangars. Each of these hangar facilities would have vehicular access from Lear Drive, which would be extended to the southwest and end with a cul-de-sac.

The proposed hangar facilities in this recommended development concept will ex-

pand the storage hangar area at Eloy Municipal Airport by 60 individual T-hangar storage units and 17,500 square feet of conventional hangar space.

- **Expansion of the aircraft parking apron.**

An 11,111 square yard aircraft parking apron is planned adjacent to the conventional hangar development at the southwest end of the airport to provide additional local and itinerant aircraft parking positions. Once Taxiway A is reconstructed 100 feet southwest of its current location, the taxiway object free area (TOFA) will encompass existing apron and aircraft parking positions. The new apron will offset this loss and grow the total number of aircraft parking positions.

An aircraft wash rack facility is planned to be constructed at the southwest end of this apron to provide an area for aircraft cleaning and the proper collection of the aircraft cleaning solvents and contaminants removed from the aircraft hull during cleaning.

- **Terminal/airport maintenance facility**

Presently, Eloy Municipal Airport does not have a dedicated terminal building or maintenance facilities. Specialty operators currently provide individual general aviation services. Typical terminal services provided at general aviation airports include passenger waiting areas, a pilot's lounge and flight planning area, concessions or restaurant, and office space for management or for lease. A terminal building can also be cross-utilized for the storage of airport maintenance equipment and maintenance personnel office space. The recommended master plan concept proposes the construction of a 7,000 square foot terminal/airport maintenance facility adjacent to Hangar #1 and the vehicle parking lot. This site is centrally located on the airport, near the self-service fuel facility, and is easily visible from the airfield.

THROUGH-THE-FENCE

Eloy Municipal Airport has several through-the-fence operators located adjacent to airport property. According to Advisory Circular 150/6190-7 *Minimum Standards for Commercial Aeronautical Activities*, the FAA defines through-the-fence as "those activities permitted by an airport sponsor through an agreement that permits access to the public landing area by independent entities or operations offering an aeronautical activity or to owners of aircraft based on land adjacent to, but not part of, the airport property. **The obligation to make an airport available for the use and benefit of the public does not impose any requirement for the airport sponsor to permit ground access by aircraft from adjacent property**."

While it is within the rights of the airport sponsor to enter into such agreements, it is also the responsibility of the sponsor of federally obligated airports to meet continuing "grant assurances" entered into when accepting federal Airport Improvement Program (AIP) development grants. The pertinent FAA regulations related to through-the-fence operations are:

- FAA Advisory Circular 150/1690-7, *Minimum Standards for Commercial Aeronautical Activities* (8-28-2006) and;

- FAA Order 5190.6B, FAA *Airport Compliance Manual* (9-30-2009).

Section 12.7 of the *Airport Compliance Manual* states the following:

> "As a general principle, the FAA does not support agreements that grant access to the public landing area by aircraft stored and serviced offsite on adjacent property. Thus, this type of agreement is to be avoided since these agreements can create situations that could lead to violations of the airport's federal obligations. ("Through-the-fence" access to the airfield from private property also may be inconsistent with Transportation Security Administration security requirements.)
>
> Under no circumstances is the FAA to support any "through-the-fence" agreement associated with residential use since that action will be inconsistent with the federal obligation to ensure compatible land use adjacent to the airport.

The FAA will not approve through-the-fence requests under the following conditions:

- If the intended use of the through-the-fence access is for a residential airpark. This violates Grant Assurance 21, *Compatible Land Use* and;
- If the subject land is requested to be released by the airport sponsor from grant obligations, then utilized for aeronautical purposes. The FAA will not release from obligation airport property that may be needed for aeronautical purposes currently or in the future.

In general, the FAA will only consider through-the-fence access if all existing airport property is already developed and the airport is unable to purchase adjacent property. Under these circumstances the FAA provides a list of steps to follow when drafting through the fence agreements. This list is as follows:

a. "The access agreement should be a written legal document with an expiration date and signed by the sponsor and the "through-the-fence" operator. It may be recorded. Airports should never grant deeded access to the airport.

b. The right of access should be explicit and apply only to the "through-the-fence" operation (i.e., right to taxi its aircraft to and from the airfield).

c. The "through-the-fence" operator shall not have a right to grant or sell access through its property so other parties may gain access to the airfield from adjacent parcels of land. Only the airport sponsor may grant access to the airfield.

d. The access agreement should have a clause making it subordinate to the sponsor's grant assurances and federal obligations. Should any provision of the access agreement violate the sponsor's grant assurances or federal obligations, the sponsor shall have the unilateral right to amend or terminate the access agreement to remain in compliance with its grant assurances and federal obligations.

e. The "through-the-fence" operator shall not have a right to assign its access agreement without the express

prior written approval of the sponsor. The sponsor should have the right to amend the terms of the access agreement to reflect a change in value to the off-airport property at the time of the approved sale if the "through-the-fence" access is to continue.

f. The fee to gain access to the airfield should reflect the airport fees charged to similarly situated on-airport tenants and aeronautical users. For example, landing fees, ground rent, or tie-down fees paid to the sponsor by comparable on-airport aeronautical users or tenants to recover the capital and operating costs of the airport should be reflected in the access fee assessed the "through-the-fence" operator, including periodic adjustments. In addition, if the "through-the-fence" operator is granted the right to conduct a commercial business catering to aeronautical users either on or off the airport, the sponsor shall assess, at a minimum, the same concession terms and fees to the "through-the-fence" operator as assessed to all similarly situated on-airport commercial operators. As previously stated, the FAA does not support granting "through-the-fence" access to aeronautical commercial operators that compete with on-airport operators.

g. The access agreement should contain termination and insurance articles to benefit the sponsor.

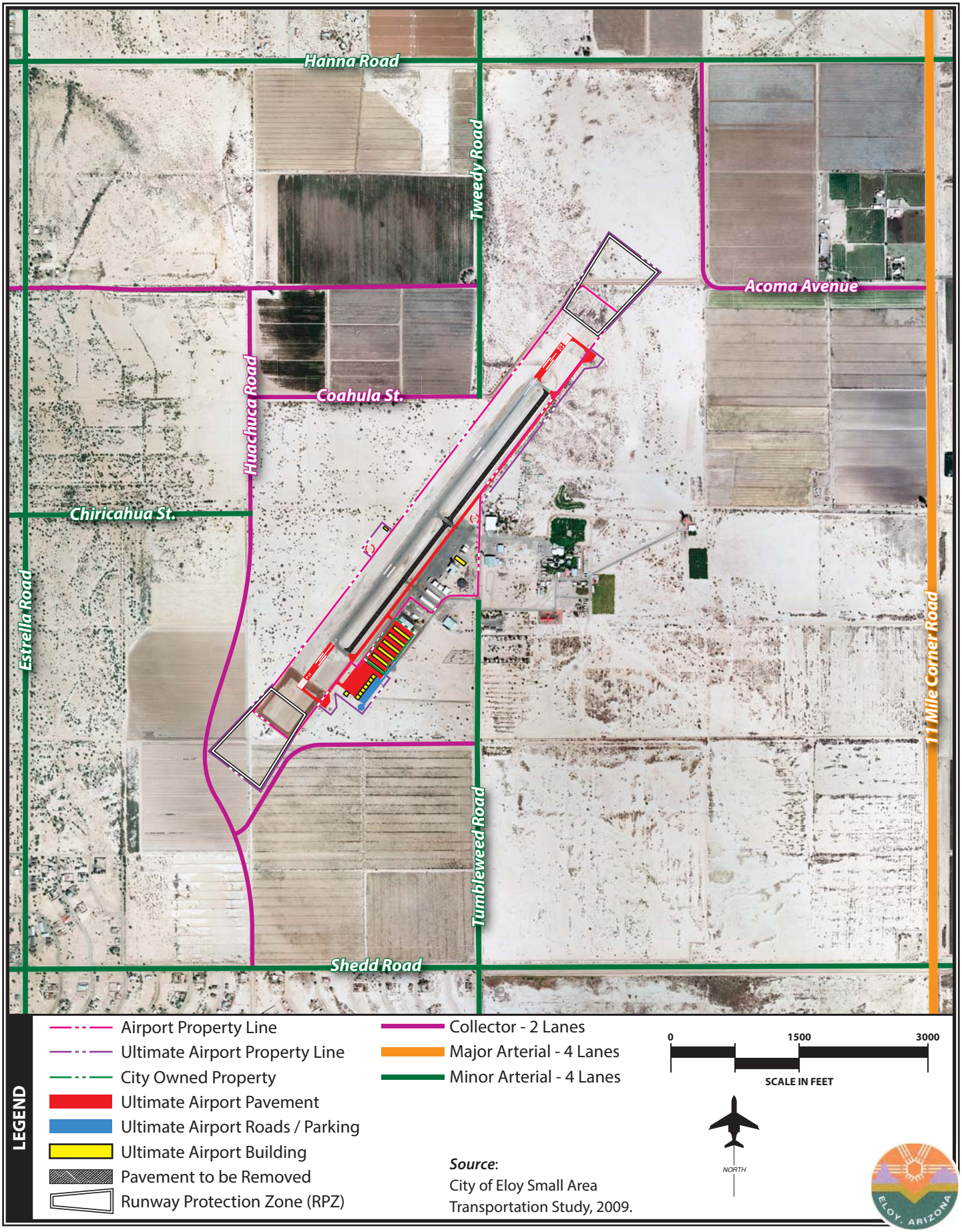
h. The expiration date of the access agreement should not extend beyond a reasonable period from the sponsor's perspective. It should not depend upon the full depreciation of the "through-the-fence" operator's off-airport investment (i.e., 30 years), as would be the case had the investment been made inside the airport. In any case, it should not exceed the appraised useful life of the off-airport facilities. Should the access agreement be renegotiated at its expiration, the new access fee should reflect an economic rent for the depreciated off-airport aeronautical facilities (i.e., hangar, ramp, etc.) comparable to what would be charged by the sponsor for similar on-airport facilities. That is, when on-airport facilities are fully amortized and title now vests with the airport instead of the tenant, the airport may charge higher economic rent for the lease of its facility. The access fee for a depreciated off-airport facility should be adjusted in a similar fashion notwithstanding that title still vests with the off-airport operator. However, there is no limitation on what the airport sponsor may charge for "through-the-fence" access."

The City of Eloy does not presently have FAA approved through-the-fence agreements with any of the off-airport operators. Therefore, it is recommended that the City of Eloy work with the FAA, and on- and off-airport stakeholders to establish a through-the-fence agreement utilizing the steps listed above.

AIRPORT ACCESS

As indicated in **Chapter One – Inventory**, the *City of Eloy Small Area Transportation Study* (SATS) 2009 plans for the expanded roadway network in the City of Eloy. **Exhibit 5B** identifies the ultimate vicinity roadway plan modified to reflect the recommended airport development concept. Ultimately, Tumbleweed Road, the main vehicle access point to the airport, is

09MP03-5B-02/04/11



Source:
City of Eloy Small Area Transportation Study, 2009.

Exhibit 5B
ULTIMATE VICINITY ROADWAY PLAN

planned to be widened to a four lane minor arterial, which should provide adequate levels of service through the planning period of this master plan.

According to the SATS, Huachuca Road would ultimately pass through the Runway 2 RPZ, which would infringe upon current FAA airfield safety policies. To mitigate potential safety issues, it is recommended that Huachuca Road be realigned as depicted on **Exhibit 5B** around the western edge of the RPZ. A collector roadway extending from Tumbleweed Road to Huachuca Road is also planned to improve public vehicle circulation and access potential south of the airport.

SUMMARY

The Master Plan for Eloy Municipal Airport has been developed in cooperation with the PAC, interested citizens, and the City of Eloy. It is designed to assist the City in making decisions relative to the future use of Eloy Municipal Airport as it is maintained and developed to meet its role as defined in Chapter Two.

Flexibility will be a key to the plan, since activity may not occur exactly as forecast. The Master Plan provides the City with options to pursue in marketing the assets of the airport for community development. Following the general recommendations of the plan, the airport can maintain its viability and continue to provide air transportation services to the region.

CHAPTER SIX

CAPITAL IMPROVEMENT PROGRAM

Capital Improvement Program

The implementation of the Eloy Municipal Airport Master Plan will require sound judgment on the part of airport management. Among the more important factors influencing decisions to carry out a recommendation are timing and airport activity. Both of these factors should be used as references in plan implementation.

Experience has indicated that problems can materialize from the standard time-based format of traditional planning documents. The problems typically center on inflexibility and an inability to deal with unforeseen changes that may occur.

While it is necessary for scheduling and budgeting purposes to consider timing of airport development, the actual need for facilities is established by airport activity. Proper master planning implementation suggests the use of airport activity levels, rather than time, as guidance for development.

This section of the Master Plan is intended to become one of the primary references for decision-makers responsible for implementing master plan recommendations. Consequently, the narrative and graphic presentations must provide understanding of each recommended development item. This understanding will be critical in maintaining a realistic and cost-effective program that provides maximum benefit to the community.

DEMAND-BASED PLAN

The Eloy Municipal Airport Master Plan Update has been developed according to a demand-based schedule. Demand-based planning establishes planning guidelines for the airport based upon airport activity

levels instead of guidelines based upon subjective factors such as points in time. By doing so, the levels of activity derived from the demand forecasts can be related to the actual capital investments needed to safely and efficiently accommodate the level of demand being experienced at the airport. More specifically, the intention of the Master Plan is that the facility improvements needed to serve new levels of demand should only be implemented when the levels of demand experienced at the airport justify their implementation.

For example, the aviation demand forecasts indicate based aircraft at Eloy Municipal Airport can be expected to grow through the long term. The potential for increased aviation activity can be related to the expectation for a growing population within the City of Eloy and surrounding area as well as projected facility development at the airport. Future based aircraft levels, however, will be dependent upon the actual growth in the airport service area's economy and population, as well as trends in the aviation industry. Factors affecting future based aircraft levels include, but are not limited to, aircraft storage hangar costs and the impact of oil prices on recreational aviation. Individually or collectively, these factors can slow or accelerate based aircraft levels differently. Since changes in these factors can affect the accuracy of time-based forecasts over time, it can be difficult to predict the exact time a given improvement may become justified for the out-years of the planning period.

For these reasons, the Master Plan for Eloy Municipal Airport has been developed as a demand-based plan. The Master Plan projects based aircraft at the airport for the short term planning horizon. As such, the development plan and corresponding CIP should consider those needs necessary to accommodate these aircraft. When based aircraft levels in the short term planning horizon are realized, the Master Plan suggests planning begin to consider the intermediate term horizon levels. While the aviation demand forecasts suggest these levels could be reached in another five years, a varying economy and other factors could speed up or slow down when this horizon is reached.

Should the intermediate term horizon levels take longer to achieve than projected in the aviation demand forecasts, any related improvements to accommodate the next horizon would be delayed. Should this level be reached sooner, the schedule to implement the improvements could be accelerated. This provides a level of flexibility in the Master Plan.

A demand-based Master Plan does not specifically require the implementation of any of the demand-based improvements. Instead, it is envisioned that implementation of any Master Plan improvement would be examined against the demand levels prior to implementation. In many ways, this Master Plan is similar to a community's general plan. The Master Plan establishes a plan for the use of airport facilities consistent with the potential aviation needs and capital needs required to support that specific use. However, individual projects in the plan are not implemented until the need is demonstrated and the project is approved for funding. **Table 6A** summarizes the key demand mile-stones for each of the three planning horizons.

TABLE 6A
Planning Horizon Summary
Eloy Municipal Airport

	Current	Short Term	Intermediate Term	Long Term
ANNUAL OPERATIONS				
Total Itinerant	9,900	10,500	12,200	16,400
Total Local	18,550	20,300	22,300	29,000
Total Military	100	100	100	100
Total Operations	**28,550**	**30,900**	**34,600**	**45,500**
BASED AIRCRAFT				
Single Engine Piston	29	35	40	65
Multi-Engine Piston	4	4	5	6
Turboprop	8	9	11	18
Jet	0	1	2	6
Rotorcraft	0	1	2	5
Other	0	0	0	0
Total Based Aircraft	**41**	**50**	**60**	**100**
TOTAL ANNUAL INSTRUMENT APPROACHES	**50**	**53**	**61**	**82**

CAPITAL IMPROVEMENT SCHEDULE AND COST SUMMARIES

Once the specific needs and improvements for the airport have been established, the next step is to determine the cost of development and a realistic schedule for implementing the plan. This section will examine the overall cost of each project in the development plan and present a development schedule. The program outlined on the following pages has been evaluated from a variety of perspectives and represents the culmination of a comparative analysis of basic budget factors, demand, and priority assignments.

The recommended improvements are grouped by planning horizon: short term, intermediate term, and long term. Each year, the City of Eloy will need to re-examine the priorities for funding, adding or removing projects on the capital programming lists.

Exhibit 6A summarizes the CIP for Eloy Municipal Airport through the planning period of this Master Plan. An estimate has been included with each project of federal and state funding eligibility, although this amount is not guaranteed. **Exhibit 6B** graphically depicts development staging. As a Master Plan is a conceptual document, implementation of these capital projects should only be undertaken after further refinement of their design and costs through architectural and engineering analyses. Some projects, like the runway extensions and land acquisitions, will require further environmental consideration at the time of implementation as well.

The cost estimates presented in this chapter have been increased to allow for contingencies that may arise on the project. Capital costs presented here should be viewed only as estimates subject to further refinement during design. Nevertheless, these estimates are considered sufficiently accurate for planning purposes.

Cost estimates for each of the development projects listed in the CIP are listed in current (2010) dollars. Adjustments will need to be applied over time as construction costs or capital equipment costs change.

A primary assumption in the CIP is that all future hangar construction will be completed privately. The capital plan does provide for the airport to construct apron, taxiway, and taxilane improvements leading to proposed hangar development which is eligible for Federal Aviation Administration (FAA) and Arizona Department of Transportation (ADOT)-Aeronautics Group grant funding. This reduces the overall development costs for the private hangar construction.

SHORT TERM IMPROVEMENTS

The developments proposed in the short term are concentrated on the most immediate needs of the airfield and landside areas. A total of 17 projects are considered to meet airfield design standards, protect approach surfaces, provide adequate runway length for aircraft currently utilizing the airport, and to protect future growth of the airport. The short term improvement projects are depicted on **Exhibit 6B** with red shading. The short term planning period is the only planning horizon separated into single years. This is to allow the CIP to be coordinated with the five-year planning cycle of the FAA and ADOT-Aeronautics Group programs. In later planning periods, actual demand levels will dictate implementation.

The first year of the CIP considers projects that may be accomplished in the 2011 federal funding cycle (October 2010 to September 2011). Some of the short term projects listed in the master plan CIP were carried over from the airport's five-year CIP that was submitted to FAA and ADOT-Aeronautics Group for the *Tentative 2011-2015 Five-Year Airport Capital Improvement Program*. Some of these projects in this timeframe are very specific in terms of actual design and construction. As proposed, most projects are initially put through a design phase and then followed up with actual construction.

The 2011 projects include the design of the relocation of the parallel Taxiway A, relocation of the segmented circle and lighted wind indicator, and the restoration of the precision approach path indicator (PAPI) approach lighting systems and the runway end identifier lights (REILs). The existing airport beacon, PAPIs, and REILs are inoperable and need to be restored or replaced to improve the safety and security of operations at the airport.

Design of the relocation of Taxiway A 100 feet to the southeast in 2011 is followed by the construction of the relocated Taxiway A in 2012. This project will bring the airport into compliance with FAA airport design standards and allow the airport to more easily transition to approach category C standards in the future. Other projects in 2012 include the design of the rehabilitation of the apron, and the acquisition of approximately 24.76 acres of land through fee simple acquisition and the acquisition of approximately 1.33 acres of avigation easements to protect the runway protection zones (RPZs) and to protect the future expansion abilities of the airport.

A project to rehabilitate the apron and the design of the reconstruction of Lear Drive is planned for 2013, as well as an environmental assessment (EA) for the extension of Runway 2-20 to the southwest.

09MP03-6A-7/9/10

	PROJECT DESCRIPTION	TOTAL PROJECT COST	FAA ELIGIBLE	ADOT * ELIGIBLE	LOCAL SHARE
SHORT TERM PROGRAM *(1-5 Years)*					
2011					
1	Design Only: Relocation of Parallel Taxiway A	250,000	237,500	6,250	6,250
2	Restore PAPIs and REILs	200,000	190,000	5,000	5,000
2011 Subtotal		*$450,000*	*$427,500*	*$11,250*	*$11,250*
2012					
3	Design Only: Rehabilitation of Apron (15,450 yd^2)	$180,000	$171,000	$4,500	$4,500
4	Relocate Segmented Circle and Lighted Wind Indicator	14,000	13,300	350	350
5	Relocate Taxiway A 100 Feet Southeast & Install Taxiway Edge Lighting	1,990,300	1,890,785	49,758	49,758
6	Acquire Lands for the Expansion of the Runway and Protection of Runway Approaches (24.76 Acres)	284,740	270,503	7,119	7,119
7	Acquire Avigation Easement (1.33 Acres)	12,300	11,685	308	308
2012 Subtotal		*$2,481,340*	*$2,357,273*	*$62,034*	*$62,034*
2013					
8	Rehabilitation of Apron (15,450 yd^2)	$1,000,000	$950,000	$25,000	$25,000
9	Design Only: Reconstruction of Lear Drive	90,000	85,500	2,250	2,250
10	Conduct Environmental Assessment for the Extension of Runway 2-20	150,000	142,500	3,750	3,750
2013 Subtotal		*$1,240,000*	*$1,178,000*	*$31,000*	*$31,000*
2014					
11	Install AWOS	$202,000	$191,900	$5,050	$5,050
12	Reconstruct Lear Drive	450,000	427,500	11,250	11,250
13	Construct T-Hangar Taxilanes	602,160	572,052	15,054	15,054
14	Extend Runway 2-20 & Taxiway A 650 Feet Southwest	1,086,000	1,031,700	27,150	27,150
2014 Subtotal		*$2,340,160*	*$2,223,152*	*$58,504*	*$58,504*
2015					
15	Design Only: Construction of Terminal Building	$250,000	$237,500	$6,250	$6,250
16	Design the Installation of New GPS Approach System	100,000	95,000	2,500	2,500
17	Construct Terminal Building	1,708,500	0	1,537,650	170,850
2015 Subtotal		*$2,058,500*	*$332,500*	*$1,546,400*	*$179,600*
TOTAL SHORT TERM PROGRAM		**$8,570,000**	**$6,518,425**	**$1,709,188**	**$342,388**
INTERMEDIATE TERM PROGRAM *(6-10 Years)*					
1	Acquire Land for the Expansion of Landside Facilities (5.5 Acres)	$63,250	$60,088	$1,581	$1,581
2	Construct T-Hangar Taxilanes	391,200	371,640	9,780	9,780
3	Construct Apron (11,111 yd^2)	968,000	919,600	24,200	24,200
4	Construct Wash Rack	250,000	237,500	6,250	6,250
5	Extend N. Lear Drive, Utilities & Construct Parking Lot	500,000	0	0	500,000
6	Pavement Maintenance	1,500,000	1,425,000	37,500	37,500
TOTAL INTERMEDIATE TERM PROGRAM		**$3,672,450**	**$3,013,828**	**$79,311**	**$579,311**
LONG TERM PROGRAM *(11-20 Years)*					
1	Conduct Environmental Assessment for the Extension of Runway 2-20	$200,000	$190,000	$5,000	$5,000
2	Extend Runway 2-20 & Taxiway A 650 Feet Northeast	1,086,000	1,031,700	27,150	27,150
3	Install Distance Remaining Signage	174,000	165,300	4,350	4,350
4	Construct T-Hangar Taxilanes	391,200	371,640	9,780	9,780
5	Expand Vehicle Parking Lot and Utilities	200,000	0	0	200,000
6	Upgrade to PAPI-4s on Each Runway End	200,000	190,000	5,000	5,000
7	Pavement Maintenance	3,000,000	2,850,000	75,000	75,000
TOTAL LONG TERM PROGRAM		**$5,251,200**	**$4,798,640**	**$126,280**	**$326,280**
TOTAL PROGRAM COSTS		**$17,493,650**	**$14,330,893**	**$1,914,779**	**$1,247,979**

*The funding of projects will be subject to the Arizona Revised Statutes, Arizona Transportation Board Policies, and adminstrative policies as well as funds available.

Exhibit 6A
CAPITAL IMPROVEMENT PROGRAM

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SHORT TERM PROJECTS

1. Acquire 9.65 Acres
2. Acquire 8.18 Acres
3. Acquire Avigation Easement 1.33 Acres
4. Acquire 5.55 Acres
5. Acquire 1.38 Acres and Relocate Segmented Circle / Lighted Wind Cone
6. Relocate Taxiway A 100'
7. Construct T-Hangar Taxilanes
8. Install AWOS
9. Extend Runway 2-20 & Taxiway A 650'
10. Construct Terminal/Maintenance Building

INTERMEDIATE TERM PROJECTS

1. Acquire 5.5 Acres
2. Construct T-Hangar Taxilanes
3. Construct Apron 11,111 yds^2
4. Construct Wash Rack
5. Extend N. Lear Dr. & Construct Parking Lot

LONG TERM PROJECTS

1. Extend Runway 2-20 & Taxiway A 650'
2. Construct T-Hangar Taxilanes
3. Expand Parking Lot

0 500 1000
SCALE IN FEET

NORTH

Huachuca Rd.

Runway 2-20 (3,900' x 75') Ultimate (5,200' x 75')

Taxiway A

N Lear Dr.

N. Tumbleweed Dr.

See Inset

Inset

0 300
SCALE IN FEET

LEGEND

- Airport Property Line
- Ultimate Airport Property Line
- City Owned Property
- Private Development
- Pavement to be Removed
- Runway Safety Area (RSA)
- Object Free Area (OFA)
- Taxiway OFA
- Obstacle Free Zone (OFZ)
- Runway Protection Zone (RPZ)

ELOY, ARIZONA

Exhibit 6B
DEVELOPMENT STAGING

This extension will result in a runway length of 4,550 feet, which exceeds the FAA recommended runway length for 100 percent of small aircraft with less than ten passenger seats as detailed in Chapter Three. This aircraft type is the primary user of the airport presently and will continue to be through the short term planning horizon. The construction of the runway extension is programmed for the following year in 2014.

Eloy Municipal Airport is currently without a weather reporting station. The installation of an automated weather observation system (AWOS) in 2014 will provide on-site weather reporting for pilots. Lear Drive is programmed to be reconstructed in 2014 following the design project the year earlier. At this point, it is anticipated the City will pursue the construction of additional T-hangar facilities on a 4.0 acre city owned parcel of property that is planned to become a part of airport property. The capital improvement program includes projects to construct T-hangar taxilanes for two T-hangar facilities, which will provide access from the hangar facilities to the airfield.

The final year included in the short term program, 2015, includes two design projects for the construction of a dual-use terminal and maintenance building and for the installation of GPS instrument approach systems. The construction of the terminal/maintenance building is also included in the 2015 program year.

The total investment necessary for the short term CIP is approximately $8.6 million. Of this total, $6.5 million is eligible for FAA grant funding, $1.7 million is eligible for state funds, with the airport sponsor responsible for $342,000.

INTERMEDIATE PLANNING HORIZON

The intermediate term planning horizon focuses on the airport's development needs during the six- to ten-year time frame. Due to the fluid nature of general aviation growth and the uncertainty of infrastructure and development needs more than five years into the future, the projects in the intermediate term were combined into a single project listing and not prioritized by year. However, the project listing is intended to depict a prioritization of projects as now anticipated to meet future demand. Intermediate projects are depicted on **Exhibit 6B** with yellow shading.

The implementation of many of the items in the intermediate term should be based upon actual demand. Those projects, such as the construction of additional apron and taxiways, should not be undertaken unless there is an existing demand for such facilities.

The intermediate term projects focus on the expansion of landside facilities to the south side of the airport. The development of landside facilities on the south side of the airport will first begin with the acquisition of an additional 5.5 acres of property to allow for the facility growth. T-hangar taxilanes and the construction of a new 11,111 square yard apron will facilitate the construction of new T-hangar facilities and for the development of conventional hangars and aircraft parking positions. An aircraft wash rack at the southern end of the new apron is also planned in the intermediate term. Lear Drive is programmed to be extended south so that it will be capable of providing vehicular access to a new parking lot for the conventional hangar facilities.

A total of $1.5 million is included in this planning period for on-going pavement maintenance needs such as crack sealing, rejuvenating seal coats, and slab replacements as necessary.

The total investment necessary for the intermediate term CIP is approximately $3.7 million. Of this total, $3.0 million is eligible for FAA grant funding, and $79,300 is eligible for state funds, with the airport sponsor responsible for $579,000.

LONG TERM PLANNING HORIZON

Long term improvements, as presented on **Exhibit 6B** with blue shading, continue the expansion of airside facilities to accommodating a wider range of business jet aircraft and overall airport operational growth. The first project listed is an EA for the extension of Runway 2-20 and Taxiway A by 650 feet to the northeast. Construction of this project to follow the EA will extend the runway from 4,550 feet to 5,200 feet, which meets the FAA recommended runway length for 75 percent of business jet aircraft operating at 60 percent useful load as detailed in Chapter Three. Distance remaining signage is programmed for Runway 2-20 to improve operational safety.

Remaining projects in the long term horizon include the expansion of the vehicle parking lot at the south end of the airport to facilitate the construction of new conventional hangar facilities. T-hangar taxilanes are planned to allow for the construction of two new T-hangar facilities. Once the airport experiences regular use by medium and large business jet aircraft, PAPI-4 approach lighting systems should be installed.

A total of $3.0 million is included in this planning period for on-going pavement maintenance needs such as crack sealing, rejuvenating seal coats, and slab replacements as necessary.

The total investment necessary for the long term CIP is approximately $5.3 million. Of this total, $4.8 million is eligible for FAA grant funding, $126,000 is eligible for state funds, with the airport sponsor responsible for $326,000.

CAPITAL IMPROVEMENTS FUNDING

Financing capital improvements at the airport will not rely exclusively upon the financial resources of the City of Eloy. Capital improvement funding is available through various grants-in-aid programs at both the federal and state levels. The following discussion outlines the key sources for capital improvement funding at Eloy Municipal Airport.

FEDERAL GRANTS

Through federal legislation over the years, various grant-in-aid programs have been established to develop and maintain a system of public 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. The most recent comprehensive legislation affecting federal funding was enacted in late 2003 and was titled *Century of Aviation Reauthorization Act,* or *Vision 100*.

The four-year bill covered FAA fiscal years 2004, 2005, 2006, and 2007. (This bill presented similar funding levels to the

previous bill - *Air 21.*) Airport Improvement Program (AIP) funding was authorized at $3.4 billion in 2004, $3.5 billion in 2005, $3.6 billion in 2006, and $3.7 billion in 2007. This bill provided the FAA the opportunity to plan for longer term projects versus one-year re-authorizations.

Vision 100 expired at the end of fiscal year 2007. As of the preparation of this chapter (February 2011), the United States Congress had not passed a reauthorization or long term AIP program. The FAA has been operating on a series of continuing resolutions which allows the continued collection of aviation taxes at 2007 levels. While different in make-up, the bills being considered in the House and Senate have retained the fundamentals of the current program for eligibility and matching levels. Therefore, the CIP assumes a similar funding system will be in place through the planning period of this study. Under *Vision 100* and the current continuation bill, Eloy Municipal Airport is eligible for 95 percent funding assistance from AIP grants.

The source for airport improvement funds from the federal government is the Aviation Trust Fund. The Aviation Trust Fund 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. It is funded by user fees, including taxes on airline tickets, aviation fuel, and various aircraft parts.

Funds are distributed each year by the FAA from appropriations by Congress. A portion of the annual distribution is to commercial service airports based upon enplanement (passenger boarding) levels. Airports with qualifying levels of air cargo shipments can receive additional entitlements. After all specific entitlements are distributed, the remaining AIP funds are disbursed by the FAA based upon the priority of the project through discretionary apportionments. A national priority system is used to evaluate and rank each airport project. Those projects with the highest priority are given preference in funding.

Under the AIP program, examples of eligible development projects include the airfield, public aprons, and access roads. Additional buildings and structures may be eligible if the function of the structure is to serve airport operations in a non-revenue generating capacity, such as maintenance facilities. Some passenger terminal building improvements (such as bag claim and public waiting lobbies) are also eligible for FAA funding. Improvements such as fueling facilities, utilities (with the exception of water supply for fire prevention), and hangar buildings are not typically eligible for AIP funds.

Non-Primary Entitlement Funds

Funds are distributed each year by the FAA from appropriations by Congress. A portion of the annual distribution is to primary commercial service airports based upon enplanement levels. For those airports that do not meet the criteria for a primary commercial service airport, such as the case with Eloy Municipal Airport, eligible airports could receive up to $150,000 of funding each year in Non-Primary Entitlement (NPE) funds. Eligible airports are those included in the National Plan of Integrated Airport Systems (NPIAS). Eloy Municipal Airport is currently eligible for full NPE funding.

Discretionary Funds

In a number of cases, airports face major projects that will require funds in excess of the airport's annual non-primary 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. These 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 Arizona or those within the FAA Western Pacific Region. The funds are not distributed to all airports in the country and, as such, are more difficult to obtain. High priority projects will often fare favorably, while lower priority projects usually will not receive discretionary grants.

FAA Facilities and Equipment Program

The Airway Facilities Division of the FAA administers the national Facilities and Equipment (F&E) Program. This annual program provides funding for the installation and maintenance of various navigational aids and equipment for the national airspace system and airports. Under the F&E program, funding is provided for FAA airport traffic control towers, enroute navigational aids, on-airport navigational aids, and approach lighting systems. As activity levels and other developments warrant, the airport may be considered by the FAA Airways Facilities Division for the installation and maintenance of navigational aids through the F&E program.

STATE FUNDING PROGRAM

In support of the state aviation system, the State of Arizona also participates in airport improvement projects. The source for state airport improvement funds is the Arizona Aviation Fund. Taxes levied by the state on aviation fuel, flight property, aircraft registration tax, and registration fees (as well as interest on these funds) are deposited in the Arizona Aviation Fund. The State Transportation Board establishes the policies for distribution of these state funds.

Under the State of Arizona's grant program, an airport can receive funding for one-half (currently 2.5 percent) of the local share of projects receiving federal AIP funding. The state also provides 90 percent funding for projects which are typically not eligible for federal AIP funding or have not received federal funding.

It should be noted that due to recent budget shortfalls, limitations have been placed on state funding programs. This has directly impacted the state's Aviation Fund, as the amount of money dedicated to airport improvements has been significantly reduced. It is projected that the Aviation Fund will return to normal levels within the next few years as the state's budget improves.

State Airport Loan Program

The ADOT – Aeronautic Group Airport Loan Program was established to enhance the utilization of state funds and provide

a flexible funding mechanism to assist airports in funding improvement projects. Eligible projects include runway, taxiway, and apron improvements; land acquisition, planning studies, and the preparation of plans and specifications for airport construction projects; as well as revenue-generating improvements such as hangars and fuel storage facilities. Projects which are not currently eligible for the State Airport Loan Program are considered if the project would enhance the airport's ability to be financially self-sufficient.

There are three ways in which the loan funds can be used: Grant Advance, Matching Funds, or Revenue-Generating Projects. The Grant Advance loan funds are provided when the airport can demonstrate the ability to accelerate the development and construction of a multi-phase project. The project(s) must be compatible with the Airport Master Plan and be included in the ADOT Five-Year Airport Development Program. The Matching Funds are provided to meet the local matching fund requirement for securing federal airport improvement grants or other federal or state grants. The Revenue-Generating funds are provided for airport-related construction projects that are not eligible for funding under another program. As previously discussed, current limitations on the state funding program could affect this program.

Pavement Maintenance Program

The airport system in Arizona is a multi-million dollar investment of public and private funds that must be protected and preserved. State aviation fund dollars are limited, and the State Transportation Board recognizes that need to protect and extend the maximum useful life of the airport system's pavement. The Arizona Pavement Preservation Program (APPP) has been established to assist in the preservation of the Arizona airports' system infrastructure.

Public Law 103-305 requires that airports requesting federal AIP funding for pavement rehabilitation or reconstruction have an effective pavement maintenance program system. To this end, ADOT-Aeronautics Group maintains an Airport Pavement Management System (APMS). This system requires monthly airport inspections which are conducted by airport management and supplied to ADOT.

The Arizona Airport Pavement Management System uses the Army Corps of Engineers "Micropaver" program as a basis for generating a Five-Year APPP. The APMS consists of visual inspections of all airport pavements. Evaluations are made of the types and severities observed and entered into a computer program database. Pavement Condition Index (PCI) values are determined through the visual assessment of pavement conditions in accordance with the most recent FAA Advisory Circular 150/5380-7, *Pavement Management System*, and range from 0 (failed) to 100 (excellent). Every three years, a complete database update with new visual observations is conducted. Individual airport reports from the update are shared with all participating system airports. ADOT-Aeronautics Group ensures that the APMS database is kept current, in compliance with FAA requirements.

Every year, ADOT-Aeronautics Group, utilizing the APMS, will identify airport pavement maintenance projects eligible for funding for the upcoming five years. These projects will appear in the State's Five-Year Airport Development Program.

Once a project has been identified and approved for funding by the State Transportation Board, the airport sponsor may elect to accept a state grant for the project and not participate in the APPP, or the airport sponsor may sign an Inter-Government Agreement (IGA) with ADOT-Aeronautics Group to participate in the APPP. Existing limitations on the state funding program could temporarily affect the usefulness of this program.

LOCAL FUNDING

The balance of project costs, after consideration has been given to grants, must be funded through local resources. Eloy Municipal Airport is operated by the City of Eloy and could receive some assistance from the City. The goal for the operation of the airport is to generate ample revenues to cover all operating and maintenance costs, as well as the local matching share of capital expenditures. As with many airports, this is not possible and other financial methods will be needed.

According to **Exhibit 6A**, local funding will be needed in each planning horizon. This includes $342,000 in the short term, $579,000 in the intermediate term, and $326,000 in the long term.

There are several alternatives for local financing options for future development at the airport, including airport revenues, direct funding from the City, issuing bonds, and leasehold financing. These strategies could be used to fund the local matching share, or complete the project if grant funding cannot be arranged.

Local funding options may also include the solicitation of private developers to construct and manage hangar facilities at the airport. The capital improvement program has assumed that landside facility development would be undertaken in this manner. Outsourcing hangar development can benefit the airport sponsor by generating land lease revenue and relieving the sponsor of operations and maintenance costs.

FUNDING AIRPORT OPERATIONS

The airport is operated by the City of Eloy through the collection of various rates and charges from general aviation revenue sources. These revenues are generated specifically by airport operations. There are, however, 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 to additions or improvements to airport facilities.

Operating revenues at Eloy Municipal Airport currently include ground leases and hangar rentals. Revenues are anticipated to continue to grow consistent with aviation activity and an overall positive economic outlook. As more aircraft base at the airport, additional revenues from land leases should increase proportionately. Revenues will also be bolstered in the future once FAA approved through-the-fence agreements are reached with each of the off-airport businesses utilizing the airport as was discussed in the previous chapter.

To ensure that the airport maximizes revenue potential in the future, the City of Eloy should also periodically review aviation services rates and charges (i.e., ground lease rates, tiedown rental, etc.) at other airports to ensure that rates and

charges at the airport are competitive and similar to aviation services at other airports and further generate the opportunity for the City to establish other means of revenue collection or establish future rates and charges. Additionally, all new leases at the airport should have inflation clauses allowing for periodic rate increases in line with inflationary factors.

While it is desirable for the airport to directly pay for itself, the indirect and intangible benefits of the airport to the community's economy and growth must be considered in implementing future capital improvements.

Airport Rates and Charges

The FAA places several stipulations on rates and charges establishment and collection; however, two primary considerations need to be addressed. First, the rates and charges must be fair, equally applied, and resemble fair market value. Second, the rates and charges collected must be returned to and used only by and/or for the airport. In other words, the revenues generated by airport operations cannot be diverted to the general use of the City of Eloy. The FAA requires funds to be used at airports as these funds are many times needed to either support the day-to-day operational costs or offset capital improvement costs.

Given its location to other airports, the rates and charges structure at Eloy Municipal Airport needs to be somewhat competitive with other airports in the region. If the costs are too high, some users may choose other airports. On the other hand, if rates and charges are set too low, some facilities will not be capable of being amortized, thus requiring a subsidy from the City. The following provides several activities that could enhance revenue production for an airport, some of which are currently being practiced at Eloy Municipal Airport.

Aircraft Parking

Aircraft parking fees, also referred to as tiedown fees, are typically assessed to those aircraft utilizing a portion of an aircraft parking area that is owned by the airport. These fees are most generally assessed on a daily or monthly basis, depending upon the specific activity of a particular aircraft.

Aircraft parking fees can be established in several different ways. Typically, airports assess aircraft parking fees in accordance with an established schedule in which an aircraft within a designated weight and/or size pays a similar fee (i.e., small aircraft, single engine aircraft). Aircraft parking fees may also be charged according to a "cents per 1,000 pounds" basis in which larger aircraft with increased weights would obviously pay more for utilizing the aircraft parking apron. There are also instances in which aircraft parking fees are not assessed on an airport.

An airport sponsor may also include in a lease agreement with an aviation-related commercial operator at the airport to collect aircraft parking fees on portions of an aircraft parking apron in which the airport does not own or is leasing to a commercial operator, such as a fixed base operator (FBO). As a result, the airport could directly collect parking fees from an aircraft utilizing this space or allow the commercial operator to collect the parking fee, in which the agreement may allow the commercial operator to retain a portion of the parking fee as an administrative or service fee.

As previously discussed, aircraft parking fees can be assessed on a daily or monthly basis. Daily aircraft parking fees are typically assessed to transient aircraft utilizing the airport on a short-term basis, while monthly fees are charged to aircraft that utilize a particular parking area for the permanent storage of their aircraft. Monthly aircraft parking fees are often assessed at airports that contain a waiting list for aircraft hangar storage space. It is also common practice at many airports to waive a daily aircraft parking fee in the event the aircraft purchases fuel prior to departing the airport.

Previous rates and charges analysis conducted by the consultant outside this study have indicated that daily aircraft parking fees can vary from $3.00 to $10.00 depending on the type of aircraft, and monthly aircraft parking fees can range between $25.00 and $100.00 per month depending on the type and size of the aircraft.

Aircraft Storage Hangars

There are several types of aircraft storage hangars that can accommodate aircraft on an airport. In order to establish hangar fees, an airport typically factors in such qualities as hangar size, location, and utilities. Aircraft hangar fees are most often charged on a monthly basis.

Common aircraft storage hangars are typically categorized as shade hangars, T-hangars, and conventional hangars. Shade hangars consist of tiedown spaces with a protective roof covering. T-hangars provide for separate, single-aircraft storage areas. Conventional hangars provide a larger enclosed space that can accommodate larger multi-engine piston or turbine aircraft and/or multiple aircraft storage. Conventional hangars can also be utilized by aviation-related commercial operators for their business activities on an airport.

Location can also play a role in determining hangar rates. Aircraft storage hangars with direct access to improved taxiways/taxilanes and adjacent to aviation services being offered at an airport can oftentimes be more expensive to rent. In addition, the type of utility infrastructure being offered to the hangar can also help determine storage fees. Smaller aircraft storage hangars, such as a T-hangar or small box hangar, can either be granted access through a manual sliding door or electric door. It is common for hangars that provide electric doors to have higher rental fees as the cost associated with constructing these hangars would exceed the cost associated with simpler structures.

At some airports, hangar facilities are constructed by the airport sponsor, while at other airports, hangars are built by private entities. In some cases, airports have both public and private hangar facilities available. Hangars can be expensive to construct and offer minimal return on investment in the short term. In order to amortize the cost of constructing hangars, lease rates should be developed at a minimum to recover development and finance costs.

T-hangars often range from $100 to $350 per month depending on several factors previously listed. Larger conventional-style hangars can be leased per aircraft space or for the entire hangar. Monthly rates similar to those for individual T-hangar units often apply to leased aircraft space in a conventional hangar.

Ground Rental

Ground rentals can be applied to aviation and non-aviation development on an airport. Also known as a land lease, a ground lease can be structured to meet the particular needs of an airport operator in terms of location, terrain features, amount of land needed, and type of facility infrastructure included.

One of the single most valuable assets available to an airport is the leasable land with access to the runway/taxiway system. For aviation-related businesses, it is critical that they be located on an airport. Airport property is available for long term lease but, in most cases, it cannot be sold. At the expiration of the lease and any extensions, the improvements on the leased land revert back to the airport sponsor. In order for this arrangement to make financial sense, most ground leases are at least 20 years in length and include extension opportunities. Those who lease land on an airport are typically interested in constructing a hangar for their own private use, for sub-lease, or for operation of an airport business. Therefore, the long term lease arrangement is important in order to obtain capital funding for the construction of a hangar or other type of facility. It should also be noted that ground leases should include the opportunity to periodically review the lease and adjust the rate according to the consumer price index (CPI). Typical lease agreements range from 20 to 30 years with options for extensions.

Ground leases are typically established on a yearly fee schedule based upon the amount of square feet leased. The amount charged can vary greatly depending on the level of improvements to the land. For example, undeveloped land with readily accessible utilities and taxiway access can generate more revenue than unimproved property. Previous surveys at other airports across the country conducted by the consultant have determined ground lease rates to range from $0.08 per square foot per year to approximately $1.00 per square foot per year. In some instances, lease rates were well over $1.00 per square foot per year.

Some airports will have other leasable space available. For example, airports with a terminal building may have office or counter space available for aviation and non-aviation related businesses. Some example businesses could include commercial airlines, aircraft sales, flight instruction, aircraft insurance, and a restaurant.

As previously mentioned, under certain circumstances, an airport sponsor may utilize portions of the airport for non-aeronautical purposes such as commercial and/or industrial development if certain areas are not needed to satisfy aviation demand or are not accessible to aviation activity. Prior to an airport pursuing a ground lease with a commercial operator for non-aeronautical purposes, the sponsor must formally request from the FAA a release from certain land parcels that may not be needed for aviation-related uses.

Fuel Sales and Flowage

Fuel sales are typically managed at an airport in one of two ways: the airport sponsor acts as the fuel distributor or fueling operations are sub-contracted to an FBO. If the airport sponsor acts as the fuel distributor, then the airport would receive revenues equal to the difference between wholesale and retail prices. Of

course, there are added expenses such as employing people to fuel the aircraft.

When these services are undertaken by an FBO, the airport sponsor typically receives a fuel flowage fee per gallon of fuel. By way of agreement with the airport sponsor, FBOs would be required to pay a fuel flowage fee for each gallon of fuel sold or received into inventory. In the case of self-fueling entities, a fuel flowage fee could apply for each gallon of fuel dispensed. Fuel flowage fees are typically paid on a "cents per gallon" basis. In some instances, fuel flowage fees will be established based upon the type of aviation activity. For example, commercial airline service operators may be assessed a higher fuel flowage fee than general aviation aircraft or no fuel flowage fee at all if being assessed a landing fee (to be discussed in the next section). Fuel flowage fees can also be distinguished by type of fuel (100LL or Jet A).

The owner of the fuel farm can also be the airport sponsor or an FBO operator. If the airport sponsor owns the fuel farm and the FBO operator undertakes the fueling activities, then a separate fuel storage fee can be charged or a higher fuel flowage fee may be assessed. Fuel flowage fees at other airports similar to Eloy Municipal Airport oftentimes range from $0.03 per gallon to $0.20 per gallon.

Landing Fees

Landing fees typically only apply to larger aircraft, such as those over 60,000 pounds, for example, and only those involved in commercial airline or air taxi operations. Landing fees are not common on general aviation airports and are generally discouraged due to collection difficulty. Moreover, landing fees are somewhat discouraging to aircraft operators, who will many times elect to utilize a nearby airport that does not collect a landing fee.

When landing fees are assessed, they are most commonly based upon aircraft weight and a "cents per 1,000 pounds" approach. In addition, some airport sponsors may use a flat fee approach wherein aircraft within a specified weight range are charged the same fee.

Landing fees may be collected directly by the airport sponsor, or an airport may have an agreement with a commercial operator to collect landing fees. Similar to what was discussed with aircraft parking fees, under this scenario, the agreement may allow the commercial operator, such as an FBO, to retain a portion of the landing fee as an administrative or service fee.

PLAN IMPLEMENTATION

The best means to begin implementation of the recommendations in this Master Plan is to first recognize that planning is a continuous process that does not end with completion and approval of this document. Rather, the ability to continuously monitor the existing and forecast status of airport activity must be provided and maintained. The issues upon which this report is based will remain valid for a number of years. The primary goal is for the airport to best serve the air transportation needs of the region, while continuing to be economically self-sufficient.

The actual need for facilities is most appropriately established by airport activity levels rather than a specified date. For example, projections have been made as to when new apron space will need to be constructed. In reality, however, 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 the development. Although every effort has been made to conservatively estimate when facility development may be needed, aviation demand will dictate when facility improvements need to be delayed or accelerated.

The real value of a study of this nature is in keeping the issues and objectives in the minds of the managers and policymakers so that they are better able to recognize changes and their effects. In addition to adjustments in aviation demand, decisions made as to when to undertake the improvements recommended in this Master Plan will impact the period that the plan remains valid. The format used in this plan is intended to reduce the need for formal and costly updates by simply adjusting the timing. Updating can be done by airport management, thereby improving the plan's effectiveness.

APPENDIX A

GLOSSARY OF TERMS

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 nonregulatory 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.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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.

ALERT AREA: See special-use airspace.

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

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

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

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

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

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

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

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

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

AUTOMATIC WEATHER OBSERVATION STATION (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.

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.

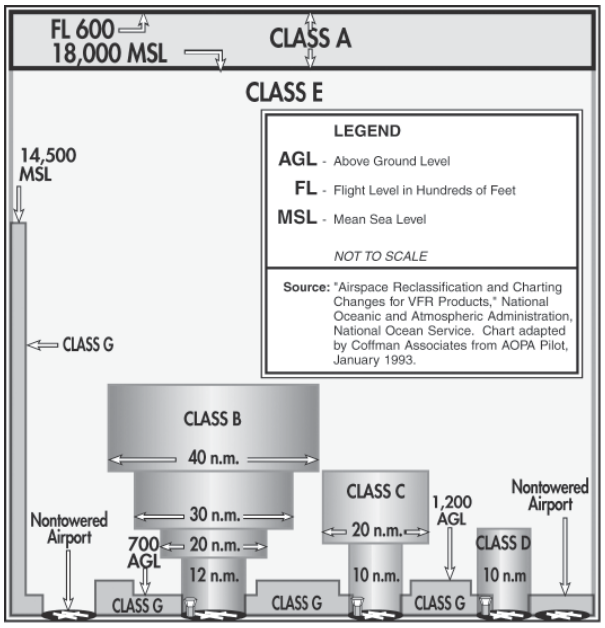
CATEGORY I: An Instrument Landing System (ILS) that provides acceptable guidance information to an aircraft from the coverage limits of the ILS to the point at which the localizer course line intersects the glide path at a decision height of 100 feet above the horizontal plane containing the runway threshold.

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

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

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

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



CLASS A AIRSPACE: See Controlled Airspace.

CLASS B AIRSPACE: See Controlled Airspace.

CLASS C AIRSPACE: See Controlled Airspace.

CLASS D AIRSPACE: See Controlled Airspace.

CLASS E AIRSPACE: See Controlled Airspace.

CLASS G AIRSPACE: See Controlled Airspace.

CLEAR ZONE: See Runway Protection Zone.

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

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

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

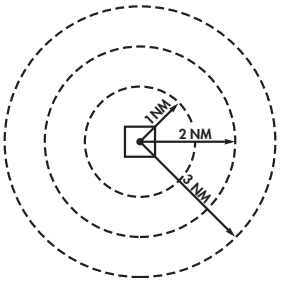
CONICAL SURFACE: An imaginary obstruction-limiting surface defined in FAR Part 77 that extends from the edge of the horizontal surface outward and upward at a slope of 20 to 1 for a horizontal distance of 4,000 feet.

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

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

- **CLASS A**: Generally, the airspace from 18,000 feet mean sea level (MSL) up to but not including flight level FL600. All persons must operate their aircraft under IFR.

- **CLASS B**: Generally, the airspace from the surface to 10,000 feet MSL surrounding the nation's busiest airports. The configuration of Class B airspace is unique to each airport, but typically consists of two or more layers of air space and is designed to contain all published instrument approach procedures to the airport. An air traffic control clearance is required for all aircraft to operate in the area.



- **CLASS C**: Generally, the airspace from the surface to 4,000 feet above the airport elevation (charted as MSL) surrounding those airports that have an operational control tower and radar approach control and are served by a qualifying number of IFR operations or passenger enplanements. Although individually tailored for each airport, Class C airspace typically consists of a surface area with a five nautical mile (nm) radius and an outer area with a 10 nautical mile radius that extends from 1,200 feet to 4,000 feet above the airport elevation. Two-way radio communication is required for all aircraft.

- **CLASS D**: Generally, that airspace from the surface to 2,500 feet above the air port elevation (charted as MSL) surrounding those 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: The height above the end of the runway surface at which a decision must be made by a pilot during the ILS or Precision Approach Radar approach to either continue the approach or to execute a missed approach.

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

- **TAKEOFF RUNWAY AVAILABLE (TORA)**: The runway length declared available and suitable for the ground run of an airplane taking off.
- **TAKEOFF DISTANCE AVAILABLE (TODA)**: The TORA plus the length of any remaining runway and/or clear way beyond the far end of the TORA.
- **ACCELERATE-STOP DISTANCE AVAILABLE (ASDA)**: The runway plus stopway length declared available for the acceleration and deceleration of an aircraft aborting a takeoff.
- **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 Aweighted 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 are 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 designation for altitude within controlled airspace.

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

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

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:

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

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

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

GROUND ACCESS: The transportation system on and around the airport that provides access to and

from the airport by ground transportation vehicles for passengers, employees, cargo, freight, and airport services.

H

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

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

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

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

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

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

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

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

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

LOCAL TRAFFIC: Aircraft operating in the traffic pattern or within sight of the tower, or aircraft known to be departing or arriving from the local practice areas, or aircraft executing practice instrument

approach procedures. Typically, this includes touch and-go training operations.

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

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

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

LOW INTENSITY RUNWAY LIGHTS: The lowest clas- sification 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.

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

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

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

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

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

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

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

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

N

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

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

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

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

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

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 his or her bearing to and from the radio beacon and home on, or track to, the station. When the radio beacon is installed in conjunction with the Instrument Landing System marker, it is normally called a Compass Locator.

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

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

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.

ONE-ENGINE INOPERABLE SURFACE: A surface emanating from the runway end at a slope ratio of 62.5:1. Air carrier airports are required to maintain a technical drawing of this surface depicting any object penetrations by January 1, 2010.

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 minima less than Category II.

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

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

PRECISION OBJECT FREE AREA (POFA): An area centered on the extended runway centerline, beginning at the runway threshold and extending behind the runway threshold that is 200 feet long by 800 feet wide. The POFA is a clearing standard which requires the POFA to be kept clear of above ground objects protruding above the runway safety

area edge elevation (except for frangible NAVAIDS). The POFA applies to all new authorized instrument approach procedures with less than 3/4 mile visibility.

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

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

PROHIBITED AREA: See special-use airspace.

PVC: Poor visibility and ceiling. Used in determining Annual 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 en route 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 en route and for approaches to an airport.

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

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

RUNWAY DESIGN CODE: A code signifiying the 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.

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

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

RUNWAY REFERENCE CODE: A code signifying the current operational capabilities of a runway and associated 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- site from any point five feet above the runway centerline to any point five feet above an intersecting runway centerline.

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

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.

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

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

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

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

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

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

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

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

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

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

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

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

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

TAXIWAY 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 en-route and terminal segment of air traffic in the airspace surrounding airports with moderate to high levels of air traffic.

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

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

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

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

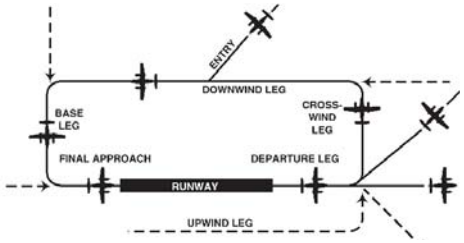
TOUCHDOWN AND LIFT-OFF AREA (TLOF): A load bearing, generally paved area, normally centered in the FATO, on which the helicopter lands or takes off.

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

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



U

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

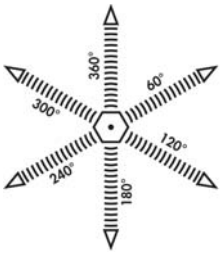
UNCONTROLLED AIRSPACE: Airspace within which aircraft are not subject to air traffic control.

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

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

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 OMNI-DIRECTIONAL 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 control area or portion thereof established in the form of a corridor, the centerline of which is defined by radio navigational aids.

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

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

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

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

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

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

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.

Abbreviations

AC: advisory circular

ADF: automatic direction finder

ADG: airplane design group

AFSS: automated flight service station

AGL: above ground level

AIA: annual instrument approach

AIP: Airport Improvement Program

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

ALS: approach lighting system

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

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

AOA: Aircraft Operation Area

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

ATCT: airport traffic control tower

ATIS: automated terminal information service

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

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

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

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 ILS outer marker

LORAN: long range navigation

MALS: midium intensity approach lighting system with indicator lights

MIRL: medium intensity runway edge lighting

MITL: medium intensity taxiway edge lighting

MLS: microwave landing system

MM: middle marker

MOA: military operations area

MSL: mean sea level

NAVAID: navigational aid

NDB: nondirectional radio beacon

NM: nautical mile (6,076.1 feet)

NPES: National Pollutant Discharge Elimination System

NPIAS: National Plan of Integrated Airport Systems

NPRM: notice of proposed rule making

ODALS: omnidirectional approach lighting system

OFA: object free area

OFZ: obstacle free zone

OM: outer marker

PAC: planning advisory committee

PAPI: precision approach path indicator

PFC: porous friction course

PFC: passenger facility charge

PCL: pilot-controlled lighting

PIW public information workshop

PLASI: pulsating visual approach slope indicator

POFA: precision object free area

PVASI: pulsating/steady visual approach slope indicator

PVC: poor visibility and ceiling

RCO: remote communications outlet

RRC: Runway Reference Code

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

APPENDIX B

ENVIRONMENTAL OVERVIEW

Appendix B
ENVIRONMENTAL OVERVIEW

Analysis of the potential environmental impacts of proposed airport development projects is an important component of the Airport Master Plan process. The primary purpose of this section is to evaluate the proposed development program for the Eloy Municipal Airport to determine whether proposed development actions could individually or collectively affect the quality of the environment.

Construction of the improvements depicted on the Airport Layout Plan (ALP) will require compliance with the *National Environmental Policy Act* (NEPA) *of 1969*, as amended, to receive federal financial assistance. For projects not "categorically excluded" under FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, compliance with NEPA is generally satisfied through the preparation of an Environmental Assessment (EA). In instances in which significant environmental impacts are expected, an Environmental Impact Statement (EIS) may be required. While this portion of the Master Plan is not designed to satisfy the NEPA requirements for a categorical exclusion, EA, or EIS, it is intended to supply a preliminary review of environmental issues that would need to be analyzed in more detail within the NEPA process. This evaluation considers all environmental categories required for the NEPA process as outlined in FAA Order 1050.1E and Order 5050.4B, *National Environmental Policy Act (NEPA) Implementation Instructions for Airport Actions.*

During the inventory process for this master plan, the existing environmental condition was researched and documented within Chapter One. This evaluation will determine if any previously identified resources could be impacted by the proposed airport development projects discussed in Chapter Five and depicted on **Exhibit B1**.

AIR QUALITY

The U.S. Environmental Protection Agency (EPA) has adopted air quality standards that specify the maximum permissible short term and long term concentrations of various air contaminants. The National Ambient Air Quality Standards (NAAQS) consist of primary and secondary standards for six criteria pollutants, which include: Ozone (O_3), Carbon Monoxide (CO), Sulfur Dioxide (SO_2), Nitrogen Dioxide (NO_2), Particulate matter (PM_{10} and $PM_{2.5}$), and Lead (Pb). Potentially significant air quality impacts, associated with an FAA project or action, would be demonstrated by the project or action exceeding one or more of the NAAQS for any of the time periods analyzed. Various levels of air quality impact review apply within both NEPA and permit requirements. According to the most recent update contained on the EPA's Greenbook website, the airport is located within the portion of Pinal County that is in attainment for all criteria pollutants. An attainment area is defined as a geographical area where the levels of all criteria pollutants meet the NAAQS.

A number of projects planned at the airport could have temporary air quality impacts during construction. Emissions from the operation of construction vehicles and fugitive dust from pavement removal are common air pollutants during construction. However, with the use of best management practices (BMPs) during construction, these air quality impacts can be significantly lessened.

COASTAL RESOURCES

Federal activities involving or affecting coastal resources are governed by the *Coastal Barriers Resource Act* (CBRA), the *Coastal Zone Management Act* (CZMA), and E.O. 13089, Coral Reef Protection.

The airport is not located within a Coastal Management Zone or Coastal Barrier Area.

COMPATIBLE LAND USE

The compatibility of existing and planned land uses in the vicinity of an airport is usually associated with the extent of the airport's noise impacts. Typically, significant impacts will occur over noise-sensitive areas within the 65 DNL noise contour.

Noise contours were prepared for the existing (2009) and the future (2029) conditions and are depicted on **Exhibit B2**. As depicted on the exhibit, the existing 65 DNL noise contour extends beyond airport property, encompassing approximately 11.76 acres of vacant lands.

Ultimately, the airfield plan extends both ends of the runway by 650 feet. This runway extension coupled with the growth in the fleet mix to include small to medium sized business jets will enlarge the noise contours, resulting in the 2029 65 DNL noise contour potentially encompassing approximately 24.56 acres beyond airport property and the 70 DNL noise contour encompassing less than one acre beyond airport property. There are no noise-

09MP03-B1-02/02/11

0 500 1000
SCALE IN FEET

NORTH

Huachuca Rd.

Coahuila Street

Tweedy Road

RPZ
500' x 700' x 1,000'

Note:
Potential Through the Fence Access
Subject to City & FAA Approval

Relocated Segmented Circle /
Lighted Wind Cone

1.38 Acres

AWOS

RPZ
500' x 700' x 1,000'

9.65 Acres

650' Extension

Runway 2-20 (3,900' x 75') Ultimate (5,200' x 75')

Taxiway A

650' Extension

300'

35'

5.37 Acres

1.33 Acres

2.81 Acres

Holding Apron
1.33 Acres

Helicopter Parking

4.22 Acres

Holding Apron

Note:
Potential Through the Fence Access
Subject to City & FAA Approval

N Lear Dr.

Terminal / Airport
Maintenance Facility

See Inset

N. Tumbleweed Dr.

Inset

10 Unit
T-Hangars

Aircraft
Wash Rack

2,500 ft² Conventional
Hangars

4.0 Acres

5.5 Acres

0 300
SCALE IN FEET

LEGEND

- Airport Property Line
- Ultimate Airport Property Line
- City Owned Property
- Ultimate Airport Pavement
- Ultimate Airport Roads / Parking
- Ultimate Airport Building
- Ultimate Property Acquisition
- Ultimate Easement Acquisition
- Pavement to be Removed
- Runway Safety Area (RSA)
- Object Free Area (OFA)
- Taxiway OFA
- Obstacle Free Zone (OFZ)
- Collector - 2 Lanes
- Minor Arterial - 4 Lanes
- Runway Protection Zone (RPZ)
- AWOS Automated Weather Observation System

ELOY, ARIZONA

Exhibit B1
RECOMMENDED MASTER PLAN CONCEPT

09MP03-B2-02/08/11

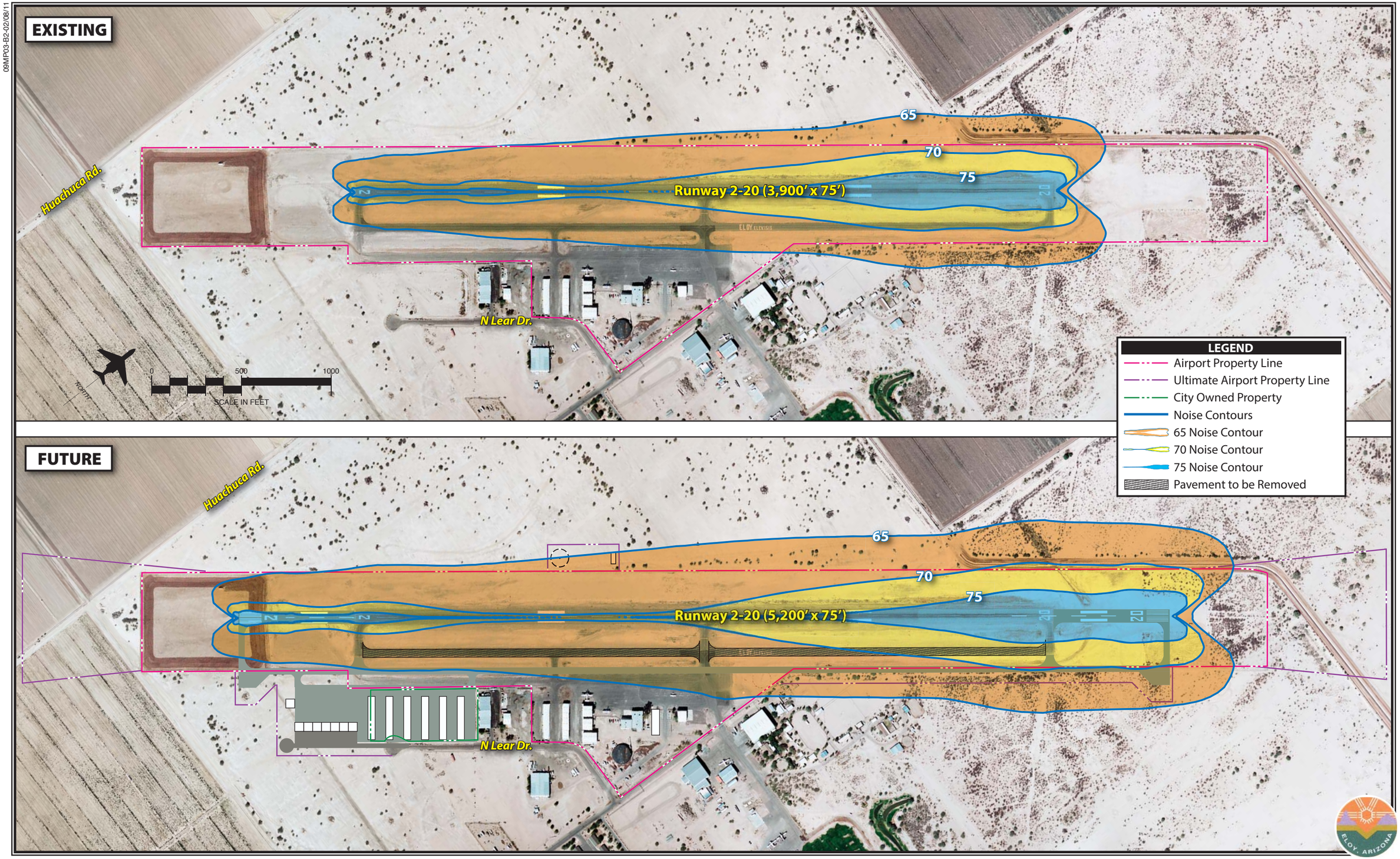


Exhibit B2
EXISTING AND FUTURE NOISE CONTOURS

sensitive land uses located within the existing (2009) 65 DNL noise contour, or in the future (2029) 65 DNL or 70 DNL noise contours.

The protection of the ultimate runway protection zones (RPZs) for each runway end, the construction of holding aprons, and the construction of additional landside facilities will require the acquisition of property to ensure compatible land uses in the future. The 2009 City of Eloy General Plan identifies the land immediately surrounding the airport that is planned for acquisition in this master plan as light industrial land use. This land use designation would be considered a compatible land use with airport operations.

The Picacho Reservoir, located approximately six miles northeast of the Eloy Municipal Airport, serves as water storage and flow regulation for the Florence-Casa Grande and Casa Grande canals. The projects proposed in the master plan concept will have no impact on the Picacho Reservoir.

As a part of the Master Plan process, an airport disclosure map is being created which depicts the airport influence area. This area, which encompasses land surrounding the airport, is determined by the airport traffic patterns and noise exposure contours, among other factors. This disclosure map will be filed with the State of Arizona Department of Real Estate. Any person purchasing property that is located within the boundaries of the airport influence area will be made aware of the property's proximity to the airport.

CONSTRUCTION IMPACTS

Construction impacts typically relate to the effects on specific impact categories, such as air quality or noise, during construction. The use of BMPs during construction is typically a requirement of construction-related permits such as an NPDES (AZDES) permit. Use of these measures typically alleviates potential resource impacts.

Short term construction-related noise impacts could occur during the construction of the runway extensions, the reconstruction of Taxiway A, and the construction of various landside facilities; however, the surrounding land both to the north and south is primarily vacant. Therefore, construction-related noise impacts should be minimal.

Construction-related air quality impacts can be expected. Air emissions related to construction activities will be short term in nature and will be included in the air emission inventory, as required for NEPA documentation efforts. Additionally, a dust control permit from the Pinal County Air Quality Control District may be required for earthmoving activities related to construction projects at the airport.

DEPARTMENT OF TRANSPORTATION ACT: SECTION 4(f)

A significant impact would occur when a proposed action involves more than a minimal physical use of a Section 4(f) property (publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or any land

from a historic site of national, state, or local significance) or is deemed a "constructive use" substantially impairing the Section 4(f) property where mitigation measures do not reduce or eliminate the impacts. Substantial impairment would occur when impacts to Section 4(f) lands are sufficiently serious that the value of the site in terms of its prior significance and enjoyment are substantially reduced or lost.

An archeological site on the airport has been identified as a potential candidate for listing on the National Register of Historic Places. This site, located north of the runway, would ultimately be impacted by grading standards for the runway safety area (RSA) off the end of the extended Runway 20 threshold. Section 4(f) does not apply to archeological resources where the responsible FAA official, after consultation with the State Historic Preservation Office (SHPO) determines that the archaeological resource is important chiefly for data recovery, and is not important for preservation in place. Therefore, consultation with the SHPO should occur to determine if the archeological site on the airport is important chiefly for data recovery. Previous consultation with SHPO in 1991 resulted in the recommendation that archaeological excavations of the site be undertaken.

If it is determined that the archaeological site is important for preservation in place, feasible or prudent alternatives which have either lesser or no impacts to the designated Section 4(f) site will need to be considered. No Section 4(f) impacts would occur if the runway extension occurred to the south, instead of to the north.

Development of the other proposed improvements at Eloy Municipal Airport, including the relocation of Taxiway A and the construction of apron and hangar facilities, will have no effect on designated Section 4(f) properties.

FARMLAND

Under the *Farmland Protection Policy Act* (FPPA), federal agencies are directed to identify and take into account the adverse effects of federal programs on the preservation of farmland to consider appropriate alternative actions which could lessen adverse effects, and to assure that such federal programs are, to the extent practicable, compatible with state or local government programs and policies to protect farmland. The FPPA guidelines apply to farmland classified as prime or unique, or of state or local importance as determined by the appropriate government agency, with concurrence by the Secretary of Agriculture.

In the State of Arizona, prime and unique farmland is characterized as any farmland which is currently irrigated. A search of the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soil Survey identified the land on which the airport is located and the immediately surrounding land as farmland of unique importance. This farmland is designated as such due to it being best suited to food, feed, fiber, forage, and oilseed crops.

Since the recommended master plan concept proposes the acquisition of property that is considered farmland of unique importance, coordination with the NRCS will be necessary during the land acquisition process. This coordination will determine if the FPPA applies to the land the proposed action would convert to non-agricultural use, or if an exemption to

the FPPA exists. If it is determined that the farmland is protected by the FPPA, formal coordination as provided by 7 CFR Part 658 is required.

FISH, WILDLIFE, AND PLANTS

Through consultation with the Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS), the FAA determined that a significant impact to fish, wildlife, or plants will result when the proposed action would likely jeopardize the continued existence of a species in question, or would result in the destruction or adverse modification of federally designated critical habitat in the area. Lesser impacts, as outlined by agencies and organizations having jurisdiction, can also result in a significant impact.

Table B1 lists the state and federally listed threatened, endangered, and candidate species with the potential to occur in Pinal County.

TABLE B1
Federally listed Threatened, Endangered, and Candidate Species with Habitat in Pinal County

COMMON NAME	SCIENTIFIC NAME	HABITAT	STATUS
Arizona Hedgehog Cactus	Echinocereus triglochidiatus var. arizonicus	Ecotone between interior chapparal and madrean evergreen woodland.	Endangered
Brown Pelican	Pelecarnus occidentalis	Coastal land and islands; species found around many Arizona lakes and rivers.	Endangered
Desert Pupfish	Cyprinodon macularius	Shallow springs, small streams, and marshes. Tolerates saline and warm water.	Endangered
Gila Chub	Gila intermedia	Pools, springs, cienegas, and streams.	Endangered
Lesser Long-nosed Bat	Leptonycteris curasoae yerbabuenae	Desert scrub habitat with agave and columnar cacti present as food plants.	Endangered
Loach Minnow	Tiaroga cobitis	Small to large perennial streams with swift shallow water over cobble and gravel.	Threatened
Mexican Spotted Owl	Strix occidentalis lucida	Nests in canyons and dense forests with multilayered foliage structure.	Threatened
Nichol Turk's Head Cactus	Echinocactus horizonthalonius var. nicholii	Sonoran desert scrub.	Endangered
Razorback Sucker	Xyrauchen texanus	Riverine and lacustrine areas, generally not in fast moving water and may use backwaters.	Endangered
Southwestern Willow Flycatcher	Empidonax traillii extimus	Cottonwood/willow and tasmarisk vegetation communities along rivers and streams.	Endangered
Spikedance	Meda fulgida	Moderate to large perennial streamswith gravel substrates and moderate to swift velocities over sand and gravel substitutes.	Threatened
Yuma Clapper Rail	Rallus longirostris yumanensis	Fresh water and brackish marshes	Endangered
Acuna Cactus	Echinomastus erectocentrus var. acunensis	Well drained knolls and gravel ridges in Sonoran desertscrub.	Candidate
Northern Mexican Garter snake	Thamnophis eques megalops	Source-area wetlands.	Candidate
Yellow-billed Cuckoo	Coccyzus americanus	Large blocks of riparian woodlands (cottonwood, willow, or tamarisk galleries).	Candidate

Source: U.S. Fish and Wildlife Service, Pinal County Species List. November 2009

As indicated in the table, several of the listed species, such as the fish and amphibians, require riparian habitat which is not present at the airport. Potential presence of the remaining cactus and bat species may require field investigation prior to commencing with construction projects that include the runway extensions, the reconstruction of Taxiway A, and the landside development projects. As discussed in Chapter One, the Arizona Heritage Data Management System on-line environmental review tool identified the occurrence of critical habitat for the Western Burrowing Owl within two miles of the airport. Coordination with the U.S. Fish and Wildlife Service is needed prior to project implementation.

FLOODPLAINS

Significant impacts to floodplains occur when a proposed action results in notable adverse impacts on natural and beneficial 100-year floodplain values. According to the Federal Emergency Management Agency (FEMA) Federal Insurance Rap Maps (FIRM), the project area is not located within a 100-year floodplain.

HAZARDOUS MATERIALS, POLLUTION PREVENTION, AND SOLID WASTE

The airport must comply with applicable pollution control statutes and requirements. Impacts may occur when changes to the quantity or type of solid waste generated, or type of disposal, differ greatly from existing conditions. According to the EPA's *Enviromapper for Envirofacts*, there are no impaired waters in the vicinity of the airport. Two EPA-regulated facilities are located in close proximity to the airport. The first site is listed as the Arizona Aeropainting LLC, which is an aircraft painting business. The second site is Al Don Dusting Services Inc., which does soil preparation, planting, and cultivating.

The proposed property acquisition may require the preparation of an environmental due diligence audit to determine the presence of any recognized environmental conditions (RECs). An REC is defined by the American Society for Testing and Materials as the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances, or petroleum products into the ground, groundwater, or surface water of a property.

According to the EPA's National Priorities List (NPL), there are no active Superfund sites located in the vicinity of the airport. Eloy Municipal Airport operates in conformance with Section 402(p) of the *Clean Water Act*. The airport does not currently have a Storm Water Pollution Prevention Plan (SWPPP). Prior to any on-airport construction, a SWPPP should be developed in order to obtain NPDES permit coverage for stormwater discharges associated with construction site operators. The SWPPP may require modifications as impervious surfaces are added or removed from the airport.

As a result of increased operations at the airport, solid waste may slightly increase; however, these increases are not anticipated to be significant. The nearest landfill facility is the Eloy Landfill located approximately 11 miles south of the airport.

HISTORICAL, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

Impacts may occur when the proposed project causes an adverse effect on a property which has been identified (or is unearthed during construction) as having historical, architectural, archaeological, or cultural significance. Guidance for establishing impacts is provided by the *National Historic Preservation Act of 1966* (NHPA), as amended, and the *Archaeological and Historic Preservation Act of 1974* (AHPA).

The AHPA provides for the preservation of historic American sites, buildings, objects, and antiquities of national significance by providing for the survey, recovery, and preservation of historical and archaeological data, which might otherwise be destroyed or irreparably lost due to a Federal, Federally licensed, or Federally funded action.

Section 106 of the NHPA, as amended, requires Federal agencies to take into account the effects of their undertakings on historic properties and determine if any properties in or eligible for inclusion in the National Register of Historic Places (NRHP) are present in the area.

In 1990, as part of the preparation of a Preliminary Draft Environmental Assessment for a runway extension at Eloy Municipal Airport, SWCA, Inc. completed an Archaeological Resource Survey of the area north of the runway. They identified one site which was potentially eligible for listing on the NRHP. SWCA recommended the site be avoided; if this was not possible, archaeological testing would be required.

In 1998, as part of a proposed Environmental Assessment, Archaeological Consulting Services, Inc. (ACS) was contracted to perform an Archaeological Resource Survey of additional properties in the vicinity of Eloy Municipal Airport, mapped as three separate parcels. This study surveyed both areas north and south of the existing runway centerline and the area planned for landside improvements. The results of this survey expanded the boundaries of the site originally identified in 1990, but found no new sites eligible for listing on the National Register. ACS recommended the site be avoided; if this was not possible, they recommended additional archaeological testing be performed.

Coordination with the Arizona State Historic Preservation Office (SHPO) has occurred in relation to this project. In a September 1997 response to the initial agency coordination request, the SHPO confirmed that the identified site north of the airport is considered eligible for inclusion on the NRHP. They noted that, back in 1991, they had recommended archaeological excavations of the area to be impacted, and that the project was subsequently dropped. In a second response, in October 1997, the SHPO noted that, because of known sites in the vicinity of Eloy Municipal Airport, there was a greater than usual chance of oth-

er sites being in the area and recommended a survey of all areas to be impacted by the proposed project that had not been previously surveyed.

In November 1998, upon receipt of the ACS report, the SHPO identified that archaeological testing of the site to the north would be necessary in order to determine whether or not intact subsurface archaeological deposits were present and would be disturbed by the proposed expansion. The letter continued that the SHPO preferred the alternative which provided for the runway expansion to take place exclusively at the south end in order to avoid the identified archaeological site on the north end. If this was not possible, the additional archaeological investigation would be necessary prior to further pursuing this alternative. The most recent update to the archeological site's status for being registered on the NRHP came in December of 2001 when the SHPO recommended further testing of the site.

Impacts to historic and cultural resources resulting from implementation of the 650-foot runway extension to the northeast may be considered potentially significant. Further survey work and possibly data recovery activities are required. No impacts to historical/cultural resources are expected with implementation of the relocation of Taxiway A, the 650-foot southerly extension of the runway, or the construction of the apron, hangar facilities, and other landside facilities.

LIGHT EMISSIONS AND VISUAL IMPACTS

Airport lighting is characterized as either airfield lighting (i.e., runway, taxiway, approach and landing lights) or landside lighting (i.e., security lights, building interior lighting, parking lights, and signage). Generally, airport lighting does not result in significant impacts unless a high intensity strobe light, such as a Runway End Identifier Light (REIL), would produce glare on any adjoining site, particularly residential uses.

Visual impacts relate to the extent that the proposed development contrasts with the existing environment and whether a jurisdictional agency considers this contrast objectionable. The visual sight of aircraft, aircraft contrails, or aircraft lights at night, particularly at a distance that is not normally intrusive, should not be assumed to constitute an adverse impact.

Airside developments include a 1,300-foot extension of Runway 2-20, the relocation of Taxiway A 100 feet farther from the runway centerline, and the construction of taxiway holding aprons. The runway extensions and the relocation of Taxiway A will result in the extension of runway and taxiway lighting. Landside development at the airport will create a new terminal building, new hangar space, and expand the aircraft parking apron area.

If the potential for lighting or visual impacts is determined to be associated with the planned development, consultation with local residents and the owners of light-sensitive sites may be needed to determine possible alternatives to minimize these effects without risking aviation safety or efficiency. Additional coordination with State, regional, or local art or architecture councils, tribes, or other organizations having an interest in airport-associated visual effects may be necessary.

NATURAL RESOURCES AND ENERGY SUPPLY

In instances of proposed actions, such as the expansion of utilities, power companies or other suppliers of energy will need to be contacted to determine if the proposed project demands can be met by existing or planned facilities.

Increased use of energy and natural resources are anticipated as the operations at the airport grow. None of the planned development projects are anticipated to result in significant increases in energy consumption.

NOISE

The Yearly Day-Night Average Sound Level (DNL) is used in this study to assess aircraft noise. DNL is the metric currently accepted by the FAA, EPA, and Department of Housing and Urban Development (HUD) as an appropriate measure of cumulative noise exposure. These three federal agencies have each identified the 65 DNL noise contour as the threshold of incompatibility.

Noise contours were prepared for the existing (2009) and future (2029) conditions at the airport. As indicated on the top half of **Exhibit B2**, the existing 65 DNL noise contour extends beyond airport property primarily on the north end of the airport where it encompasses approximately 11.76 acres of vacant land. The airfield plan proposes extending Runway 2-20 to 5,200 feet, which will also extend the future noise exposure contours both to the north and south. The future fleet mix includes increased use by small to medium sized business jets and turboprop aircraft, which grow the noise contours as depicted on the bottom half of **Exhibit B2**. The future 65 DNL noise contour extends beyond airport property and encompasses approximately 24.56 acres of vacant land, and the 70 DNL noise contour extends beyond airport property encompassing less than one acre of vacant land. No noise-sensitive land uses are located within the existing or future 65 DNL noise contour.

SECONDARY (INDUCED) IMPACTS

These impacts address those secondary impacts to surrounding communities resulting from the proposed development, including shifts in patterns of population growth, public service demands, and changes in business and economic activity to the extent influenced by airport development.

Significant shifts in patterns of population movement or growth or public service demands are not anticipated as a result of the proposed development. It could be expected, however, that the proposed development would potentially induce positive socioeconomic impacts for the community over a period of years. The airport, with expanded facilities and services, would be expected to attract additional users. It is also expected to encourage industry and trade, and to enhance the future growth and expansion of the community's economic base. Future socioeconomic impacts resulting from the proposed development are anticipated to be primarily positive in nature.

SOCIOECONOMIC IMPACTS, ENVIRONMENTAL JUSTICE, AND CHILDREN'S ENVIRONMENTAL HEALTH AND SAFETY RISKS

Impacts occur when disproportionately high and adverse human health or environmental effects occur to minority and low-income populations; disproportionate health and safety risks occur to children; and extensive relocation of residents, businesses, and disruptive traffic patterns are experienced.

Socioeconomic impacts known to result from airport improvements are often associated with relocation activities or other community disruptions, including alterations to surface transportation patterns, division or disruption of existing communities, interferences with orderly planned development, or an appreciable change in employment related to the project.

The acquisition of real property or displacing people or businesses is required to conform to the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970* (URARPAPA). These regulations mandate that certain relocation assistance services be made available to owners/tenants of the properties.

The proposed airport development concept includes the acquisition of approximately 30 acres of vacant or farmland property to allow for the extension of the runway, the protection of the runway approaches, and for the expansion of landside facilities such as hangars and apron space. The land acquisitions would not include the relocation of residents or businesses. The future noise contours do not include any noise-sensitive land uses.

Executive Order 12898, *Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations,* the accompanying Presidential Memorandum, and Order DOT 5610.2, *Environmental Justice* require FAA to provide for meaningful public involvement by minority and low-income populations, as well as analysis that identifies and addresses potential impacts on these populations that may be disproportionately high and adverse.

Given the location of the land acquisition, the proposed development is not anticipated to divide or disrupt an established community, interfere with orderly planned development, or create a short-term, appreciable change in employment.

Pursuant to Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks,* federal agencies are directed to identify and assess environmental health and safety risks that may disproportionately affect children. These risks include those that are attributable to products or substances that a child is likely to come in contact with or ingest, such as air, food, drinking water, recreational waters, soil, or products to which they may be exposed.

During construction of the projects outlined within the master plan, appropriate measures should be taken to prevent access by unauthorized persons to construction project areas. Additionally, BMPs should be implemented to decrease environmental health risks to children.

WATER QUALITY

Water quality concerns associated with airport expansion most often relate to domestic sewage disposal, increased surface runoff and soil erosion, and the storage and handling of fuel, petroleum, solvents, etc.

A drainage canal is located along the northern boundary of the airport. The proposed airport developments will not require the realignment of the drainage canal; however, the Runway 20 RPZ will encompass a portion of the drainage canal. An avigation easement is recommended for this portion to protect the runway approach.

As discussed previously, Eloy Municipal Airport operates in conformance with Section 402(p) of the *Clean Water Act*. The airport will need to acquire and comply with an AZPDES operations permit. As facilities develop on the airport and impervious surfaces increase, the airport may be affected by increased water runoff. Retention ponds may need to be considered to limit the amount of impact on airport facilities by water runoff. With regard to construction activities, the airport and all applicable contractors will need to obtain and comply with the requirements and procedures of the construction-related AZPDES General Permit number AZG2003-001, including the preparation of a *Notice of Intent* and a SWPPP, prior to the initiation of product construction activities.

During construction of any of the planned improvements at the airport, it is suggested that mitigation measures from FAA Advisory Circular 150/5370-10A, *Standards for Specifying Construction of Airports, Item P-156, Temporary Air and Water Pollution, Soil Erosion and Siltation Control*, be incorporated into project design specifications to further mitigate potential water quality impacts. These standards include temporary measures to control water pollution, soil erosion, and siltation through the use of berms, fiber mats, gravels, mulches, slope drains, and other erosion control methods.

Additionally, as development occurs at the airport, the SWPPP will need to be modified to reflect the additional impervious surfaces and any stormwater retention facilities. The addition and removal of impervious surfaces may require modifications to this plan should drainage patterns be modified.

WETLANDS AND WATERS OF THE U.S.

The U.S. Army Corps of Engineers (ACOE) regulates the discharge of dredged and/or fill material into waters of the United States, including adjacent wetlands, under Section 404 of the Clean Water Act. Wetlands are defined by Executive Order 11990, *Protection of Wetlands*, as those areas that are inundated by surface or groundwater with a frequency sufficient to support, and under normal circumstances, does or would support a prevalence of vegetation or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction.

Categories of wetlands include swamps, marshes, bogs, sloughs, potholes, wet meadows, river overflows, mud flats, natural ponds, estuarine area, tidal overflows, and shallow lakes

and ponds with emergent vegetation. Wetlands exhibit three characteristics: hydrology, hydrophytes (plants able to tolerate various degrees of flooding or frequent saturation), and poorly drained soils. Waters of the U.S. also include washes.

Correspondence from the U.S. Department of the Army during the preparation of the previous Master Plan indicated that no wetlands or waters of the United States are present on airport property. These findings are supported by a search of the NRCS Soil Survey, which determined that the soil in the project area is not hydric. (Hydric soils are those that, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.)

No impacts to wetlands or waters of the U.S. are anticipated with implementation of the proposed projects.

WILD AND SCENIC RIVERS

Wild and scenic rivers (WSR) are designated by the *Wild and Scenic River Act*. A National Rivers Inventory (NRI) is maintained to identify those river segments which are protected under this act. No wild and scenic rivers are located in the vicinity of Eloy Municipal Airport.

ENVIRONMENTAL ACTION PLAN

The purpose of this environmental overview has been to identify potential impacts of the projects proposed in the recommended master plan concept. Prior to construction, many of the projects will require further environmental consideration. The three major levels of NEPA review are categorical exclusions, environmental assessments (EA), and environmental impact statements (EIS).

Categorical exclusions must meet the criteria contained in 40 CFR 1508.4 and are defined as "a category of actions that do not normally require an EA or EIS because they do not individually or cumulatively have a significant effect on the human environment, with the exception of extraordinary circumstances." It is the responsibility of the responsible FAA official to determine whether extraordinary circumstances exist and if so, deem the action appropriate for an EA. **Table B2** provides an annotated description of extraordinary circumstances as detailed in FAA Order 5050.4B *National Environmental Policy Act Implementing Instructions for Airport Actions*.

TABLE B2
Extraordinary Circumstances

Extraordinary Circumstance	Annotated Description
Air Quality	An action that would violate applicable Federal, State, Tribal, or local air quality standards under the Clean Air Act of 1990, as amended.
Coastal Zone Areas	Federal actions in or affecting coastal resources must meet requirements of Coastal Zone Management Act programs.
Community Disruption	An action dividing or disrupting an established community or planned development, or that is inconsistent with plans or goals of a community where the project would occur.
Cumulative Impacts	An action likely to cumulatively cause significant impacts.
Endangered Species	An action that may affect listed or candidate species under the Endangered Species Act, including designated or proposed critical habitats.
Farmlands Conversion	An action that would convert important farmland protected by the Farmland Protection Act.
Floodplains	An impact on natural, ecological, or scenic floodplain resources of Federal, State, Tribal, or local significance that an action in the 100-year floodplain would cause.
Hazardous Materials	An action involving or causing contamination of areas, based on Phase I or II Environmental Due Diligence Audits.
Highly Controversial Action	A substantial dispute exists concerning the size, nature, or effect of the proposed action. Effects are considered highly controversial when reasonable disagreement exists over a project's risks of causing environmental harm.
Historic or Cultural Property	An action causing an adverse effect on historic or cultural property protected by Section 106 of the National Historic Preservation Act.
Inconsistency With Applicable Laws	An action that is likely to be inconsistent with any applicable Federal, State, local, or Tribal law relating to the proposed action's environmental aspects.
Noise	Noise impact on noise-sensitive areas.
Section 4(f)	An action having an impact on properties protected by DOT Act, Section 4(f) such as publicly owned land in a park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance or a historical site of national, state, or local significance.
Traffic Congestion	An action causing transportation congestion by causing unacceptable Levels of Service.
U.S. Waters, Including Jurisdictional Wetlands	An action affecting these waters or wetlands that does not qualify for a U.S. Army Corps of Engineers General Permit under Section 404 of the Clean Water Act.
Water Quality	An impact on water quality, sole source aquifers, a public water supply system or State or Tribal water quality or water standards established under the Clean Water Act of the Safe Drinking Water Act.
Wild and Scenic Rivers	An action affecting a river segment that is listed in the Wild and Scenic River System, the National Rivers Inventory, or one that is eligible for the Inventory.

An EA, at a minimum, must be prepared for a proposed action when the initial review of the proposed action indicates that it is not categorically excluded, involves at least one extraordinary circumstance, or the action is not one known normally to require an EIS and is not categorically excluded. The following is a list of actions normally requiring an EA according to FAA Order 1050.1E, Change 1 that could potentially apply to projects listed in this master plan's Capital Improvement Program:

A. "**Acquisition of land greater than three acres** for, and the construction of, new office buildings and essentially similar FAA facilities.
B. Federal financial participation in, or unconditional airport layout plan approval of, the following categories of airport actions:

1) Airport location.
2) New Runway.
3) Major Runway Extension.
4) Runway strengthening having the potential to increase off-airport noise impacts by DNL 1.5 dB or greater over noise-sensitive land uses within the DNL 65 dB noise contour.
5) Construction or relocation of entrance or service road connections to public roads which substantially reduce the Level of Service rating of such public roads below the acceptable level determined by the appropriate transportation agency.
6) Land acquisition associated with any of the items in C(1) through C(5).

C. **New instrument approach procedures**, departure procedures, en route procedures, and modifications to currently approved instrument procedures which routinely route aircraft over noise-sensitive areas at less than 3,000 feet above ground level (AGL)."

The purpose of an EA is to document the FAA determination as to whether or not a proposed action has the potential for significant environmental impacts. If none of the potential impacts is likely to be significant, then the responsible FAA official shall prepare a finding of no significant impact (FONSI), which briefly presents, in writing, the reasons why an action, not otherwise categorically excluded, will not have a significant impact on the human environment, and the Approving Official may approve it. Issuance of a FONSI signifies that the FAA will not prepare an EIS and has completed the NEPA process for the proposed action. A draft EA is valid for three years; however, if the approving official has not issued a FONSI within three years of receipt of the final draft EA, a written reevaluation of the draft must be prepared by the responsible FAA official to determine whether the consideration of alternatives, impacts, existing environment, and mitigation measures set forth in the EA remain applicable, accurate, and valid. If significant changes to factors considered in the proposal occurred, a supplement to the EA or a new EA must be prepared.

If the responsible FAA official determines that the proposed action significantly affects the quality of the human environment, an EIS shall be prepared. An EIS is a clear, concise, and appropriately detailed document that provides the agency decisionmakers and the public with a full and fair discussion of significant environmental impacts of the proposed action and reasonable alternatives and implements the requirement in NEPA section 102(2)(C) for a detailed written statement.

Table B3 identifies projects listed in this master plan's CIP that will likely require environmental action. Scoping for individual EAs may include just a single project or multiple projects depending on how they are related. For example, the EA for the relocation of Taxiway A may also include the land acquisition for the expansion of the runway. That determination will need to be made at the onset of the environmental process.

It should be noted that projects that may normally be categorically excluded (CAT-EX) may be found at a later time by the FAA to involve extraordinary circumstances and, therefore, require an EA. This listing is meant to generally identify those projects that additional environmental documentation will need to be pursued. Coordination with the airport's des-

ignated FAA environmental protection specialist (EPS) is needed throughout any development project.

TABLE B3
Eloy Municipal Airport CIP Environmental Action

Project Description	Anticipated Environmental Action
Short Term Projects	
Restore PAPIs and REILs	CAT-EX
Relocate Segmented Circle and Lighted Wind Indicator	CAT-EX
Runway/Taxiway Improvements • Relocate Taxiway A 100 Feet Southeast & Install Taxiway Edge Lighting • Extend Runway 2-20 & Taxiway A 650 Feet Southwest • Acquire Lands for the Expansion of the Runway and Protection of Runway Approaches (24.76 Acres) • Acquire Avigation Easement (1.33 Acres)	EA
Rehabilitation of Apron (15,450 yd^2)	CAT-EX
Install AWOS	CAT-EX
Reconstruct Lear Drive	CAT-EX
Construct T-Hangar Taxilanes	CAT-EX
Design the Installation of New GPS Approach System	EA
Construct Terminal Building	CAT-EX/EA
Intermediate Term Projects	
Acquire Land for the Expansion of Landside Facilities (5.5 Acres)	EA
Construct T-Hangar Taxilanes	CAT-EX
Construct Apron (11,111 yd^2)	CAT-EX/EA
Construct Wash Rack	CAT-EX
Extend N. Lear Drive, Utilities & Construct Parking Lot	CAT-EX/EA
Pavement Maintenance	CAT-EX
Long Term Projects	
Extend Runway 2-20 & Taxiway A 650 Feet Northeast	EA
Install Distance Remaining Signage	CAT-EX
Construct T-Hangar Taxilanes	CAT-EX
Expand Vehicle Parking Lot and Utilities	CAT-EX
Upgrade to PAPI-4s on Each Runway End	CAT-EX
Pavement Maintenance	CAT-EX

CAT-EX – Categorical Exclusion
EA – Environmental Assessment

APPENDIX C

AIRPORT LAYOUT PLAN DRAWINGS

Appendix C
AIRPORT LAYOUT PLAN DRAWINGS

Per Federal Aviation Administration (FAA) requirements, an official Airport Layout Plan (ALP) has been developed for Eloy Municipal Airport. The ALP is used in part by the FAA to determine funding eligibility for future development projects.

These drawings were created on a computer-aided drafting system (CAD) and serve as the official depiction of the current and planned condition of the airport. These drawings will be delivered to the FAA for their review and inspection. The FAA will critique the drawings from a technical perspective to be sure all applicable federal regulations are met.

The following is a description of the ALP drawings included with this Master Plan.

Airport Layout Plan (Sheet 1 of 7) – An official ALP drawing has been developed for Eloy Municipal Airport, a draft of which is included in this appendix. The ALP drawing graphically presents the existing and ultimate layout plan of the airport. The ALP drawing will include such elements as the physical airport features, location of airfield facilities (i.e., runways, taxiways, navigational aids), and existing general aviation development. Also presented on the ALP are the runway safety areas, airport property boundary, and revenue support areas. The ALP is used by the FAA to determine funding eligibility for future capital projects.

Terminal Area Plan (Sheet 2 of 7) – The Terminal Area Plan provides greater detail concerning landside improvements at a larger scale than on the ALP drawing.

Part 77 Airport Airspace Plan (Sheet 3 of 7) – The Airport Airspace Drawing is a graphic depiction of the Title 14 Code of Federal Regulations (CFR) Part 77, *Objects Affecting Navigable Airspace*, regulatory criterion. The Airport Airspace Drawing is intended to aid local authorities in determining if proposed development could present a hazard to the airport and obstruct the approach path to a runway end. These plans should be coordinated with local land use planners.

Inner Portion of the Runway 2-20 Approach Surface Drawing (Sheet 4 of 7) – The Inner Portion of the Approach Surface Drawing contains the plan and profile view of the inner portion of the approach surface to the runway and a tabular listing of all surface violations. The drawings also contain other approach surfaces, such as the threshold siting surface. Detailed obstruction and facility data is provided to identify planned improvements and the disposition of obstructions. A drawing of each runway end is provided.

Outer Portion of the Runway 2-20 Approach Surface Drawing (Sheet 5 of 7) – The Outer Portion of the Approach Surface Drawing provides both plan and profile views of 14 CFR Part 77 approach surfaces for each runway end. A composite profile of the extended ground line is depicted. Obstructions and clearances over roads are shown as appropriate.

On-Airport Land Use Plan (Sheet 6 of 7) – The On-Airport Land Use Plan is a geographic depiction of the land use recommendations. The objective of this drawing is to coordinate uses of the airport property in a manner compatible with the functional design of the airport facility. When development is proposed, it should be directed to the appropriate land use area depicted on this plan.

"Exhibit A" Property Map (Sheet 7 of 7) – The "Exhibit A" Property Map provides information on the acquisition and identification of all land tracts under the control of the airport. Both existing and future property holdings are identified on the Property Map.

DRAFT ALP DISCLAIMER

The ALP drawing set has been developed in accordance with the most current Federal Aviation Administration (FAA) guidelines and standards. At the time this document was printed, the ALP set was under final review by the FAA and has not yet been approved and is still subject to FAA airspace review and subsequent changes. For future reference, please refer to the most current full-size "approved" ALP on file with the City of Eloy and the FAA.

ELOY MUNICIPAL AIRPORT

AIRPORT MASTER PLAN

AIRPORT LAYOUT PLAN SET

INDEX OF DRAWINGS

PREPARED FOR THE
CITY OF ELOY

Coffman Associates
Airport Consultants
www.coffmanassociates.com

RUNWAY DATA

RUNWAY DATA	RUNWAY 2-20 EXISTING 2	EXISTING 20	ULTIMATE 2	ULTIMATE 20
AIRCRAFT APPROACH CATEGORY-DESIGN GROUP	A-II		B-II	
FAR PART 77 CATEGORY	VISUAL	VISUAL	NONPREC	NONPREC
APPROACH VISIBILITY MINIMUMS	+1 Mile	+1 Mile	1 Mile	1 Mile
DESIGN CRITICAL AIRCRAFT	DHC TWIN OTTER		CITATION 560 Excel	
WINGSPAN OF DESIGN AIRCRAFT	65.0'		55.7'	
UNDERCARRIAGE WIDTH OF DESIGN AIRCRAFT	12' 2"		25.2'	
APPROACH SPEED (KNOTS) OF DESIGN AIRCRAFT	75		107	
MAXIMUM CERTIFIED TAKEOFF WEIGHT (LBS) OF DESIGN AIRCRAFT	12,500		20,000	
RUNWAY EFFECTIVE GRADIENT	0.182%		SAME	
RUNWAY MAXIMUM GRADIENT	0.4%		SAME	
PAVEMENT DESIGN STRENGTH (in thousand lbs.)[1]	27.5(s)		SAME	
APPROACH SLOPE	20:1	20:1	34:1	34:1
RUNWAY END ELEVATION (MSL)	1511.9'	1504.8'	1510.9'	1505.1'
RUNWAY TOUCHDOWN ZONE ELEVATION (MSL)	1511.9'	1510.0'	SAME	SAME
RUNWAY HIGH POINT ELEVATION (MSL)	1511.9'		SAME	
RUNWAY LOW POINT ELEVATION (MSL)	1504.8'		SAME	
LINE OF SIGHT REQUIREMENT MET	YES		SAME	
RUNWAY LENGTH	3900'		5200'	
RUNWAY WIDTH	75'		SAME	
RUNWAY BEARING (TRUE)	37.67°	329.65°	SAME	SAME
RUNWAY SAFETY AREA LENGTH BEYOND STOP END OF RUNWAY	300'	300'	SAME	SAME
RUNWAY SAFETY AREA WIDTH	150'		SAME	
RUNWAY OBJECT FREE AREA LENGTH BEYOND STOP END OF RUNWAY	300'	300'	SAME	SAME
RUNWAY OBJECT FREE AREA WIDTH	500'		SAME	
RUNWAY OBSTACLE FREE ZONE LENGTH BEYOND RUNWAY END	200'	200'	SAME	SAME
RUNWAY OBSTACLE FREE ZONE WIDTH	400'		SAME	
DISTANCE FROM RUNWAY CENTERLINE TO HOLD BARS AND SIGNS	120'		200'	
RUNWAY MARKING	BASIC	BASIC	NP	NP
STANDARD SEPARATION – RUNWAY CL TO PARALLEL TAXIWAY CL	200'		240'	
STANDARD SEPARATION – TAXIWAY CL TO FIXED OR MOVABLE OBJECT	65.5'		SAME	
RUNWAY SURFACE/PAVEMENT MATERIAL	Asphalt		SAME	
RUNWAY PAVEMENT SURFACE TREATMENT	None		SAME	
RUNWAY LIGHTING	MIRL		MIRL	
TAXIWAY WIDTH	40		35'	
TAXIWAY SURFACE MATERIAL	Asphalt		SAME	
TAXIWAY OBJECT FREE AREA WIDTH	131'		SAME	
TAXIWAY SAFETY AREA WIDTH	79'		SAME	
TAXIWAY WINGTIP CLEARANCE	26'		SAME	
TAXIWAY MARKING	Centerline		SAME	
TAXIWAY LIGHTING	NONE		MITL	
RUNWAY NAVIGATIONAL AIDS	GPS		SAME	
RUNWAY VISUAL AIDS	Beacon(out of service) PAPIs-2(out of service) REILS(out of service) Segmented Circle Wind Cone		Airport Beacon PAPIs-4 REILS SAME SAME	

[1]Pavement strengths are expressed in Single(S), Dual(D), and Dual Tandem (DT) wheel loading capacities.

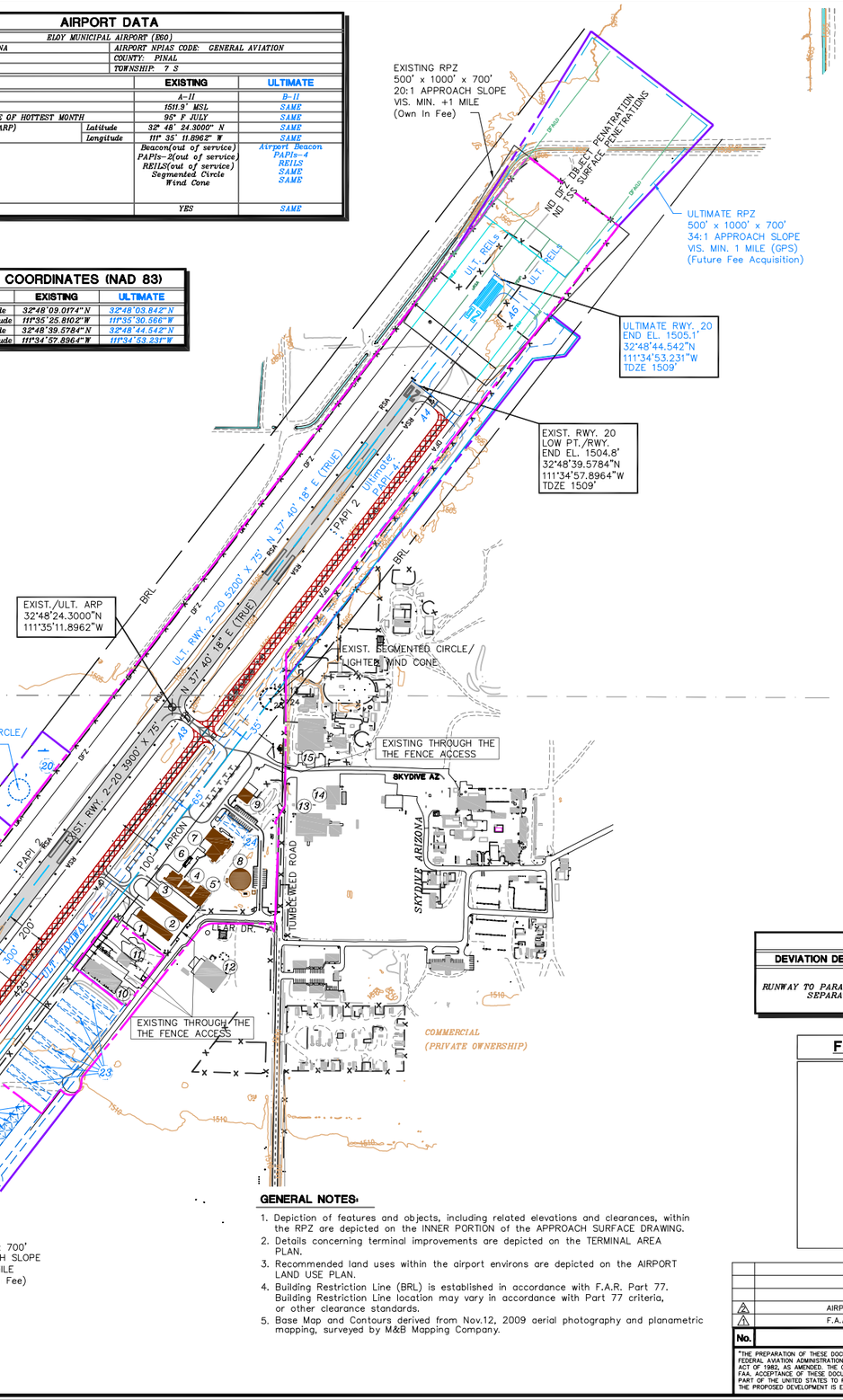
AIRPORT DATA

ELOY MUNICIPAL AIRPORT (ELO)

OWNER: CITY OF ELOY, ARIZONA	AIRPORT NPIAS CODE: GENERAL AVIATION	
CITY: ELOY, ARIZONA	COUNTY: PINAL	
RANGE: 7 E/SEC. 23	TOWNSHIP: 7 S	
	EXISTING	ULTIMATE
AIRPORT REFERENCE CODE	A-II	B-II
AIRPORT ELEVATION (MSL)	1511.9' MSL	SAME
MEAN MAXIMUM TEMPERATURE OF HOTTEST MONTH	95° F JULY	SAME
AIRPORT REFERENCE POINT (ARP) Latitude	32° 48' 24.3000" N	SAME
COORDINATES (NAD 83) Longitude	111° 35' 11.8962" W	SAME
AIRPORT NAVAIDS	Beacon(out of service) PAPIs-2(out of service) REILS(out of service) Segmented Circle Wind Cone	Airport Beacon PAPIs-4 REILS SAME SAME
GPS AT AIRPORT	YES	SAME

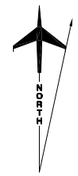
RUNWAY END COORDINATES (NAD 83)

RUNWAY		EXISTING	ULTIMATE
Runway 2	Latitude	32°48'09.0174"N	32°48'03.842"N
	Longitude	111°35'25.8102"W	111°35'30.566"W
Runway 20	Latitude	32°48'39.5784"N	32°48'44.542"N
	Longitude	111°34'57.8964"W	111°34'53.231"W



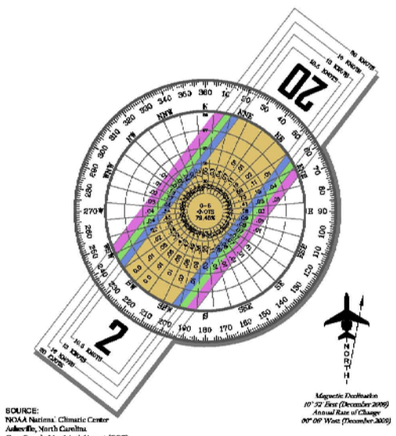
ALL WEATHER WIND COVERAGE

Runways	10.5 Knots	13 Knots	16 Knots	20 Knots
Runway 2-20	96.89%	96.77%	93.72%	90.61%



11.7017° E (2010)
MAGNETIC VARIANCE
(-3.74' W) Year

0 300 600
SCALE IN FEET



SOURCE:
NOAA National Climatic Center
Asheville, North Carolina
Casa Grande Municipal Airport (CGZ)
Casa Grande, Arizona

OBSERVATIONS:
261,346 All Weather Observations
1992-2009

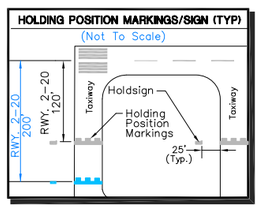
Magnetic Declination
10°52' East (December 2009)
Annual Rate of Change:
00° 06' West (December 2009)

LEGEND

EXISTING	ULTIMATE	DESCRIPTION
		AIRPORT PROPERTY LINE
		AIRPORT REFERENCE POINT (ARP)
		AIRPORT ROTATING BEACON
		BUILDING AND FACILITIES
N/A		PAVEMENT TO BE REMOVED
BRL		BUILDING RESTRICTION LINE (BRL)
		AVIGATION EASEMENT
OFA	OFA(U)	OBJECT FREE AREA (OFA)
RSA	RSA	RUNWAY SAFETY AREA (RSA)
OFZ	OFZ(U)	OBSTACLE FREE ZONE (OFZ)
		FACILITY CONSTRUCTION
		FENCING
PAPI-2	PAPI-4	NAVIGATIONAL AID INSTALLATION
		RUNWAY END IDENTIFICATION LIGHTS (REIL)
		RUNWAY THRESHOLD LIGHTS
		RUNWAY PROTECTION ZONE (RPZ)
		SEGMENTED CIRCLE/LIGHTED WIND TEE
		WIND INDICATOR (Lighted)
1080 / 5% / 5%		TOPOGRAPHIC CONTOURS
		SECTION CORNER
B	B	TAXIWAY DESIGNATION
		HOLD POSITION MARKINGS
		AUTOMATED WEATHER OBSERVATION STATION (AWOS)

HOLDING POSITION MARKINGS/SIGN (TYP)

(Not To Scale)



BUILDINGS/FACILITIES

EXISTING	ULTIMATE	DESCRIPTION	ELEV.
1		T-HANGARS	1523.3'
2		T-HANGARS	1523.8'
3		HANGAR #5 BRUNETTO FLYING SERVICE	1539.2'
4		HANGAR #4 AIRBORNE SYSTEMS	1524.1'
5		HANGAR #3 (Rigging Innovations)	1526.0'
6		FUEL STORAGE	NA
7		HANGAR #1 (Rigging Innovations)	1527.2'
8		WATER TANK	1526.8'
9		HANGAR #2 SKYDIVE ARIZONA	1526.4'
	20	AUTOMATED WEATHER OBSERVATION STATION (AWOS)	±1532.0'
	21	AIRCRAFT WASHRACK	NA
	22	CONVENTIONAL HANGAR (FBO)	±1528.0'
	23	T-HANGARS (10 units)	±1528.0'
	24	TERMINAL BUILDING	±1527.0'
EXISTING OFF AIRPORT PROPERTY			
10		ARIZONA AEROPAINTING	1529.5'
11		CROP FIRST AVIATION	1527.8'
12		AIRCRAFT MAINTENANCE & RESTORATION FACILITY	1543.3'
13		SKYDIVE ARIZONA/AERO SPECIALISTS	1533.1'
14		SKYDIVE ARIZONA/AERO SPECIALISTS	1527.9'
15		SKYDIVE ARIZONA/AERO SPECIALISTS	1548.2'

DEVIATIONS FROM FAA AIRPORT DESIGN STANDARDS

DEVIATION DESCRIPTION	EFFECTED DESIGN STANDARD	STANDARD	EXISTING	PROPOSED DISPOSITION
RUNWAY TO PARALLEL TAXIWAY SEPARATION	AC 150/5300-13	240'	200'	CONSTRUCT ULT. PARALLEL TAXIWAY "A" 300' TO THE SOUTHEAST ADDITIONAL COST ASSOCIATED WITH EXCEEDING DESIGN STANDARD TO BE FUNDED BY THE AIRPORT SPONSOR.

GENERAL NOTES:

1. Depiction of features and objects, including related elevations and clearances, within the RPZ are depicted on the INNER PORTION of the APPROACH SURFACE DRAWING.
2. Details concerning terminal improvements are depicted on the TERMINAL AREA PLAN.
3. Recommended land uses within the airport environs are depicted on the AIRPORT LAND USE PLAN.
4. Building Restriction Line (BRL) is established in accordance with F.A.R. Part 77. Building Restriction Line location may vary in accordance with Part 77 criteria, or other clearance standards.
5. Base Map and Contours derived from Nov.12, 2009 aerial photography and planametric mapping, surveyed by M&B Mapping Company.

FAA APPROVAL STAMP

SUBMITTED BY:
Coffman Associates
FOR APPROVAL BY:
APPROVED BY: ON THE DATE OF:
Airport Manager

DRAFT

No.	REVISIONS	DATE	BY	APP'D.
2	AIRPORT MASTER PLAN	6/01	–	–
1	F.A.A. Approved ALP	9/92	–	–

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

ELOY MUNICIPAL AIRPORT

AIRPORT LAYOUT PLAN

ELOY, ARIZONA

PLANNED BY: Eric Pfeifer
DETAILED BY: Maggie Beaver
APPROVED BY: James M. Harris, P. E.
July 25, 2011 SHEET 1 OF 7

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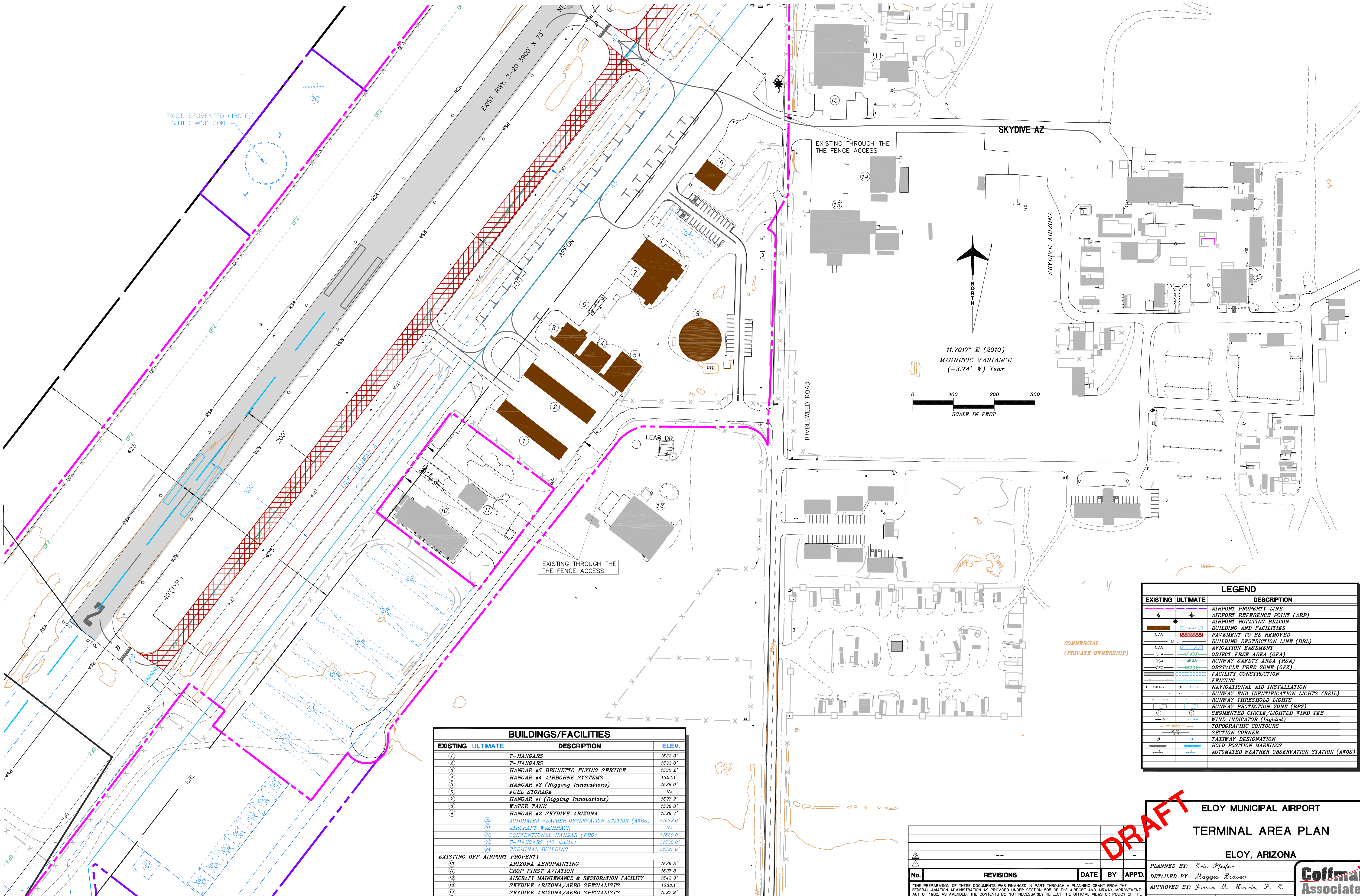

BUILDINGS/FACILITIES

EXISTING	ULTIMATE	DESCRIPTION	ELEV.
1		T-HANGARS	1523.3'
2		T-HANGARS	1523.8'
3		HANGAR #5 BRUNETTO FLYING SERVICE	1539.2'
4		HANGAR #4 AIRBORNE SYSTEMS	1524.1'
5		HANGAR #3 (Rigging Innovations)	1526.0'
6		FUEL STORAGE	NA
7		HANGAR #1 (Rigging Innovations)	1527.2'
8		WATER TANK	1526.8'
9		HANGAR #2 SKYDIVE ARIZONA	1526.4'
	20	AUTOMATED WEATHER OBSERVATION STATION (AWOS)	±1532.0'
	21	AIRCRAFT WASHRACK	NA
	22	CONVENTIONAL HANGAR (FBO)	±1528.0'
	23	T-HANGARS (10 units)	±1528.0'
	24	TERMINAL BUILDING	±1527.0'
EXISTING OFF AIRPORT PROPERTY			
10		ARIZONA AEROPAINTING	1529.5'
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14		SKYDIVE ARIZONA/AERO SPECIALISTS	1527.9'
15		SKYDIVE ARIZONA/AERO SPECIALISTS	1548.2'

LEGEND

EXISTING	ULTIMATE	DESCRIPTION
		AIRPORT PROPERTY LINE
		AIRPORT REFERENCE POINT (ARP)
		AIRPORT ROTATING BEACON
		BUILDING AND FACILITIES
N/A		PAVEMENT TO BE REMOVED
BRL		BUILDING RESTRICTION LINE (BRL)
N/A		AVIGATION EASEMENT
OFA	OFA(U)	OBJECT FREE AREA (OFA)
RSA	uRSA	RUNWAY SAFETY AREA (RSA)
OFZ	OFZ(U)	OBSTACLE FREE ZONE (OFZ)
		FACILITY CONSTRUCTION
		FENCING
PAPI-2	PAPI-2	NAVIGATIONAL AID INSTALLATION
		RUNWAY END IDENTIFICATION LIGHTS (REIL)
		RUNWAY THRESHOLD LIGHTS
		RUNWAY PROTECTION ZONE (RPZ)
		SEGMENTED CIRCLE/LIGHTED WIND TEE
		WIND INDICATOR (Lighted)
1080		TOPOGRAPHIC CONTOURS
34 35 / 3 2		SECTION CORNER
B	B	TAXIWAY DESIGNATION
		HOLD POSITION MARKINGS
		AUTOMATED WEATHER OBSERVATION STATION (AWOS)

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

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DRAFT

ELOY MUNICIPAL AIRPORT

TERMINAL AREA PLAN

ELOY, ARIZONA

PLANNED BY: Eric Pfeifer
DETAILED BY: Maggie Beaver
APPROVED BY: James M. Harris, P. E.

July 25, 2011 SHEET 2 OF 7

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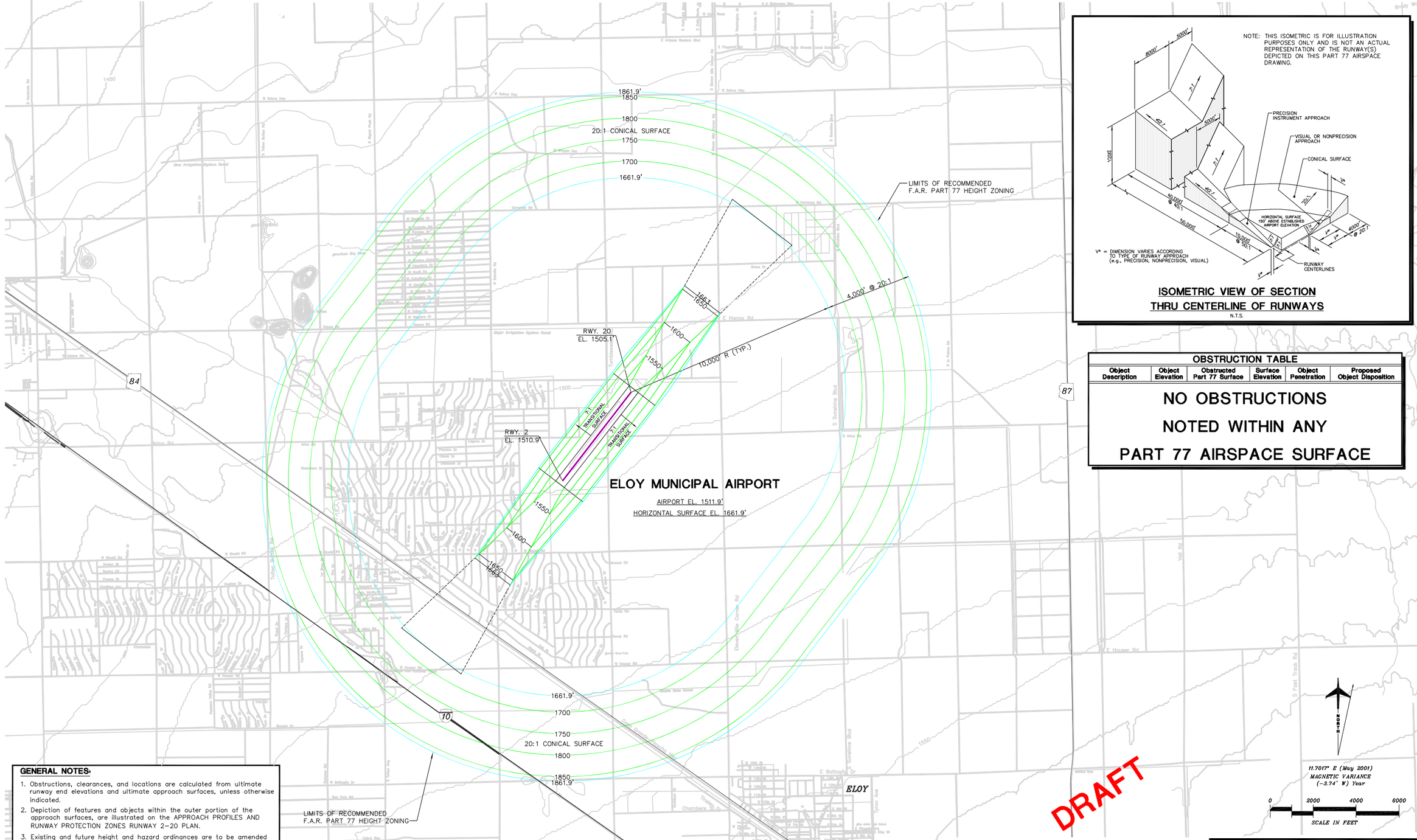

ISOMETRIC VIEW OF SECTION THRU CENTERLINE OF RUNWAYS

N.T.S.

OBSTRUCTION TABLE

Object Description	Object Elevation	Obstructed Part 77 Surface	Surface Elevation	Object Penetration	Proposed Object Disposition

NO OBSTRUCTIONS NOTED WITHIN ANY PART 77 AIRSPACE SURFACE

GENERAL NOTES:

1. Obstructions, clearances, and locations are calculated from ultimate runway end elevations and ultimate approach surfaces, unless otherwise indicated.
2. Depiction of features and objects within the outer portion of the approach surfaces, are illustrated on the APPROACH PROFILES AND RUNWAY PROTECTION ZONES RUNWAY 2–20 PLAN.
3. Existing and future height and hazard ordinances are to be amended and/or referenced upon approval of updated PART 77 AIRSPACE PLAN.

Electronic USGS Map base Edited and Published by Sylvan Ascent Inc.
Map base used by permission (license agreement) of Sylvan Ascent Inc.
Transportation and Hydrography Source data from U.S. Census Bureau TIGER 1995 Files.
Feature Names from USGS Geographical Names Information System (GNIS).
Map Accuracy is identical with that specified for these source files.
See Sylvan Ascent Inc. TopoDepot(tm) Documentation for details. (www.topodepot.com)
North American Datum of 1983.
Coordinate System: Arizona CENTRAL 202

11.7017° E (May 2001)
MAGNETIC VARIANCE
(–3.74° W) Year

0 2000 4000 6000
SCALE IN FEET

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

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

ELOY MUNICIPAL AIRPORT

PART 77 AIRPORT AIRSPACE DRAWING

ELOY, ARIZONA

PLANNED BY: Eric Pfeifer
DETAILED BY: Maggie Beaver
APPROVED BY: James M. Harris, P. E.
July 25, 2011

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Airport Consultants
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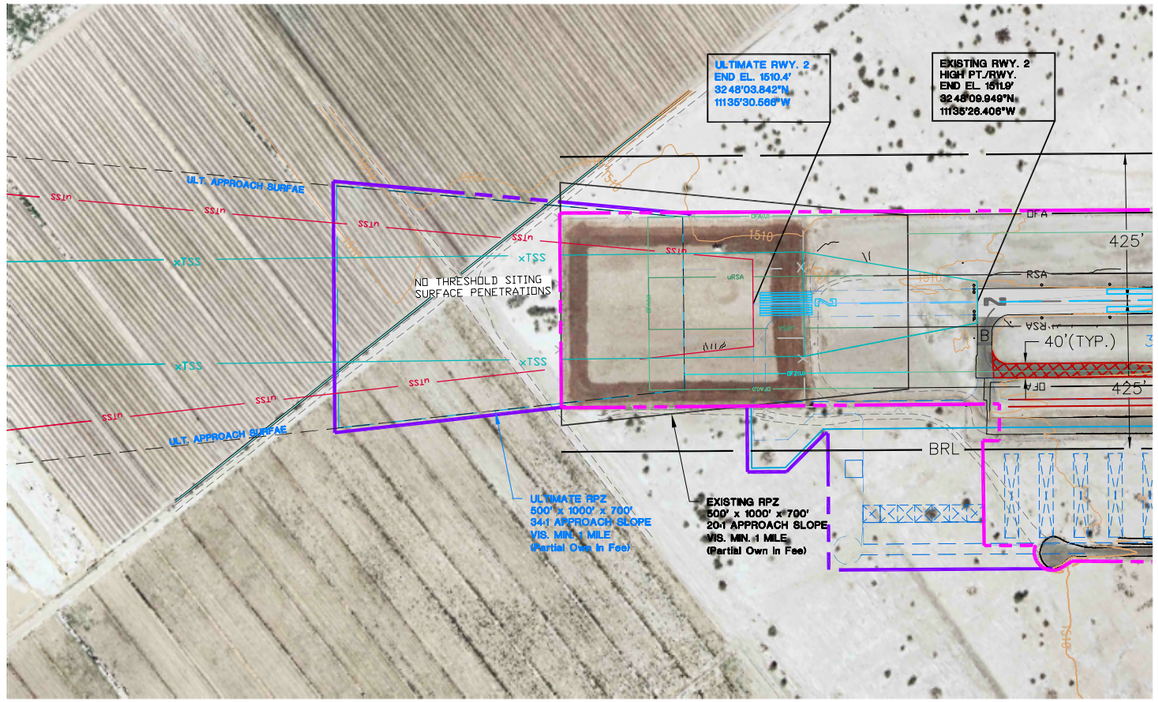
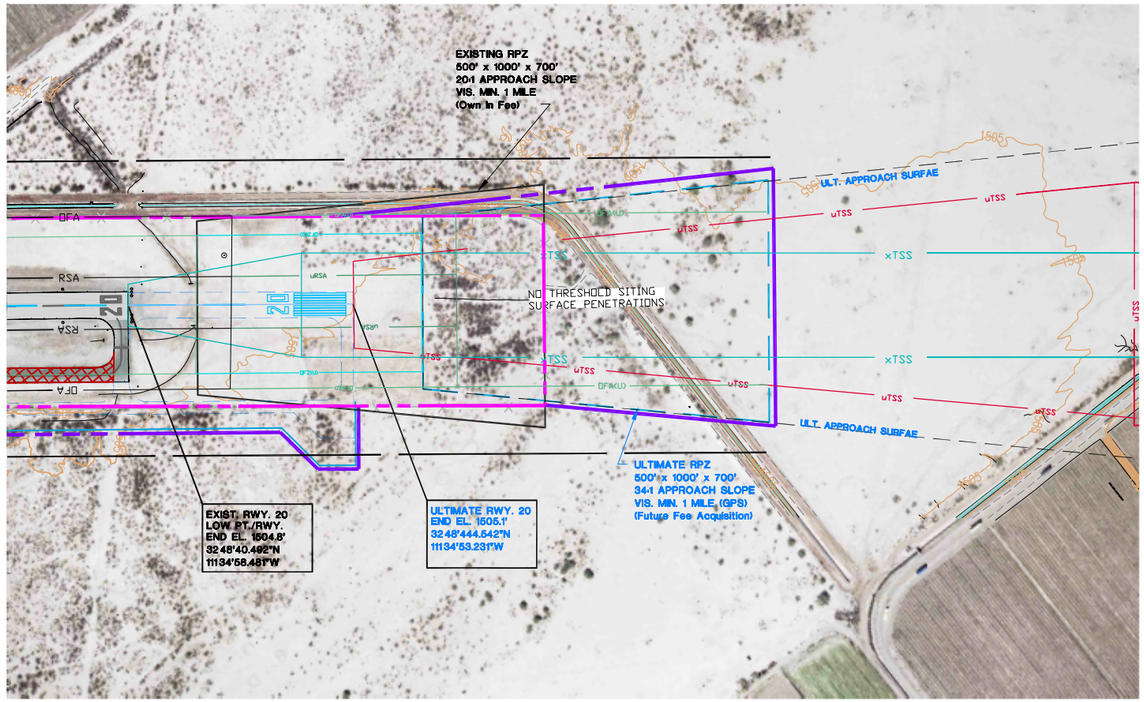
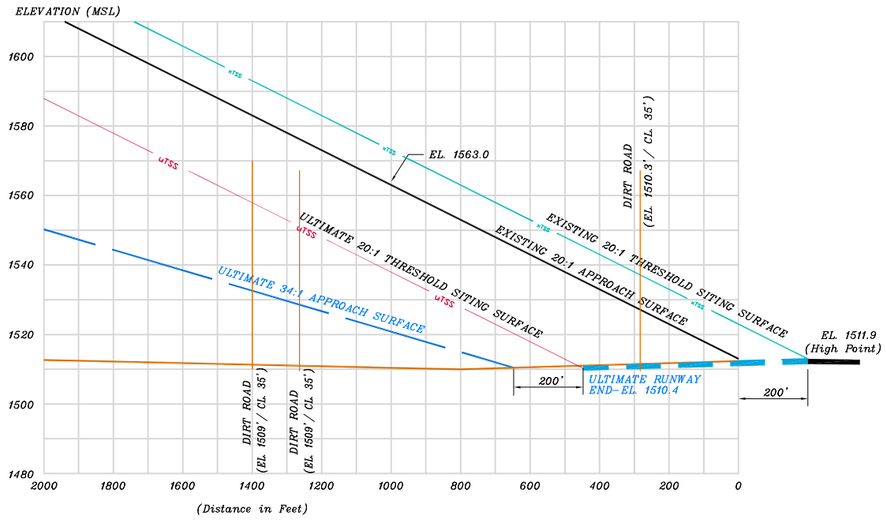
Coffman Associates \\stellent\\ 0 drive 12 28 2010\Cad\CAD\Dsy\2013\03 ESO PT77 10 19 12 rev.dwg Printed Date: 5-28-13 10:57:07 AM Margaret Beaver

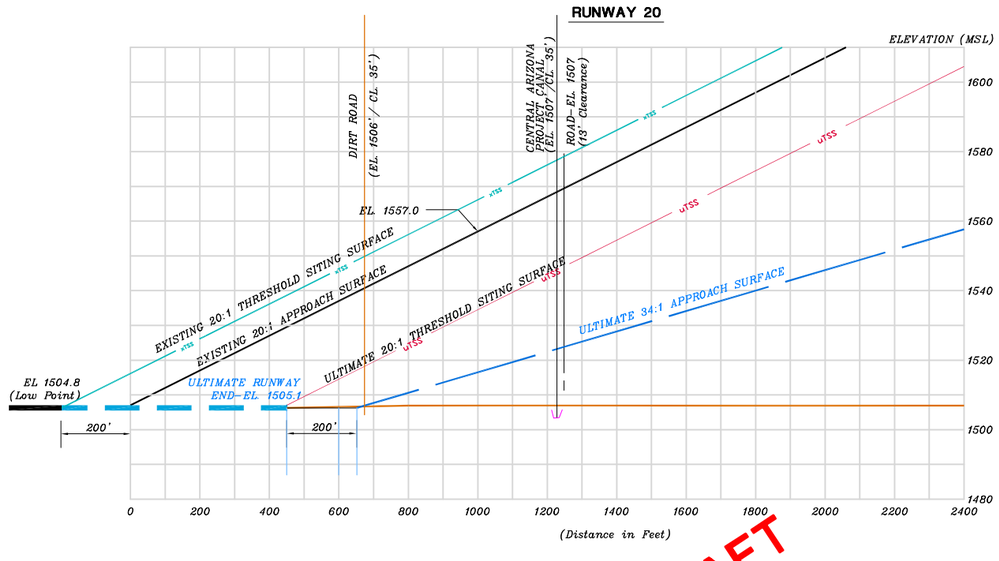




RUNWAY 2



RUNWAY 20



GENERAL NOTES:

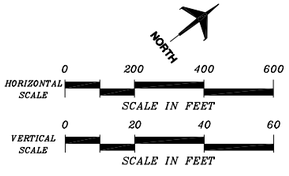
1. Obstructions, clearances, and locations are calculated from existing runway end elevations and existing approach surfaces, unless otherwise noted.
2. Depiction of features and objects within the primary, transitional, and horizontal Part 77 surfaces, is illustrated on the AIRPORT AIRSPACE DRAWING, sheet 2 of these plans.

RUNWAY 20 OBSTRUCTION TABLE

Object Description	Object Elevation	Obstructed Part 77 Surface	Surface Elevation	Object Penetration	Proposed Object Disposition
NONE FOUND WITHIN APPROACH SURFACE	–	–	–	–	–

RUNWAY 2 OBSTRUCTION TABLE

Object Description	Object Elevation	Obstructed Part 77 Surface	Surface Elevation	Object Penetration	Proposed Object Disposition
NONE FOUND WITHIN APPROACH SURFACE	–	–	–	–	–



No.	REVISIONS	DATE	BY	APP'D.
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"THE PREPARATION OF THESE DOCUMENTS WAS FINANCED IN PART THROUGH A PLANNING GRANT FROM THE FEDERAL AVIATION ADMINISTRATION AS PROVIDED UNDER SECTION 505 OF THE AIRPORT AND AIRWAY IMPROVEMENT ACT OF 1982, AS AMENDED. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

DRAFT

ELOY MUNICIPAL AIRPORT
INNER PORTION OF THE RUNWAY 2-20 APPROACH SURFACE DRAWING
ELOY, ARIZONA

PLANNED BY: Eric Pfeifer
DETAILED BY: Maggie Beaver
APPROVED BY: James M. Harris, P. E.
July 25, 2011
SHEET 4 OF 7

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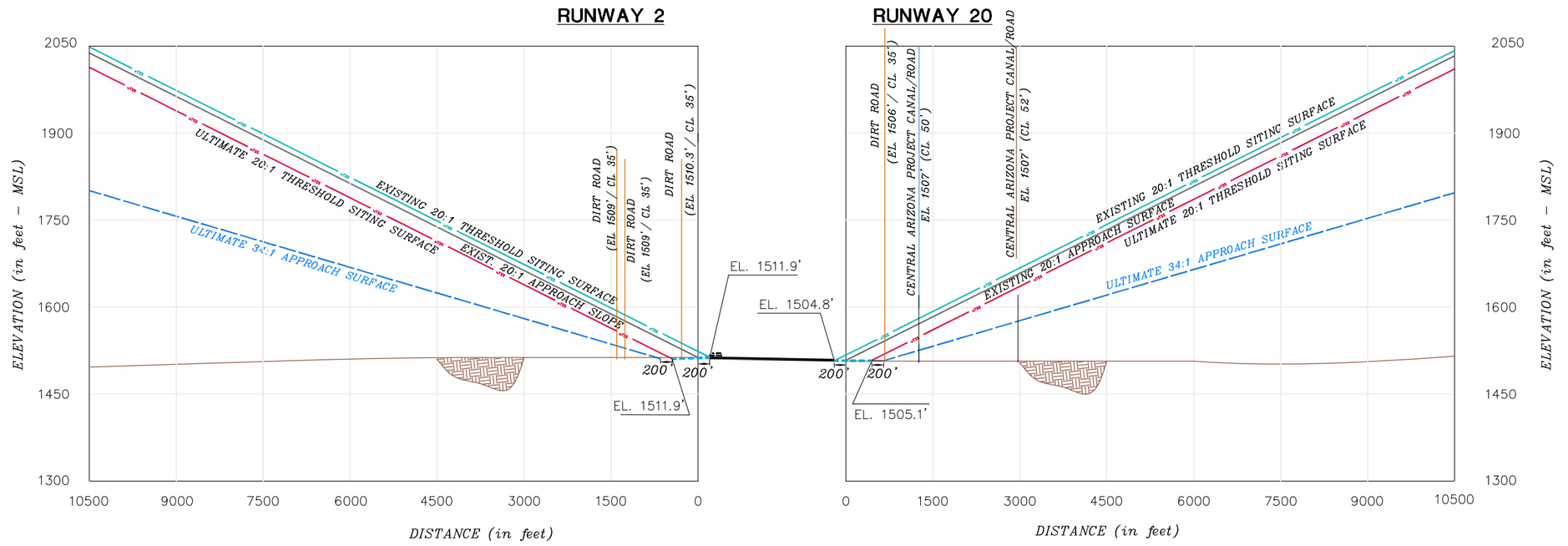

RUNWAY 2-20
APPROACH ZONES PROFILES

HORIZONTAL
0 1000 2000 3000
SCALE IN FEET

VERTICAL
0 100 200 300
SCALE IN FEET

NORTH

GENERAL NOTES:

1. Obstructions, clearances, and locations are calculated from existing runway end elevations and existing approach surfaces, unless otherwise noted.
2. Depiction of features and objects within the primary, transitional, and horizontal Part 77 surfaces, is illustrated on the AIRPORT AIRSPACE DRAWING, sheet 2 of these plans.

RUNWAY 20 OBSTRUCTION TABLE

Object Description	Object Elevation	Obstructed Part 77 Surface	Surface Elevation	Object Penetration	Proposed Object Disposition
NONE FOUND WITHIN APPROACH SURFACE	-	-	-	-	-

RUNWAY 2 OBSTRUCTION TABLE

Object Description	Object Elevation	Obstructed Part 77 Surface	Surface Elevation	Object Penetration	Proposed Object Disposition
NONE FOUND WITHIN APPROACH SURFACE	-	-	-	-	-

DRAFT

No.	REVISIONS	DATE	BY	APP'D.
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ELOY MUNICIPAL AIRPORT
OUTER PORTION OF THE
RUNWAY 2-20 APPROACH
SURFACE DRAWING
ELOY, ARIZONA

PLANNED BY: Eric Pfafer
DETAILED BY: Maggie Beaver
APPROVED BY: James M. Harris, P. E.
July 25, 2011
SHEET 5 OF 7

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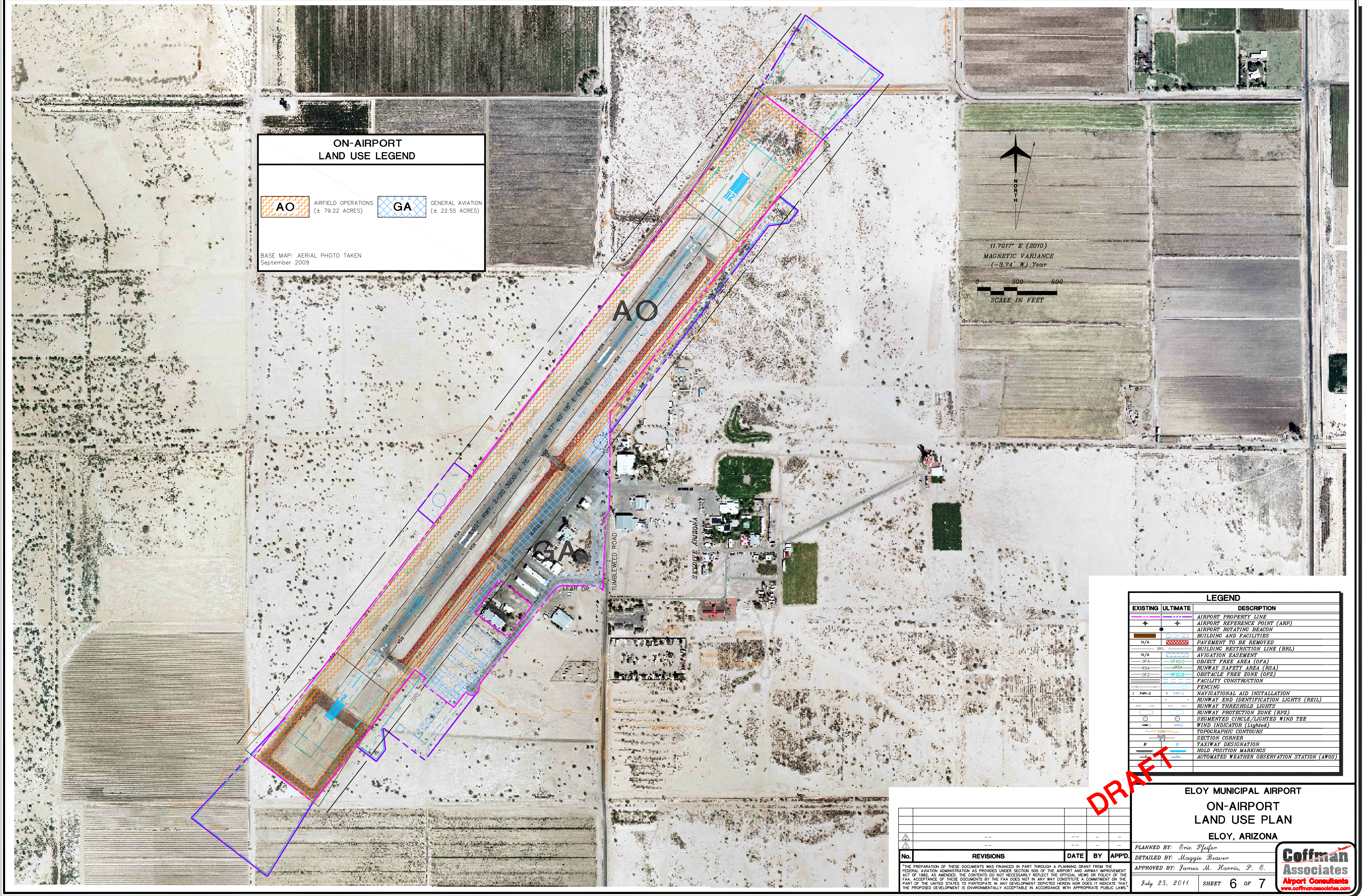

LEGEND

EXISTING	ULTIMATE	DESCRIPTION
		AIRPORT PROPERTY LINE
		AIRPORT REFERENCE POINT (ARP)
		AIRPORT ROTATING BEACON
		BUILDING AND FACILITIES
N/A		PAVEMENT TO BE REMOVED
BRL		BUILDING RESTRICTION LINE (BRL)
N/A		AVIGATION EASEMENT
OFA	OFA(U)	OBJECT FREE AREA (OFA)
RSA	uRSA	RUNWAY SAFETY AREA (RSA)
OFZ	OFZ(U)	OBSTACLE FREE ZONE (OFZ)
		FACILITY CONSTRUCTION
		FENCING
PAPI-2	PAPI-2	NAVIGATIONAL AID INSTALLATION
		RUNWAY END IDENTIFICATION LIGHTS (REIL)
		RUNWAY THRESHOLD LIGHTS
		RUNWAY PROTECTION ZONE (RPZ)
		SEGMENTED CIRCLE/LIGHTED WIND TEE
		WIND INDICATOR (Lighted)
1080		TOPOGRAPHIC CONTOURS
34 35 / 3 2		SECTION CORNER
B	B	TAXIWAY DESIGNATION
		HOLD POSITION MARKINGS
		AUTOMATED WEATHER OBSERVATION STATION (AWOS)

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

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DRAFT

ELOY MUNICIPAL AIRPORT

ON-AIRPORT LAND USE PLAN

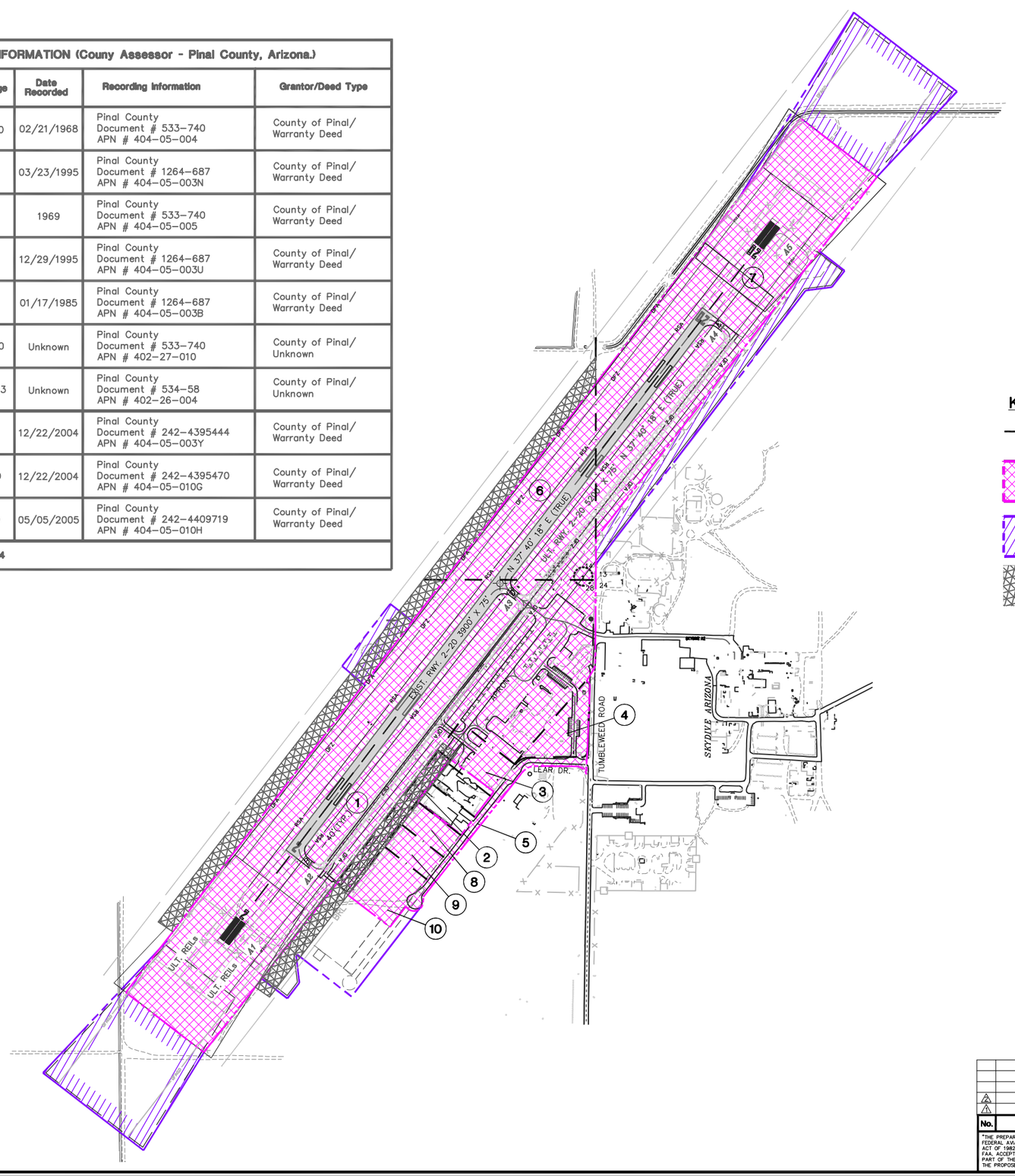
ELOY, ARIZONA

PLANNED BY: Eric Pfeifer
DETAILED BY: Maggie Beaver
APPROVED BY: James M. Harris, P. E.

July 25, 2011 SHEET 6 OF 7

Coffman Associates Airport Consultants www.coffmanassociates.com

RECORDING INFORMATION (Couny Assessor - Pinal County, Arizona.)					
Tract	Owner	Acreage	Date Recorded	Recording Information	Grantor/Deed Type
(1)	City of Eloy, AZ	±49.00	02/21/1968	Pinal County Document # 533–740 APN # 404–05–004	County of Pinal/ Warranty Deed
(2)	City of Eloy, AZ	±2.12	03/23/1995	Pinal County Document # 1264–687 APN # 404–05–003N	County of Pinal/ Warranty Deed
(3)	City of Eloy, AZ	±1.84	1969	Pinal County Document # 533–740 APN # 404–05–005	County of Pinal/ Warranty Deed
(4)	City of Eloy, AZ	±3.17	12/29/1995	Pinal County Document # 1264–687 APN # 404–05–003U	County of Pinal/ Warranty Deed
(5)	City of Eloy, AZ	±1.58	01/17/1985	Pinal County Document # 1264–687 APN # 404–05–003B	County of Pinal/ Warranty Deed
(6)	City of Eloy, AZ	±10.60	Unknown	Pinal County Document # 533–740 APN # 402–27–010	County of Pinal/ Unknown
(7)	City of Eloy, AZ	±28.93	Unknown	Pinal County Document # 534–58 APN # 402–26–004	County of Pinal/ Unknown
(8)	City of Eloy, AZ	±1.1	12/22/2004	Pinal County Document # 242–4395444 APN # 404–05–003Y	County of Pinal/ Warranty Deed
(9)	City of Eloy, AZ	±1.00	12/22/2004	Pinal County Document # 242–4395470 APN # 404–05–010G	County of Pinal/ Warranty Deed
(10)	City of Eloy, AZ	±2.0	05/05/2005	Pinal County Document # 242–4409719 APN # 404–05–010H	County of Pinal/ Warranty Deed
Total Acreage		± 97.24			



NORTH

11.7017° E (2010)
MAGNETIC VARIANCE
(–3.74' W) Year

0 300 600
SCALE IN FEET

KEY:

- Parcel line
- Existing Airport Property
- Property To Be Acquired (27.4 Acres)
- Toltec Real Estate Corporation Easment
  Date Recorded January 10, 1985, Pinal County
  Document #1280-775, Grantor City of Eloy.

13 | 18
24 | 19

LEGEND		
EXISTING	ULTIMATE	DESCRIPTION
		AIRPORT PROPERTY LINE
		AIRPORT REFERENCE POINT (ARP)
		AIRPORT ROTATING BEACON
		BUILDING AND FACILITIES
N/A		PAVEMENT TO BE REMOVED
	BRL	BUILDING RESTRICTION LINE (BRL)
N/A		AVIGATION EASEMENT
OFA	OFA(U)	OBJECT FREE AREA (OFA)
RSA	RSA	RUNWAY SAFETY AREA (RSA)
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		FENCING
PAPI-2	PAPI-2	NAVIGATIONAL AID INSTALLATION
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		RUNWAY THRESHOLD LIGHTS
		RUNWAY PROTECTION ZONE (RPZ)
		SEGMENTED CIRCLE/LIGHTED WIND TEE
		WIND INDICATOR (Lighted)
1080		TOPOGRAPHIC CONTOURS
35/35		SECTION CORNER
B	B	TAXIWAY DESIGNATION
		HOLD POSITION MARKINGS
AWOS	AWOS	AUTOMATED WEATHER OBSERVATION STATION (AWOS)

DRAFT

No.	REVISIONS	DATE	BY	APP'D.
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ELOY MUNICIPAL AIRPORT

EXHIBIT "A"
AIRPORT PROPERTY MAP

ELOY, ARIZONA

PLANNED BY: Eric Pfeifer
DETAILED BY: Maggie Beaver
APPROVED BY: James M. Harris, P. E.

July 25, 2011 | SHEET 7 OF 7

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APPENDIX D

FAA FORECAST APPROVAL LETTER

U.S. Department
of Transportation
Federal Aviation Administration

Federal Aviation Administration
Phoenix Airports Field Office

2800 N 44th Street
Suite 510
Phoenix, AZ 85008

April 3, 2013

Ms. Zenia Cornejo
Management Assistant
City of Eloy
628 N. Main St
Eloy, Arizona 85131

Dear Ms. Cornejo:

Eloy Municipal Airport (E60), Eloy, Arizona
Aviation Activity Forecast Approval

The Federal Aviation Administration (FAA) has reviewed the aviation forecast for the airport master plan for Eloy Municipal Airport (E60) dated October 22, 2012. The FAA approves these forecasts for airport planning purposes, including Airport Layout Plan development.

In summary, while the difference between the FAA TAF and Eloy's forecast update regarding total operations isn't within the 10 percent and 15 percent allowance for 5 and 10 year planning horizons, the airport forecast update appropriately explains these differences which can be attributed to uncounted operations from Skydive Arizona. The TAF also doesn't account for Eloy's projected population growth from the Central Arizona Association of Governments. For future TAF reporting years please ensure that operations from Skydive Arizona are included in the airport's annual operation counts.

The forecast was developed using current data and appropriate methodologies, therefore the FAA locally approves this forecast for planning purposes at Eloy Municipal Airport. It is important to note that the approval of this forecast doesn't guarantee future funding for large scale capital improvements as future projects will need to be justified by current activity levels reached at the time the projects are proposed for implementation.

If you have any questions about this forecast approval, please call me at 602-379-3023.

Sincerely,

Kyler Erhard
Airport Planner

cc: Mr. Scott Driver, ADOT, Airport Grant Manager

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(816) 524-3500

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(602) 993-6999

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