



AIRPORT MASTER PLAN

Final Report

COCHISE COUNTY AIRPORT

WILLCOX, ARIZONA | APRIL 2015



ARMSTRONG

Cochise County Airport Master Plan

Final Report

Prepared for
Cochise County

By
Armstrong Consultants, Inc.
2345 S. Alma School Road Suite 208
Mesa, AZ 85210

April 2015

FAA AIP No. 3-04-0049-004-2013
ADOT No. E4F3E

The preparation of this document was financed in part through a planning grant from the Federal Aviation Administration as provided in the Airport and Airway Improvement Act of 1982, as amended. The contents of this report reflect the analysis and finding of Armstrong Consultants, Inc. who are responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policy of the FAA. Acceptance of this report by the FAA does not in any way constitute a commitment on the part of the United States to participate in any development depicted therein nor does it indicate that the proposed development is environmentally acceptable with applicable Public Laws.



TABLE OF CONTENTS

Chapter 1 – Cochise County Airport Master Plan Overview	1-1
1.1 Introduction	1-1
1.2 Purpose	1-1
1.3 Objectives.....	1-1
1.4 Airport Master Plan Process and Schedule	1-2
1.5 Technical Advisory Committee	1-2
Chapter 2 – Inventory of Airport Assets	2-1
2.1 Introduction and Airport History	2-1
2.2 Airport Service Level and Role	2-1
2.3 Airport Setting.....	2-3
2.4 Compatible Land Use	2-4
2.5 Socioeconomic Characteristics	2-5
2.5.1 Local Profile.....	2-6
2.5.2 Population.....	2-6
2.5.3 Employment.....	2-7
2.5.4 Income	2-8
2.6 Climate and Meteorological Conditions	2-8
2.6.1 Local Climatic Data.....	2-9
2.7 Surrounding Airports/Service Area	2-9
2.8 Airport Ownership and Management.....	2-10
2.9 Grant History.....	2-10
2.10 Airport Financial Data	2-11
2.11 Based Aircraft and Operations.....	2-12
2.12 Certificated Pilots and Registered Aircraft.....	2-14
2.13 Design Standards.....	2-14
2.13.1 Design Aircraft.....	2-14
2.13.2 Runway Design Code (RDC)	2-14
2.13.3 Taxiway Design Group (TDG)	2-15
2.13.4 Airport Reference Code (ARC)	2-16
2.13.5 Safety Areas	2-16
2.13.6 Obstacle Free Zone (OFZ) and Object Free Area (OFA)	2-18
2.13.7 Runway Protection Zone (RPZ)	2-18

2.13.8 Summary of Existing Design Standards.....	2-18
2.14 Title 14, Code of Federal Regulations (14 CFR) Part 77 Imaginary Surfaces.....	2-20
2.14.1 Primary Surface.....	2-20
2.14.2 Approach Surface.....	2-20
2.14.3 Transitional Surface	2-21
2.14.4 Horizontal Surface.....	2-21
2.14.5 Conical Surface.....	2-21
2.14.6 Summary of Dimensional Criteria	2-21
2.15 Airspace Characteristics	2-23
2.15.1 Airspace Jurisdiction	2-25
2.15.2 Airspace Restrictions.....	2-25
2.15.3 Instrument Approach Procedures.....	2-27
2.16 Runway Wind Coverage	2-27
2.17 Existing Airside Facility Inventory	2-30
2.17.1 Runways.....	2-30
2.17.2 Taxiway/Taxilane System.....	2-30
2.17.3 Aircraft Apron	2-32
2.17.4 Pavement Condition Index (PCI)	2-33
2.17.5 Airfield Lighting, Signage, and Visual Aids	2-34
2.18 Existing Landside Facility Inventory	2-38
2.18.1 Airport Services/Fixed Base Operator.....	2-38
2.18.2 Hangars/Shaded Tie-downs	2-38
2.18.3 Access Roads and Signage.....	2-39
2.18.4 Automobile Parking	2-39
2.18.5 Utilities	2-39
2.18.6 Fencing and Security	2-39
2.18.7 Aviation Fuel Facilities	2-39
2.18.8 Emergency Services	2-40
2.18.9 Airport Support and Maintenance.....	2-40
2.18.10 Airport Sustainability	2-40
2.19 Environmental Inventory	2-42
2.19.1 Air Quality	2-42
2.19.2 Biotic Communities/Endangered and Threatened Species of Flora and Fauna	2-45
2.19.3 Coastal Zone Management Program and Coastal Barriers.....	2-46

2.19.4 Department of Transportation (DOT) Act, Section 4(f)	2-46
2.19.5 Farmland	2-46
2.19.6 Floodplains	2-47
2.19.7 Hazardous Materials	2-49
2.19.8 Historic, Architectural, Archeological, and Cultural Resources	2-49
2.19.9 Noise	2-49
2.19.10 Land Use Compatibility	2-50
2.19.11 Light Emissions	2-50
2.19.12 Wetlands	2-50
Chapter 3 – Forecasts of Aviation Activity	3-1
3.1 Introduction	3-1
3.2 National and General Aviation Trends	3-2
3.2.1 National Trends	3-2
3.2.2 General Aviation Trends	3-2
3.2.3 Other Aviation Industry Trends	3-5
3.3 Existing Aviation Activity and Projections	3-6
3.3.1 Fleet Mix	3-6
3.3.2 Historical Based Aircraft and Operations	3-7
3.3.3 Factors Influencing Aviation Demand	3-7
3.4 Existing Forecasts	3-8
3.4.1 Arizona State Airports System Plan Forecast	3-8
3.4.2 Cochise County Airport Master Plan	3-8
3.5 Forecasts of Aviation Activity	3-8
3.5.1 Based Aircraft Forecasts	3-8
3.5.2 Annual Aircraft Operations Forecast	3-10
3.5.3 Itinerant and Local Operations	3-12
3.5.4 Instrument Operations	3-12
3.6 Preferred Forecasts of Aviation Activity	3-12
3.7 Airport Seasonal Use Determination	3-12
3.8 Hourly Demand and Peaking Tendencies	3-14
3.9 Forecast Summary	3-16
Chapter 4 – Facility Requirements	4-1
4.1 Introduction	4-1
4.2 Design Standards	4-1

4.3 Airfield Capacity	4-3
4.4 Airside Facility Requirements.....	4-4
4.4.1 Runway Length.....	4-4
4.4.2 Runway Orientation	4-6
4.4.3 Runway Width.....	4-7
4.4.4 Runway Pavement Strength	4-7
4.4.5 Taxiway and Taxilane Requirements	4-8
4.4.6 Aircraft Apron	4-9
4.4.7 Instrument Aids to Navigation	4-10
4.4.8 Airfield Lighting, Signage, Markings, and Visual Aids to Navigation.....	4-10
4.4.9 Weather Aids	4-11
4.5 Landside Facility Requirements	4-12
4.5.1 Terminal Building	4-12
4.5.2 Hangar Facilities	4-13
4.5.3 Aviation Fuel Facilities.....	4-14
4.5.4 Airport Access and Vehicle Parking.....	4-15
4.5.5 Fencing	4-15
4.5.6 Security	4-16
4.5.7 Aircraft Rescue and Fire Fighting (ARFF) Equipment	4-16
4.5.8 Airport Support and Maintenance Building.....	4-17
4.6 Infrastructure Needs	4-17
4.7 Land Use Compatibility and Control	4-17
4.7.1 Airport Property	4-18
4.7.2 Airport Zoning	4-18
4.8 Summary of Facility Requirements	4-19
Chapter 5 – Development Alternatives.....	5-1
5.1 Introduction	5-1
5.2 Development Concepts.....	5-1
5.3 Airside Development.....	5-2
5.3.1 Runway Development.....	5-2
5.3.2 Taxiway Development.....	5-3
5.3.3 Aircraft Apron	5-4
5.3.4 Airfield Lighting and Signage.....	5-4
5.3.5 Miscellaneous Development Projects.....	5-5

5.4 Landside Development	5-5
5.4.1 Terminal Building	5-6
5.4.2 Hangar Development	5-7
5.4.3 Airport Support and Maintenance	5-8
5.4.4 Relocation of Fuel Facility	5-8
5.4.5 Relocation of Caretaker Facility	5-8
5.4.6 Expansion of Vehicle Parking Area.....	5-9
5.4.7 Aeronautical/Non-Aeronautical Development.....	5-9
5.4.8 Miscellaneous Development Projects.....	5-9
5.5 Environmental Impacts	5-10
5.6 Development Costs	5-10
5.7 Alternative Development Summary	5-10
Chapter 6 – Airport Layout Plan Drawing Set.....	6-1
6.1 Airport Layout Plan Drawing Set Contents	6-1
Chapter 7 – Environmental Overview	7-1
7.1 Introduction	7-1
7.2 Environmental Overview.....	7-2
7.3 Environmental Overview Summary	7-2
Chapter 8 – Airport Development and Financial Plan	8-1
8.1 Introduction	8-1
8.2 Airport Development Plan	8-1
8.3 Funding Sources	8-2
8.3.1 Federal Aviation Administration	8-3
8.3.2 State Funding Program	8-4
8.3.3 Local Funding	8-5
8.4 Pavement Maintenance Plan	8-6
8.5 Financial Plan Recommendations	8-7
8.5.1 Airport Revenue Opportunities	8-8
8.6 Airport Development Recommendations.....	8-8
8.7 Continuous Planning Process.....	8-9
8.8 Conclusion.....	8-9

LIST OF TABLES

Table 2-1 Current and Historical Population 2-6

Table 2-2 Population Projections 2-7

Table 2-3 Cochise County Employment Distribution 2-7

Table 2-4 Cochise County Airport and Surrounding Airports 2-9

Table 2-5 Cochise County Airport Grant History 2-11

Table 2-6 Cochise County Airport Financial Data 2009-2013 2-12

Table 2-7 Historical Based Aircraft and Operations 2-13

Table 2-8 Runway Design Code 2-15

Table 2-9 Existing Dimensional Standards - Runway 2-19

Table 2-10 Existing Dimensional Standards – Taxiway/Taxilanes 2-19

Table 2-1114 CFR Part 77 Imaginary Surfaces 2-21

Table 2-12 Crosswind Component 2-28

Table 2-13 Wind Coverage – All Weather 2-28

Table 2-14 Threatened, Endangered, and Candidate Species - Cochise County, Arizona 2-45

Table 3-1 Aircraft Hours Flown (thousands) 3-4

Table 3-2 Based Aircraft Fleet Mix 3-7

Table 3-3 FAA TAF Method 3-9

Table 3-4 Market Share Method 3-9

Table 3-5 Per Capita Method 3-9

Table 3-6 Preferred Forecasts of Aviation Activity 3-12

Table 3-7 Seasonal Use Trend 3-14

Table 3-8 Estimated Hourly Demand Per Month 3-15

Table 3-9 Detailed Forecast Summary 3-16

Table 4-1 RDC of A-I or B-I (Sample Aircraft) 4-2

Table 4-2 RDC of A-II and B-II Sample Aircraft 4-2

Table 4-3 Annual Service Volume Summary 4-3

Table 4-4 Airplane Weight Categorization for Runway Length Requirements 4-4

Table 4-5 Recommended Runway 3-21 Length 4-6

Table 4-6 Recommended (Crosswind) Runway 14-32 Length 4-7

Table 4-7 Aircraft Apron Requirements 4-10

Table 4-8 General Aviation Terminal Building Requirements 4-12

Table 4-9 Breakdown of Aircraft Storage Types 4-13

Table 4-10 Aircraft Hangar Requirements 4-14

Table 4-11 Vehicle Parking Requirements 4-15

Table 4-12 Facility Requirements Summary 4-19

Table 5-1 Development Costs Summary 5-11

Table 7-1 Environmental Overview for Cochise County Airport 7-3

Table 8-1 Financial Development Plan Over 20 Years 8-2

Table 8-2 Pavement Maintenance Schedule 8-7

Table 8-3 Projected Annual Airport Revenues and Expenses (Based on Historical Data) 8-7

LIST OF FIGURES

Figure 1-1 Airport Master Plan Flow Chart 1-3

Figure 2-1 Cochise County Airport Location Map 2-4

Figure 2-2 Cochise County Zoning Base Map..... 2-5

Figure 2-3 Cochise County Employment by Industry 2-8

Figure 2-4 Service Area for Cochise County Airport 2-10

Figure 2-5 Typical Design Aircraft and Corresponding ARC 2-17

Figure 2-6 14 CFR Part 77 Imaginary Surfaces 2-22

Figure 2-7 Airspace Classifications 2-24

Figure 2-8 FAA Phoenix Sectional Chart..... 2-25

Figure 2-9 Wind Rose 2-29

Figure 2-10 Taxilane Obstruction 1..... 2-31

Figure 2-11 Taxilane Obstruction 2..... 2-31

Figure 2-12 Taxilane Obstruction 3..... 2-31

Figure 2-13 Taxilane Run-Off Collection Area..... 2-32

Figure 2-14 Existing PCI..... 2-34

Figure 2-15 PCI Repair Scale 2-34

Figure 2-18 Taxiway Retro-reflector 2-35

Figure 2-17 Threshold Light 2-35

Figure 2-16 Medium Intensity Runway Light..... 2-35

Figure 2-20 Lighted Destination/Runway Hold Sign 2-35

Figure 2-19 LED Medium Intensity Taxiway Light 2-35

Figure 2-21 Counties Designated Nonattainment (NAAQS) 2-43

Figure 2-22 Nonattainment and Attainment Areas with a Maintenance Plan..... 2-44

Figure 2-23 Farmland Soil Classification 2-47

Figure 2-24 FEMA Floodplain Vicinity Map A..... 2-48

Figure 2-25 FEMA Floodplain Vicinity Map B..... 2-48

Figure 2-26 National Wetlands Inventory Vicinity Map..... 2-50

Figure 3-1 Existing GA Fleet Mix 3-3

Figure 3-2 Future GA Fleet Mix 3-3

Figure 3-3 NextGen Precision 3-5

Figure 3-4 Typical UAVs 3-5

Figure 3-5 Based Aircraft Forecast Methods 3-10

Figure 3-6 Total Annual Operations Forecast 3-11

Figure 3-7 Seasonal Fuel Use Trend..... 3-13

Figure 5-1 Typical GA Terminal Building Floor Plan 5-7

EXHIBITS

Exhibit A 2-37

Exhibit B 2-41

Exhibit C 5-12

Exhibit D 5-13

Exhibit E..... 8-11

APPENDICES.....A1

Appendix A Acronyms/Glossary of Terms
Appendix B Public Outreach
Appendix C Federal/State Agency Coordination and Correspondence
Appendix D Forecasts of Aviation Activity Approval Letter (FAA)
Appendix E FAA Equation #15
Appendix F Average Daily Operations per Month Formula
Appendix G Published Instrument Approach Procedures
Appendix H Cochise County Airport Deeds

CHAPTER ONE

COCHISE COUNTY AIRPORT MASTER PLAN OVERVIEW

COCHISE COUNTY COCHISE COUNTY AIRPORT AIRPORT MASTER PLAN





CHAPTER 1 – COCHISE COUNTY AIRPORT MASTER PLAN OVERVIEW

1.1 INTRODUCTION

In 2011, Cochise County published its first ever Strategic Plan in order to provide the most efficient and effective delivery of services to its community. Consequently, Cochise County continues to move forward with its progressive community-wide planning efforts with the decision to update the Airport Master Plan for Cochise County Airport. Cochise County Airport is located in Willcox, Arizona, and is a valuable resource to both the surrounding community and the County as a whole. The Airport Master Plan will ensure future airport development is designed to enhance air and ground operations and improve safety and airport services for the County, as well as the public users of the airport.

1.2 PURPOSE

An airport master plan describes and depicts the overall concept for the long-term development of an airport. It presents the concepts graphically in the airport layout plan (ALP) drawing set and reports the data and logic upon which the concept is based in the narrative report. The goal of the plan is to provide direction for future airport development that will satisfy aviation demand in a financially feasible manner and meet the needs of Cochise County with respect to the airport. This Airport Master Plan updates and replaces the 1997 Airport Master Plan.

1.3 OBJECTIVES

The primary objectives of the airport master plan are to produce an attainable phased development plan that will satisfy the airport needs in a safe, efficient, economical, and environmentally sound manner. The plan serves as a guide to decision makers, airport users, and the general public for implementing airport development actions while considering County goals and objectives. There are a number of objectives that Cochise County would like to achieve as a result of this Airport Master Plan for Cochise County Airport.

Specific goals and objectives of the project include, but are not limited to:

- Capture the issues that the proposed development will address.
- Justify the proposed development through the technical, economic, and environmental investigation of concepts and alternatives.
- Provide an effective graphic presentation of the proposed development and anticipated land uses in the vicinity of the airport.
- Establish a realistic timeframe for the implementation of the development proposed in the plan, particularly the short-term capital improvement program.
- Propose a realistic and achievable financial plan to support the prioritized implementation schedule.
- Provide sufficient project definition and detail for subsequent environmental evaluations that may be required before a project is approved.
- Present a plan that adequately addresses the issues and satisfies local, state, and Federal regulations.

- Document policies and future aeronautical demand to support municipal or local deliberations on spending, debt, land use controls and other policies necessary to preserve the integrity of the airport and its surroundings.
- Set the stage and establish the framework for a continuing planning process that will monitor key activities and permit changes to the plan recommendations as required.
- Review of existing land uses surrounding the airport for compatibility and control.

1.4 AIRPORT MASTER PLAN PROCESS AND SCHEDULE

Airport planning takes place at the national, state, regional, and local levels. These plans are formulated on the basis of overall transportation demands and are coordinated with other transportation planning and comprehensive land use planning. The National Plan of Integrated Airport Systems (NPIAS) is a ten-year plan updated biennially and published by the Federal Aviation Administration (FAA). The NPIAS lists developments at public use airports that are considered to be of national interest and thus eligible for financial assistance for airport planning and development under the Airport and Airway Improvement Act of 1982. Statewide Integrated Airport Systems Planning (IASP) identifies the general location and characteristics of new airports and the general expansion needs of existing airports to meet statewide air transportation goals. This planning is performed by state transportation or aviation planning agencies. Regional Integrated Airport Systems Planning (RIASP) identifies airport needs for a large regional or metropolitan area. Needs are stated in general terms and incorporated into statewide systems plans. Airport master plans and ALPs are prepared by the operators of individual airports and are usually completed with the assistance of consultants. Cochise County completed this Airport Master Plan with the assistance of Armstrong Consultants, Inc. The airport master plan process involves collecting readily available data, forecasting future aviation demand, determining facility requirements, studying various alternatives, and developing plans and schedules. **Figure 1-1** depicts the steps in the airport master plan process. This process takes into consideration the needs and concerns of the airport sponsor, airport tenants and users, as well as the general public.

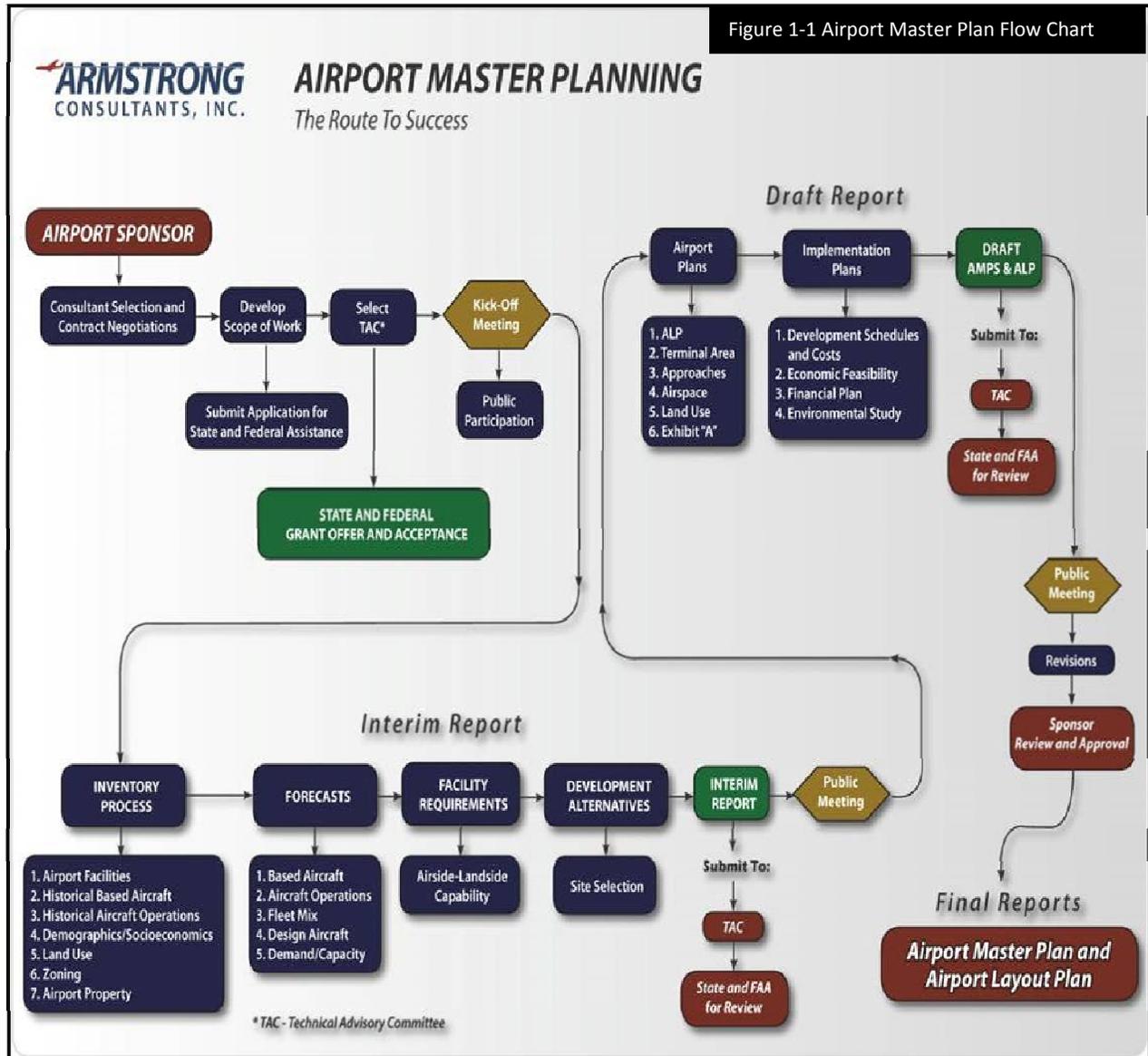
1.5 TECHNICAL ADVISORY COMMITTEE

The Cochise County Airport Technical Advisory Committee (TAC) consisted of members representing various interests in and around the airport. Their involvement throughout this Airport Master Plan process helped to keep interested parties informed and fostered consensus for future development actions. The TAC representatives included the following individuals:

Richard Searle	Vice-Chairman, Cochise County Board of Supervisors
Jim Vlahovich	Deputy County Administrator, Cochise County
Eddie Levins	Director of Facilities Management, Cochise County
Lisa Marra	Grants Director, Cochise County
Beverly Wilson	Planning and Zoning Director, Cochise County
Karen Lamberton	Transportation Planner, Cochise County
Jim & Louise Walden	Airport/FBO Managers, Walden Aviation
Elda Orduño	Deputy County Attorney, Cochise County
Jared Raymond	Airport Planner, Federal Aviation Administration
Kenneth Potts	Airport Grants Manager, ADOT MPD – Aeronautics Group
Tim Bolton	Principal Planner, AZ State Land Department

Lt. Col. David Stine
 Ted Soltis
 Alan Baker
 Rod Keeling
 Gene Moreman
 David Walters

Airspace Manager, Arizona Air National Guard – 162nd Fighter Wing
 City Manager, City of Willcox
 Executive Director, Willcox Chamber of Commerce and Agriculture
 Business owner/airport user, Keeling Schaefer Vineyards
 Airport user, Member of the public
 Airport user, Member of the public



Source: Armstrong Consultants, Inc. (ACI), 2013

THIS PAGE WAS INTENTIONALLY LEFT BLANK

CHAPTER TWO
INVENTORY OF AIRPORT ASSETS

COCHISE COUNTY
COCHISE COUNTY AIRPORT
AIRPORT MASTER PLAN





CHAPTER 2 – INVENTORY OF AIRPORT ASSETS

2.1 INTRODUCTION AND AIRPORT HISTORY

Cochise County Airport (the Airport) is a general aviation airport located in southeastern Arizona, approximately four miles west of the City of Willcox in Cochise County. The Airport is approximately 82 miles east of downtown Tucson and approximately 211 miles southeast of the state capitol, Phoenix, Arizona.

The airport was originally built for use by the United States military as a bomber training facility in the early 1940's. At some point after World War II, perhaps in the early 1950's, the government transferred the Airport over to Cochise County, where it was developed into a civilian airport. The various deeds associated with the Airport's property can be found in **Appendix H**.

2.2 AIRPORT SERVICE LEVEL AND ROLE

Since 1970, the Federal Aviation Administration (FAA) has classified a subset of the 5,400 public-use airports in the United States as being vital to serving the public needs for air transportation, either directly or indirectly, and therefore may be made eligible for federal funding to maintain their facilities. These airports are classified within the National Plan of Integrated Airport Systems (NPIAS), where the airport service level reflects the type of public use the airport provides. The service level also reflects the funding categories established by Congress to assist in airport development.

The categories of airports listed in the NPIAS are:

Commercial Service – These are public airports that accommodate scheduled air carrier service provided by the world's certificated air carriers. Commercial service airports are either:

- Primary – a public-use airport that enplanes more than 10,000 passengers annually, or
- Non-primary - a public-use airport that enplanes between 2,500 and 10,000 passengers annually.

Reliever – This is an airport designated by the FAA as having the function of relieving congestion at a commercial service airport by providing more general aviation access. These airports comprise a special category of general aviation (GA) airports and are generally located within a relatively short distance of primary airports. Privately owned airports may also be identified as reliever airports.

General Aviation – These are airports used exclusively by private and business aircraft not providing scheduled air carrier passenger service.

Cochise County Airport's service level is categorized in the NPIAS as general aviation. There are many GA airports that are not included in the NPIAS, however, some criterion for inclusion in the basic airport category is that the airport has at least 10 based aircraft, is located at least 30 miles away from the

nearest NPIAS airport, or that the airport is a facility identified and used by certain federal agencies (U.S. Forest Service, U.S. Customs and Border Protection, etc.) or has Essential Air Service (EAS). According to FAA records, as of 2012, the Airport has 22 based aircraft. The Airport is also located approximately 40 miles from Benson Municipal Airport, and 57 miles from Safford Regional Airport; both airports are also included in the NPIAS as general aviation airports. The nearest NPIAS primary commercial service airport to Cochise County Airport is Tucson International Airport, located approximately 77 miles to the southwest.

At the State level, the Arizona Department of Transportation Multimodal Planning Division – Aeronautics Group has long recognized the importance of planning as a proactive approach to ensuring aviation continues its role in the statewide transportation system. They created a similar plan to the FAA’s NPIAS in 1978 called the Arizona State Airports System Plan (ASASP). The purpose of the ASASP is to provide a framework for the integrated planning, operation, and development of Arizona’s aviation assets. The most current version of the ASASP was published in 2008.

The ASASP also classifies airports into service roles. Cochise County Airport is categorized as a GA community airport. The ASASP defines GA community airports as airports that serve regional economies, which in turn connects state and national economies. They also serve all types of general aviation aircraft. ASASP defines a regional economy as the economic activity of an area that encompasses multiple communities or political jurisdictions. This classification generally represents the role Cochise County Airport plays in the local community. The majority of the aircraft utilizing the Airport are predominately single-engine piston, multi-engine piston, turbo prop, light turbo jet, and rotorcraft aircraft. However, larger corporate jet aircraft utilize the airport on occasion for business related activities. Furthermore, the role of a general aviation community airport lends itself to specific aeronautical activities. The types of aeronautical activities found at Cochise County Airport include the following:

Business Transportation - Business aviation users benefit by being able to travel to or from business centers to conduct business activities in a single day, without requiring an overnight stay or extensive ground travel time. Local and other small businesses generally utilize single-engine and multi-engine piston aircraft. Larger corporate businesses may utilize turbo prop and turbo jet aircraft. This user category also includes state and federal agencies and travel by government officials. Cochise County Airport is located 4 miles west of the central business district in Willcox, Arizona. Additionally, the Airport is located 2 miles from Interstate 10 (I-10); I-10 is a major highway corridor connecting with the major city of Tucson to the west, and New Mexico to the east. Many business communities are located along or near the I-10 corridor.

Recreational and Tourism - These users include transient pilots flying into the region to visit recreational and tourist attractions. These users mostly utilize single-engine piston aircraft; however, a small percentage may operate multi-engine piston aircraft. Other types of aircraft in this category include home-built, experimental aircraft, gliders and ultralights. Cochise County Airport is located in an area of the State that does attract a fair amount of tourists and contains multiple recreational activity areas. Some examples of tourist/recreational areas near the Airport are discussed in Section 2.5.1.

Flight Training - These users conduct local and itinerant flights in order to meet flight proficiency requirements for obtaining FAA pilot certifications. These flights include touch-and-go operations, day

and night local and cross-country flights, and practice instrument approach procedures. Student pilots and instructors frequently use the Airport for flight training activities.

Military and Other Federal/State Agencies - Military operations are those conducted by U.S. or foreign military aircraft and personnel for the purposes of national security and defense. Almost all military operations are training or proficiency activities. Cochise County Airport is located in close proximity to Army Post Fort Huachuca/Libby Army Airfield and Davis-Monthan Air Force Base. Thus, both the Army and Air Force use the Airport and/or its airspace during training exercises and for refuelling services while in the area. In addition to use by the military, the Arizona Department of Public Safety and U.S. Customs and Border Protection frequently utilize the Airport as well, mostly for refueling purposes.

Air Medevac Services - Arizona Lifeline, Lifenet, and Air Evac provide essential emergency medical transportation for life threatening situations and assists in patient transfers by air to higher level care facilities using helicopters. The air medevac services provide quick and efficient transportation in emergency situations when time is of the essence, resulting in lives saved.

Aerial Firefighting - The Airport is utilized by aerial firefighting aircraft during the Arizona wildfire season of May through July. The airport's configuration is able to accommodate large rotary aircraft, aerial tankers, and patrol aircraft. Arizona State Fire has a permanent base at the Airport during wildfire season, and one Arizona State Fire firefighting-equipped helicopter and crew are based on the airfield during these months.

Agricultural - The Airport is located in an area that contains several agricultural land uses nearby. Aircraft equipped with agricultural spraying capabilities periodically utilize the airport for refueling purposes.

2.3 AIRPORT SETTING

Cochise County Airport (P33) is located in the southeast corner of Arizona in Cochise County, approximately 82 miles east of downtown Tucson and 50 miles from the Arizona/New Mexico border. The terrain surrounding the Airport within a 10-15 mile radius is generally flat. The Dos Cabezas Peaks are located approximately 15 miles east of the Airport and reach an elevation of 8,360 feet mean sea level (MSL). The Winchester Mountains are located to the northwest, with its highest peak, Reiley Peak, reaching 7,680 MSL. The Airport is also located approximately 5 miles north of Willcox Playa, an enormous shallow dry lake. The Willcox Water Fowl Area consists of four hundred and forty acres which the Arizona Game and Fish Department acquired in 1969. Approximately sixty acres are ponds and are located within the Willcox Playa.

The Airport is designated by the FAA as Site Number 00830.*A, and is situated at a field elevation of 4,187 feet MSL. An airport's location is defined by its Airport Reference Point (ARP), which is the geometric center of the runway system based upon the length of the existing runways. ARPs are calculated based on future and ultimate runway lengths and locations. The existing ARP at Cochise County Airport is located at 32° 14' 43.5"N latitude and 109° 53' 40.7"W longitude. The existing Airport Reference Code (ARC) is listed as B-II. A more in depth description of the ARC is discussed in Section 2.13.4. The existing airport property encompasses approximately 960 acres which is owned and operated by Cochise County. The geographic location of Cochise County Airport is depicted in **Figure 2-1**.



Figure 2-1 Cochise County Airport Location Map

Source: www.google.com/maps, 2013

2.4 COMPATIBLE LAND USE

Land use compatibility conflicts are a common problem around many airports, including smaller general aviation facilities. In urban areas, as well as some rural settings, airport owners find that essential expansion to meet the demands of airport traffic is difficult to achieve due to the nearby development of incompatible land uses. Aircraft noise is generally a deterrent to residential development and other noise sensitive uses. In accordance with State of Arizona airport compatibility legislation, residential development should be placed outside of the 65 day-night average sound level (DNL) noise contour.

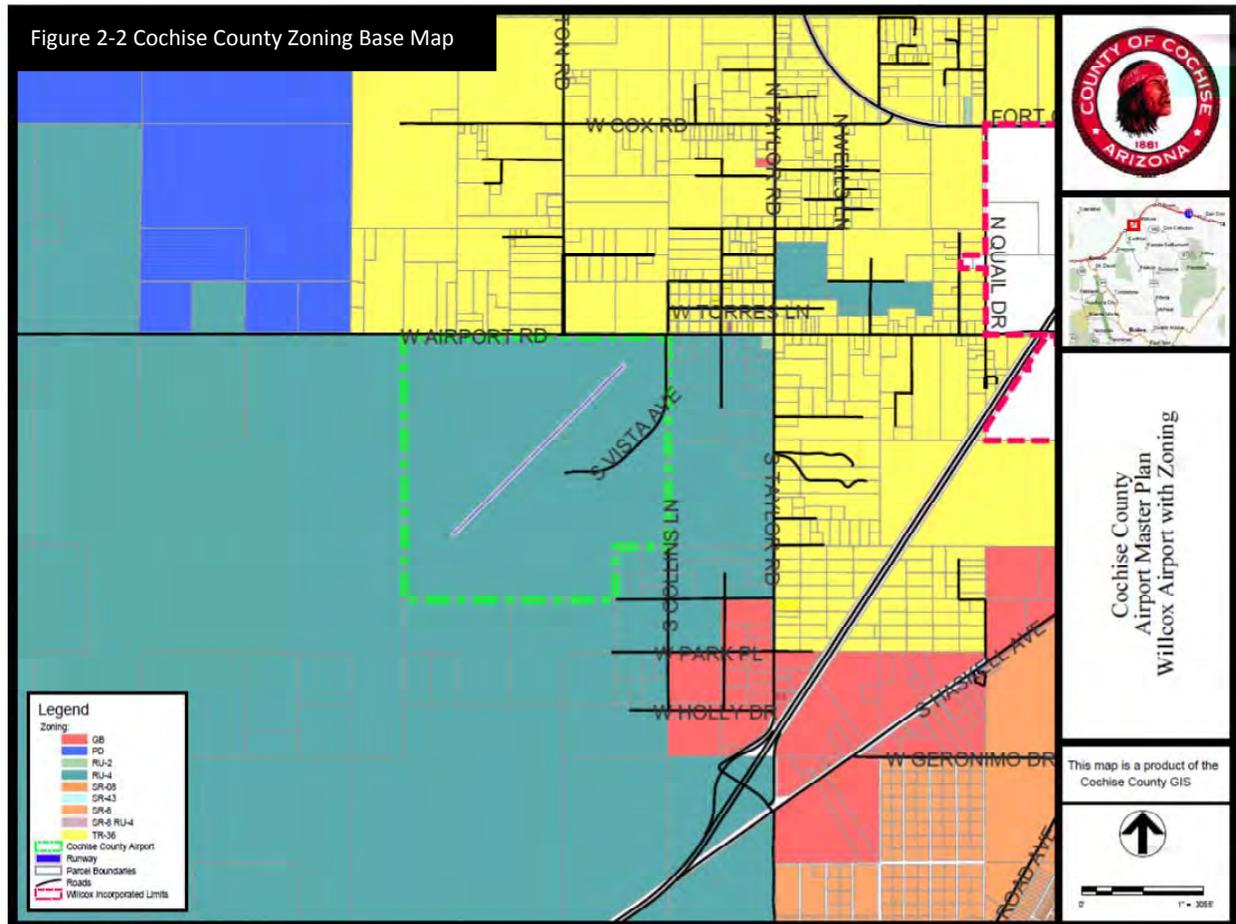
Conflicts may also exist in the protection of runway approach/departure and transition zones to ensure the safety of both the flying public and the adjacent property owners. Adequate land for this use should be either owned in fee or controlled through easements, as recommended in this and future sections of this Airport Master Plan.

All of the unincorporated areas of Cochise County have been zoned. The purpose of zoning is to guide the development of land in accordance with the County's Comprehensive Plan, and to promote the public health, safety, and general welfare of the County's residents. Zoning districts specify permitted land uses, minimum lot sizes, and certain site development standards.

Cochise County encompasses a large and diverse area; there are 34 individual zoning districts within the County. However, for general purposes, the majority of these zoning districts can be classified into three broad groupings: Rural, Residential, and Commercial/Industrial.

According to the Cochise County zoning base map of the area, all of the airport property encompassing Cochise County Airport is zoned as Rural (RU-4). The land surrounding the airport has several different zoning classifications; these include Planned Development (PD) to the northwest, Residential (R-36) to the north and east, and General Business (GB) to the southeast. All single and multiple-house-hold

dwelling with a minimum four acre lot are permitted within the RU-4 zones. The closest residential dwellings are located approximately 1,000 feet from Runway 21's threshold. These dwellings are located within the R-36 zone; one dwelling per 36,000 square feet is permitted within this zone. The existing Cochise County land use zoning map of the land surrounding the Airport is shown in **Figure 2-2**.



Source: Cochise County Planning and Zoning Department, 2013

2.5 SOCIOECONOMIC CHARACTERISTICS

The socioeconomic makeup of the community of an airport is always an important aspect to examine during the airport master planning process. Examining the specific socioeconomic characteristics of Cochise County will help determine the factors influencing aviation activity in the area and the extent to which aviation facility developments are needed. Characteristics, such as employment, demographic patterns, and income will help in establishing the potential growth rate of aviation within the area. By analyzing the information in this Chapter, forecasts of aviation activity can be developed. The forecasts are provided in Chapter 3, Forecasts of Aviation Activity.

2.5.1 LOCAL PROFILE

Cochise County Airport is geographically situated in the north-central portion of Cochise County and on the west edge of the City of Willcox, across I-10. I-10 is the major highway providing access to Willcox and to Tucson to the west and New Mexico to the east. Highway 191 provides north/south access through the County and to Mexico to the south.

Originally known as “Maley,” Willcox was founded in 1880 as a whistlestop on the Southern Pacific Railroad. It was later renamed in honor of General Orlando B. Willcox who arrived on the first train in 1880. The town was incorporated in 1915. Willcox has maintained its rural lifestyle through a strong agricultural and ranching economy. Many community residents have established farms and ranches spanning several generations due to the mild climate and year-round growing season. Specialty crops including pistachios and pecans, along with livestock and exotic animals, play an important role in the local economy. In addition, Willcox has also carved a niche within the agricultural micro-enterprises business; these businesses include approximately a dozen wineries and U-pick farms, such as Apple Annie’s. Willcox is the home of many businesses including Simflo Pumps, a large pump fabricator and manufacturer, and Nature Sweet Tomatoes, the largest greenhouse tomato producer in the world, and Inde Motorsports Ranch, a private motorsports club for motorsport enthusiasts.

2.5.2 POPULATION

According to 2010 U.S. Census data, there are 131,346 people residing in Cochise County. Furthermore, there are 3,757 people residing in Willcox, Arizona, the closest city to the Airport. The population has increased at a double-digit rate from 2000-2010 in the State of Arizona, as well as in Cochise County. The population of Willcox has remained relatively the same over this ten year period; a small increase of .06 percent did occur. The increase in population trend is illustrated in **Table 2-1**.

Table 2-1 Current and Historical Population

	2000	2010	Annual Growth Rate 2000-2010
Willcox, Arizona	3,733	3,757	.06%
Cochise County	117,755	131,346	11%
Arizona	5,130,632	6,392,017	22%

Source: U.S. Census Bureau, 2000 and 2010 Census Briefs

Population projections for Cochise County and Arizona were obtained from the Arizona Department of Administration, Office of Employment and Population Statistics. Based upon 2012 data, the population of Cochise County is projected to grow on average 1.1 percent annually between 2015 and 2030; the population of Arizona is projected to grow on average 1.8 percent annually between 2015 and 2030. Long-range population projections for Willcox were calculated based upon the annual growth rate from 2000-2010. These projections are shown in **Table 2-2**. Traditionally, population growth in an area is advantageous to airports; an increase in an area’s population often means the potential for increases in an airport’s user base and aviation and non-aviation related businesses.

Table 2-2 Population Projections

	2015	2020	2025	2030	Average Annual Growth 2015-2030
Willcox, Arizona	3,768	3,780	3,791	3,802	.06% ¹
Cochise County ²	134,166	142,398	150,247	157,693	1.1%
Arizona ²	6,777,534	7,485,163	8,168,354	8,852,645	1.8%

Sources: ¹Table 1-1 Current and Historical Population, ACI, 2013; ² Arizona Department of Administration, Office of Employment & Population Statistics, 2012

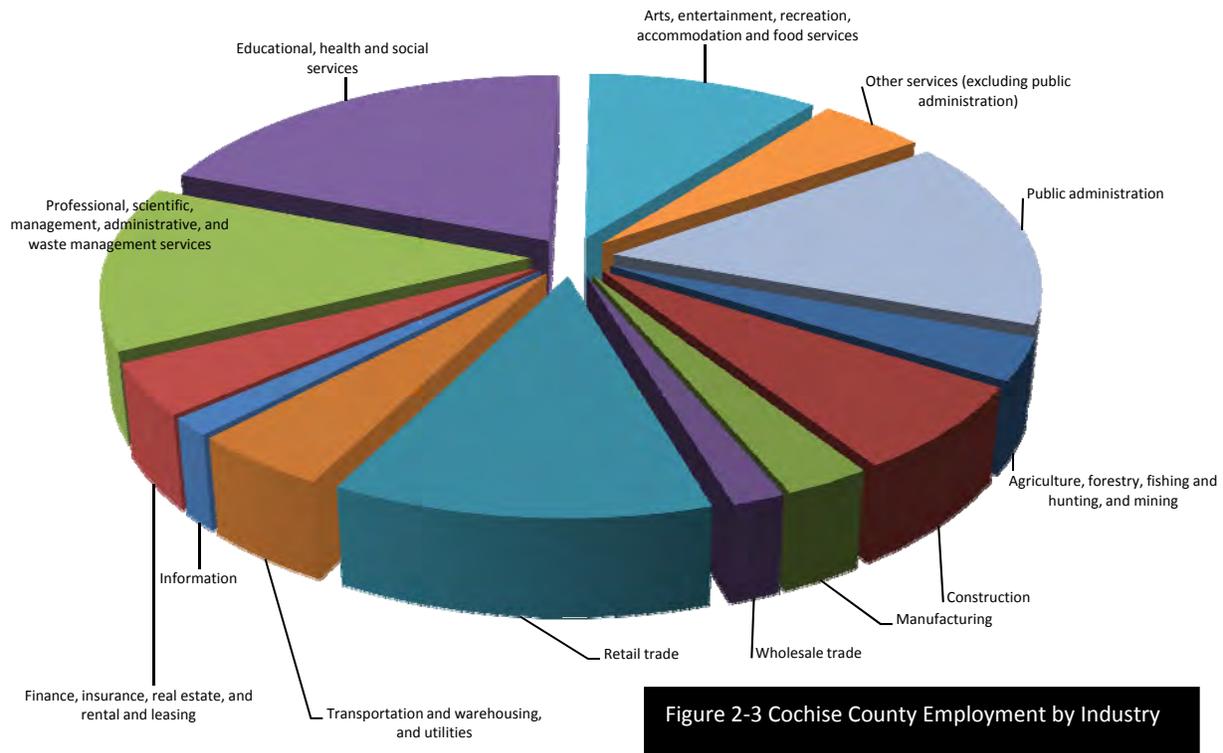
2.5.3 EMPLOYMENT

According to the U.S. Census Bureau 2007-2011 American Community Survey 5-year Estimates, the largest industries in Cochise County are education, health care and social services, followed by public administration, professional, scientific, management, administration and waste management services, and retail trade. Employment distribution by industry for Cochise County is shown in **Table 2-3** and **Figure 2-3**.

Table 2-3 Cochise County Employment Distribution

	Cochise County	% of Total
Agriculture, forestry, fishing, hunting and mining	1,637	3.4
Construction	3,353	6.9
Manufacturing	1,359	2.8
Wholesale trade	828	1.7
Retail trade	5,925	12.2
Transportation, warehousing and utilities	2,190	4.5
Information	693	1.4
Finance, insurance, real estate, rental and leasing	2,002	4.1
Professional, scientific, management, administrative and waste management services	6,404	13.2
Educational, health and social services	9,383	19.4
Arts, entertainment, recreation, accommodation and food services	4,971	10.3
Public Administration	7,394	15.3
Other services	2,298	4.7
Total	47,116	100%

Source: U.S. Census Bureau, American FactFinder, 2007-2011 American Community Survey 5-year Estimates, retrieved 2013



Source: ACI, 2013

2.5.4 INCOME

According to the U.S. Census American Community Survey 5-year Estimates for 2007-2011, the median household income in Arizona is approximately \$50,752. Likewise, according to the same data, the median income for a household in Cochise County is approximately \$45,906. The average number of persons per household in Cochise County is 2.53, and 2.64 for Arizona as a whole. The per capita income for 2007-2011 was \$23,296 for the County and \$25,784 for the State of Arizona. The percentage of families living below the poverty line for 2007-2011 was 16.2 percent for the County, as well as for the State of Arizona.

2.6 CLIMATE AND METEOROLOGICAL CONDITIONS

Meteorological conditions play an important role in the planning and development of an airport. Wind direction and speed are essential in determining optimum runway orientation. Temperatures substantially affect aircraft performance and are a major factor in runway length determination. The percentage of time an airport experiences low visibility because of meteorological conditions is a key factor in determining the need for instrument approach procedures and the type of procedure and facilities needed. The type of instrument approach procedure that might be needed, in turn, determines airspace and imaginary surface requirements. The amount and type of precipitation that occurs at an airport affects visibility and runway friction, or runway braking effectiveness. It also affects the type of maintenance equipment required, for example, snow and ice removal equipment.

2.6.1 LOCAL CLIMATIC DATA

According to the Western Regional Climate Center, the monthly average maximum temperature for the hottest month (July) is 94.5 degrees Fahrenheit. July is the month with the largest amount of precipitation (2.52 inches). The total annual average precipitation is 12.18 inches. The average total snow fall is 3.4 inches and there is typically no snow accumulation during the winter months.

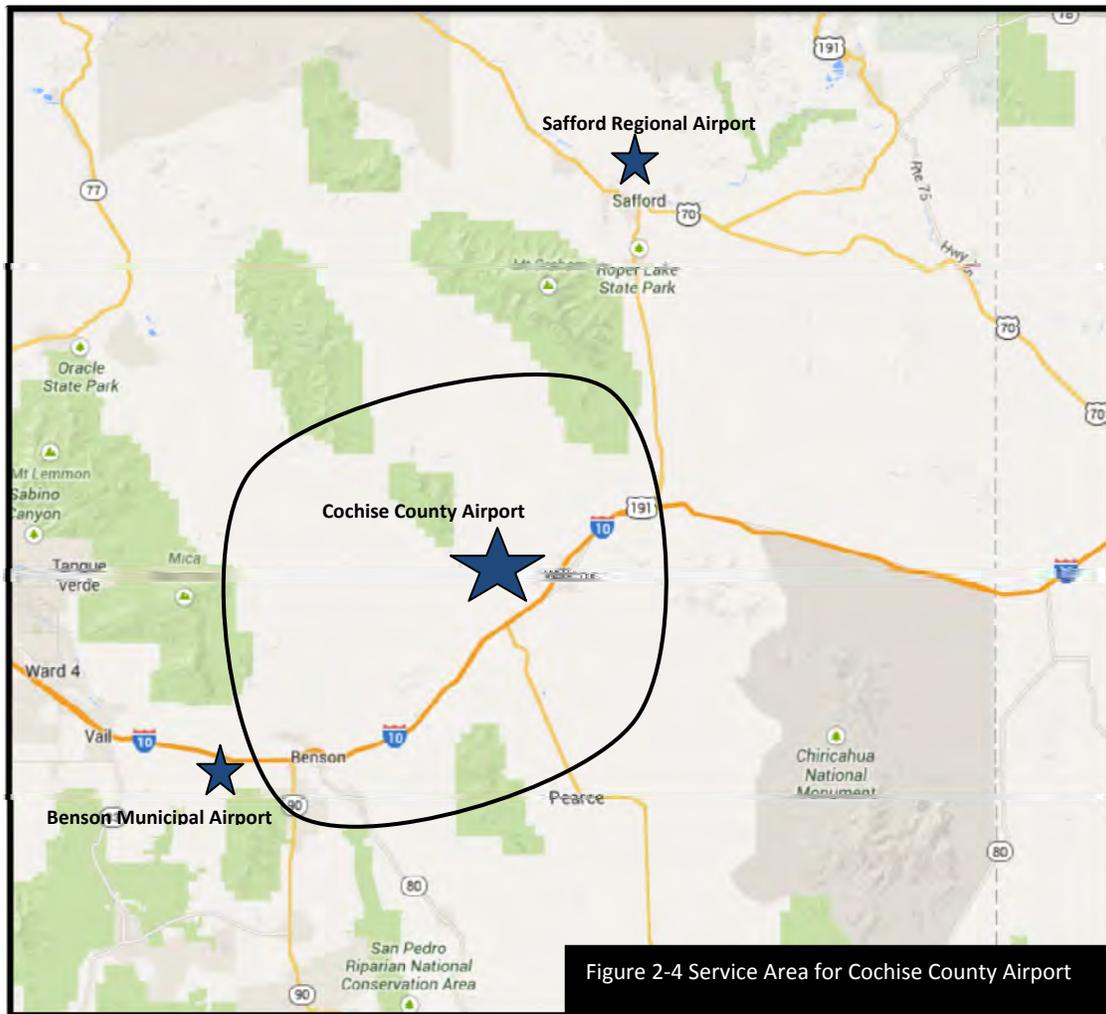
2.7 SURROUNDING AIRPORTS/SERVICE AREA

As previously discussed, Cochise County Airport is located in the southeastern region of Arizona. The region's mild climate and terrain serve as an ideal location for an airport. A comparison of several other notable public airports in the vicinity of Cochise County Airport was conducted in order to illustrate their proximity to the study airport and to give an overall picture of the types of aeronautical facilities available to the surrounding communities. This type of comparison is typically performed in order to define an airport's service area. An airport service area is defined by the communities and surrounding areas served by the airport facility. For example, factors such as the airport's surrounding topographical features (mountains, rivers, etc.), proximity to its users, quality of ground access, required driving time to the airport and the proximity of the facility to other airports that offer the same or similar services can all affect the size of a particular airport's service area. To define the service area for Cochise County Airport, the public airports in the area and their specific services and facilities were reviewed. **Table 2-4** summarizes the closest public airports and their services in relation to Cochise County Airport. The service area includes the area within half the distance of the nearest airport with a published instrument approach procedure from Cochise County Airport and is depicted in **Figure 2-4**.

Table 2-4 Cochise County Airport and Surrounding Airports

	ID	Distance - Nautical Miles	Distance - Highway Miles	NPIAS Status	Runway Length(s) Width(s)	Pavement Type	Instrument Approach	Fuel
Cochise County Airport, Willcox, AZ	P33	-	-	GA	6,095' x 75'	Asphalt	RNAV (GPS)	Yes
Safford Regional Airport, Safford, AZ	SAD	39 N	57	GA	4,799' x 75'	Asphalt	RNAV (GPS)	Yes
Benson Municipal Airport, Benson, AZ	E95	28 SW	40	GA	4,002' x 75'	Asphalt	-	Yes

Source: www.AirNav.com, retrieved 2013



Sources: www.google.com/maps, 2013; ACI, 2013

2.8 AIRPORT OWNERSHIP AND MANAGEMENT

Cochise County Airport is owned and operated by Cochise County. The operation and maintenance of the airport is the responsibility of the County's Facilities Management Department. The County Board of Supervisors is responsible for the administrative and financial oversight of the airport.

2.9 GRANT HISTORY

The grant history for the capital improvements at Cochise County Airport is depicted in **Table 2-5**.

Table 2-5 Cochise County Airport Grant History

State Fiscal Year	State Grant Number	Federal Grant Number	Project Description and Project Type	Local Amount	State Amount	Federal Amount	Total Amount
2002	2S06	n/a	Install new perimeter fencing	\$1,000	\$9,000	-	\$10,000
2003	3S01	n/a	Install fencing, upgrade access road and gates	\$600	\$5,400	-	\$6,000
2003	3S89D	T03-20-00054	APPP	\$8,128	\$73,157	-	\$81,286
2005	5S14	n/a	Construct apron, construct partial T/W	\$50,000	\$450,000	-	\$500,000
2008	8S25	n/a	Expand apron area - phase 3, design & construct	\$30,000	\$270,000	-	\$300,000
2009	9F27	3-04-0049-01-08	Rehabilitate Runway 3-21 7 lighting Phase 1, design only	\$1,477	\$1,478	\$56,148	\$59,103
2009	9F52	3-04-0049-02-08	Rehabilitate Runway 3-21 7 lighting Phase 2, design & construction	\$7,895	\$7,894	\$300,000	\$315,789
2011	1F04	3-04-0049-03-10	Install Runway 3-21 lighting Phase 3, construct only	\$3,947	\$3,948	\$150,000	\$157,895
2012	2S78	n/a	Asphalt overlay Runway 3-21, construct only (APMS)	\$53,882	\$484,946	-	\$538,828
2014	4S1P	n/a	Reconstruction of T/W A Phase 2, design only	\$5,200	\$46,800	-	\$52,000
2014	4F3E	3-04-0049-004-13	Update Airport Master Plan, planning	\$8,724	\$8,724	\$177,721	\$195,169
Total amount				\$170,853	\$1,361,347	\$683,869	\$2,216,070

Source: ADOT MPD - Aeronautics Group, September 2013

2.10 AIRPORT FINANCIAL DATA

Financial data was obtained for the Cochise County Airport from 2009 to 2013 in order to conduct a review of the revenue and expenditures. The data provides a baseline for the financial status of the airport and allows for further evaluation in the Airport Development and Financial Plan chapters. It is important to note that Cochise County's fiscal year is from July 1st to June 30th. A breakdown of airport revenues and expenditures from 2009 to 2013 is depicted in **Table 2-6**.

Preliminary observations of the data reveal that fuel sales were at their peak at \$3,325 in fiscal year 2011/2012. Fuel sales in the last two years are down from their peak, but seem to be holding steady.

Airport operations expenditures have been increasing from \$3,992 in 2010/2011 to a (budgeted amount) of \$6,530 in 2013/2014. The largest source of revenue comes from hangar leases and other leases on the airport. The second source of revenue comes from the sale of aircraft fuel (Jet A and AVGAS).

The Airport Development and Financial Plan chapter will discuss the economic benefits in more detail and provide recommendations to potentially increase revenues and help fund the County's share of future airport capital improvement projects.

Table 2-6 Cochise County Airport Financial Data 2009-2013

	2009/2010	2010/2011	2011/2012	2012/2013	*2013/2014
Revenue					
Hangar Leases	\$10,410	\$9,448	\$7,410	\$4,960	\$5,280
Other Leases	\$2,520	\$3,010	\$2,430	\$2,735	\$2,810
Fuel (Jet A, AVGAS)	\$719	\$2,015	\$3,325	\$2,754	\$2,775
Total Revenue	\$13,649	\$14,473	\$13,165	\$10,449	\$10,865
Expenditures					
Airport Operations	\$4,098	\$3,922	\$4,899	\$7,670	\$6,530
Airport Facility Utility	\$8,639	\$7,592	\$9,178	\$8,374	\$8,608
Debt Service	\$0	\$0	\$0	\$0	\$0
Total Expenditures	\$12,737	\$11,514	\$14,077	\$16,044	\$15,138
Net Gain/Loss	\$912	\$2,959	-\$912	-\$5,595	-\$4,273

Note: Fiscal Year is July 1st through June 30th; *Budget Amount (2013/2014)

Source: Cochise County, September 25, 2013

2.11 BASED AIRCRAFT AND OPERATIONS

There are various federal, state and local sources available for determining existing activity levels at an airport. These include, but are not limited to, FAA Form 5010-1 *Airport Master Record*, FAA Terminal Area Forecast (TAF), on-site inventory, and airport management records.

The FAA Form 5010-1 is the official record kept by the FAA to document airport physical conditions and other pertinent information. The information is typically collected from the airport sponsor and includes an annual estimate of aircraft activity as well as the number of based aircraft. The accuracy of the information contained in the 5010-1 Form varies directly with the airport manager's record keeping system and the date of its last revision. The current FAA Form 5010-1 for Cochise County Airport indicates there are 22 based aircraft. The 5010-1 also reports 8,500 annual operations; this is based upon a 12-month reporting period which ended in April of 2011.

The TAF is a historical record and contains forecast projections of based aircraft and annual operations. The TAF is maintained and utilized by the FAA for planning and budgeting purposes. The 2014-2034 TAF

data for the Airport projects 23 based aircraft and 8,500 annual operations for each year over the course of this future projection. The TAF data may not accurately reflect the based aircraft and operations numbers, as it is dependent on when it was last updated by the FAA. Furthermore, it is difficult to accurately record aircraft operations at airports that are not equipped with an air traffic control tower. Normally, operations are recorded by air traffic controllers and reported to the FAA. Cochise County Airport does not have an air traffic control tower.

Thus, the existing activity at the Airport was evaluated using a method for estimating general aviation operations. The FAA Statistics and Forecast Branch has developed a *Model for Estimating General Aviation Operations at Non-Towered Airports using Towered and Non-Towered Airport Data*. This model was created using data from towered and non-towered general aviation airports. A dummy variable is used to differentiate between those airports having an air traffic control tower and those that do not. The model was used to estimate the number of operations at 2,789 non-towered general aviation airports included in the FAA *Terminal Area Forecasts*. The equation they developed is Equation #15, *Model for Estimating General Aviation Operations at Non-Towered Airports*. Local factors such as the number of based aircraft, population, location, and the number of flight schools is applied to the equation resulting in an estimated number of annual operations. The factors pertinent to Cochise County Airport were applied in this formula, and the results are shown in **Appendix E**.

The estimated number of annual operations determined by Equation #15 (13,515) is closer to the projections that have been forecasted by the TAF and the Airport Master Record for the Airport; however, they are still quite high compared to the actual number reported by airport management. According to discussions with airport management, there were 25 based aircraft and 6,800 annual operations in 2012. The based aircraft fleet mix includes 25 single-engine aircraft. Historical based aircraft and operations are shown in **Table 2-7**.

Table 2-7 Historical Based Aircraft and Operations

Year	Total Operations	Based Aircraft
1996 ¹	7,000	24
2007 ²	7,860	27
2011 ³	8,500	22
2012 ⁴	6,800	25
2013 ⁵	13,515	22

Sources: ¹Cochise County Airport Master Plan – 1996 actual data; ²Arizona State Airports System Plan – 2007 base year data; ³Cochise County Airport Master Record – October 2013; ⁴Cochise County Airport Manager – November 2013; ⁵Estimate of operations derived from *Model for Estimating General Aviation Operations at Non-Towered Airport, Equation #15, FAA Statistics and Forecast Branch (July 2001)*.

2.12 CERTIFICATED PILOTS AND REGISTERED AIRCRAFT

The FAA databases of certificated airmen and registered aircraft were reviewed to determine the current distribution of pilots and registered aircraft in Cochise County. This data indicates that there are 494 certificated pilots and 251 aircraft registered in Cochise County as of November 2013. Aircraft are not always based where they are registered. Of the 251 registered aircraft in the Cochise County, 22 are based at Cochise County Airport according to FAA records.

2.13 DESIGN STANDARDS

Airport design standards provide basic guidelines for a safe, efficient, and economic airport system. The standards cover the wide range of size and performance characteristics of aircraft that are anticipated to use an airport. Various elements of airport infrastructure and their functions are also covered by these standards. Choosing the correct aircraft characteristics for which the airport will be designed needs to be done carefully so that future requirements for larger and more demanding aircraft are taken into consideration while remaining mindful that designing for large aircraft that will never serve the airport is not economical.

2.13.1 DESIGN AIRCRAFT

According to FAA Advisory Circular 150/5300-13A, *Airport Design*, planning a new airport or improvement to an existing airport requires the selection of one or more “design aircraft.” In most cases, the design aircraft (for the purpose of airport geometric design) is a composite aircraft representing a collection of aircraft classified by the parameters:

- Aircraft Approach Category (AAC)
- Airplane Design Group (ADG)
- Taxiway Design Group (TDG)

For the purpose of selecting a design aircraft, the FAA recommends that the most demanding aircraft, or family of aircraft, which conducts at least 500 operations per year at the airport be chosen as the design aircraft. Additionally, when an airport has more than one active runway, a design aircraft is selected for each runway. According to the approved 1997 Airport Layout Plan (ALP) for the Airport, the existing design aircraft for Runway 3-21 is a light, turboprop aircraft. An example of a light, turboprop aircraft is the Beechcraft King Air B200.

2.13.2 RUNWAY DESIGN CODE (RDC)

To arrive at the RDC, the AAC, ADG and approach visibility minimums are combined to form the RDC of a particular runway. The RDC provides the information needed to determine certain design standards that apply. The first component, depicted by a letter, is the AAC and relates to aircraft approach speed (operational characteristics). The second component, depicted by a Roman numeral, is the ADG and relates to the aircraft wingspan or tail height (physical characteristics). The final component relates to the visibility minimums expressed by runway visual range (RVR) values in feet of 1,200, 1,600, 2,400, 4,000, and 5,000. If a runway is only used for visual approaches, the term “VIS” should appear as the

third component. The existing RDC for Runway 3 is B/II/5000, and the existing RDC for Runway 21 is B/II/4000. The FAA AC 150/5300-13A, *Airport Design*, RDC requirements are illustrated in **Table 2-8**.

Table 2-8 Runway Design Code

Aircraft Approach Category	Approach Speed	
Category A	less than 91 knots	
Category B	91 to 120 knots	
Category C	121 knots to 140 knots	
Category D	141 knots to 165 knots	
Category E	165 knots or more	
Airplane Design Group	Wingspan	Tail Height
Group I	< 49 feet	<20 feet
Group II	49 to 78 feet	20 to 29 feet
Group III	79 to 117 feet	30 to 44 feet
Group IV	118 to 170 feet	45 to 59 feet
Group V	171 to 213 feet	60 to 65 feet
Group VI	214 to 261 feet	66 to 79 feet
Runway Visual Range (ft.)	Flight Visibility Category (statute mile)	
VIS	Visual approach only	
5000	Not lower than 1 mile	
4000	Lower than 1 mile but not lower than 3/4 mile	
2400	Lower than 3/4 mile but not lower than 1/2 mile (CAT-I PA)	
1600	Lower than 1/2 mile but not lower than 1/4 mile (CAT-II PA)	
1200	Lower than 1/4 mile (CAT-III PA)	

Source: FAA Advisory Circular 150/5300-13A, *Airport Design*, 2014

2.13.3 TAXIWAY DESIGN GROUP (TDG)

The TDG design standards are based on the overall main gear width (MGW) and the cockpit-to-main gear (CMG) distance. Taxiway/taxilane width and fillet standards, and in some instances, runway to taxiway and taxiway/taxilane separation requirements, are determined by the TDG. The FAA advises that it is appropriate for a series of taxiways on an airport to be built to a different TDG standards based on anticipated use.

For airports with two or more active runways, it is advisable to design all airport elements to meet the requirements of the most demanding RDC and Taxiway Design Group (TDG). However, it may be more practical and economical to design some airport elements such as a secondary runway to standards associated with a lesser demanding RDC and TDG. For example, it would not be prudent for an air carrier airport that has a separate general aviation runway, or a crosswind runway for general aviation traffic, to design that runway for air carrier traffic.

Taxiway A is currently a partial parallel taxiway for Runway 3-21; Taxiway A is 35 feet wide, categorizing it in TDG 2. Taxiways B and C are currently closed due to extreme pavement deterioration, and therefore do not have an assigned TDG.

2.13.4 AIRPORT REFERENCE CODE (ARC)

The ARC is not a design standard, rather it is an airport designation that signifies the airport's highest Runway Design Code (RDC), minus the third (visibility) component of the RDC. The ARC is used for planning purposes only, and does not limit the aircraft that may be able to operate safely on the airport. According to the approved Master Plan from 1997, the current ARC for Cochise County Airport is B-II. Examples of the types of design aircraft and their corresponding ARC are depicted in **Figure 2-5**.

2.13.5 SAFETY AREAS

Runway and Taxiway Safety Areas (RSAs and TSAs) are defined surfaces surrounding the runway and taxiway prepared specifically to reduce the risk of damage to aircraft in the event of an undershot, overshoot, or excursion from the runway or taxiway. The safety areas must be:

- Cleared and graded and have no potentially hazardous surface variations;
- Drained so as to prevent water accumulation;
- Capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and fire fighting (ARFF) equipment, and the occasional passage of aircraft without causing structural damage to the aircraft; and
- Free of objects, except for objects that need to be located in the runway or taxiway safety area because of their function.

The runway safety areas for Runway 3-21 at Cochise County Airport are in good condition and appear to meet FAA standards. No apparent violations were noted at the time of the site visit. The taxiway safety areas were also reviewed and no apparent deficiencies were noted.

Figure 2-5 Typical Design Aircraft and Corresponding ARC



Source: ACI, 2013

2.13.6 OBSTACLE FREE ZONE (OFZ) AND OBJECT FREE AREA (OFA)

The OFZ is a three dimensional volume of airspace which supports the transition of ground to airborne aircraft operations. The clearing standard precludes taxiing and parked airplanes and object penetrations, except for frangible visual Navigational Aids (NAVAIDs) that need to be located in the OFZ because of their function. The OFZ is similar to the 14 CFR Part 77 primary surface in that it represents the volume of space longitudinally centered on the runway. It extends 200 feet beyond the end of each runway. The Runway Object Free Area (ROFA) is a two-dimensional ground area surrounding the runway. The ROFA standard precludes parked airplanes, agricultural operations and objects, except for objects that need to be located in the ROFA for air navigation or aircraft ground maneuvering purposes.

2.13.7 RUNWAY PROTECTION ZONE (RPZ)

The RPZ is trapezoidal in shape and centered about the extended runway centerline. The RPZ dimension for a particular runway end is a function of the type of aircraft and approach visibility minimums associated with that runway end.

For Runway 3-21, the RPZ begins 200 feet from the runway threshold and extends for 1,000 feet at both ends; the RPZ is 500 feet wide at the inner end and 700 feet wide at the outer end. Runway 14-32 is currently closed.

The land uses not recommended by FAA to be within the RPZ are residences and places of public assembly (churches, schools, hospitals, office buildings, shopping centers and other uses with similar concentrations of persons typifying places of public assembly). The FAA recommends the Sponsor (Cochise County) control the RPZs through fee simple ownership or avigation easements.

2.13.8 SUMMARY OF EXISTING DESIGN STANDARDS

In summary, the FAA has numerous design standards in which airports must comply with. A review of the existing design standards for Cochise County Airport's runway and taxiways are depicted in **Table 2-9** and **Table 2-10**.

Table 2-9 Existing Dimensional Standards - Runway

	Runway 3-21	
	Existing Dimension	Design Standard
Runway Design Code (RDC)	--	B-II
Runway length	6,095'	--
Runway width	75'	75'
Runway Safety Area (RSA) width	150'	150'
Runway Safety Area (RSA) length beyond runway end	300'	300'
Runway Object Free Area (ROFA) width	500'	500'
Runway Object Free Area (ROFA) length beyond runway end	300'	300'
Runway Obstacle Free Zone (ROFZ) width	400'	400'
Runway Obstacle Free Zone (ROFZ) length beyond runway end	200'	200'
Runway Protection Zone (RPZ) length	1,000'	1,000'
Runway Protection Zone (RPZ) inner width	500'	500'
Runway Protection Zone (RPZ) outer width	700'	700'
Runway centerline to hold line	200'	200'
Runway centerline to taxiway/taxilane centerline	500'	240'
Runway centerline to aircraft parking area	250'	250'

Source: FAA AC 150/5300-13A, *Airport Design*, 2014

Table 2-10 Existing Dimensional Standards – Taxiway/Taxilanes

	Existing Dimension	Design Standard
Taxiway/Taxilane Protection	--	ADG II
Taxiway Safety Area (TSA)	79'	79'
Taxiway Object Free Area (OFA)	131'	131'
Taxilane Object Free Area (OFA)	30'-40' ¹	115'
Taxiway/Taxilane Separation	--	ADG II
Taxiway centerline to fixed or movable object	65.5'	65.5'
Taxilane centerline to fixed or movable object	30'-40' ¹	57.5'
Wingtip Clearance	--	ADG II
Taxiway Wingtip Clearance	26'	26'
Taxilane Wingtip Clearance	18'	18'
TDG Standards	--	TDG 2
Taxiway Width	35'	35'
Taxiway Edge Safety Margin	7.5'	7.5'
Taxiway Shoulder Width	10'	10'

Note.¹ See Section 2.17.2 for description of obstructions; red text indicates the design standard is not met.

Source: FAA AC 150/5300-13A, *Airport Design*, 2014

2.14 TITLE 14, CODE OF FEDERAL REGULATIONS (14 CFR) PART 77 IMAGINARY SURFACES

The 14 CFR Part 77 *Safe, Efficient Use, and Preservation of Navigable Airspace* establishes several imaginary surfaces that are used as a guide to provide a safe and unobstructed operating environment for aviation. These surfaces, which are typical for civilian airports, are shown in **Figure 2-6**. The primary, approach, transitional, horizontal and conical surfaces identified in 14 CFR Part 77 are applied to each runway at both existing and new airports on the basis of the type of approach procedure available or planned for that runway and the specific 14 CFR Part 77 runway category criteria. For the purpose of this section, a utility runway is a runway that is constructed for and intended for use by propeller driven aircraft of a maximum gross weight of 12,500 pounds or less. A larger-than-utility runway is a runway constructed for and intended for the use of aircraft of a maximum gross weight of 12,500 pounds or greater. A visual runway is a runway intended for the operation of aircraft of any weight and using only visual approach procedures, with no straight-in instrument approach procedure and no instrument designation indicated on an FAA approved airport layout plan, a military service approved military airport layout plan, or by any planning document submitted to the FAA by competent authority. A non-precision instrument runway is a runway with an approved or planned straight-in instrument approach procedure.

Runway 3-21 is the runway currently in use at Cochise County Airport. Runway 3-21 is classified as a larger-than-utility, non-precision instrument runway and has a RNAV (GPS) non-precision instrument approach. The 14 CFR Part 77 imaginary surfaces for these classifications are further described below.

2.14.1 PRIMARY SURFACE

The primary surface is an imaginary surface of specific width, longitudinally centered on a runway. The primary surface extends 200 feet beyond each end of the paved surface of runways, but does not extend past the end of soft field runways. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline. The width is 1,000 feet for precision instrument runways and non-precision instrument runways with visibility minimums as low as three-quarters of a mile, 500 feet for non-precision instrument utility and larger-than-utility runways and larger-than-utility visual runways, and 250 feet for visual-utility runways.

2.14.2 APPROACH SURFACE

The approach surface is a surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the primary surface. An approach surface is applied to each end of the runway based upon the type of approach available or planned for that runway, with approach gradients of 20:1, 34:1, or 50:1. The inner edge of the surface is the same width as the primary surface. It expands uniformly to a width corresponding to the 14 CFR Part 77 runway classification criteria. At Cochise County Airport, these dimensions are 500 feet by 3,500 feet by 10,000 feet, with a 34:1 approach surface gradient for Runway 3-21.

2.14.3 TRANSITIONAL SURFACE

The transitional surface extends outward and upward at right angles to the runway centerlines from the sides of the primary and approach surfaces at a slope of 7:1 and end at the horizontal surface.

2.14.4 HORIZONTAL SURFACE

The horizontal surface is considered necessary for the safe and efficient operation of aircraft in the vicinity of an airport. As specified in 14 CFR Part 77, the horizontal surface is a horizontal plane 150 feet above the established airport elevation. The airport elevation is defined as the highest point of an airport's useable runways, measured in feet above mean sea level. The perimeter is constructed by arcs of specified radius from the center of each end of the primary surface of each runway. The radius of each arc is 5,000 feet for runways designated as utility or visual and 10,000 feet for all other runways.

2.14.5 CONICAL SURFACE

The conical surface extends outward and upward from the periphery of the horizontal surface at a slope of 20:1 for a horizontal distance of 4,000 feet.

2.14.6 SUMMARY OF DIMENSIONAL CRITERIA

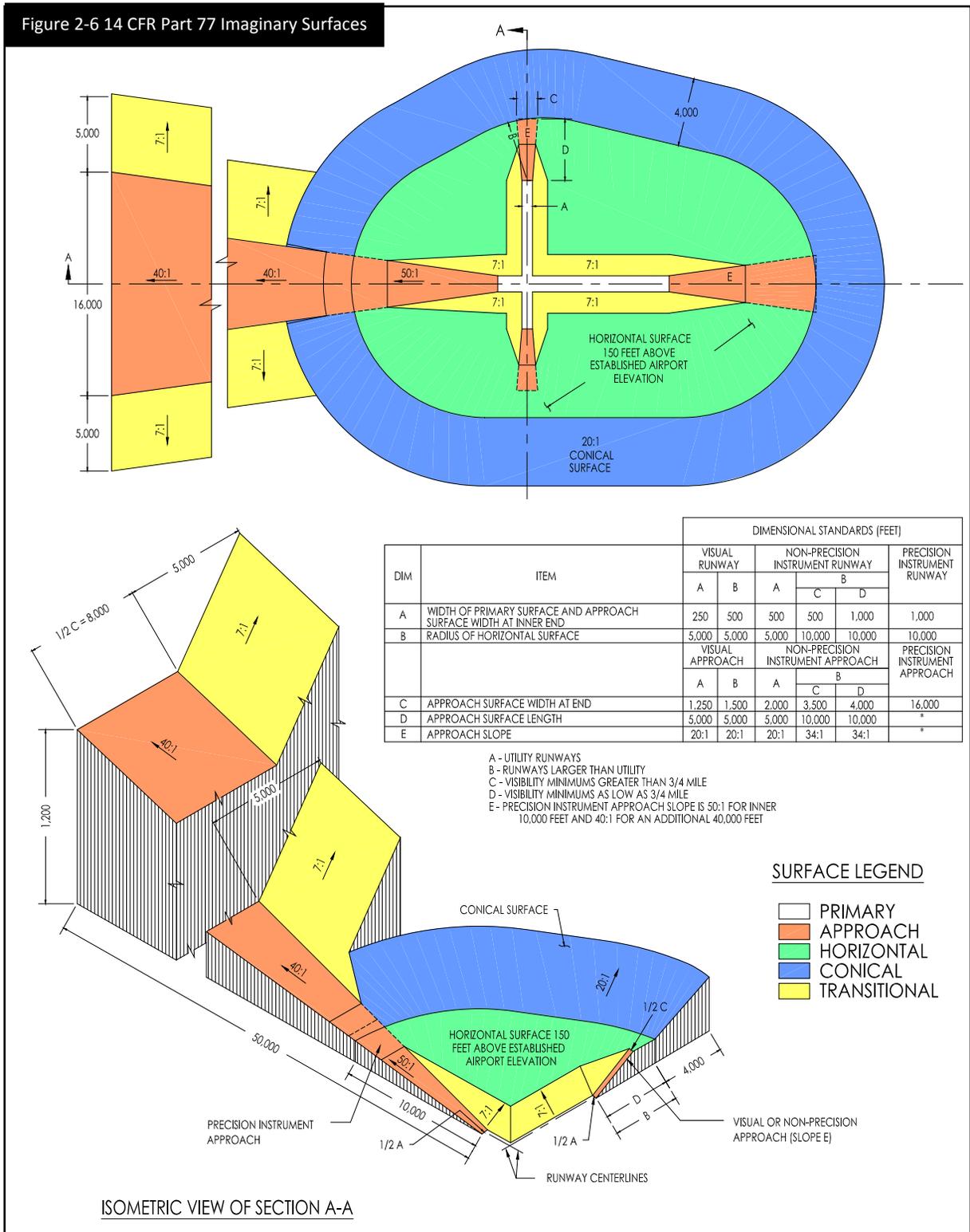
The 14 CFR Part 77 imaginary surfaces described above for the Cochise County Airport are summarized in **Table 2-11**.

Table 2-11 14 CFR Part 77 Imaginary Surfaces

	Runway 3-21
Primary surface width	500'
Primary surface beyond RW end	200'
Approach surface dimensions	RW 3 (500' x 3,500' x 10,000') RW 21 (500' x 3,500' x 10,000')
Approach surface slope	RW 3 (34:1) RW 21 (34:1)
Transitional surface slope	7:1

Source: 14 CFR, Part 77 *Safe, Efficient Use, and Preservation of Navigable Airspace*, 2013

Figure 2-6 14 CFR Part 77 Imaginary Surfaces

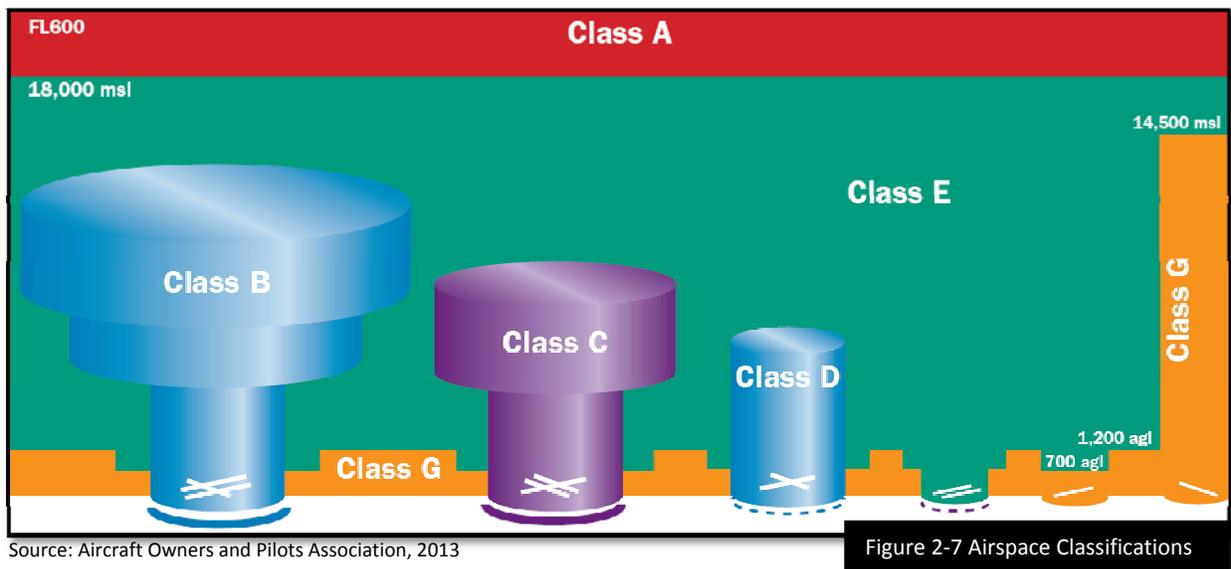


Source: 14 CFR, Part 77 Safe, Efficient Use, and Preservation of Navigable Airspace, 2013

2.15 AIRSPACE CHARACTERISTICS

The National Airspace System (NAS) consists of various classifications of airspace that are regulated by the FAA. Airspace is either controlled or uncontrolled. Pilots flying in controlled airspace are subject to Air Traffic Control (ATC) and must follow either Visual Flight Rules (VFR) or Instrument Flight Rules (IFR) requirements. These requirements include combinations of operating rules, aircraft equipment and pilot certification, and vary depending on the Class of airspace. These rules are described in Federal Aviation Regulations (FAR) Part 71, *Designation of Class A, Class B, Class C, Class D and Class E Airspace Areas; Airways; Routes; and Reporting Points* and FAR Part 91, *General Operating and Flight Rules*. **Figure 2-7** shows the different airspace classes and gives a graphical representation of them. General definitions of the Classes of airspace are provided below:

- **Class A Airspace** - Airspace from 18,000 feet MSL up to and including flight level (FL) 600.
- **Class B Airspace** - Airspace from the surface to 10,000 feet MSL surrounding the nation's busiest airports in terms of IFR operations or passenger enplanements.
- **Class C Airspace** - Generally, airspace from the surface to 4,000 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower.
- **Class D Airspace** - Airspace from the surface up to 2,500 feet above the airport elevation (charted in MSL) surrounding those airports with an operational control tower.
- **Class E Airspace** - Generally, controlled airspace that is not Class A, Class B, Class C or Class D.
- **Class G Airspace** - Generally, uncontrolled airspace that is not designated Class A, Class B, Class C, Class D or Class E.
- **Victor Airways** - These airways are low altitude flight paths between ground based VHF Omni-directional Range receivers (VORs).



The Airport is situated under Class E airspace starting at 700 feet above ground level (AGL) and continuing up to 18,000 feet MSL, and under Class G airspace from the surface up to 700 feet AGL. Pilots should check Notices to Airmen (NOTAMs) or the Airport/Facility Directory (A/FD) for Class E (surface) effective hours.

The traffic patterns at Cochise County Airport are standard left traffic for Runway 3-21. Traffic Pattern Altitude (TPA) is 5,187 feet MSL (1,000 feet AGL) for all aircraft. There are currently no noise abatement procedures in place at the Airport.

A Victor Airway is a special kind of Class E airspace and is like a “highway” in the sky. Many powered aircraft follow these routes. The routes connect VOR stations that radiate a signal in all directions. These stations are usually located at or near airfields. North-South Victor Airways have odd numbers while East-West airways have even numbers. These federal or Victor Airways are used by both IFR and VFR aircraft. The airspace set aside for a Victor Airway is eight miles wide with a floor at 1,200 feet AGL and extend up to FL 180 (18,000 feet MSL).

Cochise County Airport lies between two Victor Airways; Victor Airway 94 (V94) lies to the north of the Airport and Victor Airway 16 (V16) lies to the south.

The location of the Airport and the various airspace classifications which surround it can be seen on the Phoenix VFR Sectional Chart in **Figure 2-8**.

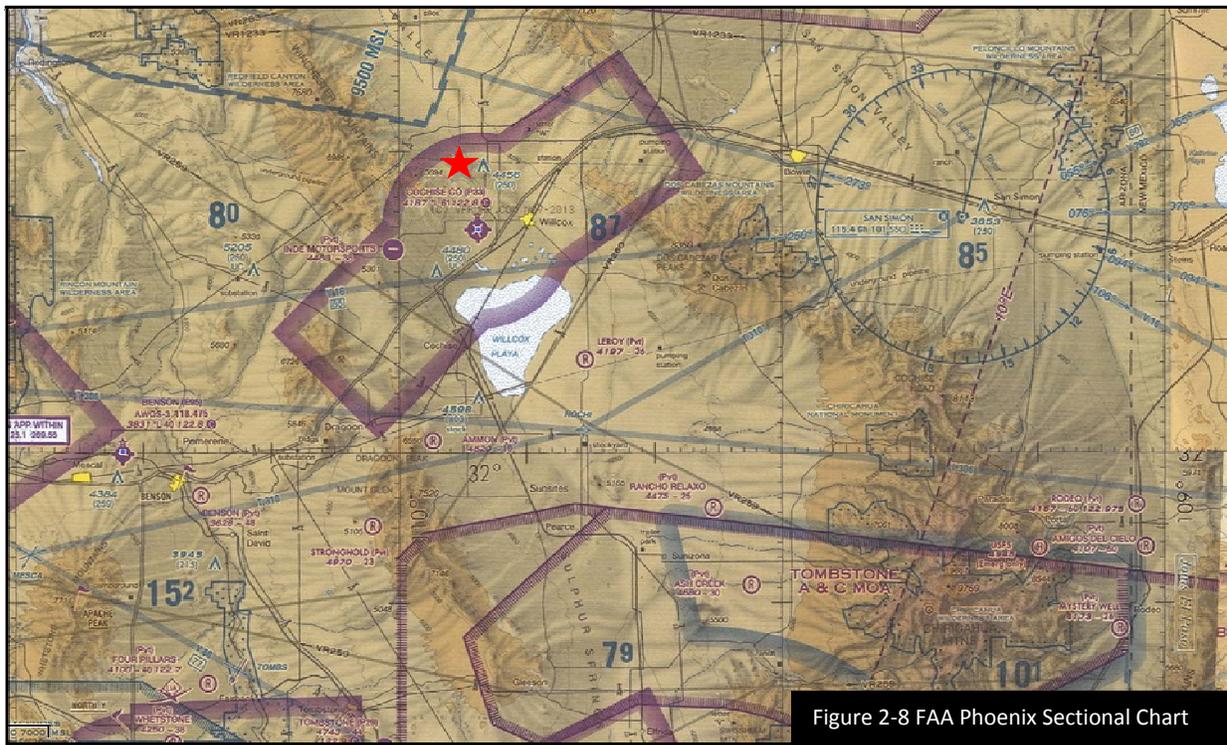


Figure 2-8 FAA Phoenix Sectional Chart

Source: www.VFRmap.com, retrieved 2013

2.15.1 AIRSPACE JURISDICTION

Cochise County Airport is located within the jurisdiction of the Albuquerque Air Route Traffic Control Center (ARTCC) and the Prescott Flight Service Station (FSS). The altitude of radar coverage by the Albuquerque ARTCC may vary as a result of the FAA navigational/radar facilities in operation, weather conditions, and surrounding terrain. The Prescott FSS provides additional weather data and other pertinent information to pilots on the ground and enroute.

2.15.2 AIRSPACE RESTRICTIONS

Military Operation Areas (MOAs) and Military Training Routes (MTRs) are established for the purpose of separating certain military training activities, which routinely necessitate acrobatic or abrupt flight maneuvers, from IFR traffic. IFR traffic can be cleared through an active MOA if IFR separation can be provided by Air Traffic Control (ATC), otherwise ATC will reroute or restrict the IFR traffic. Restricted areas are defined as “airspace designated under FAR Part 73, within which the flight of aircraft, while not wholly prohibited, is subject to restriction. Most restricted areas are designated joint-use and IFR/VFR operations in the area may be authorized by the controlling ATC facility when it is not being utilized by the using agency.” Restricted areas are typically associated with military operations and indicate the existence of unusual, often invisible, hazards to aircraft such as artillery firing, aerial gunnery or guided missiles.

Cochise County Airport is situated between the Jackal and Jackal Low MOAs to the north (approximately 17 nautical miles (nm)) and the Tombstone A and C MOAs to the south (approximately 19 nm). The Jackal MOA includes the airspace from 11,000 feet MSL or 3,000 feet AGL (whichever is higher) to, but not including, flight level 180. The Jackal Low MOA includes the airspace from 100 feet AGL to, but not including, 11,000 feet MSL or 3,000 feet AGL (whichever is higher). The Tombstone A MOA includes the airspace from 500 feet AGL to, but not including, 14,500 feet MSL. The Tombstone C MOA includes the airspace from 14,500 feet MSL to, but not including, flight level 180. Above all the upper MOAs resides Air Traffic Control Assigned Airspace (ATCAA), which extends from flight level 180 to flight level 510. The controlling agency for the Jackal and Tombstone MOAs/ATCAA is Albuquerque Center. The Jackal and Jackal Low MOAs are active Monday through Friday from 7:00 a.m. until 6:00 p.m. The Tombstone A and C MOAs are active Monday through Friday from 6:00 p.m. until 9:00 p.m. All of these MOAs may be scheduled active at other times by issuing a Notice to Airmen (NOTAM), as is done for weekend or night missions.

In addition to MOAs and Restricted airspace, Military Training Routes (MTR) pose a potential hazard to civilian aircraft. The MTR program is a joint venture by the FAA and the Department of Defense (DOD). MTRs are mutually developed for use by the military to conduct low-altitude, high-speed training. Increased vigilance is recommended for pilots operating in the vicinity of these training routes. There are three MTRs in the vicinity of the Cochise County Airport. The centerline of the Visual MTR VR-259 is located approximately 7 nm southwest of the Airport and runs from northwest to southeast. Along this leg, VR-259 is 6 nm wide (3 nm left and 3 nm right of centerline) and extends from 700 feet AGL to 1,500 feet AGL. Over the location of the dismantled Cochise VORTAC, this route extends from 300 feet AGL to 5,000 feet AGL to the southeast. The closest border of VR-259 is approximately 3 nm southwest of the Airport (200 degrees magnetic). The centerline of the second Visual MTR VR-260 is located approximately 9 nm southeast of the Airport and runs from northeast to southwest. Along this leg, VR-260 is 4 nm wide (2 nm left and 2 nm right of centerline) and extends from 300 feet AGL to 700 feet AGL. The closest border of VR-260 is approximately 6 nm east-southeast of the Airport (110 degrees magnetic). The centerline of the third Visual MTR VR-1233 is located approximately 14 nm north of the Airport and runs from west to east. Along this leg, VR-1233 is 6 nm wide (3 nm north and 3 nm south of centerline) and extends from 1,000 feet AGL to 1,500 feet AGL west of 360 degrees magnetic and 300 feet AGL to 1,500 feet AGL east of 360 degrees magnetic from the Airport. The closest southern border of VR-1233 is approximately 11 nm east-southeast of the Airport (345 degrees magnetic).

The centerline of a VFR Helicopter Refueling track, AR-136V, ends approximately 18 nm west-southwest of the Airport at 6,500 feet MSL. AR-136V runs a length of 60 nm between the town of Hayden, Arizona and a 5,680 foot peak (18 nm west-southwest of the Airport). The track is 4 nm wide (2 nm either side of centerline), placing its closest point approximately 16 nm west-southwest of the Airport.

Special Conservation Areas are also located in the vicinity of the Airport. This type of airspace surrounds many national parks, wildlife refuges and other noise sensitive areas. Pilots are requested to avoid flight below 2,000 feet AGL in these areas. The Dos Cabezas Mountains Wilderness Area is located approximately 15 nm east of the Airport. Additionally, the Redfield Canyon Wilderness Area is located approximately 14 nm to the northwest, and the Galiuro Wilderness Area is approximately 28 nm northwest of the Airport.

2.15.3 INSTRUMENT APPROACH PROCEDURES

Airport safety and capacity are greatly enhanced at airports where instrument approach procedures (IAP) are available during times of inclement weather. As the ceiling and visibility around an airport decreases, electronic guidance provided by specialized equipment to aircraft (also equipped with specialized equipment) allows pilots to safely operate and land in weather where visibility is restricted. Additionally, the availability of instrument approach capabilities at an airport increases capacity by allowing continued use of the airport by aircraft equipped to fly instrument procedures because they can still land at the airport while aircraft which can only fly during visual conditions cannot.

The instrument approach capabilities of an airport are typically broken into three categories: precision, non-precision, and visual. Precision instrument approach procedures provide very accurate electronic lateral and vertical guidance to aircraft. Non-precision instrument approach procedures also provide electronic guidance to aircraft, but the accuracy is less refined and is mainly limited to lateral guidance only. The type and accuracy of an instrument approach is highly dependent upon the airspace obstructions in the vicinity of the airport. Runways with no instrument approach capabilities are considered visual runways. Airports with published instrument approach procedures are known as Instrument Flight Rules (IFR) airports while airports with no published instrument approach procedures are considered Visual Flight Rules (VFR) airports.

The most common type of precision approach in use today is the Instrument Landing System (ILS). Non-precision approach capabilities have been greatly increased by the evolution of satellite technology, specifically Global Positioning System (GPS). The FAA has recently developed new approach procedures known as Localizer, or Lateral Performance with Vertical Guidance (LPV). This new capability utilizes the Wide Area Augmentation System (WAAS). While not considered a precision approach, LPV provides vertical guidance to aircraft to “near precision” accuracy. Another type of instrument approach is area navigation (RNAV). This is a method of instrument flight rules (IFR) navigation that allows an aircraft to choose any course within a network of navigation beacons, rather than navigating directly to and from the beacons. RNAV can be defined as a method of navigation that permits aircraft operation on any desired course within the coverage of station-referenced navigation signals or within the limits of a self-contained system capability, or a combination of these. This can conserve flight distance, reduce congestion, and allow flights into airports without navigational beacons.

Instrument approach procedures are developed by the FAA. GPS/RNAV and/or LPV approaches require no ground based equipment; thus, the FAA can now develop approach procedures at airports where it was previously not economically feasible. Combined with evolving technology, more and more aircraft are able to safely operate in more airport environments.

The types of instrument approach procedures found at the Airport were described in Section 2.14. To view the published instrument approach procedures for the Airport, please see **Appendix G**.

2.16 RUNWAY WIND COVERAGE

Wind direction and speed determine the desired alignment and configuration of the runway system. Aircraft land and takeoff into the wind and therefore can tolerate only limited crosswind components (the percentage of wind perpendicular to the runway centerline). The ability to land and takeoff in

crosswind conditions varies according to pilot proficiency and aircraft type. FAA Advisory Circular 150/5300-13, *Airport Design*, recommends that a runway should yield 95 percent wind coverage under stipulated crosswind components. If one runway does not meet this 95 percent coverage, then construction of an additional runway may be advisable. The crosswind component of wind direction and velocity is the resultant vector, which acts at a right angle to the runway. It is equal to the wind velocity multiplied by the trigonometric sine of the angle between the wind direction and the runway direction. The allowable crosswind component for each RDC is shown in **Table 2-12**.

Table 2-12 Crosswind Component

Allowable Crosswind in Knots	Airport Reference Code
10.5 knots	A-I & B-I
13 knots	A-II & B-II
16 knots	A-III, B-III & C-I through D-III
20 knots	A-IV through D-VI, E-I through E-VI

Source: FAA A/C 150-5300-13A, *Airport Design*, 2014

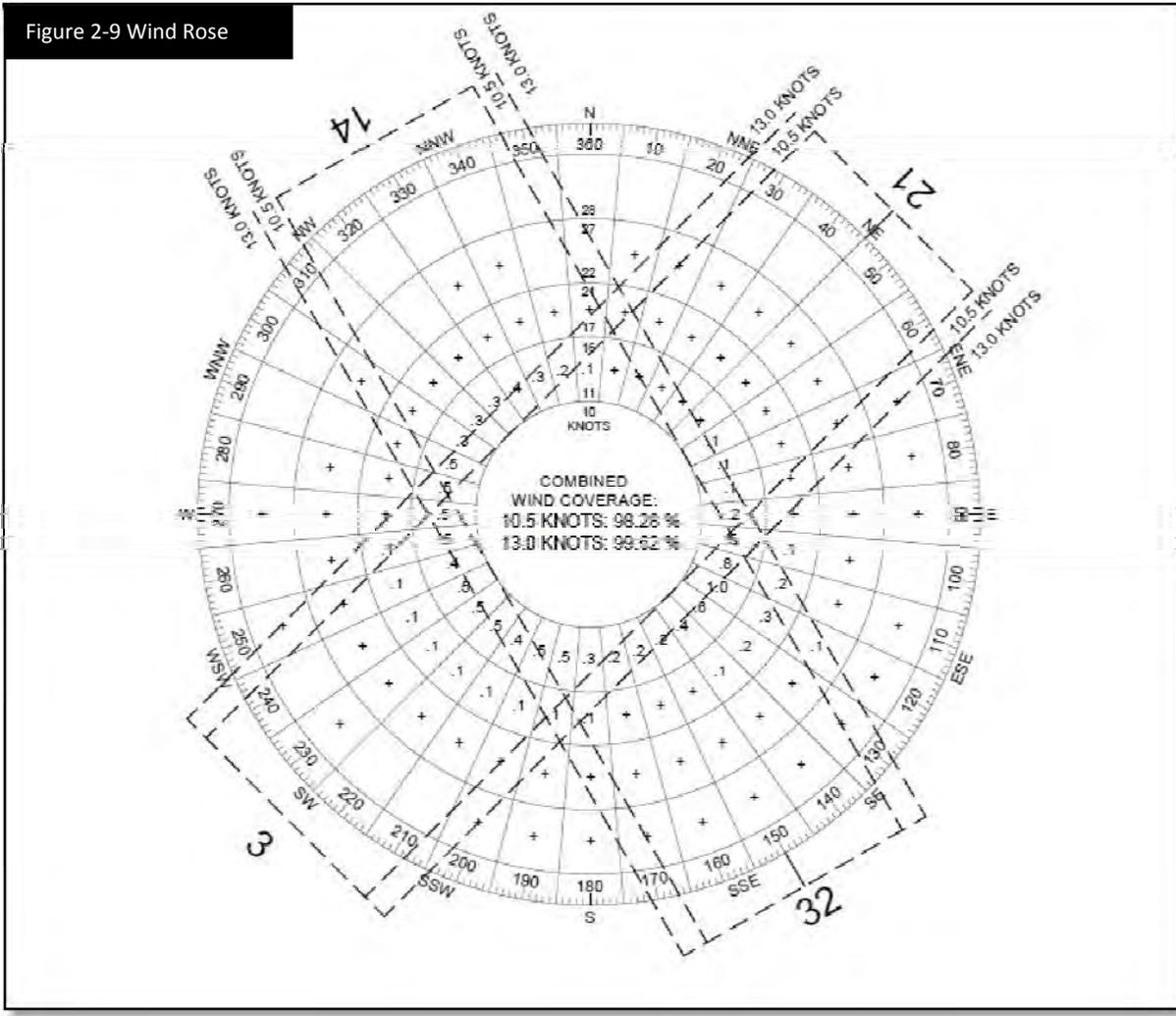
To establish a wind rose for an airport, obtaining reliable wind data is necessary. Cochise County Airport does not currently have a weather reporting station; a review of the previous airport master plan revealed that wind data (speed and direction) was gathered from the Tucson International Airport Weather Station. Data obtained for this report was also collected from this source; the data was collected from 2005 – 2014 and included 97,841 observations. The Facility Requirements chapter will discuss the need and benefits of having a weather reporting station located on the airport. **Table 2-13** depicts the wind coverage that will be used for the Cochise County Airport.

Table 2-13 Wind Coverage – All Weather

Runway	Crosswind (knots)	Wind Coverage
3-21	10.5	92.23%
3-21	13	95.60%
14-32 (closed)	10.5	93.78%
14-32 (closed)	13	96.72%
Combined	10.5	98.28%
Combined	13	99.62%

Source: Tucson International Airport, Weather Reporting Station, 2014

Given that Runway 14-32 is closed, the existing active runway configuration does not provide for the recommended wind coverage of at least 95 percent for A-I and B-I aircraft. According to FAA Advisory Circular 150/5300-13A, *Airport Design*, the correct application of the results of the wind data analysis will add substantially to the safety and utility of the airport; meaning that if the combined wind coverage is less than 95 percent, additional runways may be necessary to achieve the desired 95 percent wind coverage. An illustration of the combined runway wind rose is depicted in **Figure 2-9**. The Facility Requirements chapter will discuss the need and benefits of an additional runway to achieve the recommended wind coverage at Cochise County Airport.



Source: ACI, 2013

2.17 EXISTING AIRSIDE FACILITY INVENTORY

The definition of airside is that portion of the airport (typically within the public safety and security fenced perimeter) in which aircraft, support vehicles, and equipment are located, and in which aviation-specific operational activities take place. The inventory of airside facilities provides the basis for the airfield demand/capacity analysis and the determination of any facility change requirements that might be identified. The various airside facilities are depicted on **Exhibit A** at the end of this section.

2.17.1 RUNWAYS

There is one active runway at Cochise County Airport, Runway 3-21. The other remaining runway, Runway 14-32, is currently closed due to pavement strength deterioration. Runway 3-21 is 6,095 feet long, 75 feet wide, and serves as the primary runway. Runway 3-21 is constructed of asphalt. The existing pavement strength ratings, or weight bearing capacity, for Runway 3-21 are 50,000 pounds gross weight single-wheel landing gear, 75,000 pounds gross weight dual-wheel landing gear, and 135,000 pounds gross weight dual-tandem wheel landing gear. Pavement markings and lighting for Runway 3-21 are discussed in Section 2.17.5. Runway 3-21 is in good condition.

2.17.2 TAXIWAY/TAXILANE SYSTEM

Taxiway A is configured as a partial parallel taxiway and serves as the primary taxiway on the Airport. Two connector taxiways, A-1 and A-2, provide access to Runway 3-21. Taxiway A-1 is located on the northeast portion of the airfield, providing access to Runway 21. Taxiway A-2 is centrally located on the airfield at approximately the mid-point of Runway 3-21. All taxiways are 35 feet wide. The remnant of a third connector taxiway was observed; it is designated as Taxiway C on the current approved ALP. The pavement of this connector taxiway is severely deteriorated and is not currently in use due to its condition. Furthermore, the connector is at a very acute angle, which if in use would allow aircraft to taxi directly from the apron directly to the intersection of Runway 3-21 and the closed Runway 14-32. Likewise, it was noted that Taxiway A-2 in its present location also allows aircraft direct access from the apron to Runway 3-21, and it also intersects at a single location with the poorly damaged Taxiway C. According to the FAA, taxiways should be designed and constructed in as a simplistic manner as possible and in a location that eliminates direct access from the apron to the runway. Thus, neither Taxiway A-2 nor Taxiway C meet recommended FAA design standards.

Taxiway A and its connectors, A-1 and A-2, were fully reconstructed in 2008. The remainder of Taxiway A from the mid-point to Runway 3 is currently not in use due to extreme pavement deterioration. The County anticipates reconstructing the remainder of Taxiway A sometime in 2015. After reconstruction, Taxiway A will become a full parallel taxiway to Runway 3-21. During the reconstruction, new LED (light-emitting diode) Medium Intensity Taxiway Lights (MITL) will be installed. The County also anticipates replacing the existing taxiway reflectors on Taxiway A with MITL to match the newly reconstructed portion of the taxiway sometime in 2015.

There are four existing taxilanes that are used to access two T-hangers and the shaded aircraft tie-down structure. They are located adjacent to the aircraft apron/parking area in front of the terminal building. The furthest east taxilane provides access to an eight bay T-hangar (see Exhibit B, No. 8). The second furthest east taxilane provides access to the same T-hangar and a smaller six bay T-hangar (see Exhibit B,

No. 9). A third taxilane provides access to the smaller six bay T-hangar and the shaded aircraft tie-down structure (see Exhibit B, No. 11). The fourth taxilane begins on the aircraft apron and provides access to all three structures (Exhibit B, No. 8, No. 9, and No. 11). The taxilane pavement is in fair condition. Pavement markings in this area are faded and should be repainted.

Although the Airplane Design Group (ADG) for the airport is currently ADG-II, it was noted that only aircraft that are designated ADG-I currently access and are stored on this area of the airfield. Thus, ADG-I design standards should be applied only to this portion of the airfield when looking at the taxilane Object Free Area (OFA) design standards. The following obstructions still exist in this area even when applying ADG-I design standards.

- Obstruction 1 - vegetation has grown in an area adjacent to the taxilane providing access to the east side of the eight bay T-hangar (No.8). The vegetation appears to be approximately eight feet from the edge of pavement and is within the taxilane OFA and should be removed. See **Figure 2-10**.
- Obstruction 2 – the distance between the existing terminal building and the six bay T-hangar (No.9) is approximately 58 feet (or 29 feet from the taxilane centerline to fixed or movable object). The design standard dimension is 39.5 feet from taxilane centerline. See **Figure 2-11**.
- Obstruction 3 – the distance between the six bay T-hangar (No.9) and the shade structure (No.11) is approximately 63 feet, (or 31.5 feet from taxilane centerline to fixed or movable object). The design standard dimension is 39.5 feet from taxilane centerline. See **Figure 2-12**.



Figure 2-10 Taxilane Obstruction 1



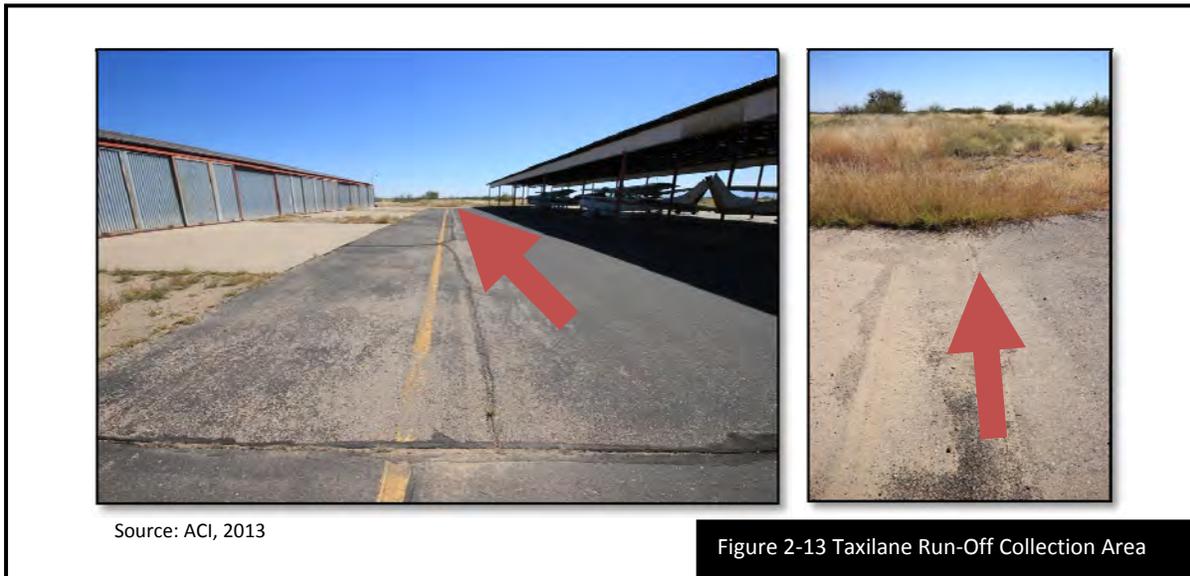
Figure 2-11 Taxilane Obstruction 2



Figure 2-12 Taxilane Obstruction 3

Source: ACI, 2013

Between the six bay T-hangar and the shaded aircraft tie-down structure it was noted that water run-off collects at the south end of the taxilane between the two structures. Sediment has accumulated along with vegetation growth, which has created a dam off the end of the pavement, as shown in **Figure 2-13**. Therefore, re-grading of the turf area is needed to prevent water from accumulating on the existing pavement.



2.17.3 AIRCRAFT APRON

The aircraft apron is constructed of mostly asphalt and some concrete pavement and encompasses approximately 13,390 square yards. Approximately 3,700 square yards of the portion of the apron located to the northeast of the terminal building was reconstructed in June of 2008 and is in good condition. Adjacent to this portion of the apron is a small concrete section that encompasses approximately 2,190 square yards. Seven open tie-downs are located in this location. The overall condition of this concrete portion of the apron is in fair to poor condition. The largest remaining portion of the apron encompasses the area adjacent to the concrete section up to Taxiway A and the remaining pavement to the south of the concrete section, totaling approximately 7,500 square yards. This portion of the apron is in fair condition; a prevalent amount of crack and joint sealant was observed over the entire span of the apron. There are two open tie-downs located on the northeast portion of the pavement directly north of the terminal building, and seven open tie-downs located on the far northwest portion of the pavement. Ten shaded tie-downs are located on the far south portion of the apron near the terminal building and T-hangar 2. Presently, four based aircraft are utilizing four of the shaded tie-down parking spaces. In total, there are 26 tie-downs (including open and shaded) at the Airport. Nearly all the tie-down paint markings are highly faded or cracked and therefore are in poor condition.

2.17.4 PAVEMENT CONDITION INDEX (PCI)

According to the Arizona Department of Transportation (ADOT), the airport system in Arizona is a multimillion dollar investment of public and private funds that must be protected and preserved. The Arizona Pavement Preservation Program (APPP) has been established to assist in the preservation of the Arizona airport system infrastructure. Every year ADOT's MPD - Aeronautics Group, using the Airport Pavement Management System (APMS), identifies airport pavement maintenance projects eligible for funding for the upcoming five years. These projects will appear in the state's Five-Year Airport Improvement 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 the Aeronautics Group to participate in the APPP.

ADOT also conducts pavement surveys using the procedure as documented in the following publications:

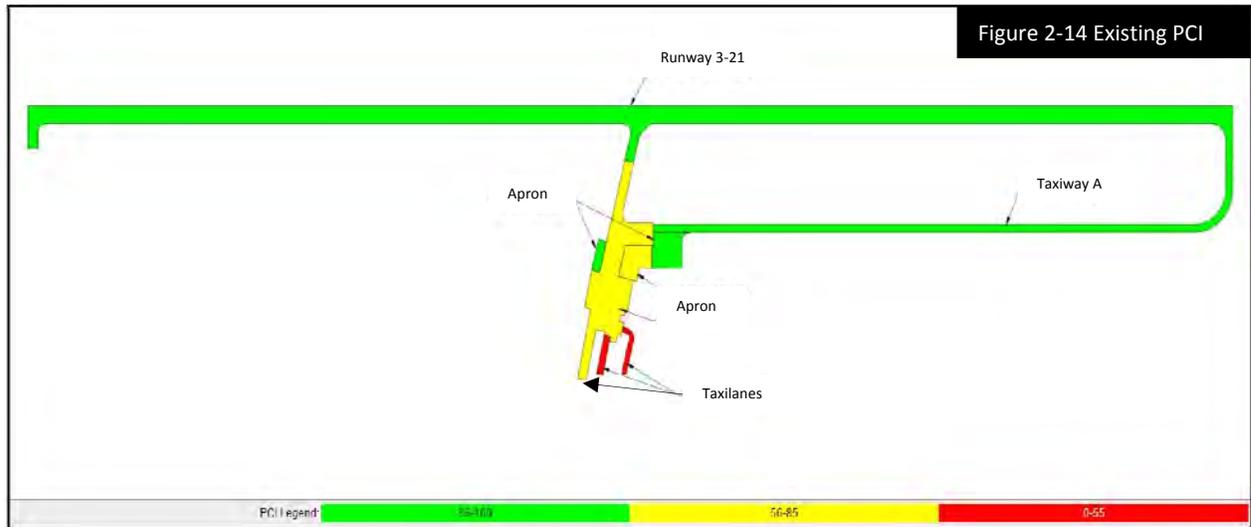
- The FAA's Advisory Circular 150/5380-6B, *Guidelines and Procedures for Maintenance of Airport Pavements*.
- The American Society for Testing and Material's (ASTM's) standard D-5340, *Standard Test Method for Airport Pavement Condition Index Surveys*.

The PCI procedure is the standard used by the aviation industry to visually assess pavement condition. It was developed to provide engineers with a consistent, objective, and repeatable tool to represent the overall pavement condition. During a PCI survey, visible signs of deterioration within a selected sample area are identified, recorded, and analyzed.

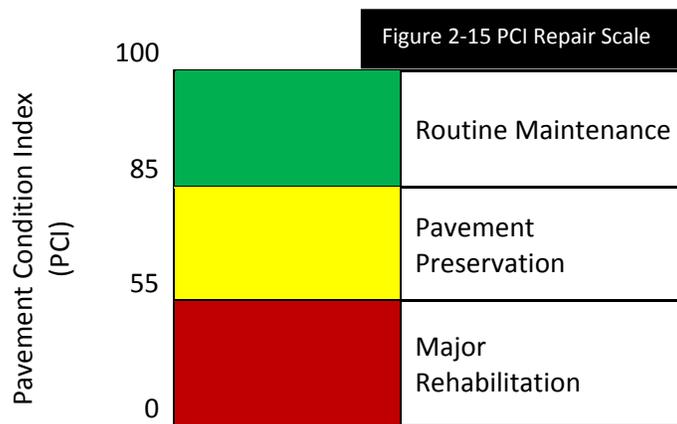
According to ADOT, the results of a PCI evaluation provide an indication of the structural integrity and functional capabilities of the pavement. However, it should be recognized that during a PCI inspection only the top layer of the pavement is examined and that no direct measure is made of the structural capacity of the pavement system. Nevertheless, the PCI does provide an objective basis for determining maintenance and repair needs as well as for establishing rehabilitation priorities in the face of constrained resources. Furthermore, the results of repeated PCI monitoring over time can be used to determine the rate of deterioration and to estimate the time at which certain rehabilitation measures can be implemented.

Pavement defects are characterized in terms of type of distress, severity level of distress, and amount of distress. This information is then used to develop a composite index (PCI number) that represents the overall condition of the pavement in numerical terms, ranging from 0 (failed) to 100 (excellent). In general terms, pavements above a PCI of 85 that are not exhibiting significant load-related distress will benefit from routine maintenance actions, such as periodic crack sealing or patching. Pavements with a PCI of 56 (65 for PCC pavements) to 85 may require pavement preservation, such as a surface treatment, thin overlay, or PCC joint resealing. Often, when the PCI is 55 or less, major rehabilitation, such as a thick overlay, or reconstruction are the only viable alternatives due to the substantial damage to the pavement structure.

For Cochise County Airport, **Figure 2-14** depicts the most recent PCI inspection reported in the 2013 APMS update. **Figure 2-15** depicts how the appropriate repair type varies with the PCI of a pavement section.



Source: ADOT MPD – Aeronautics Group, retrieved 2014 from ADOT APMS IDEA website http://www.azdot.gov/applications/Airports/APTech_DAP/index.html#path=3/4



Source: ADOT MPD – Aeronautics Group, 2010 Arizona APMS Update Statewide Summary Report, 2013

2.17.5 AIRFIELD LIGHTING, SIGNAGE, AND VISUAL AIDS

Runway 3-21 is equipped with Medium Intensity Runway Lights (MIRL) that appear to be in good condition. It was observed that two MIRLs are missing and should be replaced. Runway 3-21 is equipped with eight threshold lights at the end of each runway. These lights are in good condition. Examples of the MIRL and threshold lights for Runway 3-21 are shown in **Figure 2-16** and **Figure 2-17**. The runway

edge lights can be controlled by pilots by using the Common Traffic Advisory Frequency (CTAF) for operation at night. Runway 3-21 has non-precision markings that are in good condition.

As previously mentioned, all active taxiways currently have either LED Medium Intensity Taxiway Lights (MITL), or taxiway edge retro-reflectors. The LED MITLs and the taxiway edge retro-reflectors are in good condition, as shown in **Figures 2-18 and 2-19**.



Figure 2-16 Medium Intensity Runway Light



Figure 2-17 Threshold Light



Figure 2-18 Taxiway Retro-reflector

Source: ACI, 2013

Two lighted airfield destination/runway hold combination signs exist on the airfield; they are located on Taxiways A-1 and A-2 near the runway hold bar pavement markings. Both signs are in fair condition. It was noted that the runway hold panel in each sign is faded and should be replaced. An example of this sign is depicted in **Figure 2-20**. The runway hold bar pavement markings were recently repainted and are in good condition.



Figure 2-19 LED Medium Intensity Taxiway Light



Figure 2-20 Lighted Destination/Runway Hold Sign

Source: ACI, 2013

The rotating beacon is centrally located on the airfield atop of a steel-framed tower just north of the terminal building. The beacon utilizes alternating white-green lenses, indicating the Airport is a lighted land airport. The beacon appears to be in good condition; however, the steel tower is old and rusted and should be replaced in the future. The existing wind cone and segmented circle are also centrally located on the airfield; they are located adjacent to Runway 3-21 north of Taxiway A. The wind cone is lighted and is in good condition. The segmented circle is currently constructed of old automobile tires that have been painted white and is in poor condition. This does not meet current FAA design standards and should be replaced. A tetrahedron, another type of wind indicator, is located to the northwest of Runway 3-21. It appears to be original to the airfield and therefore is slightly faded. It is operational and in fair to good condition.

It was observed that no approach visual aids (e.g. VASI or PAPI) are present at either end of Runway 3-21. A visual approach slope indicator (VASI) and a precision approach path indicator (PAPI) are both visual aids that provide guidance information to help a pilot acquire and maintain the correct approach (in the vertical plane) to an airport. A recommendation for the addition of a two-box PAPI system at each end of Runway 3-21 (and when re-opened, Runway 14-32) is made later in the Facility Requirements chapter.

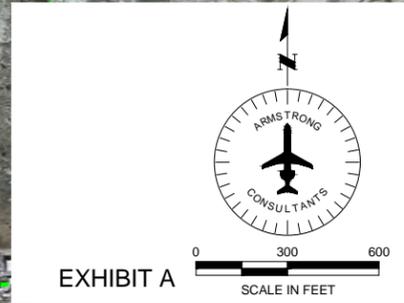
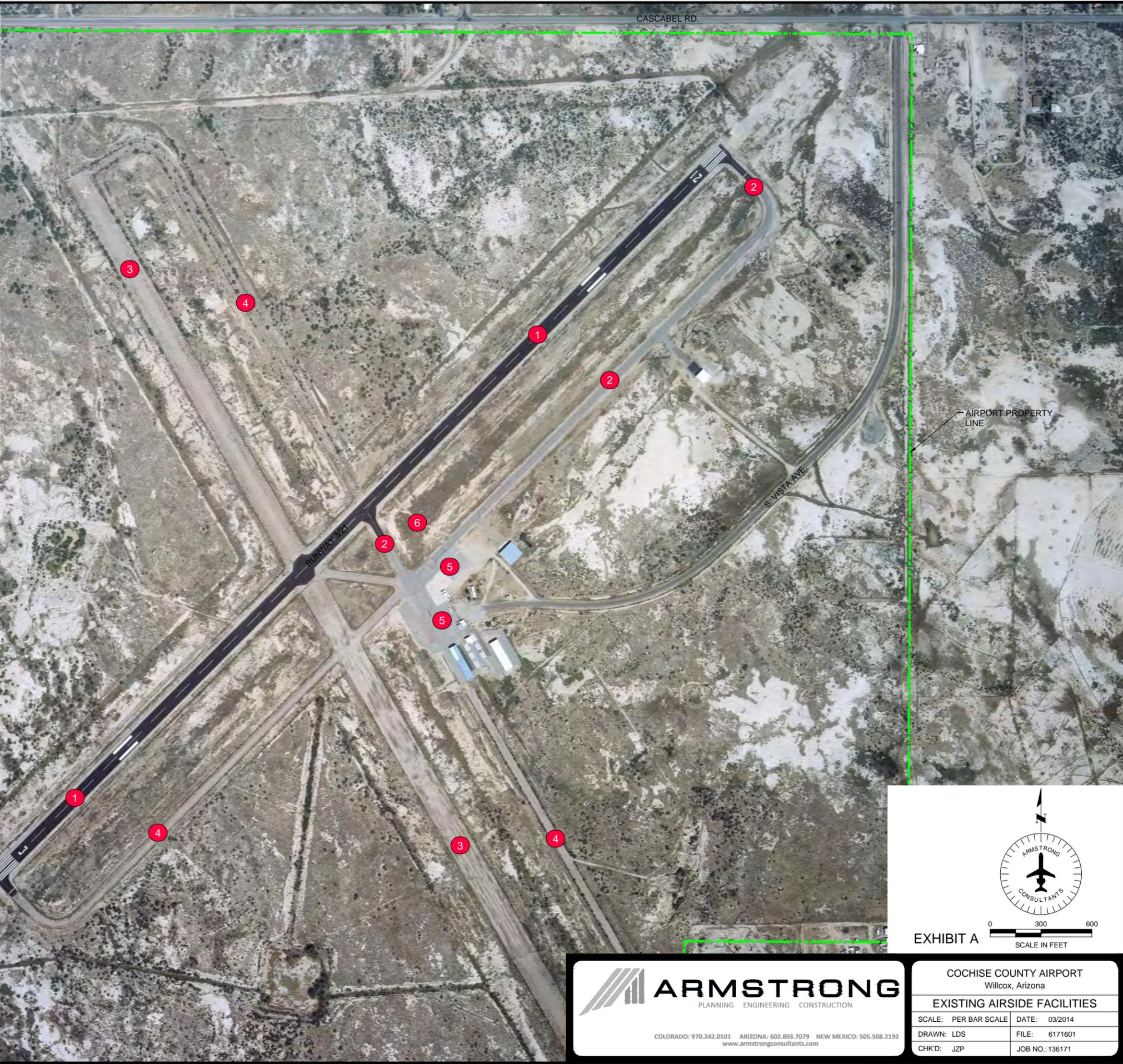
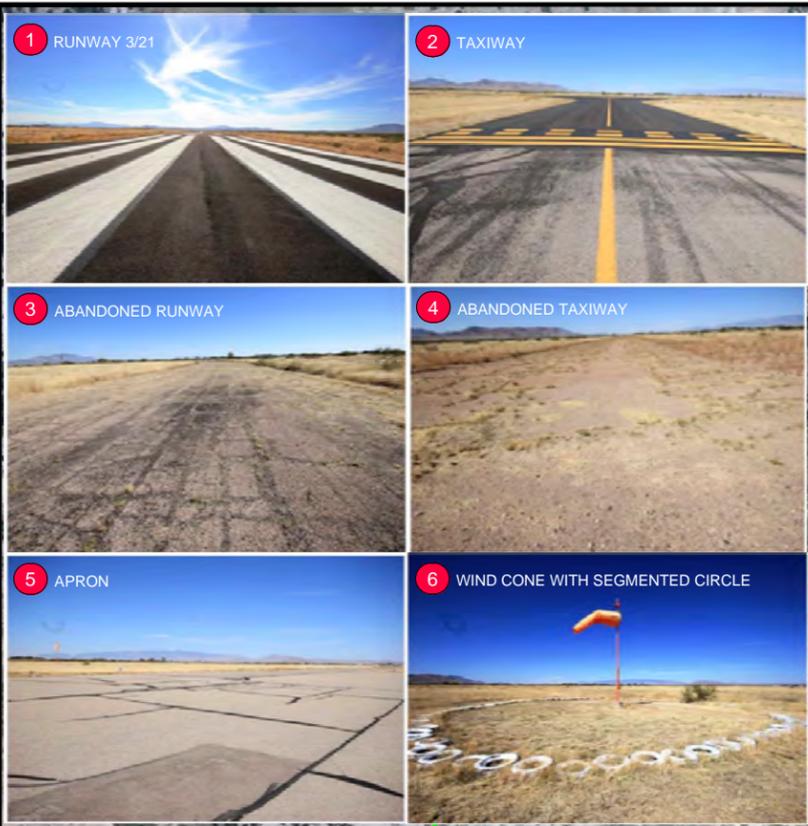


EXHIBIT A

ARMSTRONG
PLANNING ENGINEERING CONSTRUCTION

COLORADO: 970.242.0101 ARIZONA: 602.803.7079 NEW MEXICO: 505.508.2192
www.armstrongconsultants.com

COCHISE COUNTY AIRPORT Willcox, Arizona	
EXISTING AIRSIDE FACILITIES	
SCALE: PER BAR SCALE	DATE: 03/2014
DRAWN: LDS	FILE: 6171601
CHKD: JZP	JOB NO.: 136171

2.18 EXISTING LANDSIDE FACILITY INVENTORY

The definition of landside is that portion of the airport designed to serve passengers or other airport users typically located outside of the public safety and security fenced perimeter; landside facilities include terminal buildings, parking areas, entrance roadways, and other buildings that may not necessarily conduct aviation related activities. The inventory of landside facilities provides the basis for the airfield demand/capacity analysis and the determination of any facility change requirements that might be identified. The various landside facilities are depicted on **Exhibit B** at the end of this section.

2.18.1 AIRPORT SERVICES/FIXED BASE OPERATOR

A Fixed Base Operator (FBO) is usually a private or commercial enterprise that leases land from the airport sponsor on which to provide services to based and transient aircraft. The extent of the services provided varies from airport to airport; however, these services frequently include aircraft fueling, minor maintenance and repair, aircraft rental and/or charter services, flight instruction, pilot lounge and flight planning facilities, and aircraft tie-down and/or hangar storage.

The current FBO at Cochise County Airport is Walden Aviation. A small building approximately 2,250 square feet in size houses a pilot lounge area, restrooms, and a pilot shop. Two full-time owners/employees operate the FBO. The hours of operation are 8:00 a.m. to 5:00 p.m. seven days a week, with the exception of major holidays. Fuel can be purchased from the FBO. Minor airframe and powerplant services are available if needed. The entire building is suffering from a termite infestation and the existing condition of the building is fair to poor. Furthermore, the building is outdated and space is limited with no room for expansion in the future.

In addition to the FBO building, a caretaker facility is also located on the airfield. It is located north of the FBO building, adjacent to the parking area and the aircraft apron. The caretaker facility is provided by Cochise County to the FBO owners as a condition of their lease. The building is approximately 1,000 square feet and maintained by the owners.

2.18.2 HANGARS/SHADED TIE-DOWNS

There are currently four hangars in use at the Airport (see Exhibit B for reference). The first hangar (Exhibit B, No. 8) is located furthest east of the FBO building and apron. It is approximately 9,400 square feet and is a steel-frame structure with metal siding. It has eight storage bays and is in good condition. This hangar is privately owned by an airport tenant. A second hangar (Exhibit B, No. 9) is located adjacent to the first. This hangar is approximately 6,825 square feet and is also a steel-frame structure with metal siding and has six storage bays. The frame of the hangar is in good condition, but the metal siding is in poor condition. This hangar is owned by Cochise County. A third conventional box hangar (Exhibit B, No. 10) is located further north of the FBO building. It is approximately 10,000 square feet and is also a steel-frame structure with metal siding. Again, the steel-frame appears to be in good condition, but the metal siding is in poor condition. This hangar is also owned by the County, and is utilized by the FBO for aircraft maintenance. The fourth hangar (Exhibit B, No. 7) is located several hundred feet north of the third hangar along Taxiway A. It is also a conventional box hangar and is approximately 3,600 square feet. It is also a steel-frame structure with metal siding that is in good condition; it is privately owned by an airport tenant. Finally, a ten space covered/shaded aircraft tie-

down structure (Exhibit B, No. 11) is located adjacent to the main aircraft parking apron in front of the FBO building. It is a wood-frame structure with metal posts and metal awning and measures approximately 11,000 square feet. It is in poor condition; the wood framing which forms the roof of the structure is in the worst condition. The structure is owned by the County.

2.18.3 ACCESS ROADS AND SIGNAGE

Cochise County Airport can be accessed from I-10, and then by heading north on Taylor Road. The airport entrance is located at the intersection of Airport Road and Vista Avenue. The main airport access road (Vista Avenue) is identified with a small blue and white sign with the name of the airport on it. The access road itself is paved and in good condition. The access road terminates at the parking area for the airport FBO.

2.18.4 AUTOMOBILE PARKING

There are approximately 20-25 parking spaces located on the landside entrance to the FBO building. The gravel parking area is in fair condition. According to airport management, the area can get very saturated and muddy during the rainy season. Furthermore, no defined spaces or pathway to the FBO entrance were visible during the site visit. Recommendations for improvement to the automobile parking area will be discussed in the Facility Requirements and Development Alternatives chapters.

2.18.5 UTILITIES

Electricity, water, sewer, refuse, telephone, propane, and Internet services are available at the airport. Electrical service is provided by Sulphur Springs Valley Electric Cooperative, Inc. (SSVEC). Cochise County provides the water and septic sewer service. Refuse collection is provided by Southwest Disposal. Propane gas is provided by the Cochise County Farmers Association. Centurylink is the telephone utility provider and Transworld Network Services provides Internet service.

2.18.6 FENCING AND SECURITY

At present, there is a two-and-a-half foot high metal vehicle barrier fence at the Airport separating the airside from the landside facilities. There is a small, locked metal gate near the FBO building parking lot preventing vehicular access to the taxiways near the hangars. The vehicle barrier continues around the FBO building and does provide separation between the aircraft apron and fueling area, however, several large gaps in the barrier were observed. Although the barrier may work to keep unauthorized vehicles from entering the airside portion of the airport, it does not prevent unauthorized persons on foot from entering the airside area. The metal vehicle barrier is in fair condition. There is a small five-strand barbed wire fence encompassing the airport property line that appears to be in good condition.

2.18.7 AVIATION FUEL FACILITIES

There are currently two above ground, double-walled fuel storage tanks on the Airport that are owned by Cochise County and are operated by the FBO staff. Each fuel tank has a capacity of 10,000 gallons; 100LL AvGas and Jet A are available. The normal business hours for fueling are 8:00 a.m. to 5:00 p.m.,

seven days a week, except on holidays. A Spill Prevention, Control, and Countermeasure (SPCC) Plan is on location with airport management.

2.18.8 EMERGENCY SERVICES

The Willcox Rural Fire Department and Cochise County Sherriff's Department are responsible for responding to an emergency at the Airport. Response time is approximately ten minutes. The closest hospital to the Airport is the Northern Cochise Community Hospital, located 4 miles to the northeast in Willcox. The hospital provides a 24-hour, seven days a week, board certified physician staffed emergency department with specially trained nurses and ER technicians. The emergency department was state certified as a Level IV Trauma Center in 2008.

2.18.9 AIRPORT SUPPORT AND MAINTENANCE

There is one wood-framed, metal-sided airport support equipment building approximately 8 feet by 8 feet located adjacent to the fuel facility. There is also a concrete block electrical building approximately 10 feet by 20 feet located adjacent to the rotating beacon tower. The equipment and electrical buildings are in fair condition. The only maintenance equipment on the airport is:

- 1980's era 234 International diesel tractor used for mowing

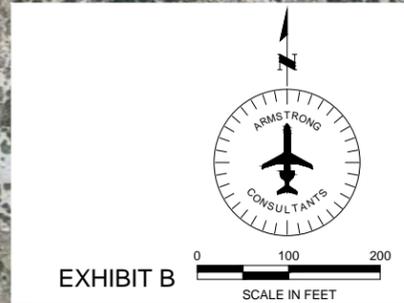
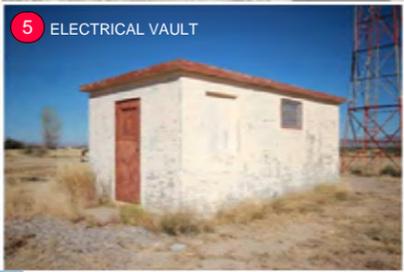
All the equipment is operated by the FBO. No other support or maintenance equipment that is actively being used was observed.

2.18.10 AIRPORT SUSTAINABILITY

The FAA began focusing on sustainability at airports in 2010, and has said that their objective is to make sustainability a core objective in airport planning. The FAA has provided airports across the United States with funding to develop comprehensive sustainability planning documents. These documents, called sustainability master plans and airport sustainability plans, include initiatives for reducing environmental impacts, achieving economic benefits, and increasing integration with local communities. To date, the FAA has funded 45 airports across the United States.

The FAA Reform and Modernization Act of 2012, Section 133 of H.R. 658, requires airport master plans to address the feasibility of solid waste recycling at an airport, minimizing the generation of waste, operation and maintenance requirements, the review of waste management contracts, and the potential for cost savings or revenue generation. The FAA is in the process of crafting guidance for airport sponsors to use in developing a recycling program at their airport as part of an airport master plan. For the purpose of this study, a review of the solid waste collection practices was performed. Solid waste is being collected from the terminal building and disposed of by a waste collection company. It is not known if any recycling is taking place by any of the airport tenants. Recommendations for ways to implement a recycling program and other sustainability practices will be discussed in the Facility Requirements chapter.

THIS PAGE WAS INTENTIONALLY LEFT BLANK



ARMSTRONG
 PLANNING ENGINEERING CONSTRUCTION

COLORADO: 970.242.0101 ARIZONA: 602.803.7079 NEW MEXICO: 505.508.2192
 www.armstrongconsultants.com

COCHISE COUNTY AIRPORT Willcox, Arizona	
EXISTING LANDSIDE FACILITIES	
SCALE: PER BAR SCALE	DATE: 03/2014
DRAWN: LDS	FILE: 6171601
CHK'D: JZP	JOB NO.: 136171

2.19 ENVIRONMENTAL INVENTORY

In the airport master planning process, planners are required to identify potential key environmental impacts of the various airport development alternatives so that those alternatives can avoid or minimize impacts on sensitive resources. The evaluation of potential environmental impacts should only be done to the level necessary to evaluate and compare how each alternative would involve sensitive environmental resources. The data compiled in this section will be used in evaluating proposed airport development alternatives and to identify any required environmental permits for the recommended projects. Letters were sent to various federal and state agencies who oversee the environmental topics described within this section asking for any information pertaining to the Airport and its surrounding area. The names of the agencies, as well as a sample letter that was sent to each agency, can be viewed in **Appendix C**. Any responses received from the agencies can also be found in Appendix C.

2.19.1 AIR QUALITY

The U.S. Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) based on health risks for six pollutants: carbon monoxide, nitrogen dioxide, sulfur dioxide, lead, ozone, and two sizes of particulate matter (PM) measuring 10 micrometers or less in diameter and PM measuring 2.5 micrometers in diameters.

According to the EPA, an area with ambient air concentrations exceeding the NAAQS for a criteria pollutant is said to be a nonattainment area for the pollutant's NAAQS, while an area where ambient concentrations are below the NAAQS is considered an attainment area. The EPA requires areas designated as nonattainment to demonstrate how they will attain the NAAQS by an established deadline. To accomplish this, states prepare State Implementation Plans (SIPs) which are typically a comprehensive set of reduction strategies and emissions budgets designed to bring the area into attainment.

According to NAAQS, Cochise County Airport is located in a nonattainment area for one NAAQS pollutant. A graphical illustration of counties designated nonattainment for NAAQS are depicted in **Figure 2-21**. However, according to the Arizona Department of Environmental Quality (ADEQ), Cochise County Airport is located in an attainment area. A graphical illustration of the ADEQ nonattainment and attainment areas are depicted in **Figure 2-22**. Further evaluation of any potential air quality impacts will be discussed in the Environmental Overview chapter.

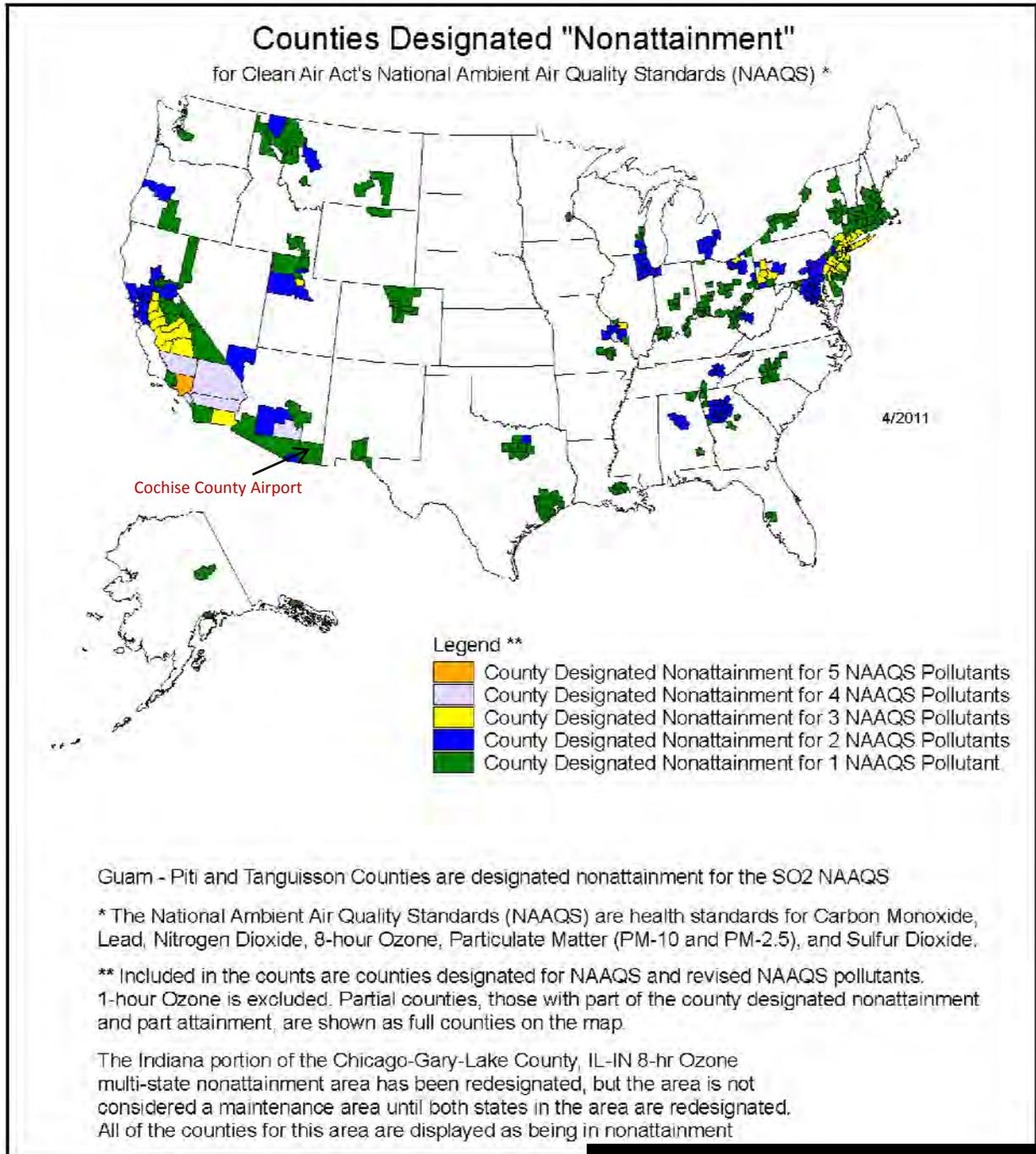


Figure 2-21 Counties Designated Nonattainment

Source: U.S. EPA, 2013

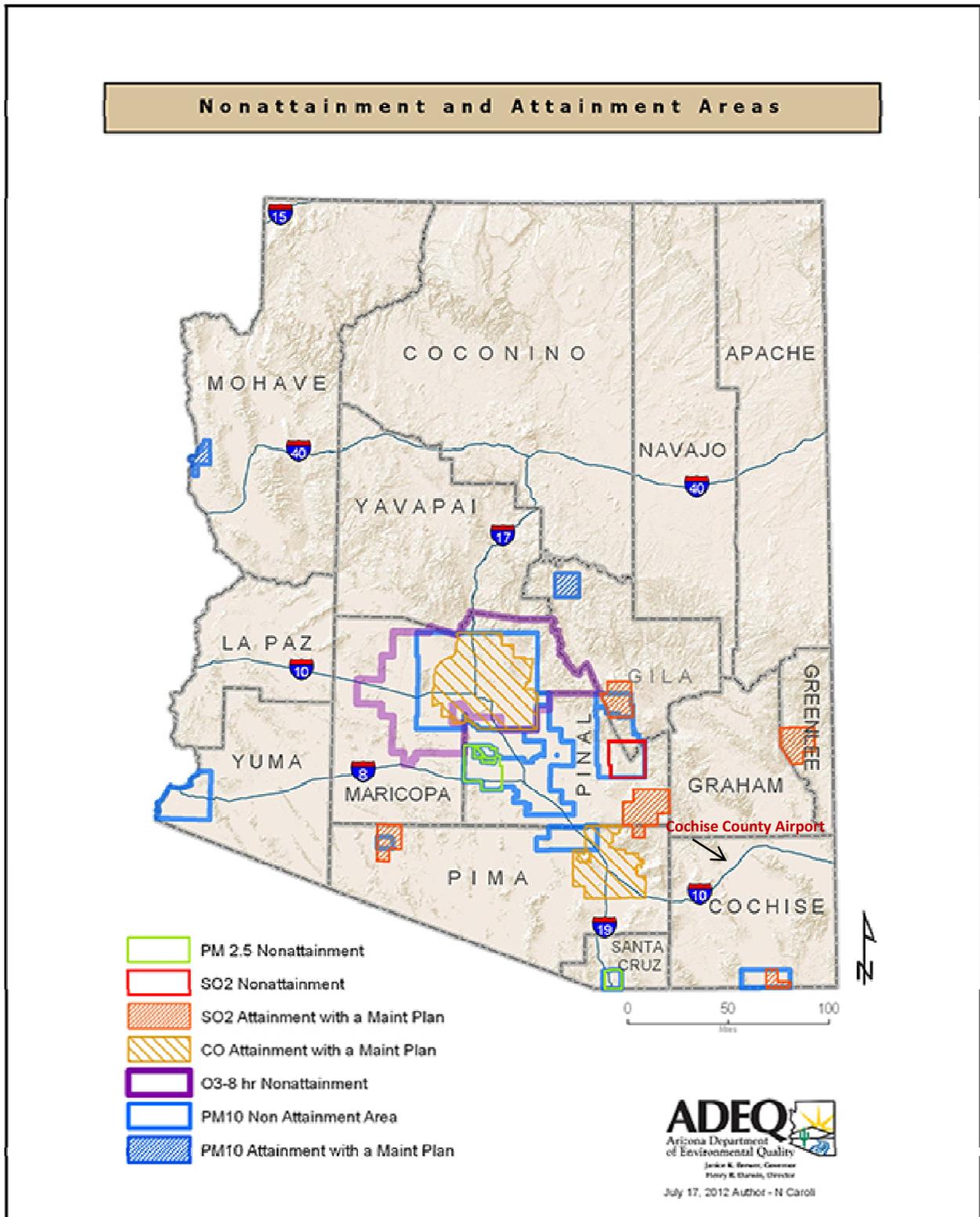


Figure 2-22 Nonattainment and Attainment Areas with a Maintenance Plan

Source: ADEQ, 2013

2.19.2 BIOTIC COMMUNITIES/ENDANGERED AND THREATENED SPECIES OF FLORA AND FAUNA

Consideration of biotic communities and endangered and threatened species is required for all proposals under the Endangered Species Act as Amended. Section 7 of the Endangered Species Act as Amended requires each Federal agency to insure that any action the agency carries out "is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat" of critical species.

All of the federally listed threatened and endangered species within Cochise County are shown in **Table 2-14**. Cochise County encompasses a large area, and therefore all of the threatened and endangered species listed on Table 2-14 are not necessarily found at Cochise County Airport.

Table 2-14 Threatened, Endangered, and Candidate Species - Cochise County, Arizona

Common Name	Scientific Name	Status
Arizona treefrog	<i>Hyla wrightorum</i>	Candidate
Beautiful shiner	<i>Cyprinella formosa</i>	Federally Threatened
Canelo hill ladies'-tresses	<i>Sprianthes dielitescens</i>	Federally Endangered
Chiricahua leopard frog	<i>Rana chiricahuensis</i>	Federally Threatened
Cochise pincushion cactus	<i>Coryphantha robbinsorum</i>	Federally Threatened
Desert pupfish	<i>Cyprinodon macularius</i>	Federally Endangered
Gila chub	<i>Gila intermedia</i>	Federally Endangered
Gila topminnow	<i>Poeciliopsis</i>	Federally Endangered
Huachuca springsnail	<i>Pyrgulopsis thompsoni</i>	Candidate
Huachuca water-umbel	<i>Lilaeopsis schaffneriana var. recurva</i>	Federally Endangered
Jaguar	<i>Panthera onca</i>	Federally Endangered
Lesser long-nosed bat	<i>Leptonycteris curasoae yerbabuena</i>	Federally Endangered
Loach minnow	<i>Tiaroga cobitis</i>	Federally Endangered
Mexican spotted owl	<i>Strix occidentalis lucida</i>	Federally Threatened
New Mexico ridenose rattlesnake	<i>Crotalus willardi obscurus</i>	Federally Threatened
Northern aplomado falcon	<i>Falcon femoralis septentrionalis</i>	Federally Endangered
Northern Mexican gartersnake	<i>Thamnophis eques megalops</i>	Proposed Threatened
Ocelot	<i>Leopardus pardalis</i>	Federally Endangered
San Bernadino springsnail	<i>Pyrgulopsis bernadina</i>	Federally Threatened
Sonora tiger salamander	<i>Ambystoma tigrinum</i>	Federally Endangered
Sonoran desert tortoise	<i>Gopherus morafkai</i>	Candidate
Southwestern willow flycatcher	<i>Empidonax traillii</i>	Federally Endangered
Spikedace	<i>Meda fulgida</i>	Federally Endangered
Sprague's pipit	<i>Anthus spragueii</i>	Candidate
Yaqui catfish	<i>Ictalurus pricei</i>	Federally Threatened
Yaqui chub	<i>Gila purpurea</i>	Federally Endangered
Yaqui topminnow	<i>Poeciliopsis occidentalis</i>	Federally Endangered
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	Proposed Threatened

Source: US Fish and Wildlife Service, October 2014

2.19.3 COASTAL ZONE MANAGEMENT PROGRAM AND COASTAL BARRIERS

Cochise County Airport is not located within or adjacent to a coastal zone. Any proposed action and reasonable alternatives will not adversely impact the coastal zone natural resources protected by the National Oceanic and Atmospheric Administration (NOAA) regulations under 15 CFR Part 930.

2.19.4 DEPARTMENT OF TRANSPORTATION (DOT) ACT, SECTION 4(F)

Section 4(f) of the DOT Act places restrictions on the use of any publicly-owned recreational land, public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance. There are no Section 4(f) resources in the vicinity of the Cochise County Airport.

2.19.5 FARMLAND

The Farmland Protection Policy Act (Public Law 97-98) directs federal agencies to use criteria developed by the U.S. Department of Agriculture to identify and analyze impacts related to the conversion of farmland to nonagricultural uses. According to the U.S. Department of Agriculture, Natural Resources Conservation Services (NRCS), the airport consists of the following soils:

- CmA – Comoro sandy loam (Prime farmland if irrigated)
- Dv – Ducan loam, shallow variant (Non-prime farmland)
- Go – Gothard fine sandy loam (Non-prime farmland)
- St – Stewart loam (Non-prime farmland)

It is important to note that there are currently no active farming activities taking place on airport property. According to the Farmland Protection Policy Act, the regulation does not apply to land already committed to “urban development or water storage,” i.e., airport developed areas, regardless of its importance as defined by the NRCS. The farmland soil classifications in the vicinity of the Cochise County Airport are shown on **Figure 2-23**.

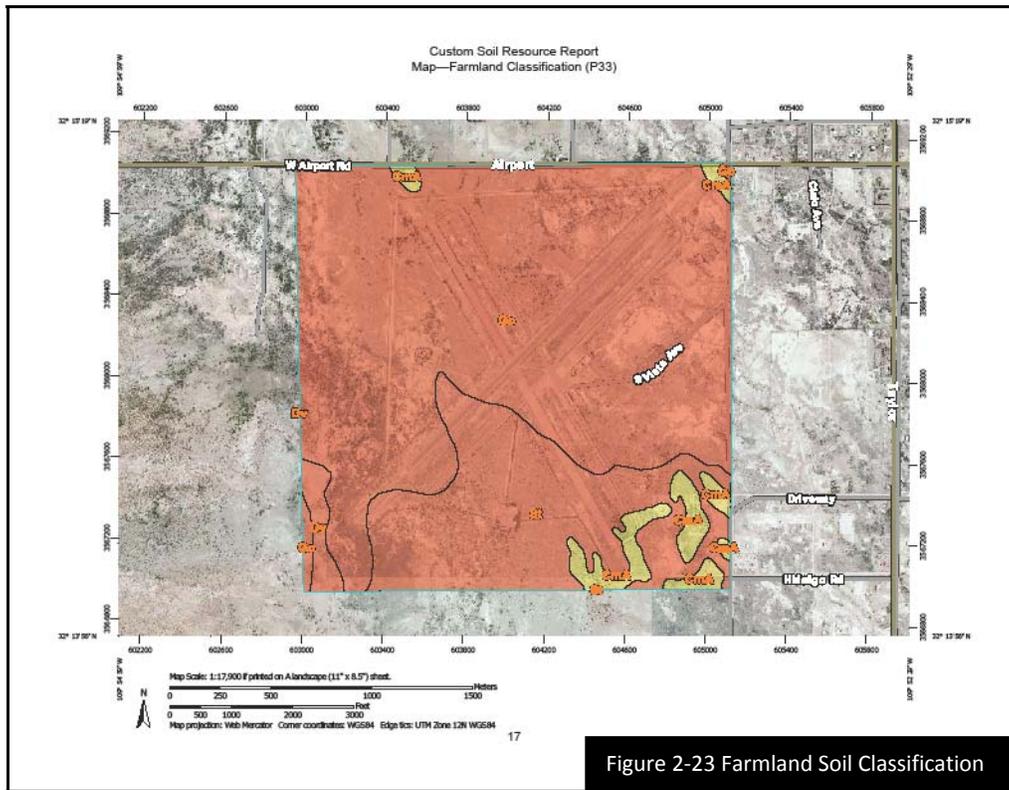


Figure 2-23 Farmland Soil Classification

Source: U.S. Department of Agriculture, Natural Resources Conservation Services, 2013

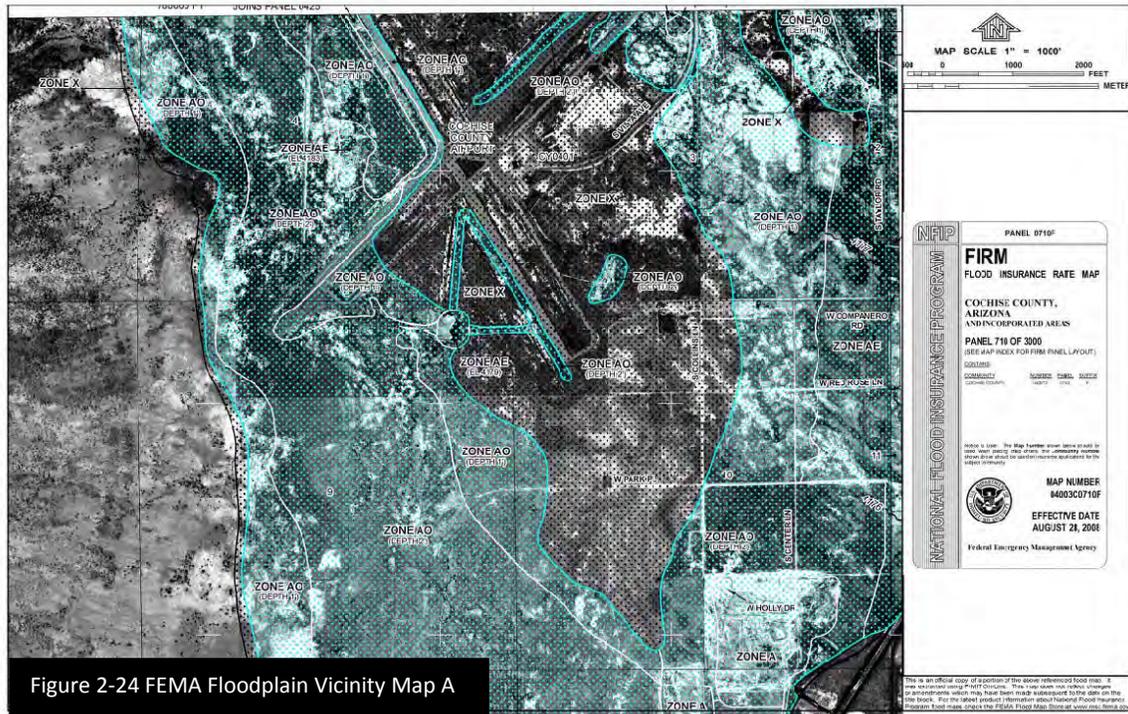
2.19.6 FLOODPLAINS

Floodplains are defined as "the lowland and relatively flat areas adjoining inland and coastal waters including flood-prone areas of offshore islands, including at a minimum, that area subject to a one percent or greater chance of flooding in any given year."

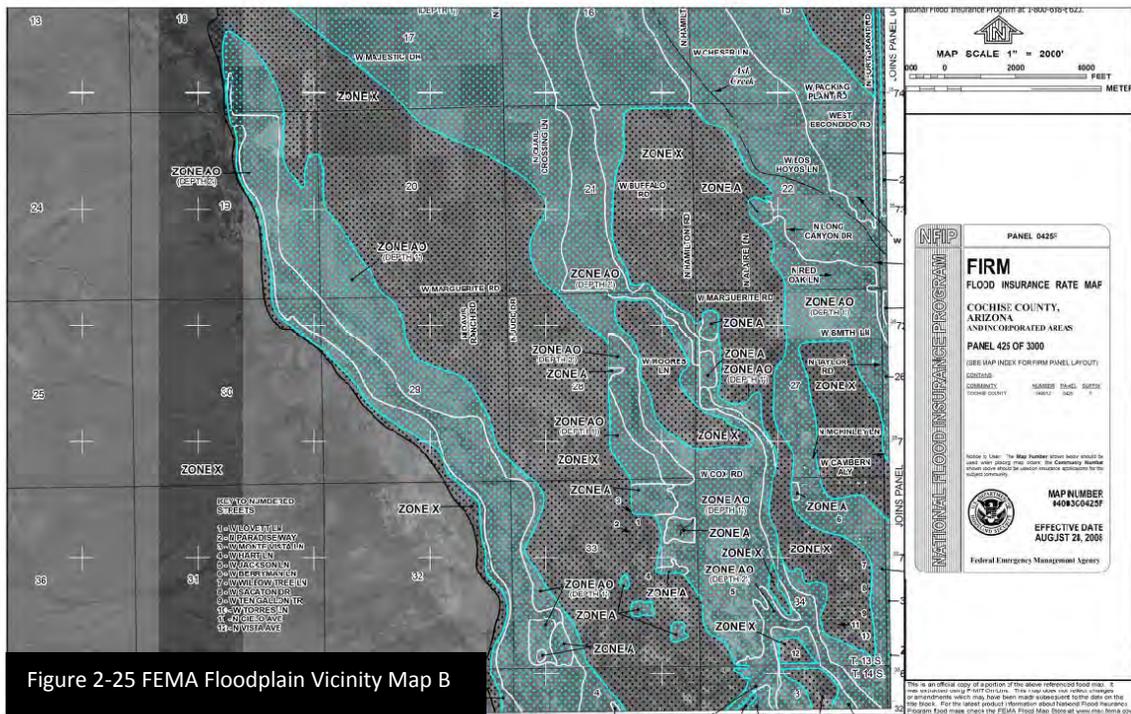
The Threshold of Significance (TOS) is exceeded when there is an encroachment on a base floodplain (100-year flood). An encroachment involves:

- A considerable probability of loss of life;
- Likely future damage associated with encroachment that could be substantial in cost or extent, including interruption of service or loss of vital transportation facilities; or
- A notable adverse impact on natural and beneficial flood plain values.

According to the Federal Emergency Management Agency (FEMA) National Flood Insurance Rate Map, Cochise County Airport is not located in a floodplain. However, the majority of the western portion of the airport property is located in Special Flood Hazard Area. The FEMA designated floodplains in the vicinity of the Cochise County Airport are illustrated in **Figure 2-24** and **Figure 2-25**.



Source: FEMA, 2013



Source: FEMA, 2013

2.19.7 HAZARDOUS MATERIALS

According to the EPA, Cochise County Airport (Walden Aviation) has been identified as a Brownfields property containing small amounts of hazardous waste as identified in a Phase I/II Environmental Assessment dated July 2008 and June 2009. The assessment determined the media affected included the soil and ground water. Small amounts of lead and “other metals” were found in the soil. According to the EPA detailed facility report and Resource Conservation and Recovery Act report (FRS ID: 110008255477/RCR ID: AZD982035719), clean up at the site was not required and no institutional controls were mandated. The site was deemed ready for reuse/redevelopment as of June 2009. If hazardous materials are encountered during construction on future projects, the Arizona Department of Environmental Quality will be contacted regarding procedures for the handling and the disposal of the hazardous materials.

2.19.8 HISTORIC, ARCHITECTURAL, ARCHEOLOGICAL, AND CULTURAL RESOURCES

The National Historic Preservation Act (NHPA) of 1966, as amended, requires that an initial review be made to determine if any properties that are in, or eligible for inclusion in, the National Register of Historic Places are within the area of a proposed action’s potential environmental impact. The Archeological and Historic Preservation Act (AHPA) of 1974 provides for the survey, recovery, and preservation of significant scientific, prehistoric, historical, archeological, or paleontological data when such data may be destroyed or irreparably lost due to a federally licensed or funded project.

To date, a cultural resource survey at the Cochise County Airport has not been completed. An agency coordination letter was sent to the Arizona State Historic Preservation Office (SHPO) in order to determine if any of the proposed projects would potentially have an effect on a property which has been identified as having historical, architectural, archeological, or cultural significance. Based on a telephone conversation with the Arizona SHPO, they indicated that a written response would not be provided, and recommended that a review of their online database be preformed. Prior to any modifications or demolition to any of the existing structures on the airfield, a review of the database by the County will be necessary.

2.19.9 NOISE

Most land uses are considered to be compatible with airport noise that does not exceed 65 decibels (dB), although FAR Part 150 declares that “acceptable” sound levels should be subject to local conditions and community decisions. Nevertheless, 65 dB is generally identified as the threshold level of aviation noise which is “significant.” The FAA has established 65 DNL as the threshold above which aircraft noise is considered to be incompatible with residential areas. In addition, the FAA has determined that a significant impact occurs if a proposed action would result in an increase of 1.5 DNL or more on any noise-sensitive area within the 65 DNL exposure areas.

The existing and forecast levels of traffic are below the current threshold of significance (90,000 annual propeller aircraft operations or 700 annual jet operations) for environmental analysis on federally-aided projects, as defined by FAA Order 1050.1E. Therefore, no noise analysis is required.

2.19.10 LAND USE COMPATIBILITY

The compatibility of existing and planned land uses in the vicinity of an airport is usually associated with the extent of noise impacts related to that airport. There currently are no generated noise contours for the Airport due to the low activity. Should the Airport generate enough operations to warrant contours, those will have to be addressed and compatibility will have to be reviewed. Likewise, there are no existing non-compatible land uses on or near the Airport.

2.19.11 LIGHT EMISSIONS

Installation of all outdoor lighting fixtures (non-aviation related) must comply with Cochise County's Light Pollution Code, found within Article 1810 – Outdoor Lighting Standards of the County's Zoning Regulations. No impacts are known to occur based on the existing configuration of the airfield.

2.19.12 WETLANDS

Wetlands are defined in Executive Order 11990, Protection of Wetlands, as "those areas that are inundated by surface or ground water with a frequency sufficient to support...a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas..."

As depicted on **Figure 2-26**, and according to the U.S. Fish and Wildlife Service's National Wetlands Inventory, approximately three acres of wetlands exists on the south side of the airport. The wetland is designated as "Other" according to the U.S. Fish and Wildlife Service vicinity map. According to Cochise County and airport management, the area designated as a wetland is a storm water detention basin. No other wetlands exist on, or adjacent to, the airport property.



Source: U.S. Fish and Wildlife Service, 2013

THIS PAGE WAS INTENTIONALLY LEFT BLANK

CHAPTER THREE
FORECASTS OF AVIATION ACTIVITY

COCHISE COUNTY
COCHISE COUNTY AIRPORT
AIRPORT MASTER PLAN





CHAPTER 3 – FORECASTS OF AVIATION ACTIVITY

3.1 INTRODUCTION

Forecasts of aviation activity serve as a guideline for the timing required for implementation of airport improvement programs. While such information is necessary for successful comprehensive airport planning, it is important to recognize that forecasts are only approximations of potential future activity, based upon historical data and viewed through present situations. They must therefore be used with careful consideration, as they may lose their validity with the passage of time. For this reason, an ongoing program of examination of local airport needs and national and regional trends is recommended in order to promote the orderly development of aviation facilities at Cochise County Airport.

At airports not served by air traffic control towers, approximations of existing aviation activity are necessary in order to form a basis for the development of reasonable forecasts. Unlike towered airports, non-towered general aviation airports have historically not tracked or maintained comprehensive logs of aircraft operations. Approximations of existing aviation activity are based on a review of based aircraft, available historical data, available local information and regional, state, and national data that form the baseline to which forecasted aviation activity trends are applied. Arizona Department of Transportation (ADOT) requires the use of the *FAA Model for Estimating General Aviation Operations at Non Towered Airports using Towered and Non Towered Airport Data*. The model was discussed in Chapter 2, Section 2.11, Based Aircraft and Operations.

Activity projections are made based on estimated growth rates, area demographics, industry trends and other indicators. Forecasts are prepared for the short-term (0-5 years), the medium-term (6-10 years) and the long-term (11-20 years) planning period. Using forecasts within these time frames allows airport improvements to be timed to meet demand.

There are four types of aircraft operations considered in the planning process – local, based, itinerant, and transient. They are defined as follows:

Local operations - are defined as aircraft movements (departures or arrivals) for the purpose of training, pilot currency or pleasure flying within the immediate area of the local airport. These operations typically consist of touch-and-go operations, practice instrument approaches, flights to and within local practice areas and pleasure flights that originate and terminate at the airport under study.

Based operations - are defined as the total operations made by aircraft based (stored at the airport on a permanent, seasonal or long-term basis) with no attempt to classify the operations as to purpose.

Itinerant operations - are defined as arrivals and departures other than local operations and generally originate or terminate at another airport. These types of operations are closely tied to local demographic indicators, such as local industry and business use of aircraft and usage of the facility for recreational purposes.

Transient operations - are defined as the total operations made by aircraft other than those based at the airport under study. These operations typically consist of business or pleasure flights originating at other airports, with termination or a stopover at the study airport.

The terms transient and itinerant are sometimes erroneously used interchangeably. This study will confine analysis to local and itinerant operations.

3.2 NATIONAL AND GENERAL AVIATION TRENDS

3.2.1 NATIONAL TRENDS

The long-term future of civil aviation is bright according to a March 2012 FAA forecast, which predicted that the U.S. aviation industry would grow steadily over the next 20 years. The forecast indicated that there will be 1.2 billion passengers flying commercially by 2024, compared with 731 million in 2011. The FAA also indicated that cargo traffic on U.S. airlines will more than double during the same period, growing 4.9 percent annually on average. However, one downside noted was with fewer commercial aircraft currently in service due to the spike in fuel prices in 2008-2009, the airlines will be focusing on profitability as opposed to market share, thus new service options may not be as prevalent in the near future.

3.2.2 GENERAL AVIATION TRENDS

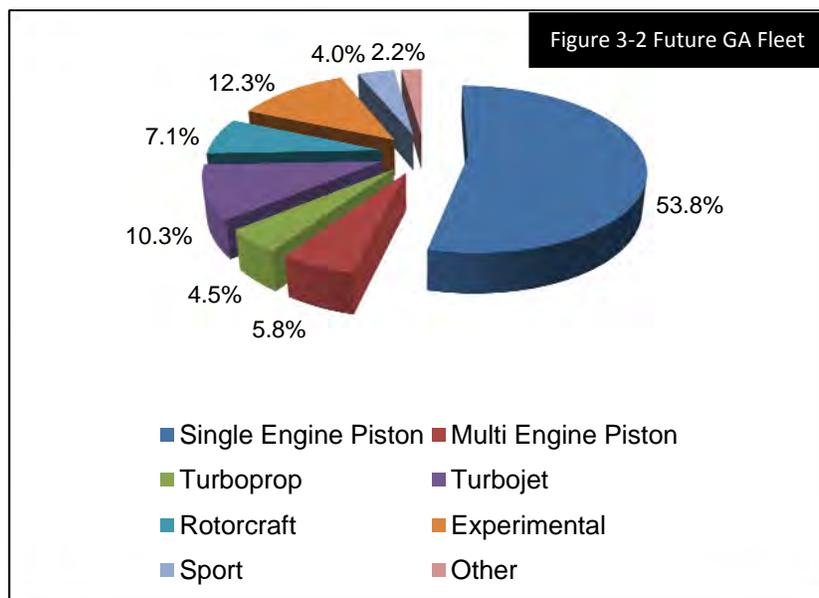
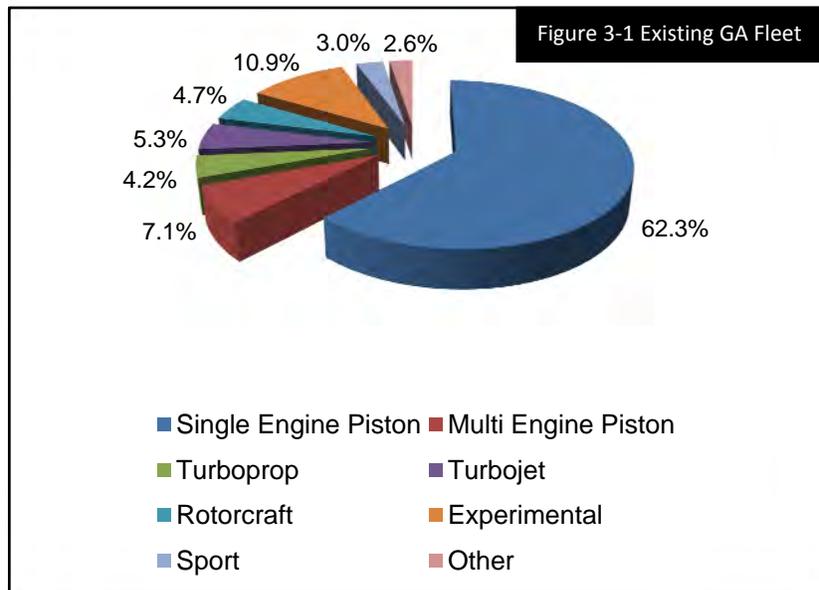
A variety of factors, such as aircraft production, pilot activity and hours flown, caused general aviation to reach a peak in the late 1970s. This peak was followed by a long downturn that persisted through most of the 1980s and the early 1990s, and has been attributed to high manufacturing costs associated with product liability issues as well as other factors. The General Aviation Revitalization Act (GARA) of 1994 was enacted with the goal of revitalizing the industry by limiting product liability costs. The Act established an 18-year statute of repose on liability related to the manufacture of all general aviation aircraft and their components. According to a 2001 report to Congress by the General Accounting Office (GAO), trends in general aviation suggest that liability costs have been less burdensome to manufacturers, shipments of new aircraft have increased, and technological advances have been made. Indicators of general aviation activity, such as the number of hours flown and active pilots, have also increased in the years since GARA, but their growth has not been as substantial as the growth in manufacturing.

The FAA convenes a panel of aviation experts annually to develop forecasts for future activity in all areas of aviation, including general aviation. According to the *FAA Aerospace Forecast Fiscal Years 2013-2033*, in 2012 the general aviation market showed improvement especially in the agricultural airplane segment of turboprops and strong growth in the rotorcraft sector. Total operations at FAA and contract towers decreased for the fifth consecutive year, falling 0.3 percent, as activity declines in the air taxi and military categories offset increases in air carrier and general aviation activity.

The active general aviation fleet is projected to increase at an average annual rate of 0.5 percent during the 21-year forecast period, growing from an estimated 220,670 aircraft in 2012 to 246,375 aircraft by 2033. The fleet of jet turbine aircraft is expected to grow at an average of 2.8 percent per year over the 20-year forecast period. Turbine jet aircraft are forecasted to increase at an average rate of 3.5 percent

per year, reaching a total of 24,620 by 2033. **Figures 3-1** and **3-2** illustrate the existing and future general aviation fleet that is forecasted to occur over the 20-year planning period.

In 2005 a “light sport” aircraft category was created. At the end of 2011, a total of 6,645 aircraft were included in this category. The forecast assumes about 3.2 percent growth of the fleet by 2013. Thereafter, the rate of increase in the fleet slows to about two percent per year. By 2033, a total of 10,245 light sport aircraft are projected to join the fleet.



Source: FAA, 2013

The General Aviation Manufacturers Association (GAMA) produces activity forecasts based on general aviation hours flown. As shown in **Table 3-1**, the greatest increase is for turbo jet and light sport aircraft at 5.3 percent and 3.5 percent growth respectively from 2013 through 2032. Both fixed wing piston aircraft categories are forecast to decline slightly through the forecast period.

Table 3-1 Aircraft Hours Flown (thousands)

Year	Fixed Wing				Rotorcraft			Light Sport Aircraft		Total General Aviation Fleet
	Single Engine	Multi Engine	Turbo Prop	Turbo Jet	Piston	Turbine	Experimental	Other		
2013	11,091	1,758	2,471	4,330	834	2,611	1,315	356	183	24,728
2014	10,820	1,744	2,523	4,605	858	2,674	1,401	372	183	25,180
2015	10,594	1,728	2,554	4,865	881	2,739	1,462	388	184	25,396
2016	10,409	1,703	2,591	5,106	903	2,819	1,525	404	185	25,645
2017	10,285	1,689	2,624	5,321	924	2,903	1,591	421	185	25,943
2018	10,205	1,678	2,657	5,558	944	2,988	1,627	438	186	26,281
2019	10,150	1,668	2,685	5,774	965	3,071	1,664	455	187	26,619
2020	10,125	1,667	2,704	6,009	986	3,156	1,702	473	188	27,009
2021	10,092	1,665	2,723	6,251	1,006	3,242	1,731	487	188	27,387
2022	10,124	1,667	2,745	6,516	1,028	3,336	1,761	501	189	27,866
2023	10,159	1,668	2,762	6,802	1,051	3,431	1,791	515	190	28,368
2024	10,247	1,673	2,782	7,102	1,075	3,531	1,821	530	190	28,951
2025	10,391	1,675	2,802	7,420	1,099	3,636	1,851	544	191	29,610
2026	10,545	1,684	2,822	7,726	1,124	3,742	1,882	559	192	30,276
2027	10,708	1,696	2,841	8,044	1,149	3,852	1,913	574	193	30,970
2028	10,866	1,709	2,859	8,381	1,174	3,963	1,944	590	193	31,678
2029	10,997	1,719	2,879	8,753	1,200	4,076	1,975	605	194	32,398
2030	11,145	1,729	2,897	9,149	1,225	4,191	2,007	621	195	33,159
2031	11,300	1,743	2,912	9,557	1,250	4,313	2,039	637	196	33,948
2032	11,467	1,760	2,930	9,987	1,275	4,438	2,071	654	197	34,779
Avg. Annual Growth	-0.20%	-0.10%	1.10%	5.30%	2.30%	2.70%	2.60%	3.50%	0.40%	1.70%

Source: FAA 2013-2033 Aerospace Forecast

The number of active general aviation pilots (excluding air transport pilots) is projected to be 510,295 in 2032, an increase of 39,335 (up 0.4 percent yearly) over the forecast period. Commercial pilots are projected to increase from 119,200 in 2012 to 130,100 in 2032, an average annual increase of 0.5 percent. The number of student pilots is projected to decrease at an average annual rate of 0.03 percent over the forecast period, declining from 117,340 in 2012 to 116,720 in 2032. The number of private pilots is projected to grow at an average yearly rate of 0.3 percent over the forecast period from 188,001 in 2012 to a total of 199,300 in 2032.

The FAA is also projecting that by the end of the forecast period, a total of 13,900 sport pilots will be certified. It is estimated that the number of sport pilot certificates in 2012 was 4,800, reflecting a growing interest in this new “entry level” pilot certificate that was only created in 2005.

3.2.3 OTHER AVIATION INDUSTRY TRENDS

Next Generation Air Transportation System (NextGen) is a new era in flight that is transforming how aircraft navigate the sky and is a replacement to the World War II era technology that has until recently been the primary navigation technology. NextGen utilizes satellite technology which allows pilots to know the precise locations of other aircraft around them. This allows more planes in the sky while enhancing the safety of air travel. Satellite landing procedures also allow pilots to arrive at airports more efficiently by providing for more direct flight routes. **Figure 3-3** highlights the airports in the United States currently benefitting from NextGen.



Source: 2011 General Aviation Manufacturer's Association Statistical Databook & Industry Outlook

Figure 3-3 NextGen Precision

The FAA is also in the process of selecting sites throughout the United States to serve as research and development hubs for unmanned aerial vehicles (UAV). UAVs are aircraft which operate with no pilot on board. The aircraft can either be remote controlled or can fly autonomously based on pre-programmed flight plans on more complex dynamic automation systems. The FAA has adopted the acronym UAS (Unmanned Aircraft System) to reflect the fact that these complex systems include ground stations and other elements besides actual air vehicles. There are various types of UAVs, such as the Global Hawk, Predator A, Predator B, X-47A, X-47B, Mariner, Altair, Fire Scout, ER/MP UAS, Hunter, I-GNAT, Army IGnat ER, etc. **Figure 3-4** depicts just two examples of the many UAVs in use today.



Figure 3-4 Typical UAVs

Source: www.avionics-intelligence.com, 2013

ADOT has published several reports on the economic impact aviation has on the State. According to a 2012 ADOT report, 409,000 jobs are directly or indirectly related to the industry and the total economic activity across the State was estimated at \$57.9 billion. Aviation therefore plays an important role in the economic growth of the State.

3.3 EXISTING AVIATION ACTIVITY AND PROJECTIONS

The first step in preparing aviation forecasts is to examine available historical and existing and activity levels and based aircraft. There are typically several sources for forecasts available from both the FAA and State. The FAA Terminal Area Forecast (TAF) is an annual forecast of airport activity that is produced by FAA and is commonly used for long term planning.

- For the Cochise County Airport, the FAA TAF suggests that in 2012, there were 23 based aircraft and 8,500 annual operations at the airport.
- The 2009 Arizona State Airports System Plan (SASP) indicated 27 based aircraft and 7,310 annual operations in 2007.
- The previous 1997 Airport Master Plan suggested that by 2012, the airport would have 28 based aircraft and should experience nearly 8,060 annual operations.
- Based on discussions with the County and airport personnel, they indicate that there were 25 based aircraft and approximately 6,800 annual operations in 2012. The activity reported by the County was collected by onsite airport personnel Monday through Friday between the hours of 8:00 a.m. and 5:00 p.m.

3.3.1 FLEET MIX

FAA Form 5010-1, *Airport Master Record*, is the official record kept by the Federal Aviation Administration to document airport physical conditions and other pertinent information. The record normally includes an annual estimate of aircraft activity as well as the number of based aircraft. This information is normally obtained from the airport sponsor and depending on the sponsor's record keeping system, the accuracy will vary. The current FAA Form 5010-1 for Cochise County Airport indicates 22 based aircraft and 8,500 annual aircraft operations. An operation is defined as a takeoff or a landing. A touch-and-go is considered two operations. This form also breaks down operations to 0 air carrier, 0 air taxi, 500 GA local, 7,500 GA itinerant, and 500 military operations. The existing fleet mix of aircraft as reported by Cochise County is shown in **Table 3-2**.

Table 3-2 Based Aircraft Fleet Mix

Aircraft Type	Based Aircraft	Fleet Mix Percentage (%)
Single-Engine	25	100%
Multi-Engine	0	0%
Jet	0	0%
Light Sport Aircraft	0	0%
Gliders	0	0%
Ultra lights	0	0%
TOTAL	25	100%

Source: Cochise County, 2013

Cochise County Airport serves a mix of single- and multi-engine piston aircraft, along with turboprop, turbojet and helicopter aircraft. These users include business and recreational transport, (occasional) agricultural, air medevac, aerial firefighting, and some military operations. The Airport's service level and role, and the existing aviation activity are described in more detail in Chapter 2, Section 2.2 and 2.11.

The growth trends for the fleet mix at Cochise County Airport will likely mirror the national trends. Single-engine piston aircraft are projected to continue to account for the majority of based aircraft and at the same time decrease as a percentage of the overall total number of based aircraft. It is anticipated that other types of aircraft will grow at a moderate pace. According to the SASP, in Arizona, 79 percent of all based aircraft are single-engine aircraft and multi-engine follow with 11 percent. Helicopter and jet aircraft account for four percent each of the state total. Gliders and other aircraft make up the remaining two percent. It is anticipated that the fleet mix will generally remain the same as the existing fleet mix for the 20-year planning period.

3.3.2 HISTORICAL BASED AIRCRAFT AND OPERATIONS

The 1997 Airport Master Plan for the Cochise County Airport estimated that in 1996 there were 7,000 annual operations and 24 based aircraft at the airport. According to the master plan, the survey was used to verify current activity levels, facility needs, and overall performance of the airport. Activity levels were estimated based on a pilot/aircraft owner survey of approximately 80 individuals.

3.3.3 FACTORS INFLUENCING AVIATION DEMAND

Factors influencing aviation demand at the Airport are directly related to any future development on or adjacent to the airport. It is likely that the Airport will see additional demand for hangars over the 20-year planning period. Airport management reports there is currently a waiting list for hangar space from interested aircraft owners. Demand will be driven by the local economic conditions in Willcox, and Cochise County.

An interesting local endeavor is the Howard G. Buffett Foundation (HGBF). The foundation is a private family foundation working to improve the standard of living and quality of life for the world's most impoverished and marginalized populations. One of the HGBF many initiatives is the Sequoia Farm Foundation. According to the HGBF website, most of the world's poor and food insecure are farmers

working small plots of land. The Food & Agriculture Organization (FAO) estimates nearly 900 million people in the world are food insecure, and about half of those are from small farming communities. Sequoia Farm Foundation invests in applied research to improve production practices for smallholder farmers in developing countries in Latin America and Africa. Sequoia Farm Foundation research takes place in partnership with leading agricultural research Universities on two research farms in the U.S.: 1,400 acres in (Willcox) Arizona and 4,000 acres in Illinois. Sequoia also works in close collaboration with the Foundation-funded Ukulima Farm, a 9,200 acres research farm in Limpopo Province, South Africa. It is unknown at this time if the continued investment in research farming will have an impact on the future aviation demand at the airport, but typically, as local businesses grow, there is an increase in aviation demand and related services.

3.4 EXISTING FORECASTS

3.4.1 ARIZONA STATE AIRPORTS SYSTEM PLAN FORECAST

The 2009 Arizona State Airports System Plan (SASP) forecast of based aircraft for Cochise County Airport was evaluated. Three forecasting methodologies were used to generate a low, medium and high forecast for based aircraft in Arizona. The SASP concludes that the medium forecast was selected based on historic based aircraft growth and FAA industry forecasts. The SASP projected a statewide compound average growth rate of 1.71 percent through 2030 and 1.31 percent through 2030 for the Cochise County Airport. Using a base year of 2007, the SASP reflects 27 based aircraft and a forecast of 43 based aircraft at the Cochise County Airport by 2030.

3.4.2 COCHISE COUNTY AIRPORT MASTER PLAN

The 1997 Cochise County Airport Master Plan forecast of based aircraft indicated that the number of based aircraft would increase from 24 to 34 based aircraft at an average rate of 1.8 percent over the 20 year planning period from 1997 to 2017. The previous airport master plan suggests that the forecast of based aircraft will likely mirror the pace of the local economic growth.

3.5 FORECASTS OF AVIATION ACTIVITY

3.5.1 BASED AIRCRAFT FORECASTS

It is widely accepted within the aviation industry that the number of based aircraft at a given airport is the most basic indicator of general aviation demand. According to FAA Order 5090.3C, *Field Formulation of the National Plan of Integrated Airport Systems (NPIAS)*, when forecast data is not available, a satisfactory procedure is to forecast based aircraft using the statewide based aircraft growth rate from the current FAA Terminal Area Forecast (TAF) and develop activity statistics by estimating annual operations per based aircraft. The first forecasting method for based aircraft used the FAA's January 2013 TAF annual growth rate for the State of Arizona of 1.6 percent between 2013 and 2033. This method results in a forecast of 37 based aircraft at Cochise County Airport in 2033. The results of the FAA TAF method are shown in **Table 3-3**.

Table 3-3 FAA TAF Method

Year	TAF for Arizona Based Aircraft ¹	Average Growth Rate	Based Aircraft
2013	5,422	1.6%	25
2018	5,858	1.6%	28
2023	6,338	1.6%	31
2028	6,869	1.6%	34
2033	7,437	1.6%	37

Note. ¹FAA TAF data
Source: ACI, 2013

The second forecasting method for based aircraft utilized a market share analysis based on the number of based aircraft within the U.S. general aviation fleet mix and the number of based aircraft at Cochise County Airport (**Table 3-4**). This method was then applied to the general aviation fleet mix aircraft projections provided by the 2012 General Aviation Manufacturer's Association Statistical Databook & Industry Outlook. This resulted in 28 based aircraft at Cochise County Airport in 2033.

Table 3-4 Market Share Method

Year	Total U.S. General Aviation Fleet Mix ¹	Market Share Aircraft
2013	222,690	25
2018	225,490	25
2023	231,145	26
2028	240,570	27
2033	253,205	28

Note. ¹GAMA data
Source: ACI, 2013

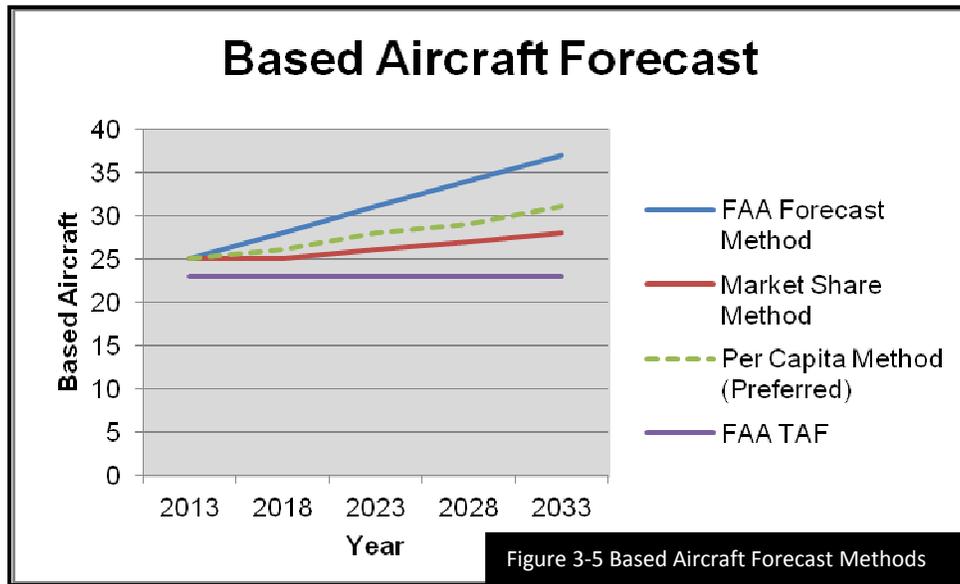
The third method utilized a bottom-up per capita approach that projects the number of based aircraft in direct proportion to the projected population of Cochise County (**Table 3-5**) using the Arizona Department of Administration population statistics (medium series). This resulted in 31 based aircraft at Cochise County Airport in 2033.

Table 3-5 Per Capita Method

Year	Population ¹	Aircraft
2013	130,753	25
2018	137,452	26
2023	145,592	28
2028	153,257	29
2033	160,682	31

Note. ¹Arizona Department of Administration data
Source: ACI, 2013

It is anticipated that Cochise County Airport based aircraft growth rate will likely trend closer to the Per Capita Method. Recognizing that all of the above methods do not vary significantly, the Per Capita Method (indicating 31 based aircraft by 2033) was selected as the preferred based aircraft forecast (Figure 3-5).



Source: ACI, 2013

3.5.2 ANNUAL AIRCRAFT OPERATIONS FORECAST

In order to develop a preferred method of forecasting aircraft operations at Cochise County Airport, a number of methods were analyzed. Each method uses the preferred based aircraft forecast of 31 based aircraft in 2033, and then apply an Operations Per Based Aircraft (OPBA) resulting in the total annual operations forecast.

The methods are as follows:

Method 1: Existing operations and based aircraft (272 OPBA)

Method 2: FAA Order 5090.3C (750 OPBA)

Method 3: FAA Advisory Circular 150/5300-13 (538 OPBA)

Method 4: Arizona State System Plan and existing based aircraft (319 OPBA)

1. The first method used the annual operations (minus military operations) of 6,800 and the base year level of 25 based aircraft provided by the FBO to determine the OPBA ($6,800/25$ equals 272 OPBA). Multiplying 272 OPBA by the preferred 31 based aircraft results in 8,432 forecasted annual operations in 2033.

2. For the second method, a general guideline from FAA Order 5090.3C, *Field Formulation of the National Plan of Integrated Airport Systems (NPIAS)* of 750 OPBA for airports with “unusual circumstances” was applied to the based aircraft forecast. Multiplying 750 OPBA to the preferred 31 based aircraft results in 23,250 forecasted annual operations in 2033.
3. The third method, as outlined in FAA Advisory Circular 150/5300-13, *Airport Design*, applied 538 OPBA (for Non-NPIAS Public Use Airports) to the preferred 31 based aircraft forecast. Multiplying 538 by the preferred 31 based aircraft results in 16,678 forecasted annual operations in 2033.
4. The fourth method, the Arizona State System Plan level of operations forecast for 2030 (9,900), was divided by the forecast number of 31 based aircraft. This provided an OPBA of 319. Multiplying 319 OPBA to the preferred based aircraft forecast for 2018, 2023, 2028, and 2033 results in the forecast operations in those given years.

These projections provide a likely range of activity for future operations at Cochise County Airport and are shown in **Figure 3-6**. Aircraft operations can be expected to increase with the additional based aircraft; therefore, it is reasonable to anticipate that the OPBA will remain fairly constant over the 20-year planning period.

The selected forecast (method 3) of 16,678 annual operations in 2033 will be used for further analysis in the Cochise County Airport Master Plan. The selected forecast represents a conservative increase in annual operations over the planning period and given the size and current activities at the airport, is considered a reasonable forecast for planning purposes. The other methods were considered, but dismissed as not being the most likely representative of the potential aviation demand.

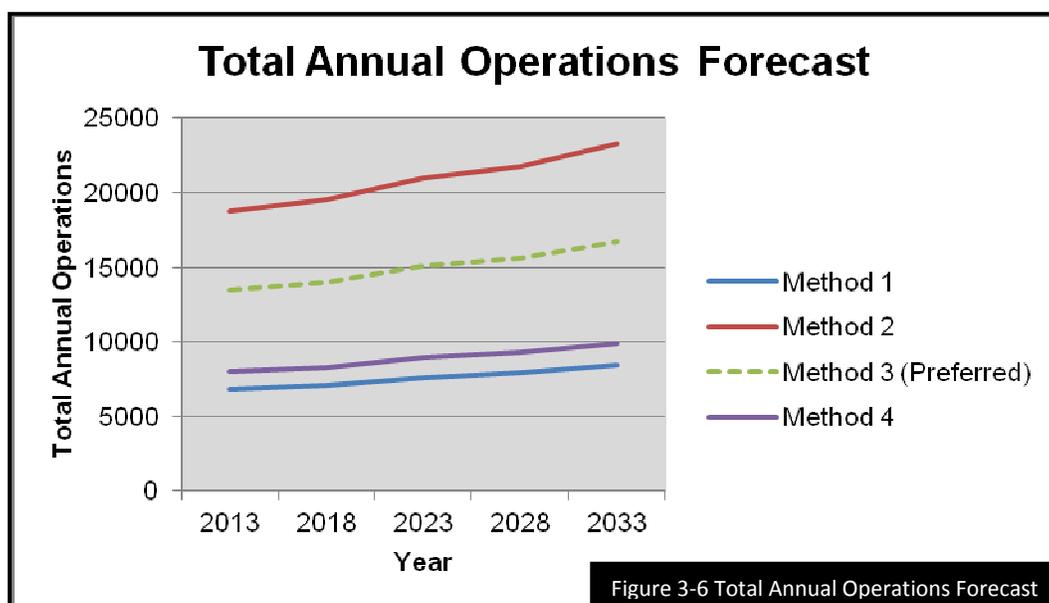


Figure 3-6 Total Annual Operations Forecast

Source: ACI, 2013

3.5.3 ITINERANT AND LOCAL OPERATIONS

The various types of aircraft operations were presented at the beginning of this chapter. For the Cochise County Airport the split in itinerant and local operations used for planning purposes will be in accordance with the SASP. According to the SASP, the existing split of 79 percent local operations and 21 percent itinerant operations is assumed to remain constant throughout the 20-year planning period.

3.5.4 INSTRUMENT OPERATIONS

An instrument approach, as defined by FAA, is “an approach to an airport with the intent to land 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.” An aircraft landing at an airport must follow one of the published instrument approach procedures to qualify as an instrument approach.

According to the FAA TAF, 21 percent of the total aircraft operations in Arizona are instrument operations. This number is forecasted to increase to 26 percent by 2030. Since virtually all commercial and business jet flights and most military aircraft flights are IFR, the number of instrument operations does not reflect the occurrence of instrument weather or the provision of instrument approaches at airports. At most general aviation airports with an instrument approach and little or no commercial service or military activity, instrument operations will comprise approximately 2.5 percent of total operations.

3.6 PREFERRED FORECASTS OF AVIATION ACTIVITY

The preferred aviation demand forecast activity for Cochise County Airport is depicted in **Table 3-6**.

Table 3-6 Preferred Forecasts of Aviation Activity

Year	Based Aircraft	Local Operations	Itinerant Operations	Total Operations	Instrument Operations
2013	25	10,626	2,824	13,450	336
2018	26	11,050	2,938	13,988	349
2023	28	11,900	3,164	15,064	376
2028	29	12,326	3,276	15,602	390
2033	31	13,176	3,502	16,678	416

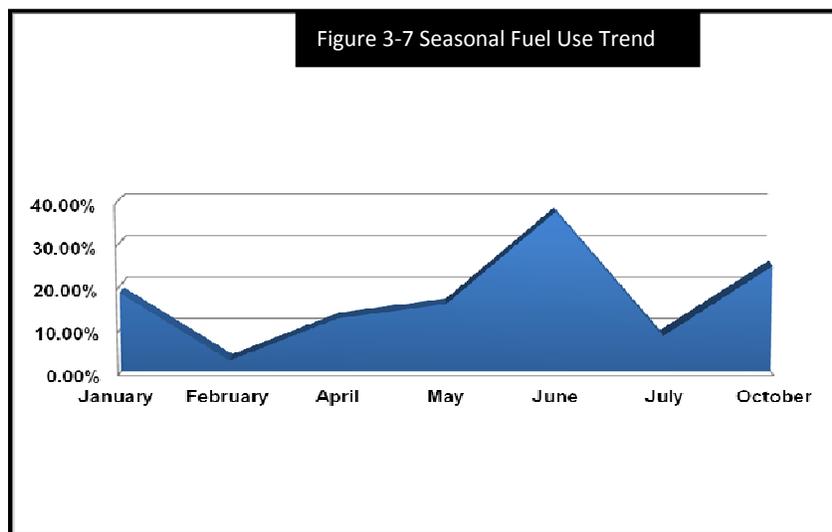
Source: ACI, 2013

3.7 AIRPORT SEASONAL USE DETERMINATION

Seasonal fluctuations in aircraft operations may occur at any airport. This fluctuation is most apparent in regions with severe winter weather patterns and at non-towered general aviation airports. The fluctuation is less pronounced at major airports, with a high percentage of commercial and scheduled airline activity.

Non-towered general aviation airports generally experience a substantially higher number of operations in summer months than off-season months. The average seasonal use trend for FAA towered airports from the 1979-1984 records (total aircraft operations handled by tower facilities nationally from FAA Statistical Handbook of Aviation) was used as a baseline for determining seasonal use trends. As mentioned, seasonal fluctuation is more pronounced at non-towered airports than at towered airports. The seasonal use trend for towered airports was adjusted to approximate seasonal use trends at non-towered airports.

A review of Cochise County Airport's total fuel sales from 2009 through June 2013 provided a reasonable depiction of the airport's seasonal use trends. Fuel sales data was not available by type, i.e., Jet A and AvGas. Therefore, the trend reflects total fuel sales (for only the months that data was available) at the airport. **Figure 3-7** depicts these seasonal use trends and reveals that the greatest quantity of fuel was sold between May through June, with a second smaller spike in the October to January timeframe. AvGas (100LL) is used predominantly by piston-powered aircraft and varies the most with each season.



Source: ACI, 2013

Overall, 2013 was not a record year in terms of wildfires started and acres burned, but the need for the U.S. Forest Service and State Forestry protection in Arizona will remain indefinitely into the future. During the peak of the fire season (May through July), the Arizona State Forestry Division uses the airport as a base of operations and will typically bring in tankers and helicopters on an as needed basis.

Table 3-7 represents the general seasonal use trends of US airports at both non-towered and towered airports. Although every airport will vary, the non-towered percentages contained in Table 3-7 will be used to calculate the monthly, daily, and hourly peaking characteristics; in other words, the times when the airport is the busiest.

Table 3-7 Seasonal Use Trend

Month	Non-towered	Towered
January	3.5%	7.2%
February	4.0%	8.2%
March	4.8%	8.6%
April	7.5%	9.0%
May	11.3%	9.1%
June	13.5%	9.4%
July	14.8%	9.1%
August	13.0%	8.7%
September	10.0%	8.7%
October	8.0%	7.8%
November	5.8%	7.1%
December	3.8%	7.1%

Source: ACI, 2013

3.8 HOURLY DEMAND AND PEAKING TENDENCIES

In order to arrive at a reasonable estimate of demand at the airport facilities, it was necessary to develop a method to calculate the levels of activity during peak periods. The periods normally used to determine peaking characteristics are defined below:

Peak Month - The calendar month when peak enplanements or operations occur.

Design Day - The average day in the peak month derived by dividing the peak month enplanements or operations by the number of days in the month.

Busy Day - The busy day of a typical week in the peak month. In this case, the busy day is equal to the design day.

Design Hour - The peak hour within the design day. This descriptor is used in airfield demand/capacity analysis, as well as in determining terminal building, parking apron, and access road requirements.

Busy Hour - The peak hour within the busy day. In this case, the busy hour is equal to the design hour.

The seasonal use trend was used as a tool to determine the peaking characteristics for the Cochise County Airport. Using the seasonal use information, a formula was derived which will calculate the average daily operations in a given month, based on the percentage of the total annual operations for that month. A detailed description of the formula can be found in **Appendix F**.

The calculations were made for each month of each phase of the planning period. The results of the calculations are shown in **Table 3-8**. The Design Day and Design Hour peak demand in the planning year

occurs in the months of June and July (highlighted in bold in each Table), with nearly 80 daily operations and approximately 7 operations per hour throughout the 20-year planning period.

Table 3-8 Estimated Hourly Demand Per Month

Planning Year: 2018 Operations: 13,988					Planning Year: 2023 Operations: 15,064				
Operations					Operations				
Month	% Use	Monthly	Daily	Hourly	Month	% Use	Monthly	Daily	Hourly
January	3.5%	490	16	1	January	3.5%	527	17	1
February	4.0%	560	20	2	February	4.0%	603	22	2
March	4.8%	671	22	2	March	4.8%	723	23	2
April	7.5%	1,049	35	3	April	7.5%	1,130	38	3
May	11.3%	1,581	51	4	May	11.3%	1,702	55	5
June	13.5%	1,888	63	5	June	13.5%	2,034	68	6
July	14.8%	2,070	67	6	July	14.8%	2,229	72	6
August	13.0%	1,818	59	5	August	13.0%	1,958	63	5
September	10.0%	1,399	47	4	September	10.0%	1,506	50	4
October	8.0%	1,119	36	3	October	8.0%	1,205	39	3
November	5.8%	811	27	2	November	5.8%	874	29	2
December	3.8%	532	17	1	December	3.8%	572	18	2
Planning Year: 2028 Operations: 15,602					Planning Year: 2033 Operations: 16,678				
Operations					Operations				
Month	% Use	Monthly	Daily	Hourly	Month	% Use	Monthly	Daily	Hourly
January	3.5%	546	18	1	January	3.5%	584	19	2
February	4.0%	624	22	2	February	4.0%	667	24	2
March	4.8%	749	24	2	March	4.8%	801	26	2
April	7.5%	1,170	39	3	April	7.5%	1,251	42	3
May	11.3%	1,763	57	5	May	11.3%	1,885	61	5
June	13.5%	2,106	70	6	June	13.5%	2,252	75	6
July	14.8%	2,309	74	6	July	14.8%	2,468	80	7
August	13.0%	2,028	65	5	August	13.0%	2,168	70	6
September	10.0%	1,560	52	4	September	10.0%	1,668	56	5
October	8.0%	1,248	40	3	October	8.0%	1,334	43	4
November	5.8%	905	30	3	November	5.8%	967	32	3
December	3.8%	593	19	2	December	3.8%	634	20	2

Source: ACI, 2013

3.9 FORECAST SUMMARY

The Airport Master Plan forecasts were prepared in order to determine projected aviation activity levels. The activity estimates were prepared for annual operations and aircraft fleet mix.

The total annual operations forecasted are slightly higher than the latest FAA TAF, which projected a constant 8,500 total annual operations over the planning period. The proposed 2013 base year forecasted total annual operations presented in this Chapter are 13,450 (58 percent higher than the TAF); the difference between the five and ten-year projections presented in this Chapter vary by approximately 65 percent to 77 percent higher than the TAF over the same planning period. These differences are greater than the ten percent and 15 percent allowances FAA recommends for the five and ten-year planning horizons. Given the difficulty in determining the actual operations at non-towered general aviation airports, the proposed forecast is considered reasonable as it represents modest growth in operations and takes into consideration the potential economic growth in the region. Data gathered from the FBO indicates fuel sales of Jet A and AVGAS are trending in a positive direction. From fiscal year 2010/2011 to 2012/2013, fuel sales increased by approximately 36 percent. Although this is not an absolute metric for predicting future operations, it is an indicator that operations at an airport are on the rise.

The recommended forecasts for the Airport were submitted to the FAA for review and approval. The FAA approved these forecasts for airport planning purposes, including Airport Layout Plan development, in February 2014. A copy of the FAA approval letter can be found in **Appendix D**. The recommended forecasts for Cochise County Airport will be used throughout the remainder of the Airport Master Plan and are summarized in **Table 3-9**. The next step in the planning process is to determine the capacity of the existing facilities and to determine what facilities will be needed to meet future aviation demand.

Table 3-9 Detailed Forecast Summary

Year	Based Aircraft	Peak Hourly Flow	Itinerant Operations			Local Operations			Total Operations
			GA	Military	Total	GA	Military	Total	
2013	25	6	2,824	0	2,824	10,626	0	10,626	13,450
2018	26	6	2,938	0	2,938	11,050	0	11,050	13,988
2023	28	6	3,164	0	3,164	11,900	0	11,900	15,064
2028	29	6	3,276	0	3,276	12,326	0	12,326	15,602
2033	31	7	3,502	0	3,502	13,176	0	13,176	16,678

Source: ACI, 2013

CHAPTER FOUR
FACILITY REQUIREMENTS

COCHISE COUNTY
COCHISE COUNTY AIRPORT
AIRPORT MASTER PLAN





CHAPTER 4 – FACILITY REQUIREMENTS

4.1 INTRODUCTION

This chapter identifies the requirements for airfield and landside facilities to accommodate the forecast demand levels at Cochise County Airport. In order to meet the demand levels, an assessment of the ability of existing airport facilities to meet current and future demand was conducted. The facility requirements were based on information derived from capacity and demand calculations, information from FAA advisory circulars and design standards, the sponsor's vision of the future of the airport, the condition and functionality of existing facilities, and other pertinent information.

Facility requirements have been developed for the various airport functional areas listed below:

- General aviation requirements
- Support facilities
- Ground access, circulation, and parking requirements
- Infrastructure and utilities
- Land use compatibility and control

The time frame for addressing development needs usually involves short-term (up to five years), medium-term (six to ten years), and long-term (eleven to twenty years) planning periods. Long-term planning primarily focuses on the ultimate role of the airport and is related to development. Medium-term planning focuses on a more detailed assessment of needs, while the short-term analysis focuses on immediate action items. Most important to consider is that a good plan is one that is based on actual demand at an airport rather than time-based predictions. Actual activity at the airport will vary over time and may be higher or lower than what the demand forecast predicts. Using the three planning milestones (short-term, medium-term, and long-term) the airport sponsor can make an informed decision regarding the timing of development based on the actual demand. This approach will result in a financially responsible and demand-based development of the Cochise County Airport.

4.2 DESIGN STANDARDS

Airport design standards provide basic guidelines for a safe, efficient, and economic airport system. The standards cover the wide range of size and performance characteristics of aircraft that are anticipated to use an airport. Various elements of airport infrastructure and their functions are also covered by these standards. Choosing the correct aircraft characteristics for which the airport will be designed needs to be done carefully so that future requirements for larger and more demanding aircraft are taken into consideration, while at the same time remaining mindful that designing for large aircraft that may never serve the airport is not economical.

As discussed previously in Chapter 2, Section 2.13, the Runway Design Code (RDC) is one component of the FAA's design standards. The RDC can be used to determine the necessary facility requirements. Examples of various aircraft meeting the design standards for a RDC of A-I and B-I are illustrated on **Table 4-1**, and examples of aircraft with a RDC of A-II and B-II are depicted in **Table 4-2**. For the purpose of this Chapter, examples of the remaining Airplane Design Group (ADG) categories of C, D, and E

aircraft and their corresponding approach categories (I, II, III, etc.) are not depicted due to their infrequent use of the Airport; the sample aircraft provided below are those that are likely to use the Airport on a regular basis.

Table 4-1 RDC of A-I or B-I (Sample Aircraft)

Aircraft	Approach Speed (knots)	Wingspan (feet)	Tail Height (feet)	Max T.O. Weight (pounds)
Beech Baron 58P	101	37.8	9.1	6,200
Beech Bonanza V35B	70	33.5	6.6	3,400
Cessna 150	55	33.3	8.0	1,670
Cessna 172	60	36.0	9.8	2,200
Cessna 182	64	36.0	9.2	2,950
Cessna 340	92	38.1	12.2	5,990
Cessna 414	94	44.1	11.5	6,750
Cessna Citation I	108	47.1	14.3	11,850
Gates Learjet 28/29	120	42.2	12.3	15,000
Mitsubishi MU-2	119	39.1	13.8	10,800
Piper Archer II	86	35.0	7.4	2,500
Piper Cheyenne	110	47.6	17.0	12,050
Rockwell Sabre 40	120	44.4	16.0	18,650
Raytheon Beechjet	105	43.5	13.9	16,100
Eclipse 500 Jet	90	37.9	13.5	5,920

Source: FAA AC 150/5300-13A, *Airport Design*, 2014

Table 4-2 RDC of A-II and B-II Sample Aircraft

Aircraft	Approach Speed (knots)	Wingspan (feet)	Tail Height (feet)	Max T.O. Weight (pounds)
Air Tractor 802F	105	58.0	11.2	16,000
Beech King Air B200	103	54.5	15.0	12,500
Cessna 441	100	49.3	13.1	9,925
Cessna Citation II	108	51.6	15.0	13,300
Cessna Citation III	114	50.6	16.8	17,000
Cessna Citation Sovereign	120	63.3	20.3	30,300
Dassault Falcon 50	113	61.9	22.9	37,480
Dassault Falcon 200	114	53.5	17.4	30,650
Dassault Falcon 900	100	63.4	24.8	45,500
DHC-6 Twin Otter	75	65.0	19.5	12,500
Grumman Gulfstream I	113	78.5	23.0	35,100
Pilatus PC-12	85	52.3	14.0	9,920

Source: FAA AC 150/5300-13A, *Airport Design*, 2014

As discussed in Chapter 2, the existing RDC for Runway 3 is B/II/5000 and for Runway 21 is B/II/4000; the existing design aircraft is a light, turboprop aircraft. An example of a light, turboprop aircraft is the Beechcraft King Air B200. The RDC and design aircraft for Runway 14-32 (the crosswind runway) were not discussed in Chapter 2 due to the fact that Runway 14-32 has been closed and nonoperational for

some time. However, based on a review of the Airport’s existing and forecasted aircraft operations and discussions with airport management, it is recommended that the RDC for Runway 14-32 be established as B/I(small)/VIS. An example of a B-I (small) design aircraft would be a light, twin-engine propeller aircraft weighing 12,500 pounds or less, such as the Piper Navajo.

Without adequate operations data for each runway, the exact design aircrafts have been assumed. Based on existing and forecasted demand levels, B-II and B-I (small) aircraft represent the most likely types of aircraft likely to use the facility in the planning period. Thus, it is recommended to maintain the existing RDC of B-II for Runway 3-21 for this Master Plan. Likewise, it is recommended that the RDC for Runway 14-32 be established as B-I (small), as mentioned above. RDC design standards for both B-I (small) and B-II will be applied to the existing and ultimate development plans for the Cochise County Airport.

4.3 AIRFIELD CAPACITY

The airfield capacity analysis is determined by using an airport’s annual service volume (ASV). An airport’s ASV has been defined by the FAA as “a reasonable estimate of an airport’s annual capacity. It accounts for differences in runway use, aircraft mix, weather conditions, etc., that would be encountered over a year’s time.” ASV is a function of the hourly capacity of the airfield and the annual, daily, and hourly demands placed upon it. According to FAA Advisory Circular (AC) 150/5060-5, *Airport Capacity and Delay*, the ASV for a single runway configuration is approximately 230,000 operations. The ASV for a single runway configuration is being used for Cochise County Airport because Runway 3-21 is currently the only runway in operation (Runway 14-32 is closed and not currently in use on the airfield).

At Cochise County Airport the ASV is estimated to be 13,450 aircraft operations (landings and takeoffs) for present conditions. Compared to the projection of 16,678 operations by the year 2033, it is evident that airfield capacity is not a constraining factor to growth of the airport. No additional runways are needed (from a capacity perspective) to accommodate the existing or forecasted activity. **Table 4-3** summarizes the ASV relationship developed in this Section.

Table 4-3 Annual Service Volume Summary

Year	Annual Operations	Annual Service Volume ¹	Annual Capacity Ratio
2013	13,450	230,000	5.8%
2023	15,064	230,000	6.5%
2033	16,678	230,000	7.2%

Note. ¹FAA AC 150/5060-5, *Airport Capacity and Delay* data
Source: ACI, 2013

4.4 AIRSIDE FACILITY REQUIREMENTS

All airports are comprised of both airside and landside facilities as presented in Chapter 2. Airside facilities consist of those facilities that are related to aircraft arrival, departure, and ground movement, along with all associated navigational aids, airfield lighting, pavement markings, and signage.

4.4.1 RUNWAY LENGTH

There are many factors that may determine the runway length for an airport. FAA AC 150/5325-4B, *Runway Length Requirements for Airport Design*, provides guidance for determining runway length requirements. The information required to determine the recommended runway length(s) includes airfield elevation, mean maximum temperature of the hottest month, and the effective gradient for the runway. Also, the performance characteristics and operating weight of an aircraft impacts the amount of runway length needed. The following information for the Cochise County Airport was used for the analysis:

- Field elevation: 4,187 feet mean sea level (MSL)
- Mean maximum temperature of hottest month (July): 95° F
- Effective Runway 3-21 gradient: 1 foot
- Effective Runway 14-32 gradient: 3 feet
- Performance characteristics and operating weight of aircraft

The process to determine recommended runway lengths for a selected list of critical design aircraft begins with determining the weights of the critical aircraft that are expected to use the airport on a regular basis. For aircraft weighing 60,000 pounds or less, the runway length is determined by family groupings of aircraft having similar performance characteristics. The first family grouping is identified as small aircraft, which is defined by the FAA as aircraft weighing 12,500 pounds or less at maximum takeoff weight (MTOW). The second family grouping is identified as large aircraft, which is defined by the FAA as aircraft exceeding 12,500 pounds but weighing less than 60,000 pounds. For aircraft weighing more than 60,000 pounds, the required runway length is determined by aircraft-specific length requirements. **Table 4-4** depicts the aircraft weight categorization as recommended by the FAA.

Table 4-4 Airplane Weight Categorization for Runway Length Requirements

Airplane Weight Category MTOW		Aircraft Grouping	
≤ 12,500 Pounds	Approach Speed < 30 knots	Family groupings of small airplanes	
	Approach Speed ≥ 30 knots, but < 50 knots	Family groupings of small airplanes	
	Approach Speed ≥ 50 knots	With < 10 Passengers	Family groupings of small airplanes
		With ≥ 10 Passengers	Family grouping of small airplanes
Over 12,500 pounds, but < 60,000 pounds		Family groupings of large airplanes	
≥ 60,000 pounds or more, or Regional Jets ¹		Individual large airplane	

Note¹: All regional jets, regardless of their MTOW, are assigned to the 60,000 pounds or more weight category.

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

Recommended runway lengths are determined using charts in AC 150/5325-4B based on the seating capacity and the mean daily maximum temperature of the hottest month of the year at the airport. The small airplanes with the approach speed of greater than or equal to 50 knots with less than 10 passenger seats and a MTOW less than 12,500 pounds recommends a runway length of 5,480 feet in order to accommodate 95 percent of the fleet; the 95 percent of fleet category applies to airports that are primarily intended to serve medium size population communities with a diversity of usage and greater potential for increased aviation activities. Also included in this category are those airports that are primarily intended to serve low-activity locations, small population communities and remote recreational areas. The approach speed of greater than or equal to 50 knots with less than 10 passenger seats and a MTOW less than 12,500 pounds recommends a runway length of 5,790 feet in order to accommodate 100 percent of the aircraft fleet. The 100 percent of fleet category is a type of airport that is primarily intended to serve communities located on the fringe of a metropolitan area or a relatively large population remote from a metropolitan area. With an existing runway length of 6,095 feet, Runway 3-21 can accommodate 100 percent of the small airplanes.

Recommended runway lengths to serve large aircraft weighing over 12,500 pounds, but less than 60,000 pounds, are determined using a certain percentage of the useful load. The term useful load, as defined by the FAA, is the difference between the maximum allowable structural gross weight and the operating empty weight. A typical operating empty weight includes the airplane's empty weight, crew, baggage, other crew supplies, removable passenger service equipment, removable emergency equipment, engine oil and unusable fuel. According to the above referenced Advisory Circular, 75 percent of the fleet at 60 and 90 percent useful load requires runway lengths of 6,440 feet and 8,610 feet respectively. The Advisory Circular indicates that 100 percent of the fleet at 60 and 90 percent useful load requires runway lengths of 9,420 feet and 10,840 feet respectively. To accommodate 75 percent of aircraft at 60 percent useful load weighing 60,000 pounds or less, a runway length of 6,440 feet is recommended.

Based on the analysis, the potential need to extend the runway in the planning period exists. However, if the types and frequencies of operations change significantly at the airport, the need to revisit the runway length analysis may be warranted. **Table 4-5** provides the recommended runway length information. The Development Alternatives chapter will present various concepts for achieving the recommended runway length while taking into consideration any site constraints and potential environmental impacts.

Table 4-5 Recommended Runway 3-21 Length

Description	Runway Length (ft)
Existing Runway 3-21 Length	6,095
Recommended to accommodate:	
Small Aircraft (<12,500 lbs., < 10 passenger)	
75 percent of these small airplanes	4,170
95 percent of these small airplanes	5,480
100 percent of these small airplanes	5,790
Large Aircraft (<60,000 lbs.)	
75 percent of these planes at 60 percent useful load	6,440 (recommended)
75 percent of these planes at 90 percent useful load	8,610
100 percent of these planes at 60 percent useful load	9,420
100 percent of these planes at 90 percent useful load	10,840
Aircraft More than 60,000 lbs.	6,480 (approx.)

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

4.4.2 RUNWAY ORIENTATION

The FAA recommends that a runway's orientation provide at least 95 percent crosswind coverage for A-I, B-I, A-II, and B-II aircraft according to AC 150/5300-13A, *Airport Design*. Based on the wind data presented in Table 2-13 in Chapter 2, the existing primary runway, Runway 3-21, only provides 92.2 percent wind coverage for A-I and B-I aircraft.

At one point Runway 14-32 was the designated crosswind runway on the airfield. However, Runway 14-32 has been closed for some time due to the deteriorating condition of the pavement. Also according to the wind data presented in Table 2-13 in Chapter 2, when in operation, Runway 14-32 provides 93.8 percent wind coverage for A-I and B-I aircraft (10.5 knots) and 96.7 percent wind coverage for A-II and B-II aircraft (13 knots). Furthermore, if one were to assume the existing runway configuration for the airfield also included Runway 14-32, the combined wind coverage would be 98.3 percent at 10.5 knots, and 99.6 percent at 13 knots.

The FBO, along with various users of the airport, are in favor of having Runway 14-32 reopened in order to accommodate the AI and BI type aircraft currently using the airfield. Therefore, adequate justification and support exists to recommend that Runway 14-32 be reconstructed and reopened as the designated crosswind runway on the airfield.

The FAA AC 150/5325-4B, *Runway Length Requirements for Airport Design*, recommends the same guidelines be followed to determine the recommended runway length for crosswind runways. Small airplanes generally have less crosswind capabilities, and thus it is recommended that a crosswind runway accommodate 100 percent of small aircraft. To accommodate 100 percent of small aircraft weighing less than 12,500 pounds, a runway length of 5,790 feet is recommended for the Airport. **Table 4-6** provides the recommended runway length information. The Development Alternatives chapter will

present various concepts for achieving the recommended crosswind runway length taking into consideration any site constraints and potential environmental impacts.

Table 4-6 Recommended (Crosswind) Runway 14-32 Length

Description	Runway Length (ft)
Existing Runway 14-32 Length	6,100 (closed)
Recommended to accommodate:	
Small Aircraft (<12,500 lbs., < 10 passenger)	
75 percent of these small airplanes	4,170
95 percent of these small airplanes	5,480
100 percent of these small airplanes	5,790 (recommended)
Large Aircraft (<60,000 lbs.)	
75 percent of these planes at 60 percent useful load	6,460
75 percent of these planes at 90 percent useful load	8,630
100 percent of these planes at 60 percent useful load	9,440
100 percent of these planes at 90 percent useful load	10,860
Aircraft more than 60,000 lbs.	6,480 (approx.)

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

4.4.3 RUNWAY WIDTH

The required runway width is a function of airplane approach category, airplane design group, and the approach minimums for the design aircraft expected to use the runway on a regular basis. The existing runway pavement width of 75 feet for Runway 3-21 meets the existing and future FAA design standards and should be maintained for the planning period. According to the 1997 Master Plan, the existing runway pavement width for Runway 14-32 is 150 feet. Based on the proposed RDC of B-I (small) discussed in Section 3.2, Runway 14-32 should be reconstructed to a width of 60 feet.

4.4.4 RUNWAY PAVEMENT STRENGTH

According to FAA guidance on pavement strength, the aircraft types and critical aircraft expected to use the airport during the planning period are used to determine the required pavement strength, or weight bearing capacity, of airfield surfaces. The required pavement design strength is an estimate based on average levels of activity and is expressed in terms of aircraft landing gear type and configurations. Pavement design strength is not the maximum allowable weight; limited operations by heavier aircraft other than the critical aircraft may be permissible. It is important to note that frequent operations by heavier aircraft will shorten the lifespan of the pavement.

The existing runway pavement strength is:

- Runway 3-21 - 50,000 pounds gross weight single-wheel landing gear and 75,000 pounds gross weight dual-wheel landing gear.
- Runway 14-32 - Unknown

Based on the existing and planned RDC, and the aircraft most likely to use the airport on a regular basis (illustrated in Tables 4-1 and 4-2), the pavement strength rating for Runway 3-21 appears adequate. Thus, for planning purposes, the existing pavement strength for Runway 3-21 should be maintained for the planning period. The pavement strength for 14-32 should be constructed to support 12,500 pounds gross weight single-wheel landing gear in order to accommodate the majority of light, single- and twin-engine propeller aircraft found within the B-I and A-I RDC categories.

4.4.5 TAXIWAY AND TAXILANE REQUIREMENTS

By definition, a taxiway is a defined path established for the taxiing of aircraft from one part of an airport to another. A taxilane is a taxiway designated for low speed and precise taxiing. Taxilanes are usually, but not always, located outside the movement area, providing access from taxiways to aircraft parking positions, hangars, and terminal areas.

FAA AC 150/5300-13A, *Airport Design*, provides planners with guidance on recommended taxiway and taxilane layouts to avoid runway incursions and to enhance the overall safety at the airport. According to the FAA, a runway incursion is “any occurrence at an airport involving the incorrect presence of an aircraft, vehicle, or person on the protected area of a surface designated for the landing and takeoff of aircraft.”

According to *Airport Design*, “good airport design practices keep taxiway intersections simple by reducing the number of taxiways intersecting at a single location and allows for proper placement of airfield markings, signage, and lighting.” Existing taxiway geometry should be improved whenever feasible with emphasis on “hot spots,” and to the extent practical, the removal of existing pavement to correct confusing layouts is advisable. As previously discussed in Chapter 2, Section 2.17.2, Taxiway A-2 and the severely deteriorated Taxiway C intersect at a single location and both allow aircraft direct access from the apron to Runway 3-21. Recommendations on the removal of both connector taxiways and a possible alternative location for Taxiway A-2 will be discussed further in Chapter 5, Development Alternatives.

As discussed previously in Chapter 2, Section 2.13.3, to arrive at the TDG, the undercarriage dimensions of the aircraft are used. The TDG design standards are based on the overall main gear width (MGW) and the cockpit-to-main-gear (CMG) distance. Taxiway/taxilane width and fillet standards, and in some instances, runway to taxiway and taxiway/taxilane separation requirements, are determined by the TDG. The FAA advises that it is appropriate for a series of taxiways on an airport to be built to a different TDG standards based on anticipated use.

The eastern portion of Taxiway A that is currently in use is 35 feet wide, categorizing it in TDG 2. Although it was designed under the previous FAA AC 150/5300-13 (Change 17), *Airport Design*, the existing standard still applies under the new FAA AC 150/5300-13A, *Airport Design*. Based on the design aircraft and RDCs for Runways 3-21 and the proposed Runway 14-32, it is recommended that all future taxiways and taxilanes should meet the TDG 2 design standard for the Cochise County Airport (with the exception of where aircraft access the existing T-hangar area.) The extension of Taxiway A from approximately mid-field to the Runway 3 end has been discussed, and is anticipated to be designed and constructed in 2015. This new taxiway will be designed to meet FAA design standards for TDG 2.

As discussed in Section 2.17.2, there are areas in the vicinity of the existing terminal building and the existing T-hangars that do not meet TDG 2 standards. In this area only, it is recommended that TDG 1 standards be applied because only small aircraft (ADG I) operate in this area. The Development Alternatives chapter will consider various taxiway and taxilane layout configurations to improve access to and from the aprons, hangars, and the terminal/FBO building.

4.4.6 AIRCRAFT APRON

An aircraft apron is typically located in the non-movement area of an airport near or adjacent to the terminal area. The function of an apron is to accommodate aircraft during loading and unloading of passengers and/or cargo. Activities such as fueling, maintenance, and short to long-term parking take place on an apron. The layout and size of an apron depends on aircraft and ground vehicle circulation needs and specific aircraft clearance requirements. There are several types of aircraft aprons:

Terminal/itinerant aircraft apron – These aprons are adjacent to the terminal where passengers board and deplane from the aircraft. The apron also accommodates multiple activities such as fueling, maintenance, limited aircraft service, etc. Itinerant aprons handle itinerant aircraft activities which are usually only on the airport for a few days. At general aviation airports, this type of apron can also provide some tie-down locations for both itinerant and based aircraft.

Tie-down apron – An apron area for both short-term and long-term aircraft parking (based and itinerant aircraft).

Other services apron – Apron areas that will accommodate aircraft servicing, fueling, and the loading/unloading of cargo.

Hangar aprons – This is an area on which aircraft move into and out of a storage hangar.

FAA AC 150/5300-13A, *Airport Design*, provides design criteria to assist in apron layout and capacity. For the purpose of calculating the necessary apron size, the following planning criterions were used:

- 800 square yards of apron per aircraft for single-engine and multi-engine aircraft
- 1,500 square yards per aircraft for turboprops and business jets
- 5,000 square yards per aircraft for larger firefighting aircraft
- 20% of single-engine (forecasted) based aircraft will require apron parking
- 10% of multi-engine (forecasted) based aircraft will require apron parking
- Itinerant aircraft apron requirements are based on the design hour operations

Based on the above criterion, additional aircraft apron may be required for the planning period. Depending on the County's desire to reserve a dedicated area on the apron for firefighting aircraft activity, additional apron may be needed in the short term. The County should monitor the utilization of the apron, and based on the above criterion make adjustments in the apron size as needed. It is recommended that reconstruction and pavement maintenance projects take place on the existing apron, as needed. The Development Alternatives chapter will consider various aircraft parking apron layouts to maximize the use of the existing apron and determine where additional apron pavement can be constructed. **Table 4-7** depicts the aircraft apron requirements.

Table 4-7 Aircraft Apron Requirements

Aircraft Apron Requirements	Year				
	Available in 2013	2018	2023	2028	2033
Existing Parking Positions (including shaded parking)	26	-	-	-	-
Parking Positions for SE/ME Aircraft	-	5	6	6	6
Parking Positions for Turboprops and Business Jets	-	2	3	3	3
Parking for Fire Fighting Aircraft	-	1	1	1	1
Based Aircraft Apron Area (sy) ¹	-	12,000	14,300	14,300	14,300
Itinerant Aircraft Apron Area (sy) ¹	-	6,450	6,688	7,166	7,405
Total Aircraft Apron Area (sy)¹	13,390	18,450	20,988	21,466	21,705

Note. Apron development will depend on actual demand

¹Apron requirements based on 800 square yards x the design hour operations

Source: ACI, 2013

4.4.7 INSTRUMENT AIDS TO NAVIGATION

Non-precision Global Positioning System (GPS) approaches do not require ground-based facilities on or near the airport for navigation. The GPS receiver uses satellites for navigation. Therefore, it involves little or no cost for the airport sponsor. GPS was developed by the United States Department of Defense for military use and is now available for civilian use. GPS approaches are rapidly being commissioned at airports across the United States with typical approach minimums of 350-foot ceilings and one mile visibility. An instrument approach increases the utility of the airport by providing for the capability to operate in inclement weather conditions. This is especially important for air ambulance, physician transport and business flights. It is also useful for conducting training and maintaining instrument currency.

The Airport has two published non-precision, GPS instrument approach procedures serving Runway 3-21. These approaches should be maintained in the future as they provide all-weather capabilities for the airport.

4.4.8 AIRFIELD LIGHTING, SIGNAGE, MARKINGS, AND VISUAL AIDS TO NAVIGATION

Based on findings from the airport inventory as discussed in Chapter 2, several recommendations for improvements to the airfield lighting, markings, signage, and visual aids to navigation are recommended for Cochise County Airport. These recommendations include the following:

Rotating beacon – The existing beacon appears to be in good condition; however, the steel tower it is located upon is dated and is reaching the end of its useful lifecycle. It is recommended that the beacon and tower be replaced; the tower should be replaced with a new tip-down tower. This will eliminate the need to climb the tower or use a bucket-truck to replace parts or conduct maintenance. The Development Alternatives chapter will discuss recommended locations for the new tower and airport beacon.

Segmented circle – The existing segmented circle is constructed of old automobile tires that have been painted white. A new segmented circle should be installed in accordance with FAA AC 150/5340-5D, *Segmented Circle Airport Marker System*.

Runway 3-21 medium intensity runway lights (MIRL) – For the most part, the MIRLs appear to be in good condition. It was observed that two units are missing, and should be replaced.

Runway 14-32 medium intensity runway lights (MIRL) – When Runway 14-32 is reconstructed, it is recommended MIRLs be installed for improved safety on the airfield. It is recommended that all incandescent lighting be replaced with more energy efficient light emitting diode (LED) lighting; this is recommended for all future runway and taxiway lighting.

Runway 3-21 hold sign (lighted) panels – The runway hold panels (one located on Taxiway A-1 and one on Taxiway A-2) are faded and should be replaced.

Precision Approach Path Indicators (PAPI) – This approach lighting system assists pilots by providing visual glide slope guidance during non-precision approaches. These systems have an effective visual range of three miles during the day and up to 20 miles at night. It is recommended that a two-box PAPI system be installed at both ends of Runway 3-21 and Runway 14-32.

Runway end identifier lights (REIL) – These lights are strobe lights located near the runway threshold on both sides of the runway. The lights provide rapid identification of the runway threshold. The FAA recommends that a REIL system be installed at runway ends that do not have, or are not planning to have, an approach lighting system (ALS). It is recommended that a REIL system be installed on both ends of Runways 3-21 and 14-32. LED models are recommended for both REIL systems.

Taxiway edge lights and signage – To enhance safety and increase the reliability of the airport during nighttime operations, all taxiways should have medium intensity taxiway lights (MITL) and lighted airfield signage installed. As previously mentioned in Chapter 2, the remainder of Taxiway A from the midpoint of Runway 3-21 to the end of Runway 3 is anticipated to be reconstructed in 2015. During this time, new medium intensity taxiway lights (MITL) will be installed, along with any required lighted signage. Furthermore, the existing taxiway reflectors located along Taxiway A are anticipated to be replaced with MITL sometime in 2015. LED models of MITL are recommended.

Taxiway, taxilane, and apron pavement markings – The taxiway, taxilane, and apron pavement markings, including the open tie-down spaces, should be repainted.

4.4.9 WEATHER AIDS

At the present time, the Airport does not have any on-airport weather aids, such as an Automated Weather Observing System (AWOS) or Automated Surface Observing System (ASOS). Based on conversations with the FBO and various airport users, there is support for an AWOS. Thus, an AWOS is recommended to be installed at the airport. The Development Alternatives chapter will discuss the various locations where a system can be located.

4.5 LANDSIDE FACILITY REQUIREMENTS

As presented in Chapter 3, the capacity, condition, and functionality of the various airport facilities were examined in relation to the anticipated aviation demand in order to identify future facility needs. Landside facilities are an important aspect of any airport as they handle aircraft and passengers while on the ground at the airport. Landside facilities serve as the processing interface between two modes of transportation— air and ground. Likewise, landside facilities also offer travelers the first impression of the airport and the local community.

4.5.1 TERMINAL BUILDING

The terminal building at general aviation airports typically offers various amenities to passengers, local and transient pilots, and airport management. Terminal buildings (often called pilot lounges at general aviation airports) most often house public restrooms, public telephones, a pilot lounge area, and information regarding airport services. The existing terminal building at the Cochise County Airport is utilized by the Airport's Fixed Base Operator (FBO) and transient or local aircraft operators. It is recommended that an airport's terminal building be able to satisfy the forecasted peak hour general aviation pilot and passenger demand.

The accepted methodology used to project terminal building facility needs for general aviation airports is based on the number of airport users anticipated to use the facility during the design hour. The design hour is typically defined as the peak hour of an average day of the peak month. The design hour measures the number of passengers departing or arriving on aircraft in an elapsed hour of a typical busy (design) day. Estimating design hour passengers is typically a three-step process which involves the following:

- Determine the peak month,
- Determine the design day to be used, and
- Estimate the amount of daily activity (operations) that occurs in the design hour.

The number of peak hour passengers and pilots was derived by assuming 3.4 passengers and pilots per design hour operation. The terminal function size is based on providing 150 square feet per peak design hour. This process is applied to both the existing (base year) conditions as well as activity in future years. **Table 4-8** depicts the terminal building requirements.

Table 4-8 General Aviation Terminal Building Requirements

Year	Design Hour Operations	Peak Hour Pilots and Passengers	Terminal Function Size (sf)
2013	7	24	3,600
2018	8	27	4,000
2023	8	28	4,200
2028	9	31	4,650
2033	9	32	4,800

Source: ACI, 2013

As described in Chapter 2, the existing terminal building is approximately 2,250 square feet. As shown in **Table 4-8**, the existing terminal building may not be adequately sized for the forecasted activity. The FBO has also expressed some concern about the building's overall condition. Therefore, the County should consider either renovating or building a new terminal building in the planning period. The Development Alternatives chapter will consider various terminal concepts and present additional recommendations.

After the terminal building is renovated, and/or relocated, a recycling program should be put in place to reduce the solid waste that will be generated. The program should also be suggested as a requirement for each tenant. The County should also make sure that the dumpsters for the terminal building are adequately sized and coordinated with tenant activities to keep the overall number of dumpsters to a minimum, thereby reducing the waste haulers maneuvers and emissions on airport property. Energy efficient exterior lighting which meets the County's light pollution code should also be installed to enhance safety and reduce energy costs.

4.5.2 HANGAR FACILITIES

Prefabricated conventional and T-hangar units are available from a variety of manufacturers throughout the nation. Storage space for based aircraft was determined using guidelines suggested in manufacturer's literature. Typical aircraft sizes were also reviewed in light of the evolution of business aircraft sizes.

Conventional hangar standards:

- 1,200 square feet for single-engine aircraft
- 1,400 square feet for multi-engine aircraft
- 1,800 square feet for turboprop or turbojet aircraft

T-hangar standards:

- 1,400 square feet for single- and multi-engine aircraft

The above hangar criterion was applied to the based aircraft forecasts to determine the actual hangar area requirements for each hangar type. **Table 4-9** depicts the assumptions that were made regarding the type of hangar needed for each type of aircraft.

Table 4-9 Breakdown of Aircraft Storage Types

Percent of Aircraft Type	Type of Storage
100% of turbojet	Conventional hangar
55% of multi-engine	Conventional hangar
35% of multi-engine	T-hangar
10% of multi-engine	Parking apron
20% of single-engine	Conventional hangar
60% of single-engine	T-hangar
20% of single-engine	Parking apron

Source: ACI, 2013

Using the above criterion, combined with consideration of the potential fleet mix, **Table 4-10** depicts the demand requirements for hangar space at Cochise County Airport. It should be noted that these requirements are not rigid, meaning that shifting of the space requirements between conventional and T-hangars is something that the County will need to consider as operations fluctuate and the need to satisfy user's specific requirements are identified.

The airport is likely to need additional T-hangars and conventional hangars in the planning period. Based on the data illustrated in **Table 4-10**, the expected growth of based aircraft will likely drive the need for additional hangars, but as previously mentioned, the shifting of the space requirements between conventional and T-hangars is something that is driven by the specific needs of the users. The Development Alternatives chapter will consider various hangar configurations to maximize the use of the existing hangars, and also determine the best course of action regarding any remaining hangars.

Table 4-10 Aircraft Hangar Requirements

	Year				
	2013	2018	2023	2028	2033
Based Aircraft	25	27	28	30	31
Total Aircraft to be Hangared (approximately 70%)	18	19	20	21	22
T-hangared Aircraft (approximation)	10	11	12	12	13
Conventional Hangared Aircraft (approximation)	8	8	8	9	9
Hangar Size Requirements					
T-hangars (sf) ¹	16,225	15,400	16,800	16,800	18,200
Conventional Hangars (sf) ¹	13,600	12,000	12,000	14,000	14,000
Total Hangar Storage (sf)	29,825	27,400	28,800	30,800	32,200

Note. Hangar development will depend on actual demand.

¹An average of 1,500 square feet was used to approximate the required space.

Source: ACI, 2013

4.5.3 AVIATION FUEL FACILITIES

As discussed in Chapter 2, there are currently two fuel storage tanks on the Airport that are owned by the County and are operated by the airport FBO. Each fuel tank has a capacity of 10,000 gallons; 100LL AvGas and Jet A are available. A self-service system with a credit card reader is not currently available, but is recommended. Self-service fueling capabilities are becoming more of an expectation by pilots using small GA airports.

Additional fuel storage capacity should be planned when the airport is unable to maintain an adequate supply and reserve. For general aviation airports such as Cochise County Airport, typically a 14 day supply is common. If the need for additional fuel storage becomes necessary, additional tanks should be added in 10,000 or 12,000 gallon increments. These increments will be the most economical to install.

4.5.4 AIRPORT ACCESS AND VEHICLE PARKING

Cochise County Airport is located approximately four miles southwest of the City of Willcox, and can be accessed by heading north on Taylor Road from I-10. The main airport access road is Vista Avenue. The two lane access road enters the airport which leads to the gravel vehicle parking lot, adjacent to the airport terminal/FBO building. The parking area can accommodate approximately 20-25 vehicles. It is recommended that an airport's vehicle parking be able to satisfy the forecasted peak hour general aviation pilot and passenger demand. Using planning methods commonly accepted for calculating parking space requirements, **Table 4-11** depicts the vehicle parking space requirements for the 20-year planning period. If the County experiences periods where additional parking is warranted, there is sufficient space near the terminal building to expand the parking area as necessary.

Table 4-11 Vehicle Parking Requirements

Year	Parking Space Requirements	Parking Lot Requirements ¹ (sy)
2018	27	945
2023	28	980
2028	30	1,050
2033	31	1,085

Note. Parking space requirements = forecasted based aircraft

¹Each parking space = 35 square yards

Source: ACI, 2013

Based on the vehicle parking requirements, the existing size of the parking area may need to be expanded during the planning period. As noted in the Inventory chapter, the gravel parking area is in fair condition and has drainage issues after heavy rain. Recommendations to improve the parking area in the short-term include possibly replacing the gravel with a packed aggregate base or something similar to eliminate the standing water and mud issues; parking spaces and the pathway to the doorway should be better defined, and the vegetation in the area should be better maintained.

4.5.5 FENCING

According to FAA AC 150/5300-13A, *Airport Design*, the primary purpose of airport fencing is to restrict inadvertent entry to the airport by unauthorized people and wildlife. There are several types of airport fencing that are eligible for FAA funding as part of the AIP program depending on the airport's classification (commercial service, GA, etc.) and fencing needs. The different types include wire fencing (with wooden or steel posts), chain-link fencing with steel posts, and wildlife deterrent fencing. Wildlife deterrent fencing usually consists of installing chain-link fence fabric along an existing chain-link fence and constructing concrete pads at existing fence gates.

The Airport has a five-strand barbed wire fence with steel posts around the perimeter. The fencing encompasses the entire airport property and appears to be in good condition. The existing perimeter fencing is currently adequate for the needs of the Airport; however, the County may want to consider an

upgrade to either six-foot or eight-foot high chain-link fencing with three-strand barbed wire in the future. If wildlife in the area becomes an issue, wildlife deterrent fencing may also be an option. The specific location, extent, type, and height of wildlife deterrent fencing shall be designed for the purpose intended based on and in general conformance with accepted guidelines and recommendations of the Arizona Game and Fish Department or other recognized public wildlife specialists for preventing intrusion of the specific targeted animals known to inhabit the area.

As previously mentioned in Chapter 2, the Airport has a small, two and a half-foot high metal barrier-type “fence” with one steel, manually-operated access gate which prohibits vehicular access to the AOA (Air Operations Area). Although this barrier may prevent most vehicle access to the AOA (some gaps in the barrier do exist in which a vehicle could fit through), it does not prevent human or wildlife from accessing the AOA. This barrier-type of fencing is not considered ideal for use at airports. The Airport is not required to have security fencing in place to separate the AOA from the landside portions of the airfield because it does not conform to FAR Part 139 and Title 49 CFR, Part 1542. However, in order to enhance safety on the airfield and prevent unauthorized access to aircraft and other airside facilities, it is recommended that chain-link fencing and electrified, mechanical access gates be installed in the vicinity of the terminal and other nearby public areas.

4.5.6 SECURITY

There are several programs designed to increase general aviation airport security. For example, the Aircraft Owners and Pilots Association (AOPA) Airport Watch program created an around the clock telephone hotline answered by federal authorities for pilots to report suspicious activity at GA airports. Also, the Transportation Security Administration’s (TSA) *Security Guidelines for General Aviation Airports* provides a set of federally-endorsed recommendations to enhance security for municipalities, owners, operators, sponsors and other entities charged with oversight of general aviation airports. The TSA's guidance provides nationwide consistency with regard to security at general aviation facilities, as well as a rational method for determining when and where these enhancements may be appropriate based upon the operational profile of differing airports. The guidelines offer an extensive list of options, ideas, suggestions and proven best practices for the airport operator, sponsor, tenant and/or user to choose from when considering security enhancements. The TSA's guidelines are updated and modified as new security enhancements are developed and as input from the general aviation community is received. It is recommended that Cochise County review the latest version of the TSA’s *Security Guidelines for General Aviation Airports* in order to assess the security needs, if any, at Cochise County Airport.

4.5.7 AIRCRAFT RESCUE AND FIRE FIGHTING (ARFF) EQUIPMENT

Airport Rescue and Fire Fighting (ARFF) equipment is not required at airports that do not have scheduled passenger service with 10 or more passenger seats (Part 139 certificated airports). Cochise County Airport is not a Part 139 certificated airport, thus ARFF equipment is not required. Local municipal or volunteer fire departments typically provide fire protection to general aviation airports in their district. Mutual aid agreements may also be provided and developed with nearby fire departments to assist in emergency situations. In any case, procedures should be in place to ensure emergency response in case of an accident or emergency at the airport. Although statistically very safe, the most likely emergency situations at general aviation airports are an aircraft accident, fuel or aircraft fire, or a hazardous material (fuel) spill. The level of protection recommended in FAA AC 150/5210-6D, *Aircraft Fire and*

Rescue Facilities and Extinguisher Agents, for small general aviation airports is 190 gallons of aqueous film forming foam (AFFF) supplemented with 300 pounds of dry chemical. Proximity suits should be utilized for fire fighter protection. Aviation rated fire extinguishers should be immediately available in the vicinity of the aircraft apron and fueling facilities. It is recommended that the Willcox Rural Fire Department maintain compliance with the recommendations contained in FAA AC 150/5210.6D, *Aircraft Fire and Rescue Facilities and Extinguishing Agent*, if they are currently noncompliant.

4.5.8 AIRPORT SUPPORT AND MAINTENANCE BUILDING

As mentioned in the Inventory chapter, a small wood-framed, metal-sided airport support and maintenance equipment building is located near the fuel facility. The building is in fair condition. Also, the only large piece of equipment on the airfield is an older model diesel tractor used for mowing, and it is also in fair to poor condition. It is recommended that the equipment building be replaced in the short-term planning period and possibly relocated to a different area of the airfield. The Development Alternatives chapter will provide more details as to where the building could be relocated to. The tractor should be evaluated to determine if it has reached the end of its useful lifecycle. If the County deems the tractor has in fact reached the end of its useful life, it should be replaced in a timely fashion.

4.6 INFRASTRUCTURE NEEDS

The existing electric, water, and telecommunication utilities are considered adequate for the existing facility. Upgrades and improvements to the existing utilities are recommended, as needed, in order to accommodate recommended development. The need for additional utilities, or modifications to existing utilities, will be evaluated in more detail in the Development Alternatives chapter, if applicable.

4.7 LAND USE COMPATIBILITY AND CONTROL

As previously discussed in Chapter 2, Section 2.14, 14 CFR Part 77 establishes several imaginary surfaces that are used as a guide to provide a safe and unobstructed operating environment for aviation. In addition to ensuring that penetrations to these imaginary surfaces are avoided or appropriately marked and lighted, the FAA recommends that the airport sponsor make reasonable efforts to prevent incompatible land uses, such as residential encroachment, from developing in the immediate area of the airport. Many times this can be achieved by the municipality creating an airport overlay zone. It is recommended that the County consider creating an airport overlay zone to preserve compatible land uses around the airport. The Airport Layout Plan (ALP) drawing set will include a land use plan that will depict any recommended changes to the current land uses.

Private development proposals should also be reviewed to ensure compatibility in the vicinity of the airport. Land use compatibility considerations include safety, height hazards, and noise exposure. Although extremely rare, most aircraft accidents occur within 5,000 feet of a runway. Therefore, the ability of the pilot to bring the aircraft down in a manner that minimizes the severity of an accident is dependent upon the type of land uses within the vicinity of the airport.

Land use is reviewed in four zones surrounding the airport; the Runway Protection Zone (RPZ), the Approach Zone, Airport Influence Zone, and the Traffic Pattern Zone. The RPZ is a trapezoidal area extending beyond the ends of the runway and is typically included within the airport property boundary.

Residential and other uses that result in congregations of people are restricted from the RPZ. The approach zone generally falls within the 14 CFR Part 77 approach surface area. Within the approach zone, public land uses, such as schools, libraries, hospitals, and churches should be avoided. Any new residential developments should include avigation easements and disclosure agreements. The Traffic Pattern Zone is generally the area within one mile of the airport. Within the Traffic Pattern Zone, avigation easements should be considered for residential and public uses and disclosure statements should be required. The Airport Influence Zone is the area where aircraft are transitioning to or from enroute altitude or airport over-flight altitude to or from the standard traffic pattern altitude.

In addition, according to FAA Advisory Circular 150/5200-33B, *Hazardous Wildlife Attractants On or Near Airports*, landfills and/or transfer stations are incompatible land uses with airports. According to the FAA, these types of facilities should be located at least 5,000 feet from any point on a runway that serves piston type aircraft and 10,000 feet from any point on a runway that serves turbine powered aircraft. Furthermore, the FAA recommends that any facility which may attract wildlife (especially birds), such as sewage treatment ponds and wastewater treatment plants, should also be located this same distance from any point on the runway. Although not a designated land use, there is an area on airport property that has the potential to attract wildlife such as birds. This area is the storm water detention basin located approximately 1,500 feet southeast from the Runway 3 threshold. The detention basin is approximately two acres in size. The County should periodically monitor the detention basin to look for signs of wildlife and remain diligent to ensure future land use remains compatible with airport facilities.

4.7.1 AIRPORT PROPERTY

The existing airport property encompasses approximately 960 acres according to Cochise County property records. The existing Runway Protection Zone (RPZ) for Runway 3 is controlled by the County in fee simple. When reconstructed and reopened, the RPZs for Runway 14-32 will also be controlled by the County in fee simple. The majority of the RPZ for Runway 21 is controlled by the County, except for approximately 2.5 acres in the outer portion of the Runway 21 RPZ. It is recommended that the County acquire this land if feasible. It is not anticipated that any additional land will be required for the future development of the airport, although the Development Alternatives chapter will identify any needed land and/or avigation easements.

4.7.2 AIRPORT ZONING

Airport zoning ordinances should include height restrictions and land use compatibility regulations. Development around airports can pose certain hazards to air navigation if appropriate steps are not taken to ensure that existing, as well as future, buildings and other types of structures do not penetrate 14 CFR Part 77 imaginary surfaces.

The FAA recommends that airport sponsors implement height restrictions in the vicinity of the airport to protect all 14 CFR Part 77 imaginary surfaces. The existing airport is zoned accordingly for airport use and is considered to be adequate for the planning period. There are currently no incompatible land uses in the vicinity of the airport. The surrounding land uses and zoning are compatible with airport operations.

4.8 SUMMARY OF FACILITY REQUIREMENTS

The facility requirements for the Cochise County Airport are summarized in **Table 4-12**. The recommendations are based on the types and volume of aircraft currently using, and expected to use, the airport in the short- and long-term time frames. These recommended facilities will enable the airport to continue to serve its users in a safe and efficient manner. In the next chapter, Development Alternatives, various airside and landside improvements will be presented and evaluated, which will in turn lead to the recommended preferred development airside and landside alternatives for the Airport.

Item	Base Year (2013)	Short-Term	Medium-Term	Long-Term
Runways				
3-21				
Runway Design Code (RDC)	B-II	Same as existing		
Length (ft)	6,095	Recommend lengthening to 6,440		
Width (ft)	75	Same as existing		
Pavement Strength (lbs)	50,000 S, 75,000 D, 135,000 DT	Same as existing		
Lighting	MIRL	Same as existing		
Markings	Non-precision	Same as existing		
14-32				
Runway Design Code (RDC)	--	Recommend B-I (small)		
Length (ft)	6,100 (Closed)	Recommend reconstructing to 5,790 ¹		
Width (ft)	150 (Closed)	Reconstruct to 60		
Pavement Strength (lbs.)	Unknown	12,500 S		
Lighting	No	Install MIRL		
Markings	No	Visual		
Taxiways				
Taxiways (Existing and Planned)				
Taxiway Design Group (TDG)	TDG - 2	Same as existing		
Width (ft)	35	Same as existing		
Lighting	MITL	Same as existing		
Markings	Centerline	Repaint	Maintain	
Taxilanes (near T-hangars)				
Taxiway Design Group (TDG)	Non-standard	Recommend TDG - 1		
Width (ft)	Varies	Recommend 25		
Lighting	No	Install MITL	Maintain	
Markings	Centerline	Repaint	Maintain	
Navigational and Weather Aids				
AWOS	No	Install	Maintain	
Beacon	Yes	Replace	Maintain	
Approaches	Yes RNAV/GPS Runway 3-21	Same as existing		
Visual Aids				
Segmented circle	Yes	Replace	Maintain	

Table 4-12 Facility Requirements Summary Continued				
REIL	No	Install on Runways 3-21 & 14-32	Maintain	
PAPI	No	Install on Runways 3-21 & 14-32	Maintain	
Terminal²				
General Aviation (sf)	2,250	4,000	4,650	4,800
Hangars²				
T-hangars (sf)	16,225	15,400	16,800	18,200
Conventional (sf)	13,600	12,000	14,000	14,000
Total	29,825	27,400	30,800	32,200
Table 4-12 Facility Requirements Summary Continued				
Apron²				
Tie-down/transient (sy)	13,390	18,450	21,466	21,705
Vehicle Parking (spaces)				
GA Itinerant and Based Users	15	25	28	29
Public	8	2	2	2
Total	23	27	30	31
Fuel Facility				
Jet A (gal)	10,000	Same as existing		
AVGAS (100LL) (gal)	10,000	Same as existing		
Total (gal)	20,000	Same as existing		
Self-fueling/ Credit card reader	No	Install	Maintain	
Fencing				
Perimeter	Yes	Replace/Install	Maintain	
Abbreviations: S = Single-wheel landing gear, D = Dual-wheel landing gear, DT = Dual-tandem landing gear				

Note.¹ See Section 5.3.1 for ultimate recommendation of runway length of 4,170 feet due to RVR requirements. ²Terminal, hangar, and apron development will depend on actual demand.

Source: ACI, 2013

CHAPTER FIVE
DEVELOPMENT ALTERNATIVES

COCHISE COUNTY
COCHISE COUNTY AIRPORT
AIRPORT MASTER PLAN





CHAPTER 5 – DEVELOPMENT ALTERNATIVES

5.1 INTRODUCTION

This chapter contains the description and evaluation of various development alternatives for the Cochise County Airport. The basis for the airside and landside alternatives were derived from the recommendations contained in the Facility Requirements chapter.

According to FAA AC 150/5070-6B, *Airport Master Plans*, each identified alternative's technical feasibility, economic and fiscal soundness, and aeronautical utility should be examined. Ultimately, development alternatives will only be considered that meet the County's planning needs and those that the FAA or County will be realistically able to implement.

5.2 DEVELOPMENT CONCEPTS

The overall objective of the alternatives analysis is to 1) review the facility requirements that have been determined necessary to meet FAA design standards, and to safely and efficiently accommodate aviation demand over the planning period and 2) evaluate the best way to implement the facility requirements as presented in Chapter 4.

A range of airside and landside alternatives are typically created and evaluated in both a quantitative and qualitative manner for implementing the different facility requirements. In other instances where less robust development is anticipated, the selection of a preferred development plan can result from a more logical evaluation of the various options resulting from discussions with the sponsor, Technical Advisory Committee (TAC), and input from the public.

The following best planning tenets, as recommended in FAA AC 150/5070-6B, *Airport Master Plans*, apply to the evaluation of the development alternatives:

- Conforms to best practices for safety and security.
- Conforms to the intent of FAA and other appropriate design standards.
- Provides for the "highest and best" land use on and off airport.
- Allows for forecast growth throughout the planning period.
- Provides for growth beyond the planning horizon.
- Provides balance between developmental elements.
- Provides flexibility to adjust to unforeseen changes.
- Conforms to the airport owner's strategic vision.
- Conforms to relevant local, regional, and state transportation plans.
- Is technically and financially feasible.
- Is socially and politically feasible.
- Satisfies user's needs.

After evaluating the demonstrated needs in a qualitative manner, the future development needs and recommendations are presented herein for implementing the facility requirements described in Chapter 4.

A combination of effective airside and landside planning is essential to the successful development of the airport. Airside components for the most part include areas of the airfield where aircraft takeoff or land, taxi, and park. Landside components generally consist of a system of buildings, fueling facilities, roadways, and vehicle parking areas.

An alternative for Cochise County involving both the airside and landside portions of the Airport is a scenario where no improvements, alterations, or enhancements are made to the airfield at all, i.e. the airport remains in its current state with the existing airfield configuration and existing facilities. This would be considered a no-action alternative for development at the airport. However, over the last decade, the FAA, ADOT, and the County have made a continuous investment in the airport infrastructure. To preserve the infrastructure and to ensure that additional federal funding is received, it is in the best interest of the County to maintain the airport and make any necessary improvements.

5.3 AIRSIDE DEVELOPMENT

Airside development is typically the most critical and physically dominant feature of airport development and therefore a focal point of an airport's planning process. This section discusses the airside development alternatives and addresses the needs of the existing and future aviation demand identified in Chapter 4, Facility Requirements.

Alternative Considerations – Airside Development

- Maintain FAA design standards for RDC B-II
- Extension of Runway 3-21 by 345 feet
- Addition of crosswind runway and bypass taxiways
- Maintain FAA design standards for TDG 2
- Correction of non-standard taxilane configuration adjacent to the existing terminal building
- Removal of non-standard taxiway configuration (Taxiway A2 and Taxiway C) and construction of approximately 500 x 25 foot portion of the future crosswind runway parallel taxiway
- Identify areas to expand the existing aircraft parking apron
- Address the non-standard separation between the T-shade structure and T-hangar

5.3.1 RUNWAY DEVELOPMENT

As previously identified in Table 4-5, a 345-foot extension to Runway 3-21 is recommended in the planning period. If implemented, the extension would ultimately make Runway 3-21 6,440 feet long.

Two alternatives and one additional concept were initially evaluated when considering the proposed lengthening to Runway 3-21. After discussions with Cochise County, the two leading alternatives are described below and illustrated on **Exhibit C**.

- Alternative 1: No-action
- Alternative 2: Extend Runway 3 to the southwest by 345 feet

Alternative 1: The no-action alternative represents a scenario where the Runway 3 is not extended at all and remains in its current configuration.

Alternative 2: This alternative extends the Runway 3 end by 345 feet. The runway extension would also include constructing a parallel taxiway and associated edge lighting. The future RPZ will remain entirely on existing airport property, therefore, no additional land would need to be acquired for this alternative. The concept of extending Runway 21 to the northeast was dismissed because of the need to acquire non-airport owned land northeast of the airport. An extension to the northeast would place the future RPZ on private property. FAA recommends that airport sponsors control all land within a RPZ by either a fee simple or avigation easement. Therefore, the concept of extending to the northeast was dismissed from further consideration primarily because no additional land is needed for Alternative 2 as described above.

As identified in Chapter 4, Facility Requirements, there is adequate justification based on wind coverage to re-open Runway 14-32. Interest from airport users regarding the re-opening of Runway 14-32 has also been expressed to airport and County personnel. Alternatives were not developed for constructing a crosswind runway in a different location on the airfield other than where the closed runway is currently located. From a cost perspective, it is believed that the existing base material could be salvaged (although no subsurface investigations have been performed as part of the master plan) and re-used as the foundation for the pavement structure of a new runway. Likewise, the ground that Runway 14-32 is located on was previously disturbed during the initial construction of the runway; thus, less environmental impacts would result by having the runway remain in its current location. Finally, as previously mentioned in the Inventory and Facility Requirements chapters, the existing runway configuration does not provide for the recommended wind coverage of at least 95 percent for A-I, A-II, B-I, and B-II aircraft per FAA design standards. The addition of Runway 14-32 on the airfield would result in combined wind coverage of 98.5 percent at 10.5 knots, and 99.7 percent at 13 knots for these types of aircraft.

The Facility Requirements chapter recommends that Runway 14-32 be re-opened to a length of 5,790 feet. According to FAA AC 150/5300-13A, *Airport Design*, providing a crosswind runway requires that the line of sight, also referred to as the Runway Visibility Zone (RVZ), between intersecting runways be reviewed. The analysis of the RVZ reveals that Runway 14-32 cannot be re-opened at a length of 5,790 feet without significantly impacting the existing and recommended development within the terminal area. Therefore, a reduced runway length of 4,170 feet is recommended which will meet the forecasted needs of 75 percent of the small airplanes expected to use the crosswind runway as depicted in **Table 4-6** and will keep the RVZ clear of obstructions.

Between the alternatives considered, Alternative 2 is recommended because it addresses the demonstrated needs of the airport for the planning period by enhancing airfield safety, and it is considered to be the most reasonable development alternative. The recommended runway length of 4,170 feet and the location for Runway 14-32 is illustrated on **Exhibit C** at the end of this chapter.

5.3.2 TAXIWAY DEVELOPMENT

The reconstruction of the closed portion of Taxiway A from the mid-point of the airfield to the end of Runway 3 (referenced in Chapter 2) is currently in discussion with the FAA. If approved and constructed, Taxiway A will become a full parallel taxiway to Runway 3-21. It is anticipated that the new portion of taxiway will be designed and constructed sometime in 2015.

Removal of the connector taxiway (designated as Taxiway C on the 1997 approved ALP) located approximately mid-field is recommended. The taxiway allows aircraft to taxi from the existing aircraft parking apron directly to the intersection of Runway 3-21 and the closed crosswind Runway 14-32. The connector taxiway is not at a right angle, but rather at an acute angle to both runways. The pavement of this connector taxiway has severely deteriorated, and in fact is not currently in use because of its poor condition. Removal of this connector is recommended to improve airfield efficiency and reduce the potential for incursions. In addition, Taxiway A-2 in its current location intersects with Taxiway C (although it is hardly visible where the two pavements meet because of the condition of Taxiway C) and also allows aircraft direct access from the apron to Runway 3-21. It is recommended that Taxiway A-2 be removed and reconstructed in the location illustrated on **Exhibit D** found at the end of this chapter. The reconstruction of Taxiway A-2 in the location shown serves two purposes. First, the newly constructed portion would be located to the west of the aircraft apron area, accessible via Taxiway A, which will alleviate the direct aircraft access from the apron safety issue. Secondly, this new location has been suggested because it is in line with the recommended location for the construction of the future crosswind runway (Runway 14-32) parallel taxiway. Should the parallel taxiway for Runway 14-32 ever be constructed, a 500 x 25 foot portion would have already been constructed in this location. It is recommended that the removal of both taxiways and the construction of Taxiway A-2 in its suggested new location be completed in the short-term planning period. As mentioned in Chapter 4, all newly planned and constructed taxiways should meet TDG 2 design standards.

As discussed, it is recommended Runway 14-32 be re-opened in the short-term planning period. If re-opened, a bypass taxiway at both ends of Runway 14-32 is recommended to be constructed at the same time. If warranted by increased operations, a full parallel taxiway could be constructed later in the planning period, essentially connecting to the two bypass taxiways. Bypass taxiways and a parallel taxiway for Runway 14-32 should be constructed to meet RDC B-I (small) and TDG 2 design standards.

5.3.3 AIRCRAFT APRON

Based on the recommendations from Chapter 4, Facility Requirements, the size of the existing aircraft apron is not considered adequate for the planning period. Apron configurations were developed to represent where additional aircraft apron space could be constructed and are depicted on **Exhibit D**. Additional apron may be needed in the future due to unanticipated growth and/or other circumstances that presently cannot be accurately predicted. Thus, the County should monitor the utilization of the apron and make adjustments in the apron size as needed throughout the planning period. Likewise, as presented in Chapter 2, portions of the existing apron are in fair to poor condition and will require either rehabilitation or reconstruction in the planning period.

5.3.4 AIRFIELD LIGHTING AND SIGNAGE

The existing taxiway lighting on the two connector taxiways (Taxiway A-1 and A-2) are direct burial LED Medium Intensity Taxiway Lights (MITL). The remaining portion of Taxiway A is unlit as discussed in Chapter 2. There are two alternatives being considered for the future lighting/markings of airfield taxiways. The first alternative consists of installing base mounted MITL with conduit along any new taxiways. The options for taxiway edge light fixtures include either incandescent bulbs or light emitting diodes (LEDs). The second alternative includes installing retro-reflectors along any new taxiways. This method of marking is inexpensive and requires little in the way of construction or maintenance.

However, the downside is retro-reflectors are not as easily seen by pilots as MITL are. It is recommended that any new taxiway have MITL installed.

To improve the utility and reliability of Runway 14-32, it is recommended that Medium Intensity Runway Lights (MIRL) be installed when the runway is paved. The type of fixture (incandescent or LED) is a choice that should be made during the design phase.

For both the MITL and MIRL, preference is given to LED base mounted fixtures with conduit as they will significantly reduce the County's energy costs and have superior light quality over incandescent bulbs. LED fixtures for taxiways and runways (MIRL only) are FAA approved. It is important to note that LED fixtures do have higher initial costs. During the design phase of a lighting project, the County along with the FAA and the design engineer can evaluate what type of light fixture (incandescent or LED) best meets the needs of the County.

The Inventory and Facility Requirements chapters briefly discussed the condition of some of the airfield signage and made recommendations for replacement and/or new installation where signage currently does not exist. In the short-term, it is recommended that the County replace the retro-reflective and lighted airfield signs which were identified in the Inventory chapter as being in fair to poor condition. In the medium- to long-term planning period, as new taxiways are constructed/re-constructed and MITL are installed on the taxiways, it is recommended that lighted signage also be installed at the same time and all retro-reflective signage be removed.

Other airport signage that is not considered airfield signage (airport entrance sign, for example) may be added and/or removed as the County sees fit. If chain-link fencing and access gates in the terminal and surrounding areas are installed at some point in the planning period, the corresponding landside signage would be installed as part of the that fencing project.

5.3.5 MISCELLANEOUS DEVELOPMENT PROJECTS

The alternatives drawings also depict the preferred location for the following recommended airfield improvements:

- Replacement of rotating beacon and self-supporting tower
- Installation of a Precision Approach Path Indicator (PAPI) at each end of Runway 3-21 and Runway 14-32
- Installation of Runway End Identifier Lights (REIL) at each end of Runway 3-21 and Runway 14-32
- Replacement of lighted wind cone and segmented circle
- Installation of an aircraft wash pad

5.4 LANDSIDE DEVELOPMENT

Landside development is an important aspect of a well functioning airport. This section discusses the landside development alternatives and addresses the needs of the existing and future aviation demand identified in Chapter 4, Facility Requirements.

Alternative Considerations – Landside Development

- Areas to relocate the existing terminal building and caretaker facility, as required
- Areas to construct additional aircraft hangars and storage
- Expansion of vehicle parking areas
- Relocation of existing fuel facility, as required
- Locations for aeronautical and non-aeronautical related revenue generating parcels

5.4.1 TERMINAL BUILDING

Terminal buildings provide visitors with a first impression of an airport. As discussed in Chapter 2, the airport terminal building at Cochise County Airport is in fair to poor condition. At a minimum, until a new building can be constructed, the building should be repaired or renovated to ensure that it meets current codes, and any short-term needed improvements to the building should be considered.

The proposed development plan depicts a new location for the terminal building based on the findings of the facility requirements analysis, which concluded that the size of the existing terminal building is not adequate for the planning period. It is proposed that a new terminal building be constructed (approximately 4,800 square feet in size) north of its current location as depicted on **Exhibit D**. The new location would allow more room between the existing T-hangar and the terminal building. As presented in Chapter 2, Section 2.17.2, the existing space between the T-hangar and the terminal building does not meet the current Taxiway Design Group (TDG) 1 separation design standards or the proposed TDG-2 standards that have been proposed as the future design standard for the airfield. Relocating the terminal would resolve the TDG design standard issue, and also open up that area for future apron space if needed.

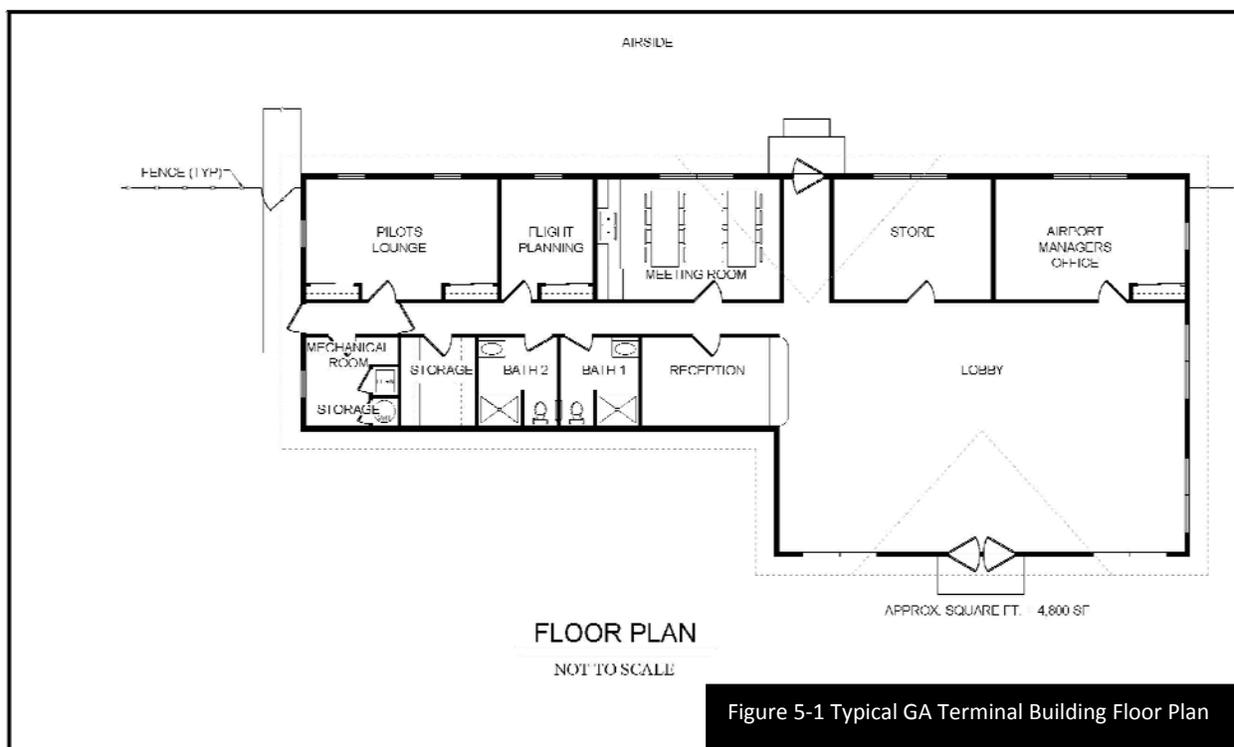
Figure 5-1 depicts a typical conceptual floor plan for a terminal building at a general aviation airport. The floor plan most suitable for Cochise County Airport would be developed in greater detail in the project design phase. In general, a terminal building for a general aviation airport should include the following:

- Pilot lounge
- Flight planning room
- Airport manager's office
- Meeting room
- Restrooms
- Common area/lobby
- Storage

Construction of the terminal building could be either conventional construction, pre-fabricated, or modular. Each building type has advantages and disadvantages and varying costs to consider. The new terminal building should be designed with at least a 20-year lifespan with minimal renovation and upgrades needed. Attention should be given in the design phase to ensure the building's functionality throughout the entire planning period is met. A new terminal building will also allow the opportunity to incorporate numerous sustainable features such as a high-energy efficient heating and cooling system, solar hot water, rainwater harvesting, LED lighting, drought tolerant landscaping, and the use of low VOC and recycled materials in the construction of the building. The demolition of the old terminal

building will provide an opportunity to donate any salvageable materials or fixtures to either the Tucson or Sierra Vista Habitat for Humanity organizations. Donating as much of the old building material as possible will reduce the amount that goes to the landfill.

The proposed dimensions of the new terminal building are relatively small; therefore, it is not recommended that the County seek a LEED (Leadership in Energy & Environmental Design) rating on the new building. However, steps should be taken to ensure the building is designed to LEED guidelines as much as practical. Seeking a LEED rating on a new building is more practical for larger buildings (25,000 square feet or more) due to the cost of administering the LEED rating process.



Source: ACI, 2014

5.4.2 HANGAR DEVELOPMENT

Hangar development is an important aspect at nearly every airport, including GA airports. When properly utilized, hangars are often a good source of revenue for the airport sponsor. As indicated by the facility requirements analysis in Chapter 4, the Airport is likely to need additional T-hangars (or shaded tie-downs) and conventional box hangars of various sizes (small, medium, and large) in the planning period. Furthermore, in order to address the taxilane separation design standards discussed in Chapter 2, alternative locations for the existing County owned T-hangar and shaded tie-down structure have been recommended. Likewise, several other locations on the airfield have been identified and reserved for hangar/shaded tie-down space to meet both current and long-term needs at the Airport.

An interesting concept that was brought forward by a member of the Technical Advisory Committee suggested the County look into leasing small plots of land to airport tenants wishing to build their own small box hangars. The idea is that the County can designate an area of the airfield for these small box hangars to be built, adopt a pre-approved lease agreement with standards for the box hangar construction, and then lease the land to the tenant over a pre-determined amount of time in a much more simplified process than what is currently in place. The suggested location for the existing T-hangar and shaded tie-down structure and the future land reserved for more hangar development if needed is illustrated on **Exhibit D**. The timing, size, and location of all future hangar development should ultimately be based on user demand.

5.4.3 AIRPORT SUPPORT AND MAINTENANCE

The support and maintenance building serves an important function for the Airport. The existing storage building at Cochise County Airport is not adequate for the planning period. It is recommended that a new 1,200 to 3,000 square-foot support and maintenance building be constructed. Alternative locations for a new airport support and maintenance building is shown on **Exhibit D**. The need to protect existing equipment, as well as future equipment, is crucial to the upkeep of the airfield and other areas of the airport.

5.4.4 RELOCATION OF FUEL FACILITY

Relocation of the existing skid-mounted fuel facility is necessary once the terminal building is relocated and additional apron is constructed. Fuel facilities should be located adjacent to the edge of pavement allowing access from the landside. **Exhibit D** illustrates the proposed new fuel facility location.

Besides the proposed relocation of the fuel facility, it is recommended that the fueling facility add a self-fueling option for airport users that need fuel outside of the normal business hours of the airport staff. This could be done by adding a credit card payment device at the fueling facility. In addition to the self-fueling option, it is also recommended that the County invest in a more sophisticated aviation fuel management and accounting software system in order to keep more accurate fuel sales data. Several companies in the aviation market provide this type of software and integrated systems, such as TouchStar, Varec FuelsManager, and MyFBO, just to name a few. The County should conduct research into the various software systems and select one that best meets their current and future needs for fuel sale tracking at the Airport. Both the credit card reader and the fuel sale tracking software are recommended to be implemented in the short-term planning period.

5.4.5 RELOCATION OF CARETAKER FACILITY

To accommodate the proposed development as depicted on **Exhibit D**, the existing caretaker facility would need to be relocated. It is proposed the caretaker facility be relocated to a new location on the airport property and continue to function as a caretaker facility in accordance with the current FBO lease agreement. The proposed new location of the caretaker facility is also illustrated on the Exhibit mentioned above.

5.4.6 EXPANSION OF VEHICLE PARKING AREA

By relocating the terminal building, reconfiguring and paving the vehicle parking area would be appropriate to enhance access for airport users and to provide convenient access to the new terminal building. As discussed in the Facility Requirements chapter, the overall size of existing parking area should be adequate for the planning period. As new hangars are constructed, the need for additional parking may be needed as shown on **Exhibit D**.

5.4.7 AERONAUTICAL/NON-AERONAUTICAL DEVELOPMENT

As previously mentioned in Chapter 2, the Airport encompasses approximately 960 acres. This is a more than adequate amount of land for today's existing aeronautical activities, as well as the forecasted aeronautical activities within the 20-year planning period. If and when the County decides to implement any of the alternative landside developments described above, namely the aircraft apron, hangar, and terminal building, the option to designate some parcels of land for revenue generating aeronautical use in this area also becomes available. Likewise, there is an abundance of unused land directly to the north, east, and southeast of the existing main airport development area that could be used for non-aeronautical development in the future should demand warrant it. This also assumes that the land to be developed will be approved for non-aeronautical use by the FAA and re-zoned as compatible land use adjacent to airports. Again, it is important that any redevelopment of the vacant land be compatible with the airport as defined by the FAA. The portions of land that have been designated for aeronautical and non-aeronautical uses are illustrated on **Exhibit C**.

5.4.8 MISCELLANEOUS DEVELOPMENT PROJECTS

The installation of enhanced perimeter fencing and associated gates along the existing airport boundary is recommended to restrict inadvertent entry to the Airport by unauthorized people and wildlife. In addition, chain-link fencing topped with three-strands of barbed wire and electric access control gates are recommend in the terminal area in order to separate the landside area from the air operations area (AOA).

FAA Advisory Circular 150/5220-16D, *Automated Weather Observing System (AWOS) for Non-Federal Applications*, describes the different types of AWOS and FAA Order 6560.20B, *Siting Criteria for Automated Weather Observing Systems* provides guidance on the siting of an AWOS. Based on the Order, a proposed AWOS site has been selected north of Runway 3-21 and east of the closed Runway 14-32. The AWOS will require power to be brought to the site for the various weather sensors. The AWOS also has a 500-foot diameter critical area surrounding the site which will need to be protected from development in order to provide accurate weather information. Based on the proposed AWOS location, the critical area will remain entirely on airport property eliminating the need to secure an easement on adjacent lands. The proposed location will also allow for the most direct route to an available power source. The closest power source is the existing airfield electrical building located approximately 2,000 feet away adjacent to the airport entrance road. An access road to the AWOS is also proposed to allow for the required maintenance of the AWOS.

5.5 ENVIRONMENTAL IMPACTS

The proposed development projects will likely cause limited short-term effects resulting from construction activities. These short-term construction impacts would not persist beyond the construction period, and no long-term impacts are expected as a result of the proposed development at the Airport. The proposed projects are not expected to exceed the significant impact threshold for the impact resource categories defined by FAA Order 5050.4B, *National Environmental Protection Act (NEPA) Implementing Instructions for Airport Projects* and FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*. The resource impact categories and potential environmental impacts are evaluated in Chapter 7, Environmental Overview.

5.6 DEVELOPMENT COSTS

The planning costs for the proposed development presented in this Chapter will be discussed in more detail in Chapter 8, Airport Development and Financial Plan. Development costs discussed in this Chapter are for planning purposes only, are based on 2014 dollars, and reflect level of magnitude costs. The costs in **Table 5-1** are derived from the consultant's knowledge of contactors, construction material suppliers, and work performed at comparable facilities. The costs presented are not intended to be the full range of costs associated with each project. Additional costs such as operating and maintenance are not included. The objective of quantifying construction costs is to aid the County in the decision making process. A recommended development phasing plan, along with refined probable costs, will be presented in Chapter 8.

5.7 ALTERNATIVE DEVELOPMENT SUMMARY

Development alternatives presented in this Chapter addressed both airside and landside needs for the planning period. Airside alternatives include a proposed extension to Runway 3-21 in order to meet design standards and to satisfy runway length recommendations presented in the Facility Requirements chapter. It is also recommended to re-open Runway 14-32 as the crosswind runway. Additionally, taxiway and runway lighting alternatives are suggested in order to enhance safety on the airfield, along with several other airside improvements. Landside alternatives include proposed hangar development locations, a new terminal building, a new maintenance support building, additional vehicle parking areas, and proposed areas for aeronautical and non-aeronautical development.

The recommended development alternatives will be carried forward and incorporated into the Airport Layout Plan (ALP) based on input that was gathered from the Sponsor (Cochise County), the FAA, and the Technical Advisory Committee (TAC) during a scheduled alternative development review meeting.

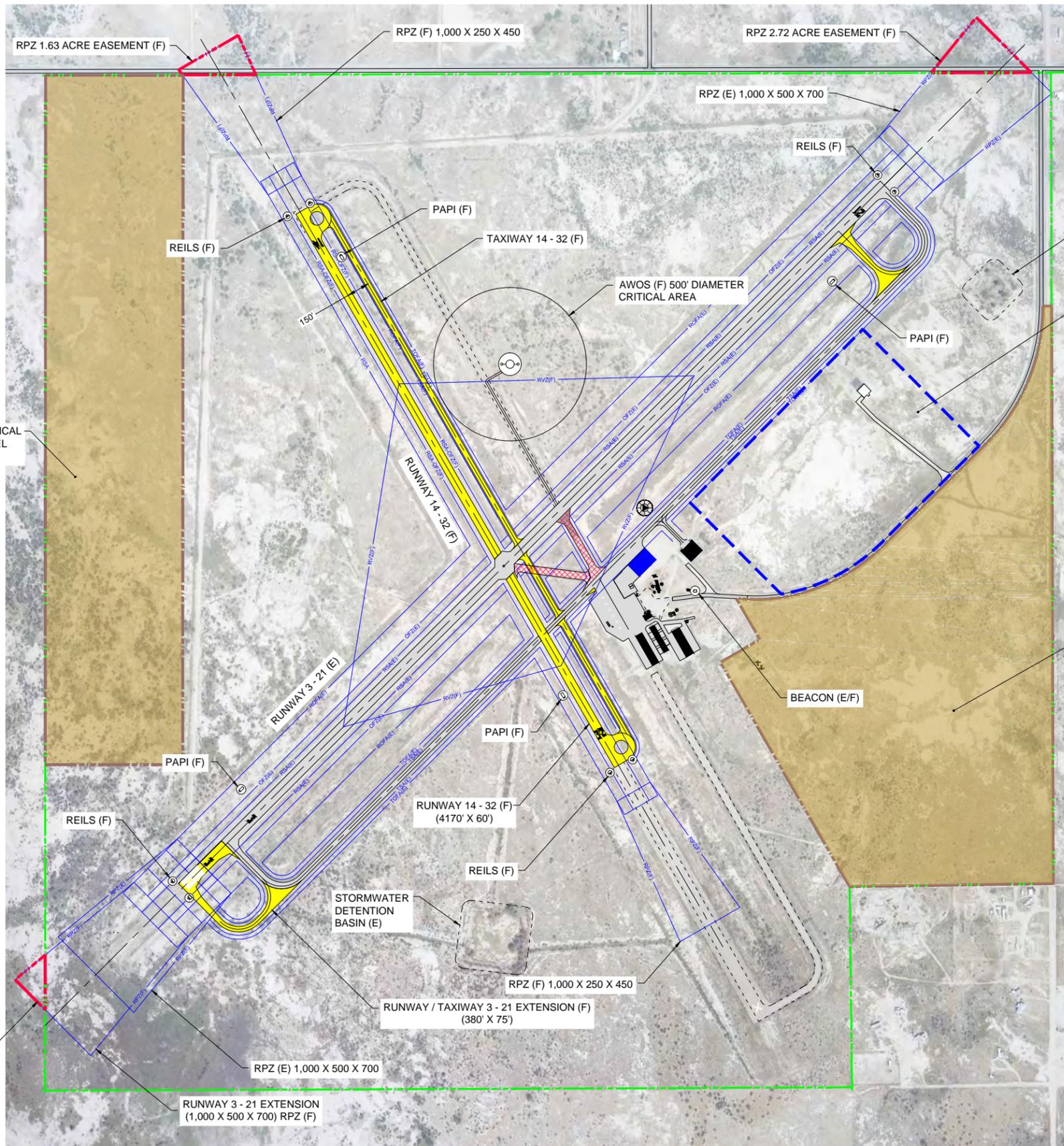
Table 5-1 Development Costs Summary

Development Feature	Project Description	Probable Costs (2014 dollars)
Runway 3-21 Extension	Extend Runway 3, construct parallel taxiway, install edge lighting and signage	\$600,000
Runway 14-32	Reconstruct Runway 14-32, install edge lighting and signage	\$3,000,000
Bypass Taxiway	Construct bypass taxiways on Runway 14-32, and install associated edge lighting and signage	\$250,000
Parallel Taxiway	Construct parallel Taxiway to Runway 14-32 and install edge lighting and signage	\$1,300,000
Remove Taxiway	Remove exit taxiway	\$35,000
Aircraft Apron	Construct aircraft parking apron and install edge lighting and signage	\$780,000
Fuel Storage Relocation	Relocate existing fuel storage facility	\$35,000
Fuel Facility Upgrade	Install a credit card payment device	\$20,000
AWOS	Install AWOS and associated power connection	\$300,000
Visual and Navigational Aids	Install REILs on Runway 3-21 and Runway 14-32 (both ends)	\$150,000
	Install PAPIs on Runway 3-21 and Runway 14-32 (both ends)	\$500,000
	Relocate wind cone and install segmented circle	\$65,000
	Replace rotating beacon and tower	\$80,000
Fencing	Install airfield perimeter fencing, gates, and appurtenances	\$500,000 ¹
Hangar Development	Construct aircraft storage hangars (average SF cost)	\$80 to \$100 per SF ²
Terminal Building	Construct new terminal building (average SF cost)	\$100 per SF ³
Airport Support and Maintenance Building	Construct new airport support and maintenance building	\$70 to \$90 per SF
Vehicle Parking	Construct vehicle parking	\$375,000

Note. ¹Fencing is based on an average cost of \$13 per linear foot; ² Hangar development will depend on actual demand; ³Cost includes demolition of existing terminal building and relocation of existing caretaker facility.

Source: ACI, 2014

THIS PAGE WAS INTENTIONALLY LEFT BLANK



FUTURE NON-AERONAUTICAL DEVELOPMENT PARCEL (APPROX. 93 ACRES)

RPZ EASEMENT 0.81 ACRES (F)

STORMWATER DETENTION BASIN (E)

FUTURE CORPORATE PARCELS (APPROX. 38.3 ACRES)

FUTURE NON-AERONAUTICAL DEVELOPMENT PARCEL (APPROX. 103.7 ACRES)

LEGEND

- FUTURE AIRFIELD PAVEMENT
- REMOVALS
- EXISTING BUILDINGS
- EXISTING PAVEMENT
- DEVELOPMENT PARCEL
- EXISTING AIRPORT PROPERTY LINE
- FUTURE AIRPORT PROPERTY LINE
- FUTURE CORPORATE PARCEL
- FUTURE AIRPORT PROPERTY EASEMENT
- FUTURE AWOS
- FUTURE REIL
- FUTURE PAPI
- FUTURE BEACON



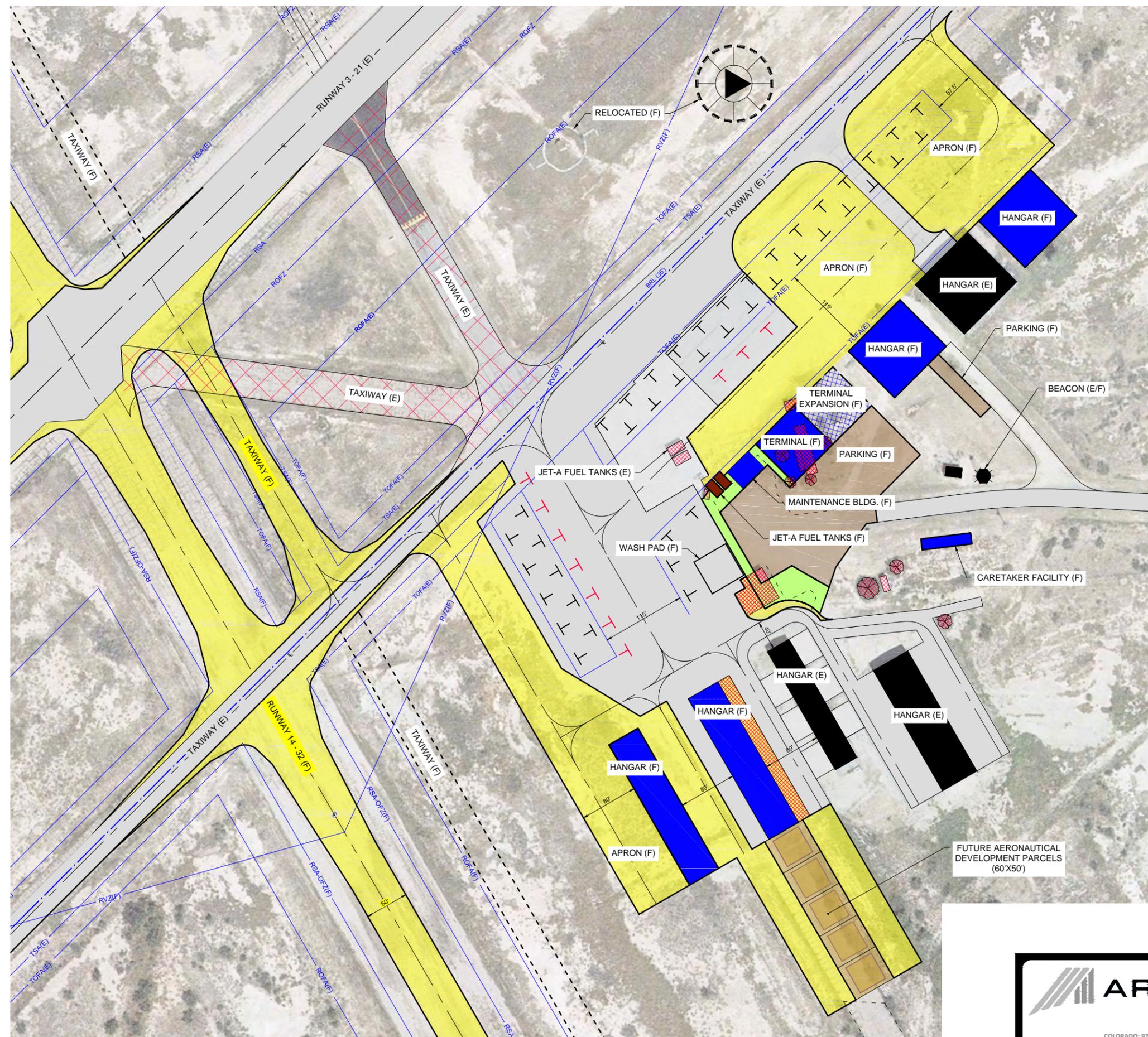
EXHIBIT C



ARMSTRONG
PLANNING ENGINEERING CONSTRUCTION

COLORADO: 970.242.0101 ARIZONA: 602.803.7079 NEW MEXICO: 505.508.2192
www.armstrongconsultants.com

Cochise County Airport Willcox, Arizona	
FUTURE AIRSIDE DEVELOPMENT	
SCALE: PER BAR SCALE	DATE: 03/2014
DRAWN: LDS	FILE: 6171601-AIRSIDE
CHKD: JPZ	JOB NO.: 136171



FUTURE TIEDOWNS: QTY. 41

LEGEND

- FUTURE BUILDINGS
- FUTURE AIRFIELD PAVEMENT
- FUTURE PARKING PAVEMENT
- FUTURE TURF
- DEVELOPMENT PARCEL
- REMOVALS
- EXISTING BUILDINGS (TO REMAIN)
- EXISTING PAVEMENT



EXHIBIT D



ARMSTRONG
 PLANNING ENGINEERING CONSTRUCTION

COLORADO: 970.242.0101 ARIZONA: 602.803.7079 NEW MEXICO: 505.508.2192
 www.armstrongconsultants.com

COCHISE COUNTY AIRPORT Willcox, Arizona	
FUTURE LANDSIDE DEVELOPMENT	
SCALE: PER BAR SCALE	DATE: 03/2014
DRAWN: LDS	FILE: 6171601-LANDSIDE
CHKD: JZP	JOB NO.: 136171

CHAPTER SIX
AIRPORT LAYOUT PLAN DRAWING SET

COCHISE COUNTY
COCHISE COUNTY AIRPORT
AIRPORT MASTER PLAN





CHAPTER 6 – AIRPORT LAYOUT PLAN DRAWING SET

6.1 AIRPORT LAYOUT PLAN DRAWING SET CONTENTS

This chapter contains the ALP drawing set. There are fourteen drawings, or sheets, which make up the entire set. The drawings within the set adhere to the guidelines set forth in the FAA's Standard Operating Procedures entitled *FAA Review and Approval of Airport Layout Plans (ALPs)* and *FAA Review of Exhibit 'A' Airport Property Inventory Maps* (ARP SOP 2.00 and 3.00). After the cover sheet, the remaining sheets include the following:

- Airport Layout Plan
- Airport Data Sheet
- Terminal Area Drawing
- 14 CFR Part 77 Airspace Drawing
- 14 CFR Part 77 Profile
- Runway 3 Inner Approach (Existing and Future)
- Runway 21 Inner Approach (Existing and Future)
- Runway 14 Inner Approach (Future)
- Runway 32 Inner Approach (Future)
- On Airport Land Use
- Off Airport Land Use
- Exhibit A Airport Property Inventory Map
- Aerial Photograph

COCHISE COUNTY AIRPORT WILLCOX, ARIZONA AIRPORT LAYOUT PLANS

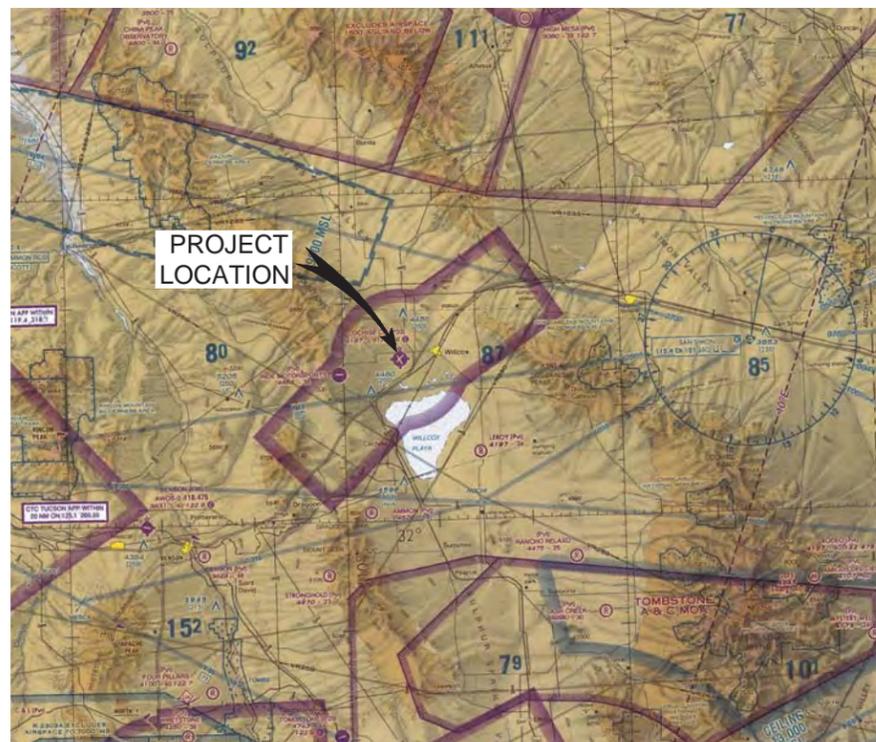
PREPARED BY:
ARMSTRONG CONSULTANTS, INC.

A.I.P. NO. 3-04-0049-004-2013
ADOT No. E4F3E
A.C.I. PROJECT NO. 136171
DATE: APRIL, 2015

INDEX TO SHEETS

DRAWING	SHEET	REVISION DATE
COVER SHEET	1	10/2014
AIRPORT LAYOUT PLAN	2	10/2014
AIRPORT DATA SHEET	3	10/2014
TERMINAL AREA DRAWING	4	10/2014
14 CFR PART "77" AIRSPACE DRAWING	5	10/2014
14 CFR PART "77" PROFILE	6	10/2014
RUNWAY 3 INNER APPROACH (E)(F)	7	10/2014
RUNWAY 21 INNER APPROACH (E)(F)	8	10/2014
RUNWAY 14 INNER APPROACH (F)	9	10/2014
RUNWAY 32 INNER APPROACH (F)	10	10/2014
ON AIRPORT LAND USE	11	10/2014
OFF AIRPORT LAND USE	12	10/2014
EXHIBIT "A" AIRPORT PROPERTY INVENTORY MAP	13	10/2014
AERIAL PHOTOGRAPH	14	10/2014

(E = EXISTING, F = FUTURE)

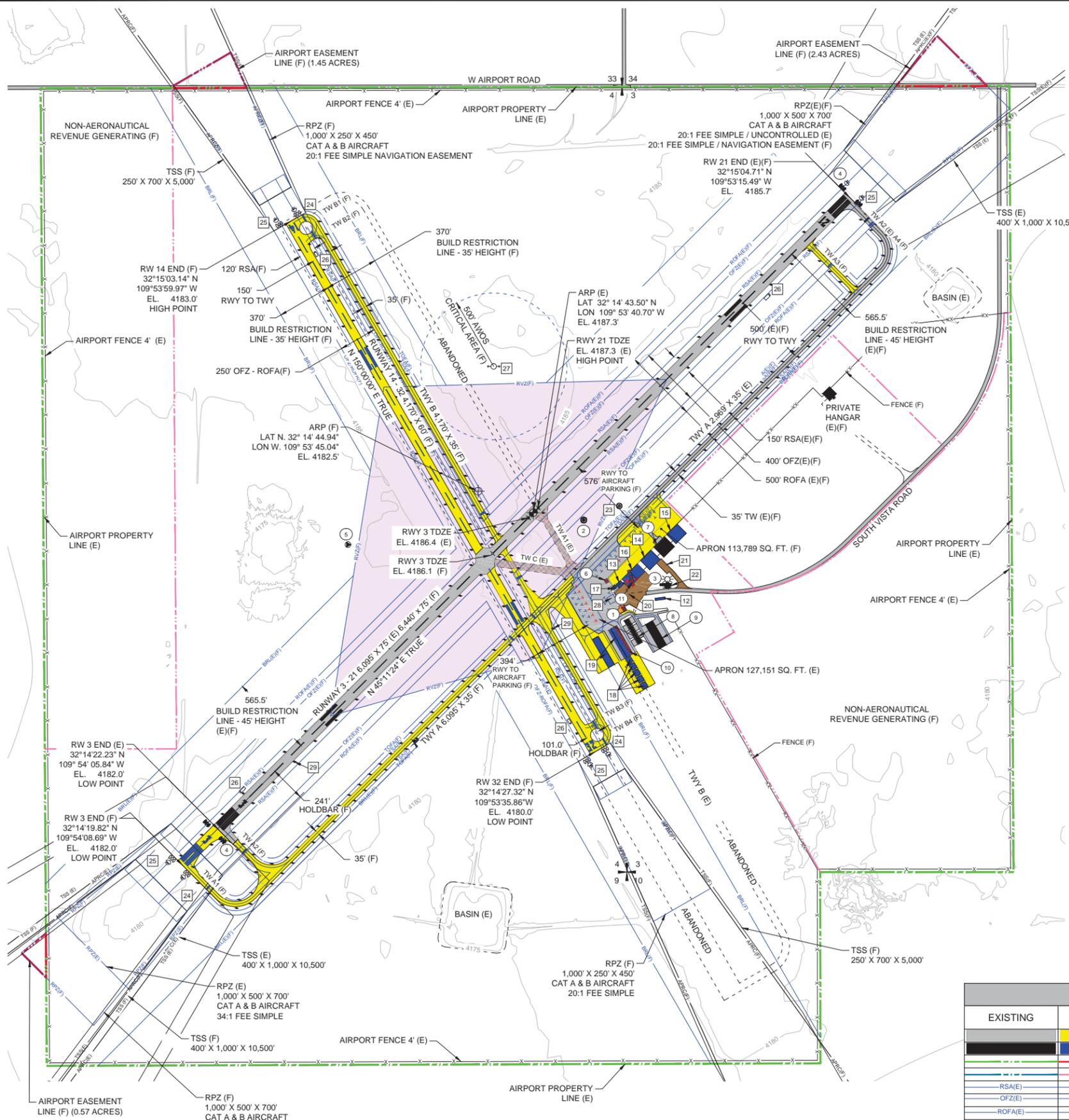


0	136171	11/2014	ORIGINAL ISSUE	6170501	LDS	CM	JZP
No.	Project No.	Date	Revision / Description	File	Drwn.	Chkd.	Apprvd.

THE PREPARATION OF THIS DOCUMENT MAY HAVE BEEN SUPPORTED, IN PART, THROUGH THE AIRPORT IMPROVEMENT PROGRAM FINANCIAL ASSISTANCE FROM THE FEDERAL AVIATION ADMINISTRATION AS PROVIDED UNDER TITLE 49 U.S.C. SECTION 47104. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THIS REPORT BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED THEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE OR WOULD HAVE JUSTIFICATION IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS.



COLORADO: 970.242.0101 ARIZONA: 602.803.7079 NEW MEXICO: 505.508.2192
www.armstrongconsultants.com



AIRPORT FACILITIES LIST				
NO.	EXIST.	FUT.	FACILITY DESCRIPTION	TOP ELEVATION (MSL)
1	○		TERMINAL	+/- 4205
2	○		LIGHTED WIND CONE/CIRCLE	+/- 4185
3	○		BEACON	+/- 4215
4	○		THRESHOLD LIGHT	+/- 4185
5	○		TETRAHEDRON	+/- 4185
6	○		FUEL FARM	+/- 4190
7	○		HANGAR	+/- 4205
8	○		T-HANGAR	+/- 4205
9	○		T-HANGAR	+/- 4205
10	○		T-HANGAR	+/- 4205
11	○		CARETAKER FACILITY	+/- 4200
12	○		CARETAKER FACILITY	+/- 4200
13	□		MAINTENANCE BLDG	+/- 4200
14	□		HANGAR	+/- 4205
15	□		HANGAR	+/- 4205
16	□		TERMINAL	+/- 4205
17	□		FUEL FARM	+/- 4190
18	□		HANGAR	+/- 4205
19	□		T-HANGAR	+/- 4205
20	□		AUTO PARKING	+/- 4185
21	□		AUTO PARKING	+/- 4185
22	□		BEACON	+/- 4185
23	□		LIGHTED WIND CONE/CIRCLE	+/- 4185
24	□		THRESHOLD LIGHT	+/- 4180
25	□		REILS	+/- 4180
26	□		PAPI	+/- 4185
27	□		AWOS	+/- 4185
28	□		WASH PAD	+/- 4185
29	□		EDGE LIGHTING	+/- 4187

FAA APPROVAL

SPONSOR APPROVAL

James E. Vlahovich, Deputy County Administrator Date

NOTES

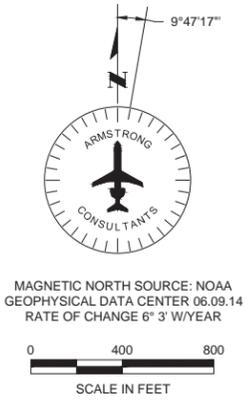
1. ALL LATITUDE/LONGITUDE COORDINATES SHOWN ARE 1983 NORTH AMERICAN DATUM (NAD 83).

ARMSTRONG
PLANNING ENGINEERING CONSTRUCTION

COCHISE COUNTY AIRPORT
WILCOX, ARIZONA

A.I.P. No. 3-04-0049-004-2013
AIRPORT LAYOUT PLAN

COLORADO: 970.242.0101 ARIZONA: 602.803.7079 NEW MEXICO: 505.508.2192
www.armstrongconsultants.com



LEGEND					
EXISTING	FUTURE	DESCRIPTION	EXISTING	FUTURE	DESCRIPTION
■	■	AIRFIELD DEVELOPMENT (ASPH/CONC)	●●●●●●	○○○○○○	THRESHOLD LIGHTS
■	■	STRUCTURE/FACILITIES (BUILDING)	■	■	REIL
—	—	PROPERTY LINE (APL) / EASEMENT	■	■	VASI/PAPI
—	—	LAND USE LINE	●	●	AIRPORT BEACON
—	—	RUNWAY SAFETY AREA (RSA)	○	○	WIND CONE & SEGMENTED CIRCLE
—	—	OBSTACLE FREE ZONE (OFZ)	○	○	AWOS
—	—	RUNWAY OBJECT FREE AREA (ROFA)	○	○	LIGHTED WINDCONE
—	—	RUNWAY PROTECTION ZONE (RPZ)	+	N/A	SECTION CORNER
—	—	BUILDING RESTRICTION LINE (BRL)	—	N/A	CONTOURS
—	—	TAXIWAY SAFETY AREA (TSA)	—	—	ROADS/PARKING
—	—	TAXIWAY OBJECT FREE AREA (TOFA)	—	—	MARKINGS
—	—	RUNWAY VISIBILITY ZONE (RVZ)	—	—	FENCING
+	+	AIRPORT REFERENCE POINT (ARP)	+	+	RUNWAY EDGE LIGHT
—	—	TO BE REMOVED	—	—	TAXIWAY EDGE LIGHT

3	2	1	0	13871	072014	ORIGINAL ISSUE	Revision / Description	File	Drwn.	Chkd.	Apprvd.

THE PREPARATION OF THIS DOCUMENT MAY HAVE BEEN SUPPORTED, IN PART, THROUGH THE AIRPORT IMPROVEMENT PROGRAM FINANCIAL ASSISTANCE FROM THE FEDERAL AVIATION ADMINISTRATION AS PROVIDED UNDER TITLE 49 U.S.C. SECTION 4710. THE PREPARATION OF THIS DOCUMENT DOES NOT CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT OR PROJECT DESCRIBED HEREIN. THE UNITED STATES GOVERNMENT ASSUMES NO LIABILITY FOR ANY DAMAGE OR LOSS OF ANY KIND, INCLUDING BUT NOT LIMITED TO, PERSONAL INJURY, PROPERTY DAMAGE, OR ECONOMIC LOSS, ARISING FROM THE USE OF THIS DOCUMENT OR THE INFORMATION CONTAINED THEREIN.

AIRPORT LAYOUT PLAN

Sheet: 2 of 14

RUNWAY DATA

ITEM	RW 3 / 21 - EXISTING (E)		RW 3 / 21 - FUTURE (F)		RW 14 / 32 - FUTURE (F)	
RUNWAY IDENTIFICATION	3	21	3	21	14	32
RUNWAY DESIGN CODE (RDC) / RUNWAY VISUAL RANGE (RVR)	B-II/5000	B-II/4000	B-II/5000	B-II/4000	B-I(S)/VIS	B-I(S)/VIS
DEPARTURE REFERENCE CODE (DPRC)	B-II/5000	B-II/4000	B-II/5000	B-II/4000	B-I(S)/VIS	B-I(S)/VIS
SURFACE MATERIAL, PAVEMENT STRENGTH & MATERIAL TYPE	SURFACE MATERIAL: ASPHALT		ASPHALT		ASPHALT	
	STRENGTH BY WHEEL LOADING (LBS)	21,500 DW	30,000 DW		12,500 SW	
	PCN (FOR BEARING STRENGTH OF 12,500 LBS OR GREATER)	7/F/C/W/T	N/A		N/A	
RUNWAY GRADIENT	SURFACE TREATMENT: NONE		NONE		NONE	
	EFFECTIVE (%)	0.16	0.16		0.00	
	MAXIMUM (%)	0.16	0.16		0.00	
PERCENT WIND COVERAGE	LINE OF SIGHT MET (Y OR N): Y		Y		Y	
	A / B-I - 10.5 KTS	89.20%	89.20%		94.29%	
	A / B-II - 13 KTS	93.74%	93.74%		97.09%	
RUNWAY DIMENSIONS						
RUNWAY DIMENSIONS (FT)	6,095' X 75'		6,440' X 75'		4,170' X 60'	
RUNWAY SAFETY AREA (RSA)	WIDTH (FT): 150'		150'		120'	
	LENGTH BEYOND RUNWAY END (FT): 300'		300'		240'	
RUNWAY COORDINATES (NAD 83)	RUNWAY END LATITUDE		32°14'22.23" N	32°15'04.71" N	32°14'19.82" N	32°15'04.71" N
	RUNWAY END LONGITUDE		109°54'05.84" W	109°53'15.49" W	109°54'08.69" W	109°53'15.49" W
	DISPLACED THRESHOLD LAT.		N/A	N/A	N/A	N/A
	DISPLACED THRESHOLD LONG.		N/A	N/A	N/A	N/A
RUNWAY ELEVATIONS (FT) (NAVD 88)	RUNWAY END		4182	4185.7	4182	4185.7
	DISPLACED THRESHOLD		N/A	N/A	N/A	N/A
	TOUCHDOWN ZONE (TDZ)		4186.4	4187.3	4186.4	4187.3
	HIGH POINT		4187.3	4187.3	4183.0	4180.0
LOW POINT		4182.0	4182.0	4180.0	4180.0	
RUNWAY LIGHTING TYPE	MIRL		MIRL		MIRL	
RUNWAY PROTECTION ZONE (RPZ) (FT)	1,000' X 500' X 700'	1,000' X 500' X 700'	1,000' X 500' X 700'	1,000' X 500' X 700'	1,000' X 250' X 450'	1,000' X 250' X 450'
14 CFR PART 77 APPROACH SURFACES	RUNWAY MARKING TYPE		NON-PRECISION	NON-PRECISION	NON-PRECISION	NON-PRECISION
	APPROACH TYPE		NON-PRECISION	NON-PRECISION	NON-PRECISION	NON-PRECISION
	VISIBILITY MINIMUMS RVR (FT)		5000	4000	5000	4000
	APPROACH SLOPE DIMENSIONS (FT)		500' X 3,500' X 10,000'			
APPROACH CATEGORY (SLOPE)		34:1	34:1	34:1	34:1	
TYPE OF AERONAUTICAL SURVEY REQUIRED FOR APPROACH		NVGS		NVGS		
RUNWAY DEPARTURE SURFACE (YES OR N/A)		YES	YES	YES	YES	
RUNWAY OBJECT FREE AREA (ROFA)	WIDTH (FT)		500'	500'	250'	250'
	LENGTH BEYOND RUNWAY END (FT)		300'	300'	240'	240'
OBSTACLE FREE ZONE (OFZ)	WIDTH (FT)		400'	400'	250'	250'
	LENGTH BEYOND RUNWAY END (FT)		200'	200'	200'	200'
THRESHOLD SITING SURFACE (TSS)	DIMENSIONS (FT)		400' X 3,800' X 10,000			
	SLOPE		20:1	20:1	20:1	20:1
	PENETRATIONS		NO TSS PENETRATIONS	NO TSS PENETRATIONS	NO TSS PENETRATIONS	NO TSS PENETRATIONS
VISUAL AND INSTRUMENT NAVAIDS	GPS		GPS		GPS,PAPI,REILS	PAPI,REIL

TAXIWAY AND TAXILANE DIMENSIONS

TAXIWAYS AND TAXILINES	EXISTING		FUTURE	
	TDG -1	TDG -2	TDG -1	TDG -2
TAXIWAY/TAXILANE DESIGN GROUP (TDG)	T-DGAR TAXILANES	TAXIWAY A, A1, A2	T-DGAR TAXILANES	TAXIWAY A, A1-A4, B, B1-B4
TAXIWAY AND TAXILANE DESIGNATION	25	35	25	35
TAXIWAY AND TAXILANE WIDTH (FT)	49	79	49	79
TAXIWAY SAFETY AREA (FT)	N.A.	131	N.A.	131
TAXIWAY OBJECT FREE AREA (FT)	79	115	79	115
TAXILANE OBJECT FREE AREA (FT)	VEGETATION (TSA: 4 FT, TOFA: 19 FT), TERM BLDG (TSA: N/A, TOFA: 10 FT), T-HGR2 (TSA: N/A, TOFA: 8 FT), T-HGR2/SHADE (TSA: N/A, TOFA: 16 FT)		NONE	
TAXIWAY AND TAXILANE SEPARATION (FT)	N.A.	65.5	N.A.	65.5
TAXIWAY CENTERLINE TO FIXED OR MOVABLE OBJECT (FT)	39.5	N.A.	39.5	57.5
TAXILANE CENTERLINE TO FIXED OR MOVABLE OBJECT (FT)	NONE	MITL, RETRO-REFLECTORS	MITL	MITL

HORIZONTAL DATUM: NORTH AMERICAN DATUM OF 1983 (NAD 83) VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM 1988 (NAVD 88). EXISTING ELEVATIONS & RUNWAY END COORDINATES FROM FAA NATIONAL FLIGHT DATA CENTER.

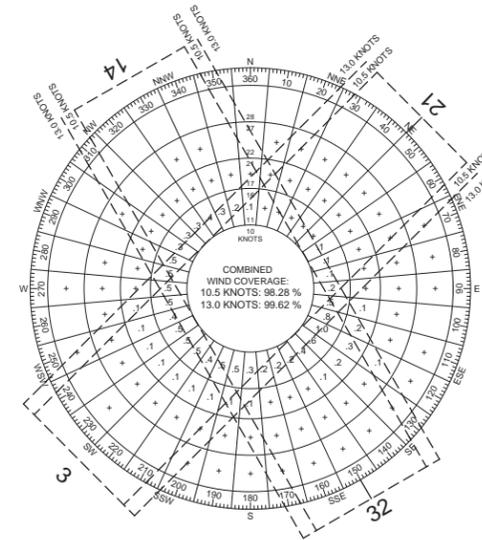
MODIFICATION TO STANDARDS APPROVAL

DESCRIPTION	STANDARD TO BE MODIFIED	EXISTING	PROPOSED	PROPOSED ACTION	AIRSPACE CASE NO.	APPROVAL DATE
NONE REQUIRED						

AIRPORT DATA

ITEM	EXISTING (E)	FUTURE (F)
AIRPORT REFERENCE CODE (ARC)	B-II	B-II
MEAN MAX. TEMP OF HOTTEST MONTH (°F) (JULY)	95°	95°
AIRPORT ELEVATION (MSL, FT) (NAVD 88) *	4,182.3 MSL	4,182.3 MSL
AIRPORT NAVIGATIONAL AIDS	GPS - Beacon (County)	GPS - Beacon (County)
AIRPORT REFERENCE POINT (ARP) COORDINATES (NAD 83)	LATITUDE	32° 14' 43.45" N
	LONGITUDE	109° 53' 40.68" W
MISCELLANEOUS FACILITIES	ARC	B-II
ARC AND CRITICAL AIRCRAFT	AIRCRAFT	BEECHCRAFT KING AIR B200
	WINGSPAN (FT)	63.3
	UNDERCARRIAGE (FT)	27.8
	APPROACH SPEED (KTS)	120
AIRPORT MAGNETIC VARIATION	VARIATION	9°47'17" E
	DATE	06.09.14
	SOURCE	NOAA
NPIAS SERVICE LEVEL	General Aviation-Local	General Aviation-Local
STATE EQUIVALENT SERVICE	GA - Community	GA - Community

* ELEVATIONS FROM FAA/NFDC SURVEY DATA DATED 10 / 17 /14.



ALL WEATHER WIND ROSE

RUNWAY	10.5 KNOT	13 KNOT
3/21	92.23%	95.60%
14/32	93.78%	96.72%
COMBINED	98.28%	99.62%

WIND DATA SOURCE: TUCSON INTERNATIONAL AIRPORT WEATHER REPORTING STATION DATA, 2014.

DECLARED DISTANCES

ITEM	EXISTING		FUTURE		FAA APPROVAL DATE
	RW 3 / 21	RW 14 / 32	RW 3 / 21	RW 14 / 32	
TAKEOFF RUN AVAILABLE (TORA) (FT)	N/A	N/A	N/A	N/A	N/A
TAKEOFF DISTANCE AVAILABLE (TODA) (FT)	N/A	N/A	N/A	N/A	N/A
ACCELERATE-STOP DISTANCE AVAILABLE (ASDA) (FT)	N/A	N/A	N/A	N/A	N/A
LANDING DISTANCE AVAILABLE (LDA) (FT)	N/A	N/A	N/A	N/A	N/A



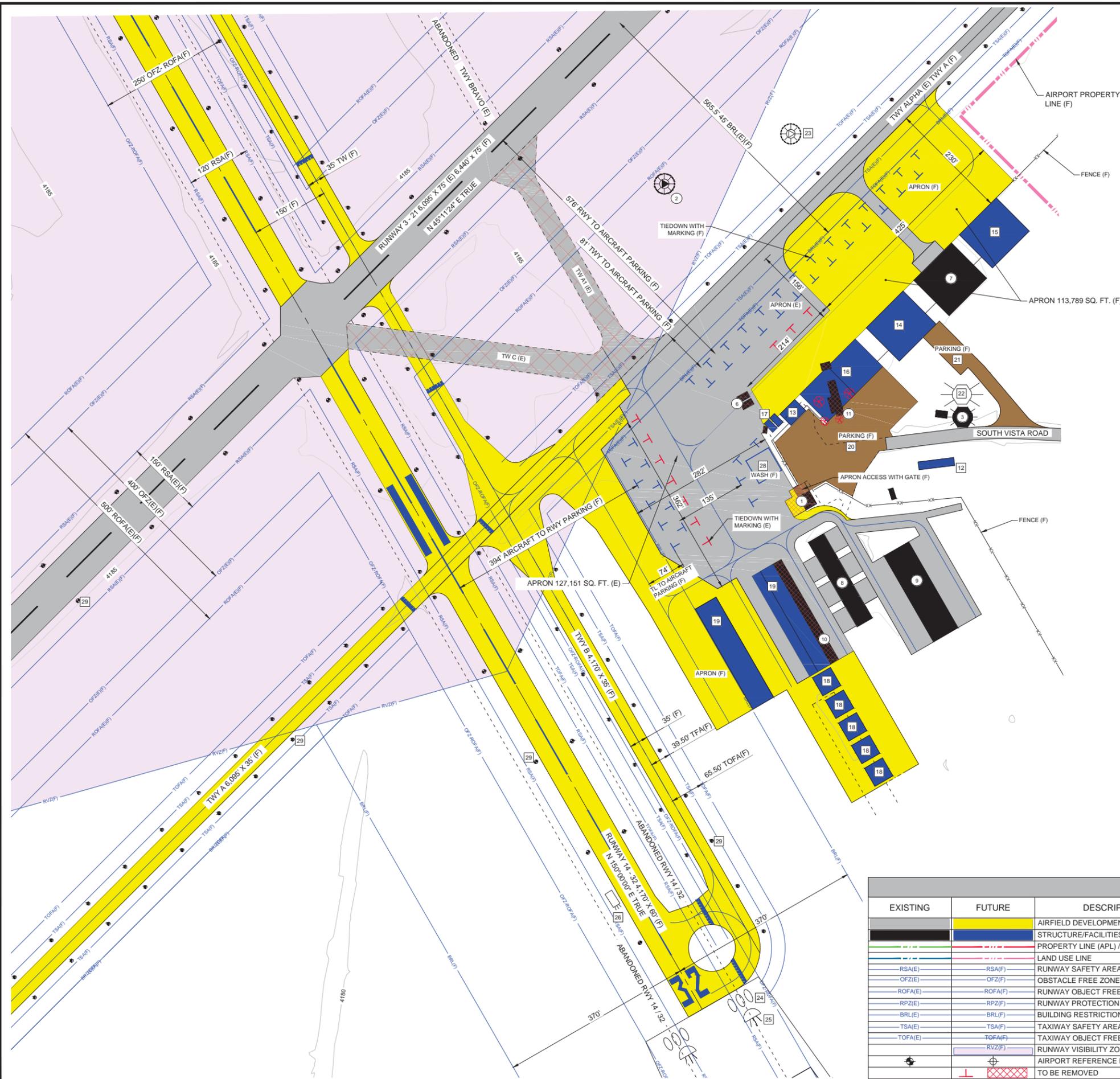
COCHISE COUNTY AIRPORT
WILCOX, ARIZONA

A.I.P. No. 3-04-0049-004-2013
AIRPORT LAYOUT PLAN

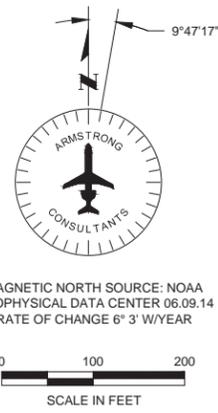
COLORADO: 970.242.0101 ARIZONA: 602.803.7079 NEW MEXICO: 505.508.2192
www.armstrongconsultants.com

No.	Project No.	Date	Revision / Description	Drwn.	Chkd.	Apprvd.
0	138171	07/2014	ORIGINAL ISSUE	6171502	LDS	CM
1						J2P

AIRPORT DATA SHEET



AIRPORT FACILITIES LIST				
NO.	EXIST.	FUT.	FACILITY DESCRIPTION	TOP ELEVATION (MSL)
1	o		TERMINAL	+/- 4205
2	o		LIGHTED WIND CONE/CIRCLE	+/- 4185
3	o		BEACON	+/- 4215
4	o		THRESHOLD LIGHT	+/- 4185
5	o		TETRAHEDRON	+/- 4185
6	o		FUEL FARM	+/- 4190
7	o		HANGAR	+/- 4205
8	o		T-HANGAR	+/- 4205
9	o		T-HANGAR	+/- 4205
10	o		T-HANGAR	+/- 4205
11	o		CARETAKER FACILITY	+/- 4200
12	o		CARETAKER FACILITY	+/- 4200
13		o	MAINTENANCE BLDG	+/- 4200
14		o	HANGAR	+/- 4205
15		o	HANGAR	+/- 4205
16		o	TERMINAL	+/- 4205
17		o	FUEL FARM	+/- 4190
18		o	HANGAR	+/- 4205
19		o	T-HANGAR	+/- 4205
20		o	AUTO PARKING	+/- 4185
21		o	AUTO PARKING	+/- 4185
22		o	BEACON	+/- 4185
23		o	LIGHTED WIND CONE/CIRCLE	+/- 4185
24		o	THRESHOLD LIGHT	+/- 4180
25		o	REILS	+/- 4180
26		o	PAPI	+/- 4185
27		o	AWOS	+/- 4185
28		o	WASH PAD	+/- 4185
29		o	EDGE LIGHTING	+/- 4187



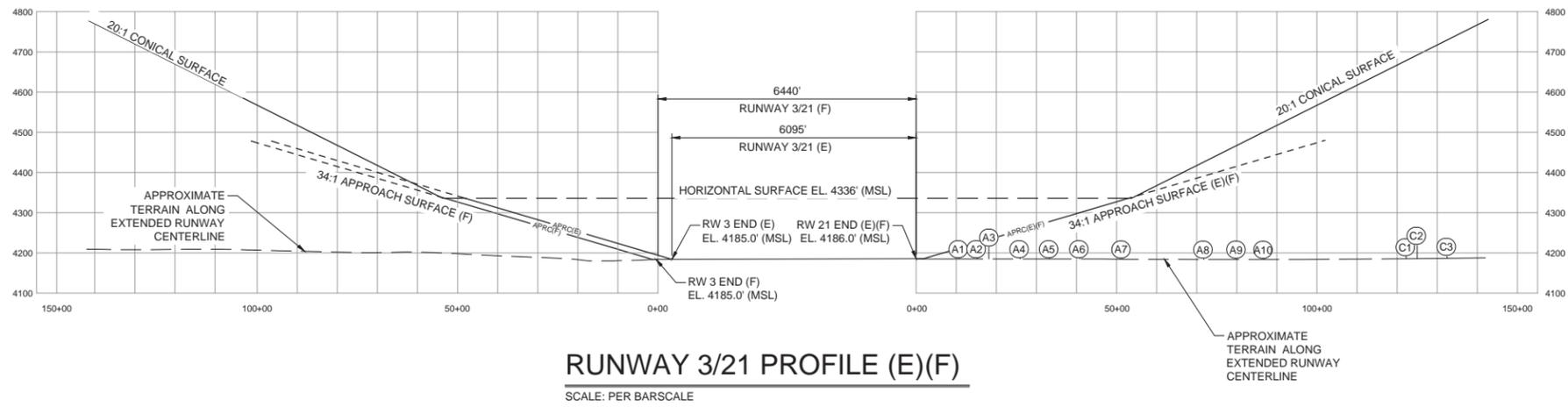
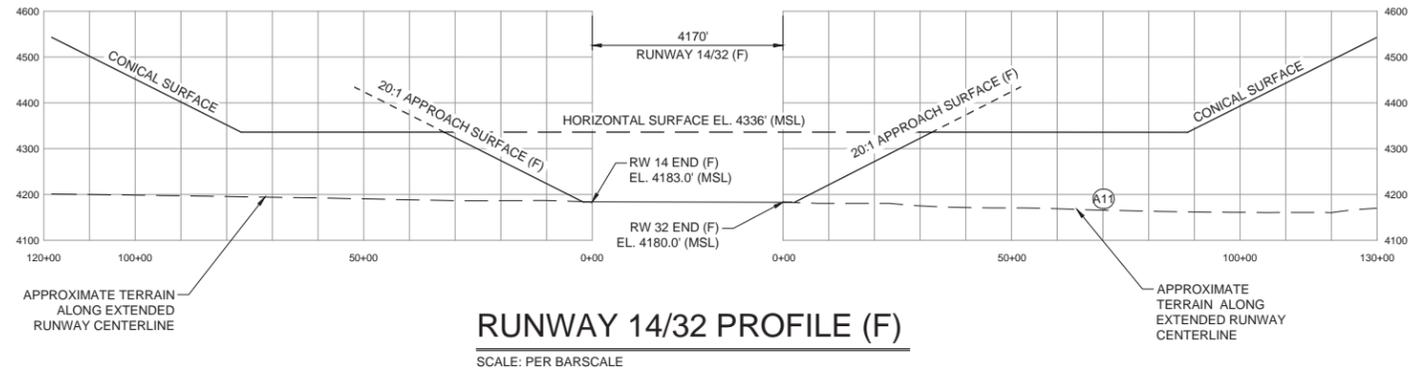
LEGEND					
EXISTING	FUTURE	DESCRIPTION	EXISTING	FUTURE	DESCRIPTION
[Symbol]	[Symbol]	AIRFIELD DEVELOPMENT (ASPH/CONC)	[Symbol]	[Symbol]	THRESHOLD LIGHTS
[Symbol]	[Symbol]	STRUCTURE/FACILITIES (BUILDING)	[Symbol]	[Symbol]	REIL
[Symbol]	[Symbol]	PROPERTY LINE (APL) / EASEMENT	[Symbol]	[Symbol]	VASI/PAPI
[Symbol]	[Symbol]	LAND USE LINE	[Symbol]	[Symbol]	AIRPORT BEACON
[Symbol]	[Symbol]	RUNWAY SAFETY AREA (RSA)	[Symbol]	[Symbol]	WIND CONE & SEGMENTED CIRCLE
[Symbol]	[Symbol]	OBSTACLE FREE ZONE (OFZ)	[Symbol]	[Symbol]	AWOS
[Symbol]	[Symbol]	RUNWAY OBJECT FREE AREA (ROFA)	[Symbol]	[Symbol]	LIGHTED WINDCONE
[Symbol]	[Symbol]	RUNWAY PROTECTION ZONE (RPZ)	[Symbol]	[Symbol]	SECTION CORNER
[Symbol]	[Symbol]	BUILDING RESTRICTION LINE (BRL)	[Symbol]	[Symbol]	CONTOURS
[Symbol]	[Symbol]	TAXIWAY SAFETY AREA (TSA)	[Symbol]	[Symbol]	ROADS/PARKING
[Symbol]	[Symbol]	TAXIWAY OBJECT FREE AREA (TOFA)	[Symbol]	[Symbol]	MARKINGS
[Symbol]	[Symbol]	RUNWAY VISIBILITY ZONE (RVZ)	[Symbol]	[Symbol]	FENCING
[Symbol]	[Symbol]	AIRPORT REFERENCE POINT (ARP)	[Symbol]	[Symbol]	RUNWAY EDGE LIGHT
[Symbol]	[Symbol]	TO BE REMOVED	[Symbol]	[Symbol]	TAXIWAY EDGE LIGHT



COCHISE COUNTY AIRPORT
WILCOX, ARIZONA
A.I.P. No. 3-04-0049-004-2013
AIRPORT LAYOUT PLAN

No.	Project No.	Date	Revision / Description	File	Drwn.	Chkd.	Apprvd.
3	136171	07/2014	ORIGINAL ISSUE	6171503	LDS	CM	JZP
2							
1							
0							

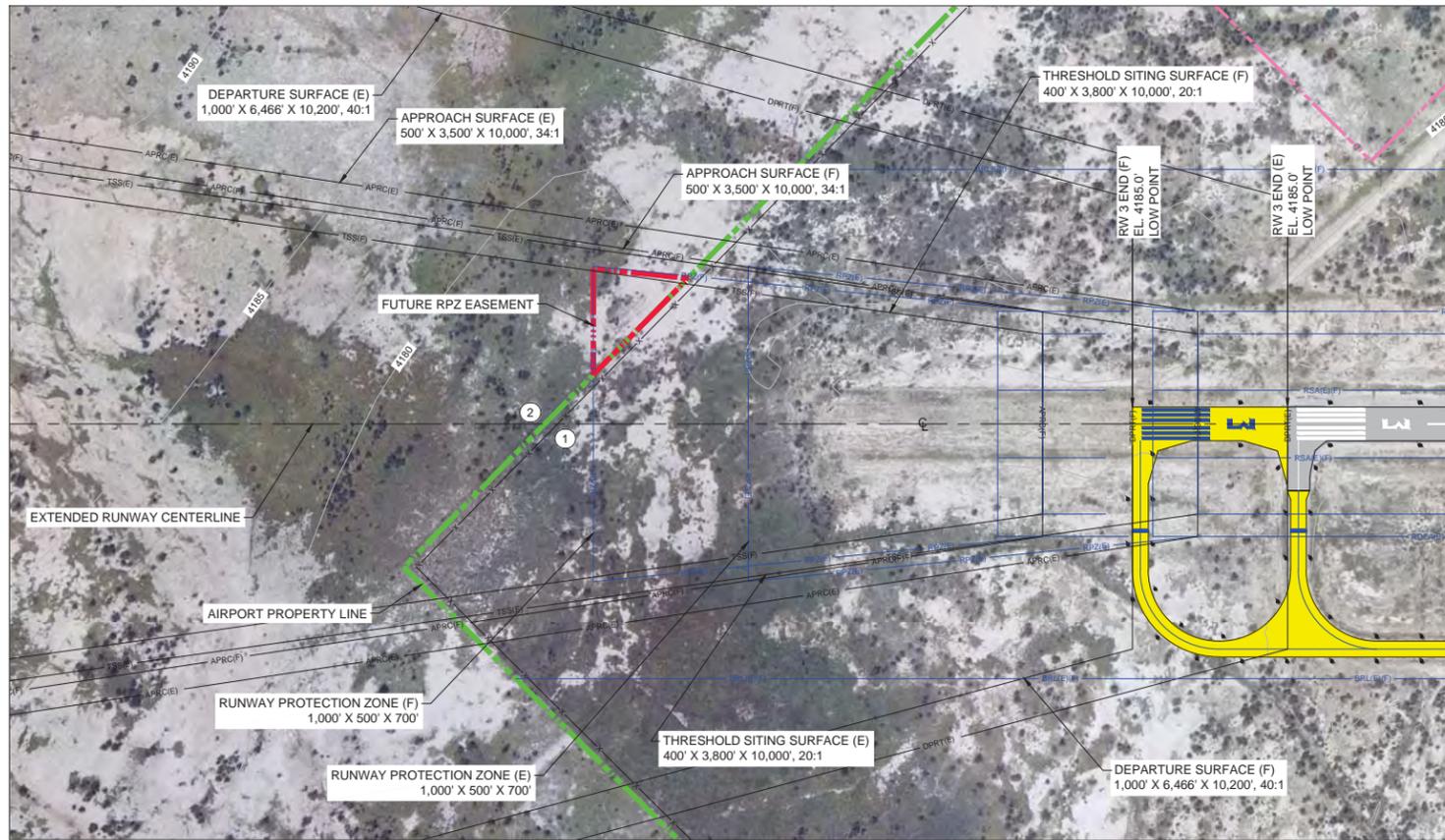
TERMINAL
AREA
DRAWING



No.	Project No.	Date	Revision / Description	File	Drwn.	Chkd.	Apprvd.
0	138171	07/2014	ORIGINAL ISSUE	6171504	LDS	CM	JMR

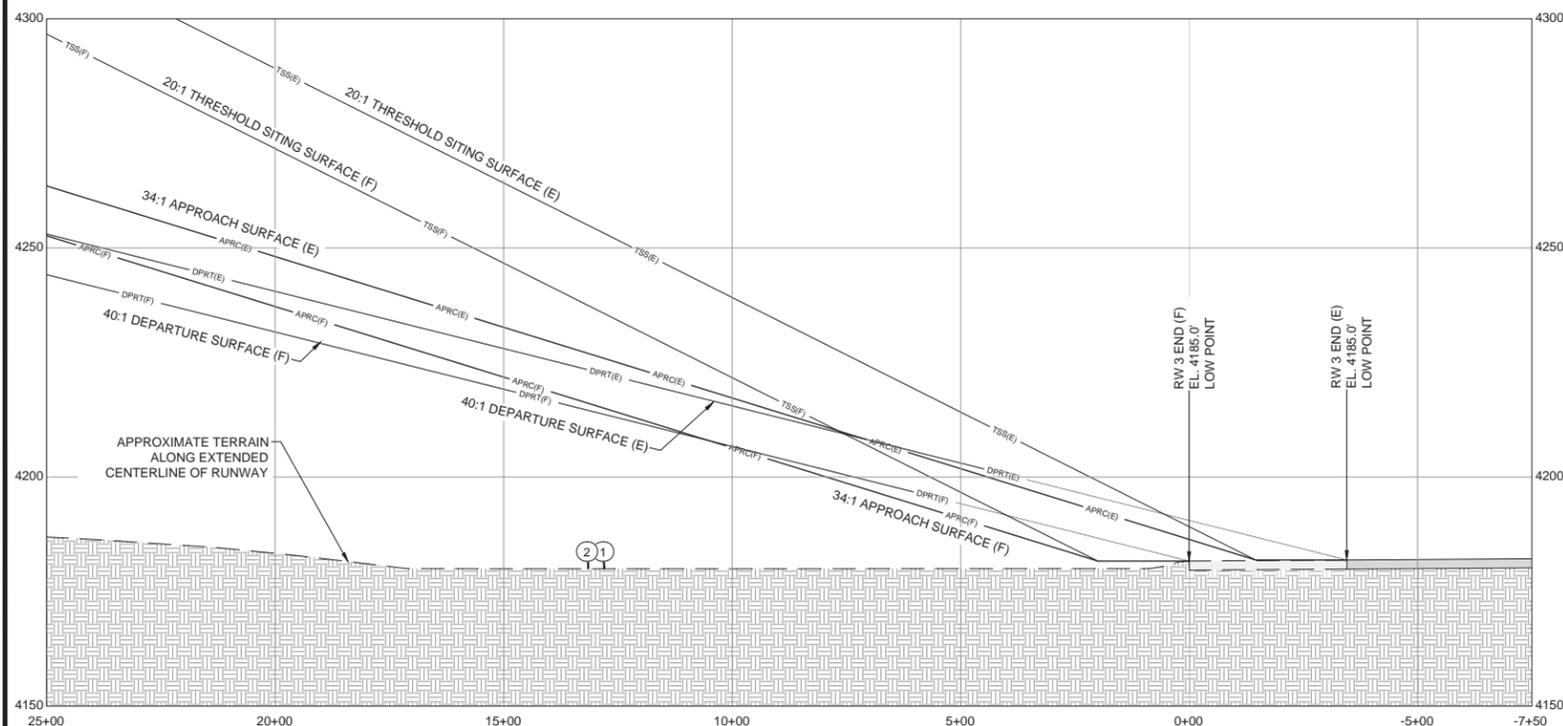
THE PREPARATION OF THIS DOCUMENT MAY HAVE BEEN SUPPORTED IN PART THROUGH THE AIRPORT IMPROVEMENT PROGRAM FINANCIAL ASSISTANCE FROM THE FEDERAL AVIATION ADMINISTRATION AS PROVIDED UNDER TITLE 49 U.S.C. SECTION 4754. THE PREPARATION OF THIS DOCUMENT DOES NOT CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT OR PROJECT. THE UNITED STATES GOVERNMENT IS ENVIRONMENTALLY RESPONSIBLE AND WILL HAVE JUSTIFICATION IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS.

14 CFR
PART 77
AIRSPACE
PROFILE
DRAWING



PLAN - RUNWAY 3 (E)(F)

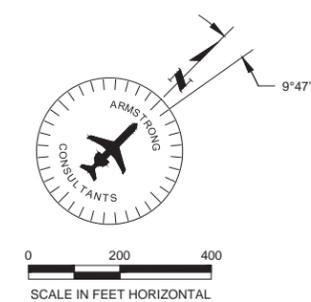
SCALE: PER BARSCALE



PROFILE - RUNWAY 3 (E)(F)

SCALE: PER GRID

LEGEND					
EXISTING	FUTURE	DESCRIPTION	EXISTING	FUTURE	DESCRIPTION
		AIRFIELD DEVELOPMENT (ASPH/CONC)	0000 0000	0000 0000	THRESHOLD LIGHTS
		STRUCTURE/FACILITIES (BUILDING)			REIL
		PROPERTY LINE (APL) / EASEMENT			VASI/PAPI
		LAND USE LINE			AIRPORT BEACON
-RSA(E)	-RSA(F)	RUNWAY SAFETY AREA (RSA)			WIND CONE & SEGMENTED CIRCLE
-OFZ(E)	-OFZ(F)	OBSTACLE FREE ZONE (OFZ)			AWOS
-ROFA(E)	-ROFA(F)	RUNWAY OBJECT FREE AREA (ROFA)			LIGHTED WIND CONE
-RPZ(E)	-RPZ(F)	RUNWAY PROTECTION ZONE (RPZ)		N/A	SECTION CORNER
-BRL(E)	-BRL(F)	BUILDING RESTRICTION LINE (BRL)		N/A	CONTOURS
-TSA(E)	-TSA(F)	TAXIWAY SAFETY AREA (TSA)			ROADS/PARKING
-TOFA(E)	-TOFA(F)	TAXIWAY OBJECT FREE AREA (TOFA)			MARKINGS
-APRC(E)	-APRC(F)	APPROACH SURFACE		XX	FENCING
-DPRT(E)	-DPRT(F)	DEPARTURE SURFACE			RUNWAY EDGE LIGHT
-TSS(E)	-TSS(F)	THRESHOLD SITING SURFACE			TAXIWAY EDGE LIGHT
-GQS(E)	-GQS(F)	GLIDE PATH QUALIFICATION SURFACE			AIRPORT REFERENCE POINT (ARP)
-RVZ(F)		RUNWAY VISIBILITY ZONE (RVZ)			TO BE REMOVED



APPROACH / DEPARTURE SURFACE PENETRATION TABLE

No.	OBJECT	EST. GRADE HT.	EST. OBJECT HT.	20:1 TSS SURFACE PEN.	34:1 APRC SURFACE PEN.	40:1 DEPT SURFACE PEN.	REMARKS
①	4' FENCE	4180	4184	NONE	NONE	NONE	NONE
②	PROPERTY LINE	4180	4180	NONE	NONE	NONE	NONE

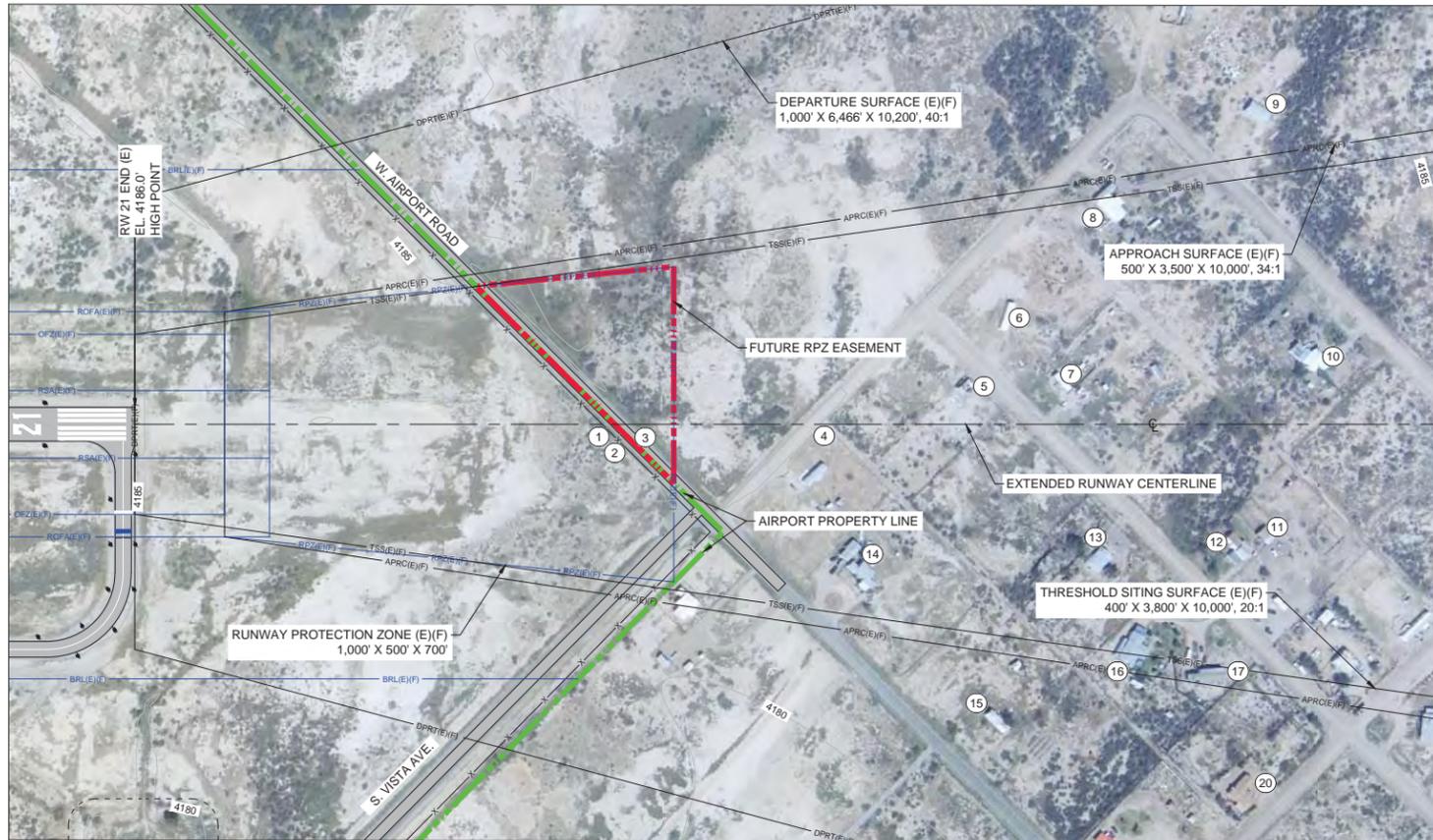
NOTE: OBJECT ELEVATIONS IN FEET MSL (VERTICAL DATUM NAVD88).
 * = OBJECT ELEVATIONS ARE ESTIMATED AND NOT BASED ON A SURVEY.

ELEVATION DATA UNITED STATES ELEVATION DATA 30 METER RESOLUTION, DATE UNKNOWN

- = OBJECT IS NOT LOCATED WITHIN THIS SURFACE.
 ● = OBJECT PENETRATION LOCATION

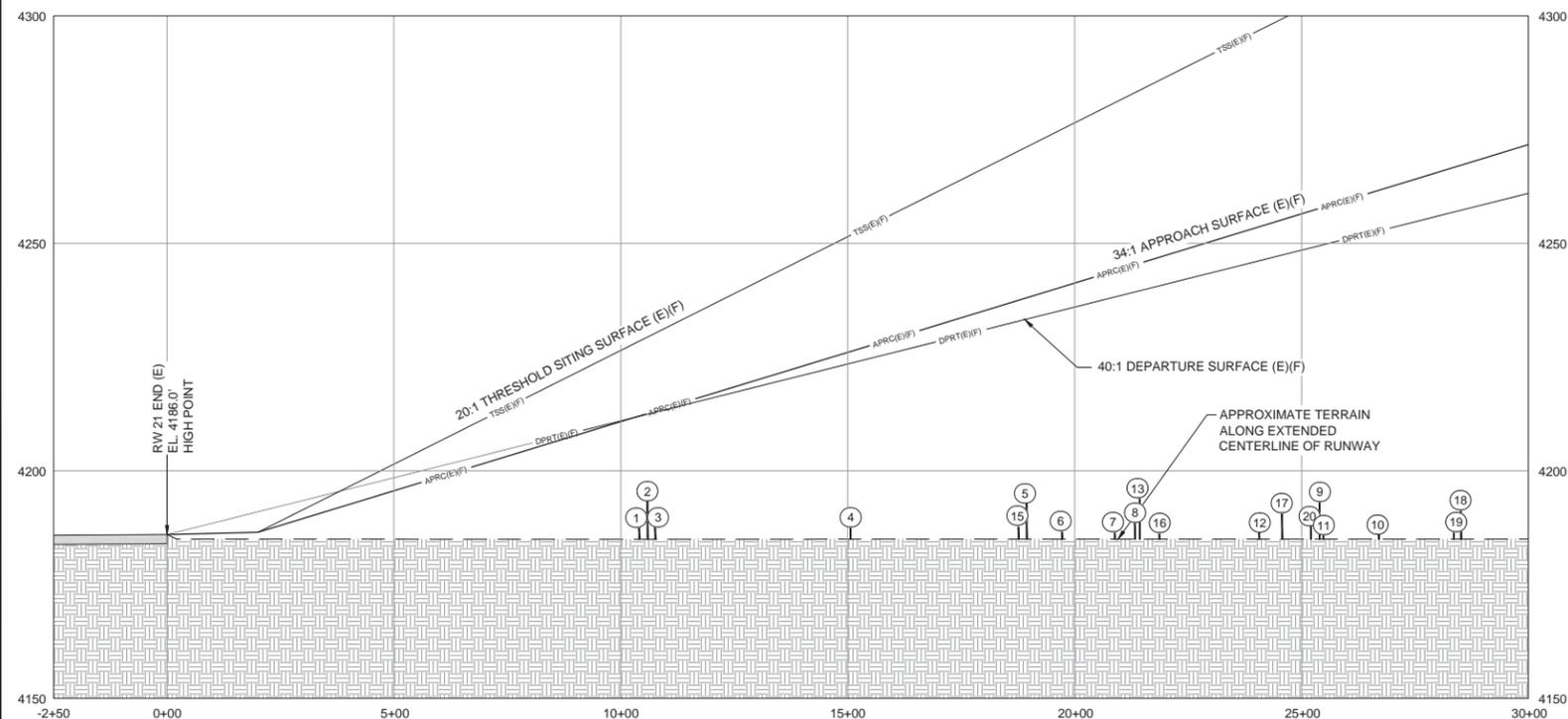
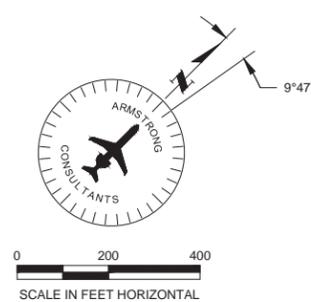
EST. = ESTIMATED; ELEV. = ELEVATION; HT. = HEIGHT; PEN. = PENETRATION;
 N/A = NOT APPLICABLE; O.L. = OBSTRUCTION LIGHT; APRC = APPROACH SURFACE;

No.	Project No.	Date	Revision / Description	File	Drwn.	Chkd.	Apprvd.
3							
2							
1							
0	136171	07/20/14	ORIGINAL ISSUE	6171505	LDS	CM	J.P.



PLAN - RUNWAY 21 (E)(F)
SCALE: PER BARSCALE

LEGEND					
EXISTING	FUTURE	DESCRIPTION	EXISTING	FUTURE	DESCRIPTION
[Symbol]	[Symbol]	AIRFIELD DEVELOPMENT (ASPH/CONC)	[Symbol]	[Symbol]	THRESHOLD LIGHTS
[Symbol]	[Symbol]	STRUCTURE/FACILITIES (BUILDING)	[Symbol]	[Symbol]	REIL
[Symbol]	[Symbol]	PROPERTY LINE (APL) / EASEMENT	[Symbol]	[Symbol]	VASI/PAPI
[Symbol]	[Symbol]	LAND USE LINE	[Symbol]	[Symbol]	AIRPORT BEACON
[Symbol]	[Symbol]	RUNWAY SAFETY AREA (RSA)	[Symbol]	[Symbol]	WIND CONE & SEGMENTED CIRCLE
[Symbol]	[Symbol]	OBSTACLE FREE ZONE (OFZ)	[Symbol]	[Symbol]	AWOS
[Symbol]	[Symbol]	RUNWAY OBJECT FREE AREA (ROFA)	[Symbol]	[Symbol]	LIGHTED WIND CONE
[Symbol]	[Symbol]	RUNWAY PROTECTION ZONE (RPZ)	[Symbol]	[Symbol]	SECTION CORNER
[Symbol]	[Symbol]	BUILDING RESTRICTION LINE (BRL)	[Symbol]	[Symbol]	CONTOURS
[Symbol]	[Symbol]	TAXIWAY SAFETY AREA (TSA)	[Symbol]	[Symbol]	ROADS/PARKING
[Symbol]	[Symbol]	TAXIWAY OBJECT FREE AREA (TOFA)	[Symbol]	[Symbol]	MARKINGS
[Symbol]	[Symbol]	APPROACH SURFACE	[Symbol]	[Symbol]	FENCING
[Symbol]	[Symbol]	DEPARTURE SURFACE	[Symbol]	[Symbol]	RUNWAY EDGE LIGHT
[Symbol]	[Symbol]	THRESHOLD SITING SURFACE	[Symbol]	[Symbol]	TAXIWAY EDGE LIGHT
[Symbol]	[Symbol]	GLIDE PATH QUALIFICATION SURFACE	[Symbol]	[Symbol]	AIRPORT REFERENCE POINT (ARP)
[Symbol]	[Symbol]	RUNWAY VISIBILITY ZONE (RVZ)	[Symbol]	[Symbol]	TO BE REMOVED



PROFILE - RUNWAY 21 (E)(F)
SCALE: PER GRID

APPROACH / DEPARTURE SURFACE PENETRATION TABLE

No.	OBJECT	EST. GRADE HT.	EST. OBJECT HT.	20:1 TSS SURFACE PEN.	34:1 APRC SURFACE PEN.	40:1 DEPT SURFACE PEN.	REMARKS
1	4' FENCE	4180	4184	NONE	NONE	NONE	NONE
2	PROPERTY LINE	4180	4180	NONE	NONE	NONE	NONE
3	ROAD	4180	4195	NONE	NONE	NONE	NONE
4	ROAD	4180	4195	NONE	NONE	NONE	NONE
5	BUILDING	4180	4195	NONE	NONE	NONE	NONE
6	BUILDING	4180	4195	NONE	NONE	NONE	NONE
7	BUILDING	4180	4195	NONE	NONE	NONE	NONE
8	BUILDING	4180	4195	NONE	NONE	NONE	NONE
9	BUILDING	4180	4195	NONE	NONE	NONE	NONE
10	BUILDING	4180	4195	NONE	NONE	NONE	NONE
11	BUILDING	4180	4195	NONE	NONE	NONE	NONE
12	BUILDING	4180	4195	NONE	NONE	NONE	NONE
13	BUILDING	4180	4195	NONE	NONE	NONE	NONE
14	BUILDING	4180	4195	NONE	NONE	NONE	NONE
15	BUILDING	4180	4195	NONE	NONE	NONE	NONE
16	BUILDING	4180	4195	NONE	NONE	NONE	NONE
17	BUILDING	4180	4195	NONE	NONE	NONE	NONE
18	BUILDING	4180	4195	NONE	NONE	NONE	NONE
19	BUILDING	4180	4195	NONE	NONE	NONE	NONE
20	BUILDING	4180	4195	NONE	NONE	NONE	NONE

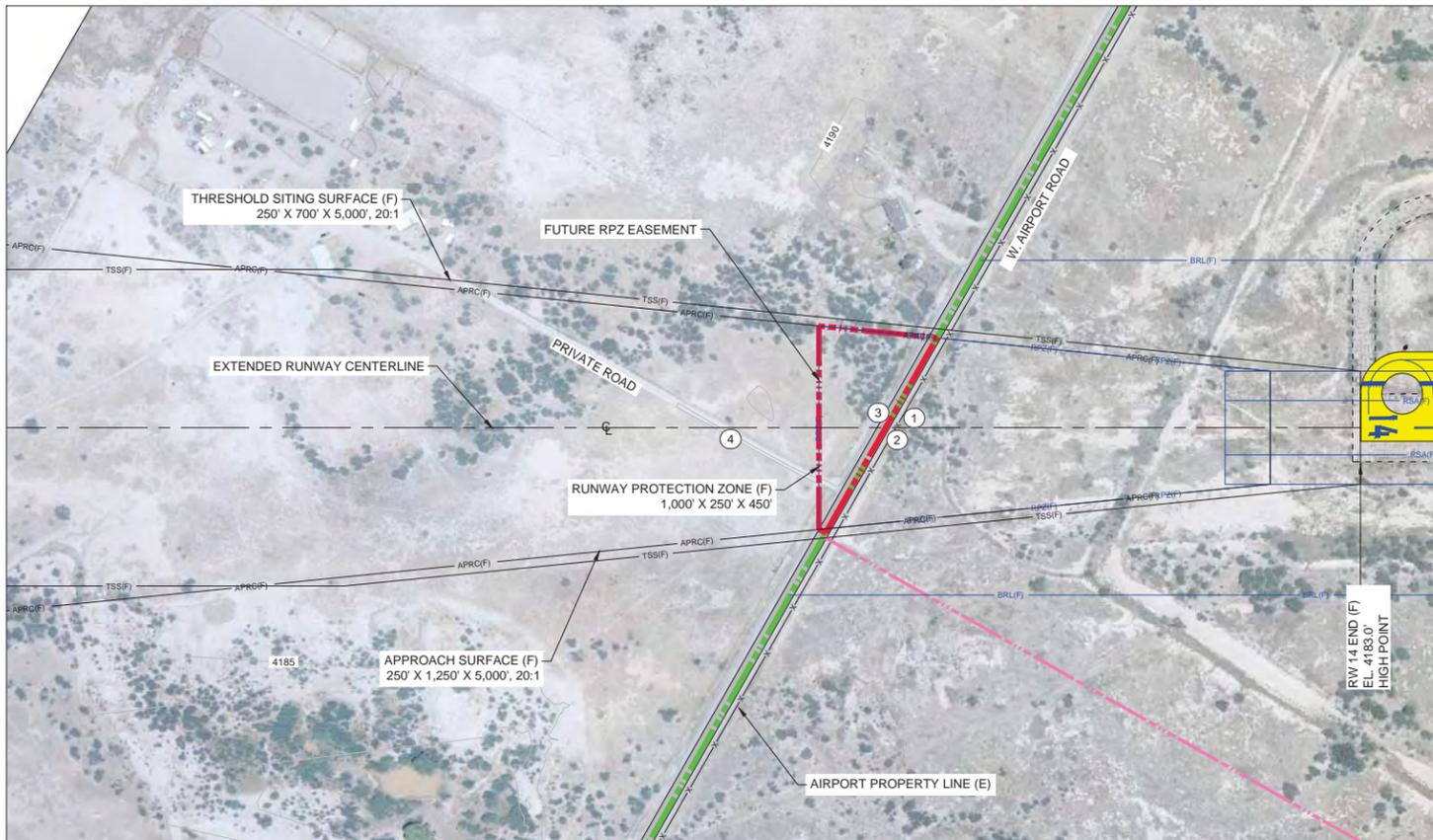
NOTE: OBJECT ELEVATIONS IN FEET MSL (VERTICAL DATUM NAVD88).
 * = OBJECT ELEVATIONS ARE ESTIMATED AND NOT BASED ON A SURVEY.

ELEVATION DATA UNITED STATES ELEVATION DATA 30 METER RESOLUTION, DATE UNKNOWN

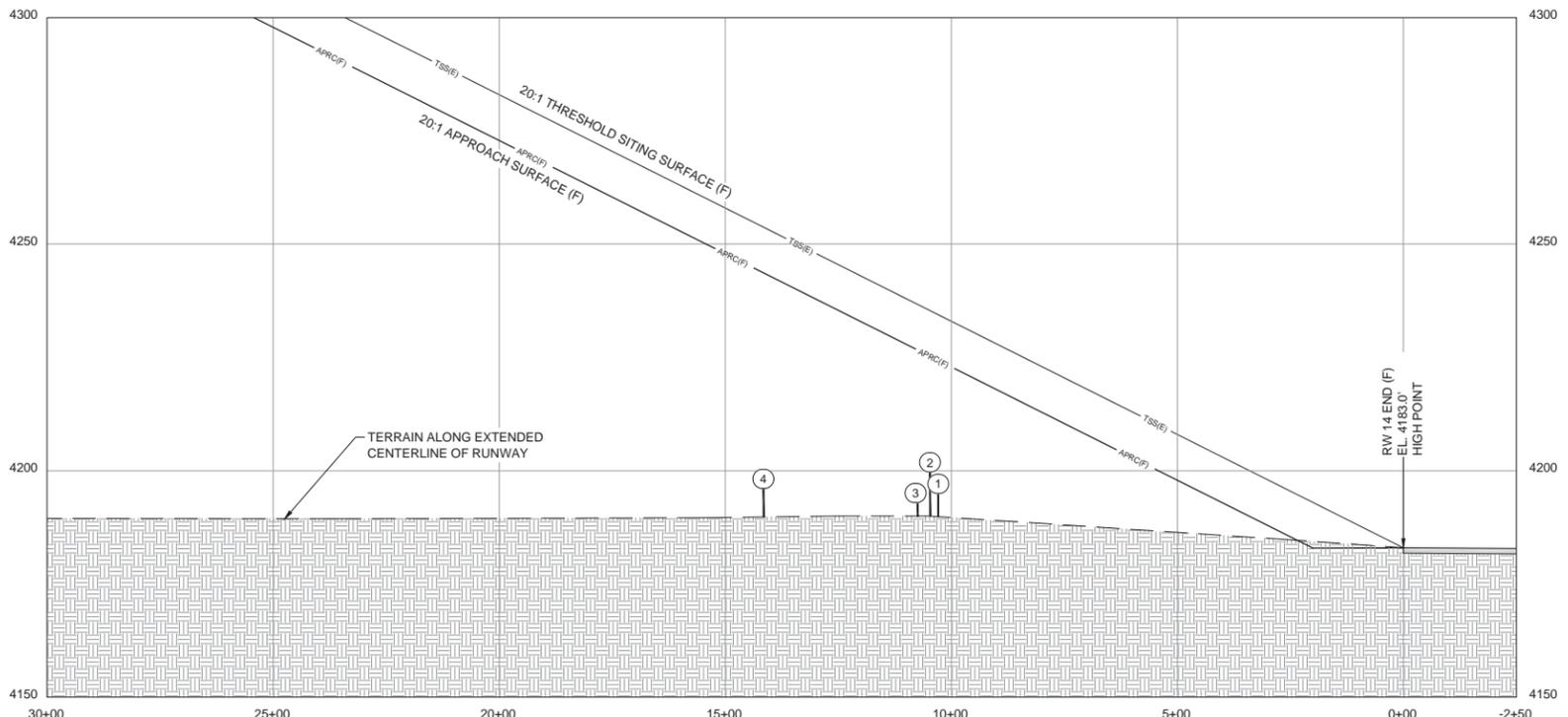
- = OBJECT IS NOT LOCATED WITHIN THIS SURFACE.
 ● = OBJECT PENETRATION LOCATION

EST. = ESTIMATED; ELEV. = ELEVATION; HT. = HEIGHT; PEN. = PENETRATION;
 N/A = NOT APPLICABLE; O.L. = OBSTRUCTION LIGHT; APRC = APPROACH SURFACE;

No.	Project No.	Date	Revision / Description	File	Drwn.	Chkd.	Apprvd.
3	138171	07/2014	ORIGINAL ISSUE		LDS	CM	JZP
2							
1							

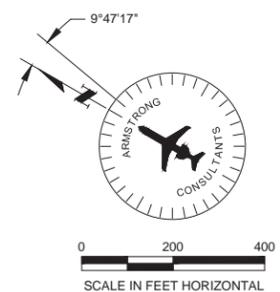


PLAN - RUNWAY 14 (F)
SCALE: PER BARSCALE



PROFILE - RUNWAY 14 (F)
SCALE: PER GRID

LEGEND					
EXISTING	FUTURE	DESCRIPTION	EXISTING	FUTURE	DESCRIPTION
		AIRFIELD DEVELOPMENT (ASPH/CONC)	0000 0000	0000 0000	THRESHOLD LIGHTS
		STRUCTURE/FACILITIES (BUILDING)	Hand icon	Hand icon	REIL
		PROPERTY LINE (APL) / EASEMENT	Hand icon	Hand icon	VASI/PAPI
		LAND USE LINE	Hand icon	Hand icon	AIRPORT BEACON
RS(A)(E)	RS(A)(F)	RUNWAY SAFETY AREA (RSA)	Hand icon	Hand icon	WIND CONE & SEGMENTED CIRCLE
OFZ(E)	OFZ(F)	OBSTACLE FREE ZONE (OFZ)	Hand icon	Hand icon	AWOS
ROFA(E)	ROFA(F)	RUNWAY OBJECT FREE AREA (ROFA)	Hand icon	Hand icon	LIGHTED WIND CONE
RPZ(E)	RPZ(F)	RUNWAY PROTECTION ZONE (RPZ)	Hand icon	N/A	SECTION CORNER
BRL(E)	BRL(F)	BUILDING RESTRICTION LINE (BRL)	Hand icon	N/A	CONTOURS
TSA(E)	TSA(F)	TAXIWAY SAFETY AREA (TSA)	Hand icon	Hand icon	ROADS/PARKING
TOFA(E)	TOFA(F)	TAXIWAY OBJECT FREE AREA (TOFA)	Hand icon	Hand icon	MARKINGS
APRC(E)	APRC(F)	APPROACH SURFACE	X	XX	FENCING
DPR(E)	DPR(F)	DEPARTURE SURFACE	Hand icon	Hand icon	RUNWAY EDGE LIGHT
TSS(E)	TSS(F)	THRESHOLD SITING SURFACE	Hand icon	Hand icon	TAXIWAY EDGE LIGHT
GQS(E)	GQS(F)	GLIDE PATH QUALIFICATION SURFACE	Hand icon	Hand icon	AIRPORT REFERENCE POINT (ARP)
	RVZ(F)	RUNWAY VISIBILITY ZONE (RVZ)	Hand icon	Hand icon	TO BE REMOVED



APPROACH / DEPARTURE SURFACE PENETRATION TABLE

No.	OBJECT	EST. GRADE HT.	EST. OBJECT HT.	20:1 TSS SURFACE PEN.	34:1 APRC SURFACE PEN.	REMARKS
①	4' FENCE	4180	4184	NONE	NONE	NONE
②	PROPERTY LINE	4180	4195	NONE	NONE	NONE
③	ROAD	4180	4195	NONE	NONE	NONE
④	ROAD	4180	4195	NONE	NONE	NONE

NOTE: OBJECT ELEVATIONS IN FEET MSL (VERTICAL DATUM NAVD88).
 * = OBJECT ELEVATIONS ARE ESTIMATED AND NOT BASED ON A SURVEY.

ELEVATION DATA UNITED STATES ELEVATION DATA 30 METER RESOLUTION, DATE UNKNOWN
 -10+00

- = OBJECT IS NOT LOCATED WITHIN THIS SURFACE.
 ● = OBJECT PENETRATION LOCATION

EST. = ESTIMATED; ELEV. = ELEVATION; HT. = HEIGHT; PEN. = PENETRATION;
 N/A = NOT APPLICABLE; O.L. = OBSTRUCTION LIGHT; APRC = APPROACH SURFACE;

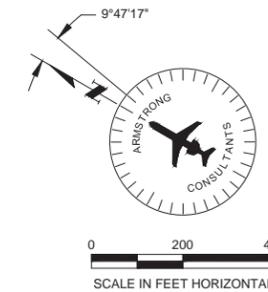
No.	Project No.	Date	Revision / Description	File	Drwn.	Chkd.	Apprvd.
3							
2							
1	138171	07/2014	ORIGINAL ISSUE	6171905	LDS	CM	JZP
0							



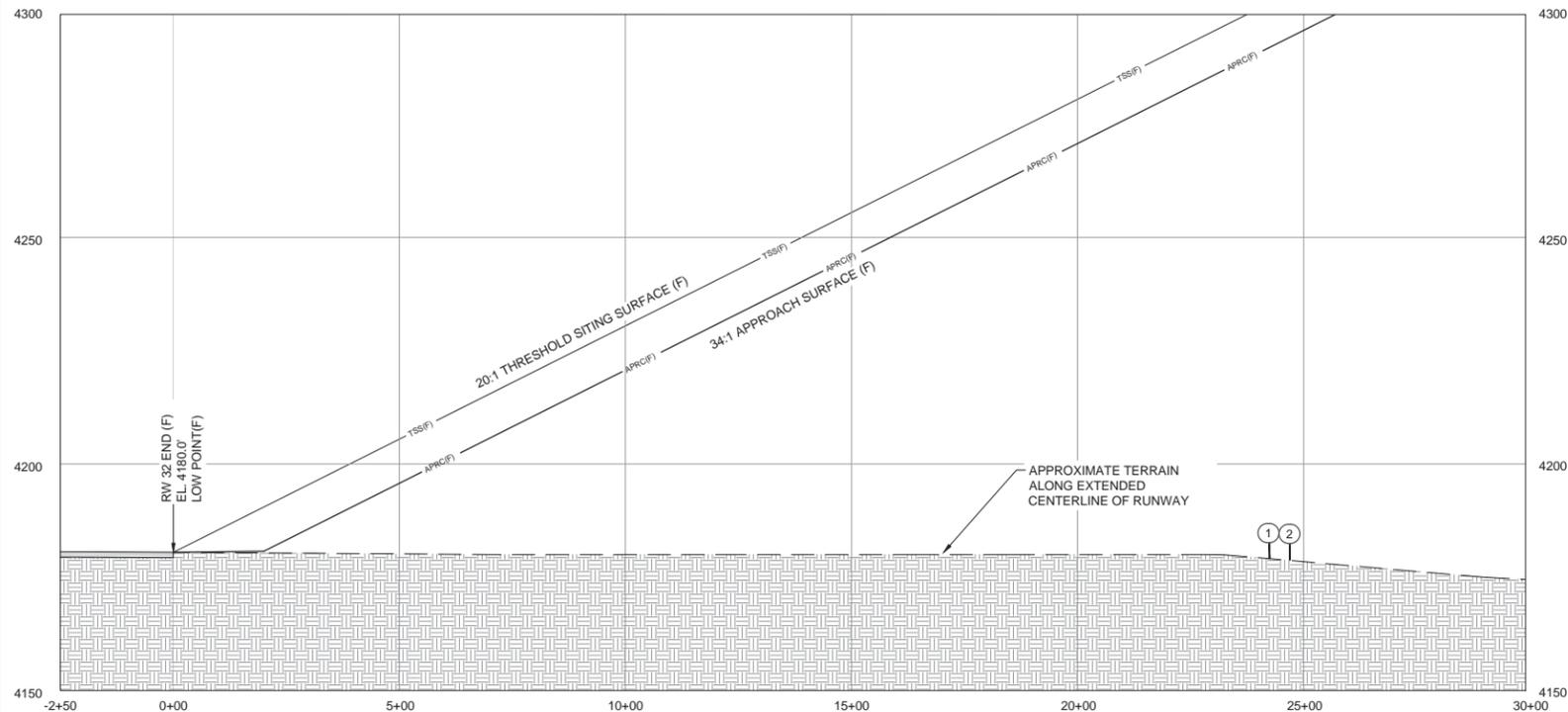
PLAN - RUNWAY 32 (F)

SCALE: PER BARSCALE

LEGEND					
EXISTING	FUTURE	DESCRIPTION	EXISTING	FUTURE	DESCRIPTION
		AIRFIELD DEVELOPMENT (ASPH/CONC)			THRESHOLD LIGHTS
		STRUCTURE/FACILITIES (BUILDING)			REIL
		PROPERTY LINE (APL) / EASEMENT			VASI/PAPI
		LAND USE LINE			AIRPORT BEACON
		RUNWAY SAFETY AREA (RSA)			WIND CONE & SEGMENTED CIRCLE
		OBSTACLE FREE ZONE (OFZ)			AWOS
		RUNWAY OBJECT FREE AREA (ROFA)			LIGHTED WIND CONE
		RUNWAY PROTECTION ZONE (RPZ)		N/A	SECTION CORNER
		BUILDING RESTRICTION LINE (BRL)		N/A	CONTOURS
		TAXIWAY SAFETY AREA (TSA)			ROADS/PARKING
		TAXIWAY OBJECT FREE AREA (TOFA)			MARKINGS
		APPROACH SURFACE			FENCING
		DEPARTURE SURFACE			RUNWAY EDGE LIGHT
		THRESHOLD SITING SURFACE			TAXIWAY EDGE LIGHT
		GLIDE PATH QUALIFICATION SURFACE			AIRPORT REFERENCE POINT (ARP)
		RUNWAY VISIBILITY ZONE (RVZ)			TO BE REMOVED



0 200 400
SCALE IN FEET HORIZONTAL



PROFILE - RUNWAY 32 (F)

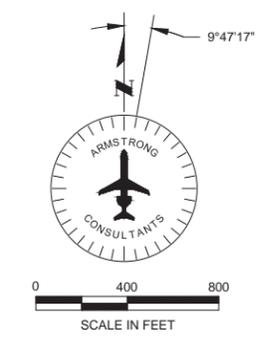
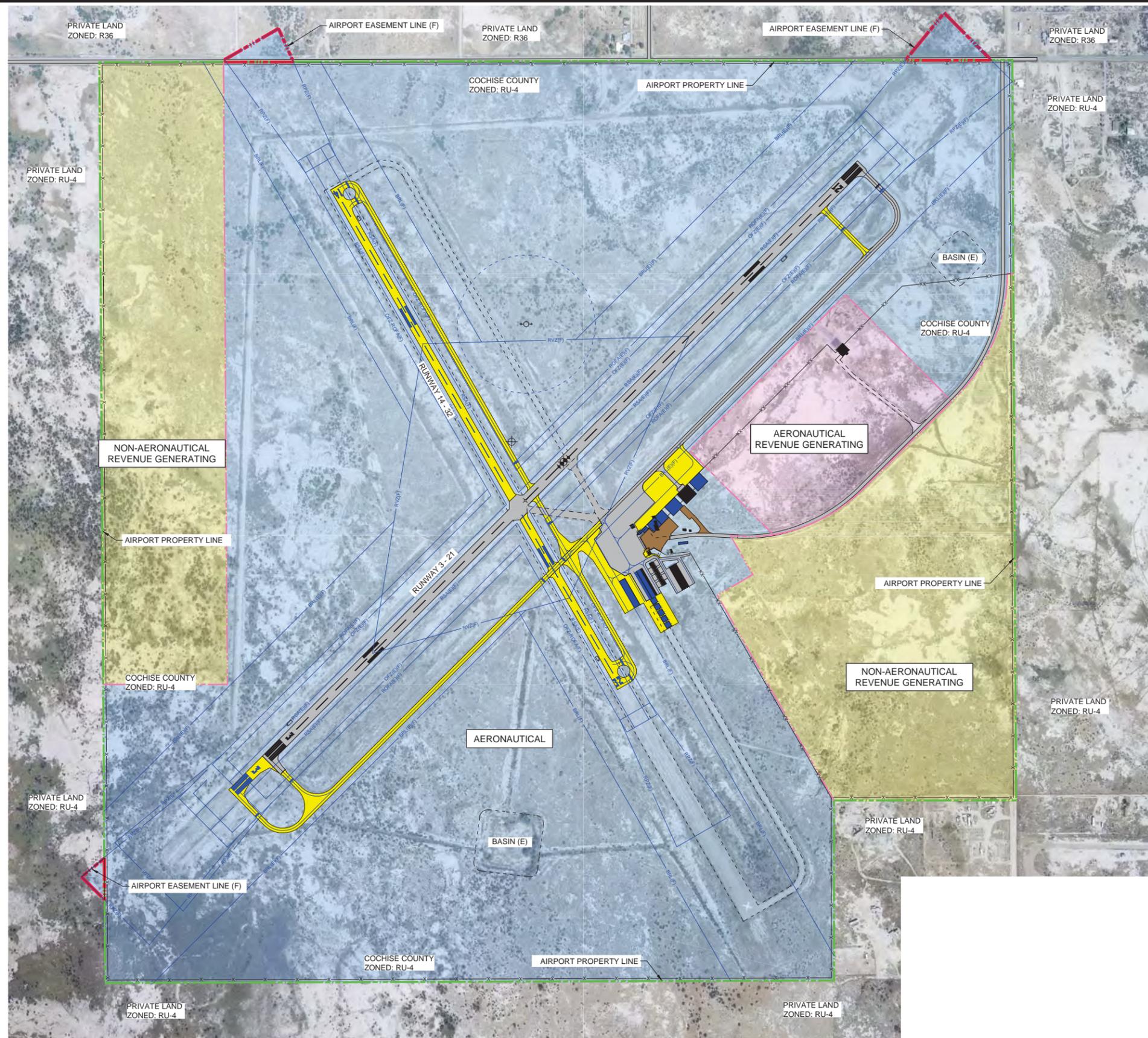
SCALE: PER BARSCALE

APPROACH / DEPARTURE SURFACE PENETRATION TABLE

No.	OBJECT	EST. GRADE HT.	EST. OBJECT HT.	20:1 TSS SURFACE PEN.	34:1 APRC SURFACE PEN.	REMARKS
(1)	4' FENCE	4180	4184	NONE	NONE	NONE
(2)	PROPERTY LINE	4180	4184	NONE	NONE	NONE

NOTE: OBJECT ELEVATIONS IN FEET MSL (VERTICAL DATUM NAVD88).
 * = OBJECT ELEVATIONS ARE ESTIMATED AND NOT BASED ON A SURVEY.
 ELEVATION DATA UNITED STATES ELEVATION DATA 30 METER RESOLUTION, DATE UNKNOWN
 - = OBJECT IS NOT LOCATED WITHIN THIS SURFACE.
 ● = OBJECT PENETRATION LOCATION
 EST. = ESTIMATED; ELEV. = ELEVATION; HT. = HEIGHT; PEN. = PENETRATION;
 N/A = NOT APPLICABLE; O.L. = OBSTRUCTION LIGHT; APRC = APPROACH SURFACE;

No.	Project No.	Date	Revision / Description	Drwn.	Chkd.	Apprvd.
0	138171	07/2014	ORIGINAL ISSUE	6171505	LDS	CM
1						JZP
2						
3						



LEGEND

	AERONAUTICAL
	AERONAUTICAL REVENUE GENERATING
	NON-AERONAUTICAL DEVELOPMENT PARCEL

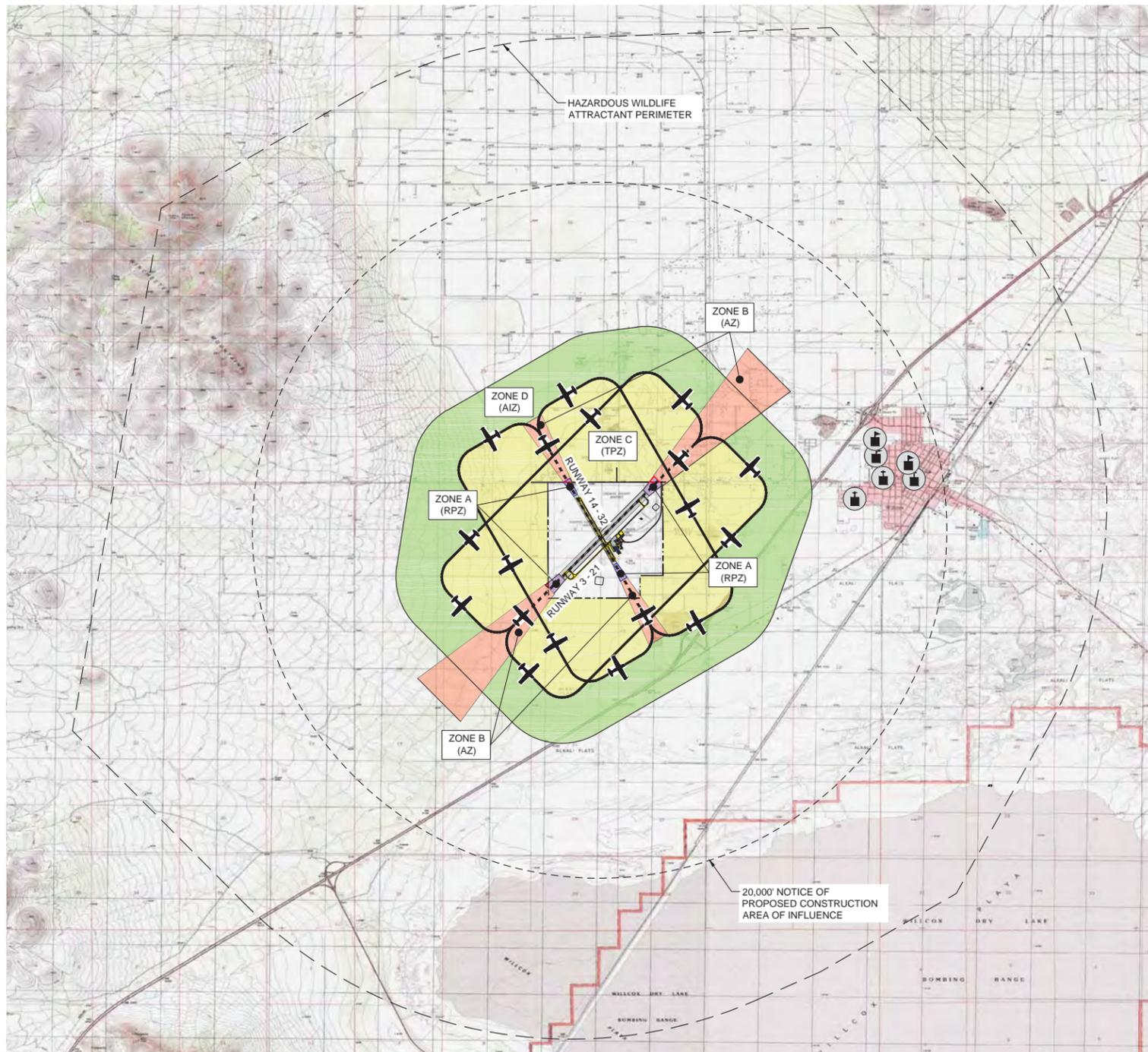


COCHISE COUNTY AIRPORT
WILCOX, ARIZONA
A.I.P. No. 3-04-0049-004-2013
AIRPORT LAYOUT PLAN

No.	Project No.	Date	Revision / Description	File	Drwn.	Chkd.	Apprvd.
0	138171	07/2014	ORIGINAL ISSUE	6171506	LDS	CM	JZP

THE PREPARATION OF THIS DOCUMENT HAS BEEN SUPPORTED, IN PART, THROUGH THE AIRPORT IMPROVEMENT PROGRAM FINANCIAL ASSISTANCE FROM THE FEDERAL AVIATION ADMINISTRATION AS PROVIDED UNDER TITLE 49 U.S.C. SECTION 47504. THE PREPARATION OF THIS DOCUMENT DOES NOT CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT OR PROJECT. THE UNITED STATES DOES NOT WARRANT THAT THE INFORMATION CONTAINED HEREIN IS ENVIRONMENTALLY ACCURATE OR VALID. THIS JUSTIFICATION IS IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS.

ON-AIRPORT
LAND USE
DRAWING



PLAN
SCALE: PER BARSCALE

LEGEND

- RUNWAY PROTECTION ZONE (RPZ) AS DIMENSIONED ON SHEET 2 OF AIRPORT LAYOUT PLAN.
- APPROACH SURFACE AS DESCRIBED ON THE FAR PART 77 DRAWING OF THE AIRPORT LAYOUT PLAN.
- NO HAZARDOUS WILDLIFE ATTRACTANT PERIMETER

C CHURCH
 H HOSPITAL
 S SCHOOL
 P PARK

TYPICAL TRAFFIC PATTERN DIRECTION AND FLIGHT TRACK AREA.

NOTES

No land fills within 5 miles of the airport.
No section 4f land affected by the airport.

NOTICE OF PROPOSED CONSTRUCTION

An FAA Form 7460-1, "Notice of Proposed Construction or Alteration" must be submitted for any construction or alteration (including hangars and other on-airport and off-airport structures, towers, etc.) within 20,000 horizontal feet of the airport greater in height than an imaginary surface extending outward and upward from the runway at a slope of 100 to 1 or greater in height than 200 feet above ground level.

ORDINANCES IN EFFECT

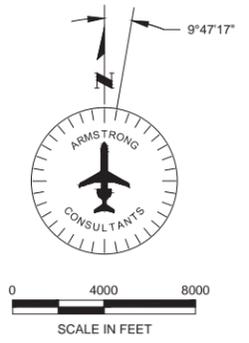
NONE OR PER PLANNER

LAND USE COMPATIBILITY GUIDELINES				
Land Use Category	ZONE D Airport Influence (AIZ)	ZONE C Traffic Pattern (TPZ)	ZONE B Approach (AZ)	ZONE A Runway Protection (RPZ)
Residential single-family, nursing homes, mobile homes, ++ multi-family, apartments, condominiums transient lodging, hotel, motel	++	++	++	++
Public schools, libraries, hospitals churches, auditoriums, concert halls transportation, parking, cemeteries	++	++	++	++
Commercial and Industrial offices, retail trade, service commercial, wholesale trade, warehousing, light industrial, general manufacturing, utilities, extractive industry	++	++	++	++
Agricultural and Recreational cropland livestock breeding parks, playgrounds, zoos, golf courses, riding stables, water recreation outdoor spectator sports amphitheatres open space	++	++	++	++

NOTE: DEVELOPMENT PROJECTS WHICH ARE WILDLIFE ATTRACTANT, INCLUDING SEWERAGE PONDS AND LANDFILLS, WITHIN 10,000 FEET OF THE AIRPORT ARE UNACCEPTABLE. (REF.: FAA AC 150/5200-33)
 (1) If allowed, aviation easements and disclosure must be required as a condition of development.
 (2) Any structures associated with uses allowed in the RPZ must be located outside the RPZ.
 (3) If no reasonable alternative exists, use should be located as far from extended centerline as possible.
 (4) If no reasonable alternative exists, use should be located as far from extended runway centerline and traffic patterns as possible.
 (5) Transportation facilities in the RPZ (i.e. roads, railroads, waterways) must be configured to comply with Part 77 requirements.

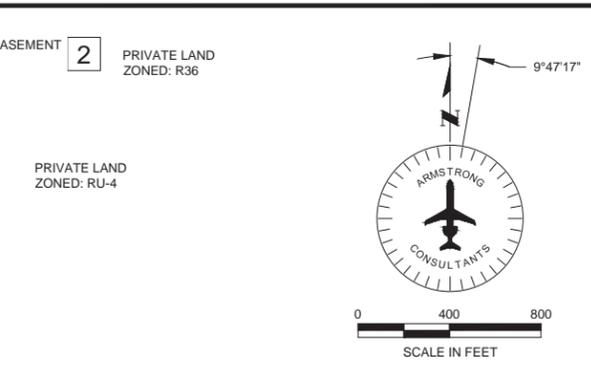
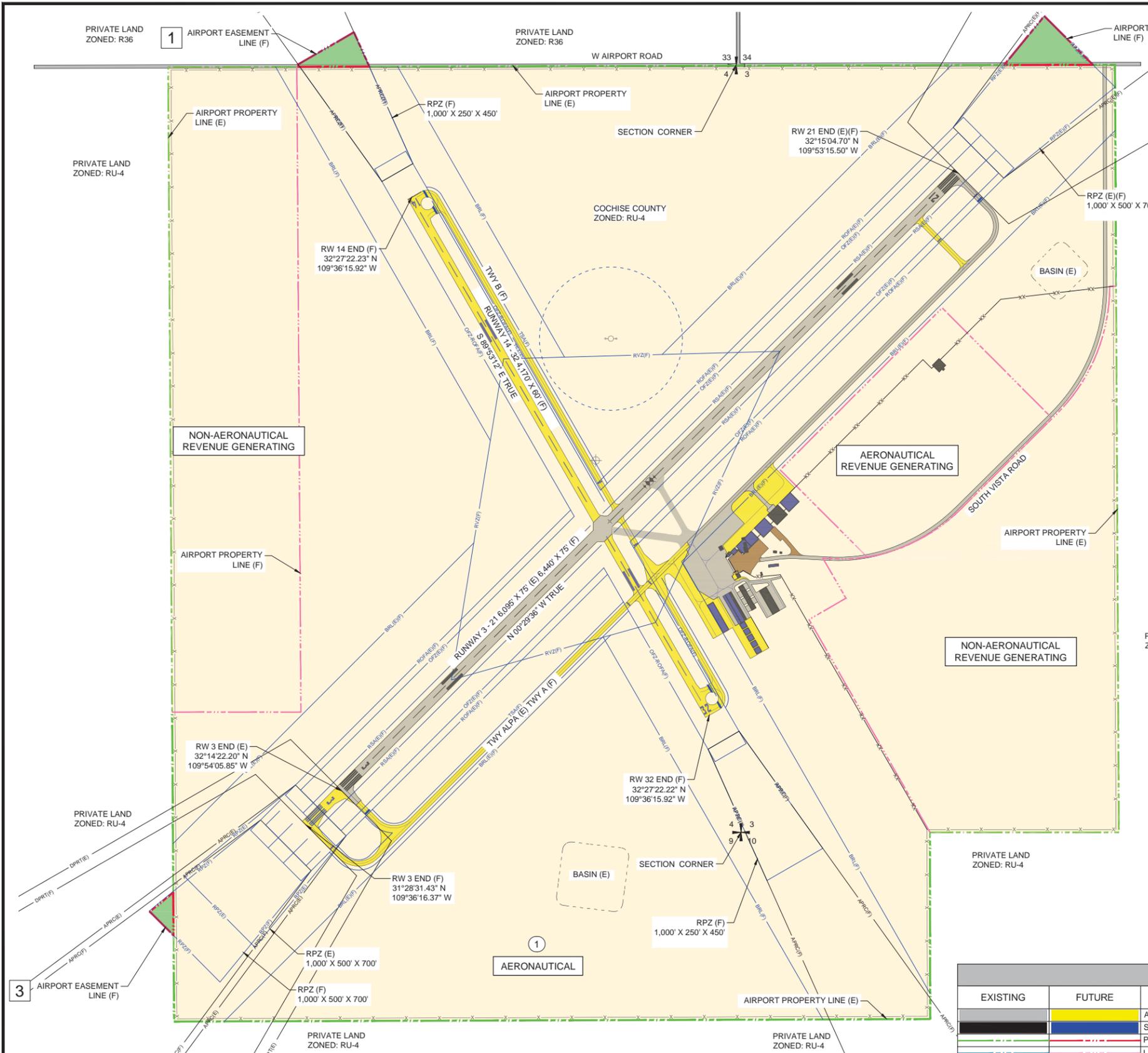
CRITERIA

Land Use Availability	Interpretation/Comments
++ Clearly Acceptable	The activities associated with the specified land use will experience little or no impact due to airport operations. Disclosure of airport proximity should be required as a condition of development.
+ Normally Acceptable	The specified land use is acceptable in this zone or area. Impact may be perceived by some residents. Disclosure of airport proximity should be required as a condition of development. Dedication of aviation easements may also be advisable.
o Conditionally Acceptable	If appropriate disclosure aviation easements and density limitations are put in place, residential uses and uses involving indoor public assemblies are acceptable.
- Normally Unacceptable	Specified use should be allowed only if no reasonable alternative exists. Disclosure of airport proximity and aviation easements must be required as a condition of development.
-- Clearly Unacceptable	Specified use must not be allowed. Potential safety or overflight nuisance impacts are likely in this area.



No.	Project No.	Date	Revision / Description	File	Drwn.	Chkd.	Apprvd.
0	138171	07/2014	ORIGINAL ISSUE		6171506	LDS	CM
1							JZP

THE PREPARATION OF THIS DOCUMENT HAS BEEN SUPPORTED IN PART THROUGH THE AIRPORT IMPROVEMENT PROGRAM FINANCIAL ASSISTANCE FROM THE FEDERAL AVIATION ADMINISTRATION AS PROVIDED UNDER TITLE 49 U.S.C. SECTION 47104. THE USER OF THIS DOCUMENT SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS. THIS DOCUMENT DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT PROJECT. THE UNITED STATES WILL NOT BE RESPONSIBLE FOR ANY DAMAGE TO PERSONS OR PROPERTY, INCLUDING REAL ESTATE, THAT MAY BE CAUSED BY THE DEVELOPMENT OF THIS DOCUMENT OR BY ANY DEVELOPMENT PROJECT THAT RESULTS FROM THIS DOCUMENT.



EXISTING AIRPORT PROPERTY							
PARCEL	CURRENT OWNER	INTEREST	LOCATION	BOOK/PAGE	DATE	ACREAGE	FEDERAL PARTICIPATION
1	COCHISE COUNTY	FEE SIMPLE	PART OF SECT. 3, 4, 9, 10 T14S, R24E	B139 P586,587,588,589	5 / 3 / 1944	±971.5	N/A

PROPERTY TO BE ACQUIRED				
PARCEL	INTEREST	LOCATION	ACREAGE	PURPOSE
1	EASEMENT	PART OF SW 1 / 4 SECT. 33, PART OF SE 1 / 4 SECT. 34 - T14S, R24E	±1.45	APPROACH PROTECTION
2	EASEMENT	PART OF SW 1 / 4 SECT. 34 - T14S, R24E	±2.43	APPROACH PROTECTION
3	EASEMENT	PART OF NW 1 / 4 SECT. 9 - T14S, R24E	±0.57	APPROACH PROTECTION

LEGEND					
EXISTING	FUTURE	DESCRIPTION	EXISTING	FUTURE	DESCRIPTION
[Symbol]	[Symbol]	AIRFIELD DEVELOPMENT (ASPH/CONC)	[Symbol]	[Symbol]	THRESHOLD LIGHTS
[Symbol]	[Symbol]	STRUCTURE/FACILITIES (BUILDING)	[Symbol]	[Symbol]	REIL
[Symbol]	[Symbol]	PROPERTY LINE (APL) / EASEMENT	[Symbol]	[Symbol]	VAS/PAPI
[Symbol]	[Symbol]	LAND USE LINE	[Symbol]	[Symbol]	AIRPORT BEACON
[Symbol]	[Symbol]	RUNWAY SAFETY AREA (RSA)	[Symbol]	[Symbol]	WIND CONE & SEGMENTED CIRCLE
[Symbol]	[Symbol]	OBSTACLE FREE ZONE (OFZ)	[Symbol]	[Symbol]	AWOS
[Symbol]	[Symbol]	RUNWAY OBJECT FREE AREA (ROFA)	[Symbol]	[Symbol]	LIGHTED WIND CONE
[Symbol]	[Symbol]	RUNWAY PROTECTION ZONE (RPZ)	[Symbol]	[Symbol]	SECTION CORNER
[Symbol]	[Symbol]	BUILDING RESTRICTION LINE (BRL)	[Symbol]	[Symbol]	CONTOURS
[Symbol]	[Symbol]	TAXIWAY SAFETY AREA (TSA)	[Symbol]	[Symbol]	ROADS/PARKING
[Symbol]	[Symbol]	TAXIWAY OBJECT FREE AREA (TOFA)	[Symbol]	[Symbol]	MARKINGS
[Symbol]	[Symbol]	RUNWAY VISIBILITY ZONE (RVZ)	[Symbol]	[Symbol]	FENCING
[Symbol]	[Symbol]	AIRPORT REFERENCE POINT (ARP)	[Symbol]	[Symbol]	RUNWAY EDGE LIGHT
[Symbol]	[Symbol]	TO BE REMOVED	[Symbol]	[Symbol]	TAXIWAY EDGE LIGHT



COCHISE COUNTY AIRPORT
WILCOX, ARIZONA
A.I.P. No. 3-04-0049-004-2013
AIRPORT LAYOUT PLAN

No.	Project No.	Date	Revision / Description	Drwn.	Chkd.	Apprvd.
0	138171	07/2014	ORIGINAL ISSUE	File	CM	JZP
1						
2						
3						

THE PREPARATION OF THIS DOCUMENT HAS BEEN SUPPORTED IN PART THROUGH THE AIRPORT IMPROVEMENT PROGRAM FINANCIAL ASSISTANCE FROM THE FEDERAL AVIATION ADMINISTRATION AS PROVIDED UNDER TITLE 49 U.S.C. SECTION 47504. THE AIRPORT IMPROVEMENT PROGRAM IS A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT. THIS JUSTIFICATION IS IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS.

EXHIBIT "A"
PROPERTY
MAP

CHAPTER SEVEN
ENVIRONMENTAL OVERVIEW

COCHISE COUNTY
COCHISE COUNTY AIRPORT
AIRPORT MASTER PLAN





CHAPTER 7 – ENVIRONMENTAL OVERVIEW

7.1 INTRODUCTION

In addition to identifying airport development that is financially and technically feasible, an important part of the master planning process is ensuring that any future airport development minimizes impacts to the environment. Council on Environmental Quality (CEQ) regulation 1501.2 states, “agencies shall integrate the NEPA process with other planning at the earliest possible time to insure that planning decisions reflect environmental values, avoid delays later in the process, and head off potential conflicts.”

The environmental overview has been prepared to identify potential environmental impacts associated with the proposed airport improvement projects and to discuss potential mitigation measures that will be considered to minimize these impacts. This overview does not replace the need for an environmental clearance document, such as an environmental assessment (EA) or an environmental impact statement (EIS), which may be required for the proposed actions resulting from a master plan. To obtain environmental clearance for any proposed projects at the Airport, documentation is required to be prepared in accordance with United States Department of Transportation (USDOT) policy, FAA Order 5050.4B, FAA Order 1050.1E, and CEQ Regulations.

Accordingly, the environmental overview was conducted in accordance with FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, FAA Order 1050.1E Change 1, *Environmental Impacts: Policies and Procedures*, and the FAA’s *Environmental Desk Reference for Airport Actions*, which requires the analysis of the following environmental resource categories prior to project implementation:

- Air quality, including greenhouse gases (GHGs) and climate
- Biotic resources/federally-listed endangered and threatened species
- Coastal barriers and coastal zone management
- Compatible land use/noise impacts
- Construction impacts
- Cumulative impacts
- Department of Transportation Act, Section 4 (f)
- Energy supplies, natural resources, and sustainable design
- Farmlands
- Floodplains
- Hazardous materials
- Historical, architectural, archeological, and cultural resources
- Light emissions and visual effects
- Secondary (induced) impacts
- Social impacts/environmental justice
- Solid waste
- Water quality
- Wetlands
- Wild and scenic rivers

FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, describes the types of impacts and thresholds that determine if an impact is considered to be significant. The proposed development projects will require a determination to be made regarding which of the following environmental clearance documents would be required prior to project implementation. These environmental clearance documents include the following:

Categorical Exclusions (CATEX) – Projects or actions that are found, based on past experience with similar projects, or actions, that do not normally require an EA or EIS because they do not individually or cumulatively have a significant effect on the environment.

Environmental Assessment (EA) – Preparation of a concise document used to describe a proposed project’s anticipated environmental impacts and mitigation measures.

Environmental Impact Statement (EIS) – Preparation of a clear, concise, and appropriately detailed document that provides the agency, decision makers, and the public with a full and fair discussion of significant environmental impacts of the proposed project and reasonable alternatives.

Ultimately, the FAA will determine whether the proposed development project constitutes a major federal action subject to NEPA, or whether it is a Categorical Exclusion from NEPA because it is not expected to have a significant adverse effect on the environment.

7.2 ENVIRONMENTAL OVERVIEW

The purpose of an environmental overview is to identify significant thresholds for the resource categories contained in Federal Aviation Administration (FAA) Order 1050.1E, *Environmental Impacts: Policies and Procedures* and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementation Instructions for Airport Actions*. The environmental overview for Cochise County Airport is illustrated in **Table 7-1**.

7.3 ENVIRONMENTAL OVERVIEW SUMMARY

After reviewing Table 7-1, one finds that future development at the Airport has the potential to impact the following environmental resources, directly or indirectly:

- Air quality
- Construction impacts
- Floodplains
- Hazardous materials
- Solid waste

The potential environmental impacts on any future proposed action will be identified and gauged against the baseline conditions. When and if a threshold of significance as defined in FAA Order 1050.1E, Appendix A, has been exceeded, further analysis may be required in a subsequent NEPA document.

Table 7-1 Environmental Overview for Cochise County Airport

NEPA Resource Category	Order 1050.1E Threshold of Significance	Potential Environmental Impacts	Oversight Agencies	Permits/ Certificates Anticipated	Anticipated Impact Level ✓ None ○ Some ● Significant
<p>Air Quality, including greenhouse gases (GHGs) and climate</p>	<p>For Air Quality: When a project or action exceeds one or more of the National Ambient Air Quality Standards (NAAQS)</p> <p>For GHGs: Aviation Emissions and Air Quality Handbook Version 3 dated July 2014 provides 1) guidance and procedures for preparing FAA Air Quality Assessments, 2) help to ensure the assessments meet NEPA and CAA Requirements and 3) determines when an Air Quality Assessment is necessary and what is appropriate.</p>	<p>Construction emissions, specifically dust, are not a long-term factor. The necessary permits will be obtained before construction begins and construction projects will conform to FAA Advisory Circular (AC) 150/5370-10G, <i>Standards for Specifying Construction of Airports</i>.</p> <p>The following Best Management Practices (BMP) are recommended to minimize construction emissions:</p> <ul style="list-style-type: none"> I. Site Preparation <ul style="list-style-type: none"> A. Minimize land disturbance, B. Use watering trucks to minimize dust, C. Cover trucks when hauling dirt or debris, D. Stabilize the surface of dirt piles and any disturbed areas, E. Use windbreaks to prevent any accidental dust pollution, and F. Segregate storm water drainage from construction sites and material piles. II. Construction Phase <ul style="list-style-type: none"> A. Cover trucks when transferring materials, and B. Minimize unnecessary vehicular and machinery activities. III. Completion Phase <ul style="list-style-type: none"> A. Re-vegetate any disturbed land not used, and B. Remove unused material and dirt piles. <p>Temporary air pollution may occur as a result of future construction projects. The design and construction of the proposed improvements will incorporate BMP to reduce air quality impacts, including minimizing land disturbance, using water trucks for dust suppression, covering trucks when hauling soil, and the use of wind breaks. These practices will be selected based on the site’s characteristics. No significant air quality impacts are anticipated for any future proposed development.</p> <p>In addition, the Aviation Emissions and Air Quality Handbook Version 3 dated July 2014 provides guidance on following a 4-step approach so users can:</p> <ol style="list-style-type: none"> 1. Determine when an air quality assessment is warranted, 2. Formulate an appropriate approach to preparing the assessment, 3. Conduct the assessment, and 4. Document the results. <p>There is no single, universal criterion for determining what type of analysis is appropriate for FAA supported projects or actions.</p>	<p>U.S. Environmental Protection Agency (EPA)</p>	<p>None</p>	<p>○</p>
<p>Biotic Communities/Endangered and Threatened Species of Flora and Fauna</p>	<p>A significant impact to Federally-listed threatened and endangered species would occur when the FWS or NMFS determines that the proposed action would be likely to jeopardize the continued existence of the species in question, or would result in the destruction or adverse modification of Federally-designated critical habitat in the affected area.</p>	<p>Table 2-14 depicts the threatened, endangered, and candidate species potentially occurring within Cochise County, Arizona as of October 2014. Prior to actually implementing any of the recommended development projects, the required environmental clearance documentation will evaluate the likelihood of any impact to either Federally listed or non-listed species.</p>	<p>U. S. Department of the Interior (DOI), Fish and Wildlife Services (FWS), and National Marine Fisheries Service (NMFS)</p>	<p>A Biological Opinion is required if an action may affect a Federally-protected species.</p>	<p>✓</p>

NEPA Resource Category	Order 1050.1E Threshold of Significance	Potential Environmental Impacts	Oversight Agencies	Permits/ Certificates Anticipated	Anticipated Impact Level ✓ None ○ Some ● Significant
Coastal Barriers and Coastal Zone Management (CZM)	No thresholds are established.	The Airport is not located within or adjacent to a coastal zone. Any proposed action and reasonable alternatives will not adversely impact the coastal zone natural resources protected by the National Oceanic and Atmospheric Administration (NOAA) regulations under 15 CFR Part 930.	FWS, Federal Emergency Management Agency (FEMA), NOAA, and state CZM Agency	Not applicable	✓
Compatible Land Use/Noise	For most areas: When the noise analysis indicates that, pursuant to NEPA, a significant noise impact will occur over noise sensitive areas within the DNL 65 dB contour, or when an action, compared to the no-action alternative for the same timeframe, would cause noise sensitive areas located at or above DNL 65 dB to experience a noise increase of at least DNL 1.5 dB. An increase from DL 63.5 dB to DNL 65 dB over a noise sensitive area is a significant impact. For national parks, national wildlife refuges, and historic sites, including traditional cultural properties: FAA officials must give special consideration to these resources. The 65 dB DNL threshold may not adequately address noise impacts on visitors to these areas.	The existing and forecast levels of traffic are below the current threshold of significance (90,000 annual propeller aircraft operations or 700 annual jet operations) for environmental analysis on Federally-aided projects, as defined by FAA Order 1050.1E. Furthermore, there are currently no generated noise contours for the Cochise County Airport due to low activity. Therefore, a noise analysis is not required. Based on a review of the existing and forecasted operations and a review of the surrounding land uses adjacent to the airport, significant noise impact is not anticipated to occur. The airport is primarily surrounded by undeveloped open space. If activity at the Airport increases in the future and generates enough operations to warrant noise contours, a noise analysis may need to be conducted and the land use surrounding the Airport will have to be reviewed.	Federal Aviation Administration (FAA) and EPA	None	✓
Construction Impacts	Significant impacts would most likely occur when unusual circumstances exist (e.g. construction-induced traffic congestion that would substantially degrade air quality) and when the severity the impact cannot be mitigated below FAA’s threshold levels for the affected resource.	No significant impacts are anticipated to occur. For additional discussion about measures that would be taken by a contractor, refer to the Air Quality resource category.	EPA or a state which EPA delegated National Pollution Discharge Elimination System (NPDES) authority exists; FAA and Council on Environmental Quality (CEQ)	NPDES storm water permit for construction	○
Cumulative Impacts	The significance threshold for cumulative impacts varies according to the affected resource. The responsible FAA official will determine if a project impacts added to those of past, present, and reasonably foreseeable future actions trigger the significance threshold for the resource analyzed.	None anticipated. A cumulative impact analysis would be conducted as part of an environmental clearance document to demonstrate that cumulative impacts could be mitigated.	CEQ, FAA	None	✓

NEPA Resource Category	Order 1050.1E Threshold of Significance	Potential Environmental Impacts	Oversight Agencies	Permits/ Certificates Anticipated	Anticipated Impact Level ✓ None ○ Some ● Significant
Department of Transportation (DOT) Act, Section 4(f)	When the proposed action involves a physical use that would be more than minimal or a constructive use would occur. In either case, mitigation is not enough to sustain the resource's designated use.	Any proposed projects would be located on existing airport property on previously disturbed land, and would not use any land from a public park, recreation area, or wildlife or waterfowl refuge of national, state, or local significance. In the event that un-known resources are found during construction, all applicable federal and state laws regarding such findings will be followed.	Department of Transportation (DOT) and FAA	National Park Service (NPS) approval is required to convert Section 4(f) resources required or developed using funds under Section 6(f).	✓
Energy Supplies, Natural Resources, and Sustainable Design	When an action's construction, operation, or maintenance would cause demands that would exceed available or future (project year) natural resource or energy supplies.	None anticipated. Planned development projects at the Airport are not anticipated to result in a demand for natural resources or energy consumption beyond what is available by service providers.	CEQ and FAA	None required.	✓
Farmlands	When the combined score on Form AD-1006 ranges between 200 and 260, a significant impact would likely occur. Total scores continuing to range between 200 and 260 are significant impacts. Impact severity increases as the score approaches 260	According to the U.S. Department of Agriculture's Natural Resources Conservation Services (NRCS), four types of soil can be found on the Airport property; three of the soil types are classified as "non-prime farmland," and the fourth is classified as "prime farmland if irrigated." The majority of the Airport's property falls within the "non-prime farmland;" only small scattered parcels of "prime farmland if irrigated" soil exist in the far southeast corner of the property. According to the Farmland Protection Policy Act, the regulation does not apply to land already committed to "urban development or water storage," i.e., airport developed areas, regardless of its importance as defined by the NRCS. In addition, no farming activity currently takes place on the Airport's property. As such, future development and construction projects are not expected to impact any USDA designated farmland.	U.S. Department of Agriculture's (USDA) Natural Resource Conservation Service (NRCS)	Farmland Conversion Impact Rating Form (AD-1006) is required, or a completed Land Evaluation Site Assessment, if applicable.	✓
Floodplains	When notable adverse impacts on natural and beneficial floodplain values would occur.	According to the Federal Emergency Management Agency (FEMA) National Flood Insurance Rate Map, Cochise County Airport is not located in a floodplain. However, the majority of the western portion of the airport property is located in Special Flood Hazard Area.	FEMA, FAA, DOT, and State and local agencies	Actions within a base floodplain may require authorization from the Army Corps of Engineers, FEMA, and State and local agencies.	○
Hazardous Materials	<ul style="list-style-type: none"> The action involves a property on, or eligible for, the National Priority List (NPL) The sponsor would have difficulty meeting applicable local, state, or Federal laws and regulations on hazardous materials There is an unresolved issue regarding hazardous materials 	According to the EPA, Cochise County Airport (Walden Aviation) has been identified as a Brownfields property containing small amounts of hazardous waste as identified in a Phase I/II Environmental Assessment dated July 2008 and June 2009. The assessment determined the media affected included the soil and ground water. Small amounts of lead and "other metals" were found in the soil. According to the EPA detailed facility report and Resource Conservation and Recovery Act report (FRS ID: 110008255477/RCR ID: AZD982035719), clean up at the site was not required and no institutional controls were mandated. The site was deemed ready for reuse/redevelopment as of June 2009. If hazardous materials are encountered during construction on future projects, the Arizona Department of Environmental Quality will be contacted regarding procedures for the handling and the disposal of the hazardous materials.	EPA, Arizona Department of Environmental Quality (ADEQ), FAA	Comprehensive Environmental Response Compensation and Liability Act (CERCLA) or Resource Conservation and Recovery Act (RCRA) permits, as appropriate	○

NEPA Resource Category	Order 1050.1E Threshold of Significance	Potential Environmental Impacts	Oversight Agencies	Permits/ Certificates Anticipated	Anticipated Impact Level ✓ None ○ Some ● Significant
Historical, Architectural, Archaeological, and Cultural Resources	When an action adversely affects a protected property and the responsible FAA official determines that information from the state and /or tribal Historic Preservation Officer addressing alternatives to avoid adverse effects and mitigation warrants further study	An agency coordination letter was sent to the State Historic Preservation Office to determine if any future proposed projects will cause an adverse effect on a property which has been identified as having historical, architectural, archaeological, or cultural significance. A verbal response from the agency implied there are no historic, architectural, archeological, or cultural resources on Cochise County Airport property. However, a Cultural Resource Survey at the Cochise County Airport has not been completed.	Advisory Council and Historic Preservation (ACHP), FAA, State Historic Preservation Office (SHPO)	No formal permits are required except under ARPA 16 USC, Sections 470aa-470mm.	✓
Light Emissions and Visual Effects	None established, although factors to consider include: For light emissions: When an action’s light emissions create annoyance to or interfere with normal activities. For visual effects: When consultation with Federal, State or local agencies, tribes or the public shows these effects contract with existing environments and the agencies state the effect is objectionable.	Installation of all outdoor lighting fixtures (with the exception of those used for navigational purposes on the airfield) must comply with Cochise County’s Light Pollution Code, found within Article 1810 – Outdoor Lighting Standards of the County’s Zoning Regulations. No impacts are known to occur based on the existing configuration of the airfield.	Cochise County	None, however state, regional, and local agencies and Tribal approvals may be needed.	✓
Secondary (Induced) Impacts	Induced impacts will normally not be significant except where there are also significant impacts in other categories, especially noise, land use, or direct social impacts.	None. The proposed development is not expected to create significant adverse noise, land use, or social impacts. Additional information can be found in each of those resource categories.	None	County	✓
Socioeconomic Impacts, Environmental Justice, and Children’s Environmental Health Risks and Safety Risks	For socioeconomic issues: When an action would cause: <ul style="list-style-type: none"> • Extensive relocation, but sufficient replacement housing is unavailable • Extensive relocation of community businesses that would cause severe economic hardship for affected communities. • Disruption of local traffic patterns that substantially reduce the Levels of Service of roads serving the airport and its surrounding communities. • A substantial loss in community tax base. For Environmental Justice issues: When an action would cause disproportionately high and adverse human health or environmental effects on minority and low income populations, a significant impact may occur. For Children’s Health & Safety Risks: An action causing disproportionate health and safety risks to children may indicate a significant impact.	For socioeconomic issues: None. All proposed development would occur on the Airport property and would not result in the relocation of housing or community businesses, disruption of local traffic patterns, or a loss in community tax base. For Environmental Justice issues: None. No impacts to minority and low income populations would occur as a result of the proposed actions. All proposed projects would occur on the Airport property. For Children’s Health & Safety Risks: None. No impacts to the health and safety of children would occur as a result of the proposed actions. All proposed projects would occur on the Airport property.	CEQ, FAA, and Task Force on Health Risks and Safety to Children	Typically, FAA needs no formal Federal permits, certifications, or approvals when social impacts occur.	✓

NEPA Resource Category	Order 1050.1E Threshold of Significance	Potential Environmental Impacts	Oversight Agencies	Permits/ Certificates Anticipated	Anticipated Impact Level ✓ None ○ Some ● Significant
Solid Waste	No thresholds have been established.	Solid waste generated during future project construction would be contained in designated areas and receptacles and removed once the project is completed. Pollution related to construction activities (i.e. dust) would be minimal and would not adversely affect the Airport as a whole. The sponsor should provide assurances that it will meet applicable solid waste disposal requirements.	EPA, FAA, State or local agencies responsible for managing solid waste	None	○
Water Quality	When an action has the potential to exceed water quality standards, there are water quality problems that cannot be avoided or satisfactorily mitigated, or there would be difficulty in obtaining a permit or authorization, there may be a significant impact.	Construction best management practices would be implemented to mitigate any temporary impacts to water quality for any future construction activities at the Airport. The contractor would comply with requirements outlined in FAA Advisory Circular 150/5370-10F, <i>Standards for Specifying Construction of Airports</i> . Water quality would be protected by installing and maintaining soil erosion and sediment controls, properly sequencing construction operations, and stabilizing exposed earth as soon as practicable during construction. An airport Storm Water Pollution Prevention Plan (SWPPP) should be created by the County for Cochise County Airport if one currently does not exist.	EPA, State, or Tribal water quality agencies; FWS	NPDES permit from EPA or State under Section 402 of the CWA; and a Section 404 permit from the ACE	✓
Wetlands	When an action would: <ul style="list-style-type: none"> • Adversely affect a wetland's function to protect the quality or quantity of a municipal water supply. • Substantially alter the hydrology needed to sustain the affected wetland's values and functions or those of a wetland to which it is connected. • Substantially reduce the affected wetland's ability to retain floodwaters or storm runoff, thereby threatening public health, safety or welfare. • Adversely affect the maintenance of natural systems supporting wildlife and fish habitat or economically important timber, food, or fiber resources of the affected area surrounding wetlands. • Promote development of secondary activities or services that would affect the above functions. 	According to the U.S. Fish and Wildlife Service's National Wetlands Inventory, approximately three acres of wetlands exists on the south side of Cochise County Airport and is designated as "other." According to Cochise County and airport management, the area designated as a wetland is a storm water detention basin. Any future proposed projects would not be located within or near the storm water detention basin. No other wetlands exist on, or adjacent to, the airport property.	DOT, EPA, Army Corps of Engineers (ACE), State Environmental Agencies, and FWS/State Wildlife Agencies	Section 404 permit	✓
Wild and Scenic Rivers	No thresholds are established.	Future proposed projects on the airport would not affect any portion of the free-flowing characteristics of a Wild and Scenic River, Study River, or adjacent areas that are part of such rivers, as listed in the National Park Service (NPS) Wild and Scenic Rivers Inventory. The closest Wild and Scenic Rivers in Arizona are the Verde River and Fossil Creek, which are located approximately 200 and 225 miles to the northwest of Cochise County Airport.	DOI, USDA, NPS, FWS, Bureau of Land Management (BLM), US Forest Service (USFS), FAA, and CEQ	Notifying the appropriate agency via Section 7 Consent Determination	✓

CHAPTER EIGHT
AIRPORT DEVELOPMENT AND FINANCIAL PLAN

COCHISE COUNTY
COCHISE COUNTY AIRPORT
AIRPORT MASTER PLAN





CHAPTER 8 – AIRPORT DEVELOPMENT AND FINANCIAL PLAN

8.1 INTRODUCTION

The final chapter of a master plan is intended to provide guidance on what will be required to demonstrate the airport sponsor's ability to fund the projects in the master plan. A more general discussion of the funding of medium and long-term projects is more reasonable because of the uncertainty of future Federal and State funding and possible shifts in the overall importance of those projects in reaction to aviation demand at the airport and changes in the economic climate in a community. The County's ability to fund the recommended projects is a major consideration in preparing the Capital Improvement Plan (CIP). The recommended development plan for the Cochise County Airport is based on the facility requirements as presented in Chapter 4.

The proposed funding plan contained in this chapter assumes the continuation of the FAA's Airport Improvement Program (AIP), and the growth of the airport's aviation activity as depicted in the approved forecasts.

The intrinsic value that a well-maintained airport brings to a community or region goes far beyond the day-to-day operational costs. In other words, the money spent and benefits received in the community or region by individuals and businesses that use the airport equals or exceeds the expenses, which are a result of operations at the airport.

8.2 AIRPORT DEVELOPMENT PLAN

Future airport development at Cochise County Airport as included in this Airport Master Plan and covers a 20-year planning period. Development items are grouped into three phases:

- Phase I, Short-term (1-5 years)
- Phase II, Medium-term (6-10 years)
- Phase III, Long-term (11-20 years)

The refined development costs contained in this chapter are based on the proposed improvements as shown on the Airport Layout Plan, and are included for each item in the financial development plan. The phasing of projects assists the airport sponsor in budgetary planning for future construction projects. **Table 8-1** outlines the 20-year financial development plan. The sequence in which the projects are completed is important, as the ultimate configuration of the Airport will require numerous projects.

Table 8-1 Financial Development Plan Over 20 Years

Phase I, Short-term Development		Total	FAA Share	State Share	Local Share ¹
A1	Partial parallel Taxiway A reconstruction	\$1,500,000	\$1,365,900	\$67,050	\$67,050
A2	Taxiways A2 & C reconfiguration; construct portion of Runway 14-32 parallel taxiway	\$325,000	\$295,945	\$14,528	\$14,527
A3	Installation of AWOS-III	\$300,000	\$273,180	\$13,410	\$13,410
A4	Installation of airfield visual and navigational aids	\$300,000	\$273,180	\$13,410	\$13,410
A5	Aircraft apron expansion	\$500,000	\$455,300	\$22,350	\$22,350
A6	Relocate fuel facility	\$35,000	\$31,871	\$1,565	\$1,564
A7	Install fuel facility credit card payment device	\$20,000	\$0	\$0	\$20,000
A8	Construct new terminal building ² and vehicle parking lot	\$765,000	\$696,609	\$34,196	\$34,195
A9	Construct/reconfigure taxiway adjacent to T-hangar #8	\$30,000	\$27,318	\$1,341	\$1,341
A10	Remove/relocate existing T-shade structure	\$50,000	\$45,530	\$2,235	\$2,235
A11	Install perimeter fencing and gates	\$875,000	\$796,775	\$39,113	\$39,112
A12	Land acquisition (approx. 2.5 acres) for Runway 21 RPZ	\$20,000	\$18,212	\$894	\$894
Total Short-term Development Cost		\$4,720,000	\$4,279,820	\$210,092	\$230,088
Phase II, Medium-term Development		Total	FAA Share	State Share	Local Share ¹
B1	Construct Runway 14-32 with bypass taxiways; land acquisition (approx. 1.5 acres) for Runway 14 RPZ	\$2,620,000	\$2,385,772	\$117,114	\$117,114
B2	Runway 3 and parallel taxiway extension; land acquisition (approx. .5 acres) for Runway 3 RPZ	\$675,000	\$614,655	\$30,173	\$30,172
B3	Construct Runway 21 bypass taxiway	\$225,000	\$204,885	\$10,058	\$10,057
B4	Construct new airport support and maintenance building	\$350,000	\$0	\$0	\$350,000
B5	Construct additional aircraft hangars	\$2,300,000	\$0	\$0	\$2,300,000
B6	Additional aircraft apron expansion	\$65,000	\$59,189	\$2,906	\$2,905
B7	Construct aircraft wash pad	\$75,000	\$0	\$67,500	\$7,500
Total Medium-term Development Cost		\$6,310,000	\$3,264,501	\$227,751	\$2,817,748
Phase III, Long-term Development		Total	FAA Share	State Share	Local Share ¹
C1	Construct Runway 14-32 full parallel taxiway	\$1,300,000	\$1,183,780	\$58,110	\$58,110
C2	Construct additional aircraft hangars	\$500,000	\$0	\$0	\$500,000
Total Long-term Development Cost		\$1,800,000	\$1,183,780	\$58,110	\$558,110
TOTAL DEVELOPMENT COST		\$12,830,000	\$8,728,101	\$495,953	\$3,605,946

Prepared by: Armstrong Consultants, Inc., 2014

Note. All costs are calculated in 2014 dollars and are for planning purposes only. Assumes 91.06 percent funding for FAA eligible development and 4.47 percent funding for State eligible development (with 4.47 percent match by Sponsor (Local)); if State funding is not eligible, Sponsor's share is 8.94 percent. Some eligible projects may be funded without FAA participation, in which case the State funding share is 90 percent and the sponsor's share is 10 percent. Funding for eligible projects, regardless of FAA or State participation, is not guaranteed and is subject to funding availability.

¹ Local share may include sponsor funds and/or private development funds. ² According to FAA Order 5100.38D, *Airport Improvement Program Handbook*, general aviation airports may use their non-primary entitlements on a terminal building.

8.3 FUNDING SOURCES

Potential funding sources for the development plan identified in Chapter 5, Development Alternatives, provides the basis for financial analysis. Funding comes from the FAA and local entity contributions. This section will identify and quantify the expected sources of capital funds. As previously indicated, FAA funds represent the majority of expected capital; however, a number of sources are identified and indicated below.

8.3.1 FEDERAL AVIATION ADMINISTRATION

The most recent legislation affecting federal funds for airports across the country was enacted on February 17, 2012, and is entitled *The FAA Modernization and Reform Act of 2012*. The law authorizes the FAA's Airport Improvement Program (AIP) at \$3.35 billion for fiscal years 2012 through 2015. Eligible airports, which include those in the National Plan of Integrated Airports System (NPIAS), can apply for AIP grants on an annual basis.

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

For large and medium primary hub airports, AIP grants cover 75 percent of eligible costs (or 80 percent for noise program implementation). For small primary, reliever, and general aviation airports, the grants cover 90 - 95 percent of eligible costs, based on statutory requirements.

Entitlements - The term "entitlements" refers to the passenger, cargo service, and state apportionments (including non-primary apportionments when applicable) available to sponsors and states based on formulas found within the Modernization Act. Funds apportioned for any non-hub or non-primary airport remain available for obligation during the fiscal year for which the amount was apportioned and the three fiscal years immediately following that year. Apportioned funds that have been unused are protected and carryover for the airports through the three or four year periods. Non-primary entitlement funds are specifically for general aviation airports listed in the latest NPIAS that demonstrate needed airfield development. General aviation airports with an identified need are eligible to receive annually the lesser value of the following:

- 20 percent of the 5-year cost of their current NPIAS value, or
- \$150,000 per year

A funding condition of the non-primary entitlement is that Congress must appropriate \$3.2 billion or more for non-primary entitlement funds to exist in the fiscal year.

State Apportionment - If the AIP has funding available equal to, or more than \$3.2 billion, a total of 20 percent (or if the AIP has funding available under \$3.2 billion, a total of 18.5 percent) of the annual amount made available for obligation is apportioned for use at non-primary commercial service, general aviation, and reliever airports within the States.

Discretionary - Airport capacity, safety, and security projects are funded on a national priority system based on need. Many of the most expensive projects in the CIP such as runway extensions are expected to be funded from discretionary funds. Other CIP projects may be eligible for FAA discretionary dollars, but are ranked lower or have portions of the project that may be funded from discretionary funds. Discretionary funds provide 91.06 percent of the cost of eligible projects.

8.3.2 STATE FUNDING PROGRAM

In Arizona under the current legislation, capital improvement projects are funded 91.06 percent by the FAA and 8.94 percent by the sponsor for fiscal year 2012 through 2015 (with the exception of some commercial service airports and some airports located in economically distressed areas). Beyond fiscal year 2015, the FAA will go through the re-authorization process, or pass continuing resolution(s) to continue funding the Aviation Trust Fund. The State's airport-assistance program for the five-year Airport Capital Improvement Plan (ACIP) includes two funding splits for grants based upon whether or not the FAA is participating. When the FAA participates, the Arizona Department of Transportation (ADOT) provides 50 percent of a sponsor's share. Current sponsor obligations on federal projects are 8.94 percent of a project's total cost, making the state share 4.47 percent. Each year, the ADOT ACIP program sets aside between \$3.5 million (in FY 2011) to about \$4.5 million (in FY 2014) to match federal grants. As airport sponsors receive a federal grant, they apply to the state for the matching funds. Additionally, some direct or "state only" grants (when the FAA is not participating in the funding) may be available to a sponsor for eligible projects. Currently, ADOT will fund 90 percent of eligible projects, leaving the remaining 10 percent share to be funded by the sponsor.

To fund revenue generating developments at airports, ADOT established the Arizona Development Loan Program. The program is designed to be a flexible funding mechanism to assist eligible airport sponsors in improving the economic status of their respective airports.

Eligible Applicants - The state, city, town, county, district, authority or other political subdivisions of the state, which owns and operates an airport(s), open to the public on a nondiscriminatory basis, is eligible for assistance under the Loan Program. Eligible airports must be identified in the ADOT State Airports System Plan dated November 2009 (or most current version).

Eligible Projects - Typical eligible projects included airport related construction projects for runways, taxiways, aircraft parking ramps, aircraft storage facilities (hangars), fueling facilities, general aviation terminal buildings or pilot lounges, utility services (power, water, sewer, etc.) to the airport runway or taxiway lighting, approach aids (electronic or visual), ramp lighting, airport fencing, airport drainage, land acquisition, planning studies, and under certain conditions, the preparation of plans and specifications for airport construction projects. In addition, projects not eligible for funding under other programs and those designed to improve the airport self-sufficiency, may also be considered.

Pavement Maintenance Program - As introduced in Chapter 2, The Arizona Pavement Preservation Program (APPP) has been established to assist in the preservation of the Arizona airport system infrastructure. Every year ADOT's Aeronautics Group, using the Airport Pavement Management System (APMS), identifies airport pavement maintenance projects eligible for funding for the upcoming five-year ACIP. 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 the Aeronautics Group to participate in the APPP.

The County has taken advantage of the pavement maintenance program at the Cochise County Airport. Provided the program continues, it is recommended that the County continue to leverage this program

to preserve the overall integrity of the airfield pavement. However, it should be noted that the APMS program is supplemental to the airport sponsor's own pavement management program, and therefore should not be solely dependent upon as a means for the upkeep of the airport's pavements.

8.3.3 LOCAL FUNDING

Airport Rates and Charges - FAA Order 5190.6B, *FAA Airport Compliance Manual*, provides comprehensive guidance on the legal requirement that airport fees be fair, reasonable, and not unjustly discriminatory. The objective of the policy is to provide guidance to airports in establishing rates and charges that will help the airport work towards financial sustainability.

Several revenue generating activities that the County is already doing at Cochise County Airport will continue to enhance revenues at the airport, such as:

- Aircraft hangar/T-shade rental
- Aircraft tie-down rental
- Fuel sale mark-up

The County should continue to monitor the current rates and charges to ensure they are remaining competitive with other airports in the region and state. Other more conventional methods of securing funding and financing alternatives the County could consider include:

Bank Financing - Some airport sponsors use bank financing as a means of funding airport development. Generally, two conditions are required; first, the sponsor must show the ability to repay the loan plus interest, and second, capital improvements must be less than the value of the present facility or some other collateral used to secure the loan. These are standard conditions which are applied to almost all bank loan transactions.

General Obligation Bonds - General Obligation bonds (GO) are a common form of municipal bonds whose payment is secured by the full faith credit and taxing authority of the issuing agency. GO bonds are instruments of credit and because of the community guarantee, reduce the available debt level of the sponsoring community. This type of bond uses tax revenues to retire debt and the key element becomes the approval of the voters to a tax levy to support airport development. If approved, GO bonds are typically issued at a lower interest rate than other types of bonds.

Force Accounts, In-kind Service, and Donations - Depending on the capabilities of the Sponsor, the use of force accounts, in-kind service, or donations may be approved by the FAA for the Sponsor to provide their share of the eligible project costs. An example of force accounts would be the use of heavy machinery and operators for earthmoving and site preparation of runways or taxiways, the installation of fencing, or the construction of improvements to access roads. In-kind service may include surveying, engineering, or other services. Donations may include land or materials such as gravel or water needed for the project. The values of these items must be verified and approved by the FAA prior to initiation of the project.

Third-Party Support - Several types of funding fall into this category. For example, individuals or interested organizations may contribute portions of the required development funds (pilot associations,

economic development associations, Chambers of Commerce, etc.). Although not a common means of airport financing, the role of private financial contributions not only increases the financial support of the project, but also stimulates moral support to airport development from local communities. For example, private developers may be persuaded to invest in hangar development. A suggestion would be for the City to authorize long-term leases to individuals interested in constructing a hangar on airport property. This arrangement generates revenue from the airport, stimulates airport activity, and minimizes the sponsor's capital investment requirements. Another method of third-party support involves permitting the fixed base operator (FBO) to construct and monitor facilities on property leased from the airport. Terms of the lease generally include a fixed amount plus a percentage of revenues and a fuel flowage fee. The advantage to this arrangement is that it lowers the sponsor's development costs, a large portion of which is building construction and maintenance.

The airport funds some or all of the cost of capital projects by generating revenue from tenants, users and other sources. These airport funds can come from annual surplus, reserves, or borrowing. While capital projects are usually funded from variety of sources, in the end, airport contributed funds have a role in almost all projects, particularly as seed money to initiate projects and to provide the match of FAA funds.

8.4 PAVEMENT MAINTENANCE PLAN

Periodic maintenance is necessary to prolong the useful life of the airport pavements. The effects of weather, oxidation, and usage cause the pavement to deteriorate. The accumulation of moisture in the pavement causes heaving and cracking, and is one of the greatest causes of pavement distress. The sun's ultraviolet rays oxidize and break down the asphalt binder in the pavement mix, which in turn accelerates raveling and erosion and can reduce asphalt thickness.

The appropriate pavement maintenance will minimize the effects of weather damage and oxidation. Crack sealing is performed to keep moisture from accumulating inside and underneath the pavement and should be done at least every five years prior to fog sealing or overlaying the pavements. Fog seals, slurry seals, and coal tar emulsion (fuel resistant) seals are spread over the entire paved area to replenish the binder lost through aggregate to increase the friction coefficient of the pavement. Asphalt overlays are performed near the end of the useful life of the pavement. A layer of new asphalt is placed over the existing pavement to renew the life of the pavement and to recover lost strength due to deterioration. Unless specially designed, the overlay is not intended to increase the weight bearing capacity of the pavement. Overlays may be supplemented with a porous friction course of grooving to increase friction and minimize hydroplaning. Remarketing of the pavement is required following a fog seal or overlay.

The recommended pavement maintenance cycle time frames are listed below in **Table 8-2**. It should be noted that the time frames are recommendations only. Actual pavement deterioration will be affected by use of the Airport and weather exposure. Maintenance actions should be scheduled as necessary through close monitoring and inspection of the pavements.

Table 8-2 Pavement Maintenance Schedule

Pavement Maintenance Cycle	Approximate Time Frames
Crack Seal Pavement	1 - 2 years
Crack Seal, Seal Coat, and Remark Pavements	3 - 8 years
Overlay Pavements	15 - 18 years
Seal Concrete Joints	6 - 8 years

Source: ACI, 2014

8.5 FINANCIAL PLAN RECOMMENDATIONS

The ultimate goal of any airport should be the capability to support its own operation and development through airport generated revenues. Unfortunately, few airports similar in size to the Cochise County Airport are able to do this. For example, it is difficult to break even when the fees received from hangar rentals and fuel sales will not adequately amortize the cost of construction projects. The County should consider implementing additional airport revenue generating opportunities in order to gain self-sufficiency.

Based on the historical and projected operating revenues and expenses, it is likely that the airport will not operate profitably for the planning period, as shown on **Table 8-3**. The ability of Cochise County to generate additional revenue is directly related to enhancing the airfield to attract additional aircraft traffic along with looking for ways to leverage un-used portions of the airport property, i.e., revenue generating aeronautical and non-aeronautical development. It is important to note that all non-aeronautical development on or adjacent to the airport must be compatible with the airport.

Table 8-3 Projected Annual Airport Revenues and Expenses (Based on Historical Data)

	Historical	Projected ¹		
	2014	Phase I	Phase II	Phase III
Operating Revenues				
Fuel sales	\$2,775	\$3,000	\$3,300	\$3,500
Hangar and other leases	\$8,090	\$8,400	\$9,400	\$10,000
Total Operating Revenue	\$10,865	\$11,400	\$12,700	\$13,500
Operating Expenses				
Salaries and benefits	\$0 ²	\$0 ²	\$0 ²	\$0 ²
Fuel and supplies	\$0 ²	\$0 ²	\$0 ²	\$0 ²
Operations, maintenance, and utilities	\$15,138	\$16,000	\$16,000	\$16,000
Total Operating Expense	\$15,138	\$16,000	\$16,000	\$16,000
Net Operating Expense/Revenue	-\$4,273	-\$4,600	-\$3,300	-\$2,500

Prepared by: ACI, 2014

Note: Does not include capital improvement projects and assumes no additional development occurs.

¹The increase in revenue and expenses are based on an increase in forecasted airport activity.²A FBO lease is in place, therefore salaries, benefits, and fuel expenses are not applicable.

8.5.1 AIRPORT REVENUE OPPORTUNITIES

Airport revenues are generally produced from the use of land leases, user fees, and property taxes generated from on-airport improvements. Examples of airport revenue generators include:

Land Leases - Property on the airport that is not devoted to airfield use, vehicle parking, or contained within areas required to be cleared of structures may be leased to individual airport users or aviation related businesses. Typically, the individual is provided a long-term lease on which to construct a hangar, business, or other facility. At the termination of the lease, the lessee has the option to renew the lease, sell or lease the buildings, or to remove the buildings.

Hangar Leases - Hangars on the airport owned by the airport sponsor can be leased to private aircraft operators or businesses. Typically, as with land leases, the individual or business is provided a long-term lease of the hangar. At the termination of the lease, the lessee has the option to renew the lease or cease use of the hangar.

Tie-Down Fees - A fee is typically established for the use of fixed ramp tie-downs on paved apron areas. The fees are usually established on a monthly or annual basis for based aircraft and on an overnight basis for transient aircraft.

Airport Usage Fee - This fee is typically imposed on charter aircraft and can be waived if the operator purchases a minimum amount of fuel.

Commercial Activity Fee - This fee is typically imposed on commercial activities operating “for profit” at the airport. Typical commercial activities may include fixed base operators, testing and training, maintenance services, and retail or other goods and services which may be provided at the airport.

Non-Aeronautical Revenue Generating - This fee is imposed on leases of land that are allocated as airport property but do not have access and/or use for aeronautical activities (i.e. non-aeronautical use). The fee for these areas must be setup at fair market value and all revenue generated from these leases must remain within the airport fund.

In accordance with FAA and Arizona State Grant Assurances, all revenues generated by the airport must be expended by the airport for the capital or operating costs of the airport. No revenue generated on the airport may go into the County’s general fund.

8.6 AIRPORT DEVELOPMENT RECOMMENDATIONS

Based on the findings of the planning process, the following recommendations are provided for the County to consider for development the airport to meet the needs of the community:

1. The County has the unique advantage over many airports of having considerable excess land that is not needed for aviation related purposes. Over the long-term, the County should continue looking for non-aeronautical development opportunities on the land that has been designated for such activities on the ALP. The County will have multiple options for developing

non-aeronautical lands through the land release process. We recommend that once a developer presents conceptual plans to the County, that a meeting be arranged with the FAA Western Pacific Region Phoenix Airports District Office (PHX ADO) and/or ADOT to discuss the proposed development and evaluate the various land release options.

2. The installation of a credit card payment device to provide self-service fueling at the fueling facility will enhance fuel sales. This enhancement will provide access to fuel to pilots after-hours, thereby making the airport more competitive with other airports in the region.
3. Locations for additional nested T-hangars and individual box hangars have been identified on the Terminal Area Drawing (TAD) included in ALP drawing set. The investment in additional hangars will make the airport more competitive with other airports in the region and will provide the airport will additional revenue.
4. Continued monitoring of the airport's financial status is necessary in order to adapt and adjust to changing conditions.

8.7 CONTINUOUS PLANNING PROCESS

Airport planning is a continuous process that does not end with the completion of a major capital project. The fundamental issues upon which these airport master plans are based are expected to remain valid for several years; however, several variables such as annual aircraft operations and socioeconomic conditions, are likely to change over time. The continuous planning process necessitates that Cochise County Airport consistently monitor the progress of the airport in terms of growth in based aircraft and annual operations, as this growth is critical to the exact timing and need for new airport facilities as recommended within the Airport Master Plan. The information obtained from this monitoring process will provide the data necessary to determine if the development schedule should be accelerated, decelerated, or maintained as scheduled.

Periodic updates of the Airport Layout Plan, Capital Improvement Plan, and Airport Master Plan are recommended to document physical changes to the Airport, review changes in aviation activity and to update improvement plans for the Airport. The primary goal of the airport master planning effort is to develop a safe and efficient airport that will meet the demands of its aviation users and stimulate economic development for airport. The continuous airport planning process is a valuable tool in achieving the strategic plans and goals for the Airport.

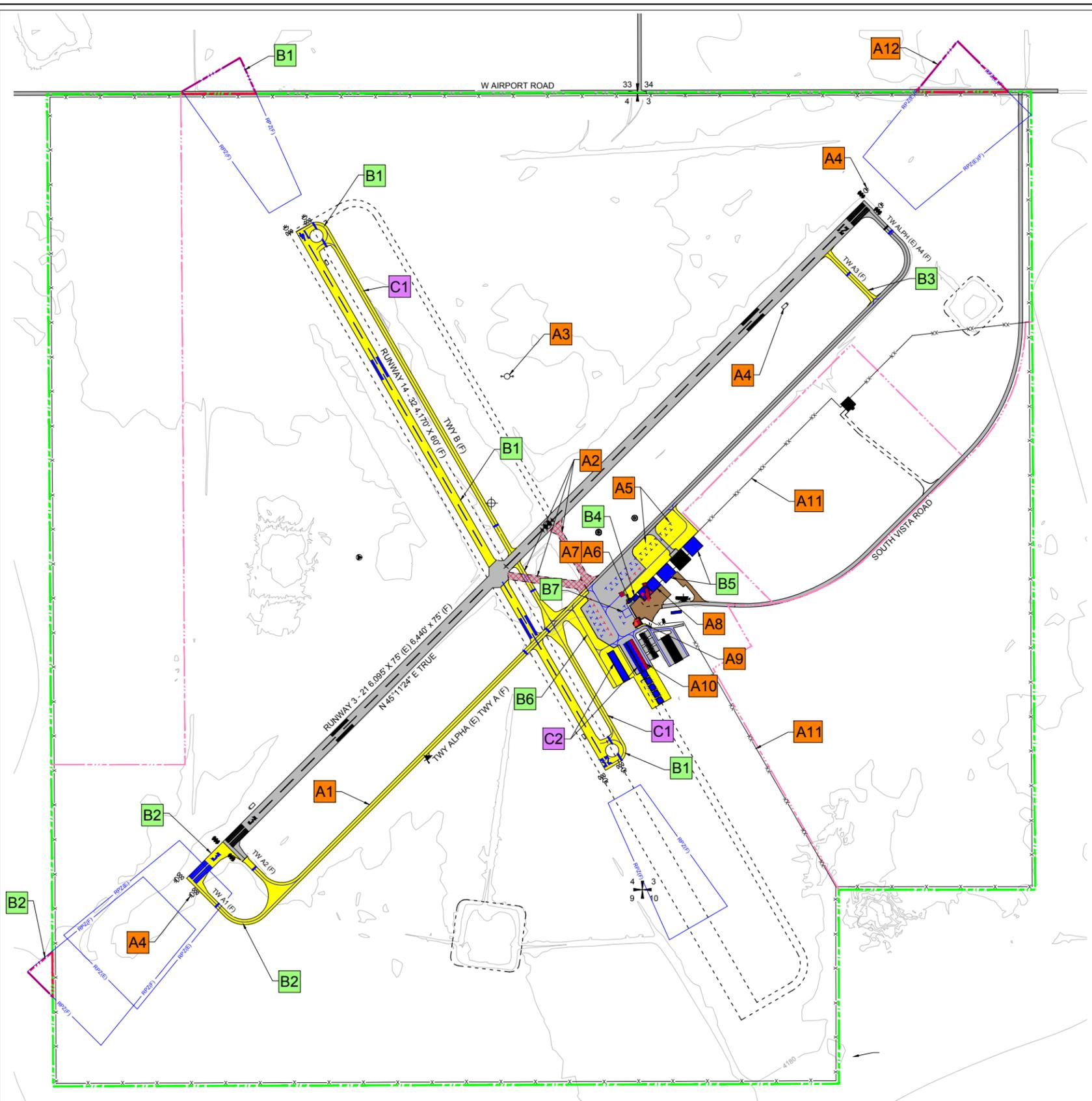
8.8 CONCLUSION

This chapter has laid out the recommended capital improvement projects and their financial implications for improving the Cochise County Airport over the 20-year planning period. A total of 21 CIP projects have been identified (Table 8-1), which are all programmed within the 20-year planning period, as shown on **Exhibit E** at the end of this chapter.

This Airport Master Plan has documented the existing and anticipated aviation demand based on existing conditions, as well as provided a practical and implementable development plan based on input and guidance from the Technical Advisory Committee (TAC), FAA, and ADOT.

This financial analysis is based on the continuation of FAA Airport Improvement Program (AIP) funding at the current levels. However, there is a competition for FAA funds, so the Airport will need to aggressively communicate its CIP needs to the FAA and other relevant agencies as opportunities arise.

Based on the assumptions and the financial analysis presented herein, the development plan presented on the ALP along with the Capital Improvement Plan (CIP) are considered feasible, and the airport should be able to construct the necessary aviation facilities as recommended herein.



LEGEND					
EXISTING	FUTURE	DESCRIPTION	EXISTING	FUTURE	DESCRIPTION
		AIRFIELD DEVELOPMENT (ASPH/CONC)	0000 0000	0000 0000	THRESHOLD LIGHTS
		STRUCTURE/FACILITIES (BUILDING)			REIL
		GRAVEL / TURF / DIRT			VASI/PAPI
		AIRPORT PROPERTY LINE (APL)			AIRPORT BEACON
		LAND USE LINE			WIND CONE & SEGMENTED CIRCLE
		RUNWAY SAFETY AREA (RSA)			AWOS
		OBSTACLE FREE ZONE (OFZ)			LIGHTED WINDCONE
		RUNWAY OBJECT FREE AREA (ROFA)		N/A	SECTION CORNER
		RUNWAY PROTECTION ZONE (RPZ)			DRAINAGE/CULVERT
		BUILDING RESTRICTION LINE (BRL)		N/A	CONTOURS
		TAXIWAY SAFETY AREA (TSA)			ROADS
		TAXIWAY OBJECT FREE AREA (TOFA)			MARKINGS
		RUNWAY VISIBILITY ZONE (RVZ)			FENCING
		AIRPORT REFERENCE POINT (ARP)			HELIPAD
		PACS/SACS MONUMENT			
		TO BE REMOVED			

PHASE-I SHORT TERM DEVELOPMENT ITEMS	
A1	PARTIAL PARALLEL TAXIWAY A RECONSTRUCTION
A2	TAXIWAYS A2 & C RECONFIGURATION, CONSTRUCT PORTION OF RWY 14-32 PARALLEL TAXIWAY
A3	INSTALLATION OF AWOS-III
A4	INSTALLATION OF AIRFIELD VISUAL AND NAVIGATIONAL AIDS
A5	AIRCRAFT APRON EXPANSION
A6	RELOCATE FUEL FACILITY
A7	INSTALL FUEL FACILITY CREDIT CARD PAYMENT DEVICE
A8	CONSTRUCT NEW TERMINAL BUILDING AND VEHICLE PARKING LOT
A9	CONSTRUCT/RECONFIGURE TAXILANE ADJACENT TO T-HANGAR #8
A10	REMOVE/RELOCATE EXISTING T-SHADE STRUCTURE
A11	INSTALL PERIMETER FENCE AND GATES
A12	LAND ACQUISITION (APPROX. 2.5 ACRES) FOR RWY 21 RPZ
PHASE-II MEDIUM-TERM DEVELOPMENT ITEMS	
B1	CONSTRUCT RUNWAY 14-32 BYPASS TAXIWAYS; LAND ACQUISITION (APPROX. 1.5 ACRES) FOR RWY 14 RPZ
B2	RWY 3 AND PARALLEL TAXIWAY EXTENSION; LAND ACQUISITION (APPROX. 0.5 ACRES) FOR RWY 3 RPZ
B3	CONSTRUCT RWY 21 BYPASS TAXIWAY
B4	CONSTRUCT NEW AIRPORT SUPPORT AND MAINTENANCE BUILDING
B5	CONSTRUCT ADDITIONAL AIRCRAFT HANGARS
B6	CONSTRUCT ADDITIONAL AIRCRAFT APRON EXPANSION
B7	CONSTRUCT AIRCRAFT WASH RACK
PHASE-III LONG-TERM DEVELOPMENT ITEMS	
C1	CONSTRUCT RWY 14-32 FULL PARALLEL TAXIWAY
C2	CONSTRUCT ADDITIONAL AIRCRAFT HANGARS

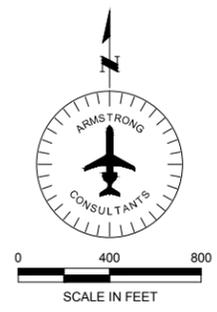


EXHIBIT E
NOVEMBER, 2012
COCHISE COUNTY AIRPORT
WILLCOX, ARIZONA



APPENDICES

COCHISE COUNTY COCHISE COUNTY AIRPORT AIRPORT MASTER PLAN





APPENDICES

THIS PAGE WAS INTENTIONALLY LEFT BLANK

APPENDIX A

ACRONYMS/GLOSSARY OF TERMS

COCHISE COUNTY
COCHISE COUNTY AIRPORT
AIRPORT MASTER PLAN



Acronyms

AGL	Above Ground Level
ADIZ	Air Defense Identification Zone
AOA	Air Operations Area
ARTCC	Air Route Traffic Control Center
ATC	Air Traffic Control
ATCT	Air Traffic Control Tower
ATCAA	Air Traffic Control Assigned Airspace
AAC	Aircraft Approach Category
AOPA	Aircraft Owners and Pilots Association
ARFF	Aircraft Rescue and Fire Fighting
ADG	Airplane Design Group
ACIP	Airport Capital Improvement Plan
AIP	Airport Improvement Program
APMS	Airport Pavement Management System
ARC	Airport Reference Code
A/FD	Airport/Facility Directory
ARP	Airport Reference Point
ASV	Annual Service Volume
AFFF	Aqueous Film Forming Foam
AHPA	Archeological and Historic Preservation Act
RNAV	Area Navigation
ADOC	Arizona Department of Corrections
ADEQ	Arizona Department of Environmental Quality
ADOT	Arizona Department of Transportation
APPP	Arizona Pavement Preservation Program
ASASP	Arizona State Airports System Plan
ACI	Armstrong Consultants, Inc.
ASOS	Automated Surface Observing System
AWOS	Automated Weather Observing System
AWSS	Automated Weather Sensor System
ATIS	Automatic Terminal Information Service
BMP	Best Management Practices
BLM	Bureau of Land Management
CIP	Capital Improvement Plan
CATEX	Categorical Exclusion
CAA	Clean Air Act
CZM	Coastal Zone Management
CMG	Cockpit-to-Main Gear
CFR	Code of Federal Regulations
CTAF	Common Traffic Advisory Frequency
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CEQ	Council on Environmental Quality

DNL	Day-night Average Sound Level
dB	Decibel
DOD	Department of Defense
ESA	Endangered Species Act
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
EAS	Essential Air Service
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
FEMA	Federal Emergency Management Agency
FBO	Fixed Base Operator
FL	Flight Level
FSS	Flight Service Station
GAO	General Accounting Office
GA	General Aviation
GAMA	General Aviation Manufacturers Association
GARA	General Aviation Revitalization Act
GO	General Obligation
GPS	Global Positioning System
GHGs	Green House Gases
IAP	Instrument Approach Procedure
IFR	Instrument Flight Rules
ILS	Instrument Landing System
IGA	Inter-governmental Agreement
I-10	Interstate 10
LED	Light-emitting Diode
LPV	Localizer/Lateral Performance with Vertical Guidance
MGW	Main Gear Width
MTOW	Maximum Takeoff Weight
MSL	Mean Seal Level
MIRL	Medium Intensity Runway Lighting
MITL	Medium Intensity Taxiway Lighting
MOU	Memorandum of Understanding
MOA	Military Operations Area
MTR	Military Training Route
NAS	National Airspace System
NAAQS	National Ambient Air Quality Standards
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration

NPS	National Park Service
NPIAS	National Plan of Integrated Airport Systems
NPDES	National Pollution Discharge Elimination System
NPL	National Priority List
NRHP	National Register of Historic Places
NWS	National Weather Service
NM	Nautical Mile
NAVAID(S)	Navigational aid(s)
NextGen	Next Generation Air Transportation System
NDB	Non-directional beacon
NOTAM	Notice to Airmen
OFA	Object Free Area
OFZ	Obstacle Free Zone
OPBA	Operations per Based Aircraft
PCI	Pavement Condition Index
PM	Particulate Matter
PHX ADO	Phoenix Airports District Office
PAPI	Precision Approach Path Indicator
RIASP	Regional Integrated Airport System Planning
RCRA	Resource Conservation and Recovery Act
RDC	Runway Design Code
REIL	Runway End Identifier Lights
ROFA	Runway Object Free Area
RPZ	Runway Protection Zone
RSA	Runway Safety Area
RVR	Runway Visual Range
SPCCP	Spill Prevention, Control, and Countermeasure Plan
SHPO	State Historic Preservation Office/Officer
SIP	State Implementation Plan
SIASP	Statewide Integrated Airport System Planning
SWPPP	Storm Water Pollution Prevention Plan
TACAN	Tactical Air Navigation
TDG	Taxiway Design Group
TOFA	Taxiway Object Free Area
TSA	Taxiway Safety Area
TAC	Technical Advisory Committee
TAD	Terminal Area Drawing
TAF	Terminal Area Forecast
TOS	Threshold of Significance
TPA	Traffic Pattern Altitude
TSA	Transportation Security Administration
US	United States

USACE	United States Army Corps of Engineers
USCBP	United States Customs and Border Protection
USDA-NCRS	United States Department of Agriculture - Natural Conservation Resource Service
USDOI	United States Department of the Interior
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
USFS	United States Forest Service
UAS	Unmanned Aerial System
UAV	Unmanned Aerial Vehicle
VHF	Very High Frequency
VOR/DME	VHF Omni-directional Range/Distance Measuring Equipment
VORTAC	VHF Omni-directional Range/Tactical Area Navigation
VASI	Visual Approach Slope Indicator
VFR	Visual Flight Rules
WAAS	Wide Area Augmentation System

Glossary of Terms

100LL AvGas – A common form of aviation gasoline used in spark-ignited internal combustion engines to propel aircraft.

14 CFR Part 71, Designation of Class A, Class B, Class C, Class D, and Class E Airspace Areas; Airways; Routes; and Reporting Points – Part of the Code of Federal Regulations under Title 14; rules pertaining to the classification of airspace within the National Airspace System (NAS).

14 CFR Part 77, Safe, Efficient Use, and Preservation of the Navigable Airspace - Part of the Federal Code of Regulations under Title 14; contains rules and regulations pertaining to obstructions to air navigation or navigational aids, notice requirements, and types of aeronautical surveys and determinations.

14 CFR Part 91, General Operating and Flight Rules – Part of the Code of Federal Regulations under Title 14; rules and procedures which pertain to pilots, flight rules, equipment requirements, maintenance, and other general operating and flight rules.

14 CFR Part 139, Certification of Airports – Part of the Federal Code of Regulations under Title 14; Requires FAA to issue airport operating certificates to airports that---

- Serve scheduled and unscheduled air carrier aircraft with more than 30 seats;
- Serve scheduled air carrier operations in aircraft with more than 9 seats but less than 31 seats; and
- The FAA Administrator requires to have a certificate

To obtain a certificate, an airport must agree to certain operational and safety standards and provide for such things as firefighting and rescue equipment. These requirements vary depending on the size of the airport and the type of flights available.

14 CFR Part 150, Airport Noise Compatibility Planning – Part of the Federal Code of Regulations under Title 14; the procedures, standards, and methodology governing the development, submission, and review of airport noise exposure maps and airport noise compatibility programs, including the process for evaluating and approving or disapproving those programs.

Above ground level (AGL) – An altitude used in aviation and atmospheric sciences measured with respect to the underlying ground surface, i.e. to indicate the “reference altitude” location

ADOT Multimodal Planning Division - Aeronautics Group – A division of the Arizona Department of Transportation which deals with all matters related to aviation/aeronautics within the state.

Advisory Circular 150/5060-5, Airport Capacity and Delay – U.S. Department of Transportation’s Federal Aviation Administration advisory circular which explains how to compute airport capacity and airport delay for airport planning and design.

Advisory Circular 150/5070-6B, Airport Master Plans – U.S. Department of Transportation’s Federal Aviation Administration advisory circular which provides guidance for the preparation of airport master plans that range in size and function from small general aviation to large commercial service facilities.

Advisory Circular 150/5200-33B, Hazardous Wildlife Attractants On or Near Airports – U.S. Department of Transportation’s Federal Aviation Administration advisory circular which provides guidance on certain land uses that have the potential to attract hazardous wildlife on or near public-use airports. It also discusses airport development projects (including airport construction, expansion, and renovation) affecting aircraft movement near hazardous wildlife attractants.

Advisory Circular 150/5210-6D, Aircraft Fire and Rescue Facilities and Extinguisher Agents – U.S. Department of Transportation’s Federal Aviation Administration advisory circular which provides guidance on aircraft fire extinguishing agents and provides an acceptable methodology for complying with Title 14, Code of Federal Regulations, Part 139, Certification of Airports.

Advisory Circular 150/5300-13A, Airport Design – U.S. Department of Transportation’s Federal Aviation Administration advisory circular Contains the Federal Aviation Administration’s (FAA) standards and recommendations for the geometric layout and engineering design of runways, taxiways, aprons, and other facilities at civil airports.

Advisory Circular 150/5325-4B, Runway Length Requirements for Airport Design – U.S. Department of Transportation’s Federal Aviation Administration advisory circular which is intended to determine recommended runway lengths for new runways or extensions to existing runways.

Advisory Circular 150/5340-5D, Segmented Circle Airport Marker System – U.S. Department of Transportation’s Federal Aviation Administration advisory circular in which standards for a system of airport markings consisting of certain pilot aids and traffic control devices are defined.

Advisory Circular 150/5370-10F, Standards for Specifying Construction of Airports – U.S. Department of Transportation’s Federal Aviation Administration advisory circular which contains standards which relate to materials and methods used for the construction of airports. Items covered in this AC include general provisions, earthwork, flexible base courses, rigid base courses, flexible surface courses, rigid pavement, fencing, drainage, turfing, and lighting installation.

Advisory Circular 150/5380-6B, Guidelines and Procedures for Maintenance of Airport Pavements – U.S. Department of Transportation’s Federal Aviation Administration advisory circular which provides guidelines and procedures for maintaining airport pavements.

Aerial refueling – The process of transferring fuel from one aircraft to another during flight.

Aeronautical survey – A survey of the airport and surrounding areas conducted by the FAA as a part of the process of establishing or changing an instrument approach procedure to a runway to verify the height and location of any obstructions.

Air Defense Identification Zone (ADIZ) - The area of airspace over land or water, extending upward from the surface, within which the ready identification, the location, and the control of aircraft are required in the interest of national security.

Air medical evacuation (medevac) – Emergency removal of sick or injured people from an area, especially by helicopter.

Air Operations Area (AOA) – Any area of an airport used or intended to be used for landing, takeoff, or surface maneuvering of aircraft. An air operations area includes such paved areas or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiways, or apron.

Air pollution – The presence in or introduction into the air of a substance which has harmful or poisonous effects.

Air quality – The degree to which the ambient air is pollution-free, assessed by measuring a number of indicators of pollution.

Air Route Traffic Control Center (ARTCC) – A facility providing air traffic control to aircraft on an IFR flight plan within controlled airspace and principally during the enroute phase of flight.

Air Traffic Control (ATC) – A service operated by appropriate authority to promote the safe, orderly, and expeditious flow of air traffic.

Air traffic control tower – A central operations tower in the terminal air traffic control system with an associated Instrument Flight Rule room if radar equipped, using air/ground communications and/or radar, visual signaling and other devices to provide safe, expeditious movement of air traffic.

Aircraft Approach Category (AAC) – A grouping of aircraft based on a speed of 1.3 times the stall speed in the landing configuration at maximum gross landing weight. An aircraft must fit in only one category. If it is necessary to maneuver at speeds in excess of the upper limit of a speed range for a category, the minimums for the category for that speed must be used. For example, an aircraft which falls in Category A, but is circling to land at a speed in excess of 91 knots, must use the approach Category B minimums when circling to land. The categories are as follows:

Category A- Speed less than 91 knots.

Category B- Speed 91 knots or more but less than 121 knots.

Category C- Speed 121 knots or more but less than 141 knots.

Category D- Speed 141 knots or more but less than 166 knots.

Category E- Speed 166 knots or more

Aircraft hangar – A closed structure used to hold aircraft or spacecraft in protective storage. Most hangars are built of metal, but other materials such as wood and concrete are also used.

Aircraft Owners and Pilots Association (AOPA) – An American non-profit political organization that advocates for general aviation based in Frederick, Maryland.

Aircraft Rescue and Fire Fighting (ARFF) – A special category of firefighting that involves the response, hazard mitigation, evacuation, and possible rescue of passengers and crew of an aircraft involved in (typically) an airport ground emergency.

Airfield capacity analysis – One component of an airfield demand/capacity analysis which assesses the capability of the airfield facilities to accommodate projected levels of aircraft operations.

Airfield destination signs – These signs provide information on locating things such as runways, ramps, FBO, parking, fuel, etc. They have a yellow background with black inscription and also contain arrows.

Airfield directional signs – These signs have a yellow background with black inscription. The inscription identifies the designation of the intersecting taxiway(s) leading out of an intersection or exiting a runway. Arrow(s) point in direction of the intersecting taxiway.

Airfield elevation – The highest point on an airport's usable runways, expressed in feet above mean sea level (MSL).

Airplane Design Group (ADG) – A FAA-defined grouping of aircraft types which has six groups based on wingspan and tail height. These groups are defined in FAA Advisory Circular 150/5300-13.

Airport – A complex of runways and buildings for the takeoff, landing, and maintenance of civil aircraft, with facilities for passengers.

Airport access road – A road which offers access into or out of the airport and surrounding area.

Airport apron – Part of an airport, other than the maneuvering area, intended to accommodate the loading and unloading of passengers and cargo, the refueling, servicing, maintenance and parking of aircraft, and any movement of aircraft, vehicles, and pedestrians necessary for such purposes.

Airport and Airway Improvement Act of 1982 – Reestablished the operation of the Airport and Airway Trust Fund with a slightly revised schedule of user taxes.

Airport and Airway Trust Fund - Provides funding for the federal commitment to the aviation system of the United States of America through several aviation-related excise taxes. It was established on the books of the United States Department of the Treasury in 1971.

Airport Capital Improvement Plan (ACIP) – An internal FAA document that serves as the primary planning tool for identifying and prioritizing critical airport development and associated capital needs for

the National Airspace System. It also serves as the basis for the distribution of grant funds under the Airport Improvement Program (AIP).

Airport Improvement Program (AIP) – Provides grants to public agencies and, in some cases, to private owners and entities, for the planning and development of public-use airports that are included in the National Plan of Integrated Airport Systems (NPIAS).

Airport influence zone – A term used when describing land use compatibility measures, usually created and overseen by a city or county planning and zoning department.

Airport layout plan – A graphic representation, to scale, of existing and proposed airport facilities, their location on the airport, and the pertinent applicable standards. To be eligible for AIP funding assistance, an airport must have a FAA-approved ALP.

Airport master plan – A planning tool that helps airport owners, regulating agencies, and public officials meet the needs of the traveling public and guide the continued improvement of aviation facilities. Master Plans are developed according to FAA guidance provided in Advisory Circular 150/5070-6B, *Airport Master Plans*, and they evaluate facility needs of the airfield (runways and taxiways), landside (auto parking and access), terminal building, and overall airport land use.

Airport overlay zone – A planning and zoning term; establishes standards to promote air navigational safety and prevent hazards and obstructions to air navigation and flight.

Airport Pavement Management System (APMS) – A database system used for managing and tracking an airport's pavement preservation program.

Airport planning - A systematic process used to establish guidelines for the efficient development of airports that is consistent with local, state, and national goals. A key objective of airport planning is to assure the effective use of airport resources in order to satisfy aviation demand in a financially feasible manner. Airport planning may be as broad based as the national system plan or more centrally focused as an airport master plan for a specific airport.

Airport Reference Code (ARC) - A coding system developed by the FAA to relate airport design criteria to the operational and physical characteristics of the airplane types that will operate at a particular airport. The ARC has two components relating to the airport design aircraft. The first component, depicted by a letter, is the aircraft approach category and relates to aircraft approach speed. The second component, depicted by a Roman numeral, is the airplane design group and relates to airplane wingspan.

Airport service area – The geographic area an airport serves, usually within 20 miles or 30 minutes of another airport.

Airport sustainability - A holistic approach to managing an airport so as to ensure the integrity of the Economic viability, Operational efficiency, and Natural Resource Conservation and Social responsibility (EONS) of the airport.

Airport usage fee – A general fee, or tax, imposed by the airport operator for the passage through an airport.

Airport Watch Program – A volunteer program sponsored by the Aircraft Owners and Pilots Association (AOPA) and in partnership with the Transportation Security Administration (TSA), in which pilots and other airport users watch for suspicious activity at airports; a 24-hour hotline is available to report any suspicious activity at 866-GA SECURE.

Airport/Facility Directory (A/FD) – An FAA publication containing information on all airports, communications, and NAVAIDs.

Airport Reference Point (ARP) – The approximate geometric center of all usable runways.

Airside – The side of an airport terminal from which aircraft can be observed; the area beyond security checks and passport and customs control.

Airspace – The portion of the atmosphere directly above the land or water, used by aircraft or by earth-based structures such as skyscrapers; airspace can be classified as either controlled or uncontrolled.

American Society for Testing and Materials (ASTM) D-5340, Standard Test Method for Airport Pavement Condition Index Surveys – A set of standards and test methods for the determination of airport pavement condition through visual surveys of asphalt-surfaced pavements, including porous friction courses, and plain or reinforced jointed portland cement concrete pavements, using the Pavement Condition Index (PCI) method of quantifying pavement condition.

Annual operations – The total number of aircraft take-offs or landings which occur at an airport over a one year period.

Annual service volume (ASV) – A term used in airport capacity analysis defined by the FAA as a function of the hourly capacity of the airfield and the annual, daily, and hourly demands placed upon it. ASV is estimated by multiplying the daily and hourly operation ratios by a weighted hourly capacity.

Approach surface – An imaginary surfaces that exists primarily to prevent existing or proposed manmade objects, objects of natural growth, or terrain from extending upward into navigable airspace. Approach surfaces dimensions vary depending on the type of approach to a runway, i.e. precision instrument, non-precision instrument, or visual.

Aqueous film forming foam (AFFF) - A highly efficient type of fire suppressant agent, used by itself to attack flammable liquid pool fires; used by airport firefighters mainly for aviation fuel fires.

Archeological and Historic Preservation Act (AHPA) of 1974 - Amended the 1960 Reservoir Salvage Act by providing for the preservation of significant scientific, prehistoric, historic, and archaeological materials and data that might be lost or destroyed as a result of flooding, the construction of access roads, relocation of railroads and highways, or any other federally funded activity.

Area Navigation (RNAV) – A method of instrument flight rules (IFR) navigation that permits aircraft operation on any desired course within the coverage of station-referenced navigation signals or within the limits of a self contained system capability, or a combination of these.

Arizona Department of Administration, Office of Employment and Population Statistics - Part of the Director's Office in the Arizona Department of Administration which produces demographic, labor force, and economic information for Arizona.

Arizona Department of Corrections (ADOC) – Agency responsible for the oversight and operation of Arizona State prisons and correctional facilities.

Arizona Department of Environmental Quality (ADEQ) – The environmental regulatory agency under the Environmental Quality Act of 1986 to serve as a separate, cabinet-level agency to administer all of Arizona's environmental protection programs.

Arizona Department of Transportation (ADOT) – Department which handles all transportation related topics and issues, including aviation, for the State of Arizona.

Arizona Pavement Preservation Program (APPP) – ADOT program established to assist in the preservation of the Arizona airport system infrastructure and pavements.

Arizona State Airports System Plan (ASASP) – The Arizona Department of Transportation Aeronautics Division's plan which provides direction for state aviation system planning by providing a framework for the integrated planning, operation, and development of Arizona's aviation assets.

Armstrong Consultants, Inc. (ACI) – A professional consulting engineering and planning firm specializing exclusively in airports based out of Grand Junction, Colorado.

Attainment area - A geographic area in which levels of a criteria air pollutant meet the health-based primary standard (national ambient air quality standard, or NAAQS) for the pollutant. Attainment areas are defined using federal pollutant limits set by EPA.

Attainment area with a maintenance plan – A plan required under Section 175A of the Clean Air Act (CAA) for any state/city etc. who has requested redesignation of a nonattainment area to provide for the maintenance of the national primary ambient air quality standard for such air pollutant in the area concerned for at least 10 years.

Automated Surface Observing System (ASOS) – A type of automated weather station that provides hourly updates on the weather conditions in an area. Mostly operated, maintained, and controlled by the National Weather Service (NWS), Department of Defense (DOD), or the FAA.

Automated Weather Observing System (AWOS) – A type of automated weather station that provides hourly updates on the weather conditions in an area. Mostly operated, maintained, and controlled by the FAA, but sometimes state or local governments or private agencies as well.

Automated Weather Sensor System (AWSS) – A type of automated weather station that provides hourly updates on the weather conditions in an area. Mostly operated, maintained, and controlled by the FAA.

Automatic Terminal Information Service (ATIS) – The continuous broadcast of recorded non-control information in selected terminal areas. Its purpose is to improve controller effectiveness and relieve frequency congestion by automating repetitive transmission of essential but routine information.

Avigation easement – A property right acquired from a landowner which protects the use of airspace above a specified height, and imposes limitations on use of the land subject to the easement.

Based aircraft – An aircraft permanently stationed at an airport, usually by agreement between the aircraft owner and airport management.

Best management practice (BMP) – Methods or techniques found to be the most effective and practical means in achieving an objective while making the optimum use of the firm's resources.

Bureau of Land Management (BLM) – A division of the U.S. Department of the Interior that manages public lands and resources.

Busy day – A term used in aviation demand forecasting to describe the second busiest day in an average week during the peak month.

Bypass taxiway – A second taxiway which bypasses the parallel taxiway.

Capital Improvement Plan (CIP) – A community planning and fiscal management tool used to coordinate the location, timing, and financing of capital improvements over a multi-year period.

Categorical Exclusion (CATEX) – A category of actions which do not individually or cumulatively have a significant effect on the human environment, and therefore, neither an environmental assessment nor an environmental impact statement is required. They are actions which: do not induce significant impacts to planned growth or land use for the area, do not require the relocation of significant numbers of people; do not have a significant impact on any natural, cultural, recreational, historic or other resource; do not involve significant air, noise, or water quality impacts; and do not have significant impacts on travel patterns.

Certificated airmen – Any qualified individuals who have been issued an Airmen's Certificate by the FAA.

Class A airspace – Airspace which extends from 18,000 feet mean sea level (MSL) to approximately 60,000 feet MSL throughout the United States. Unless otherwise authorized by air traffic control (ATC), all flight operations in Class A airspace must be under ATC control, and must be operating IFR, under a clearance received prior to entry.

Class B airspace – Airspace which normally begins at the surface in the immediate area of the airport; successive shelves of greater and greater radius begin at higher and higher altitudes at greater distances from the airport. The upper limit of Class B airspace is normally 10,000 feet MSL. Class B airspace has the most stringent rules of all the airspaces in the United States.

Class C airspace – Airspace similar in structure to Class B airspace, but on a smaller scale; the vertical boundary is usually 4,000 feet above the airport surface. The core surface area has a radius of five nautical miles, and goes from the surface to the ceiling of the Class C airspace. The upper "shelf" area has a radius of ten nautical miles, and extends from as low as 1,200 feet up to the ceiling of the airspace. All aircraft entering Class C airspace must establish radio communication with ATC prior to entry.

Class D airspace – Airspace that is generally cylindrical in form and normally extends from the surface to 2,500 feet above the ground. The outer radius of the airspace is variable, but is generally 4 nautical

miles. Two-way communication with ATC must be established before entering Class D airspace, but no transponder is required.

Class E airspace – Airspace which extends from 1,200 feet above ground level (AGL) up to but not including 18,000 feet MSL, the lower limit of Class A airspace. There are areas where Class E airspace begins at either the surface or 700 AGL; these areas are used to transition between the terminal and en-route environments (around non-towered airports). The airspace above 60,000 feet MSL (FL600) is also Class E. No ATC clearance or radio communication is required for VFR flight in Class E airspace. Most airspace in the United States is Class E.

Class G airspace – Airspace which includes all airspace below Flight Level 600 (60,000 feet MSL), not otherwise classified as controlled. There are no entry or clearance requirements for Class G airspace, even for IFR operations. Class G airspace is typically the airspace very near the ground (1200 feet or less), beneath Class E airspace. Class G is completely uncontrolled.

Clean Air Act (CAA) - A United States federal law designed to control air pollution on a national level. It requires the Environmental Protection Agency (EPA) to develop and enforce regulations to protect the public from airborne contaminants known to be hazardous to human health.

Cloud ceiling - A measurement of the cloud base height relative to the ground. Ceiling is reported as part of the METAR (Meteorological Aviation Report) used for flight planning by pilots worldwide.

Coastal zone - The interface where the land meets the ocean, encompassing shoreline environments as well as adjacent coastal waters.

Coastal zone management (CZM) - A process of governance that consists of the legal and institutional framework necessary to ensure that development and management plans for coastal zones are integrated with environmental and social goals, and are developed with the participation of those affected.

Cochise County - A county located in the southeastern corner of the U.S. state of Arizona.

Cochise County Airport (the Airport) – A general aviation airport located in northern Cochise County, Arizona near the city of Willcox; the study airport for this airport master plan.

Cochise County Board of Supervisors - The governing and policy-making body of the Cochise County. The Board is empowered to perform acts necessary to fully discharge its duties as the legislative authority of County government.

Cochise County Light Pollution Code, Article 1810 - Outdoor Lighting Standards – Outdoor lighting standards found within the Cochise County Zoning regulations designed to prevent safety hazards and nuisances to surrounding properties and public rights-of-way caused by the improper installation and placement of outdoor light fixtures, and to promote the purpose of the Cochise County Light Pollution Code.

Cockpit-to-main gear (CMG) – A design standard in AC 5300-13A, *Airport Design* used in conjunction with the main-gear-width (MGW) to determine the taxiway design group (TDG).

Commercial aeronautical activity - Any aeronautical activity intended to secure earnings, income, compensation, or profit, whether or not such objectives are accomplished.

Commercial service airport – A publicly owned airport that has at least 2,500 passenger boardings each calendar year and receives scheduled passenger service; two types of commercial service airports include primary and non-primary.

Common Traffic Advisory Frequency (CTAF) – A VHF radio frequency designed for the purpose of carrying out airport advisory practices while operating to or from an uncontrolled airport (sometimes after ATC has ceased operation overnight). The CTAF may be a UNICOM, multicom, FSS (flight service station), or tower frequency and is identified in appropriate aeronautical publications.

Compatible land use – Land uses which are deemed safe and acceptable around airports; examples of compatible land use around airports include aviation, industrial/commercial, and agricultural activities or businesses.

Comprehensive Environmental Response Compensation and Liability Act (CERCLA) – A law enacted by Congress on December 11, 1980 which created a tax on the chemical and petroleum industries and provided broad Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment.

Conical surface – An imaginary surface found within 14 CFR Part 77 describing the surface which extends outward and upward from the periphery of the horizontal surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet.

Construction impacts – Impacts that may potentially occur due to construction operations.

Contract tower – An air traffic control tower that is operated by the private sector and not the FAA.

Controlled airspace – Airspace in which some or all aircraft may be subject to air traffic control to promote the safe and expeditious flow of air traffic.

Conventional hangar – An aircraft storage hangar, often also referred to as a box hangar, which is square or rectangular in shape and can be built in various sizes.

Council on Environmental Quality (CEQ) – Established by the National Environmental Policy Act (NEPA) of 1969, the Council is composed of three members appointed by the President. A major purpose of the Council is to formulate and recommend national policies to promote the improvement of environmental quality.

Cross country flight – A type of distance flying which is performed in a powered aircraft on legs over a given distance and in operations between two points using navigational techniques.

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 runway – The designated runway on an airfield which is used when the crosswind component becomes too great on the primary runway for an aircraft to takeoff or land.

Cultural resource survey - The collection and analysis of information concerning the physical remains that represent our past.

Day-night average sound level (DNL) – A method for predicting, by a single number rating, cumulative aircraft noise that affects communities in airport environs.

Decibel (dB) – A unit for describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).

Department of Defense (DOD) – The department of the U.S. federal government charged with ensuring that the military capacity of the U.S. is adequate to safeguard the national security.

Department of Transportation Act, Section 4(f) – Refers to the original section within the U.S. Department of Transportation Act of 1966 which established the requirement for consideration of park and recreational lands, wildlife and waterfowl refuges, and historic sites in transportation project development. The law, now codified in 49 U.S.C. §303 and 23 U.S.C. §138, is implemented by the Federal Highway Administration (FHWA) through the regulation 23 CFR 774.

Design aircraft – An aircraft, or family of aircraft, which is used to design an airfield with the associated design standards as set forth by the FAA.

Design day – In forecasting methodology, an average day of the peak month.

Design hour busy hour – In forecasting methodology, it measures the number of enplaned or deplaned passengers departing or arriving on aircraft in an elapsed hour of a typically busy (design) day. It is determined by:

- Determining the peak month;
- Determining the design day to be used; and
- Estimating the amount of daily activity that occurs in the design hour.

Discretionary funding – 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.

Dual-tandem wheel landing gear – A configuration of landing gear for a large aircraft where two wheels are located side by side, followed by another set of wheels located in the same way on a landing strut.

Dual-wheel landing gear – A configuration of landing gear for aircraft with two wheels located side by side on a landing strut.

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.

Effective runway gradient – The difference between the highest and lowest elevations of a runway centerline divided by the runway length.

Endangered Species Act (ESA) – A law passed by Congress on December 28, 1973, which provides for the conservation of species that are endangered or threatened and the conservation of the ecosystems on which they depend. The ESA replaced the Endangered Species Conservation Act of 1969.

Endangered/threatened species – A species which is in danger of extinction throughout all or a significant portion of its range; a species that is likely to become endangered within the foreseeable future.

Entitlements – 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 (NEPA) to determine whether an action would significantly affect the environment and thus require a more detailed environmental impact statement.

Environmental impact – The possible adverse effects caused by a developmental, industrial, or infrastructural project or by the release of a substance in the environment.

Environmental Impact Statement (EIS) – A document required by the National Environmental Policy Act (NEPA) for certain actions “significantly affecting the quality of the human environment.” It is a tool for decision-making describing the positive and negative environmental effects of a proposed action, and it usually also cites one or more alternative actions that may be chosen instead of the action described in the EIS.

Environmental justice – The pursuit of equal justice and equal protection under the law for all environmental statutes and regulations without discrimination based on race, ethnicity, and /or socioeconomic status.

Environmental Protection Agency (EPA) – An agency of the U.S. federal government which was created for the purpose of protecting human health and the environment by writing and enforcing regulations based on laws passed by Congress

Essential Air Service (EAS) – U.S. government program enacted to guarantee that small communities in the U.S., which prior to deregulation, were served by certificated airlines, maintained commercial service.

FAA Environmental Desk Reference for Airport Actions - Summarizes applicable special purpose laws in one location for convenience and quick reference. Its function is to help FAA integrate the compliance of NEPA and applicable special purpose laws to the fullest extent possible.

FAA Equation #15, *Model for Estimating General Aviation Operations at Non-Towered Airports* – An equation developed for the FAA Statistics and Forecast Branch in July 2001 which uses independent variables such as airport characteristics, population totals, and geographic location to assist in determining an airport’s annual operations due to the lack of an air traffic control tower on the airfield.

FAA Form 5010-1, Airport Master Record – A FAA form which contains aeronautical data describing the physical and operational characteristics of civil public-use airports, joint-use military airports, and private-use military airports that are active and in the NAS. This form contains airport data derived from the National Airspace System Resources (NASR) database as of the Airport Facility Data effective date shown on the form.

FAA Modernization and Reform Act of 2012 – An Act to amend title 49, United States Code, to authorize appropriations for the Federal Aviation Administration for fiscal years 2011 through 2014, to streamline programs, create efficiencies, reduce waste, and improve aviation safety and capacity, to provide stable funding for the national aviation system, and for other purposes.

FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures* – This Order provides Federal Aviation Administration (FAA) policy and procedures to ensure agency compliance with the requirements set forth in the Council on Environmental Quality (CEQ) regulations for implementing the provisions of the National Environmental Policy Act of 1969 (NEPA), 40 Code of Federal Regulations (CFR) parts 1500- 1508; Department of Transportation Order DOT 5610.1C, Procedures for Considering Environmental Impacts; and other related statutes and directives.

FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions* – This Order provides information to the FAA's Office of Airports personnel and others interested in fulfilling National Environmental Policy Act (NEPA) requirements for airport actions under FAA's authority. This Order is part of FAA's effort to ensure its personnel have clear instructions to address potential environmental effects resulting from major airport actions.

FAA Order 5090.3C, *Field Formulation of the National Plan of Integrated Airport Systems* – This Order provides guidance and sets forth policies and procedures for the continuous formulation, maintenance, and periodic publication of the National Plan of Integrated Airport Systems (NPIAS).

FAA Order 5190.6B, *FAA Airport Compliance Manual* – This Order sets forth policies and procedures for the FAA Airport Compliance Program. It provides basic guidance for FAA personnel in interpreting and administering the various continuing commitments airport owners make to the United States as a condition for the grant of federal funds or the conveyance of federal property for airport purposes.

FAA Phoenix Airports District Office (PHX ADO) – The FAA Airports District Office located in Phoenix, Arizona; part of the FAA Western-Pacific Region.

Farmland Protection Policy Act – An Act intended to minimize the extent to which federal activities contribute to the unnecessary and irreversible conversion of agricultural land to nonagricultural uses, and also seeks to ensure that federal policies are administered in a manner that will be compatible with state, local, and private policies that protect farmland.

Federal Aviation Administration (FAA) – An agency of the United States Department of Transportation which has authority to regulate and oversee all aspects of American civil aviation.

Federal Aviation Regulations (FAR) – 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 (14 CFR).

Federal Emergency Management Agency (FEMA) – An agency of the United States Department of Homeland Security, initially created by Presidential Reorganization Plan No. 3 of 1978 and implemented by two Executive Orders on April 1, 1979; coordinates and manages disasters in the U.S.

Fee simple ownership – The greatest possible estate in land, wherein the owner has the right to use it, exclusively possess it, commit waste upon it, and/or dispose of it by deed or will.

Field elevation – The highest point of an airport's usable runways measured in height above mean sea level.

Fillet – A round joint between two parts connected at an angle; usually used when designing taxiways.

Fixed base operator (FBO) – A commercial business granted the right by an airport owner to operate on the airport and provide aeronautical services such as fueling, hangaring, tie-down and parking, aircraft rental, aircraft maintenance, flight instruction, etc.

Fixed-wing aircraft – An aircraft capable of flight using wings that are "fixed" to the body of the aircraft which generate lift caused by the vehicle's forward airspeed and the shape of the wings.

Fleet mix – The number and types of aircraft operating at an airport during all hours of the day and night.

Flight level (FL) – The nominal altitude, or pressure altitude, in feet, divided by 100; designated in writing as FLxxx, where xxx is a one- to three-digit number indicating the pressure altitude in units of 100 feet, e.g. FL180.

Flight Service Station (FSS) – An operations facility in the national flight advisory system which utilizes data interchange facilities for the collection and dissemination of Notices to Airmen, weather, and administrative data and which provides pre-flight and in-flight advisory services to pilots through air and ground based communication facilities.

Floodplain – An area of land adjacent to a stream or river that stretches from the banks of its channel to the base of the enclosing valley walls and experiences flooding during periods of high water discharge.

Forecast (aviation) – A planning method used to predict or estimate future aviation related operations at airports.

Frangible – 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.

Fuel farm – Containment area where aviation fuel (Jet A or 100LL) is stored prior to being discharged into aircraft fuel tanks; fuel is transported from the fuel farm to the aircraft either by road tanker or via a hydrant system.

General Accounting Office (GAO) – An independent agency which provides to the United States Congress audit, evaluation, and investigative services. As such it is part of the legislative branch of the United States government.

General aviation (GA) – All civil aviation operations other than scheduled air services and non-scheduled air transport operations for remuneration or hire.

General aviation airport – Either a publicly or privately owned airport that does not serve certificated air carriers who enplane more than 2,500 passengers annually; the largest single group of airports in the U.S. system.

General Aviation Manufacturers Association (GAMA) – An aviation industry trade association representing general aviation (non-military & non-airliner) aircraft manufacturers and related enterprises, chiefly in the United States.

General Aviation Revitalization Act (GARA) of 1994 – An amendment to the Federal Aviation Act of 1958 to “establish time limitations on certain civil actions against aircraft manufacturers...”; the act protects aircraft and part manufacturers from lawsuits if the aircraft or part at issue is more than eighteen years old at the time of the crash. The immunity provided to manufacturers by GARA applies even if the crash was caused by the manufacturer’s negligence, and even if the crash causes injury or death.

General obligation bonds (GO) – A common type of municipal bond in the United States that is secured by a state or local government's pledge to use legally available resources, including tax revenues, to repay bond holders.

Global Positioning System (GPS) – A space based navigation system which has the capability to provide highly accurate three-dimensional position, velocity, and time to an infinite number of equipped users anywhere on or near the Earth.

Green house gases (GHGs) – Gases in an atmosphere that absorb and emit radiation within the thermal infrared range. This process is the fundamental cause of the greenhouse effect.

Hazardous materials – Waste that is dangerous or potentially harmful to our health or the environment. Hazardous waste can be liquid, solid, gas, or sludge.

Helicopter – A type of aircraft in which lift and thrust are supplied by rotors.

Historic Preservation Officer – An administrator of the National Historic Preservation Program at the State level.

Horizontal surface – An imaginary obstruction- limiting surface defined in 14 CFR 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.

Imaginary surfaces – Surfaces established in relation to the end of each runway or designated takeoff and landing areas, as defined in paragraphs 77.25, 77.28, and 77.29 of 14 CFR Part 77, *Safe, Efficient Use, and Preservation of the Navigable Airspace*. Such surfaces include the approach, horizontal, conical, transitional, primary, and other surfaces.

Incompatible land use – Land surrounding airports which is deemed incompatible with the airport; examples include residential development, schools, community centers and libraries, hospitals, buildings

used for religious services and tall structures, smoke and electrical signal generators, landfills and other bird/wildlife attractants.

Instrument approach procedure (IAP) – 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: e.g. a localizer, glide slope, outer marker, middle marker, and approach lights.

Inter-government agreement (IGA) – Any agreement that involves or is made between two or more governments to cooperate in some specific way.

Interstate 10 (I-10) – The southernmost transcontinental highway in the American Interstate Highway System. It stretches from the Pacific Ocean at State Route 1 (SR 1) (Pacific Coast Highway) in Santa Monica, California to I-95 in Jacksonville, Florida.

Itinerant aircraft operations – Operations by aircraft that are not based at a specified airport.

Jet A – A type of aviation fuel designed for use in aircraft powered by gas-turbine engines. The most commonly used fuels for commercial aviation are Jet A and Jet A-1, which are produced to a standardized international specification.

Joint-use facility – An airport which is utilized for both civil and military aviation purposes.

Knots – A unit of speed that equals one nautical mile per hour. This is the most common unit of measure for the airspeed of an aircraft, and is equal to 6,080 feet or about 1.15 miles.

Land lease – A lease agreement that permits the tenant to use a piece of land owned by the landlord in exchange for rent.

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

Large aircraft (FAA) – An airplane which exceeds more than 12,500 pounds maximum certified takeoff weight.

Larger than utility runway – A runway that is constructed for, and intended to be used by, any aircraft of greater than 12,500 pounds maximum gross weight.

Light emissions – The byproduct of artificial light sources; the amount of light released into the surrounding environment.

Light-emitting diode (LED) – A semiconductor device that emits visible light when an electric current passes through it.

Local aircraft 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.

Localizer/Lateral Performance with Vertical Guidance (LPV) – The component of an ILS which provides course guidance to the runway.

Main gear width (MGW) – The distance between the main landing gear wheels on an aircraft per the FAA's AC 150/5300-13A, *Airport Design*.

Maximum takeoff weight (MTOW) – The heaviest weight at which the aircraft has been shown to meet all the airworthiness requirements applicable to it. MTOW of an aircraft is fixed, and does not vary with altitude or air temperature or the length of the runway to be used for takeoff or landing.

Mean sea level (MSL) – The average height of the surface of the sea for all stages of tide: used as a reference for elevations in aviation, and differentiated from above ground level (AGL).

Medium intensity runway lights (MIRL) – Navigational lighting aids for use on VFR runways or runways with a non-precision instrument flight rule (IFR) procedure for either circling or straight-in approach to help pilots identify the edge of the runway at night or in inclement weather.

Medium intensity taxiway lights (MITL) – Navigational lighting aids for use on taxiways to help pilots identify the edge of the taxiway at night or in inclement weather.

Memorandum of understanding (MOU) – A document that expresses mutual accord on an issue between two or more parties.

Meteorological conditions – In aviation, weather conditions which dictate which type of flight conditions a pilot may fly in, i.e. Instrument Meteorological Conditions (IMC) or Visual Meteorological Conditions (VMC).

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.

Military Training Route (MTR) – An air route depicted on aeronautical charts for the conduct of military flight training at speeds above 250 knots.

Narrative report – An appraisal report presented in descriptive paragraphs, as opposed to an appraisal presented in form, letter, or table format.

National Airspace System (NAS) – The common network of United States airspace, navigation aids, communications facilities and equipment, air traffic control equipment and facilities, aeronautical

charts and information, rules, regulations, procedures, technical information and FAA manpower and material.

National Ambient Air Quality Standards (NAAQS) – Standards established by the United States Environmental Protection Agency under authority of the Clean Air Act (42 U.S.C. 7401 et seq.) that apply for outdoor air throughout the country.

National Flood Insurance Rate Map – An official map of a community within the United States that displays the floodplains, more explicitly special hazard areas and risk premium zones, as delineated by the Federal Emergency Management Agency (FEMA).

National Historic Preservation Act (NHPA) of 1966 – Legislation intended to preserve historical and archaeological sites in the United States of America.

National Marine Fisheries Service (NMFS) – A United States federal agency responsible for the stewardship and management of the nation's living marine resources and their habitat within the United States' Exclusive Economic Zone, which extends seaward 200 nautical miles from the coastline (about 370 kilometers).

National Oceanic and Atmospheric Administration (NOAA) – A scientific agency within the United States Department of Commerce focused on the conditions of the oceans and the atmosphere. NOAA warns of dangerous weather, charts seas and skies, guides the use and protection of ocean and coastal resources, and conducts research to improve understanding and stewardship of the environment.

National Park Service (NPS) – An agency of the United States federal government that manages all U.S. national parks, many American national monuments, and other conservation and historical properties with various title designations.

National Plan of Integrated Airport Systems (NPIAS) – A plan prepared annually by the FAA which identifies, for the public, the composition of a national system of airports together with the airport development necessary to anticipate and meet the present and future needs of civil aeronautics, to meet requirements in support of the national defense, and to meet the special needs of the Postal Service. The plan includes both new and qualitative improvements to existing airports to increase their capacity, safety, technological capability, etc.

National Pollution Discharge Elimination System (NPDES) – Controls water pollution by regulating point sources that discharge pollutants into waters of the United States.

National Priority List (NPL) – The list of hazardous waste sites in the United States eligible for long-term remedial action (cleanup) financed under the federal Superfund program.

National Register of Historic Places (NRHP) – The United States federal government's official list of districts, sites, buildings, structures, and objects deemed worthy of preservation.

National Weather Service (NWS) – An agency of the National Oceanic and Atmospheric Administration (NOAA) that is responsible for meteorological observations, weather forecasts, storm and flood warnings, etc.

Natural resources – Materials or substances such as minerals, forests, water, and fertile land that occur in nature and can be used for economic gain.

Nautical miles (nm) – 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 miles.

Navigational Aids (NAVAIDS) – A ground based visual or electronic device used to provide course or altitude information to pilots.

Next Generation Air Transportation System (NextGen) – A new National Airspace System due for implementation across the United States in stages between 2012 and 2025. NextGen proposes to transform America's air traffic control system from a ground-based system to a satellite-based system.

No-action alternative – In airport planning, the alternative development option which requires no change from the existing.

Noise contour – Lines drawn about a noise source (such as an airport) indicating constant energy levels of noise exposure.

Non-aeronautical revenue – Revenue generated on airport property which is not derived from an activity or fee directly associated with an aeronautical activity.

Non-aeronautical use – Any activity or land use at an airport that is not directly related to aviation in some way or form.

Nonattainment area – A geographic area in which the level of a criteria air pollutant is higher than the level allowed by the federal standards.

Non-directional beacon (NDB) – A beacon transmitting non-directional 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 instrument approach – An instrument approach and landing which utilizes lateral guidance but does not utilize vertical guidance.

Non-precision instrument runway – A runway having an existing instrument approach procedure utilizing air navigation facilities with only horizontal guidance for which a straight-in non-precision instrument approach procedure has been approved.

Non-primary commercial service airport – Commercial service airports that have at least 2,500 and no more than 10,000 passenger enplanements per year.

Notice to Airmen (NOTAM) – A notice containing information (not known sufficiently in advance to publicize by other means) concerning the establishment, condition or change in any component (facility, service, or procedure) of or hazard in the National Airspace System; the timely knowledge of which is essential to personnel concerned with flight operations.

Object Free Area (OFA) – A two-dimensional ground area surrounding runways, taxiways, and taxilanes which should be kept clear of objects except for those that are fixed by function.

Obstacle Free Zone (OFZ) – The airspace defined by the runway OFZ and, as appropriate, the inner-approach OFZ and the inner-transitional OFZ, which is clear of object penetrations other than frangible NAVAIDs.

Obstruction (aeronautical) – An object which penetrates an imaginary surface described in the FAA's 14 CFR Part 77.

Operations per based aircraft (OPBA) – A term used in aviation forecasting to determine the total amount of aircraft operations per the number of aircraft based on the airport.

Parallel taxiway – A taxiway that is parallel to a runway that is the same length as the runway it is parallel to.

Partial-parallel taxiway – A taxiway that is parallel to a runway that is only partially the same length as the runway it is parallel to.

Particulate matter (PM) – An air pollution term for a mixture of solid particles and liquid droplets found in the air. The pollutant comes in a variety of sizes and can be composed of many types of materials and chemicals.

Pavement condition index (PCI) – A numerical index between 0 and 100 which is used to indicate the general condition of a pavement.

Pavement marking – A marking, usually in paint form, that defines an area on the pavement, such as a runway/taxiway edge, safety areas, etc.

Pavement strength – A number expressing the bearing strength for a pavement with unrestricted operations.

Peak month – A term used in aviation forecasting; based on historic patterns of passenger activity.

Piston aircraft – An aircraft powered by one or more piston engines (regardless of fuel type).

Port of Entry – An airport, harbor, etc., where customs officials are stationed to supervise the entry into and exit from a country of persons and merchandise.

Precision instrument approach – An instrument approach and landing using precision lateral and vertical guidance with minimums determined by the category of operation.

Precision Approach Path Indicator (PAPI) – A system of lights located near the approach end of a runway that provides visual approach slope guidance to aircraft during approach to landing. The lights typically show green if a pilot is on the correct flight path, and turn red if a pilot is too low.

Previously disturbed land – Land that has been moved or tampered with from a previous construction project or other miscellaneous activity which involved disturbing the land from its original state.

Primary commercial service airport – Commercial service airports that have more than 10,000 passenger enplanements each year.

Primary runway – A runway which provides the best wind coverage and receives the most usage at the airport.

Primary surface – An imaginary surface as defined in 14 CFR Part 77 that is centered on top of the runway and extends 200 feet beyond each end. The width varies from 250' to 1,000' wide depending upon the design aircraft for the runway.

Public use airport – An airport available for use by the general public without the prior approval of the owner or operator except as federal law or regulation require.

Quit Claim Deed – A legal instrument by which the owner of a piece of real property, called the grantor, transfers any interest to a recipient, called the grantee. The owner/grantor terminates (“quits”) any right and claim to the property, thereby allowing claim to transfer to the recipient/grantee

Radar – A system that uses electromagnetic waves to identify the range, altitude, direction, or speed of both moving and fixed objects such as aircraft, weather formations, and terrain. The term RADAR was coined in 1941 as an acronym for Radio Detection and Ranging.

Reliever airport – Airports designated by the FAA to relieve congestion at commercial service airports and to provide improved general aviation access to the overall community; these may be publicly or privately-owned.

Resource Conservation and Recovery Act (RCRA) – The principal federal law in the United States governing the disposal of solid waste and hazardous waste enacted in 1976.

Retro-reflective – Of or relating to a surface, material, or device (retro-reflector) that reflects light or other radiation back to its source; reflective.

Rotating beacon – A lighting system used to assist pilots in finding an airport, particularly those flying in IMC or VFR at night. Additionally, the rotating beacon provides information about the type of airport through the use of a particular set of color filters; beacons for civil land airports emit a white and green light that appears as a flash.

Runway – A defined area intended to accommodate aircraft takeoff and landing; may be paved (asphalt or concrete) or unpaved (gravel, turf, dirt, etc.), depending on use.

Runway centerline – A line of uniformly spaced strips and gaps identifying the center of the runway which provides alignment guidance during aircraft takeoff and landing.

Runway Design Code (RDC) – A designation used by the FAA to describe certain design standards which apply to a runway; the RDC is composed of the Airplane Design Group (ADG), Aircraft Approach Category (AAC), and the visibility minimums (RVR) for a specific runway.

Runway end identifier lights (REIL) – Two synchronized flashing lights, one on each side of the runway threshold, which provide a pilot with a rapid and positive visual identification of the approach end of a particular runway.

Runway hold sign – The mandatory instruction sign identifying the runway.

Runway incursion – Any occurrence at an airport involving the incorrect presence of an aircraft, vehicle, or person on the protected area of a surface designated for the landing and takeoff of aircraft.

Runway Object Free Area (ROFA) – A defined area surrounding a runway that should be free of any obstructions that could interfere with aircraft operations. The dimensions for the OFA increase for runways accommodating larger or faster aircraft.

Runway orientation – The physical layout of a runway ideally orientated in the direction of the prevailing winds in order to minimize the crosswind components.

Runway Protection Zone (RPZ) – A trapezoidal area starting 200 feet beyond the runway end and centered on the extended runway centerline. Airport control (ownership or easement) over land within the RPZ is emphasized to protect people and property on the ground.

Runway Safety Area (RSA) – A defined surface surrounding the runway that shall be free of objects and capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and firefighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft.

Runway threshold – The beginning of usable runway for landing.

Runway threshold lights – Lighting used to define the beginning of the runway pavement suitable for aircraft operations.

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.

Seasonal use trend – A term used in aviation forecasting to describe the times of year in which an airport is utilized the most.

Sectional chart – A type of aeronautical chart designed for navigation under visual flight rules; it shows topographical features that are important to aviators, such as terrain elevations, ground features identifiable from altitude (rivers, dams, bridges, buildings, etc.), and ground features useful to pilots (airports, beacons, landmarks, etc.). The chart also shows information on airspace classes, ground-based navigation aids, radio frequencies, longitude and latitude, navigation waypoints, and navigation routes.

Segmented circle – A system of visual indicators designed to show a pilot in the air the direction of the traffic pattern at that airport.

Self-service fueling – Fueling conducted at an airport directly by an aircraft owner/operator.

Single-wheel landing gear – An aircraft landing gear system composed of a single wheel at each location on the landing strut.

Small aircraft (FAA) – An aircraft with a certified maximum takeoff weight of less than 12,500 pounds.

Solid waste – Solid or semisolid, non-soluble material (including gases and liquids in containers) such as agricultural refuse, demolition waste, industrial waste, mining residues, municipal garbage, and sewage sludge.

Special Conservation Area airspace – Airspace which surrounds many national parks, wildlife refuges, etc.; pilots are requested to avoid flight below 2,000 feet AGL in these areas.

Special FAA funding – Federal airport funding which comes primarily from the Airport and Airway Trust Fund (Trust Fund or AATF).

Spill Prevention, Control and Countermeasure Plan (SPCCP) – Specific steps for preventing, controlling, and mitigating oil spills. SPCC plans are required for facilities that store oil and oil-containing products exceeding certain capacity thresholds where there is a possibility that an oil spill would reach a navigable water way.

State Historic Preservation Office (SHPO) – A state governmental function created by the United States federal government in 1966 under Section 101 of the National Historic Preservation Act (NHPA).

State Implementation Plan (SIP) – A plan for each State which identifies how that State will attain and/or maintain the primary and secondary National Ambient Air Quality Standards (NAAQS) set forth in section 109 of the Clean Air Act ("the Act") and 40 Code of Federal Regulations 50.4 through 50.12 and which includes federally-enforceable requirements. Each State is required to have a SIP which contains control measures and strategies which demonstrate how each area will attain and maintain the NAAQS. These plans are developed through a public process, formally adopted by the State, and submitted by the Governor's designee to EPA. The Clean Air Act requires EPA to review each plan and any plan revisions and to approve the plan or plan revisions if consistent with the Clean Air Act.

State Transportation Board (Arizona) - Responsible for establishing a complete system of state highway routes in Arizona, is granted policy powers by the Governor, and serves in an advisory capacity to the Director of the Arizona Department of Transportation. The Board awards construction contracts, monitors the status of construction projects, and has the exclusive authority to issue revenue bonds for transportation financing.

Statewide Integrated Airport System Planning (SIASP) – Identifies the general location and characteristics of new airports and the general expansion needs of existing facilities to meet statewide air transportation goals. This planning is performed by state transportation or aviation planning agencies.

Statute mile – A unit of linear measure equal to 5,280 feet or 1,760 yards.

Storm Water Pollution Prevention Plan (SWPPP) – A plan that details procedures to be followed during various phases of construction for sediment and erosion control that is required by a federal regulation of the United States governing storm water runoff from active construction sites that are more than one acre in area.

Sustainable design – Philosophy of interior, physical, or product design which complies with principles of ecological sustainability.

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.

Taxilane – The portion of the aircraft parking area used for access between taxiways, aircraft parking positions, hangars, storage facilities, etc.

Taxiway Design Group (TDG) – A classification of airplanes based on outer to outer main gear width (MGW) and cockpit to main gear (CMG) distance.

Taxiway Object Free Area (TOFA) – An area on the ground centered on a taxiway 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 TOFA for air navigation or aircraft ground maneuvering purposes.

Taxiway safety area (TSA) – A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an aircraft deviating from the taxiway.

Technical Advisory Committee (TAC) – A committee composed of representatives from industry and government representing diverse points of view on the concerns of the community.

Terminal Area Drawing (TAD) – A separate drawing contained in the ALP set illustrating the zoomed in area surrounding the terminal and landside of an airport and the proposed development over the course of the planning period.

Terminal Area Forecast (TAF) – The official forecast of aviation activity at FAA facilities. These forecasts are prepared to meet the budget and planning needs of the FAA and provide information for use by state and local authorities, the aviation industry, and the public.

Terminal building – A facility on the airport where passengers transfer between ground transportation and the facilities that allow them to board and disembark from aircraft. Within the terminal, passengers purchase tickets, transfer their luggage, and go through security.

Tetrahedron – A device normally located on uncontrolled airports and used as a landing direction indicator. The small end of a tetrahedron points in the direction of landing.

T-hangar – A rectangular aircraft storage hangar with several interlocking "T" units that minimizes the need to build individual units; they are usually two-sided with either bi-fold or sliding doors.

Threshold of Significance (TOS) – The noise level at which aircraft creates a significant impact on noise sensitive uses and persons exposed to it or higher levels. The FAA has selected 65 db of DNL to be the default threshold of significance for aircraft noise.

Tiedown – A place where an aircraft is parked and "tied down." Surface can be grass, gravel or paved.

Tiedown fee – A fee that an airport may charge in order to utilize a specified tiedown parking spot on the airfield.

Title 49 CFR, Part 1542 – A subpart under Title 49 of the Code of Federal Regulations; this part describes aviation security rules governing airport security programs, operations, and contingency measures.

Touch-and-go – An aircraft operation involving a landing followed by a takeoff without the aircraft coming to a full stop or exiting the runway.

Traffic pattern altitude (TPA) – the designated altitude which aircraft must comply with while in the traffic pattern at an airport, usually during landing.

Traffic pattern zone – The flow of traffic that is prescribed for aircraft landing and taking off from an airport. Traffic patterns are typically rectangular in shape, with upwind, crosswind, base and downwind legs and a final approach surrounding a runway.

Transient aircraft – Any aircraft which utilizes the airport for occasional temporary purposes, generally no longer than seven days, and which is based at another airport and is not assigned a reserved tie-down or hangar at the airport.

Transitional surface – One of the 14 CFR Part 77 imaginary surfaces; it extends outward and upward at right angles to the runway centerline and the extended runway centerline at a slope of 7:1 from the sides of the primary surface and from the sides of the approach surfaces.

Transportation Security Administration (TSA) – An agency of the U.S. Department of Homeland Security that has authority over security of the traveling public in the United States.

TSA Security Guidelines for General Aviation Airports – A guidance document developed in cooperation with the general aviation (GA) community. It is intended to provide GA airport owners, operators, and users with guidelines and recommendations that address aviation security concepts, technology, and enhancements.

Turbojet aircraft – An aircraft having a jet engine in which the energy of the jet operates a turbine which in turn operates the air compressor.

Turboprop aircraft – An aircraft having a jet engine in which the energy of the jet operates a turbine which drives the propeller.

U.S. Army Corps of Engineers (USACE) – A U.S. federal agency under the Department of Defense and a major Army command made up of some 37,000 civilian and military personnel, making it one of the world's largest public engineering, design, and construction management agencies.

U.S. Census Bureau – A principal agency of the U.S. Federal Statistical System responsible for producing data about the American people and economy.

U.S. Customs and Border Protection (USCBP) – The largest federal law enforcement agency of the United States Department of Homeland Security charged with regulating and facilitating international trade, collecting import duties, and enforcing U.S. regulations, including trade, customs, and immigration.

U.S. Department of Agriculture - Natural Conservation Resource Service (USDA - NCRS) – An agency of the USDA that provides technical assistance to farmers and other private landowners and managers.

U.S. Department of the Interior (USDOI) – A federal executive department of the U.S. government responsible for the management and conservation of most federal land and natural resources, and the

administration of programs relating to American Indians, Alaska Natives, Native Hawaiians, territorial affairs, and insular areas of the United States.

U.S. Department of Transportation (USDOT) – A federal Cabinet department of the U.S. government concerned with transportation. It was established by an act of Congress on October 15, 1966, and began operation on April 1, 1967. It is governed by the United States Secretary of Transportation.

U.S. Fish and Wildlife Service (USFWS) – A federal government agency within the U.S. Department of the Interior dedicated to the management of fish, wildlife, and natural habitats.

U.S. Forest Service (USFS) – An agency of the U.S. Department of Agriculture that administers the nation's 154 national forests and 20 national grasslands, which encompass 193 million acres.

Uncontrolled airspace – Airspace within which aircraft are not subject to air traffic control.

United States (U.S.) – A federal republic consisting of 50 states and a federal district.

Unmanned aerial system (UAS) – The unmanned aircraft (UA) and all of the associated support equipment, control station, data links, telemetry, communications and navigation equipment, etc., necessary to operate the unmanned aircraft.

Unmanned aerial vehicle (UAV) – An aircraft piloted by remote control or onboard computers.

Useful load – The weight of the pilot, copilot, passengers, baggage, usable fuel, and drainable oil. It is the basic empty weight subtracted from the maximum allowable gross weight. This term applies to general aviation aircraft only.

User Fee Airport – Airports that do not have a volume of Customs business to justify the availability of Customs services, but where the airport is willing to reimburse USCS costs for having an office/inspector stationed at the facility.

Utility runway – A runway that is constructed for, and intended to be used by, propeller driven aircraft of 12,500 pounds maximum gross weight and less.

Very high frequency (VHF) – A band of radio frequencies falling between 30 and 300 MHz.

VHF Omni-directional Range/Distance Measuring Equipment (VOR/DME) - a ground-based electronic navigation aid transmitting very high frequency navigation signals, 360 degrees in azimuth, oriented from magnetic north; it is used as the basis for navigation in the national airspace system.

VHF Omni-directional Range/Tactical Area Navigation (VORTAC) – The standard navigational aid used throughout the airway system to provide bearing information to aircraft. When combined with Tactical Air Navigation (TACAN), the facility, called VORTAC, provides distance as well as bearing information.

Victor Airways – Straight-line, low altitude airway segments between either two VOR stations, or a VOR and a VOR intersection.

Visual Approach Slope Indicator (VASI) – A system of lights located near the approach end of a runway which provides visual approach slope guidance to aircraft during approach to landing. The lights typically

show some combination of green and white if a pilot is on the correct flight path, and turn red if a pilot is too low.

Visual Flight Rules (VFR) – Rules that govern the procedures for conducting flight under visual conditions; a set of regulations under which a pilot operates an aircraft in weather conditions generally clear enough to allow the pilot to see where the aircraft is going.

Visual runway – A runway intended solely for the operation of aircraft using visual approach procedures, with no straight-in instrument approach procedure and no instrument designation indicated on an FAA-approved airport layout plan.

Water quality – Refers to the chemical, physical, biological, and radiological characteristics of water.

Wetland(s) – Lands where saturation with water is the dominant factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface. Executive Order 11990, Protection of Wetlands, sets the standard for a Federal agency action involving any wetland.

Wide Area Augmentation System (WAAS) – A differential global positioning system (DGPS) that improves the accuracy of the system by determining position error from the GPS satellites, then transmitting the error, or corrective factors, to the airborne GPS receiver.

Wild and Scenic River – Rivers having remarkable scenic, recreational, geologic, fish, wildlife, historic, or cultural values. Federal land management agencies in the Departments of the Interior and Agriculture manage the Wild and Scenic Rivers Act (Act).

Wind cone – A conical textile tube designed to indicate wind direction and relative wind speed. Wind direction is the opposite of the direction in which the wind cone is pointing.

Wingspan – The maximum horizontal distance from one wingtip to the other wingtip, including the horizontal component of any extensions such as winglets or raked wingtips.

Zoning district – A specifically delineated geographic area within which regulations and requirements uniformly govern the use, placement, spacing, and size of land and buildings.

APPENDIX B
PUBLIC OUTREACH

COCHISE COUNTY
COCHISE COUNTY AIRPORT
AIRPORT MASTER PLAN



Cochise County Airport Airport Master Plan Update

Project Kick-off Meeting

October 23, 2013
Cochise County Airport

MEETING SUMMARY

Purpose: Present the Airport Master Planning process to the Technical Advisory Committee (TAC) and obtain feedback pertaining to the schedule, process, and expected deliverables.

Technical Advisory Committee members:

Name	Affiliation	Present
Richard Searle	Cochise County	Yes
Jim Vlahovich	Cochise County	No
Elda Orduno	Cochise County	No
Eddie Levins	Cochise County	No
Mike Turisk	Cochise County	Yes
Karen Lamberton	Cochise County	Yes
Lisa Marra	Cochise County	Yes
Ted Soltis	City of Willcox	Yes
Alan Baker	Willcox Chamber of Commerce	No
Louise Walden	Airport Manager	Yes
Gene Moreman	Airport user	Yes
David Walters	Airport user	Yes
Rod Keeling	Business owner/Airport user	No
Jared Raymond	FAA PHX AFO	No
Kenn Potts	ADOT	No
William Gillies	U.S. Air Force	No
Ruben Ojeda	AZ State Land Department	No

Consultants:

Justin Pietz	Armstrong Consultants, Inc.	Yes
Charlie McDermott	Armstrong Consultants, Inc.	Yes
Jenny Watts	Armstrong Consultants, Inc.	Yes

A TAC project kickoff meeting was held on October 23, 2013 to present the Airport Master Planning (AMP) process to the TAC. Attendance at the meeting comprised of representatives from Cochise County, City of Willcox, airport management, airport users, and Armstrong Consultants, Inc (ACI).

ACI began the meeting giving a brief overview of the federal and state grant funding history for the airport. A table summarizing the grant history over the past ten years for Cochise County Airport (P33) was provided to the group.

ACI presented the AMP study objectives and process, and discussed the importance of why an AMP study is conducted. The role of the TAC was explained, and the importance of receiving input from the community was also emphasized. Additionally, ACI presented the proposed schedule for the entire project, as well as the first deliverables. The components of working paper #1 were discussed; working paper #1 will include the inventory and aviation forecast chapters. ACI anticipates producing working paper #1 to the TAC for review before the 2013 Thanksgiving holiday.

Following working paper #1, the next phase of the AMP is the facility requirements and development alternatives chapters. The next TAC meeting will be held after working paper #2 and #3 are distributed for review by the TAC, FAA and ADOT. The FAA and ADOT are invited to attend all TAC meetings to ensure agency support of selected alternatives.

Additionally, the technical aspects of the AMP were discussed by ACI. FAA design standards, types of aircraft, approach categories and design dimension were explained. According to FAA Advisory Circulars, the FAA requires 250 takeoffs and 250 landings per year of the largest aircraft in order to assign the Runway Design Code (RDC). The current RDC for Runway 3/21 is B-II.

During the presentation a discussion took place regarding the pavement strength of the runway, taxiways, and apron at Cochise County and why there is a discrepancy between the three. ACI noted the concern and indicated that with the review of the airport's critical design aircraft and RDC during the AMP process, any design discrepancies will be reviewed, and if needed, the proper recommendations to change design standards will be made. Additionally, a TAC member (and airport user) asked whether or not the current closed crosswind runway (Runway 14/32) would ever be considered to be rehabilitated and reopened for use. ACI informed the group that funding from the FAA for crosswind runways is also a very low priority; however, ACI could research whether or not a portion of the closed runway could be refurbished to accommodate the desire for a crosswind runway.

Planning considerations were further discussed, specifically aviation demand and land use compatibility. ACI stated the importance of the Airport Layout Plan (ALP) and the need to be realistic about future development. The ALP drawing set depicts the existing and future layout of the airport from several different viewpoints. The FAA requires future capital improvement projects to be shown on the ALP in order to be eligible for FAA and State grant funding. A question was raised about FAA funding for certain projects, as well as for airport heavy equipment, such as sweepers and mowers. ACI stated the FAA's highest project priority starts at the runway and meeting design standards related to safety. Typically the further the development is from the runway the lower the priority for FAA funding, with the exception of fencing which generally falls into the safety category. The group also discussed some of the land use compatibility issues surrounding the airport, and was also very interested in determining what the current demand for the airport was for some of the larger local and out-of-state business owners. Attracting new business users to the airport, and retaining those users, was a key topic of discussion. For example, the airport manager indicated that the U.S. Air Force Academy has in the past used the airport and surrounding airspace as a base and training site for the cadet glider training during the spring. This customer provides the airport with a large revenue surge during their stay, and the airport and TAC would like to continue to reach out to these types of clients. One way to do this, the TAC determined, is to improve the airport facilities. ACI agreed that this is an important component to helping the airport grow, and thus the AMP process will help identify areas of the airport that may need improvement in order to attract more business-centric clientele.

The importance of public involvement with the AMP was discussed. The TAC is an important way to incorporate public involvement. Potential venues for public involvement were discussed as well as appropriate public notice methods including the local paper and an Internet webpage. A suggestion was made to develop an airport user survey to get input from the local community. ACI offered to assist the TAC develop and distribute the airport user survey. Furthermore, the TAC also agreed all ACI produced documents regarding the Cochise County Airport Master Plan update should be made available to the public via the County's webpage. The County indicated that they would work with their IT department to have this available, and would inform ACI when this site was up and running. The TAC also decided that Lisa Marra, Grants Administrator for Cochise County, would be the primary point of contact for any concerns or questions. A brief discussion of whether several other individuals should be added to the committee took place. Ms. Marra indicated that she will follow up with those individuals.

Again, ACI reiterated the next step for the AMP will be providing working paper #1 to the TAC, FAA and ADOT. When the first working paper is complete, ACI will begin formulating the facility requirements and recommended development for the alternatives (Chapters 3 and 4). This information will later be distributed in the form of a working paper to the TAC for review and comment. After the dissemination and review of the second and third working papers by the TAC, FAA and ADOT, a meeting will be held to discuss and present the information and receive input based on the future layout and configuration. A public information meeting is scheduled to be held at this time as well.

A copy of the meeting sign-in sheet is attached hereto and made of part hereof.

THIS PAGE WAS INTENTIONALLY LEFT BLANK

Meeting Sign-In Sheet

Project: Cochise County Airport Master Plan Kickoff Meeting

Meeting Date: October 23, 2013

Name	Title	Affiliation	Phone	Fax	E-mail
Justin Pietz	Principal	Armstrong Consultants, Inc.	[REDACTED]	916-244-7769	[REDACTED]
Charlie McDermott, LEED AP	Project Manager	Armstrong Consultants, Inc.	[REDACTED]	[REDACTED]	[REDACTED]
Jenny Watts	Airport Planner	Armstrong Consultants, Inc.	[REDACTED]	[REDACTED]	[REDACTED]
Louise Walden	Airport Mgr.	Walden Aviation	[REDACTED]	SAME	[REDACTED]
Ted Sotlis	city manager	Wilcox	[REDACTED]	[REDACTED]	[REDACTED]
Lilia Maria	Grants Admin.	Cochise City	[REDACTED]	[REDACTED]	[REDACTED]
Karen Lamberton	county transportation	Cochise County	[REDACTED]	[REDACTED]	[REDACTED]
Gene Motoman		cochise county	[REDACTED]	[REDACTED]	[REDACTED]
Daisy Walters			[REDACTED]	[REDACTED]	[REDACTED]
Mike Turist	Planning Man	COCHISE Co.	[REDACTED]	[REDACTED]	[REDACTED]
Richard Seack	Board of Supervisors	Cochise Co.	[REDACTED]	[REDACTED]	[REDACTED]

THIS PAGE WAS INTENTIONALLY LEFT BLANK



**Cochise County Airport
Airport Master Plan Update**

TAC Meeting No. 2

April 23, 2014
Cochise County Airport

MEETING SUMMARY

Purpose: Present a brief review of the aviation demand forecasts and the facility requirements from Working Paper No. 1 and Working Paper No. 2, and to present the airport development alternatives from Working Paper No. 3 to the Technical Advisory Committee (TAC) and obtain feedback pertaining to the proposed development plans.

Technical Advisory Committee members:

Name	Affiliation	Present
Richard Searle	Cochise County	Yes
Jim Vlahovich	Cochise County	No
Elda Orduno	Cochise County	No
Eddie Levins	Cochise County	Yes
Mike Turisk	Cochise County	Yes
Karen Lamberton	Cochise County	No
Lisa Marra	Cochise County	Yes
Ted Soltis	City of Willcox	Yes
Alan Baker	Willcox Chamber of Commerce	No
Louise Walden	Airport Manager	Yes
Gene Moreman	Airport user	No
David Walters	Airport user	Yes
Rod Keeling	Business owner/Airport user	Yes
Jared Raymond	FAA PHX AFO	No
Kenn Potts	ADOT	No
Lt. Col. David Stine	Arizona Air National Guard	No
Tim Bolton	AZ State Land Department	No

Consultants:

Justin Pietz	Armstrong Consultants, Inc.	Yes
Charlie McDermott	Armstrong Consultants, Inc.	Yes
Jenny Watts	Armstrong Consultants, Inc.	Yes

A second TAC meeting was held on April 23, 2014, to briefly review the aviation demand forecasts and the facility requirements found in Working Papers No. 1 and No. 2, and to present the airport development alternatives from Working Paper No. 3 to the TAC. Attendance at the meeting comprised

of representatives from Cochise County, City of Willcox, airport management, airport users, and Armstrong Consultants, Inc (ACI).

ACI began the meeting giving a brief overview of the Airport Master Plan (AMP) study objectives and process, and discussed the importance of why an AMP study is conducted. The role of the TAC was also explained. Additionally, ACI presented the progress made to date with the project schedule and explained the next steps and deliverables. The immediate next steps include the development of the Draft Airport Layout Plan drawing set (Chapter Five) and the Capital Improvement and Financial Plan and Environmental Overview (Chapters Six and Seven) by ACI.

After the AMP recap, a brief summary of the aviation demand forecasts generated for the airport and the recommended facility requirements needed to accommodate the future demand at the airport was presented. The summary explained why aviation demand forecasts are generated and how they are used in the AMP. The summary also included the based aircraft preferred forecast for Cochise County Airport and the methods used to obtain it. Likewise, the total annual operations preferred forecast was presented along with the methods used to obtain it. The facility requirements summary explained how consultants use the demand forecasts to identify the facilities needed to accommodate the forecasted demand levels at the airport. The facility requirements are largely based on the FAA airport design standards, in particular the runway design code (RDC). ACI briefly reviewed the RDC for each runway at the airport (Runway 3-21 and the proposed Runway 14-32). Lastly, major facility requirement recommendations for the airport were summarized in a table format and presented by ACI.

Finally, the development plans (and alternatives) created for the airport were presented by ACI. An airside development plan was reviewed, along with a terminal/landside development plan. After each plan was explained, ACI encouraged the committee members to express their comments and any further recommendations.

During this time, several discussions ensued. The crosswind runway development was the first item discussed. ACI provided a more in depth explanation as to the justification and proposed location of the runway for the TAC members. As previously mentioned within the report, the re-opening of Runway 14-32 is justified based on wind coverage and interest from airport users. In order to minimize any environmental impacts, ACI explained re-opening the runway in its current location was the best option. However, further investigation into the re-opening of the runway lead to an analysis of the Runway Visibility Zone (RVZ). The analysis of the RVZ revealed that Runway 14-32 cannot be re-opened at a length of 5,790 feet, as was recommended in the Facility Requirements chapter, without significantly impacting the existing and recommended development within the terminal area. Therefore, a reduced runway length of 4,170 feet was recommended. The new proposed length will be able to meet the forecasted needs of 75 percent of the small aircraft expected to use the crosswind runway and will keep the RVZ clear of obstructions. The TAC members then agreed with the recommendation to shorten the crosswind runway to the 4,170 feet and have it depicted on the plan as such.

Next, Mr. Turisk inquired if it would be in the County's interest to create an aviation overlay zone for the land surrounding the airport. ACI felt it would be an advantage to the County, and offered to send Mr. Turisk some sample language to help with the process. Mr. Searle suggested that more land to the west of the airfield also be designated for non-aeronautical use. The other TAC members agreed with this suggestion. A rather in depth conversation of aeronautical versus non-aeronautical land use at airports followed. Mr. Walters suggested the County look into leasing small plots of land to airport tenants wishing to build their own small box hangars. The idea is that the County can designate an area of the

airfield for these small box hangars to be built, adopt a pre-approved lease agreement with standards for the box hangar construction, and then lease the land to the tenant over a pre-determined amount of time in a much more simplified process than what is currently in place. All agreed this was a unique and viable suggestion. It was determined more follow up from the County and ACI regarding this idea was needed, and the development plan should be updated to illustrate the location of the proposed hangar development.

Another discussion followed the land use one regarding the TAC's opinion on project priorities for the airport. Ms. Walden felt the reconstruction of the second portion of Taxiway A and maintenance on the existing pavements was the most important priorities. She also mentioned the need for some landscaping maintenance; several trees and brush need to be removed near each end of Runway 3-21. This comment prompted a brief discussion on FAA funding for certain projects, as well as for airport maintenance equipment, such as sweepers and mowers. ACI stated the FAA's highest project priority starts at the runway and meeting design standards related to safety. Typically the further the development is from the runway the lower the priority for FAA funding. Ms. Walden pointed out that an option for the County may be to remove the deteriorated pavement from the closed Runway 14-32 and re-grade the ground and re-open the runway as an unpaved runway in the short term. The rest of the TAC seemed to support this idea, and ACI agreed that this concept could be included in the Alternatives chapter of the report. Mr. Keeling felt the installation of an AWOS and improved airfield lighting was also a high priority for the airport. Lastly, Mr. Walters suggested an aircraft wash rack facility be built somewhere on the airfield as well.

It was concluded that ACI would make some of the recommended changes to both the report and the development drawings. Again, ACI reiterated the next step for the AMP will be providing Working Paper No. 4 to the TAC, FAA and ADOT. After the dissemination and review of Working Paper No. 4 by the TAC, FAA and ADOT, a draft final report will be created and assembled for review.

A copy of the meeting sign-in sheet is attached hereto and made a part hereof.

THIS PAGE WAS INTENTIONALLY LEFT BLANK

Meeting Sign-In Sheet

Project: Cochise County Airport Master Plan Meeting No. 2

Meeting Date: April 23, 2014

Name	Title	Affiliation	Phone	Fax	E-mail
Justin Pietz	Principal	Armstrong Consultants, Inc.	[REDACTED]	[REDACTED]	[REDACTED]
Charlie McDermott, LEED AP	Project Manager	Armstrong Consultants, Inc.	[REDACTED]	[REDACTED]	[REDACTED]
Jenny Watts	Airport Planner	Armstrong Consultants, Inc.	[REDACTED]	[REDACTED]	[REDACTED]
Eddie LEVINS	Facilities Director Cochise County	Cochise County	[REDACTED]	[REDACTED]	[REDACTED]
Michael Turist Planning Manager		"	[REDACTED]	[REDACTED]	[REDACTED]
Ted Soltis	City Manager	Willcox	[REDACTED]	[REDACTED]	[REDACTED]
Lisa Marra	Grants Director	Cochise County	[REDACTED]	[REDACTED]	[REDACTED]
Bouye Walden	Airport (FBO)	Caldwell Aviation	[REDACTED]	[REDACTED]	[REDACTED]
KOD KEENE	Airport User		[REDACTED]	[REDACTED]	[REDACTED]
DANA WALSH	Airport Tenant		[REDACTED]	[REDACTED]	[REDACTED]

THIS PAGE WAS INTENTIONALLY LEFT BLANK



Cochise County - Airport Master Plans

Bisbee Douglas International Airport

FAA No: 3-04-0013-008-2013

ADOT No: E4F3D

Cochise County Airport

FAA No: 3-04-0049-004-2013

ADOT No: E4F3E

FAA/ADOT Project Briefing

May 16, 2014

10:00 am

FAA Phoenix ADO Offices

BRIEFING SUMMARY

Purpose: Provide a brief overview of TAC meeting No. 2 which occurred April 23/24, 2014, for Bisbee Douglas International Airport and Cochise County Airport for the FAA and ADOT. Also, present the alternative development drawings to the FAA and ADOT for both airports and obtain feedback pertaining to the proposed development plans.

Meeting attendees:

Name	Affiliation
Eddie Levins	Cochise County
Lisa Marra	Cochise County
Jared Raymond	FAA, Western-Pacific Region, Phoenix ADO
Holly Dixon	FAA, Western-Pacific Region, Phoenix ADO
Kenn Potts	ADOT – MPD, Aeronautics Group

Consultants:

Charlie McDermott	Armstrong Consultants, Inc.
Jenny Watts	Armstrong Consultants, Inc.

Bisbee Douglas International Airport

- Charlie McDermott from Armstrong gave a brief overview of the presentation that was given during the second BDI TAC meeting which took place on April 24, 2014 at Cochise County headquarters in Bisbee, Arizona.

- Following the presentation overview, Mr. McDermott proceeded to present the alternative development drawings for both the airside and landside portions of BDI Airport, and provide the justifications and conclusions for the development plans that were included within Working Paper No. 3.
- The following are highlights from the discussion which ensued during the alternative development plan presentation:
 - The Runway 17 extension and the crosswind runway intersection issue were discussed in detail; justification as to why Runway 17 was chosen to be extended was provided by Mr. McDermott. Mr. Raymond suggested the runways at Winslow Airport be reviewed to see how a similar issue is being addressed.
 - FAA/ADOT gave no objections to the amount of land that has been reserved for non-aeronautical use as shown on the drawings.
 - A brief discussion on the land release process for BDI occurred
 - ❖ ADOT and FAA confirmed that any land that the County wishes to release would require Congressional approval.
- A suggestion was made to include a potential location for a U.S. Customs and Border Protection building on the alternative drawing plans.

Cochise County Airport

- Charlie McDermott from Armstrong gave a brief overview of the presentation that was given during the second Cochise County Airport TAC meeting which took place on April 23, 2014 at the airport in Willcox, Arizona.
- Following the presentation overview, Mr. McDermott proceeded to present the alternative development drawings for both the airside and landside portions of Cochise County Airport, and provide the justifications and conclusions for the development plans that were included within Working Paper No. 3.
- The following are highlights from the discussion which ensued during the alternative development plan presentation:
 - The crosswind runway (Runway 14-32) was discussed in detail; an explanation for determining its length and location were provided by Mr. McDermott.
 - Mr. Raymond and Ms. Dixon suggested Taxiway A-2 be shown on the development drawing shifted, or off-set, from the apron as per FAA design standards.
 - Mr. Raymond encouraged the County to submit for PAPIs, REILs, beacon, and AWOS projects using entitlement funds in the near future.
 - A short discussion on airport property and the land release process also occurred; it was concluded that any revenue generated from airport property that is used for either aeronautical or non-aeronautical purposes would have to be reinvested in the airport.

Meeting adjourned at 11:45 am.



Cochise County - Airport Master Plans

Bisbee Douglas International Airport

FAA No: 3-04-0013-008-2013

ADOT No: E4F3D

Cochise County Airport

FAA No: 3-04-0049-004-2013

ADOT No: E4F3E

Cochise County Board of Supervisors Project Briefing/TAC Meeting #3

October 28, 2014

2:30 pm

Cochise County Board of Supervisors Office

BRIEFING SUMMARY

Purpose: Provide a brief overview to the Cochise County Board of Supervisors on the status of the airport master plan updates for both Bisbee Douglas International and Cochise County Airports and the next steps leading to the completion of the master plans. This meeting also served as the third and final TAC and public meeting for the projects.

- A brief introduction about the status of each airport layout plan to date was given by Lisa Marra, Grants Director for Cochise County. Ms. Marra then turned briefing over to Mr. Charles McDermott, Senior Airport Project Manager from Armstrong Consultants, Inc.
- Mr. McDermott provided an update on each of the airport master plans; the following was mentioned:
 - No major changes to report from the last TAC meeting and meeting with the FAA and ADOT.
 - A brief overview of the ALP drawing set was given.
 - Mr. McDermott mentioned the FAA's new ALP checklist; review by the FAA may take a little longer due to the new checklist.
 - The next review for the TAC members for both airports will include the draft final report with the last two chapters and the ALP drawing set.
 - Again, the FAA review timeframe is unknown, but Armstrong will return to them as soon as possible.
 - Ended update. (A copy of the handout provided by Armstrong is attached).
- Supervisor English requested those in attendance state why they were there with regards to their interests in the reports.
 - Those in attendance gave brief statement regarding the personal importance of the reports.
 - A short discussion ensued after Lt. Col. David Stine, Airspace Manager for the 162nd Fighter Wing of the Arizona Air National Guard, presented his comments regarding the

airspace restrictions, Military Observation Areas (MOAs), and Military Training Routes (MTRs) for each airport.

- One question was asked regarding the status of the box hangar boiler plate lease language for Cochise County Airport; Mr. McDermott responded indicating that the sample leases had been sent to Mr. Levins; Ms. Marra would confirm with Mr. Levins to make sure he had received them.
- A request for any or questions or comments was made – none were provided.

The meeting adjourned at 3:00 pm. A copy of the handout provided by Armstrong and the attendance sign-in sheet are attached.

Cc: Lisa Marra, Grants Director, Cochise County



Cochise County Board of Supervisors Briefing

October 28, 2014

Status

Comments were received from ADOT on October 23, 2014, for both airport master plans. Armstrong is in the process of reviewing the comments and will incorporate as appropriate. Based on a cursory review of the ADOT comments, the proposed development shown on the draft ALP remains supported.

TAC meeting 2 was held (for both master plans) in April 2014 to review Working Paper 3 and obtain feedback from the committee. Some key feedback included:

Cochise County Airport

- Add area for leased box hangars
- Additional land reserved for non-aeronautical development
- Add an aircraft wash pad
- Support from the TAC for the crosswind runway

Bisbee Douglas International Airport

- Provide a location for U.S. Customs and Border Protection
- Additional land reserved for non-aeronautical development
- Identify area for t-hangars

A meeting with the FAA PHX ADO and ADOT was held on May 16, 2014 to review Working Paper 3 and obtain feedback on the proposed development plans for both airports. After reviewing the plans and some discussion, both FAA and ADOT were in agreement with the (above) feedback from the TAC and the proposed development plans.

Schedule

Both master plan projects started in October 2013 and are both on track to be completed by the end of 2014.

Next steps

- Receive/incorporate feedback from BOS on October 28, 2014
- Receive/incorporate feedback from TAC on October 28, 2014
- Review/incorporate ADOT comments received on October 23, 2014
- Submit draft final report and ALP drawing set to Cochise County, FAA, and ADOT
- Incorporate comments and issue final report
- Prepare executive summary brochure

ATTENDANCE SHEET

Patrick Call

Date: 10/28/14

Type of Meeting:

Work Session Subject: ~~BOD~~ Airport Plans
 Committee Name:

In attendance (please initial):

Richard Searle [check] Patrick Call [check] Ann English [check]
Michael Ortega [check] Jim Vlahovich [check] Arlethe Rios [check]

Table with 3 columns: Name, Email, Telephone. Rows include Lisa Marra, Jenny Watts, Charlie McDermott, Ted Sohis, Lauren Ortega, JESSE DRAKS, CARLOS A. OR LA TORRE, Beverly Wilson, and DAVID STINE, LTOL. Contact information is redacted.

Empty lined area for additional notes or signatures.

APPENDIX C

FEDERAL/STATE AGENCY COORDINATION AND CORRESPONDENCE

**COCHISE COUNTY
COCHISE COUNTY AIRPORT
AIRPORT MASTER PLAN**



**List of Agencies Contacted as Part of the Environmental Inventory Data Collection Process
(Chapter 2, Section 2.19):**

- Arizona Air National Guard – 162nd Fighter Wing Airspace Management
- Arizona Department of Environmental Quality
- Arizona Game and Fish Department
- Arizona State Historic Preservation Office
- Arizona State Land Department
- U.S. Army Corps of Engineers – Arizona Regulatory Office
- U.S. Fish and Wildlife Services – Arizona Field Office

THIS PAGE WAS INTENTIONALLY LEFT BLANK

October 14, 2014

Ms. Laura Canaca
Arizona Game and Fish Department
WMHB – Project Evaluation Program
5000 W. Carefree Highway
Phoenix, AZ 85086-5000

RE: Cochise County Airport – Airport Master Plan Update
FAA AIP No. 3-04-0049-004-2013 / ADOT No. E4F3E
ACI No. 136171

Dear Ms. Canaca:

On behalf of Cochise County, Armstrong Consultants, Inc. is currently preparing an Airport Master Plan for the Cochise County Airport in Willcox, Arizona. An important task in the Airport Master Plan process will be to identify sensitive environmental areas within the airport property and vicinity. This effort would assist our planners in making environmentally sound recommendations for future development plans for the Airport as well as support the baseline information for subsequent environmental review at the federal and state level for specific proposed airport projects.

Please provide us with any comments, information, or mapping resources you may have regarding the project's potential to impact sensitive environmental areas, including, but not limited to, the categories identified in Federal Aviation Administration Order 1050.1E, *Environmental Impacts: Policies and Procedures* that are listed below:

- Air Quality
- Coastal Resources
- Compatible Land Use
- Construction Impacts
- Department of Transportation Act Section 4(f)
- Farmlands
- Fish, Wildlife, and Plants
- Floodplains
- Hazardous Materials, Pollution Prevention, and Solid Waste
- Historic, Architectural, Archeological, and Cultural Resources
- Light Emissions and Visual Impacts
- Natural Resources and Energy Supply
- Noise
- Secondary (Induced) Impacts

- Socioeconomic Impacts, Environmental Justice, and Children's Health and Safety Risks
- Water Quality
- Wetlands
- Wild and Scenic Rivers

An aerial map of the airport has been included to assist you in identifying areas of potential impact. If you have any questions, please feel free to contact me at 602-803-7079, or cmcdermott@armstrongconsultants.com.

Sincerely,

ARMSTRONG CONSULTANTS, INC.

Charlie McDermott, LEED AP
Senior Project Manager

Cc: Lisa Marra, Cochise County w/encl.



THE STATE OF ARIZONA
GAME AND FISH DEPARTMENT

5000 W. CAREFREE HIGHWAY
PHOENIX, AZ 85086-5000
(602) 942-3000 • WWW.AZGFD.GOV

GOVERNOR
JANICE K BREWER

COMMISSIONERS
CHAIRMAN, J.W. HARRIS, TUCSON
ROBERT E. MANSELL, WINSLOW
KURT R. DAVIS, PHOENIX
EDWARD "PAT" MADDEN, FLAGSTAFF
JAMES R. AMMONS, YUMA

DIRECTOR
LARRY D. VOYLES

DEPUTY DIRECTOR
TY E. GRAY



February 6, 2014

Charlie McDermott
Armstrong
2345 Alma School Road, Suite 208
Mesa, AZ 85210

Re: Cochise County Airport – Airport Master Plan Update
FAA AIP No. 3-04-0049-004-2013 / ADOT / No. E4F3E
ACI No. 136171

Dear Mr. McDermott:

The Arizona Game and Fish Department has received and reviewed your letter of January 29, 2014 regarding the above referenced project. I have searched our HDMS data base using the On-line Environmental Review Tool and find that there is one species (bald eagle) of concern to the Department within 2 miles of your project area.

Although the bald eagle is no longer listed under the Endangered Species Act, it is protected under the Bald and Golden Eagle Protection Act (BGA). If you are uncertain about the effects of your project or if you anticipate your project will not be in compliance with the BGA, the Department recommends you contact the U.S. Fish and Wildlife Service (FWS) for their technical assistance. FWS will provide options to comply with the BGA, such as conservation measures to avoid or minimize adverse effects to eagles.

If you have questions or concerns regarding this letter, please feel free to call me at 623 236-7513. Thank you for your cooperation.

Sincerely,

Daniel E. Nelson

M14-01315036

CC: John Windes, AGFD; Debra Bills, USFWS

THIS PAGE WAS INTENTIONALLY LEFT BLANK

Arizona's On-line Environmental Review Tool

Search ID: 20140206022438

Project Name: Cochise County Airport

Date: 2/6/2014 10:08:01 AM

Project Location



Project Name: Cochise County Airport
Submitted By: PEP Project Evaluation Program
On behalf of: CONSULTING
Project Search ID: 20140206022438
Date: 2/6/2014 10:07:57 AM
Project Category: Transportation & Infrastructure, Airports, Construction of new runways, terminals/concourses, other facilities
Project Coordinates (UTM Zone 12-NAD 83): 604335.869, 3567600.080 meter
Project Area: 518.467 acres
Project Perimeter: 5888.959 meter
County: COCHISE
USGS 7.5 Minute Quadrangle ID: 1752
Quadrangle Name: RED BIRD HILLS
Project locality is not anticipated to change

Location Accuracy Disclaimer

Project locations are assumed to be both precise and accurate for the purposes of environmental review. The creator/owner of the Project Review Receipt is solely responsible for the project location and thus the correctness of the Project Review Receipt content.

The Department appreciates the opportunity to provide in-depth comments and project review when additional information or environmental documentation becomes available.

Special Status Species Occurrences/Critical Habitat/Tribal Lands within 3 miles of Project Vicinity:

Name	Common Name	FWS	USFS	BLM	State
Allium glandulosum	Gland Onion				SR
Aspidoscelis arizonae	Arizona Striped Whiptail			S	
Haliaeetus leucocephalus (wintering pop.)	Bald Eagle - Winter Population	SC, BG A	S	S	WSC
Terrapene ornata luteola	Desert Box Turtle			S	

THIS PAGE WAS INTENTIONALLY LEFT BLANK

Arizona's On-line Environmental Review Tool

Search ID: 20140206022438

Project Name: Cochise County Airport

Date: 2/6/2014 10:08:01 AM

Please review the entire receipt for project type recommendations and/or species or location information and retain a copy for future reference. If any of the information you provided did not accurately reflect this project, or if project plans change, another review should be conducted, as this determination may not be valid.

Arizona's On-line Environmental Review Tool:

1. This On-line Environmental Review Tool inquiry has generated recommendations regarding the potential impacts of your project on Special Status Species (SSS) and other wildlife of Arizona. SSS include all U.S. Fish and Wildlife Service federally listed, U.S. Bureau of Land Management sensitive, U.S. Forest Service sensitive, and Arizona Game and Fish Department (Department) recognized species of concern.
2. These recommendations have been made by the Department; under authority of Arizona Revised Statutes Title 5 (Amusements and Sports), 17 (Game and Fish), and 28 (Transportation). These recommendations are preliminary in scope, designed to provide early considerations for all species of wildlife, pertinent to the project type you entered.
3. This receipt, generated by the automated On-line Environmental Review Tool does not constitute an official project review by Department biologists and planners. Further coordination may be necessary as appropriate under the National Environmental Policy Act (NEPA) and/or the Endangered Species Act (ESA).

The U.S. Fish and Wildlife Service (USFWS) has regulatory authority over all federally listed species under the ESA. Contact USFWS Ecological Services Offices: <http://arizonaes.fws.gov>.

Phoenix Main Office
2321 W. Royal Palm Road, Suite 103
Phoenix, AZ 85021
Phone 602-242-0210
Fax 602-242-2513

Tucson Sub-Office
201 North Bonita, Suite 141
Tucson, AZ 85745
Phone 520-670-6144
Fax 520-670-6154

Flagstaff Sub-Office
323 N. Leroux Street, Suite 101
Flagstaff, AZ 86001
Phone 928-226-0614
Fax 928-226-1099

Disclaimer:

1. This is a preliminary environmental screening tool. It is not a substitute for the potential knowledge gained by having a biologist conduct a field survey of the project area.
2. The Department's Heritage Data Management System (HDMS) data is not intended to include potential distribution of special status species. Arizona is large and diverse with plants, animals, and environmental conditions that are ever changing. Consequently, many areas may contain species that biologists do not know about or species previously noted in a particular area may no longer occur there.
3. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity. Such surveys may reveal previously undocumented population of species of special concern.
4. HDMS data contains information about species occurrences that have actually been reported to the Department.

Arizona Game and Fish Department Mission

To conserve, enhance, and restore Arizona's diverse wildlife resources and habitats through aggressive protection and

THIS PAGE WAS INTENTIONALLY LEFT BLANK

management programs, and to provide wildlife resources and safe watercraft and off-highway vehicle recreation for the enjoyment, appreciation, and use by present and future generations.

Project Category: Transportation & Infrastructure, Airports, Construction of new runways, terminals/concourses, other facilities

Project Type Recommendations:

Based on the project type entered; coordination with Arizona Department of Environmental Quality may be required (<http://www.azdeq.gov/>).

Based on the project type entered; coordination with County Flood Control districts may be required.

Based on the project type entered; coordination with State Historic Preservation Office may be required (<http://azstateparks.com/SHPO/index.html>)

Based on the project type entered; coordination with U.S. Army Corps of Engineers may be required (<http://www.spl.usace.army.mil/regulatory/phonedir.html>)

Based on the project type entered; coordination with U.S. Fish and Wildlife Service (Migratory Bird Treaty Act) may be required (<http://arizonaes.fws.gov/>)

Consider designs and tower modifications that reduce or eliminate impacts to migratory birds. Please refer to the U.S. Fish and Wildlife Service's page on cellular towers in Arizona <http://www.fws.gov/arizonaes/CellTower.htm>. On this page there are guidelines for tower siting, construction, operation, and decommissioning. Also see the Service's Interim Guidelines for Recommendations on Communications Tower Siting, Construction, Operation, and Decommissioning. <http://www.fws.gov/habitatconservation/communicationtowers.htm>.

During the planning stages of your project, please consider the local or regional needs of wildlife in regards to movement, connectivity, and access to habitat needs. Loss of this permeability prevents wildlife from accessing resources, finding mates, reduces gene flow, prevents wildlife from re-colonizing areas where local extirpations may have occurred, and ultimately prevents wildlife from contributing to ecosystem functions, such as pollination, seed dispersal, control of prey numbers, and resistance to invasive species. In many cases, streams and washes provide natural movement corridors for wildlife and should be maintained in their natural state. Uplands also support a large diversity of species, and should be contained within important wildlife movement corridors. In addition, maintaining biodiversity and ecosystem functions can be facilitated through improving designs of structures, fences, roadways, and culverts to promote passage for a variety of wildlife.

Minimization and mitigation of impacts to wildlife and fish species due to changes in water quality, quantity, chemistry, temperature, and alteration to flow regimes (timing, magnitude, duration, and frequency of floods) should be evaluated. Minimize impacts to springs, in-stream flow, and consider irrigation improvements to decrease water use. If dredging is a project component, consider timing of the project in order to minimize impacts to spawning fish and other aquatic species (including spawning seasons), and to reduce spread of exotic invasive species. We recommend early direct coordination with Project

THIS PAGE WAS INTENTIONALLY LEFT BLANK

Arizona's On-line Environmental Review Tool

Search ID: 20140206022438

Project Name: Cochise County Airport

Date: 2/6/2014 10:08:01 AM

Evaluation Program for projects that could impact water resources, wetlands, streams, springs, and/or riparian habitats.

Planning: consider impacts of lighting intensity on mammals and birds and develop measures or alternatives that can be taken to increase human safety while minimizing potential impacts to wildlife. Conduct wildlife surveys to determine species within project area, and evaluate proposed activities based on species biology and natural history to determine if artificial lighting may disrupt behavior patterns or habitat use.

The Department recommends that wildlife surveys are conducted to determine if noise-sensitive species occur within the project area. Avoidance or minimization measures could include conducting project activities outside of breeding seasons.

The Department requests further coordination to provide project/species specific recommendations, please contact Project Evaluation Program directly.

Project Location and/or Species recommendations:

Heritage Data Management System records indicate that one or more listed, proposed, or candidate species or Critical Habitat (Designated or Proposed) have been documented in the vicinity of your project (refer to page 1 of the receipt). Please contact:

Ecological Services Office
US Fish and Wildlife Service
2321 W. Royal Palm Rd.
Phoenix, AZ 85021-4951
Phone: 602-242-0210
Fax: 602-242-2513

Heritage Data Management System records indicate that one or more native plants listed on the Arizona Native Plant Law and Antiquities Act

have been documented within the vicinity of your project area (refer to page 1 of the receipt). Please contact:

Arizona Department of Agriculture
1688 W Adams
Phoenix, AZ 85007
Phone: 602-542-4373

Recommendations Disclaimer:

1. Potential impacts to fish and wildlife resources may be minimized or avoided by the recommendations generated from information submitted for your proposed project.
2. These recommendations are proposed actions or guidelines to be considered during preliminary project development.
3. Additional site specific recommendations may be proposed during further NEPA/ESA analysis or through coordination with affected agencies.
4. Making this information directly available does not substitute for the Department's review of project proposals, and should not decrease our opportunity to review and evaluate additional project information and/or new project proposals.
5. The Department is interested in the conservation of all fish and wildlife resources, including those Special Status Species listed on this receipt, and those that may have not been documented within the project vicinity as well as other game and nongame wildlife.
6. Further coordination requires the submittal of this Initialed and signed Environmental Review Receipt with a cover letter and project plans or documentation that includes project narrative, acreage to be impacted, how construction or project activity(s) are to be accomplished, and project locality information (including site map).
7. Upon receiving information by AZGFD, please allow 30 days for completion of project reviews. Mail requests to:

THIS PAGE WAS INTENTIONALLY LEFT BLANK

Arizona's On-line Environmental Review Tool

Search ID: 20140206022438

Project Name: Cochise County Airport

Date: 2/6/2014 10:08:01 AM

Project Evaluation Program, Habitat Branch

Arizona Game and Fish Department

5000 West Carefree Highway

Phoenix, Arizona 85086-5000

Phone Number: (623) 236-7600

Fax Number: (623) 236-7366

Terms of Use

By using this site, you acknowledge that you have read and understand the terms of use. Department staff may revise these terms periodically. If you continue to use our website after we post changes to these terms, it will mean that you accept such changes. If at any time you do not wish to accept the Terms, you may choose not to use the website.

1. This Environmental Review and project planning website was developed and intended for the purpose of screening projects for potential impacts on resources of special concern. By indicating your agreement to the terms of use for this website, you warrant that you will not use this website for any other purpose.
2. Unauthorized attempts to upload information or change information on this website are strictly prohibited and may be punishable under the Computer Fraud and Abuse Act of 1986 and/or the National Information Infrastructure Protection Act.
3. The Department reserves the right at any time, without notice, to enhance, modify, alter, or suspend the website and to terminate or restrict your access to the website.
4. This Environmental Review is based on the project study area that was entered. The review must be redone if the project study area, location, or the type of project changes. If additional information becomes available, this review may need to be reconsidered.
5. A signed and initiated copy of the Environmental Review Receipt indicates that the entire receipt has been read by the signer of the Environmental Review Receipt.

Security:

The Environmental Review and project planning web application operates on a complex State computer system. This system is monitored to ensure proper operation, to verify the functioning of applicable security features, and for other like purposes. Anyone using this system expressly consents to such monitoring and is advised that if such monitoring reveals possible evidence of criminal activity, system personnel may provide the evidence of such monitoring to law enforcement officials. Unauthorized attempts to upload or change information; to defeat or circumvent security measures; or to utilize this system for other than its intended purposes are prohibited.

This website maintains a record of each environmental review search result as well as all contact information. This information is maintained for internal tracking purposes. Information collected in this application will not be shared outside of the purposes of the Department.

If the Environmental Review Receipt and supporting material are not mailed to the Department or other appropriate agencies within six (6) months of the Project Review Receipt date, the receipt is considered to be null and void, and a new review must be initiated.

Print this Environmental Review Receipt using your Internet browser's print function and keep it for your records. Signature of this receipt indicates the signer has read and understands the information provided.

Signature: _____

Date: _____

THIS PAGE WAS INTENTIONALLY LEFT BLANK

Arizona's On-line Environmental Review Tool

Search ID: 20140206022438

Project Name: Cochise County Airport

Date: 2/6/2014 10:08:01 AM

Proposed Date of Implementation: _____

Please provide point of contact information regarding this Environmental Review.

Application or organization responsible for project implementation

Agency/organization: _____

Contact Name: _____

Address: _____

City, State, Zip: _____

Phone: _____

E-mail: _____

Person Conducting Search (if not applicant)

Agency/organization: _____

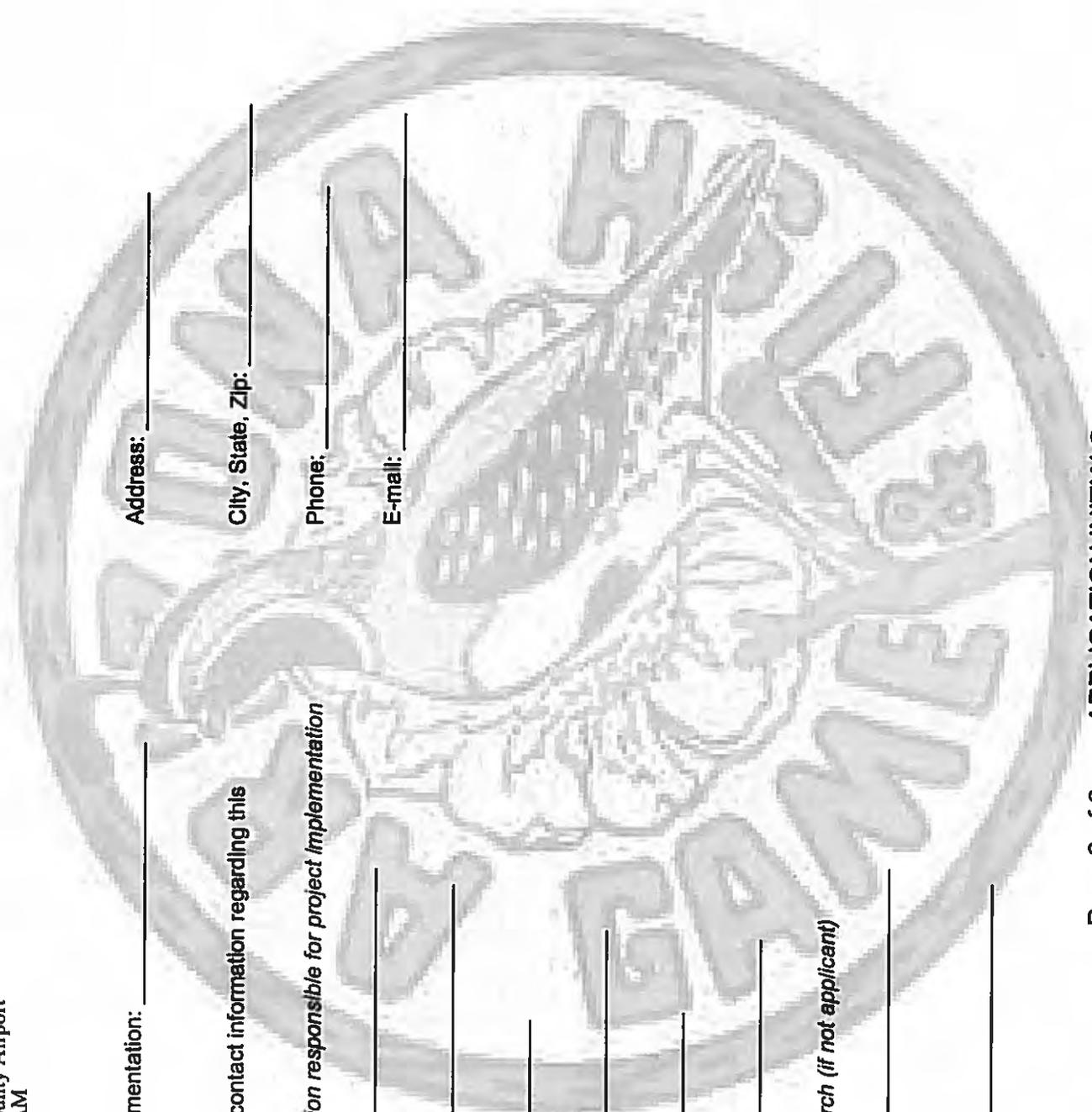
Contact Name: _____

Address: _____

City, State, Zip: _____

Phone: _____

E-mail: _____



THIS PAGE WAS INTENTIONALLY LEFT BLANK



DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
3636 N CENTRAL AVE SUITE 900
PHOENIX AZ 85012-1939

ORIGINAL

March 14, 2014

Mr. Charlie McDermott
Armstrong Consultants, Inc.
2345 S. Alma School Road
Suite 208
Mesa, Arizona 85210

DETERMINATION OF NEED FOR A DEPARTMENT OF THE ARMY PERMIT

Dear Mr. McDermott:

I am responding to your request on behalf of Cochise County dated January 29, 2014, for comments or information pertaining to the Cochise County Airport Master Plan, in Wilcox, Cochise County, Arizona. The request has been assigned file number SPL-2014-00110-DB. Please refer to this file number in all future correspondence relating to this project.

The Corps is responsible for regulating activities that involve a discharge of dredged or fill material into waters of the United States under Section 404 of the Clean Water Act. The Corps' evaluation process for determining if you need a permit is based on whether or not the proposed project is located within or contains a water of the United States, and whether or not the proposed project includes an activity potentially regulated under Section 404 of the Clean Water Act. If both conditions are met, a permit would be required.

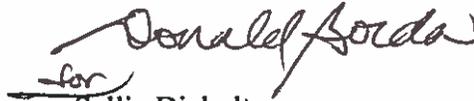
Based on the information you provided, I am unable to determine if any proposed projects would be regulated under Section 404 of the Clean Water Act or if waters of the U.S. occur on site. In order for me to complete a jurisdictional determination (JD), please provide the information requested on the attached additional information request form. Please note there are two types of JD you may request, an approved JD or a preliminary JD. An approved JD is appealable and is generally valid for five years per Regulatory Guidance Letter 05-02. A preliminary JD is advisory only and cannot be appealed (see attached preliminary JD form). A preliminary JD also may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service prior to starting work.

Notwithstanding this determination, your proposed project may be regulated under other Federal, State, and local laws.

If you have any questions, please contact me at 505-342-3221 or via e-mail at Donald.Borda@usace.army.mil.

Please be advised that you can now comment on your experience with Regulatory Division by accessing the Corps web-based customer survey form at: http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey.

Sincerely,

A handwritten signature in black ink that reads "Donald Borda". The signature is written in a cursive style with a long horizontal stroke at the end.

for
Sallie Diebolt
Chief, Arizona Branch
Regulatory Division

Enclosures

1. Regulatory Guidance Letter 08



**US Army Corps
of Engineers.**

REGULATORY GUIDANCE LETTER

No. 08-02

Date: 26 June 2008

SUBJECT: Jurisdictional Determinations

1. **Purpose.** Approved jurisdictional determinations (JDs) and preliminary JDs are tools used by the U.S. Army Corps of Engineers (Corps) to help implement Section 404 of the Clean Water Act (CWA) and Sections 9 and 10 of the Rivers and Harbors Act of 1899 (RHA). This Regulatory Guidance Letter (RGL) explains the differences between these two types of JDs and provides guidance on when an approved JD is required and when a landowner, permit applicant, or other “affected party”¹ can decline to request and obtain an approved JD and elect to use a preliminary JD instead.

a. This guidance does not address which waterbodies are subject to CWA or RHA jurisdiction. For guidance on CWA and RHA jurisdiction, see Corps regulations, “Memorandum re: Clean Water Act (CWA) Jurisdiction Following U.S. Supreme Court Discussion in *Rapanos v. United States*,” dated 19 June 2007, and the documents referenced therein.

b. This guidance takes effect immediately, and supersedes any inconsistent guidance regarding JDs contained in RGL 07-01.

2. **Approved JDs.** An approved JD is an official Corps determination that jurisdictional “waters of the United States,” or “navigable waters of the United States,” or both, are either present or absent on a particular site. An approved JD precisely identifies the limits of those waters on the project site determined to be jurisdictional under the CWA/RHA. (See 33 C.F.R. 331.2.)

a. The Corps will provide (subject to the limitation contained in paragraph 5.b. below) an approved JD to any landowner, permit applicant, or other “affected party” when:

(1) a landowner, permit applicant, or other “affected party” requests an approved JD by name or otherwise requests an official jurisdictional determination, whether or not it is referred to as an “approved JD”;

¹ As defined at 33 CFR 331.2 “affected party” means a permit applicant, landowner, a lease, easement or option holder (i.e., an individual who has an identifiable and substantial legal interest in the property) who has received an approved JD, permit denial or has declined a proffered individual permit.

(2) a landowner, permit applicant, or other “affected party” contests jurisdiction over a particular water body or wetland, and where the Corps is allowed access to the property and is otherwise able to produce an approved JD; or

(3) the Corps determines that jurisdiction does not exist over a particular water body or wetland.

b. An approved JD:

(1) constitutes the Corps’ official, written representation that the JD’s findings are correct;

(2) can be relied upon by a landowner, permit applicant, or other “affected party” (as defined at 33 C.F.R. 331.2) who receives an approved JD for five years (subject to certain limited exceptions explained in RGL 05-02);

(3) can be used and relied on by the recipient of the approved JD (absent extraordinary circumstances, such as an approved JD based on incorrect data provided by a landowner or consultant) if a CWA citizen’s lawsuit is brought in the Federal Courts against the landowner or other “affected party,” challenging the legitimacy of that JD or its determinations; and

(4) can be immediately appealed through the Corps’ administrative appeal process set out at 33 CFR Part 331.

c. The District Engineer retains the discretion to use an approved JD in any other circumstance where he or she determines that is appropriate given the facts of the particular case.

d. If wetlands or other water bodies are present on a site, an approved JD for that site will identify and delineate those water bodies and wetlands that are subject to CWA/RHA jurisdiction, and serve as an initial step in the permitting process.

e. Approved JDs shall be documented in accordance with the guidance provided in RGL 07-01. Documentation requires the use of the JD Form published on June 5, 2007, or as modified by ORM2 or subsequent revisions to the June 5, 2007 JD form approved by Corps Headquarters. Districts will continue to post approved JDs on their websites.

3. A permit applicant’s option to decline to request and obtain an approved JD. While a landowner, permit applicant, or other “affected party” can elect to request and obtain an approved JD, he or she can also decline to request an approved JD, and instead obtain a Corps individual or general permit authorization based on either a preliminary JD, or, in appropriate circumstances (such as authorizations by non-reporting nationwide general permits), no JD whatsoever. The Corps will determine what form of JD is appropriate

for any particular circumstance based on all the relevant factors, to include, but not limited to, the applicant's preference, what kind of permit authorization is being used (individual permit versus general permit), and the nature of the proposed activity needing authorization.

4. Preliminary JDs. Preliminary JDs are non-binding "... written indications that there may be waters of the United States, including wetlands, on a parcel or indications of the approximate location(s) of waters of the United States or wetlands on a parcel. Preliminary JDs are advisory in nature and may not be appealed." (See 33 C.F.R. 331.2.)

a. A landowner, permit applicant, or other "affected party" may elect to use a preliminary JD to voluntarily waive or set aside questions regarding CWA/RHA jurisdiction over a particular site, usually in the interest of allowing the landowner or other "affected party" to move ahead expeditiously to obtain a Corps permit authorization where the party determines that is in his or her best interest to do so.

b. It is the Corps' goal to process both preliminary JDs and approved JDs within 60 days as detailed in paragraph 5 below, so the applicant or other affected party's choice of whether to use a preliminary JD or approved JD should not affect this goal.

c. A landowner, permit applicant, or other "affected party" may elect to use a preliminary JD even where initial indications are that the water bodies or wetlands on a site may not be jurisdictional, if the affected party makes an informed, voluntary decision that is in his or her best interest not to request and obtain an approved JD.

d. For purposes of computation of impacts, compensatory mitigation requirements, and other resource protection measures, a permit decision made on the basis of a preliminary JD will treat all waters and wetlands that would be affected in any way by the permitted activity on the site as if they are jurisdictional waters of the U.S.

e. Preliminary JDs are also commonly used in enforcement situations because access to a site may be impracticable or unauthorized, or for other reasons an approved JD cannot be completed in a timely manner. In such circumstances, a preliminary JD may serve as the basis for Corps compliance orders (e.g., cease and desist letters, initial corrective measures). The Corps should support an enforcement action with an approved JD unless it is impracticable to do so under the circumstances, such as where access to the site is prohibited.

f. When the Corps provides a preliminary JD, or authorizes an activity based on a preliminary JD, the Corps is making no legally binding determination of any type regarding whether CWA/RHA jurisdiction exists over the particular water body or wetland in question.

g. A preliminary JD is "preliminary" in the sense that a recipient of a preliminary JD can later request and obtain an approved JD if that later becomes necessary or appropriate during the permit process or during the administrative appeal process. If a

permit applicant elects to seek a Corps individual permit based on a preliminary JD, that permit applicant can later raise jurisdictional issues as part of an administrative appeal of a proffered permit or a permit denial, as explained in paragraph 6 below.

h. In all circumstances where an approved JD is not required by the guidance in paragraph 2 of this RGL, District Engineers retain authority to use preliminary JDs. The Corps may authorize an activity with one or more general permits, a letter of permission, or a standard individual permit, with no “official” JD of any type, or based on a preliminary JD, where the District Engineer determines that to be appropriate, and where the permit applicant has been made aware of his or her option to receive an approved JD and has declined to exercise that option. Generally, approved JDs should be used to support individual permit applications, but the applicant should be made aware of his or her option to elect to use a preliminary JD wherever the applicant feels doing so is in his or her best interest.

5. Processing approved and preliminary JDs. Every approved JD and preliminary JD should be completed and provided to the person, organization, or agency requesting it as promptly as is practicable in light of the district’s workload, and site and weather conditions if a site visit is determined necessary.

a. Corps districts should not give preliminary JDs priority over approved JDs. Moreover, every Corps district should ensure that a permit applicant’s request for an approved JD rather than a preliminary JD will not prejudice the timely processing of that permit application. It is the Corps’ goal that every JD requested by an affected party should be completed within 60 calendar days of receiving the request. Regulatory Project Managers will notify their supervisors and develop a schedule for completion of the JD if it is not practicable to meet this 60 day goal.

b. The Corps should not provide either an approved JD or a preliminary JD to any person if the Corps has reason to believe that person is seeking a JD for any purpose relating to a CWA program not administered by the Corps (e.g., CWA Section 402, 303, or 311). In such circumstances the Corps should decline to perform the JD and instead refer the person who requested it to the Federal or state agency responsible for administering that program.

6. JDs and appeals. In any circumstance where a permit applicant obtains a Corps proffered individual permit or a permit denial, based on a preliminary JD, and where the permit applicant elects to pursue an administrative appeal of the proffered permit or the permit denial, the appeal “may include jurisdiction issues,” as stated at 33 C.F.R. 331.5(a)(2). However, if an affected party during the appeal of a proffered permit or a permit denial challenges or questions jurisdiction, those jurisdictional issues must be addressed with an approved JD. Therefore, if, during or as a result of the administrative appeal of the permit denial or the terms and conditions of the proffered permit, it becomes necessary to make an official determination whether CWA/RHA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps should provide an approved JD as soon as is practicable, consistent with the

goal expressed in paragraph 5 above. Such an approved JD would be subject to the same procedures as other approved JDs, such as requirements for coordinating approved JDs with EPA.

7. Key distinction between approved JDs and preliminary JDs. By definition, a preliminary JD can only be used to determine that wetlands or other water bodies that exist on a particular site “may be” jurisdictional waters of the United States. A preliminary JD by definition cannot be used to determine either that there are no wetlands or other water bodies on a site at all (i.e., that there are no aquatic resources on the site and the entire site is comprised of uplands), or that there are no jurisdictional wetlands or other water bodies on a site, or that only a portion of the wetlands or waterbodies on a site are jurisdictional. A definitive, official determination that there are, or that there are not, jurisdictional “waters of the United States” on a site can only be made by an approved JD. The Corps retains the ability to use a “no-permit-required” letter to indicate that a specific proposed activity is not subject to CWA/RHA jurisdiction when that is determined appropriate, but a “no-permit-required” letter cannot make any sort of determination regarding whether there are jurisdictional wetlands or other waterbodies on a site.

8. Mandatory use of the preliminary JD form. In each and every circumstance where a preliminary JD is used, the Corps district must complete the “Preliminary Jurisdictional Determination Form” provided at Attachment I, which sets forth in writing the minimum requirements for a preliminary JD and important information concerning the requesting party’s option to request and obtain an approved JD, and subsequent appeal rights. The signature of the affected party who requested the preliminary JD will be obtained on the preliminary JD form wherever practicable (e.g., except for enforcement situations, etc.). Where a preliminary JD form covers multiple water bodies or multiple sites, the information for each can be included in the table provided with the preliminary JD form. Information in addition to the minimum of data required on the preliminary JD form can be included on that form, but only if such information pertains to the amount and location of wetlands or other water bodies at the site. Corps regulatory personnel are expected to continue to exercise appropriate judgment and use appropriate information when making technical and scientific determinations as to what areas on the site qualify as water bodies or wetlands. Any such additional information included on the preliminary JD form should not purport, or be construed, to address any legal determination involving CWA/RHA jurisdiction on the site.

9. Data collection. Information about the quality and quantity of the aquatic resources that would be affected by the proposed activity, the types of impacts that are expected to occur, and compensatory mitigation, are obtained by the Corps during the processing of an individual permit application and are included in pre-construction notification for reporting NWPs. For example, NWP pre-construction notifications must contain a “description of the proposed project; the project’s purpose; direct and indirect adverse environmental effects the project would cause; . . . a delineation of special aquatic sites and other waters of the United States on the project site.” (Reissuance of Nationwide Permits Notice, 72 Fed. Reg. 11092, at 11194-95 (March 12, 2007).) Applicants should

provide a delineation of special aquatic sites in support of an individual permit or “letter of permission” application.

a. The information on a preliminary JD form should be limited to the amount and location of wetlands and other water bodies on the site and should be sufficiently accurate and reliable that the effective presumption of CWA/RHA jurisdiction over all of the wetlands and other water bodies at the site will support a reliable and enforceable permit decision. When a preliminary JD is used to support a request for a permit authorization, the information on the preliminary JD form is also relevant to the processing of that permit application (e.g., to calculate compensatory mitigation requirements). During the permit process, information in addition to the data on the preliminary JD form is developed and relied upon to support the Corps permit decision; that additional information should be carefully documented as part of the permit process (e.g., through an environmental assessment, 404(b)(1) analysis, combined decision document, or decision memorandum). This additional information for the permit decision should *not* be captured on a preliminary JD form.

b. The type of information collected to support the decision on the permit application will be the same for permit applications supported by approved JDs and for those supported by preliminary JDs. Therefore, decisions and judgments regarding environmental impacts, public interest determinations, and mitigation requirements should be adequately supported regardless of the type of JD used. For this reason, the data necessary to quantify and defend the Corps Regulatory Program’s performance will be available for a permit application regardless of whether it was supported by an approved JD or a preliminary JD.

c. The information used to support an approved JD should be reliable and verifiable. Traditionally, this information has been obtained or verified through a site visit, but now, with information from new, highly sensitive technology and imaging, site visits may not always be required for approved JDs.

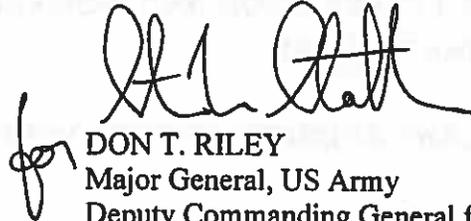
d. When documenting preliminary JDs, any available technical, scientific, and observational information about the wetlands or other water bodies can be entered into ORM2 regardless of whether it is the type of information that could inform a formal jurisdictional determination (e.g., discussion of the ecological relationship between water bodies), so long as legal conclusions about jurisdictional status are not included. Any additional, available information that is entered into ORM2 must be accompanied by the warning that the information has not been verified, that it is not an official determination by the government, and that it cannot later be relied upon to determine whether an area is or is not jurisdictional.

10. Coordination with U.S. Environmental Protection Agency (EPA) and posting. Districts will continue to post approved JDs on their web sites. Consistent with historical practice, preliminary JDs will not be coordinated with EPA or posted on District websites. Corps Headquarters is modifying the ORM2 data base to collect information regarding use of preliminary JDs, and regarding permit authorizations based on

preliminary JDs, or based on no official form of JD. Until ORM2 is modified to collect and access information related to preliminary JDs, every District should collect basic information, to the maximum extent practicable, on those subjects for purposes of documenting District workload.

11. This guidance remains in effect until revised or rescinded.

Attachment

A handwritten signature in black ink, appearing to read "Don T. Riley". The signature is stylized with a large initial "D" and "R".

DON T. RILEY
Major General, US Army
Deputy Commanding General for Civil and
Emergency Operations

ATTACHMENT

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD):

B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:

C. DISTRICT OFFICE, FILE NAME, AND NUMBER:

**D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:
(USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES AT DIFFERENT SITES)**

State: County/parish/borough: City:

Center coordinates of site (lat/long in degree decimal format): Lat. °

Pick List, Long. ° Pick List.

Universal Transverse Mercator:

Name of nearest waterbody:

Identify (estimate) amount of waters in the review area:

Non-wetland waters: linear feet: width (ft) and/or acres.

Cowardin Class:

Stream Flow:

Wetlands: acres.

Cowardin Class:

Name of any water bodies on the site that have been identified as Section 10 waters:

Tidal:

Non-Tidal:

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

Office (Desk) Determination. Date:

Field Determination. Date(s):

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable. This preliminary JD finds that there "may be" waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply

- checked items should be included in case file and, where checked and requested, appropriately reference sources below):

- Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant:
- Data sheets prepared/submitted by or on behalf of the applicant/consultant.
 - Office concurs with data sheets/delineation report.
 - Office does not concur with data sheets/delineation report.
- Data sheets prepared by the Corps:
- Corps navigable waters' study:
- U.S. Geological Survey Hydrologic Atlas:
 - USGS NHD data.
 - USGS 8 and 12 digit HUC maps.
- U.S. Geological Survey map(s). Cite scale & quad name:
- USDA Natural Resources Conservation Service Soil Survey. Citation:

- National wetlands inventory map(s). Cite name:
- State/Local wetland inventory map(s):
- FEMA/FIRM maps:
- 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
- Photographs: Aerial (Name & Date):
or Other (Name & Date):
- Previous determination(s). File no. and date of response letter:
- Other information (please specify):

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Signature and date of
Regulatory Project Manager
(REQUIRED)

Signature and date of
person requesting preliminary JD
(REQUIRED, unless obtaining
the signature is impracticable)

SAMPLE

Site number	Latitude	Longitude	Cowardin Class	Estimated amount of aquatic resource in review area	Class of aquatic resource
1				0.1 acre	section 10 – tidal
2				100 linear feet	section 10 – non-tidal
3				15 square feet	non-section 10 – wetland
4				0.01 acre	non-section 10 – non-wetland

THIS PAGE WAS INTENTIONALLY LEFT BLANK

APPENDIX D

**FORECASTS OF AVIATION ACTIVITY APPROVAL
LETTER (FAA)**

**COCHISE COUNTY
COCHISE COUNTY AIRPORT
AIRPORT MASTER PLAN**





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

Federal Aviation Administration
Phoenix Airports Field Office

2800 N 44th Street
Suite 510
Phoenix, AZ 85008

January 31, 2014

Ms. Lissa M. Marra
Grants Director
Cochise County
1415 Melody Lane Bldg G.
Bisbee, Arizona 85603

Dear Ms. Marra:

**Cochise County Airport (P33), Wilcox, Arizona
Aviation Activity Forecast Approval**

The Federal Aviation Administration (FAA) has reviewed the aviation forecast for the airport master plan for Cochise County Airport dated January 27, 2014. The FAA approves these forecasts for airport planning purposes, including Airport Layout Plan development.

In summary, while the difference between the FAA TAF and Cochise County'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 due to the use of the airport by area flight schools, a minor increase in based aircraft, and a rise in aviation services (fuel sales) at the airport over the past several years. Therefore, approval of this forecast doesn't need to be sent to FAA Headquarters for review because the 5 and 10 year forecasts do not exceed benchmarks established in the FAA's Guidance on Review & Approval of Local Aviation Forecasts published in 2008.

The forecast was formulated using current data and appropriate methodologies; therefore the FAA locally approves this forecast for planning purposes at the Cochise County 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 602-379-3022

Sincerely,



Jared M. Raymond
Airport Planner

cc: Kenn Potts, ADOT, Airport Grant Manager

THIS PAGE WAS INTENTIONALLY LEFT BLANK

APPENDIX E
FAA EQUATION #15

COCHISE COUNTY
COCHISE COUNTY AIRPORT
AIRPORT MASTER PLAN



Estimate of annual operations for Cochise County Airport using FAA's Equation #15, Model for Estimating General Aviation Operations at Non-Towered Airports

In order to make the result as accurate as possible, the number of based aircraft used in this formula is 22, as this is the most up to date figure as reported on the FAA Form 5010-1. The formula, and the breakdown of data for Cochise County Airport within the formula, is as follows:

$775 + 241(\text{Based Aircraft}) - 0.14(\text{Based Aircraft})^2 + 31,478(\text{Based Aircraft/Total Number of Based Aircraft within 100 miles of Airport}) + 5,577(\text{Number of Flight Schools at Airport}) + 0.001(\text{Population within 100 miles}) - 3,736(\text{multiply by 1 if Airport is Located in WA, CA, OR or AK; multiply by zero if not}) + 12,121(\text{Population within 25 miles/population within 100 miles}) = \text{total estimated annual operations}$

$775 + 241(22) - 0.14(22)^2 + 31,478(.15) + 0 + 117 - 0 + 12,121(.22) = 13,515 \text{ total estimated annual operations}$

THIS PAGE WAS INTENTIONALLY LEFT BLANK

APPENDIX F

AVERAGE DAILY OPERATIONS PER MONTH

FORMULA

COCHISE COUNTY
COCHISE COUNTY AIRPORT
AIRPORT MASTER PLAN



Average Daily Operations in a Given Month Formula found in Chapter 3, Forecasts of Aviation Activity, Section 3.8

The formula is as follows:

$$M = A (T/100)$$

$$D = M / (365/12)$$

Where T = Monthly percent of use (from curve)

M = Average monthly operations

A = Total annual operations

D = Average daily operations in a given month

Approximately 90 percent of total daily operations occur between the hours of 7:00 am and 7:00 pm (12 hours) at a typical general aviation airport, meaning the maximum peak hourly occurrence may be 50 percent greater than the average of the hourly operations calculated for this time period.

The estimated peak hourly demand (P) in a given month was, consequently, determined by compressing 90 percent of the average daily operations (D) in a given month into the 12-hour peak use period, reducing that number to an hourly average for the peak use period and increasing the result by 50 percent as follows:

$$P = 1.5 (0.90D/12)$$

Where D = Average daily operations in a given month

P = Peak hourly demand in a given month

THIS PAGE WAS INTENTIONALLY LEFT BLANK

APPENDIX G
PUBLISHED INSTRUMENT APPROACH
PROCEDURES

COCHISE COUNTY
COCHISE COUNTY AIRPORT
AIRPORT MASTER PLAN



APP CRS	Rwy Idg	6095
034°	THRE	4182
	Apt Elev	4187

RNAV (GPS) RWY 3

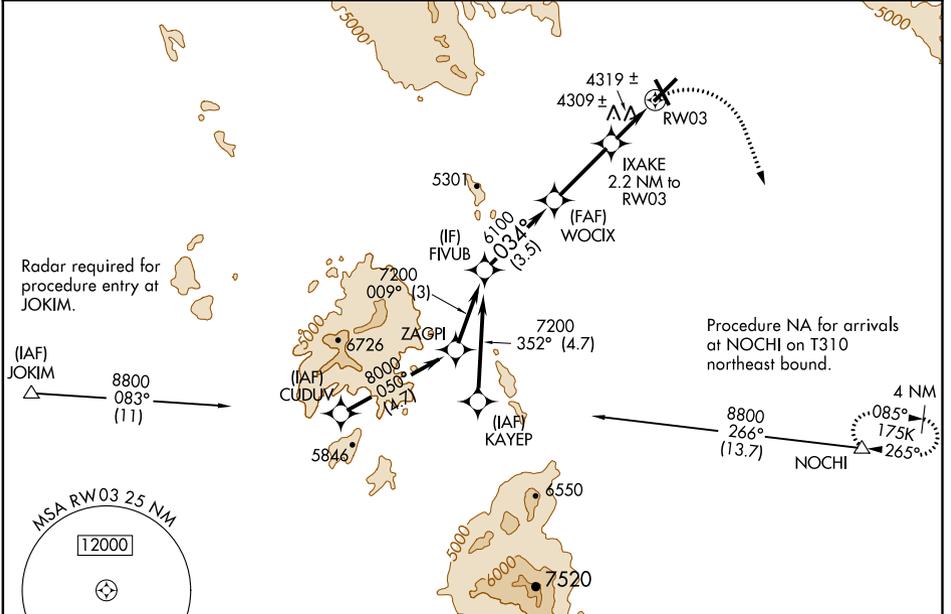
COCHISE COUNTY (P33)

NA Obtain local altimeter setting on CTAF; when not received, use Douglas Bisbee altimeter setting. DME/DME RNP-0.3 NA. VDP NA with Douglas Bisbee altimeter setting.

MISSED APPROACH: Climbing right turn to 8800 direct NOCHI and hold, continue climb-in-hold to 8800. When authorized by ATC, continue climb-in-hold to MEA for route of flight.

ALBUQUERQUE CENTER **134.45 327.15**

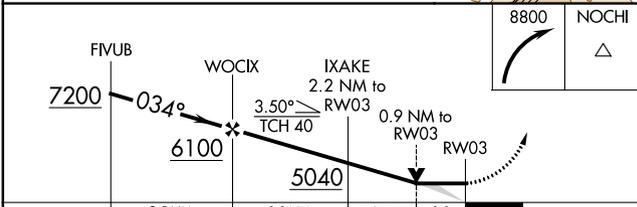
UNICOM **122.8 (CTAF)**



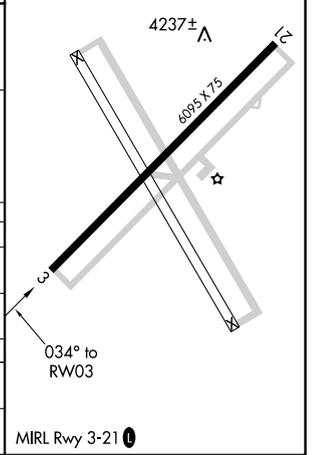
SW-4, 21 AUG 2014 to 18 SEP 2014

SW-4, 21 AUG 2014 to 18 SEP 2014

ELEV 4187	THRE 4182
-----------	-----------



CATEGORY	A	B	C	D
LNAV MDA	4560-1	378 (400-1)		NA
CIRCLING	4600-1 413 (500-1)	4640-1 453 (500-1)		NA
DOUGLAS BISBEE ALTIMETER SETTING MINIMUMS				
LNAV MDA	4680-1	498 (500-1)		NA
CIRCLING	4720-1	533 (600-1)		NA



THIS PAGE WAS INTENTIONALLY LEFT BLANK

WAAS CH 77618 W21A	APP CRS 214°	Rwy Idg THRE Apt Elev 6095 4186 4187
--	------------------------	--

RNAV (GPS) RWY 21

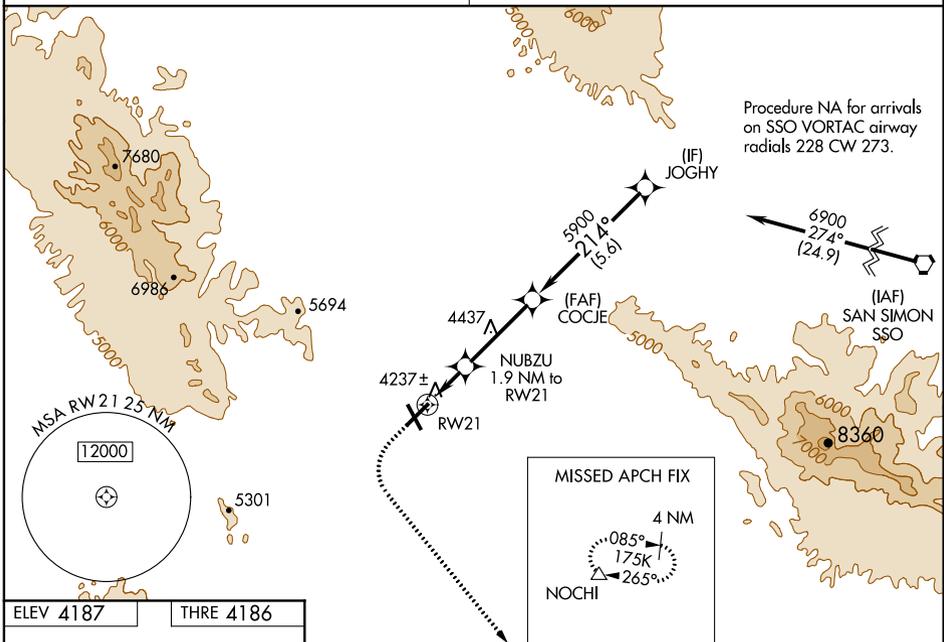
COCHISE COUNTY (P33)

NA Baro-VNAV NA when using Douglass Bisbee altimeter setting. For uncompensated Baro-VNAV systems, LNAV/VNAV NA below -23°C (-9°F) or above 54°C (130°F). Obtain local altimeter setting on CTAF; when not received, use Douglass Bisbee altimeter setting and increase all DA/MDA 120 feet and LPV and VNAV/LNAV visibility all Cats. 3/8 mile. DME/DME RNP -0.3 NA.

MISSED APPROACH: Climb to 4600 then climbing left turn to 8800 direct NOCHI and hold, continue climb-in-hold 8800.

ALBUQUERQUE CENTER
134.45 327.15

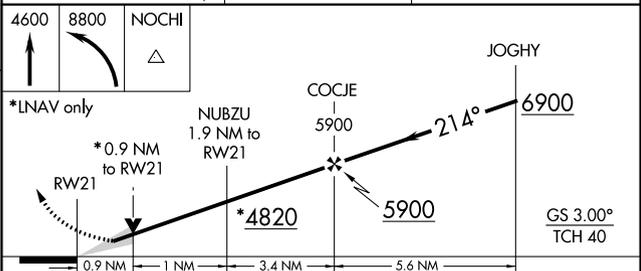
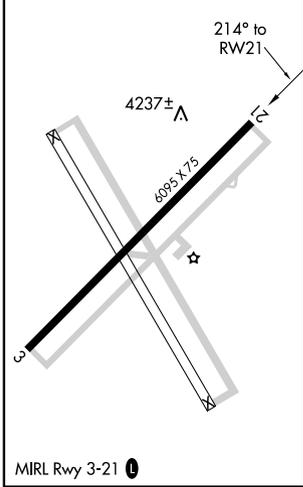
UNICOM
122.8 (CTAF) 0



SW-4, 21 AUG 2014 to 18 SEP 2014

SW-4, 21 AUG 2014 to 18 SEP 2014

ELEV 4187	THRE 4186
-----------	-----------



CATEGORY	A	B	C	D
LPV DA	4436-7/8	250 (300-7/8)		NA
LNAV/VNAV DA	4436-7/8	250 (300-7/8)		NA
LNAV MDA	4500-1	314 (400-1)		NA
CIRCLING	4600-1 413 (500-1)	4640-1 453 (500-1)		NA

THIS PAGE WAS INTENTIONALLY LEFT BLANK

APPENDIX H
COCHISE COUNTY AIRPORT DEEDS

COCHISE COUNTY
COCHISE COUNTY AIRPORT
AIRPORT MASTER PLAN



I.R. Stamps not mentioned.

Warranty Deed

STATE OF ARIZONA)
County of Cochise) ss

Know All Men by These Presents:

That MIKE M. BENNETT and EDNA E. BENNETT, husband and wife

NO.
1897

of ~~the~~ Willcox, Arizona for and in consideration of the sum of Two Thousand DOLLARS to them in hand paid by the County of Cochise, State of Arizona, ha VE granted, sold and conveyed, and by these presents do grant, sell and convey unto the said County of Cochise all that certain premises described as follows, viz:

The northwest quarter (NW $\frac{1}{4}$) of section Three (3), Township fourteen (14) south, Range twenty-four (24) east, G & S R M, Cochise County, Arizona,

TO HAVE AND TO HOLD, the above described premises, together with all and singular the rights and appurtenances thereto in any wise belonging unto the said County of Cochise, its heirs and assigns forever. And WE hereby bind ourselves and our heirs, executors and administrators, to warrant and forever defend, all and singular, the premises unto the said County of Cochise, its heirs and assigns, against every person whomsoever, lawfully claiming or to claim the same or any part thereof.

WITNESS OUR hands this 22nd day of October A. D. 1942.
Signed, Sealed and Delivered in the presence of:

_____ } EDNA E. BENNETT (Seal)
_____ } MIKE M. BENNETT (Seal)
_____ } _____ (Seal)

STATE OF ARIZONA }
County of Cochise } ss.

Before me Elizabeth L. Henderson, a Notary Public in and for the County of Cochise State of Arizona, on this day personally appeared Mike M. Bennett and Edna E. Bennett, husband and wife known to me to be the persons whose names are subscribed to the foregoing instrument and acknowledged to me that they executed the same for the purpose and consideration therein expressed.

Given under my hand and seal of office this 22nd day of October A. D. 1942.
(SEAL) ELIZABETH L. HENDERSON Notary Public.
(My Commission Expires Aug. 17, 1946)

STATE OF ARIZONA }
County of _____ } ss. RECORDER'S NOTE: This acknowledgment not executed.

On this the _____ day of _____, 194 before me, _____ the undersigned officer, personally appeared _____ known to me (or satisfactorily proven) to be the person whose name _____ subscribed to the within instrument and that _____ executed the same for the purpose therein contained.
IN WITNESS WHEREOF I hereunto set my hand and official seal.

(My Commission Expires _____) _____ Notary Public

Filed and recorded at request of Cochise County, MAY 3, 1944, at 2:45 P.M.

I.R. Stamps not mentioned.

Warranty Deed

STATE OF ARIZONA)
County of Cochise) ss

Know All Men by These Presents:

NO.
1898

That the W. P. FISCHER CATTLE COMPANY (a co-partnership) by W. Lee Fischer, attorney in fact, by virtue power of attorney duly executed and recorded. of the Willcox, Arizona for and in consideration of ~~ONE THOUSAND~~ Three Thousand, Two Hundred DOLLARS to it in hand paid by THE COUNTY OF COCHISE, State of Arizona ha. S. granted, sold and conveyed, and by these presents do. ES. grant, sell and convey unto the said COUNTY OF COCHISE, a municipal sub-division of the State of Arizona all that certain premises described as follows, viz:

The east half of the southwest quarter (E½SW¼) and the south half of the southeast quarter (S½SE¼) of section four (4); the northeast quarter of the northwest quarter (NE¼NW¼) and the north half of the northeast quarter (N½NE¼) of section nine (9); the northwest quarter of the northwest quarter (NW¼NW¼) of section ten (10); all in Township fourteen (14) south, Range twenty-four (24) east, G & S R M, Cochise County, Arizona, containing 320 acres more or less,

TO HAVE AND TO HOLD, the above described premises, together with all and singular the rights and appurtenances thereto in any wise belonging unto the said COUNTY OF COCHISE, its heirs, executors and administrators, to warrant and forever defend, all and singular, the premises unto the said COUNTY OF COCHISE, its assigns, against every person whomsoever, lawfully claiming or to claim the same or any part thereof.

WITNESS our hand, S. this 7th day of November A. D. 1942.
Signed, Sealed and Delivered in the presence of:

W. P. FISCHER CATTLE COMPANY (Seal)
(a co-partnership)
W. P. FISCHER CATTLE CO. (Seal)
by W. LEE FISCHER, a Partner, and
W. LEE FISCHER, attorney in fact (Seal)

STATE OF ARIZONA }
County of Cochise } ss.
Before me Elizabeth L. Henderson a Notary Public in and for the County of Cochise State of Arizona, on this day personally appeared W. Lee Fischer, a partner in the Co-partnership of W. P. Fischer Cattle Co. whose name he subscribed to the foregoing instrument and acknowledged to me that he executed the same for the purpose and consideration therein expressed, and in behalf of said co-partnership.
Given under my hand and seal of office this 10th day of November A. D. 1942.
(SEAL) ELIZABETH L. HENDERSON Notary Public.
(My Commission Expires Aug. 17, 1946)

STATE OF ARIZONA }
County of Cochise } ss.
RECORDER'S NOTE: This acknowledgment not executed.
On this the 10th day of November, 1942 before me the undersigned officer, personally appeared known to me (or satisfactorily proven) to be the person whose name subscribed to the within instrument and that executed the same for the purpose therein contained.
IN WITNESS WHEREOF I hereunto set my hand and official seal.

(My Commission Expires) Notary Public

Filed and recorded at request of Cochise County, MAY 3, 1944, at 2:45 P.M.

I.R. Stamps not mentioned.

Warranty Deed

STATE OF ARIZONA)
County of Cochise) ss.

Know All Men by These Presents:

That EUELL COLLINS and CARRIE COLLINS, husband and wife,

NO.
1899

NC
15

of the Willcox, Arizona for and in consideration of SIXTEEN HUNDRED
Sixteen Hundred DOLLARS
to them in hand paid by THE COUNTY OF COCHISE, State of Arizona
has VE granted, sold and conveyed, and by these presents do grant, sell and convey unto the said COUNTY OF COCHISE
all that certain premises described as follows, viz:

the east half of the northwest quarter (E $\frac{1}{2}$ NW $\frac{1}{4}$) and the west half
of the northeast quarter (W $\frac{1}{2}$ NE $\frac{1}{4}$) of section four (4), Township
fourteen (14) south, Range twenty-four (24) east, G & S R M,
Cochise County, Arizona,

TO HAVE AND TO HOLD, the above described premises, together with all and singular the rights and appurtenances thereto in any wise belonging
unto the said COUNTY OF COCHISE, its heirs and assigns forever.
And WE hereby bind ourselves and our heirs, executors and administrators, to warrant and
forever defend, all and singular, the premises unto the said COUNTY OF COCHISE, its
heirs and assigns, against every person whomsoever, lawfully claiming or to claim the same or any part thereof.

WITNESS OUR hand, S this 22nd day of October, A. D. 19 42.
Signed, Sealed and Delivered in the presence of:

_____ } EUELL COLLINS (Seal)
_____ } CARRIE COLLINS (Seal)
_____ } _____ (Seal)

STATE OF ARIZONA }
County of Cochise } ss.
Before me Elizabeth L. Henderson, a Notary Public in and for the County of Cochise
State of Arizona, on this day personally appeared Euell Collins and Carrie Collins, husband and wife
known to me to be the person whose name S. R. E. subscribed to the foregoing instrument and acknowledged to me that ---
executed the same for the purpose and consideration therein expressed.
Given under my hand and seal of office this 22nd day of October, A. D. 19 42.
(SPAL) ELIZABETH L. HENDERSON Notary Public.
(My Commission Expires Aug. 17, 1946)

STATE OF ARIZONA }
County of _____ } ss. RECORDER'S NOTE: This acknowledgment not executed.
On this the _____ day of _____, 1942, before me _____
the undersigned officer, personally appeared _____
known to me (or satisfactorily proven) to be the person _____ whose name _____ subscribed to the
within instrument and that _____ executed the same for the purpose therein contained.
IN WITNESS WHEREOF I hereunto set my hand and official seal.

(My Commission Expires _____) _____ Notary Public

Filed and recorded at request of Cochise County, MAY 3, 1944, at 2:45 P.M.

by Cecilia Snider,
Lib

Deputy Recorder.

P. W. NEWBURY, County Recorder.

I.R. Stamps not mentioned.

Warranty Deed

Know All Men by These Presents:

NO.
1900

That IRENE BENNETT CONDIT, formerly Irene Bennett, and RICHARD S. CONDIT, her husband, of Prescott, Arizona for and in consideration of the sum of Three Thousand, Two Hundred DOLLARS to them in hand paid by THE COUNTY OF COCHISE, State of Arizona ha...ve. granted, sold and conveyed, and by these presents do grant, sell and convey unto the said COUNTY OF COCHISE all that certain premises ~~described as follows~~ situated in Cochise County, State of Arizona, described as follows, viz:

The southwest quarter (SW $\frac{1}{4}$) of section three (3); Lot one (1) and the southeast quarter of the northeast quarter (SE $\frac{1}{4}$ NE $\frac{1}{4}$) and the north half of the southeast quarter (N $\frac{1}{2}$ SE $\frac{1}{4}$) of section Four (4); all in Township fourteen (14) south, Range twenty-four (24) East, Gila and Salt River Meridian, Cochise County, Arizona, containing 320.18 acres more or less.

TO HAVE AND TO HOLD, the above described premises, together with all and singular the rights and appurtenances thereto in any wise belonging unto the said COUNTY OF COCHISE, its heirs and assigns forever. And we hereby bind ourselves and our heirs, executors and administrators, to warrant and forever defend, all and singular, the premises unto the said COUNTY OF COCHISE, its heirs and assigns, against every person whomsoever, lawfully claiming or to claim the same or any part thereof. (All oil rights reserved by the grantors herein.)

WITNESS our hand S this 2nd day of November A. D. 1942.
Signed, Sealed and Delivered in the presence of:

_____ } IRENE BENNETT CONDIT (Seal)
_____ } RICHARD S. CONDIT (Seal)
_____ } _____ (Seal)

STATE OF ARIZONA }
County of Yavapai } ss.

Before me Florence Ainsworth a Notary Public in and for the County of Yavapai State of Arizona, on this day personally appeared Irene Bennett Condit and Richard S. Condit, her husband known to me to be the person S whose name S subscribed to the foregoing instrument and acknowledged to me that they executed the same for the purpose and consideration therein expressed.

Given under my hand and seal of office this 2nd day of November A. D. 1942.
(SEAL) FLORENCE AINSWORTH Notary Public.
(My Commission Expires 10-15-44)

STATE OF ARIZONA } RECORDER'S NOTE: This acknowledgment not executed.
County of _____ } ss.

On this the _____ day of _____, 194 before me, _____ the undersigned officer, personally appeared _____ known to me (or satisfactorily proven) to be the person whose name _____ subscribed to the within instrument and that _____ executed the same for the purpose therein contained.
IN WITNESS WHEREOF I hereunto set my hand and official seal.

(My Commission Expires _____) _____ Notary Public

Filed and recorded at request of Cochise County, MAY 3, 1944, at 2:45 P. M.

By Cecilia Snider,
LB

Deputy Recorder.

P. W. NEWBURY, County Recorder.