

COCHISE COUNTY AIRPORT

Airport Master Plan

Prepared for

Cochise County
and the
City of Willcox, Arizona

December, 1997

Prepared by

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TABLE OF CONTENTS

EXECUTIVE SUMMARY E-1

 Introduction E-1

 Inventory E-1

 Current Activity Levels E-1

 Forecast of Aviation Demand E-2

 Airport Facility Requirements E-3

 Environmental Review of Cochise County Airport E-4

 Airport Layout Plan E-4

 Financial Improvement Program E-4

 Conclusion E-5

INTRODUCTION I-1

 Airport Master Plan Program I-1

 Airport Master Plan Phases I-2

CHAPTER ONE - AIRPORT INVENTORY 1-1

 Inventory Process 1-1

 Airport Characteristics 1-1

 Airport Location 1-1

 Airport Ownership/Management 1-2

 Current Airport Role 1-2

 Current Airport Activity 1-2

 Airfield Configuration and Facilities 1-3

 Terminal Area Facilities 1-4

 Airport Terminal Building 1-5

 Airport Hangars 1-5

 Aircraft Apron Areas 1-5

 Aviation Fuel Storage 1-6

 Automobile Access and Parking 1-6

 Airport Utilities and Maintenance Services 1-6

 Navigational Aids and Equipment 1-7

 En-Route Electronic Navigational Aids 1-7

 Area Airspace 1-7

 Terminal Area Control and Communications 1-8

 Airport Lighting/Marking 1-8

 Airport Land and Airspace Use 1-9

 Cochise County Zoning and Surrounding Land Use 1-9

 Airport Land Use 1-10

 FAR - Part 77 Imaginary Surfaces 1-10

COCHISE COUNTY AIRPORT

Airport Master Plan

Table of Contents (cont'd.)

Runway Safety Areas (RSA)	1-10
Object Free Areas (OFA)	1-10
Runway Protection Zones (RPZ) and Approach Slopes	1-10
General Aviation Activity	1-11
General Aviation Function and Role	1-11
Airport Service Area	1-11
Summary of Historic Based Aircraft and County Registered Aircraft	1-12
Historic Summary of Annual Aircraft Operations	1-12
Existing Aircraft Mix	1-13
Local Climate	1-14
Climatic Analysis	1-14
Runway Wind Data	1-15
Socio-Economic Characteristics	1-15
Economic Benefits	1-15
Regional Economic Indicators	1-16
Employment	1-16
Population	1-17
Per Capita Income	1-18
Travel Industry Overview	1-19
Inventory Summary	1-23
CHAPTER TWO - AVIATION DEMAND FORECASTS	2-1
Forecast Purpose	2-1
Approach	2-1
Projection Methodology	2-2
Forecast Development	2-3
Forecasting Considerations	2-3
Based Aircraft Forecasts	2-4
Previous Forecasts	2-4
Trend Line Analysis	2-5
Regression Analysis	2-5
National Growth Rate	2-5
Preferred Forecast	2-6
Aircraft Operations Forecast	2-6
Aircraft Mix Forecast	2-7
Annual Instrument Approach Forecast	2-9
Forecast Summary	2-10
CHAPTER THREE - AIRPORT FACILITY REQUIREMENTS	3-1
Airfield System	3-1
Runway Requirements and Orientation	3-2

COCHISE COUNTY AIRPORT

Airport Master Plan

Table of Contents (cont'd.)

Runway Length, Width, and Strength	3-3
Demand/Capacity Analysis	3-3
Taxiways	3-4
Terminal Navigation Aids	3-5
Terminal Area Requirements	3-5
Aircraft Hangars	3-7
Aircraft Apron	3-8
Airport Access	3-8
Automobile Parking	3-9
Fuel Storage	3-9
Summary	3-9
CHAPTER FOUR - DEVELOPMENT ALTERNATIVES	4-1
Introduction	4-1
Airfield Development Alternatives	4-2
Operational Efficiency	4-2
Runway Development Alternatives Evaluation	4-2
Primary Runway	4-2
Recommended Primary Runway Alternative	4-3
Crosswind Runway	4-3
Recommended Crosswind Runway Alternative	4-4
CHAPTER FIVE - AIRPORT IMPROVEMENT PROGRAM	5-1
Phased Development	5-1
Cost Estimates	5-1
CHAPTER SIX - ENVIRONMENTAL REVIEW	6-1
Introduction	6-1
Environmental Consequences - Specific Impact Categories	6-1
Noise	6-1
Compatible Land Use	6-1
Social Impacts	6-2
Induced Social Impacts	6-2
Air Quality	6-3
Water Quality	6-3
Section 4(f) Land	6-4
Historic, Architectural, Archeological and Cultural Resources	6-4
Biotic Communities	6-5
Endangered or Threatened Species	6-5
Wetlands	6-6

COCHISE COUNTY AIRPORT

Airport Master Plan

Table of Contents (cont'd.)

Floodplains	6-6
Coastal Zone Management Program	6-6
Coastal Barriers	6-7
Wild and Scenic Rivers	6-7
Prime and Unique Farmland	6-7
Energy Supply and Natural Resources	6-7
Light Emissions	6-8
Solid Waste Impacts	6-9
Construction Impacts	6-9
Conclusion	6-10
CHAPTER SEVEN - AIRPORT PLANS	7-1
Facility Design Standards	7-1
Airport Layout Plan	7-2
Airspace, Approach and Runway Protection Zones	7-2
Terminal Area Plan	7-3
Airport and Vicinity Land Use	7-3
Airport Land Use	7-3
Airport Vicinity Land Use	7-5
Area Airspace	7-5
Airport Property Map	7-5
CHAPTER EIGHT - FINANCING AND MANAGEMENT PROGRAM	8-1
Airport Development Funding	8-1
Federal Aviation Administration	8-1
Arizona Department of Transportation	8-2
Local Funding	8-3
On-Site Industrial or Agricultural Leases	8-3
Fixed-Base Operator (FBO) Leases	8-3
User Charges	8-4
Bank Loans	8-4
General Obligation Bonds	8-4
In-Kind Services	8-4
Forfeiture of Surplus Military	8-4
Other Sources	8-4
Projected Airport Revenue and Expenditures	8-5
Lease Agreements	8-6
Operating Expenses	8-8

COCHISE COUNTY AIRPORT

Airport Master Plan

Table of Contents (cont'd.)

LIST OF TABLES

INTRODUCTION

Description of Planning Program	I-2
---------------------------------------	-----

CHAPTER 1

Table 1.1: Existing Business and Government Users	1-3
Table 1.2: Existing Airfield Facilities	1-4
Table 1.3: Airport Hangar Facilities	1-5
Table 1.4: Airport Fuel Facilities	1-6
Table 1.5: Airport Utilities	1-7
Table 1.6: Existing Runway Protection Zone and Approach Slope Date	1-11
Table 1.7: Historic Aviation Activity - Based Aircraft	1-12
Table 1.8: Historic Aviation Activity - Annual Aircraft Operations	1-13
Table 1.9: Existing Aircraft Mix by FAA Design Grouping (Operations) ...	1-14
Table 1.10: Arizona Historic and Forecast Employment	1-17
Table 1.11: Historic and Forecast Population Levels	1-17
Table 1.12: Per Capita Income	1-18
Table 1.13: Arizona Attractions Attendance	1-21
Table 1.14: Cochise County Attractions - Total Visitors	1-21
Table 1.15: Arizona Domestic Travel Market, 1995 Place of Origin	1-22

CHAPTER 2

Table 2.1: Based Aircraft Forecasts	2-6
Table 2.2: General Aviation Aircraft Operations Forecast	2-7
Table 2.3: Ultimate Aircraft Mix by Classification	2-8
Table 2.4: Annual Instrument Approach Forecast	2-9
Table 2.5: Summary - Aviation Forecasts	2-10

CHAPTER 3

Table 3.1: Wind Speed and Percent Coverage	3-2
Table 3.2: Runway Requirements	3-3
Table 3.3: Design Hour Passengers/Operations	3-6
Table 3.4: Terminal Building Needs (Sq. Ft.)	3-6
Table 3.5: Hangar Requirements	3-7
Table 3.6: Amortization Costs for Aircraft Hangars (Principal & Interest) ..	3-7
Table 3.7: Aircraft Apron and Tie Down Requirements	3-8
Table 3.8: Summary - Facility Requirements	3-10

COCHISE COUNTY AIRPORT

Airport Master Plan

Table of Contents (cont'd.)

CHAPTER 4

Table 4.1: Primary Runway Matrix Evaluation	4-3
Table 4.2: Crosswind Runway Matrix Evaluation	4-4

CHAPTER 5

Table 5.1: Development Summary (1998-2002)	5-3
Table 5.2: Development Summary (2003-2007)	5-5
Table 5.3: Development Summary (2008-2017)	5-7

CHAPTER 8

Table 8.1: Cash Flow Analysis	8-9
-------------------------------------	-----

LIST OF FIGURES

CHAPTER 1

Figure 1.1: Airport Location Map	Following p. 1-1
Figure 1.2: Airport Facility Map	Following p. 1-2
Figure 1.3: VFR Aeronautical Map	Following p. 1-6
Figure 1.4: Part 77 Surfaces	Following p. 1-8
Figure 1.5: Airport Service Area	Following p. 1-11

CHAPTER 2

Figure 2.1: Forecast of Based Aircraft	Following p. 2-6
--	------------------

CHAPTER 3

Figure 3.1: Critical Aircraft	Following p. 3-1
Figure 3.2: All-Weather Wind Rose	Following p. 3-2

CHAPTER 7

Airport Layout Plan Set

Title Sheet	Following p. 7-6
Airport Layout Plan	Following p. 7-6
Airspace Drawing	Following p. 7-6
03-21 Approaches	Following p. 7-6
14-32 Approaches	Following p. 7-6
Centerline Profile	Following p. 7-6
Terminal Area Plan	Following p. 7-6
Aerial Photograph	Following p. 7-6
Land Use Plan	Following p. 7-6
Property Map	Following p. 7-6

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

INTRODUCTION

Much of the growth and economic development of the United States has been directly related to the expansion and technological advancement of the transportation industry. The Cochise County Airport is playing an increasing role in the promotion and development of the City of Willcox and the Cochise County area. The Master Plan has a capital improvement program that responds to the needs and desires for the short and long term aviation forecasts for Cochise County. Not only are the results of the Master Plan important but also the process which developed the results. During the 12 month study, the Airport Planning Advisory Committee (comprised of a cross section of Cochise County residents) served as a medium for assembling community opinion, spirit, and concurrence. Several public meetings were held, surveys of airport users were conducted, and presentations to the County Board of Supervisors and Willcox City Council took place.

INVENTORY

The first step in the process of the Airport Master Plan is developing the inventory. The inventory is a systematic and comprehensive data collection process which provides background information about the community and an understanding of past and present aviation factors. Airport information has been acquired which pertains to existing airport conditions as well as surrounding airport service area characteristics. An airport inspection was conducted in November, 1996 to note changes to the facility and to collect inventory data. The review included airport manager/pilot interviews, a review of airport historical records, a discussion of the information contained in previous airport planning documents compiling local regulations and ordinances, and lease agreements. Photographs of current airport facilities were also produced.

CURRENT ACTIVITY LEVELS

At present, the Cochise County Airport has 24 fixed-wing based aircraft: 22 single-engine and 2 twin-engine, and experiences about 7,000 annual operations. The airport is used by many different types of aircraft including fixed wing, rotary aircraft, gliders, and blimps. The information gathered during the study identified 30 business and government agencies using the airport. The following table show the historic and current airport activity.

COCHISE COUNTY AIRPORT

Airport Master Plan

Table 1.1
Historic Aviation Activity
Cochise County Airport

Year	Based Aircraft	Local Operations	Itinerant Operations	Air Taxi Operations	Military Operations	Total Operations
1980	22	3,713	2,476	0	0	6,189
1985	23	3,749	2,714	0	0	6,463
1990	27	2,952	3,720	332	0	7,004
1995	24	4,120	4,800	0	500	9,420
Existing	24	3,021	3,800	0	500	7,321

Source: FAA 5010 Airfield Inspection Forms and BWR Corporation Field Inventory

FORECASTS OF AVIATION DEMAND

The forecasting of any type of future activity is an art rather than a science. The development of aviation demand forecasts are conducted in two distinct phases: The analytical, followed by the judgmental. In general, past aviation activity data are examined in anticipation of identifying past trends that will give an indication of future activity. Trends in the local economy are factored into future activity levels, as well.

During the analytical process, the past trends of the aviation demand elements are extended into the future using a variety of techniques and incorporating a number of assumptions. Projections are developed by combining historical trends with various analytical procedures.

The second phase of demand forecasting requires experienced professional judgment. The analyst examines various growth projections for each demand element, studies the character of the community and how it will influence the particular demand element, and then makes a determination of the "preferred" forecast. The following shows the preferred forecasts for the Cochise County Airport.

**Table 1.2
Summary - Aviation Forecasts
Cochise County Airport**

Airport Activity	1997 (Existing)	2002 (5-yr)	2007 (10-yr)	2012 (15-yr)	2017 (20-yr)
BASED AIRCRAFT	24	24	25	28	34
Single Engine	22	22	23	25	29
Multi-Engine	2	2	2	3	5
Business Jet	0	0	0	0	0
AIRCRAFT OPERATIONS	7,000	7,000	7,250	9,060	9,680
Local Operations (Total)	2,990	2,860	2,970	3,251	4,146
Itinerant Operations (Total)	4,010	4,140	4,280	4,809	5,534

AIRPORT FACILITY REQUIREMENTS

This element describes the facility requirements for the Cochise County Airport that are needed to satisfy anticipated aviation demand through the year 2017. Airport facility requirements are determined from information derived in the forecast analysis and from FAA criteria for design of airport components. The analysis yields estimates of required "airfield" improvements such as runways, taxiways, navigational aids, marking and lighting; and "landside" improvements, such as hangars, terminal buildings, aircraft parking aprons, fueling facilities, vehicle parking spaces, and airport access requirements.

The results of the facility requirements show a need for improvements to the parallel taxiway to Runway 03-21 and the need for additional wind coverage to meet FAA established goals. This will be met by re-opening Runway 14-32 for use by small single engine piston aircraft only. The length of Runway 03-21 has been found to match the length needed for the types of aircraft that would consistently operate at Cochise County. Also necessary is the continued maintenance of all existing pavements including the terminal apron, primary Runway 03-21, and hangar access taxilanes. Landside improvements (those that are accessed from the non-airfield portion of the airport) include remodeling the terminal with ADA improvements, additional hangar facilities, better directional signage to the airport, replacing the fuel facility, and establishing a "Fly and Camp" area to help boost additional tourist visits by flying patrons.

COCHISE COUNTY AIRPORT

Airport Master Plan

ENVIRONMENTAL REVIEW OF COCHISE COUNTY AIRPORT

As part of the Master Plan several Federal and State agencies were contacted about the proposed construction projects, the impacts on surrounding land use, and impacts of the old fueling system now in use at the airport. All the construction projects at the airport are categorically excluded from environmental concerns. This means the airport has been in use for a period of time that no additional environmental impacts will be incurred by any proposed development. However, on the existing site, the Corps of Engineers did note that some hydric soils (which are often associated with wetlands) were known to be on airport property and additional study would be necessary to develop the ground in these potential wetland areas. The location of these areas is shown on the Airport Layout Plan. Land use concerns have been closely coordinated with County Staff in making sure no incompatible uses are near the airport. Noise will not be a land use issue because the total amount of operations by the typical types and sizes of aircraft using Cochise County Airport are not sufficient enough to produce a noise impact as defined by FAA. The fuel tanks currently do not meet EPA requirements but are slated for removal and replacement in accordance with new EPA regulations. All impacts categories as defined by FAA have been identified and directly dealt with in regard to airport improvements.

AIRPORT LAYOUT PLAN

The graphic depiction of the proposed project is called the Airport Layout Plan. The complete site for Cochise County Airport is at the end of Chapter Seven. The ALP shows the current location of runways, taxiways, buildings, roads, apron, and the location of all improvements that could occur in the future at the airport.

FINANCIAL IMPROVEMENT PROGRAM

The final chapter of the Master Plan discusses sources of funding for airport improvements and the agencies involved. Also included is a discussion of airport fees and what are standard rates to charge for development of private hangars. A summary of the revenues and expenses is included in tabular form at the end of Chapter Eight.

CONCLUSION

The Cochise County Airport is a community service facility whose primary users are needing access to the City of Willcox and surrounding attractions. Its location in the north central portion of the county allows for a large service area from which to draw visitors and aircraft. Maintenance and improvement of the facilities will need to take place at the airport if it is to meet the demand for aviation services in the region. The Master Plan tells in narrative and graphic form when and where the improvements should occur and how the decisions were made.

COCHISE COUNTY AIRPORT

Airport Master Plan

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INTRODUCTION

INTRODUCTION

INTRODUCTION

Historically, the growth and economic development of the United States has been directly related to the expansion and technological advancement of the transportation industry. This has included the railroads, the automobile, and most recently, aviation. Airports, as a segment of the aviation infrastructure, offer a unique, diverse, and growing role in transportation.

The Cochise County Airport has played an increasing role in the promotion and development of the City of Willcox and the Cochise County area. In response to the need for numerous capital improvements at the airport, an Airport Master Plan has been initiated by Cochise County.

AIRPORT MASTER PLAN PROGRAM

The primary objective of the Airport Master Plan program is to prepare a phased development plan which will result in the construction and maintenance of a safe, efficient, economical, and environmentally acceptable public facility. The Master Plan will evaluate both existing and future aviation needs to determine the current and long-range requirements for airport development and to identify and assess site development alternatives.

In the process, the airport planning study serves as a medium for assembling community opinion, spirit, and concurrence. When approved by the various local, regional, state, and federal agencies, the Airport Master Plan represents the long-term intentions of all agencies regarding the location of development and extent of airport improvements. This permits more effective programming and budgeting, reduces lengthy review periods for each project, and provides for orderly and timely development.

The Master Plan program has been designed to provide an objective look at future airport needs and to answer some basic questions about the airport. Primarily, these include:

- ◆ What is the airport's role, service area, and economic benefit?
- ◆ What is general aviation, and who are the predominant airport users?
- ◆ What are the existing and future airport facility requirements?

COCHISE COUNTY AIRPORT

Airport Master Plan

- ◆ What are the short, medium and long-term development priorities?
- ◆ How will continued airport development affect the surrounding environment, city access, and area land use?
- ◆ What effect does the airport have on tourism, industrial and economic development?
- ◆ What are the long-term federal, state, local, and private costs associated with future airport development?
- ◆ What financing options are available for continued improvement of airport facilities?
- ◆ How can airport operating expenses be curtailed, and operating revenues be enhanced?
- ◆ Is the current operational/management structure adequate? Should changes be made?

AIRPORT MASTER PLAN PHASES

The completed plan will answer these basic questions and provide a step-by-step phased development program. The table below provides a general outline of major elements to be included in the Master Plan program. The Airport Master Plan is being conducted in six phases to allow for input from the community and potential airport users, and to allow for coordination with the various government agencies, planning councils, local government constituents, and federal and state review agencies.

Description of Planning Program Cochise County Airport	
Study Phase I - Site Review and Data Collection <ul style="list-style-type: none"> ● Kick-Off Meeting with Planning Advisory Committee ● Site Visit and Physical Inventory ● Review Existing Data ● Pilot Interviews 	Study Phase II - Demand Forecasts <ul style="list-style-type: none"> ● Aircraft and Activity
Study Phase III - Facility Requirements <ul style="list-style-type: none"> ● Identification of Required Facilities by Phase ● Demand/Capacity Analysis ● Evaluation of Development Alternatives ● PAC Meeting ● FAA and State Review 	Study Phase IV - Airport Plans <ul style="list-style-type: none"> ● Airport Layout Plan ● Airspace Drawing ● Runway Protection Zone (RPZ) Drawing ● Terminal Area Drawing ● Airport Land Use Plan ● Airport Property Map
Study Phase V - Financing <ul style="list-style-type: none"> ● Schedule of Priorities ● Cost Estimates ● Board of Supervisors Meeting and PAC Meeting 	Study Phase VI - Meetings <ul style="list-style-type: none"> ● Public Meetings in Willcox and PAC Meeting

The development of the Airport Master Plan Update is evidence that Cochise County and Willcox recognize the importance of aviation in the overall concept of community and transportation planning. With a sound, objective, and realistic Master Plan, the airport can fulfill its role as an economic asset to the county and city and be a source of pride and satisfaction to the residents of the area.

For the Master Plan to be successful, the following items must be achieved during the planning process:

- 1.) The County must be assured that all potential alternatives have been identified which are compatible with residential, corporate, and industrial development;
- 2.) Adequate data and analysis must be provided to bring about a consensus on the most desirable development options;
- 3.) The airport site and design improvements must be economically and financially feasible to develop, provide an adequate level of public services to the area, and meet Federal Aviation Administration design criteria for development grant eligibility; and
- 4.) Development is to be realized at lowest cost to the user and non-user, without harmful effects on the environment, and in concert with local, state, and federal programming plans. Overall, the objective of the Airport Master Plan is to provide for an airport facility that is:
 - ◆ Safe
 - ◆ Economically viable
 - ◆ In fulfillment of broad local, regional, state and national goals
 - ◆ Acceptable to the user, non-user and general public
 - ◆ Substantially user-supported

COCHISE COUNTY AIRPORT

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CHAPTER ONE

Airport Inventory

CHAPTER ONE - AIRPORT INVENTORY

INVENTORY PROCESS

The inventory is a systematic and comprehensive data collection process which provides background information about the community and an understanding of past and present aviation factors. Airport information has been acquired which pertains to existing airport conditions as well as surrounding airport service area characteristics. An airport inspection was conducted in November, 1996 to note changes to the facility and to collect inventory data. The review included airport manager/pilot interviews, a review of airport historical records, a discussion of the information contained in previous airport plans and studies, local regulations and ordinances, and lease agreements. Photographs of current airport facilities were also produced. The inventory process included:

- ◆ A physical site inspection and inventory of airport facilities and services as part of the total assessment of current and historic airport activity levels;
- ◆ The collection of socio-economic, tourism, and background information for Willcox and the Cochise County Airport Service Area;
- ◆ Coordination with the Arizona Department of Transportation, local and regional planning agencies, and other local, regional and state and federal agencies;
- ◆ A review of current airport layout plans, maps and charts;
- ◆ Interviews with airport users and local-area business officials to determine current airport use characteristics, general attitudes, and facility needs.

AIRPORT CHARACTERISTICS

Airport Location

Cochise County is located in the southeast corner of Arizona and Willcox is located in the north-central portion of the County. Interstate 10 is the major auto route to Willcox and provides access to Tucson to the west and New Mexico to the east. U.S. Highway 191 provides north/south access through the County and to Mexico to the south.

Figure 1.1 identifies the location of the Cochise County Airport. The airport location is in the north central portion of Cochise County and on the west edge of the City of Willcox, across Interstate 10. Directional signage to the airport from Willcox needs to be improved and currently, there is no directional signage from Interstate 10. The airport fee simple property is approximately 960 acres and the airport elevation is 4,181 feet. The airport reference point is north latitude 32°14.65' and west longitude is 109°53.64'.

Airport Ownership/Management

The Cochise County Airport is one of two county-owned airports and the administration of the facility is conducted through the County Facilities Department. Daily operational functions are conducted by the fixed base operator (FBO) staff, with services available 24 hours daily; however, posted hours are 7:30 a.m. to dusk Monday through Friday, and 8:00 a.m. to 5:00 p.m., Sundays and holidays.

Current Airport Role

Currently, the *Arizona State Aviation Needs Study* and the *National Plan of Integrated Airport Systems (NPIAS)* classifies the Cochise County Airport as a General Utility, Stage II facility. Using criteria from *FAA Advisory Circular 150/5300-13, Change #5, Airport Design*, the airport has an existing Airport Reference Code (ARC) of B-II. (See Table 1.8 for explanation of codes.) The airport role and classifications have been accepted by ADOT and FAA. Airport need is based on historic, current and anticipated future activity as identified in the Plan.

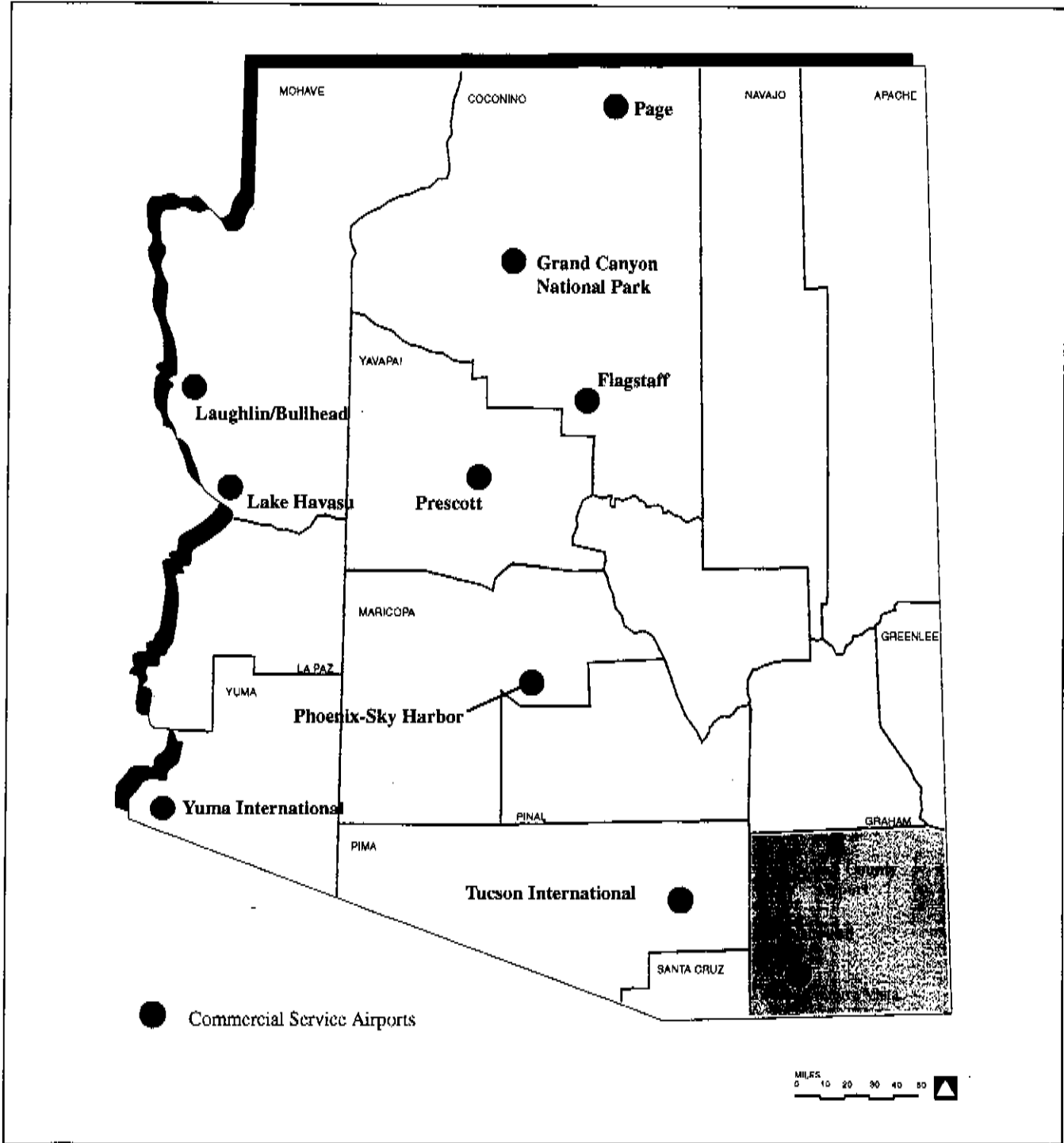
Current Airport Activity

At present, the Cochise County Airport has 24 fixed-wing based aircraft: 22 single-engine and 2 twin-engine, 2 helicopters, and experiences about 7,000 annual operations. The airport is used by many different types of aircraft including fixed wing, rotary aircraft, gliders, and blimps. The information gathered during the study identified 30 business and government agencies using the airport. Table 1.1 shows these users.

COCHISE COUNTY AIRPORT

Airport Master Plan

Figure 1.1
Airport Location Map



COCHISE COUNTY AIRPORT

Airport Master Plan

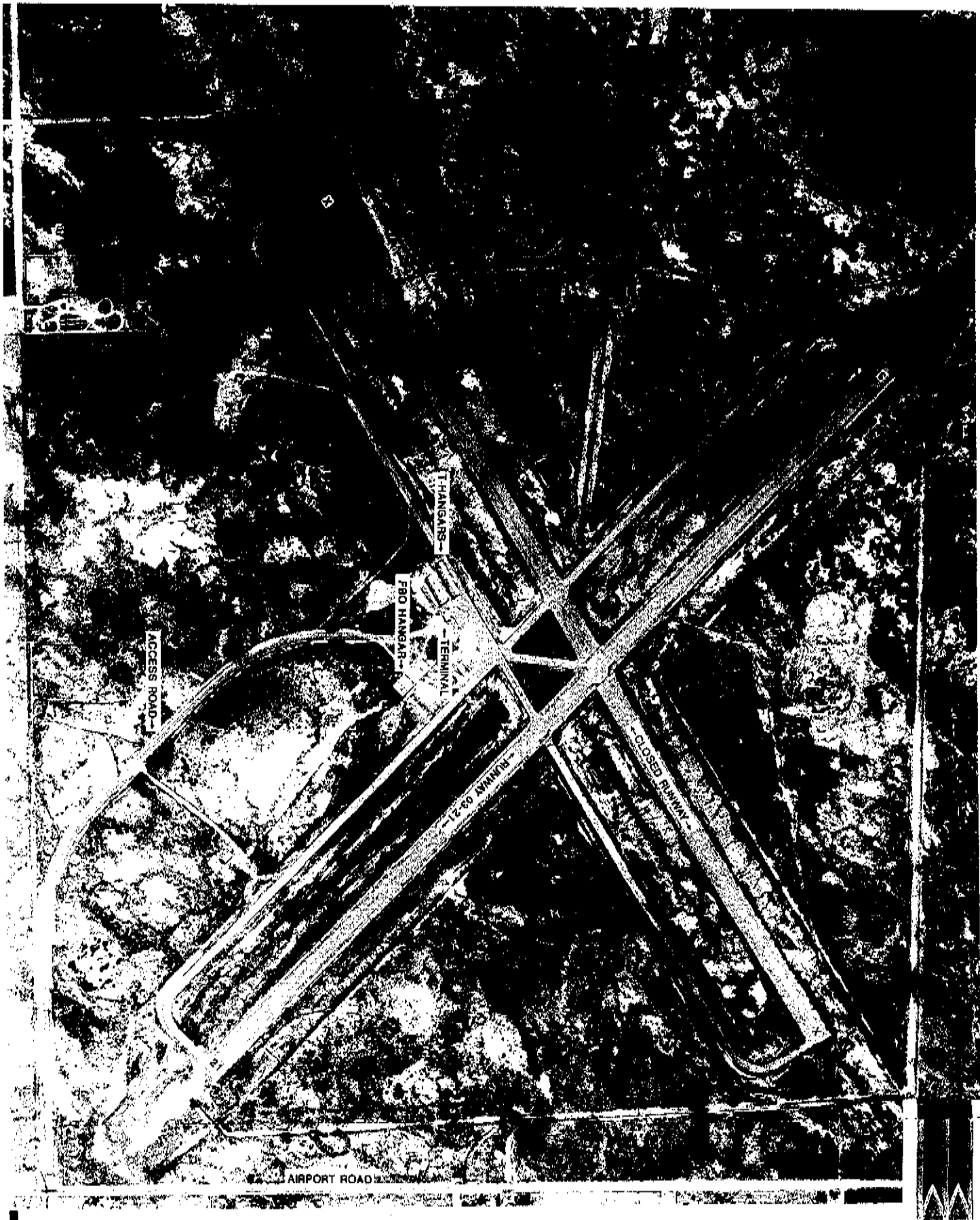
Bank One	Arizona Dept. of Transportation
Northern Cochise Community Hospital	Inter Ag Service, Inc.
Pima County Sheriff (prisoner exchange)	Southern Pacific Pipeline
Ostrich Valley Ranch	Rip Griffin
Pacesetter (ostrich ranch)	Greer Farms
Briggs Ostrich Ranch	Cochise College
El Paso Natural Gas	U.S. Border Patrol
Valley Telecom	Arizona Dept. of Public Safety (Highway Patrol)
UMC Air Care	L.G. Sheppard
Air Evac (Critical Air Medicine)	Fertozpma
Arizona Game & Fish	Goodwin International, Inc.
U.S. Dept. of Agriculture (predator control)	Super 8 Motels
U.S. Customs	Grapevine Ranch

AIRFIELD CONFIGURATION AND FACILITIES

Figure 1.2 depicts the airport facility map for the Cochise County Airport. The airport has one active runway, a parallel taxiway system, and terminal area. A crosswind runway exists; however, it has been closed.

Table 1.2 lists the existing airfield facilities and equipment, along with a description and estimated condition rating based on visual inspection. Items that have been rated good, fair, or poor are done so to give the reader an idea as to the relative condition of a specific facility. Good is a condition that should remain stable during the early portion of the planning period and is not in need of immediate attention; fair is a condition that will need some repair to remain stable; while poor rates as needing replacement or reconstruction very soon.

Runway 03-21 is a non-precision instrument runway with dimensions of 6,095' x 75' and has an estimated 50,000 pound pavement strength for single-wheel-gear aircraft and a 75,000 pound pavement strength for dual-wheel-gear aircraft. Runway 03-21 is lighted with medium intensity runway lights. The closed runway was designated as 14-32.



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COCHISE COUNTY AIRPORT

Airport Master Plan

Airport Terminal Building

The terminal building contains an office area which is used by the fixed base operator (FBO) for the daily management and operation of the airport. The terminal facility includes several general-use provisions including a public-use telephone, restrooms, pilot waiting, and public lounge. Overall, the terminal building is considered in good condition, and occupies a floor space of about 1,300 square feet. As a public use facility, the airport terminal building is required to comply with the American Disabilities Act. Areas in which the terminal is deficient to ADA include designated auto parking, building entrance ramps, and restroom facilities are not clearly marked.

Airport Hangars

The County owns all hangars at the airport except for one conventional hangar. It is on a ground lease to a private individual. Table 1.3 identifies the hangar type, aircraft spaces, and condition and approximate size.

		Condition	Size
FBO Conventional Hangar	5	Good	110' x 100'
Leased Conventional Hangar	1	Good	40' x 60'
T-Hangar	6	Fair	35' x 180'
Shade Hangar	10	Poor	50' x 220'

Aircraft Apron Areas

The terminal apron is 150' x 400' and contains approximately 6,700 square yards of concrete and asphalt pavement. At present, there are ten (10) tie-down spaces with painted parking areas and ropes for on-demand aircraft use on the concrete portion of the apron. These parking areas are located west of the terminal building providing convenient access to fueling services and pilot access to the terminal building. There are six tie-downs adjacent to the apron in the grass. The concrete area is used primarily for based aircraft and is 6" of concrete on 6" of base material. Estimated weight bearing capacity is 30,000 lbs. single wheel gear. The asphalt portions of the apron are rated at the same strength as the runway.

Aviation Fuel Storage

Table 1.4 lists the present fuel capabilities at the airport. The fuel farm area for aircraft is located about 150 feet to the north of the terminal building. Presently, the airport has both 100LL and jet fuel with a total storage capacity of 20,000 gallons. The underground tanks will need to be replaced prior to 1998 to conform to updated EPA regulations. The County is pursuing new tanks to comply to the new regulations.

Table 1.4 Airport Fuel Facilities Cochise County Airport		
Fuel Dispensing Unit	Capacity	Monitoring
Underground AvGas fuel storage tank (100 LL) (installed 1968)	10,000	None (tested annually)
Underground Jet-A fuel storage tank (installed 1968)	10,000	None (tested annually)

Source: Bucher, Willis & Ratliff Corporation; Airport Site Inspection, November, 1996.

Automobile Access and Parking

Airport access to Cochise County Airport from Willcox is on Airport Road and across Interstate 10. Additional access from Interstate 10 is from the Taylor Road exit. The interior access road is asphalt and in good condition. Currently, there is no paved parking; however, there is adequate space available for parking in the crushed gravel lot adjacent to the terminal building. There is no designated area for handicapped parking. Existing signage identifying the airport location should be improved.

Airport Utilities and Maintenance Services

Table 1.5 provides a listing of utilities and services offered at the Cochise County Airport. City water and sewer lines are available at Ironwood Drive approximately 2.5 miles from the airport. There are no plans for the extension of these lines to the airport by the City. Existing septic facilities are adequate as no problem has arisen due to current usage. The septic facilities could be expanded if necessary to meet increased demand. The septic tank and lateral fields are located 100' east of the T-hangar and near the entrance gate to the hangar area.

COCHISE COUNTY AIRPORT

Airport Master Plan

Utility/Service	Utility/Service Provider
Electricity	Sulphur Springs Valley Electric Coop
Sewer System	Septic Tank
Telephone Service	U.S. West
Waste/Garbage Removal	Private collection
Fire Protection	Willcox Rural Fire District
Water	On-site well

Source: Bucher, Willis & Ratliff Corporation; Airport Site Inspection, November, 1996.

NAVIGATIONAL AIDS AND EQUIPMENT

En-Route Electronic Navigational Aids

Figure 1.3 depicts the aeronautical system and navigational aids (NAVAIDS) for the Cochise County area. NAVAIDS allow for arrivals and departures using point to point guidance. Cochise County Airport has a non-precision instrument GPS approach which is a system of electronic ground based and satellite instruments. The use of this equipment depends, in part, on the ratings held by the pilot and airborne equipment.

Area Airspace

The airspace surrounding the Cochise County Airport is Class E, which is airspace subject to terminal control, and extends from 700 feet up to, but not including 18,000 feet mean sea level. Uncontrolled Class G airspace extends from the ground surface to 700 feet. A standard Class E transitional area has been established around the Cochise County Airport in conjunction with the instrument approach procedures. The transition area is designated to contain instrument flight rule operations in controlled airspace (above 700 feet) during portions of the terminal operation while transitioning between the terminal and en-route environments.

Another category of controlled airspace is designated *Special Use*. Special use airspace consists of that airspace where limitations are imposed upon aircraft operations usually because of military activity. Special use airspace is classified as Restricted Areas, Military Operation Areas, and Prohibited Areas. Military Operating Areas (MOA) are also

associated with military training, but does allow through flight when in use. The Cochise County Airport is located to the south of the Jackal and Morenci Military Operating Areas (MOA) and north of the Tombstone MOA.

Terminal Area Control and Communications

Non-precision approach procedures at Cochise County Airport are based on satellites and called Global Positioning System (GPS). Aircraft with an on-board receiver can use the satellite system for enroute and approach procedures.

The controlling Flight Service Station (FSS) for the Cochise County Airport is the Prescott FSS located on the Prescott, Arizona Airport. The FSS can be reached over one of the nearby VOR stations for flight advisory communications (weather and flight planning) and other ancillary types of flight information. The Common Traffic Advisory Frequency (CTAF) for pilot-to-airport communications at the Airport is a UNICOM radio operating on a frequency 122.8 Mhz.

Airport Lighting/Marking

Various types of airfield lighting are available, providing visual identification of the facility during daylight and night operations, guidance during taxiing at night, and identification of the airport during adverse weather conditions. These include:

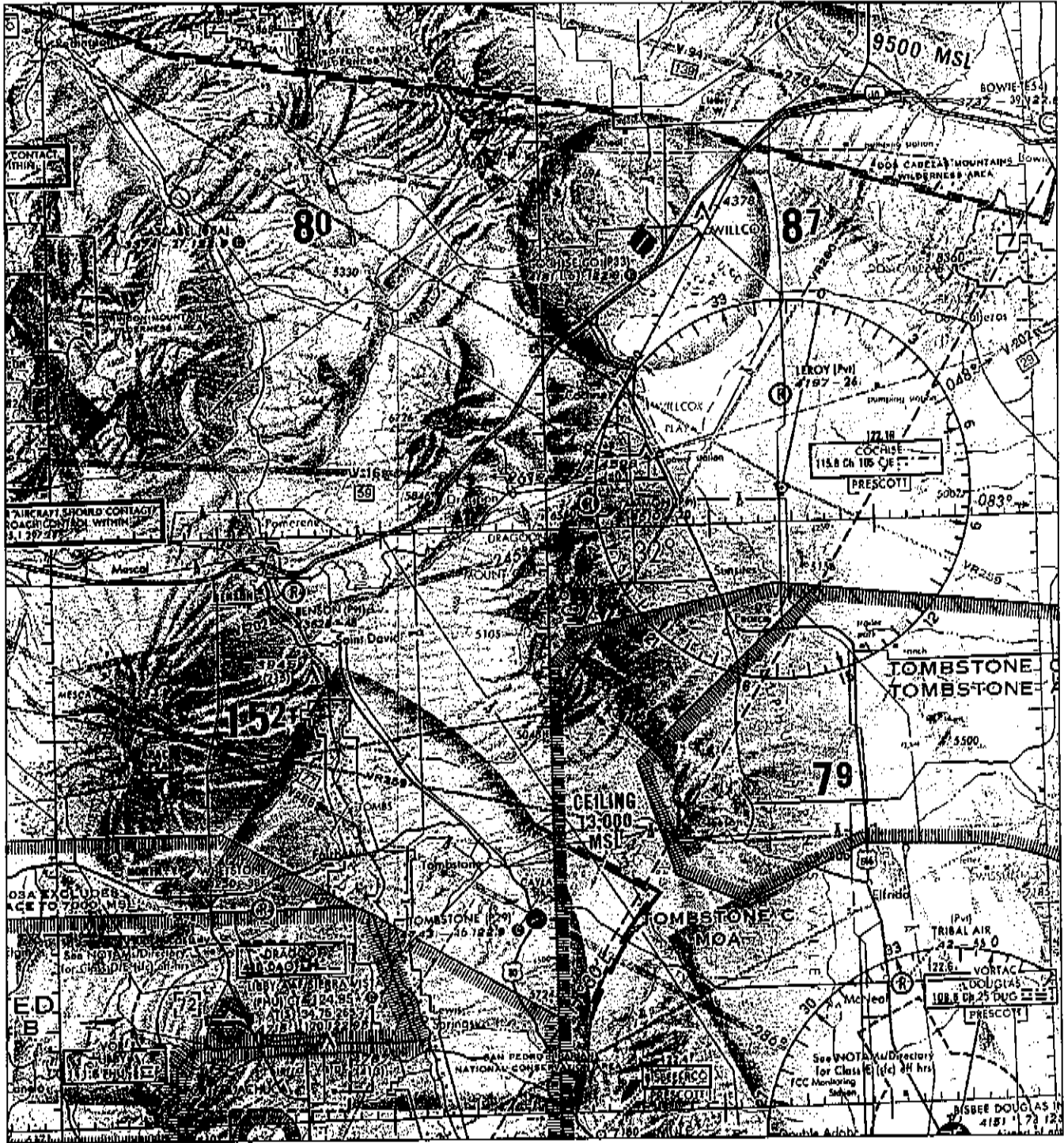
Airport Lighting and Identification: A rotating beacon operates during night and low visibility conditions. The beacon at Cochise County Airport is located east of the terminal building and identifies the location and presence of the airport. The beacon is equipped with an optical system that projects two clockwise rotating beams of light, one green and one white, sweeping 180 degrees apart.

Threshold Lighting: Threshold lights are installed at the immediate ends of Runways 03-21 to indicate the approach and departure direction. The light posts contain a two-sided lens consisting of a red and green color. The green half of the lens faces approaching aircraft and indicates the beginning of the usable runway. The red half faces the aircraft during takeoff, indicating the end of the usable runway.

Runway Lighting/Marking: Runway 03-21 is equipped with Medium Intensity Runway Lighting (MIRL). The MIRL's are attached to a photo cell and come on at dusk. Runway 03-21 is marked as a visual runway, which includes a centerline stripe, and threshold numbers.

Airport Master Plan

Figure 1.3
Sectional Aeronautical Chart



Visual Guidance Indicators: There are no visual approach slope indicators on Runway 03-21.

Taxiway Lighting: The taxiways are not lighted. There are, however, blue edge lights at each taxiway where they intersect the runway.

Airport Signs: The airport does not have airfield signs to provide taxiway and/or runway guidance.

Remote Communication Outlet (RCO): The RCO can be used by pilots for advisory (en-route clearances, issuing departure authorizations, and acknowledging instrument flight rules cancellations or departure/landing times) whenever the aircraft is below the coverage of the primary air/ground frequency. The RCO can be reached from the Cochise VOR station.

AIRPORT LAND AND AIRSPACE USE

The principal land use factors to be considered in airport land use planning and zoning include the runway protection zone (RPZ) areas, natural and manmade obstructions to flight, aircraft noise, and potential commercial, industrial, and residential development in the vicinity of the airport.

Cochise County Zoning and Surrounding Land Use

The Cochise County Airport has approximately 960 acres in fee simple, is in a rural location, and most surrounding land has been zoned RU-4. Cochise County provides land use jurisdiction over and around the airport. The RU-4 designation is residential with a 4-acre minimum lot size. A small area designated by the county as TR-36 (36,000 s.f. lot size minimum) contains several mobile home sites and is on the north side of the airport. County planning staff has indicated that the airport should be zoned PD-2. Federal Aviation Regulations Part 77 airspace ordinances have not been adopted by the County for this airport. It is encouraged that the County adopt Part 77 ordinances for all airports within their land use jurisdiction.

Current levels of aircraft noise do not generate a 65 DNL contour which is what FAA has determined as the threshold for noise abatement measures. Additional noise analysis is included in Chapter 6.

Airport Land Use

The principle airport land use factors include the Runway Protection Zones (RPZ), Runway Safety Areas (RSA), and the Object Free Areas (OFA). Airspace requirements are determined by use of Federal Aviation Regulations, Part 77 criteria. Currently there are no land uses on airport property that hinder airport operations.

FAR - Part 77 Imaginary Surfaces

Airports should be located so that surrounding airspace is free and clear of obstructions that could be hazardous to aircraft on takeoff or approach paths or when operating in the airport vicinity. It is, therefore, necessary to maintain the surrounding airspace free from obstacles by preventing the installation, development, or growth of obstructions to airspace that could cause the airport to become unusable. The regulations for the protection of airspace in the vicinity of airports are established by the designation of imaginary surfaces, which identify the maximum allowable heights of objects. The imaginary surfaces are established in the Federal Aviation Regulations, Part 77, and are depicted in Figure 1.4.

Runway Safety Areas (RSA)

The Runway Safety Area (RSA) is a two-dimensional area centered on the runway centerline. It is used to reduce the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway. Both RSAs for the existing Runway 3-21 are contained on airport property.

Object Free Areas (OFA)

The Object Free Area (OFA) is a two-dimensional area centered on the runway centerline which must be cleared of objects except those located for air navigation or aircraft maneuvering. Both OFAs for Runway 3-21 are contained in fee simple within the existing airport property boundary.

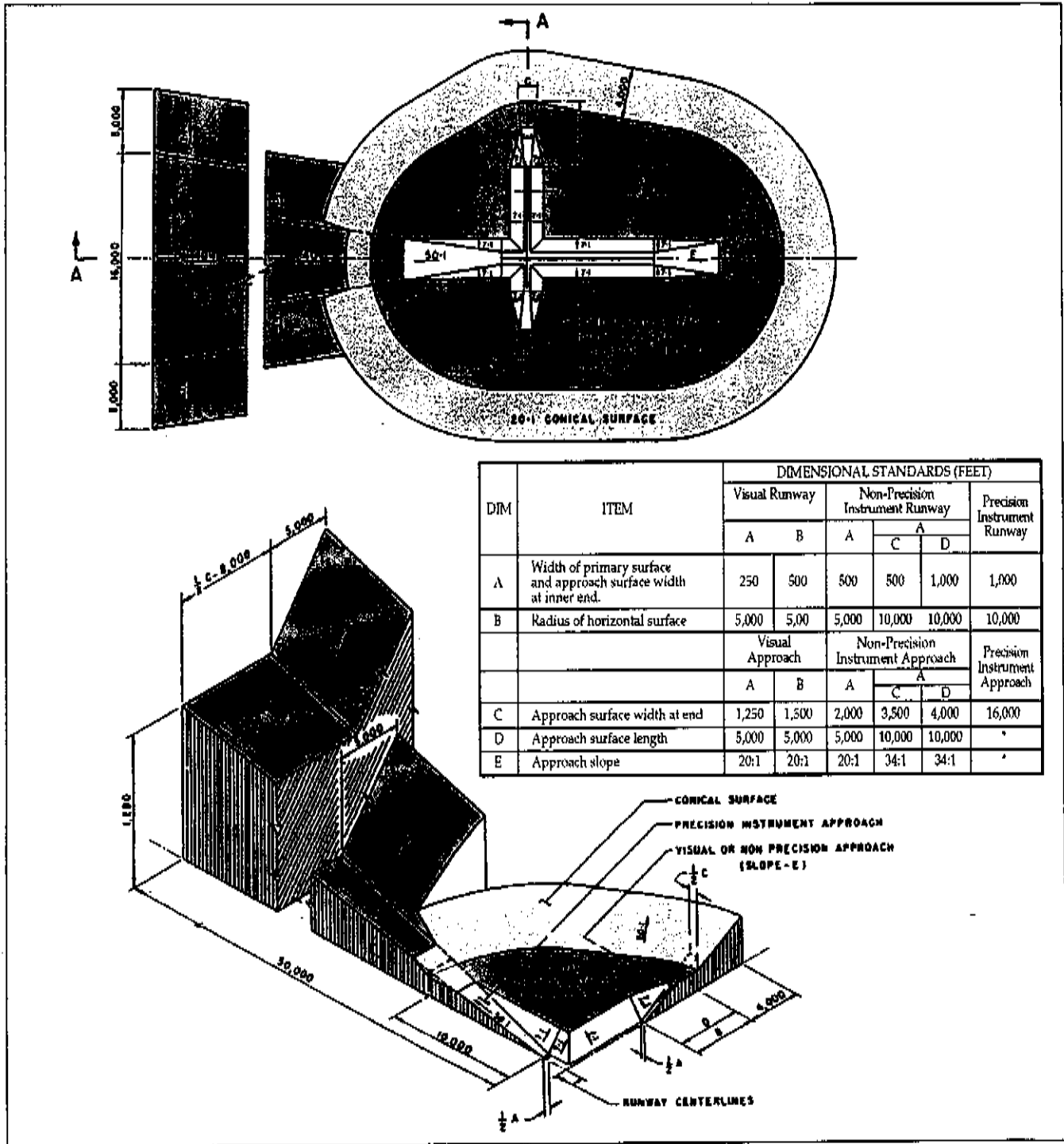
Runway Protection Zones (RPZ) and Approach Slopes

Table 1.6 indicates the existing configuration of the runway protection zone and approach slope information for each runway. Both runway-ends have runway protection zones (RPZ) which define the land area underneath the aircraft approach paths.

COCHISE COUNTY AIRPORT

Airport Master Plan

Figure 1.4
Part 77 Surfaces



Runway	Approach Slope	RPZ and Approach Surface Dimension	Runway Classification	Existing RPZ Easement Area
03	20:1	1,000' x 500' x 700' 5,000' x 500' x 2,000'	Non-Precision	All on Airport Property
21	20:1	1,000' x 500' x 700' 5,000' x 500' x 2,000'	Non-Precision	Need to acquire approx. 2.4 acres

Source: Bucher, Willis & Ratliff Corporation - Airfield Maps and Field Inspection, November, 1996

GENERAL AVIATION ACTIVITY

General Aviation Function and Role

Aviation is a vital element of the overall national transportation network. Convenient, safe and rapid accessibility is one of the single most important variables affecting community growth and economic vitality. The benefits which accrue from various types of general aviation activity are specific in nature to the role the aircraft has to its owner (business applications, executive transport, crop dusting, hospital use, aerial observation, etc.) and the direct and indirect role the aircraft has to the community (charter service, emergency flights, police patrolling, search and rescue activity, etc.).

General aviation includes every type of civilian aircraft flying other than certified air carriers and military operations. While much of the public does not participate directly in general aviation, its indirect benefits are substantial and widespread throughout the community.

Airport Service Area

Airport service areas do not limit themselves to traditional boundaries such as city limits, county lines, or even state lines. An airport can serve the county in which it is located and significant parts of surrounding areas. The Cochise County Airport's service area is shown in Figure 1.5.

The primary factors considered in the determination include the location of the particular airport, its relationship to surrounding airports, and the capabilities and services offered by the surrounding airports. The principle is that the larger the airport and more services offered at an airport, the larger the service area. Service areas are determined by plotting the distance that it takes to travel 30 minutes (25 miles) along major roadways. This

COCHISE COUNTY AIRPORT

Airport Master Plan

represents a reasonable ground travel time between the airport and business or home (FAA Order 5090.3B). Once these areas are established, professional judgement is used to reconcile the differences between ground travel time and the drawing power of the airport and its services.

Summary of Historic Based Aircraft and County Registered Aircraft

Table 1.7 shows the number of based aircraft and county registered aircraft. There are currently 24 fixed-wing based aircraft at the Cochise County Airport, of which 22 are single-engine aircraft, 2 are multi-engine piston aircraft, and 2 helicopters.

The airport has experienced moderate fluctuations in the based aircraft *mix* since 1980. The greatest number of based aircraft was 27, which occurred in 1990. Single-engine based aircraft have ranged from 22 to 25, and multi-engine ranged from 1 to 2 between the years 1980 and 1995.

Year	Single-Engine Aircraft	Multi-Engine Piston	Multi-Engine Turbine	Helicopter	Total Based Aircraft	Registered County Aircraft
1980	20	2	0	0	22	176
1985	22	1	0	0	23	206
1990	25	2	0	0	27	181
1995	22	2	0	0	24	NA
Existing	22	2	0	2	24	NA

Source: FAA Airfield Inspections 5010 Forms/State Aviation Needs Study

Historic Summary of Annual Aircraft Operations

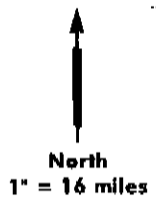
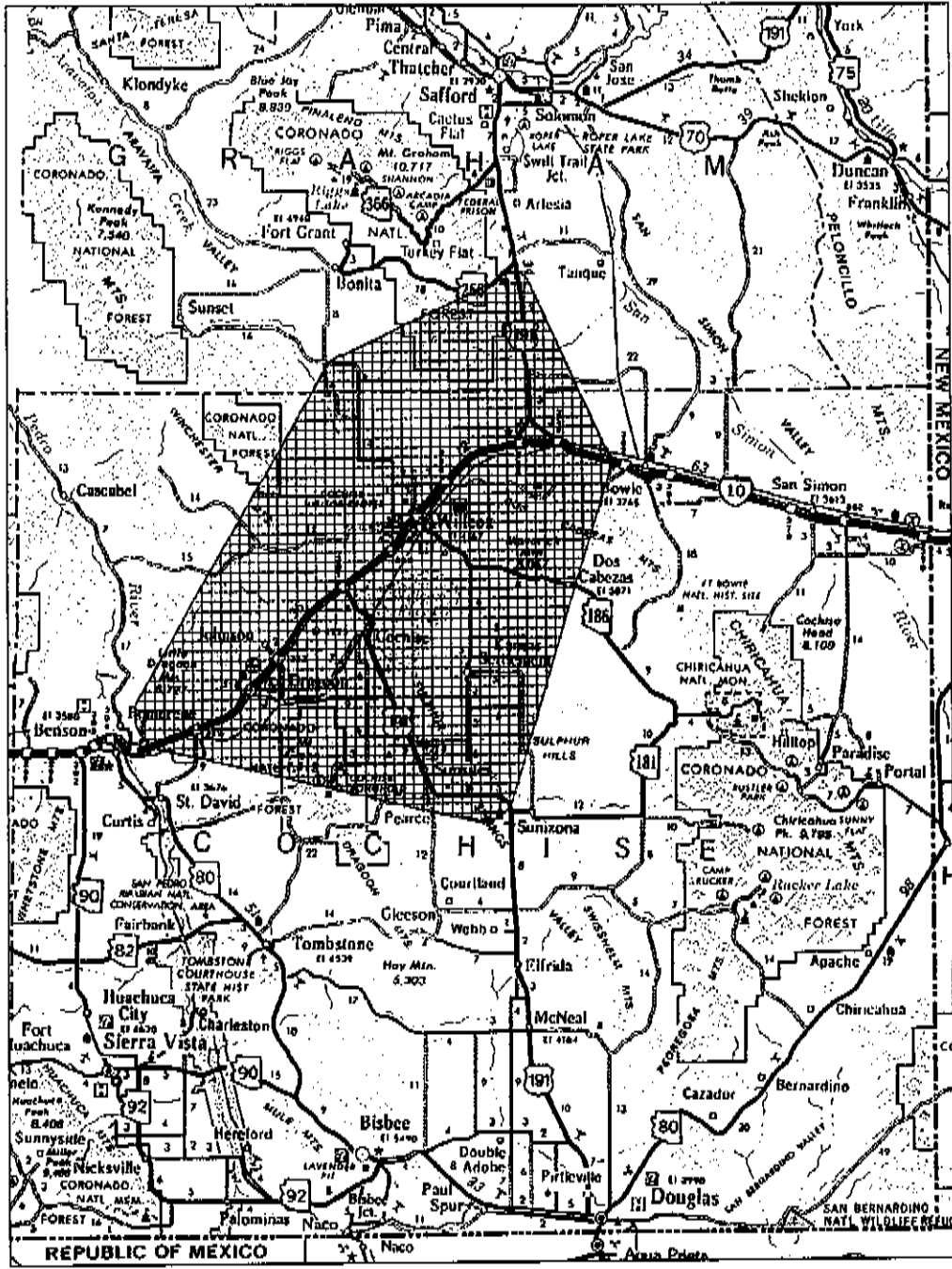
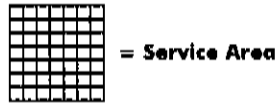
Table 1.8 shows local, itinerant, air taxi, and military operations between 1980 and 1996. Aircraft operations are used to gauge the level of activity at an airport. The source of these figures have been accumulated primarily from *F.A.A. 5010 Airfield Inspection Forms*.

In 1996, estimated annual operations totaled 7,000. Between 1980 and 1990, operations fluctuated between 6,100 and 7,000. 1995 has been the most recent active year. Overall, the total operations have increased, with the most significant increase period occurring from 1990 to 1995.

COCHISE COUNTY AIRPORT

Airport Master Plan

Figure 1.5
Airport Service Area



COCHISE COUNTY AIRPORT

Airport Master Plan

Table 1.9 Existing Aircraft Mix by FAA Design Grouping (Operations) Cochise County Airport		
Aircraft Approach Category - This classification is based on the final approach speed (knots).		
Aircraft Category	Aircraft Approach Speeds	Percent Activity
Utility Aircraft		
Category A	Less than 91 knots	95.0%
Category B	91 knots or more, but less than 121 knots	4.5%
Transport Aircraft		
Category C	121 knots or more, but less than 141 knots	0.5%
Category D	141 knots or more, but less than 166 knots	0%
Category E	166 knots or more	0%
Airplane Design Group - This classification groups airplanes by wingspan.		
Airplane Design Group	Wingspan	Percent Activity
Group I	Up to, but not including 49 feet (15 meters)	95%
Group II	49 feet (15 m), but not including 79 feet (24 meters)	5%
Group III	79 feet (24 m), but not including 118 feet (36 meters)	0%
Group IV	118 feet (36 m), but not including 171 feet (52 meters)	0%
Group V	171 feet (52 m), but not including 214 feet (65 meters)	0%
Group VI	214 feet (65 m), but not including 262 feet (80 meters)	0%

Source: Bucher, Willis & Ratliff Corporation Field Inventory, Aircraft and Operations List.

Source: FAA Advisory Circular 150/5300-13, Change #4, *Airport Design*.

LOCAL CLIMATE

Weather characteristics are used in determining runway length requirements, crosswind coverage, and the optimum runway orientation. In addition, activity during instrument meteorological conditions (IMC) provides an indication as to critical weather occurrences. These factors are expressed as the percent of time visibility is impaired due to cloud coverage, and to establish the need based on FAA criteria for the installation of navigational and lighting aids.

Climatic Analysis

Climate information for the area is available from the National Climate Data Center. The weather pattern is typical for the southeast United States and the Arizona area. The

altitude of the area plays an important role in the climate. Annual rainfall is approximately 12 inches and snowfall is in trace amounts. The mean maximum temperature for the hottest month occurs in June and is 95°.

Runway Wind Data

Area wind characteristics were assessed to determine the operational impact of winds on runway orientation. Wind velocity data (speed *and* direction) have been recorded and assembled using the wind analysis feature of the *FAA 150/5300-13 Version 4.2, Airport Design* computer program. The data was obtained from the National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center using Tucson, Arizona where wind and weather analyses were performed for the period 1986-1995. The wind analysis is shown in Chapter 3 - Facility Requirements. It should be noted that the Tucson Windrose does not meet "level terrain" criteria and shouldn't be used exclusively for airport planning/construction at Cochise County Airport. It is recommended that an additional wind study be completed at the airport for a minimum of one year.

SOCIO-ECONOMIC CHARACTERISTICS

Economic Benefits

Whether large or small, an airport serves as a basis for employment, a purchaser of goods and services, an inducement for industrial development, and an important link in connecting the community with the national transportation system. An adequate airport can help attract new and retain industry and business in the community. Although the presence of an airport is usually not the overriding reason a community is selected by an industry, if all other things are equal, a community with an airport will have a distinct advantage over a community without an adequate airport.

General aviation has contributed to manufacturing and service industries locating in smaller communities. Typically, smaller communities offer lower corporate and residential tax rates, closer access to raw materials and natural resources, and a superior working environment. For companies which use or own general aviation aircraft, it provides a time-saving link for corporate travel, which helps the growth of enterprises in communities such as Willcox. Three types of economic impacts can be attributed to aviation activity:

Direct Impacts: Direct impacts of airports are created by the flow of dollars. These include the construction of the airport, and future renovation, reconstruction, and investments for private construction of hangars. Leased areas

will provide tax revenues for the County. Other services and items offered include, fuel, utilities, aircraft supplies, and services.

Indirect Impacts: Indirect impacts are the value of economic activities that occur off-site. Indirect impacts include the value of general aviation in terms of benefits resulting from business travel, attraction of people and business, and the transportation and time-saving benefits generated by a local airport. Other activities include services provided by restaurants, hotels, and retail establishments that serve the air travel.

Induced Impacts: Induced impacts result by applying appropriate multipliers to direct and indirect impacts. An example, as a general aviation mechanic spends a paycheck, it gets distributed through the community several times and causes the "multiplier" effect.

Regional Economic Indicators

The historic and future aviation activity levels depend on the economic stability and level of growth and development within the airport's area of influence. Population, employment rates, and per capita income provide insight into the region's economic make-up.

Studies have shown that increases in registered and/or based aircraft in the United States have been closely tied to population, income levels, industrial growth, and local business trends. The following socio-economic information will be used in the forecasting section to determine the baseline forecast figures used to project future levels of based aircraft and annual aircraft operations.

Employment

Table 1.10 shows historical Arizona employment data for state of Arizona and Cochise County. The industries employing the majority of workers include construction, agriculture, government, mining, wholesale, and retail trade. The increase in employment indicates that population growth and per capita income increases will be supported by economic opportunities in the future.

COCHISE COUNTY AIRPORT

Airport Master Plan

Table 1.10 Arizona Historic and Forecast Employment		
Year	Arizona	Cochise County
1980	1,117,020	27,483
1990	1,756,297	42,502
2000 Forecast	1,921,300	48,114

Source: Arizona Department of Economic Security

Population

Table 1.11 shows existing and forecast city, county and state population levels based on U.S. Department of Commerce data. Cochise County has experienced a 2.3 percent annual population increase between 1970 and 1990. The City of Willcox has experienced a 1.0 percent annual increase over the same period. The 1990 population for Cochise County was 97,624 and 3,122 for the City of Willcox. Alone, Willcox accounted for about 3.2 percent of the total county population in 1990.

The statistics show that Willcox is expected to increase in population, but the City will not grow as fast as Cochise County. The same comparison can be made with Cochise County and Arizona. Regardless of the rate of population growth, an increase in population is a positive economic indicator, which, in turn, has a good affect on aviation.

Table 1.11 Historic and Forecast Population Levels Cochise County Airport Region					
Year	Cochise County Population	Willcox Population	Willcox as % of Cochise County	State of Arizona Population	Cochise as a % of Arizona
Historic Population					
1970	61,918	2,568	4.1%	1,770,900	3.6%
1980	85,686	3,243	3.8%	2,175,215	3.2%
1990	97,624	3,122	3.2%	3,665,228	2.6%
Current	116,725	3,423	2.9%	4,595,375	2.5%
Forecast Population					
2000	121,825	3,558 *	2.9%	4,961,950	2.4%
2005	129,675	3,761 *	2.9%	5,553,825	2.3%
2010	137,025	3,974 *	2.9%	6,145,125	2.2%
2015	143,800	4,170 *	2.9%	6,744,800	2.1%
2020	150,000	4,350 *	2.9%	7,363,625	2.0%

Source: Arizona Department of Economic Security, U.S. Census Bureau. * Forecast - 1997 percent of Cochise County.

COCHISE COUNTY AIRPORT

Airport Master Plan

Per Capita Income

Studies conducted by the U.S. Department of Commerce, and confirmed by U.S. Department of Transportation studies have demonstrated that the likelihood of taking a trip by air increases as family income increases. Accordingly, the propensity to own a general aviation aircraft has been shown to be directly correlated with the amount of "real dollar" disposable family income.

Table 1.12 provides the historic per capita income (PCI) for Cochise County based on real dollar and current dollar values. Historically, per capita income for Cochise County has been fairly consistent, averaging a 6.4 annual percent growth rate between 1970 and 1990, and 1.1 percent over the same period for current dollar value. The PCI and Current Dollar Value increases show an overall stable economy with an increasing base, which also is an important factor for aviation.

Table 1.12 Per Capita Income Cochise County			
Year	Per Capita Income (Real)	Deflator	Current Dollar Value ¹
1975	4,717	49.2	9,587
1976	5,058	52.3	9,671
1977	5,332	55.9	9,538
1978	5,938	60.3	9,847
1979	6,218	65.5	9,493
1980	7,081	71.7	9,876
1981	7,738	78.9	9,807
1982	8,139	83.8	9,712
1983	8,766	87.2	10,053
1984	9,408	91.0	10,338
1985	10,053	94.4	10,649
1986	10,491	96.9	10,826
1987	10,919	100.0	10,919
1988	11,539	103.9	11,106
1989	11,952	108.5	11,016
1990	12,747	113.3	11,251
1991	13,428	117.6	11,418
1992	14,274	120.9	11,806
1993	14,509	123.5	11,748

Source: U.S. Department of Commerce and Economic Report of the President, Feb., 1995.

¹ Dollar Value based upon 1987.

Travel Industry Overview

The travel industry in the United States is the country's third largest retail sales industry. According to the *U.S. Travel Data Center*, during 1995 domestic and international travelers spent \$421.5 billion, a 5.8 percent increase over the previous year and nearly 6.5 percent of the U.S. Gross Domestic Product. The use of goods and services of transportation carriers, travel agencies, commercial accommodations, restaurants, campgrounds, and attractions is predicted to grow at an 8 percent rate through the end of the decade. Tourism will be the leading retail business employer by the year 2000.

Currently, the travel and tourism industry directly employs over 6.6 million individuals. Travel industry employment constituted 5.7 percent of total U.S. nonagricultural employment during 1995. Foodservice employment grew almost 4 percent in 1995, continuing to provide the most jobs in the industry at 2 million. Lodging again ranked second with over 1.1 million employees, a 1.6 percent increase over 1994. Travel-generated employment in general retail grew substantially, 3.6 percent, to 312,000 jobs in 1995. Jobs directly generated by domestic traveler expenditures accounted for 85 percent of total travel-generated employment, while international travelers generated approximately 970,000 jobs.

The Data Center's *National Travel Survey* indicates the jobs were generated domestically by U.S. residents who took over 1.2 billion person trips (traveling 100 miles or more) in 1995, up 3 percent from 1994. Pleasure trips accounted for 809.5 million of these trips, while business travel generated 207.8 million trips.

Pleasure travel, which accounts for 69 percent of all U.S. resident travel has increased 50 percent since 1985. Over half of all pleasure trips are to visit friends or relatives (51%); while another third (31%) are for entertainment purposes. Overwhelmingly, pleasure travelers used motor vehicles for their travels (84%). Continuing a trend from previous years, the use of a friend or relative's home for accommodations continued to rank ahead of hotels and motels, with 43 percent of travelers choosing to forego paid lodging.

According to the U.S. Department of Commerce International Trade Administration, 43.4 million international travelers visited the U.S. in 1995, down 3 percent from the previous year. This marks the third year in a row that international arrivals has declined. However, *overseas* arrivals (excluding those from Mexico and Canada - Arizona's biggest markets) grew an impressive 12 percent to 20.6 million. International tourists spent \$79.7 billion in the U.S. in 1995, creating a nearly \$20 billion trade surplus and making tourism America's largest service export.

Taking a closer look at one travel industry segment of interest to Cochise County, 18 percent of U.S. resident travelers said they participated in an outdoor activity in 1995, ranking "adventure travel" second behind shopping in travel activities. The Sporting Goods Manufacturers Association reports that between 1987 and 1993, there was a 110 percent increase in the number of people who hike/backpack 52 days per year or more to 799,000 people. The American Recreation Coalition notes that one in three Americans took an outdoor recreation vacation in 1995. The top activities were bicycling (20%), hiking (18%), camping (16%), wildlife viewing (15%), backpacking (12%), horseback riding (5%), mountain biking (5%) and rock climbing (4%).

Arizona and Cochise County

Tourism in the state of Arizona experienced moderate growth in 1995. Serving as the second largest revenue producing industry in the state, tourism has a dramatic economic impact. In 1995, the travel and tourism industry contributed over \$8.9 billion dollars¹. This spending created over 300,000 jobs in 1995, a 5.7 percent increase over 1994.

The impact of tourism is evident throughout the state. Each of Arizona's counties benefited from tourism in 1995. Not only did urban areas with extensively developed tourism infrastructure receive millions of dollars in tourism spending, but so did many rural areas which offer primarily natural attractions and rustic support facilities. According to the Arizona Hospitality Research and Resource Center, of the 24.5 million visitors to the state, 11.5 million concentrated their visit in Maricopa County. The Flagstaff/Grand Canyon area received 3.3 million visitors, and Pima County (Tucson) hosted 2.9 million. Cochise County totaled 3.1 million visitors in 1995.

Outdoor recreational attractions are by far the most popular visitor destination in the state. Not surprisingly, the Grand Canyon is the state's most visited site, followed by the Glen Canyon National Recreation Area. Table 1.13 outlines the top attractions in the state. According to 1996 statistics compiled by Cochise College, top Cochise County attractions was lead by the Chiricahua National Monument with 102,605 visitors, followed by Tombstone Courthouse State Historic Park with 99,016 visitors and the Coronado National Monument with 93,656 visitors. Table 1.14 shows the Cochise County attractions and visitation totals.

¹ This figure excludes international expenditures, which are currently unavailable. International visitors generated \$1.3 billion in economic impact in 1994.

COCHISE COUNTY AIRPORT

Airport Master Plan

Arizona residents provide the largest number of visitors to the state, followed by California in the domestic marketplace. Table 1.15 provides the place of visitor origin for Arizona as a whole and Cochise County specifically.

Origin	Arizona Visitors	Percent	Cochise County Visitors	Percent
Arizona	6,149,500	25.1%	356,500	11.5%
California	5,880,000	24.0%	613,800	19.8%
Texas	1,176,000	4.8%	148,800	4.8%
New Mexico	784,000	3.2%	148,800	4.8%
Nevada	514,000	2.1%	55,800	1.8%
International	2,792,780	2.1%	N/A	N/A

Source: 1995 TravelScope: Travel Industry Association of America

Although statistics are not available for Cochise County, international visits to the state of Arizona remain an important source of tourism revenue. Mexico by far produces the largest number of international visitors, providing 1.86 million trips in 1995, or two-thirds of all international visitors. Canada ranked second with 243,000 visits, followed closely by Germany with 201,000. The United Kingdom ranked a distant fourth with 129,000 visitors. In the last year for which spending figures are available on the state and local level - 1991 - \$688.3 million was spent by Mexican visitors in Arizona, while \$164 million was spent in Cochise County. Most came to Arizona to shop, spending an average of \$75 per party per day.²

The Cochise County Extension Service conducted several tourism studies in 1992 dealing with nature-based and agricultural tourism. Visitors to the San Pedro Riparian National Conservation Area (RNCA) in southwest Cochise County generate nearly \$3 million per year in visitor spending, while over 81,000 out-of-county visitors spent over \$1 million during visits to farm outlets and other attractions. Significantly, for both parties, average spending was approximately \$55 per day for visitors to the Sierra Vista area and \$130 per day for overnight visitors - but less than \$7 per day for the average person on a day trip to Sierra Vista and \$55 per day for farm outlet visitors. Both studies indicate the large majority of visitors do not stay overnight in the County. This compares with an average expenditure per person of \$104 per day in Arizona. The average Arizona visitor stays 3.56 days within the state.

² Arizona Cooperative Extension Service

COCHISE COUNTY AIRPORT

Airport Master Plan

Finally, although figures are not available for Cochise County, over 66 percent of all Arizona visitors arrive in the state by motorized vehicle. Airplane arrival primarily at the state's commercial service airports provides 31.3% of travel transportation, with the balance being on other modes such as train or bicycle.

Because seven of the eight airports in Cochise County are general aviation facilities, additional data was reviewed from the National Air Transportation Association (NATA) to gain a perspective of the levels of visitors arriving in Cochise County by general aviation aircraft. According to the NATA, approximately 6 percent of the 3.1 million visitors would arrive by general aviation aircraft which represents about 186,000 visitors per year at all of Cochise County airports. Based on current activity levels at the eight airports within the County, it is estimated that approximately 5,200 visitors per year arrive or pass through the Cochise County (Willcox) Airport.

A recent tourism study for Cochise County recommends that the Willcox Visitor Center become a place to educate visitors to the region in regard to all of the Cochise County attractions. It is logical to relate the airport to this role as well. If the County develops the visitor center as recommended, ground transportation to and from the airport will be a vital component to link the airport to the visitor center. A fly and camp area could be established at the airport to serve as the gateway to Cochise County attractions for flying patrons.

INVENTORY SUMMARY

The information provided in the Inventory Chapter provides the foundation upon which the remaining elements of the Airport Master Plan are generated. Information on current airport facilities and utilization will serve as a basis for the development of aviation demand forecasts.

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CHAPTER TWO

Aviation Demand Forecasts

CHAPTER TWO - AVIATION DEMAND FORECASTS

As indicated previously, the demand for aviation services has, historically, been closely related to the socio-economic character of its area of influence. As population and relative income grow, there is generally a corresponding growth in aviation demands.

FORECAST PURPOSE

Aviation demand forecasts serve four purposes in development of the master plan. Specifically, they provide the basis for:

- ◆ Determining the necessary capacity of the general aviation area, and ground access system serving the airport;
- ◆ Determining the airport's role, and resulting size, and type of existing facility expansion or new construction;
- ◆ Estimating the potential environmental effects, such as noise and air pollution on the surrounding community from the airport's operation; and
- ◆ Evaluating the financial feasibility of alternative airport development proposals.

Approach

The forecasting of any type of future activity is an art rather than a science. The development of aviation demand forecasts are conducted in two distinct phases: The analytical, followed by the judgmental. In general, past aviation activity data are examined in anticipation of identifying past trends that will give an indication of future activity. Trends in the local economy are factored into future activity levels, as well.

During the analytical process, the past trends of the aviation demand elements are extended into the future using a variety of techniques and incorporating a number of assumptions. Projections are developed by combining historical trends with various analytical procedures. After preparing a number of projections, the analyst is able to identify a range of growth within which the true trend will most likely fall.

The second phase of demand forecasting requires experienced professional judgment. The analyst examines various growth projections for each demand element, studies the character of the community and how it will influence the particular demand element, and then makes a determination of the "preferred" forecast.

Projection Methodology

The most reliable approach to estimating aviation demand is through the use of more than one analytical technique. Methodologies usually considered for airport master planning include regression analysis, trend line analysis, economic growth indicators, and survey analysis.

Regression Analysis

The forecasts of aviation demand (the dependent variable) are projected on the basis of one or more external indicators, the independent variables. Historical values for both variable types are analyzed to determine the relationship between the independent and dependent variables. This relationship may then be used to project the dependent variable with a forecast or projection of the independent variables.

In aviation forecasting, elements of aviation activity, such as passengers and based aircraft, are the dependent variables. Population, per capita income, economic factors, and other socioeconomic data are frequently used independent variables.

Trend Line Analysis

Trend analysis is probably the simplest and most familiar forecasting technique and is one of the most widely used methods. Historical data is extended into the future, providing an estimate of the aviation demand element in future years.

A basic assumption of this trend analysis technique is that the historical levels for aviation demand will continue and exert a similar influence on future demand levels. As broad as this assumption may be, such a projection method often does serve as a reliable benchmark against which other projections may be compared.

Previous Forecasts

Previous forecasts such as the Cochise County Airport System Plan, the State Aviation Needs Study, and FAA forecasts will be used for information and for comparison purposes.

Pilot/Aircraft Owner Opinion Survey

Surveys can be developed that will provide an indication of present and future levels of aviation demand. For this study, personal interviews, mail-back questionnaires, and structured personal observation were used. During the inventory process, 80 surveys were distributed to pilots and aircraft owners in the Willcox area. The survey is used to verify current activity levels, facility needs, and overall performance of the airport. The opinion survey verifies that the Cochise County Airport will maintain and grow in number of based aircraft during the planning period. Of the existing owners none plan to sell their aircraft and three indicate they will add or purchase larger aircraft. The recorded activity levels match the levels of usage indicated by the pilots at the airport. The survey and results are included in the appendix.

Forecast Development

The analytical projections serve as a basis for developing aviation demand forecasts through the application of experienced, professional judgment.

Informed judgment is perhaps the most valuable factor in forecasting any aviation demand element. Many variables can be accounted for in the analysis and assigned the proper weight, as viewed by the forecaster. Such variables include: mix of aircraft fleet, changes in a community's competitive status, long-term demographic shifts, and environmental limitations.

Forecasting Considerations

Convenient, safe, and rapid accessibility is one of the single most important variables affecting community growth and economic vitality. In terms of its economic impact, general aviation remains a significant and important element in the overall transportation network. The benefits from general aviation activity include business applications, police and hospital use, flight training, etc.

General aviation is the largest, most significant element of the national air transportation system. It constitutes 98 percent of all aircraft in use today. In 1995, the scheduled airlines served 554 airports in the United States, while there are over 5,500 public general aviation airports nationwide¹. In terms of the number of aircraft, hours flown and accessibility, general aviation is definitely a major contributor to the national air transportation system.

¹National Plan of Integrated Airport Systems - April, 1995

COCHISE COUNTY AIRPORT

Airport Master Plan

In addition, general aviation provides a variety of public benefits to the surrounding area. It is no coincidence that general aviation has contributed to the national trend of manufacturing and service industries locating away from larger metropolitan areas to smaller communities. Typically, smaller communities are able to offer lower corporate and residential tax rates, closer access to raw materials and natural resources, and a superior working environment. As evidence of this trend, general aviation provides a time-saving link for corporative travelers which makes airports such as Cochise County Airport extremely attractive.

The purpose of this section is to quantify general aviation demand for the Cochise County area during the short, medium, and long-range planning periods (Phases I thru III). National trends and forecasts, such as the *National Plan of Integrated Airport Systems (NPIAS)* and previous Cochise County Airport planning documents were analyzed to produce forecast data for the airport.

The forecasts, combined with the demand/capacity analysis, will be used to determine long-range general aviation facility requirements to be scheduled during the appropriate planning period. Aviation demand forecasts have been prepared for:

- ◆ Based Aircraft
- ◆ Aircraft Operations
- ◆ Aircraft Mix
- ◆ Annual Instrument Approaches (AIAs)

BASED AIRCRAFT FORECASTS

The most important factor in the development of aviation activity forecasts at an airport serving general aviation is the number of based aircraft. At Cochise County, to determine future levels of based aircraft, regression analysis techniques and market projections were performed analyzing the social and economic characteristics for Cochise County and primarily the Willcox region. These were then compared with previous forecasts, compared for accuracy, and utilized where appropriate.

Previous Forecasts

Previous forecasting for Cochise County Airport was completed in the Arizona State Aviation Needs Study - 1995, in the Cochise County Airport System Plan - 1994, and as part of the *National Plan of Integrated Airport Systems (NPIAS)*.

COCHISE COUNTY AIRPORT

Airport Master Plan

The Cochise County Airport System Plan (CCASP) contains a specific forecast of based aircraft for the county and the airport. It shows 28 aircraft in 1997 and estimates increases to 40 by the year 2012. *The State Aviation Needs Study (SANS)* completed one year after the CCASP revised the projections slightly downward and estimates 32 aircraft based at the airport by the year 2010. The (NPIAS) shows a 28 based aircraft projection but only has a short, five-year forecast horizon. The previous forecasts will be used for comparison purposes to judge the validity of the statistical projections conducted for this Master Plan study.

Trend Line Analysis

The Trend Line analysis indicates how the airport has performed in regard only to historic based aircraft increases. From 1980 to 1997, based aircraft increased by 2 aircraft. The trend line based upon past figures was initiated in 1980 and computes to an annual growth rate of 0.5 percent.

Regression Analysis

As previously shown in Table 1.7, based aircraft at the airport have been slowly increasing. Regression analyses techniques were performed to project based aircraft at the airport through the planning period. The regression yielded an R squared of 88 percent which is 8 points above the accepted confidence level. Per capita income, adjusted per capita income, and Willcox population projections were used as the independent variables.

The regression analysis will be used as the preferred forecast. The forecast is based upon the most recent local and regional data and is in line with other recent aviation studies. The average annual growth rate has been computed at 1.756%.

National Growth Rate

According to the latest FAA general aviation forecast figures² it is estimated that the national active general aviation fleet will decline through 1996. However, starting in 1997, there will be a 0.4 annual percent growth rate in the general aviation fleet through the year 2007. This increase will be driven primarily by greater business use of turbine-powered aircraft. The turbine general aviation segment is forecast to grow at an annual rate of approximately 1.5 percent. This statistic reinforces the national trend toward the use of larger and more sophisticated aircraft for business use. Additionally, the full impacts of

² F.A.A. Aviation Forecasts - March, 1996

COCHISE COUNTY AIRPORT

Airport Master Plan

the General Aviation Revitalization Act is still unknown. The Act which limits aircraft product liability has sparked new production of single engine aircraft. The new business has not yet reached full production and could increase the overall general aviation fleet.

"Preferred" Forecast

Table 2.1 and Figure 2.1 shows the comparison based aircraft forecasts.

Year	Regression "Preferred" ¹	Historic Trend ¹	Cochise County System Plan ²	State Aviation Needs Study ³	FAA Trend ⁴
Existing	24	24	24	24	24
2002	24	26	32	28	25
2007	25	26	35	30	25
2012	28	27	40	31	26
2017	34	27	--	32	26

Sources: 1 BWR Corporation Forecasts, 1997
2 Cochise County Airport System Plan, 1994
3 Arizona State Aviation Needs Study, 1995
4 FAA Forecasts, 1996

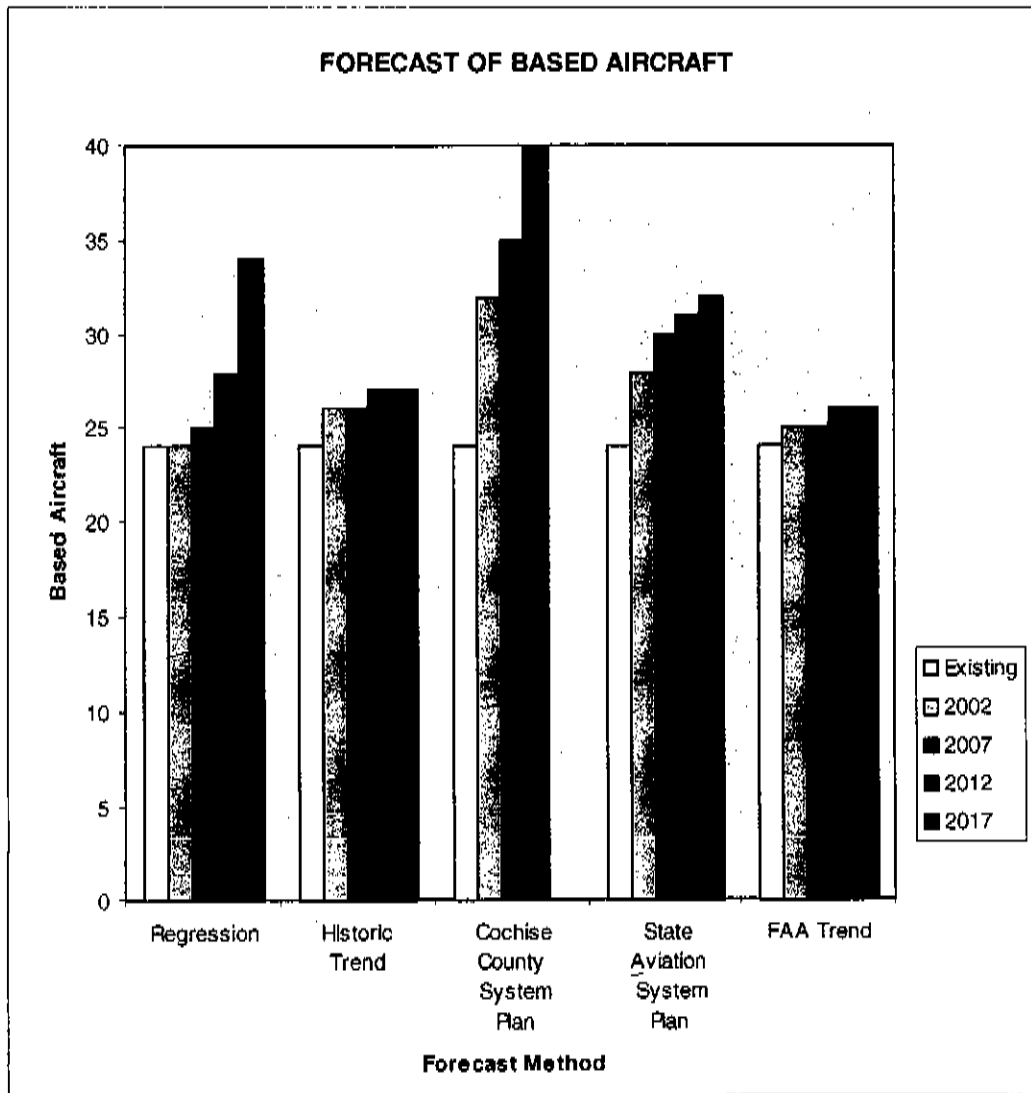
AIRCRAFT OPERATIONS FORECAST

The aircraft operations forecast is developed by using the based aircraft figures and then by applying percentage-usage rates which most realistically reflect trends at Cochise County Airport. The most recent general aviation operations (no military) are then divided by the current level of based aircraft (24). For Cochise County Airport, 270 operations will be used as the baseline for operations per based aircraft. The operations per based aircraft is in line with results of the pilot/aircraft owner survey.

Aircraft operations are identified as local and itinerant operations. Local operations are performed by those aircraft which take off and land at the same airport and operate within the local vicinity of the airport. Itinerant aircraft operations are those in which the aircraft land or take off at one airport and have a terminus of flight at another airport. It is important to note that local and itinerant operations can be performed by a based aircraft or a foreign aircraft based at another airport. Military operations are any operation made by any branch of the United States Armed Forces.

Airport Master Plan

Figure 2.1
Forecast of Based Aircraft



COCHISE COUNTY AIRPORT

Airport Master Plan

The historic local/itinerant split of total operations for the past 17 years was computed as 50% local and 50% itinerant. Recently, itinerant operations are estimated to account for 55% of the total operations and will increase to 58% with recognition of the increasing percent of itinerant operations since 1980.

Military operations at Cochise County Airport make up only a small portion of air traffic activity. Military activity is a result of congressional funding and is not dependant upon local or regional economic influences. Therefore, military operations are expected to remain minimal at about 500 annual operations, throughout the planning period.

A summary of the aircraft operations forecast is given in Table 2.2.

Year	Based Aircraft	General Aviation Operations Per Based Aircraft	Local Operations	Itinerant Operations			Total General Aviation Forecast Operations
				General Aviation	Air Taxi	Military	
Existing	24 *	270	2,990	3,510	0	500	7,000 *
2002	24	270	2,860	3,640	0	500	7,000
2007	25	270	2,970	3,780	0	500	7,250
2012	28	270	3,251	4,309	0	500	8,060
2017	34	270	4,146	5,034	0	500	9,680

Note (*) - Current based aircraft and annual operations

AIRCRAFT MIX FORECAST

The number of operations performed by the various types of aircraft at Cochise County Airport is required to determine the present and ultimate design requirements, weight limitations, and environmental effects associated with future airport activity. The aircraft "mix" of aircraft is a design feature using aircraft characteristics (wingspan, approach airspeed and weight) for determined airfield criteria. The mix of these different "categories" of aircraft is an important feature to determine anticipated design, structural and material needs.

There are two basic functional means to classify aircraft for design purposes; (1) by the Aircraft Approach Category, which is based on the aircraft's final approach speed; and (2) by the Airplane Design Group, which is based on the aircraft's wingspan. The Aircraft Approach Category is classified from A to E, and the Airplane Design Group is classified from Group I to IV. Combined, the two classifications produce an Airport Reference Code

COCHISE COUNTY AIRPORT

Airport Master Plan

(ARC) which yields specific information about the type of aircraft around which the airport is ultimately designed.

The aircraft mix forecast was developed on the basis of information assembled in the inventory analysis element and on national trends, aircraft inventories, and anticipated future requirements of the Cochise County area. Although the majority of aircraft activity will continue to be single and twin-engine aircraft, the forecasts reflect the increasing trend toward use by turbine aircraft.

The ultimate aircraft fleet mix which is also shown in Table 2.3 has been determined using the percentages inherent at Cochise County and in conjunction with national aviation trends.

Table 2.3 Ultimate Aircraft Mix by Classification (Operations)													
a. Aircraft Approach Category. An aircraft approach is a grouping of aircraft based on an approach speed. The aircraft approach categories percentage is of based aircraft at the Cochise County Airport.	<p>Utility Aircraft:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px 5px;">1. Category A: Speed less than 91 knots</td> <td style="text-align: right; padding: 2px 5px;">85.0%</td> </tr> <tr> <td style="padding: 2px 5px;">2. Category B: Speed 91 knots or more, but less than 121 knots</td> <td style="text-align: right; padding: 2px 5px;">12.0%</td> </tr> </table> <p>Transport Aircraft:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px 5px;">3. Category C: Speed 121 knots or more, but less than 141 knots</td> <td style="text-align: right; padding: 2px 5px;">3.0%</td> </tr> <tr> <td style="padding: 2px 5px;">4. Category D: Speed 141 knots or more, but less than 166 knots</td> <td style="text-align: right; padding: 2px 5px;">0%</td> </tr> <tr> <td style="padding: 2px 5px;">5. Category E: Speed 166 knots or more</td> <td style="text-align: right; padding: 2px 5px;">0%</td> </tr> </table>	1. Category A: Speed less than 91 knots	85.0%	2. Category B: Speed 91 knots or more, but less than 121 knots	12.0%	3. Category C: Speed 121 knots or more, but less than 141 knots	3.0%	4. Category D: Speed 141 knots or more, but less than 166 knots	0%	5. Category E: Speed 166 knots or more	0%		
1. Category A: Speed less than 91 knots	85.0%												
2. Category B: Speed 91 knots or more, but less than 121 knots	12.0%												
3. Category C: Speed 121 knots or more, but less than 141 knots	3.0%												
4. Category D: Speed 141 knots or more, but less than 166 knots	0%												
5. Category E: Speed 166 knots or more	0%												
b. Airplane Design Group (Physical Characteristics). The airplane design group subdivides airplanes by wingspan. The airplane design group concept links an airport's dimensional standards to aircraft approach categories or to airplane design groups or to runway instrumentation configurations.	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px 5px;">1. Airplane Design Group I: Wingspan up to but not including 49 feet (15m)</td> <td style="text-align: right; padding: 2px 5px;">85.0%</td> </tr> <tr> <td style="padding: 2px 5px;">2. Airplane Design Group II: Wingspan 45 feet (15m) up to but not including 79 feet (24m)</td> <td style="text-align: right; padding: 2px 5px;">15.0%</td> </tr> <tr> <td style="padding: 2px 5px;">3. Airplane Design Group III: Wingspan 79 feet (24m) up to but not including 118 feet (36m)</td> <td style="text-align: right; padding: 2px 5px;">0%</td> </tr> <tr> <td style="padding: 2px 5px;">4. Airplane Design Group IV: Wingspan 118 feet (36m) up to but not including 171 feet (52m)</td> <td style="text-align: right; padding: 2px 5px;">0%</td> </tr> <tr> <td style="padding: 2px 5px;">5. Airplane Design Group V: Wingspan 171 feet (52m) up to but not including 214 feet (60m)</td> <td style="text-align: right; padding: 2px 5px;">0%</td> </tr> <tr> <td style="padding: 2px 5px;">6. Airplane Design Group VI: Wingspan 214 feet (60m) up to but not including</td> <td style="text-align: right; padding: 2px 5px;">0%</td> </tr> </table>	1. Airplane Design Group I: Wingspan up to but not including 49 feet (15m)	85.0%	2. Airplane Design Group II: Wingspan 45 feet (15m) up to but not including 79 feet (24m)	15.0%	3. Airplane Design Group III: Wingspan 79 feet (24m) up to but not including 118 feet (36m)	0%	4. Airplane Design Group IV: Wingspan 118 feet (36m) up to but not including 171 feet (52m)	0%	5. Airplane Design Group V: Wingspan 171 feet (52m) up to but not including 214 feet (60m)	0%	6. Airplane Design Group VI: Wingspan 214 feet (60m) up to but not including	0%
1. Airplane Design Group I: Wingspan up to but not including 49 feet (15m)	85.0%												
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4. Airplane Design Group IV: Wingspan 118 feet (36m) up to but not including 171 feet (52m)	0%												
5. Airplane Design Group V: Wingspan 171 feet (52m) up to but not including 214 feet (60m)	0%												
6. Airplane Design Group VI: Wingspan 214 feet (60m) up to but not including	0%												
* Per A/C 150/5300-13, Does not include military operations.													

ANNUAL INSTRUMENT APPROACH FORECAST

The forecast of Annual Instrument Approaches (AIAs) provides further guidance in determining the Airport's requirements for additional facilities, and is especially important for type and extent of navigational guidance equipment. An instrument approach is defined as "an approach to an airport, with intent to land, by an aircraft in accordance with an Instrument Flight Rule (IFR) flight plan, when the visibility is less than three miles and/or the ceiling is at or below the minimum initial approach altitude."

The forecasts for AIAs assumes a percentage of annual instrument approaches conducted by a determined level of itinerant traffic. As an average, the Airport and the Cochise County area experiences Instrument Meteorological Conditions (IMC) 0.3%³ of the time. IMC is based upon visibility at 1,000 feet and at or less than 3 miles.

$$\text{Itinerant AIA} = (\text{Total Itinerant Operations}) \times (\% \text{ IFR Airport Operations}) \times (\% \text{ IFR Related Pilots})$$

The percent increase for IFR rated pilots is contributed to the forecast increase of more pilot training (2.9% annually during the next 12 years) in addition to more sophisticated twin-engine and turbine aircraft forecast to use at the Airport. Table 2.4 summarizes the forecast of annual instrument approaches through the planning period.

Table 2.4 Annual Instrument Approach Forecast Cochise County Airport					
Year	Total Itinerant *	Percent IFR	Percent IFR Rated Pilots	Annual Operations During IMC	Annual IMC Approaches
Existing	4,010	0.3	45%	54	27
2002	4,140	0.3	50%	62	36
2007	4,280	0.3	55%	70	35
2012	4,809	0.3	60%	86	43
2017	5,534	0.3	65%	108	54

* Includes instrument operations conducted by military.

³International Station Meteorological Climate Summary - October 1990

COCHISE COUNTY AIRPORT

Airport Master Plan

FORECAST SUMMARY

The purpose of this element has been to present forecasts of future aviation activity which will be used to guide the continued development of the Cochise County Airport. These forecast figures are summarized in Table 2.5.

General aviation based aircraft at Cochise County are expected to increase at a similar pace as the local economic growth indicators. There are signs of modest but steady economic growth in Cochise County which will in turn increase the number of general aviation based aircraft at Cochise County Airport.

Total aircraft operations are projected to increase by 30 percent during the planning horizon. The greatest increase in operations will occur in the later part of the planning period due to positive growth figures for general aviation as identified in the forecasts of aviation demand. In the next chapter, these forecast figures will be used to develop facility recommendations which will identify the future facility requirements at the Airport.

Airport Activity	1997 (Existing)	2002 (5-yr)	2007 (10-yr)	2012 (15-yr)	2017 (20-yr)
BASED AIRCRAFT	24	24	25	28	34
Single Engine (A-I)	22	22	23	25	29
Multi-Engine (B-II)	2	2	2	3	5
Business Jet (B-II, C-II)	0	0	0	0	0
AIRCRAFT OPERATIONS	7,000	7,000	7,850	9,060	9,630
Local Operations (Total)	2,990	2,860	2,970	3,251	4,146
Itinerant Operations (Total) *	4,010	4,140	4,280	4,809	5,534
ANNUAL INSTRUMENT APPROACHES (AIA's)	27	36	45	49	54
AIRPORT REFERENCE CODE (ARC)	B-II	B-II	B-II	B-II	B-II

* Includes Military

CHAPTER THREE

Airport Facility Requirements

CHAPTER THREE - AIRPORT FACILITY REQUIREMENTS

This element describes the facility requirements for the Cochise County Airport that will be needed to satisfy anticipated aviation demand through the year 2017. Airport facility requirements are determined from information derived in the forecast analysis and from FAA criteria for design of airport components. The analysis yields estimates of required "airfield" improvements such as runways, taxiways, navigational aids, marking and lighting; and "landside" improvements, such as hangars, terminal buildings, aircraft parking aprons, fueling facilities, vehicle parking spaces, and airport access requirements.

AIRFIELD SYSTEM

The development of airfield facilities such as runway length, navigational aids and airport lighting are based primarily upon the characteristics of the aircraft which are expected to use the airport. The most important characteristics are the approach speed and the wing span of the "critical" aircraft expected to use the airport.

FAA groups aircraft according to their performance and size. The categories range from Approach Category A, for slower single-engine piston aircraft, to Approach Category E, for super-sonic jet aircraft. The "critical" general aviation aircraft group forecast to use Cochise County Airport falls into Category B (approach speed 121 knots or more but less than 141 knots).

Along with the aircraft's approach speed, the airplane's wingspan is another principal characteristic which affects airport design standards. There are six Airplane Design Groups which range from Group I, for small aircraft with wingspans less than 49 feet, to Group IV for the largest air carrier and cargo aircraft. Civil aircraft now using Cochise County Airport fall into Design Groups I and II (wingspans less than 79 feet).

Therefore, the ultimate specific "critical" design aircraft group for the Cochise County airport is the (FAA Approach Category B and Design Group II) which includes the Beech King Air. Figure 3.1 shows the critical aircraft and performance data.

The future B-II classification was determined for Cochise County Airport based on several factors. The factors are: (1) critical aircraft requirements and performance characteristics; (2) itinerant operations by the critical aircraft (500 annual - minimum), (3) common business aircraft usage with respect to the Willcox area; and (4) the aviation forecasts.

Runway Requirements and Orientation

The condition and adequacy of the existing runway system at Cochise County airport, including the number of runways, runway orientation, airfield capacity, runway length, and pavement strength, was assessed. From this analysis, future runway requirements were determined.

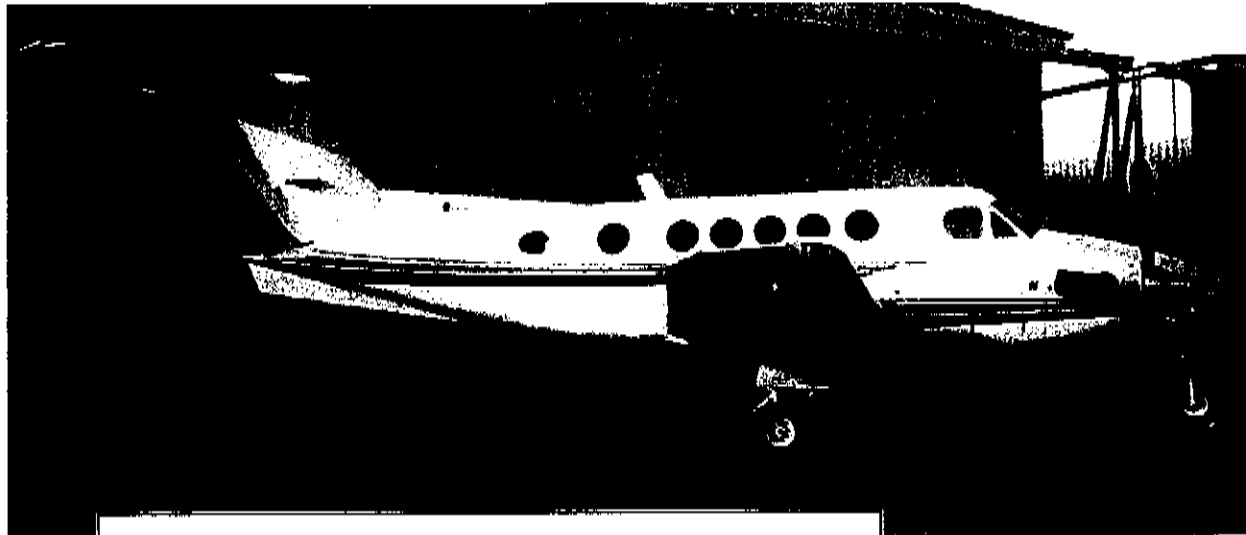
Area wind characteristics are a major factor in determining the optimum number and alignment of runways. Wind data (speed and direction) has been recorded and assembled from the Tucson, Arizona Airport Weather Station. The data were collected from 1986-1995 and included 87,648 observations. *It is recommended that an additional wind analysis be completed at the airport to get the most accurate wind data possible.* Table 3.1 shows windspeed and percent coverage for Cochise County Airport. The all-weather wind rose is shown in Figure 3.2. The wind rose was used for calculating the wind coverages for the runway alignments.

Table 3.1 Wind Speed and Percent Coverage Cochise County Airport		
Runway	Crosswind Component	Percent Coverage
All-Weather		
03-21	12 M.P.H. (10.5 Knots)	89.20%
03-21	15 M.P.H. (13 Knots)	93.74%
03-21	18 M.P.H. (16 Knots)	98.41%
14-32 (closed)	12 M.P.H. (10.5 Knots)	94.29%
14-32 (closed)	15 M.P.H. (13 Knots)	97.09%
Combined	12 M.P.H. (10.5 Knots)	98.45%
Combined	15 M.P.H. (13 Knots)	99.68%
Source: Weather Reporting Station, Tucson International Airport Period 1986-1995 Number of Observations 87,648 Wind rose information provided through computerized wind rose analysis per A/C 150/5300-13.		

The established goal for wind coverage is 95 percent; that is, a light plane should be able to operate at an airport 95 percent of the time during a given period without experiencing a crosswind component greater than twelve m.p.h. Twelve m.p.h. winds are applicable for smaller single engine type aircraft. Fifteen m.p.h. winds are applicable to the larger turbo-prop and business jet aircraft which are less sensitive to crosswinds. Where a single runway does not provide a 95 percent usability factor at twelve or fifteen m.p.h., a crosswind runway is required. Wind coverage for Runway 03-21 totals 89.20% at twelve (12) m.p.h. and 93.74% at fifteen (15) m.p.h.

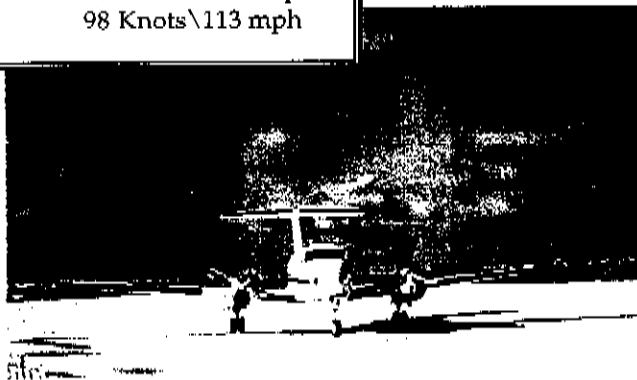
Airport Master Plan

Figure 3.1
Critical Aircraft



ITEM	DIMENSION
Wingspan	54' 6"
Length	43' 9"
Height	15' 0"
Wheelbase	14' 11"
Wheel Track	17' 2"

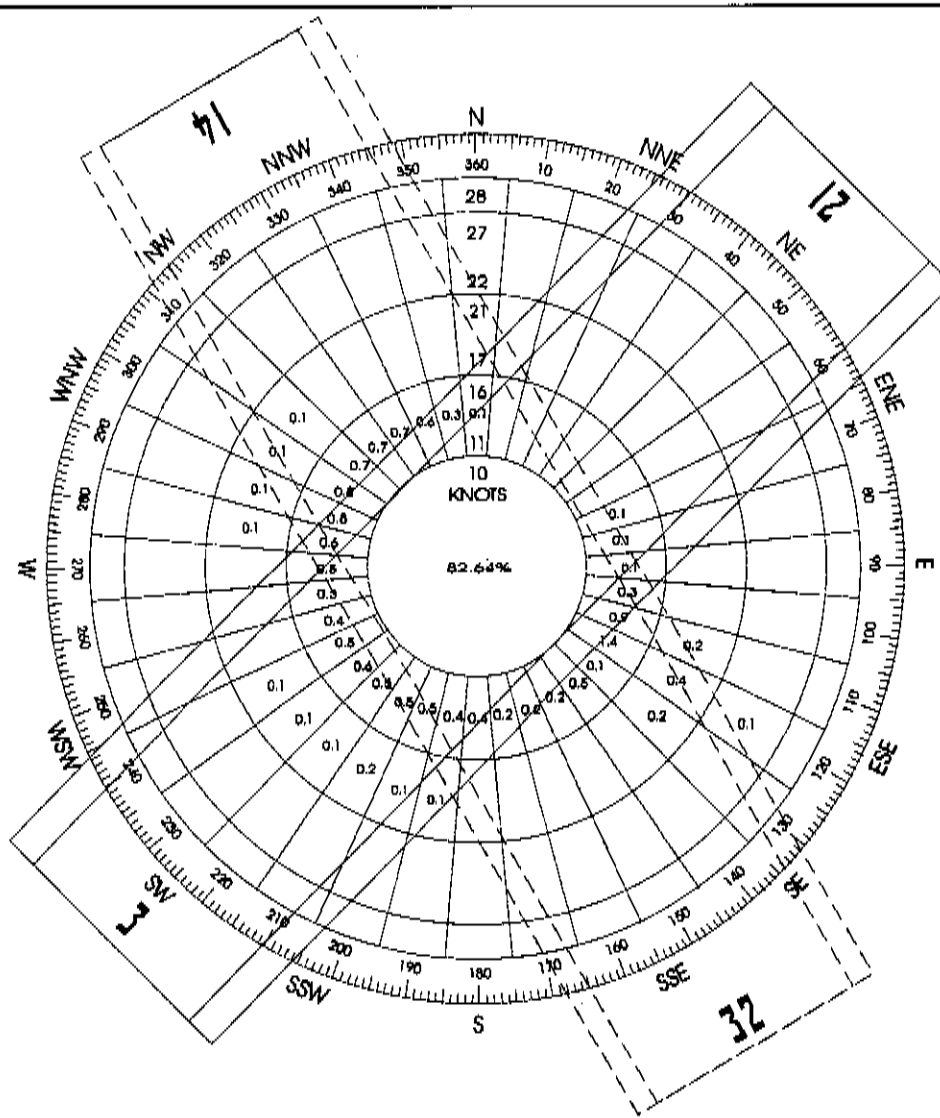
ITEM	PERFORMANCE
Maximum Take Off/Landing	12,500 lbs.
Maximum Cruising Speed	289 Knots\333 mph
Approach Speed (Flaps Down)	98 Knots\113 mph



COCHISE COUNTY AIRPORT

Airport Master Plan

Figure 3.2
All Weather Wind Rose



WIND ROSE ANALYSIS		
Rwy. Alignment	Wind Velocity	Wind Coverage
3 - 21	10.5 Knots	89.20%
3 - 21	13.0 Knots	93.74%
14 - 32	10.5 Knots	94.29%
14 - 32	13.0 Knots	97.09%
0-3 Knots = 7.9%		Source: Tucson International Airport Weather Reporting Station 87,648 Observations 1986 - 1995
4-10.5 Knots = 74.74%		

The analysis of the wind rose for the area revealed that the one existing active runway at Cochise County Airport would be adequate for the long-term. Based on the "critical" aircraft group expected to use the airport, maintenance of the primary runway to the ARC B-II category is recommended.

Runway Length, Width, and Strength

The primary runway length requirements were determined based on three factors: (1) the "critical" aircraft type expected to use the airport; (2) the mean maximum daily temperature of the hottest month; and (3) the airport elevation and the maximum difference in runway elevation. Based on Cochise County Airport site factors [MSL elevation = 4,181', design temperature = 95° F., 500 mile stage length, effective runway gradient (10' difference in elevation)], the required runway lengths were determined and are shown in Table 3.2.

<p align="center">Table 3.2 Runway Requirements Cochise County Airport</p>			
<p align="center">Runway Pavement</p>			
Runway Design Category	Length	Width	Strength
ARC A-I, A-II: 75 % of Small Airplanes	4,170'	60'	8,000 lbs. (S)
ARC B-I: 95 % of Small Airplanes	5,480'	60'	8,000 lbs. (S)
ARC B-II: 100 % of Small Airplanes	5,790'	75'	12,500 lbs. (S)
ARC B-II: Small Airplanes + 10 Seats	5,790'	75'	30,000 lbs. (S)
ARC C-II: Airplanes More Than 60,000 lbs.	6,480'	100'	60,000 lbs. (D)
(S) - Single-wheel gear			
<p>Sources: F.A.A. Advisory Circular 150/5300-13, "Airport Design," and 150/5325-4A, "Runway Length Requirements for Airport Design." A.R.C. = Airport Reference Code</p>			

Demand/Capacity Analysis

Another factor used to determine necessary airfield improvements is the comparison between demand and capacity. The most common means of measuring airfield efficiency is by determining the airport's operational capacity, or Annual Service Volume (A.S.V.). The A.S.V. is defined in *FAA Advisory Circular 150/5060-5, Airport Capacity and Delay*, as a reasonable estimate of an airport's annual capacity. Overall, demand/capacity figures

COCHISE COUNTY AIRPORT

Airport Master Plan

establish a time-frame for projecting developments to preserve and enhance airport operational safety.

Ultimate annual operations are estimated to total approximately 9,680 per year by the year 2017. The A.S.V. divided by the total annual operations produces the demand/capacity ratio, as expressed in percent. Given the forecast operating level of 9,680, the ultimate A.S.V. is as follows:

$$\frac{9,680 \text{ Annual Operations}}{230,000 \text{ A.S.V.}} * 100 = 4.2\%$$

As described in *FAA Order 5090.3B, Field Formation of the National Plan of Integrated Airport Systems (NPIAS)*, airports are recommended by the FAA to initiate planning to preserve and enhance capacity when 60 percent of the ASV has been reached. With an A.S.V. of 230,000, it would take 138,000 annual operations to generate a demand/capacity ratio of 60%. As identified in Chapter Two annual operations are not expected to exceed this level during the planning period (1997-2017). Therefore, airfield improvements specifically designed to increase "airside" capacity will not be necessary during the planning period.

Taxiways

Taxiways are one of the most important factors in determining and maintaining the operational safety of an airport. As airport activity increases (take-offs, landings, and touch-and-go maneuvers), faster access from the runways to the taxiway system is required to maintain safety.

A full parallel taxiway system is normally recommended as airport activity approaches 20,000 annual operations. Partial parallel taxiways are recommended when activity levels reach 10,000 annual operations. Turnarounds at runway ends are recommended for all runways. With airport operations approaching 10,000 per year at Cochise County, the existing parallel taxiway to Runway 3-21 should be maintained and improved as part of the development program.

The taxiway strength for A.R.C. B-II runways/taxiways should be designed to accommodate the design aircraft that will use the pavement. All taxiways should support a B-II aircraft.

Terminal Navigation Aids

Airport navigational aids (NAVAIDS) are facilities and equipment installed on or near the airport for the purpose of providing pilots with electronic guidance and/or visual references to execute an approach to land at the airport. The importance of NAVAIDS is frequently dismissed due to a lack of understanding regarding their purpose, and their equipment and airspace complexity.

The purpose of upgrading navigational aids is to increase an airport's reliability. Navigational aids add reliability to air transportation by allowing aircraft to operate during inclement weather. Each facility in the NAVAID development process adds greater reliability but at increasing cost. The *traditional development* process is as follows: (1) Non-Directional Beacon (NDB), (2) VOR or VORTAC, (3) Localizer, (4) Approach Lighting System, (5) Glide Slope Instrumentation, and (6) Precision Instrument Landing System (ILS/MLS). Each step allows aircraft to fly during progressively bad weather; i.e., progressively lower ceilings and visibility.

Currently, many of the traditional navigation systems are being phased out by the FAA and new advances in navigation/satellite technology will change present navigational systems. Global Positioning System (GPS) is a satellite navigational system that encodes transmissions from ground-based data link stations and satellite transmitters with an on-board portable receiver. The system works through lines of position (LOP) and is presently used for en route navigation and non-precision instrument approaches. Precision instrument approaches have not been approved; however, G.P.S. will most likely be the means of all navigation in the future, with present electronic aids used as a backup system. It is predicted that eventually GPS will provide worldwide navigation coverage because of its position accuracy capability and ability to have its signals unaffected by weather conditions. Because Cochise County Airport has a G.P.S. approach, the traditional development items are not necessary.

TERMINAL AREA REQUIREMENTS

The terminal area or "landside" is defined as that portion of the airport other than the landing area. Functions and facilities include the terminal/administration building, aircraft storage hangars, the aircraft parking apron for based aircraft and itinerant aircraft, fixed base operations (aircraft repair and maintenance, flight training, aircraft sales, fuel facilities, etc.), aviation-related service businesses, and auto parking. An analysis was performed for each terminal element to determine future development requirements.

COCHISE COUNTY AIRPORT

Airport Master Plan

Terminal space requirements are based upon peak hour passengers (including pilot) and the approximate square feet of space needed per passenger. Table 3.3 shows design hour passengers and Table 3.4 identifies terminal space requirements.

Table 3.3 Design Hour Passengers/Operations Cochise County Airport				
Peaking Characteristics	Existing	2002	2007	2017
Annual Operations	7,000	7,000	7,250	9,680
Peak Month Operations (x .11)	770	770	798	1,065
Design Day Operations (÷ 30.4)	25	25	26	35
Design Hour G.A. Operations (x .15)	4	4	4	5
Passengers/Operation	1.9	2.0	2.2	2.4
Design Hour Passengers	8	8	9	12

Table 3.4 Terminal Building Needs (Sq. Ft.) Cochise County Airport				
Required Space per Passenger Sq. Ft.	Existing	2002	2007	2017
Design Hour Passengers	8	8	9	12
Waiting Area/Pilots Lounge (15)	120	120	135	180
Management Operations (10)	80	80	90	120
Restrooms (5)	40	40	45	60
Concessions (3)	24	24	27	36
Circulation, Storage Mechanical, etc. (20)	160	160	180	240
Meeting Space (optional)	600	600	600	600
TOTAL TERMINAL BUILDING REQUIREMENTS (Sq. Ft.)	1,024	1,024	1,077	1,236

() Average square footage needed per passenger.

COCHISE COUNTY AIRPORT

Airport Master Plan

Aircraft Hangars

For planning purposes, at any given airport approximately 80 percent of based aircraft are assumed to be hangared. At the present time there is a slight hangar shortage in Cochise County, with only one-third of the based aircraft in hangars. Table 3.5 shows existing and future hangar requirements. The survey indicated that several aircraft owners would consider building a private conventional hangar if acceptable lease terms could be arranged.

Table 3.5 Hangar Requirements Cochise County Airport				
	Existing	2002	2007	2017
Based Aircraft	24	24	25	34
Aircraft Hangared	17	19	20	27
Conventional Hangar Spaces	1	3	4	4
T-Hangar/Shade Spaces	16	16	16	23
Conventional Hangar Area *	11,600 S.F.	14,800 S.F.	18,000 S.F.	18,000 S.F.
Total T-Hangar/Shade Area	18,000 S.F.	18,000 S.F.	18,000 S.F.	26,400 S.F.
Total Hangar Space	29,600 S.F.	32,800 S.F.	36,000 S.F.	44,400 S.F.

* Includes FBO Hangar

Hangar development at Cochise County Airport is recommended to be on an amortization schedule. It is common for airport hangars to be financed through local funding and then leased to private owners under an amortization term. Another option is to allow construction of hangars using private financing (individuals, companies, partnerships) with the airport owner leasing ground for the hangar development. Table 3.6 shows estimated payments associated with hangar development. Hangar costs and rentals are based on new construction and not meant to be applied to existing structures.

Table 3.6 Amortization Costs for Aircraft Hangars (Principal & Interest)						
Hangar Type/Size	Hangar Cost	Finance Term	Yearly Payment	Monthly Payment	Storage Units	Monthly Rental
Conv. Hangar (80'x80')	\$320,000	25 years @ 8%	\$29,640	\$2,470	5	\$494
T-Hangar (10 Unit)	\$170,000	25 years @ 8%	\$15,744	\$1,312	10	\$131

COCHISE COUNTY AIRPORT

Airport Master Plan

Aircraft Apron

According to discussions with the airport manager, during peak periods additional itinerant tiedowns are needed. This is due to the arrival of flying clubs or groups that visit the airport. Currently there are 10 paved tie-down spaces and 6 additional adjacent to the apron in a turf area at Cochise County Airport. The turf tie-down areas should be paved. Table 3.7 shows apron and tie-down requirements. New pavement strength should be equivalent to the existing portions of the aircraft apron.

	Existing	2002	2007	2017
Based Aircraft	24	24	25	34
Local AC Tie-Down Spaces * (needs)	7	7	7	7
Itinerant Aircraft Tie-Down Spaces (needs)	14	15	17	19
Total Terminal Apron Area Tie-Downs (needs)	21	22	24	26

* Increase in based aircraft to be located in hangar facilities.

Airport Access

Ground access and convenience is a high priority for a general aviation such as Cochise County Airport. The airport must be quickly reached by the majority of those who use the facility, and the best way to provide ground access convenience is to have direct entry to a major highway in the region. It is also beneficial if the airport is visible from the highway for the purposes of orientation. The existing access to the airport terminal does not provide direct access from Interstate 10, nor is the access point easily identified. Better directional signage is necessary from Interstate 10 exit 340 (Taylor Road) and from downtown Willcox. Additionally, aesthetic improvements such as tree planting, road maintenance, etc., all provide a positive impact on the visitor to the area and improve the airport's image as well. All airport road improvements should conform to Cochise County development standards.

Automobile Parking

The requirements for terminal area automobile parking is a function of the design hour passenger. The total number of parking spaces was determined as 1 space per design hour passenger. Currently, approximately 25 public auto parking spaces exist near the terminal which is the level required through the planning period. For user comfort and safety the area adjacent to the terminal should be paved, and conform to Cochise County development standards.

Fuel Storage

Fuel storage should be provided based on an average month of airport activity. The type of fuel stored, whether Avgas, 100LL, or Jet A, depends on the actual airport users needs. Aircraft fuel storage capability at Cochise County Airport is adequate over the planning period. Cochise County Airport has two 10,000 gallon tanks, one with Jet-A and one with 100 LL fuel.

SUMMARY

Improving the airport to retain and gain further market share of the aviation activity in the region and higher usage by related industries is important to local sponsors. The purpose of this chapter has been to identify the facilities necessary to meet the forecast demand at Cochise County Airport. A summary of all facilities requirements is shown in Table 3.8. A summary of the total phasing plan and costs associated with each phase is shown in the following chapter.

COCHISE COUNTY AIRPORT

Airport Master Plan

Table 3.8 Summary - Facility Requirements Cochise County Airport			
Facilities	Phase 1 (1997 - 2001)	Phase 2 (2002 - 2006)	Phase 3 (2007 - 2017)
Based Aircraft	24	25	34
Runway 03-21	6,095' x 75' 50,000 SWG	6,095' x 75' 50,000 SWG	6,095' x 75' 50,000 SWG
NAVAIDS	GPS	GPS	GPS
Lighting Aids	MIRL	MIRL	MIRL
Aircraft Parking Apron	6,700 S.Y.	7,700 S.Y.	9,700 S.Y.
Total Tie-Downs (needs)	21	22	26
Hangar Spaces			
Conventional Spaces	1	4	4
T-Hangar Spaces	16	16	23
Terminal Building	1,300 S.F.	1,300 S.F.	1,300 S.F.
Auto Parking	25 - 10 paved	25 - 12 paved	25 - 15 paved
Fuel Storage	Jet A - 100LL	Jet A - 100LL	Jet A - 100LL

CHAPTER FOUR

Development Alternatives



CHAPTER FOUR - DEVELOPMENT ALTERNATIVES

INTRODUCTION

The objective of this chapter is to identify and evaluate alternative plans for the implementation and development of the facility requirements identified in the previous chapter. These facilities are required to satisfy aviation demand levels for the Cochise County Airport throughout the 20-year planning period. A three-step process has been used to accomplish this task:

- * Identify alternatives that will meet the needs for the airport imposed by the forecasts;
- * Evaluate each alternative to determine efficiency and the process for implementation;
- * Select a preferred alternative that maximizes the return on investment within the context of community/airport objectives.

Based on the analysis of wind speed and direction, a one runway system is adequate for the safe operation of aircraft. However, there are limited times that strong crosswind gusts occur and therefore the closed crosswind runway would be useful to local pilots. This analysis will focus on the needs for primary runway and crosswind runway length.

In identifying alternative ways of meeting the defined facility requirements, the following parameters were used as guidelines:

- * To maximize the use of existing facilities while providing suitable airfield flexibility to meet the ultimate demand forecasted;
- * To provide facilities in a way that reduces impacts on the environment;
- * To plan future airfield alternatives that maintain airfield safety and efficiency;
- * Provide for cost-effective phasing of proposed improvements that can be effectively maintained at reasonable cost;

With this background, a range of possible alternative airport development scenarios were identified.

AIRFIELD DEVELOPMENT ALTERNATIVES

Continuing the evaluation process, an examination of specific alternatives was identified and evaluated. Runway development alternatives were identified for comparison. These represent a reasonable range of options available at Cochise County Airport and will determine the most advantageous and cost-effective course of action to be followed. Each scenario is in the following text.

Operational Efficiency

The primary measure of operational efficiency is the capability of an alternative to accommodate the "critical" type aircraft in terms of runway length and maneuverability. Standards for runway length and operational efficiency are identified in FAA Advisory circular 150/5300-13 Change 4, Airport Design, Computer Airport Design Program Model.

Runway Development Alternatives Evaluation

The focus of this section is to evaluate the effects of the various alternatives and thus provide the technical basis necessary for selecting a "preferred" runway development plan for the airport. The alternatives will be subjected to an evaluation that will permit a comparison of the merits and deficiencies of all options under consideration. An evaluation matrix has been prepared to rank the composite rankings of each alternative. Primary factors to be considered for each alternative include extending Runway 3-21 to 6,500' (Basic Transport) or maintain existing length. Scenarios for the crosswind runway include reopening to a full length of 6,100' x 75', maintaining a minimum standard length of 4,200' x 60' or keeping the runway closed.

PRIMARY RUNWAY

The length for the primary runway is determined by the critical aircraft that perform the most operations at the airport. The Beechcraft King Air was identified as the critical aircraft in the previous chapter. Other aircraft that occasionally operate at the airport include the Cessna Citation and the LearJet 35. While the Citation and the LearJet do not have the amount of usage at Cochise County Airport to justify being used as the critical aircraft, it is prudent to examine the impacts if these aircraft were to become the primary users at the airport even beyond the 20-year planning period.

The next airport service level which is needed by business jets is the basic transport category (ARC C-II). The required runway length needed for this category is 6,500' feet. As with all analysis there needs to be emphasis placed on a reasonable level of

development. The following study matrix (Table 4.1) compares the two different runway lengths.

<p align="center">Table 4.1 Primary Runway Matrix Evaluation Cochise County Airport</p>		
<p>4 = Best 1 = Worst</p>	<p align="center">6,500' x 100' Basic Transport (ARC C-II)</p>	<p align="center">6,100' x 75' General Utility (Existing Length) (ARC B-II)</p>
Potential Obstructions	4	4
Accommodates Business Jet Aircraft	4	3
ILS Availability (GPS Only)	4	4
Land/Easement Acquisition	1	3
Taxiing Convenience to Terminal Area	4	4
Site Preparation Requirements	1	4
Environmental Considerations	2	4
Construction Costs	1	4
Maintenance Costs	3	4
Total	24	34
Average	2.67	3.78

Recommended Primary Runway Alternative

The study matrix indicates that the Runway 3-21 length and width should be maintained at its current dimensions. While some larger business jets do operate at Cochise County, the load restrictions placed on them do not hinder the operating capacity of these aircraft. Also, from a cost standpoint, keeping the existing length and width is a better option.

CROSSWIND RUNWAY

Based on activity levels, there will be no need to accommodate the critical aircraft on both runways at the airport. In fact different runways have different critical aircraft using them. The predominant aircraft that would use the crosswind runway would include the Cessna 172 and Beechcraft Bonanza. These aircraft need a crosswind runway because they are more susceptible to crosswinds than larger business type aircraft. The proposed lengths

COCHISE COUNTY AIRPORT

Airport Master Plan

for the crosswind (shown in table 3.2) include 75% of small airplanes - 4,200 feet, or the existing paved length of 6,100'.

There are three reasonable development options for the crosswind runway at Cochise County. The first option is status quo, crosswind runway stays closed. The second option opens the runway to small airplane standards, and the third matches the primary length, which would require the runway to be widened to 75 feet as well. These options would not include development of non-precision instrument approach procedures. Each option was evaluated in matrix form. Table 4.2 shows the crosswind summary matrix.

Table 4.2 Crosswind Runway Matrix Evaluation Cochise County Airport			
4 = Best 1 = Worst	Crosswind Stays Closed	Open at 4,200' x 60'	Open at 6,100' x 75'
Potential Obstructions	4	4	4
Land/Easement Acquisition	4	4	3
95% Wind @ 10.5 Knots (with Primary)	1	4	4
Accommodates Runway Critical Aircraft	1	4	4
Site Preparation Requirements	4	3	2
Construction Costs	4	3	2
Maintenance Costs	4	3	3
Total	22	25	22
Average	3.14	3.57	3.14

Recommended Crosswind Runway Alternative

It is recommended that a 4,200' length be used by the county for Runway 14-32, based upon the results of the study matrix. There is a recognized need for a crosswind runway by local pilots. Runway 14-32 pavement is old with many cracks and grass, the runway should be maintained as a "turf" runway. The shortened length and turf rating will only allow use by small and light piston aircraft and help keep maintenance costs to periodic mowing.

CHAPTER FIVE

Airport Improvement Program



CHAPTER FIVE - AIRPORT IMPROVEMENT PROGRAM

This section details the airport development program and identifies the proposed schedule for implementation of the Master Plan recommendations. The program was designed to expand existing facilities, to improve airport safety and capacity, and to provide a planned guide for airport development. Many aspects of the airport development program focused on helping the Fixed Base Operator (FBO) attract new flying customers, including a fly and camp area, creating a shuttle service to local hotels and Willcox attractions, and by establishing a priority for the development of additional aircraft hangars. Also of major importance is the long term durability of airport pavements, fueling facilities, and terminal building. The plan was structured to provide the flexibility to meet the long-term development needs and demands of the local service area.

The major components of the ultimate development plan are:

- Construct parallel taxiway
- Improve fueling facilities to comply with Federal Regulations
- Construction of hangars to provide additional storage for based aircraft
- Improve terminal building including ADA requirements
- Expand aircraft apron and tiedown areas
- Continued pavement maintenance
- Establish "Fly and Camp" area
- Establish private shuttle service to Willcox
- Improve Directional Signage to Airport and Auto Parking Improvements

PHASED DEVELOPMENT

The following improvements recommended by phase -- short, intermediate and long-term -- represent an orderly development program that will maintain and yield a safe, efficient, and attractive public facility in the most economical manner. The scheduling of projects within each phase will depend on the relative priority of airport development among other County development projects and services. Also, the ability and willingness of local business and industry to lend support to the airport development program are important factors in realizing airport improvements.

COST ESTIMATES

Cost information was collected from government agencies, contractors, and from similar recent airport construction projects in the area. Estimates for each planning period are based on April, 1997 dollars. A 25% contingency overhead for engineering and administration has been added to each phase of the development program.

Development Summary Short-Term (1998-2002)

1. RUNWAYS AND TAXIWAYS

- Crackfill pavements
- Slurry seal Runway 03-21
- Mark Runway 03-21
- Slurry seal access taxiway
- Construct partial parallel taxiway
- Purchase easement for Runway 21 RPZ (approx. 3 acres)
- Reopen Runway 14-32 as "turf"

2. TERMINAL AREA

- Pave 10 auto parking spaces including ADA requirements
- Weed kill and pave around runway lights
- Crackfill apron
- Slurry seal apron
- Expand apron by 2,500 S.Y.
- Upgrade fuel tanks
- Install pilot activated light system
- Improve directional signage to airport
- Improve entrance aesthetically
- Establish pavement maintenance program
- Adopt Part 77 Airspace Zoning Ordinances
- Remove abandoned trailer
- Repair shade hangar
- Complete ADOT recommended wind study
- Establish fly and camp area
- Establish hangar development procedures
- New roof on terminal
- Fencing around terminal and hangars with gated access
- Improve lighting at terminal area
- Pave under shade and T-hangars
- Top trees at terminal
- Remove overgrown mesquite

COCHISE COUNTY AIRPORT

Airport Master Plan

Table 5.1
Cochise County Airport
Development Summary
(1998-2002)

Item	Private Cost	Local Cost (10%)	Federal/State Cost (90%)	Total Cost
Runways and Taxiways				
Crackfill Pavements	\$0	\$4,500	\$40,500	\$45,000
Slurry Seal R/W 3-21	0	21,600	194,400	216,000
Mark R/W 3-21	0	1,800	16,200	18,000
Slurry Seal Access T/W	0	2,400	22,600	24,000
Construct Partial Parallel T/W	0	37,000	333,000	370,000
Purchase Easement for R/W 21 RPZ	0	450	4,050	4,500
Reopen R/W 14-32 as Turf	0	4,800	43,200	48,000
Terminal Area				
Pave 10 Auto Parking Spaces	0	7,000	0	7,000
Crackfill Apron	0	750	6,750	7,500
Slurry Seal Apron	0	2,250	20,250	22,500
Expand Apron by 2,500 SY	0	4,000	36,000	40,000
Upgrade Fuel Tanks	0	100,000	0	100,000
Install Pilot Activated Light System	0	1,000	9,000	10,000
Improve Directional Signage to Airport	0	1,500	0	1,500
Improve Entrance Aesthetically	0	5,000	0	5,000
Repair Shade Hangar	0	5,000	0	5,000
Establish Fly and Camp Area	0	1,000	9,000	10,000
New Roof on Terminal	0	4,000	0	4,000
Fencing with Gate	0	400	3,600	4,000
Improve Lighting at Terminal	0	500	4,500	5,000
Pave Under Hangars	0	23,000	0	23,000
TOTAL	\$ 0	\$ 227,950	\$ 742,050	\$ 970,000

* Items shown at 100% local cost are ineligible for federal or state grants.

Development Summary Intermediate Term (2003-2007)

1. RUNWAYS AND TAXIWAYS

- Slurry seal Runway 03-21
- Slurry seal partial parallel taxiway
- Slurry seal access taxiway
- Construct remaining portion of parallel taxiway
- Install Precision Approach Path Indicators (PAPI's)

2. TERMINAL AREA

- Construct 3 conventional hangars
- Remodel interior of terminal building including ADA requirements
- Construct 8-unit T-hangar

COCHISE COUNTY AIRPORT

Airport Master Plan

Table 5.2
Cochise County Airport
Development Summary
(2003-2007)

Item	Private Cost	Local Cost (10%)	Federal/State Cost (90%)	Total Cost
Runways and Taxiways				
Slurry Seal R/W 3-21	\$0	\$29,000	\$261,000	\$290,000
Slurry Seal Partial Parallel T/W	0	9,000	81,000	90,000
Slurry Seal Access T/W	0	2,800	25,200	28,000
Construct Remaining T/W	0	40,000	360,000	400,000
Install PAPI	0	3,000	27,000	30,000
Terminal Area				
Construct 3 Conventional Hangars	150,000	0	0	150,000
Remodel Interior of Terminal	0	10,000	0	10,000
Construct 8-Unit T-Hangar	240,000	0	0	240,000
TOTAL	\$390,000	\$ 93,800	\$ 754,200	\$ 1,238,000

* Items shown at 100% local cost are ineligible for federal or state grants.

Development Summary Long-Term (2008-2017)

1. RUNWAYS AND TAXIWAYS

- 2" Asphalt overlay Runway 03-21
- 2" Asphalt overlay parallel taxiway
- 2" Asphalt overlay access taxiway
- Mark pavements

2. TERMINAL AREA

- 2" Overlay apron
- Mark pavements
- Pave 4 additional auto parking spaces
- Construct 8-unit T-hangar
- Expand apron by 2,500 S.Y.
- Remove shade hangar

COCHISE COUNTY AIRPORT

Airport Master Plan

Table 5.3
Cochise County Airport
Development Summary
(2008-2017)

Item	Private Cost	Local Cost (10%)	Federal/State Cost (90%)	Total Cost
Runways and Taxiways				
2-Inch Asphalt Overlay R/W 3-21	\$ 0	\$ 50,000	\$ 450,000	\$ 500,000
2-Inch Asphalt Overlay Parallel T/W	0	28,000	252,000	280,000
2-Inch Asphalt Overlay Access T/W	0	4,000	36,000	40,000
Mark Pavements	0	3,000	27,000	30,000
Terminal Area				
2-Inch Asphalt Overlay Apron	0	6,000	54,000	60,000
Mark Pavements	0	500	4,500	5,000
Pave 4 Auto Parking Spaces	0	2,000	0	2,000
Construct 8-Unit T-Hangar	240,000	0	0	240,000
Expand Apron by 2,500 SY	0	5,000	45,000	50,000
Remove Shade Hangar	0	10,000	0	10,000
TOTAL	\$ 240,000	\$ 108,500	\$ 868,500	\$ 1,217,000

* Items shown at 100% local cost are ineligible for federal or state grants.

COCHISE COUNTY AIRPORT

Airport Master Plan

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CHAPTER SIX

Environmental Review



CHAPTER SIX - ENVIRONMENTAL REVIEW

INTRODUCTION

The purpose of this Environmental Review is to provide an overview of potential impacts to environmental resources that could result from the proposed airport development program at the Cochise County Airport in Willcox, Arizona.

This Environmental Review has been prepared in accordance with Order 5050.4A, *Airport Environment Handbook* which provides instructions and guidance for addressing the environmental resources as required by the National Environmental Policy Act (NEPA) of 1969, and other laws as applicable.

ENVIRONMENTAL CONSEQUENCES - SPECIFIC IMPACT CATEGORIES

Noise

Noise exposure from aircraft is often the most objectionable interference of the airport with the surrounding environment. Based on FAA Order 5050.4A, Paragraph 47(e)(1), "no noise analysis is needed for proposals involving design group I and II airplanes on utility or transport type airports where forecast operations in the period covered by the environmental review do not exceed 90,000 annual adjusted propeller operations or 700 annual adjusted jet operations".

Operations at the Cochise County Airport by the year 2017 are forecast to be 9,680 of which 8,228 (85 percent) are estimated to be performed by single engine aircraft; 1,162 (12%) by multi-engine aircraft and 290 (3%) by multi-engine turboprop aircraft. The forecast of operations is well below the level at which FAA requires additional noise analysis.

Compatible Land Use

The compatibility of existing and planned land uses in the vicinity of an airport is normally associated with the extent of noise impacts related to airport operations. Aircraft operations are not high enough to produce a 65 DNL contour; therefore, no significant noise impacts are foreseeable during the planning period.

The surrounding unincorporated area adjacent to the airport is zoned for RU-4 (residential with a four acre minimum lot size) and a small area as TR-36 (36,000 sf. minimum lot size). This level of development should not cause any land use conflicts with the airport due to low amounts of aircraft operations.

In an effort to maintain safety for aircraft and the surrounding environs, land for runway protection zones should be controlled by fee-simple ownership, or at a minimum, acquired in avigation easement beyond Airport Road by the airport sponsor. The crosswind runway RPZ's will be contained within the existing property boundary.

Social Impacts

Primary social impacts are associated with relocation or other community disruptions which may be caused by the development of an airport. The key induced, or secondary impacts, include shifts in patterns of population movement and growth, public service demands, and changes in business and economic activity to the extent influenced by airport development. FAA Order 5050.4A, Paragraph 47(e)(4), states that "induced social impacts will normally not be significant except where there are also significant impacts in other categories, especially noise, land use or direct social impacts." No significant negative social impacts are anticipated form future.

Induced Social Impacts

The improvement of airfield and terminal area facilities creates the potential for direct and indirect social impacts in the local community. The airport will offer alternative capabilities, increasing the reliability of the airport as a potential destination, with the degree of impacts generally related to the scope of the airport project.

The proposed airport improvements are anticipated to have a beneficial effect on area transportation for both business and general aviation users by promoting and encouraging local business and economic activities. No significant direct or indirect changes, or major increases of public services are expected to occur, and no appreciable change in local population, employment or housing is expected based on the proposed airport development program. The proposed projects are not expected to cause the disruption of established communities, and will therefore cause no principal negative social impacts. No induced or secondary socio-economic impacts are expected from the development of the Cochise County Airport.

Air Quality

Airports must comply with federal and state regulations which set air quality standards for certain airborne pollutants including ozone, carbon monoxide, nitrogen, dioxide, sulfur dioxide and suspended particles. Determination of the need for an air quality analysis is based on the ultimate forecast level of operations as stated in FAA Order 5050.4A, Paragraph (e)(5). The Order states that no air quality analysis is needed when the proposed project is a general aviation airport with less than 180,000 operations forecast annually. No further air quality analysis is necessary since the forecast levels are indicated at 9,680.

Water Quality

FAA Order 5050.4A requires a water quality certification for approval of an application project including a new airport location, a major runway extension, or major runway relocation. Water impacts from airport construction for on and off-airport water quality are usually in the form of nonpoint source pollution or surface runoff, construction alterations in natural drainage patterns, disturbance of wetland habitat, discharge from certain types of industrial sites, and storage of petroleum and pesticide products.

No special erosion water problems are anticipated at Cochise County Airport during or after construction activities, with minor water quality impacts avoided by design measures, construction controls and management plans. Permits and certificates will be obtained for the airport sponsor by the contractor prior to construction. Certification is given if the activity complies with surface water quality standards or if a variance is issued. No construction permit difficulty is expected.

The Cochise County Airport is considered an industrial activity which will require a National Pollution Discharge Elimination System (NPDES) Permit for the discharge of storm water from activities conducted on airport property. Potential sources of nonpoint pollutants at general aviation airports, typically include erosion from construction activities, aircraft lubricants, fuel, agricultural chemicals and pesticides, and the potential for painting and deicing chemicals.

Fuel Storage: The forecast of activity indicates the airport would maintain one (1) 10,000 gallon 100LL tank, and one (1) 10,000 gallon capacity JetA fuel storage tank. Additional fuel storage capacity could occur late in the planning period if needed. The fuel system at Cochise County Airport was installed in 1968. The Arizona Department of Environmental Quality tested the tanks and found that there were no leaks. However, all underground

storage tanks installed prior to 1989 will need to have spill, overflow and corrosion protection by December 22, 1998. Federal Environmental Protection Agency require this action to be taken or the tanks must closed or replaced. The tanks at the airport do not have these necessary protection devices.

Section 4(f) Land

FAA Order 5050.4A, Paragraph (e)(7) requires that activities which require the use of "...any publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state or local significance..." shall not be approved unless it can be shown that no reasonable alternative exists and all possible mitigation measures will be taken. No Section 4(f) lands are located in the immediate airport vicinity and will therefore not be adversely affected by the proposed development program.

Historic, Architectural, Archeological and Cultural Resources

The National Historic Preservation Act of 1966 and Archeological and Historic Preservation Act of 1974 address cultural resources and the thresholds for cultural and historic properties. As described in FAA Order 5050.4A, Paragraph (e)(8), a review of the National Register of Historic Places is necessary to identify any state historic or archeological sites in the airport project area.

The State Historical Preservation Department determined that there are no archaeological sites or cultural resources identified within the airport area but the area has not been systematically surveyed. It is recommended that projects that entail ground disturbing activity should be surveyed by a qualified archaeologist.

Although all construction activities are expected to occur on existing airport property if cultural remains are encountered during construction, work must cease in the immediate area and federal regulations pertaining to emergency discovery situations must be followed. Work can continue in the project area where no cultural materials are present. The Arizona State Historical Preservation Office, ADOT Department of Aviation and the FAA Regional Airports Division must be notified for evaluation of the situation by a qualified professional.

Biotic Communities

Consideration of endangered and threatened species is required under the Endangered Species Act of 1973 to determine potential biotic impacts on wildlife resources from the proposed construction project.

The United States Fish & Wildlife Service (USFWS) was contacted regarding potential impacts to the population and location of wildlife, waterfowl resources and aquatic life in the airport vicinity. The USFWS provided a list of endangered species that could be located in the area. If and when a major project occurs, (as determined by FAA Order 5050.4a) a site specific determination may need to be completed prior to construction. The species list is shown in the appendix. Other agencies to be contacted for further review include the Arizona Game and Fish Department and the Arizona Department of Agriculture.

Biotic Communities are not anticipated to be impacted by the proposed airport construction projects.

Endangered or Threatened Species

The Endangered Species Act of 1973 protects listed species against killing, harming, harassment or any action that may damage their habitat. FAA Order 5050.4A, Paragraph (e)(10) describes the procedures to determine the impacts on endangered or threatened species.

The United States Fish & Wildlife Service (USFWS), was contacted regarding impacts to threatened or endangered species due to the proposed project. The USFWS provided a list of endangered species that could be located in the area. If and when a major project occurs (as determined by FAA Order 5050.4a) a site specific determination may need to be completed prior to construction.

The species list is shown in the appendix. Other agencies to be contacted for further review include the Arizona Game and Fish Department and the Arizona Department of Agriculture

Threatened and endangered wildlife species are not anticipated to be impacted by the proposed airport construction projects.

Conclusion

All development items for the Cochise County Airport at Willcox are considered categorically excluded from further environmental action according Federal Aviation Order 5050.4A. Correspondence State and Federal agencies confirm that no significant environmental impact will occur; however, additional review may be necessary regarding wetlands, endangered species, and archeological sites.

AGENCIES CONTACTED

Arizona State Historical Preservation Office*	Phoenix, Arizona
United States Fish and Wildlife Service *	Phoenix, Arizona
United States Army Corps of Engineers *	Phoenix, Missouri
Natural Resources Conservation Service *	Willcox, Arizona
Arizona Department of Environmental Quality *	Phoenix, Arizona

* Received Response

CHAPTER SEVEN

Airport Plans

CHAPTER SEVEN - AIRPORT PLANS

The purpose of this chapter is to present, in graphic and narrative form, the recommended development for Cochise County Airport through the 20-year planning period. A set of detailed plans have been prepared, referred to as the **Airport Layout Plan**, which graphically outline the recommendations for airport layout and future land use on and around the airport. The complete set of plans is at the end of this chapter and includes:

- Title Sheet
- Airport Layout Plan
- Airspace Drawing
- Runway 03-21 & 14-32 Runway Protection Zones
- Runway 03-21 & 14-32 Approaches
- Terminal Area Plan
- Land Use Plan
- Airport Property Map

FACILITY DESIGN STANDARDS

In the interest of safety and to provide uniformity in the design and construction of airports, the Federal Aviation Administration has developed design standards for the construction of airports within the United States. The determination of appropriate design standards for the continued development of Cochise County-Willcox Airport was based on the physical characteristics of the aircraft which are expected to use the airport.

Cochise County Airport is appropriately designated as a B-II Airport Reference Code (ARC). Identified as such, the airport should be planned and designed to accommodate business and commercial aircraft in Design Group B-II as previously identified in Chapter Three - Facility Requirements. The ALP is important as it shows graphically that adequate separations between facilities are provided.

The analysis of the future aircraft and operational fleet mix at Cochise County indicates that the major portion of the airport activity will consist of aircraft in Design Groups I & II. This includes nearly all commercial and business aircraft with approach speeds less than 79 knots, wingspans less than 118 feet. The design standards were based on the "critical" or most demanding group of aircraft expected to use the airport as identified in Chapter Three.

AIRPORT LAYOUT PLAN

The **Airport Layout Plan (ALP)** illustrates the existing and proposed ultimate development recommendations for Cochise County Airport. The improvements that are depicted are facilities that are necessary to meet the existing and future aviation demand in the area. Specific runway and airport data and characteristics are provided on the ALP to provide information and to enable interpretation of the Master Plan recommendations. The proposed layout is the result of investigations to determine the optimum plan to yield a safe and cost-effective facility. The ALP indicates that improvements are needed to both airfield and terminal facilities.

AIRSPACE, APPROACH AND RUNWAY PROTECTION ZONES

In the interest of safety and to provide specific areas for airspace protection, imaginary approach and airspace surfaces are situated and defined around the airport. These areas, known as FAR Part 77 Imaginary Surfaces, outline parcels in and under which the type of structure and their heights must be controlled by easements or zoning.

Sizes of the *approach zones* vary according to the category and the type of runway they serve. The approach zones range in length from 5,000 feet on utility runways to 50,000 feet for transport category runways with a precision instrument approach. It is within these innermost zones that development of any structure is strongly discouraged due to the dangers they pose to aircraft either approaching or departing the airport.

The airspace drawing graphically shows the Part 77 surfaces which is used to make land use recommendations for the control of the heights of objects. The drawings can be utilized by Willcox and Cochise County in determining if construction of a proposed structure near the airport would penetrate any of the reserved airspace surfaces. Non-precision instrument approaches would continue to Runway 03-21 through the planning period.

Approaches - Runway 03-21 consists of a large scale plan and profile view of the approach zones and runway protection zones to Runway 03-21. The plan is designed to identify existing and future roadways, utility lines, structures, and other possible obstructions which lie within these areas of aircraft approach.

The ultimate runway protection zones for Runways 03-21 are 500' x 1,000' x 700'. The approach slope surface to Runway 03-21 is 500' x 5,000' x 2,000' at 20:1. The approach to Runway 14-32 is 250' x 5,000' x 1,250' at 20:1. Additional easement acquisitions are needed to provide protection for Runway 21. These areas are indicated on the Airport Layout Plan drawing.

TERMINAL AREA PLAN

The **Terminal Area Plan** represents a larger-scale detail for the construction of landside facilities to meet existing and future requirements. The plan for the terminal is to provide basic facilities including customs inspections waiting room, telephone, and restrooms. The capital development program includes terminal building remodeling with the inclusion of ADA requirements.

AIRPORT AND VICINITY LAND USE

Planning for optimal use of land adjacent to airports has become a vital instrument for guiding urban growth and providing a healthful and aesthetically pleasing community environment. The principal factors influencing land use in the vicinity of the airport are runway protection zone areas, airspace/obstructions to flight, factors relating to industrial development near the airport, and aircraft noise.

The current uses of the airport and vicinity land areas have been considered in the development of land use recommendations presented in this chapter and on the land use plans. Plans presented are based on the following land use concepts and criteria:

- The land use is dictated by aeronautical needs including safety requirements for both the user and general public.
- Noise impact areas that constitute a serious detriment to the quality of life (DNL 65-75) for which conditional land use should be located. Because the airport is used by propeller aircraft and has less than 10,000 operations, no 65-75 DNL areas have been identified beyond airport property.

Airport Land Use

The **Airport Land Use Plan** identifies on-airport land use recommendations for Cochise County Airport. The objective of the plan is to coordinate uses on airport property in a manner compatible with the functional design of the airport facility. On-airport land use planning is also important for the orderly development and efficient use of available space.

The Land Use Plan identifies several major airport use categories including those required for aeronautical purposes and terminal development. The major airport use categories are as follows:

Airport Operations Area

- Runway Safety Area
- Terminal Operations
- Taxiway Safety Area

Public Aviation Uses (Aviation Support)

- Terminal/FBO's
- Administrative Areas
- Transient Aircraft
- Public Parking
- Aircraft Displays

Private Aviation Uses (Aviation Support)

- Private Aircraft Storage (T-hangars)
- Corporate Aircraft Storage
- Air Charter Aircraft/FBO
- Airport Tower Operations
- Aircraft Displays

Aviation Industry

- Aircraft Manufacturing
- Engine Maintenance
- Aircraft Sales

Non-Aviation Related

- Areas Unsuitable for Aviation
 - Landfills
 - Garbage dumps
 - Sewage treatment facility
 - Towers
 - Uses that will interfere with aircraft movement

Airport Vicinity Land Use

Because the airport facility is utilized by nearly all types of aircraft, it is necessary to determine the noise effects experienced by the area surrounding the airport.

The study of current conditions indicated that present aircraft noise is relatively minor and that no areas are currently subjected to noise levels in excess of 65 DNL.

Incompatible land uses in the vicinity of the Cochise County airport include landfills, garbage dumps, sewage treatment facilities, and other uses which may attract bird habitats. Other uses that could involve electronic transmissions, reflective surfaces, bright lighting, and towers should be reviewed in any future land use development near the airport.

Area Airspace

The purpose of Airport Zoning is to prevent the creation or establishment of structures or objects of natural growth which would constitute hazards or obstructions to aircraft operating to, from and in the vicinity of an airport. The definition of zones and the allowable height of structures in relation to the airport are specified in Part 77 of the Federal Aviation Regulations, "Objects Affecting Navigable Airspace," and are shown on the Airspace Drawing (Drawing No. 3). Although the FAA has no direct authority to enforce the regulations on a local government, it may rule that use of a runway shall be curtailed if structures near the airport present a hazard and are in violation of Part 77. Airport zoning ordinances are enacted by local government in the same way as (or as part of) the local zoning ordinance. Cochise County should enact height and hazard ordinances.

AIRPORT PROPERTY MAP

The outright acquisition of property by the airport sponsor to ensure compatibility of land adjacent to the airport affords the maximum flexibility in developing land and protects the airport against encroachment. The **Airport Property Map** was prepared to indicate the various tracts of airport property, including when and how they were acquired and easements. Proposed property limits are also indicated. Only a small parcel in Runway 21 RPZ (3 acres) is proposed for purchase.

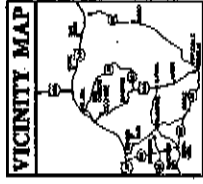
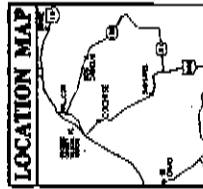
Airport Layout Plan

AIRPORT LAYOUT PLANS

FOR THE

COCHISE COUNTY AIRPORT

WILCOX, ARIZONA



INDEX OF DRAWINGS

1. TITLE SHEET
2. AIRPORT LAYOUT PLAN
3. AIRSPACE DRAWING
4. RUNWAY 3-21 APPROACHES
5. RUNWAY 14-32 APPROACHES
6. CENTERLINE PROFILE
7. TERMINAL AREA PLAN
8. AERIAL PHOTO
9. LAND USE PLAN
10. PROPERTY MAP

WILCOX, ARIZONA

COCHISE COUNTY AIRPORT

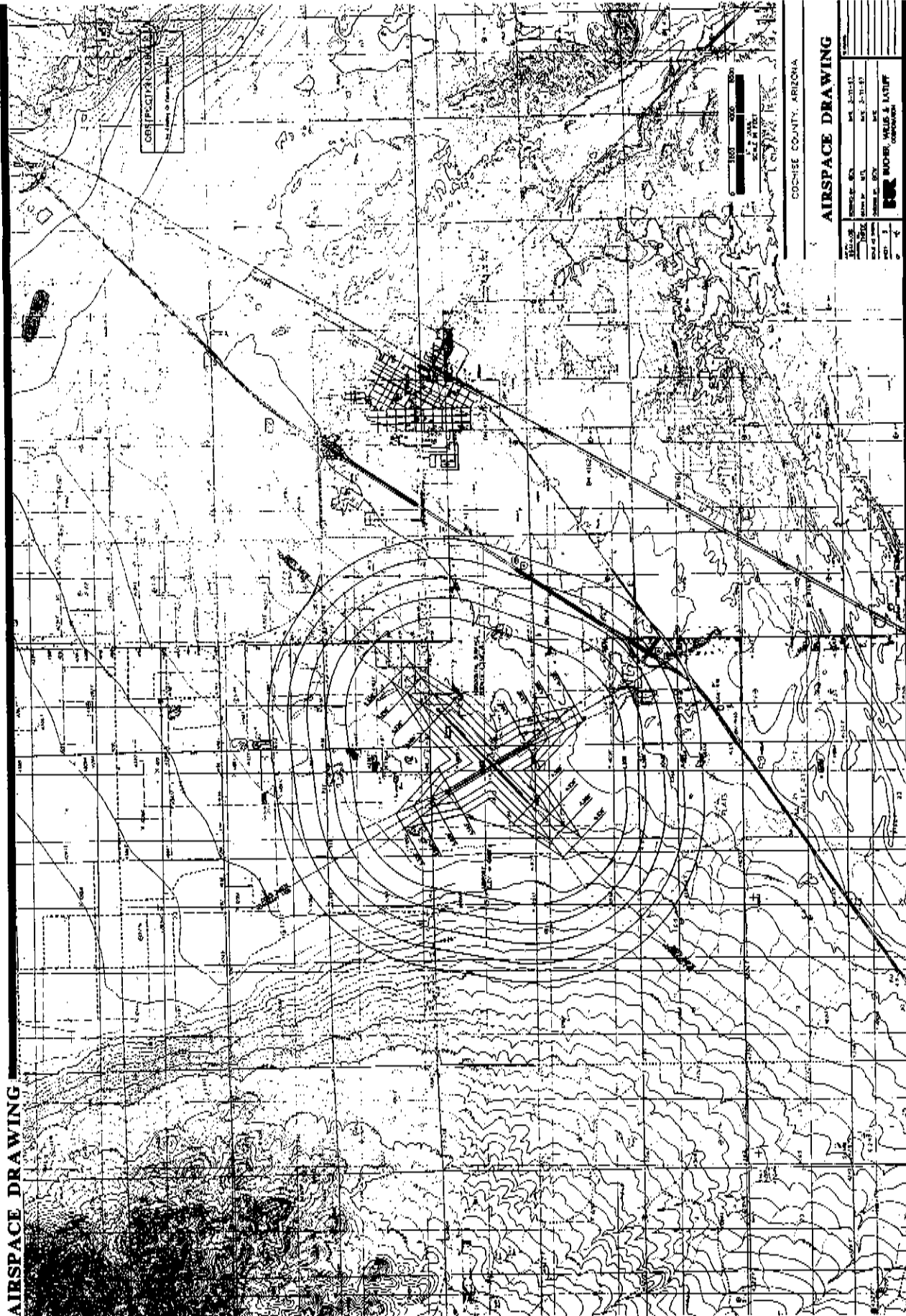
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3	12-1-58	WLB	REVISED
4	1-1-59	WLB	REVISED
5	1-1-59	WLB	REVISED
6	1-1-59	WLB	REVISED
7	1-1-59	WLB	REVISED
8	1-1-59	WLB	REVISED
9	1-1-59	WLB	REVISED
10	1-1-59	WLB	REVISED

W. L. BOHRER, INC.
ENGINEERS & ARCHITECTS
1000 N. GILBERT ST.
TULSA, OKLA. 74106

WILCOX, ARIZONA

AIRSPACE DRAWING



CONTINGENT AVAILABLE
 1. 1000' MSL
 2. 1000' MSL



COCHISE COUNTY, ARIZONA

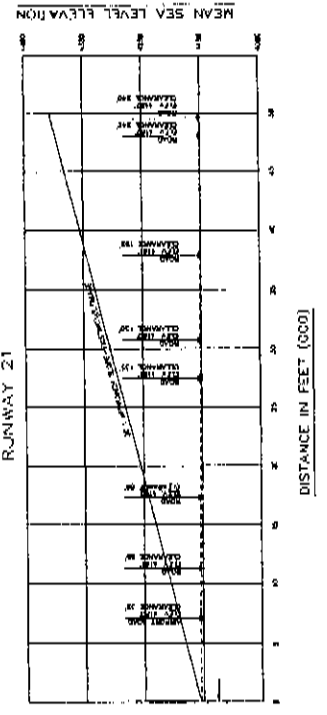
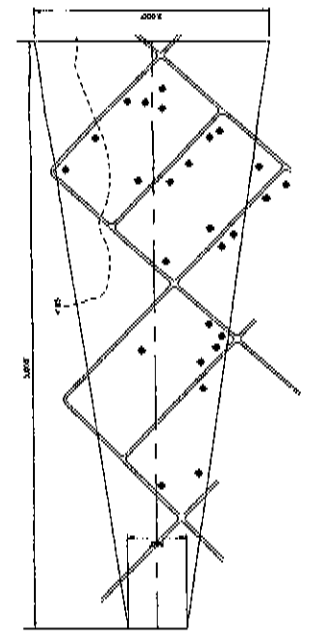
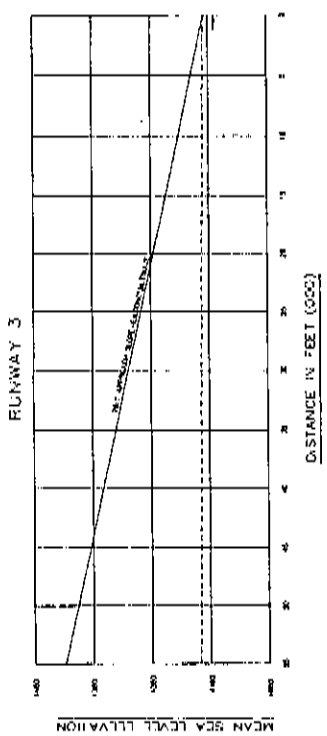
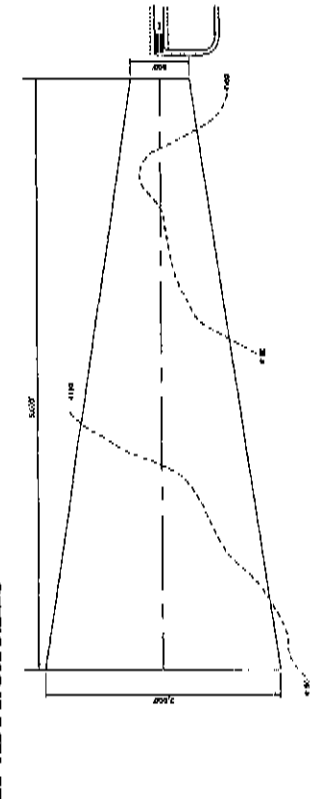
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BY	FOR
CHECKED BY	FOR
APPROVED BY	FOR
DATE	
NO.	

FOR MOORE, WELLS & LADD
 ENGINEERS

PHOENIX • WESLEY • TULSA • DENVER • CHICAGO • PORTLAND

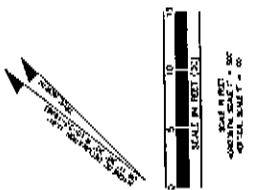
3-21 APPROACHES



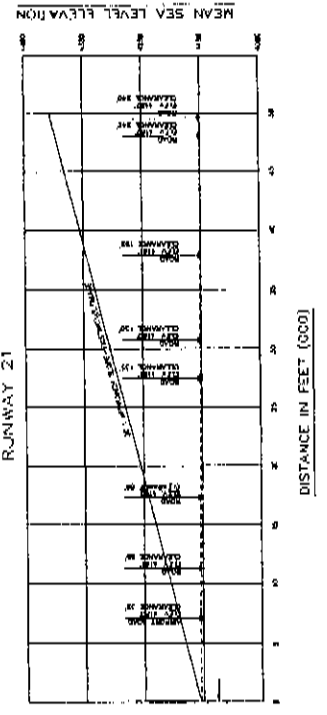
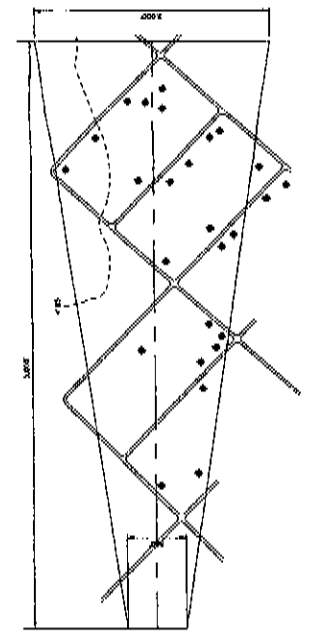
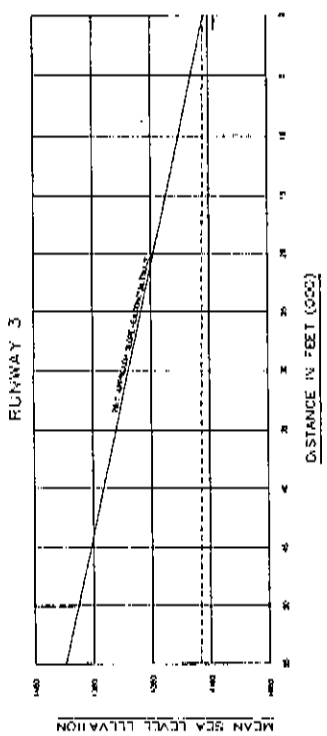
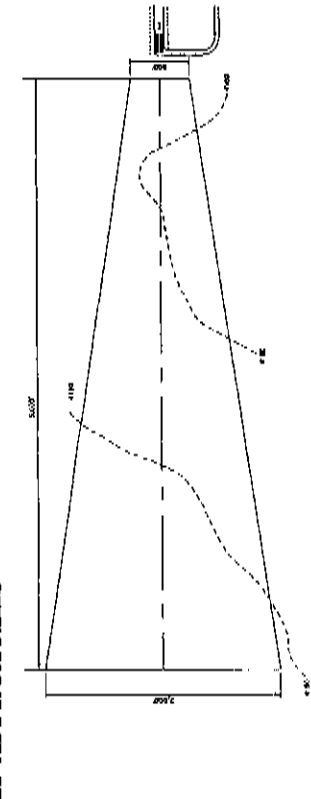
APPROACH ZONES

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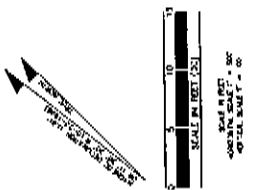
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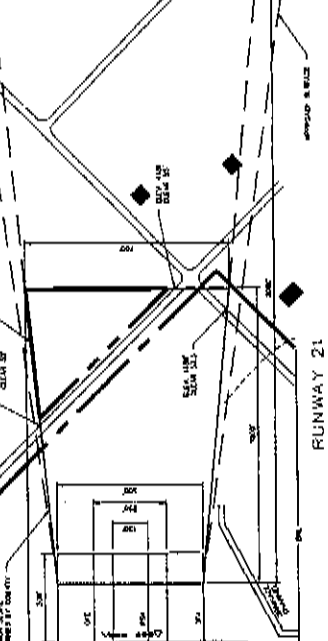
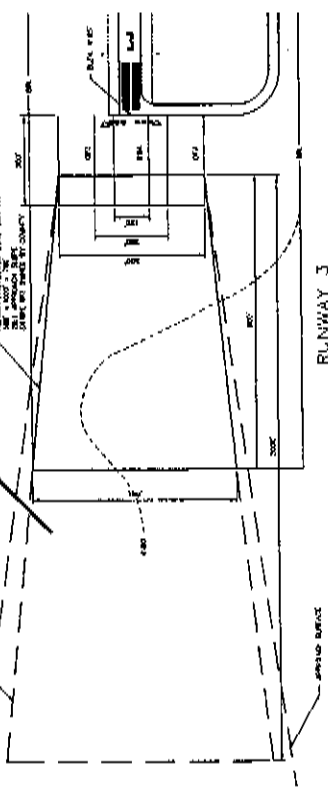
APPROACH ZONES

OBSTRUCTION TABLE

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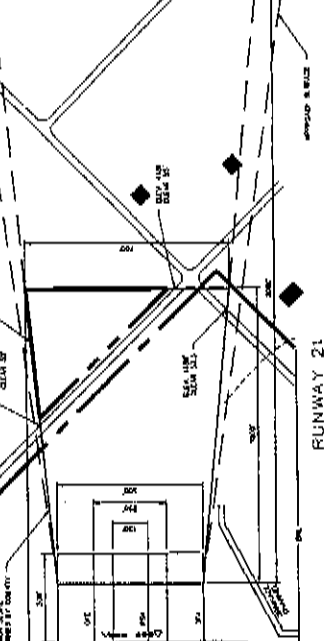
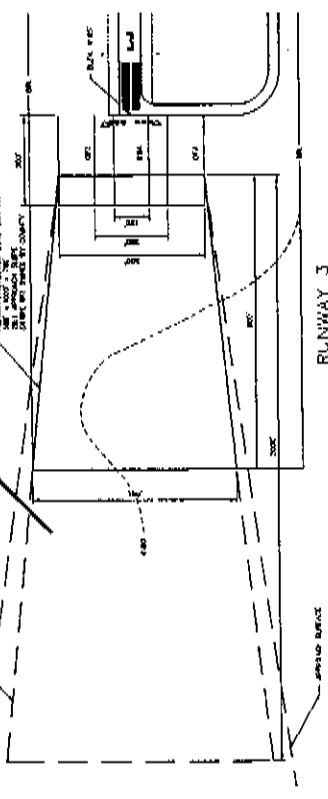


OBSTRUCTION TABLE

• In Class of Obstruction



INNER APPROACH SURFACE



OBSTRUCTION TABLE

• In Class of Obstruction

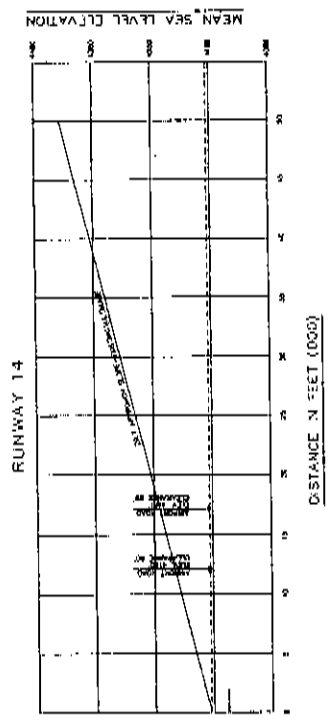
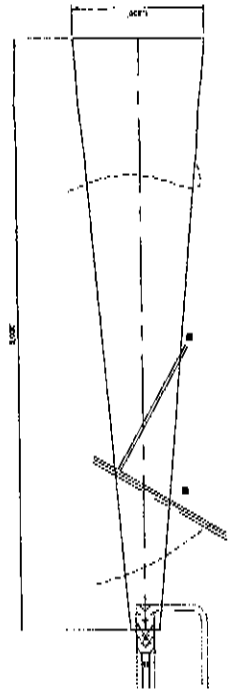
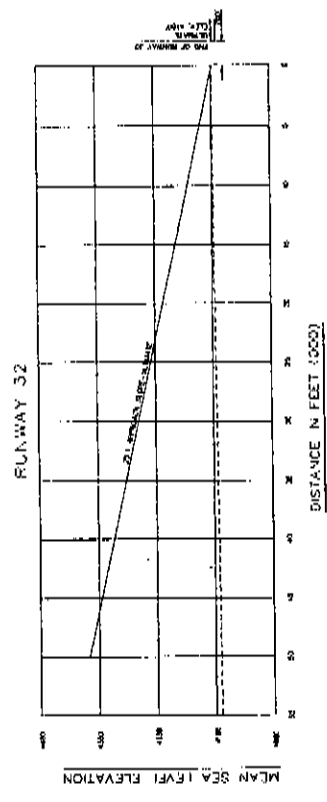
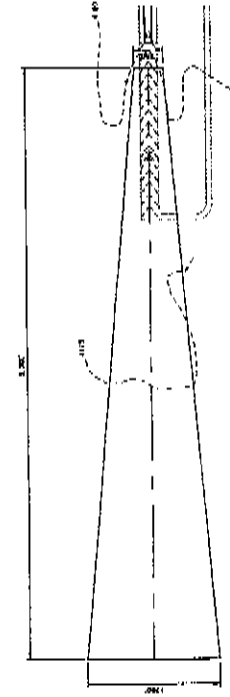


WILLCOX, ARIZONA
COCHISE COUNTY AIRPORT
3-21 APPROACHES

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DESIGNED BY	W. J. BUCHER	DATE	5-1-57
CHECKED BY	W. J. BUCHER	DATE	5-1-57
APPROVED BY	W. J. BUCHER	DATE	5-1-57
SCALE	AS SHOWN		
W. J. BUCHER, WILLIS & RATHJEN CONSULTANTS			

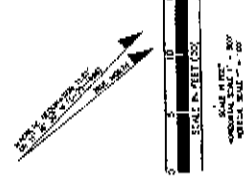
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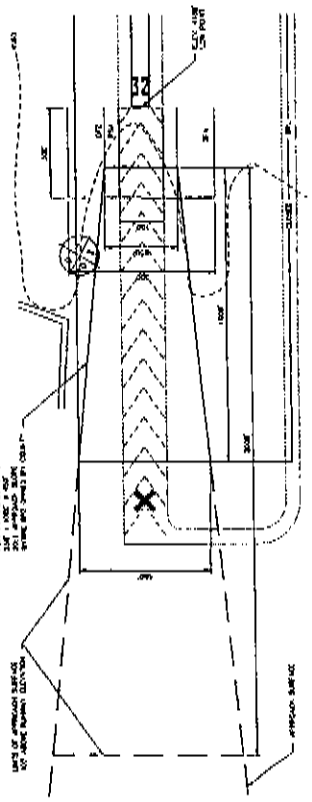


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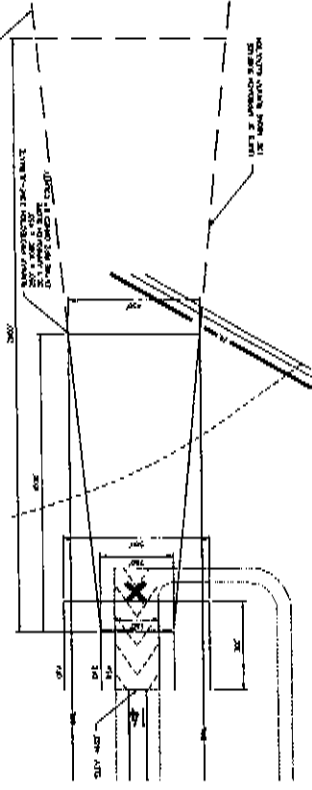
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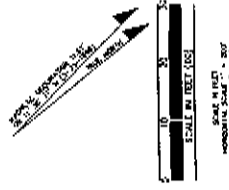
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RUNWAY 14

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MILCOCK, ARIZONA
COCHISE COUNTY AIRPORT
14-32 APPROACHES

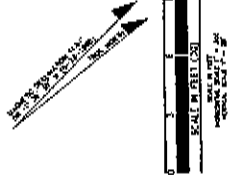
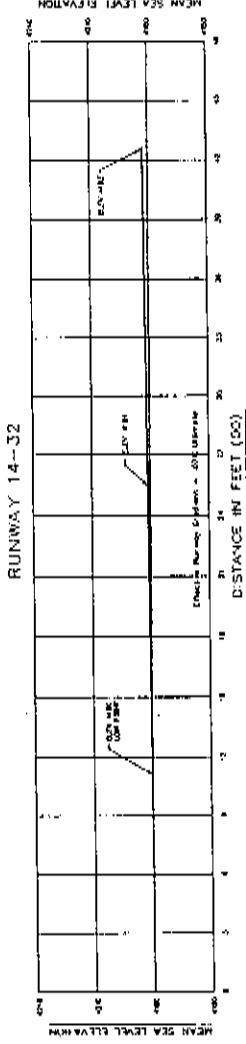
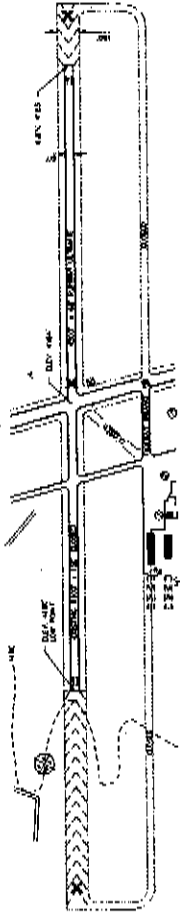
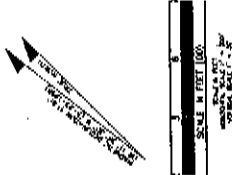
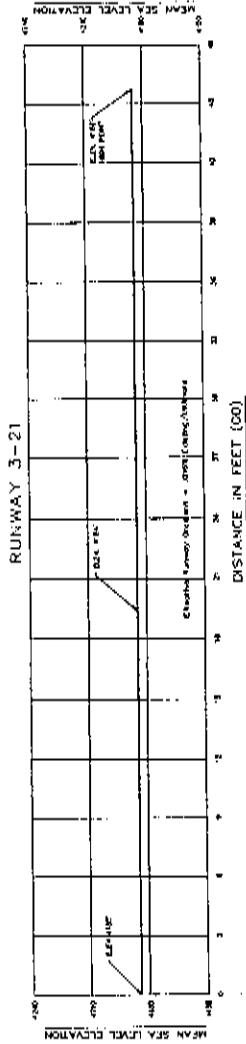
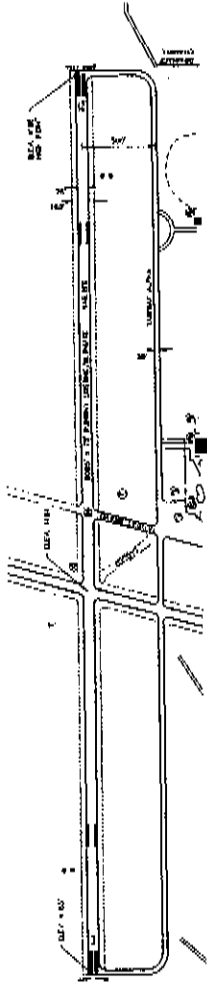
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DESIGNER	JLS	DATE	10/10/10
CHECKER	JLS	DATE	10/10/10
APPROVED	JLS	DATE	10/10/10

JLS
 JAMES L. SULLIVAN
 CONSULTING ENGINEER

SCALE IN FEET
 HORIZONTAL SCALE 1" = 200'
 VERTICAL SCALE 1" = 20'

JAMES L. SULLIVAN • 1045 F. LINDSAY • TULSON • MICHIGAN

**CENTERLINE PROFILE
RUNWAYS 3-21 & 14-32**



WILCOX, ARIZONA
COCHISE COUNTY AIRPORT
**CENTERLINE PROFILE
RUNWAYS 3-21 & 14-32**

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CHECKED BY	DATE	REV.	DATE
W. H. WILSON	10/1/57	1	10/1/57
SCALE	DATE	REV.	DATE
AS SHOWN	10/1/57	1	10/1/57
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WILCOX, ARIZONA
COCHISE COUNTY AIRPORT
**CENTERLINE PROFILE
RUNWAYS 3-21 & 14-32**

WILCOX, ARIZONA
COCHISE COUNTY AIRPORT
**CENTERLINE PROFILE
RUNWAYS 3-21 & 14-32**

WILCOX, ARIZONA
COCHISE COUNTY AIRPORT
**CENTERLINE PROFILE
RUNWAYS 3-21 & 14-32**

WILCOX, ARIZONA
COCHISE COUNTY AIRPORT
**CENTERLINE PROFILE
RUNWAYS 3-21 & 14-32**

AERIAL PHOTO



1"=800' NORTH

COCHISE COUNTY, ARIZONA

AERIAL PHOTO

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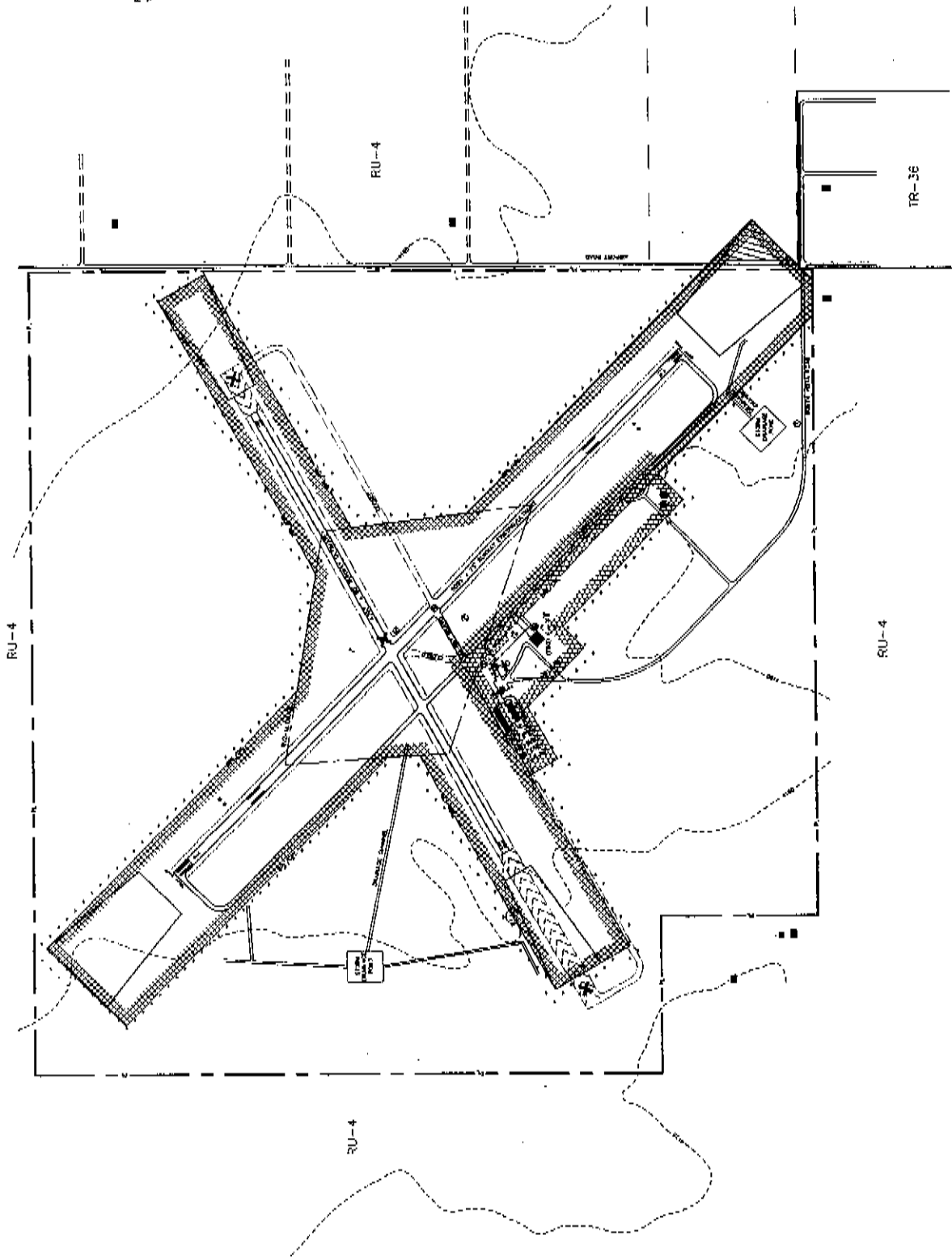
WILSON, WELLS & SATUFF
CONSULTANTS

PHOTOGRAPHY

LAND USE PLAN

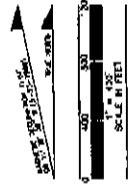
COCHISE COUNTY ZONING

RJ-4 RESIDENTIAL WITH 4 ACRE MINIMUM LOT SIZE
TR-36 RESIDENTIAL WITH 36,000 SF MINIMUM LOT SIZE



LEGEND

- UNIMPAVED OPEN SPACE
- PAVED DRIVEWAYS - 8' MIN W
- PAVED SIDEWALKS
- PAVED PARKING AREAS
- UNIMPAVED
- UNIMPAVED PROPERTY LINE
- UNIMPAVED BOUNDARY BY LINE



WILCOX, ARIZONA

**COCHISE COUNTY AIRPORT
LAND USE PLAN**

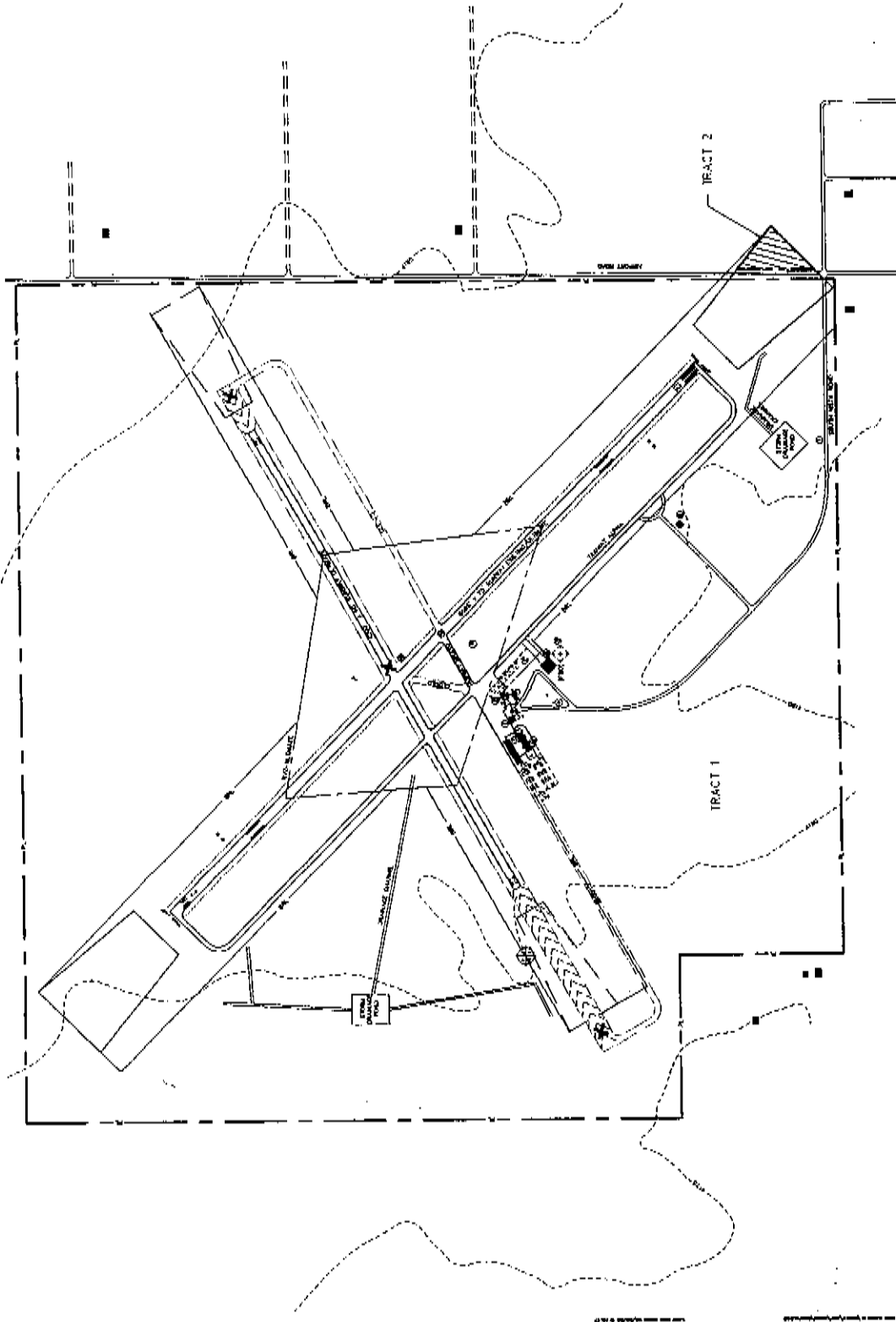
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OWNER	COCHISE COUNTY
DESIGNED BY	PERKINS+WELLS
SCALE	AS SHOWN
PROJECT	COCHISE COUNTY AIRPORT

PERKINS+WELLS
ARCHITECTS

1000 N. 15TH ST. SUITE 200
TULSA, OKLA. 74104
PHONE: (918) 762-1100

MAPS - RECORDS - TRACES - SURVEY - DESIGN - CONSTRUCTION

PROPERTY MAP



LEGEND

- AIRPORT PROPERTY - AC
- EASEMENT
- EASEMENT - 10' BUFFER
- EASEMENT - 20' BUFFER
- EASEMENT - 30' BUFFER
- EASEMENT - 40' BUFFER
- EASEMENT - 50' BUFFER
- EASEMENT - 60' BUFFER
- EASEMENT - 70' BUFFER
- EASEMENT - 80' BUFFER
- EASEMENT - 90' BUFFER
- EASEMENT - 100' BUFFER
- EASEMENT - 110' BUFFER
- EASEMENT - 120' BUFFER
- EASEMENT - 130' BUFFER
- EASEMENT - 140' BUFFER
- EASEMENT - 150' BUFFER
- EASEMENT - 160' BUFFER
- EASEMENT - 170' BUFFER
- EASEMENT - 180' BUFFER
- EASEMENT - 190' BUFFER
- EASEMENT - 200' BUFFER



AIRPORT PROPERTY - DATA TABLE

TRACT NO.	TRACT AREA (AC)	TRACT PERCENTAGE	TRACT DATE ADDED	TRACT PROJECT NO.
1	100.00	100.00%	12-1-1971	100.00000000
2	100.00	100.00%	12-1-1971	100.00000000
TOTAL	200.00	100.00%		

MILCOX, ARIZONA
COCHISE COUNTY AIRPORT
PROPERTY MAP

TRACT NO.	TRACT AREA (AC)	TRACT PERCENTAGE	TRACT DATE ADDED	TRACT PROJECT NO.
1	100.00	100.00%	12-1-1971	100.00000000
2	100.00	100.00%	12-1-1971	100.00000000
TOTAL	200.00	100.00%		

FOR BOB, MIKE & RALPH
 CONSULTANTS

CHAPTER EIGHT

Financing and Management Program

CHAPTER EIGHT - FINANCING AND MANAGEMENT PROGRAM

The purpose of this chapter is to outline those steps that need to be taken to implement the Airport Master Plan program. The chapter will discuss airport development revenue sources, the relationship between airport revenues and expenditures, lease structures, airport management, and marketing of the facility. For the plan to be successful, the County, along with support from the airport users, must be cooperative of airport development as it relates to other public works projects. In addition, effective management will help promote a facility that is acceptable to the user and general public alike -- one that is substantially user-supported and self-sustaining.

AIRPORT DEVELOPMENT FUNDING

Phased development of the proposed airport facility could cost over \$3 million over the next twenty years. However, a substantial portion of this money may be available from other sources. In fact, over 69 percent of the estimated cost for development could come from grants from the Federal Aviation Administration and Arizona Department of Transportation (ADOT). The following sources for revenue and financial assistance are, or may become alternatives for, airport improvement financing.

Federal Aviation Administration

The first national airport improvement program was established soon after the completion of World War II. The purpose of the program was to establish, develop, and maintain a system of airport facilities for the purpose of national defense and for the promotion of interstate commerce.

The most recent program, the Airport and Airways Improvement Program (AIP) provides *90 percent grants for planning and for eligible development improvements*. Money for these AIP grants comes from the Aviation Trust Fund. These user-generated funds are derived from taxes on airline passenger tickets, aviation fuel, lubricants, tires and tubes, aircraft registrations, and other aviation-related fees. None of the money used for the AIP comes from general tax revenues. The funds are normally distributed by the Federal Aviation Administration to eligible airports nationwide under appropriations set by Congress.

COCHISE COUNTY AIRPORT

Airport Master Plan

Grants for planning, development, or noise compatibility projects under the AIP are at or associated with individual public-use airports. A public-use airport is an airport open to the public; and

1. publicly owned, or
2. privately owned but designated by the FAA as a reliever, or
3. privately owned but having scheduled service and at least 2,500 annual enplanements.

To be eligible for a grant, an airport must be included in the National Plan of Integrated Airport Systems (NPIAS). The NPIAS, which is prepared by the FAA and published every 2 years, identifies public-use airports considered necessary to provide a safe, efficient, and integrated system of airports to meet the needs of civil aviation, national defense, and the Postal Service. The NPIAS currently contains approximately 3,600 airports.

The description of eligible grant activities that follows also identifies basic qualifications the airport owner (usually a city or county) must meet in order to receive a grant for that activity. In addition to these basic qualifications, the airport owner must be legally, financially, and otherwise able to assume and carry out the assurances and obligations contained in the project application and grant agreement.

As stated, the distribution of grants under the AIP is primarily managed by the Federal Aviation Administration.

Arizona Department of Transportation

ADOT has its own statewide program to administer and distribute grants to general aviation airports. The state program is divided into a three-part system including commercial service, primary, and secondary systems. Cochise County Airport qualifies as a primary public use airport. Under the primary classification, *Cochise County Airport is eligible for grants on a 90% state grant and 10% local match.* Primary airports meet the following criteria:

- ▲ 10 or more based aircraft and/or more than 2,000 annual operations.
- ▲ have scheduled air carrier service.
- ▲ have regular commuter service.
- ▲ are projected to meet any of the criteria within ten years.

ADOT has a maximum annual grant amount of \$980,000 for eligible airport projects.

A loan program is also available from ADOT which was established to assist the sponsor in three ways. The first is the Grant Advance in which funds are loaned to speed up the development of multi-staged projects. The loan program can also be used toward local matching funds on eligible projects. Finally, the loan program can be used on non-eligible revenue generating projects. These could be construction of hangars or a terminal building.

Local Funding

The total cost for airport development for the Cochise County Airport over the next twenty years has been estimated at \$3,425,000. This amount includes the terminal building and individual conventional and T-hangar buildings. Of this amount, \$2,364,750 is eligible for FAA and ADOT participation and funding. Therefore, it is possible to secure approximately 69 percent of the total twenty-year development costs through funding from the FAA and ADOT programs.

The ability and desire of a community to provide the local matching share on improvement projects is extremely important in the priority of FAA AIP and state funding. The local share in many ways *represents a community's interest and value for the airport*. Those communities that cannot or will not readily support their local share are given less consideration from the FAA or the State. The following text describes methods available to Cochise County for funding airport improvements.

On-Site Industrial or Agricultural Leases

When space is available for these uses, bids can be taken from interested tenants for use of the airport property. Bids should be solicited so the airport is able to receive the best offer and the greatest amount of revenue. Areas available for these types of uses are identified on the Airport Plans. Cochise County is currently leasing 400 acres for agricultural purposes.

Fixed-Base Operator (FBO) Leases

Services provided by fixed-base operators are a major factor in the successful operation of the airport. The more services offered at an airport translate directly to higher usage rates. Facilities and/or land can be leased to an FBO to operate a business.

User Charges

User fees are more common at larger air carrier airports where landing fees are assessed. At smaller general aviation airports, charges can be levied on commercial operators using the field, on aircraft specialty shops, and on hangars and aircraft tie-downs.

Bank Loans

Construction of hangars and some of the lower cost improvements can be financed with conventional bank loans.

General Obligation Bonds

This source of revenue is generated through the issuance of bonds, backed by the general obligation of the community. The revenues from these bonds are generally used only for major construction or improvement projects at the airport.

With the phasing of improvements over the twenty-year planning period, and with the continuation of the Federal and State programs, the local share for any one improvement project has been minimized. Therefore, the issuance of G.A. bonds may not be required during the airport development program.

In-Kind Services

In-kind services can also be used as the local match required by the FAA and ADOT. Labor and equipment used toward the enhancement of aviation in the community is allowed as matching share. This form of funding works well for small communities that have the know-how but not the capital to pay for the service.

Forfeiture of Surplus Military

Often, equipment becomes available from the military which can be used for the airport. Items such as motor graders, auxiliary power units, firefighting and other equipment can often be obtained for very nominal fees.

Other Sources

From a recent survey, the following additional sources of revenue and financial assistance have been employed, or are potential sources for airport improvement funding:

- Regional Funds
- Industrial Revenue Bonds
- Investment of Airport Fund Residuals
- Non-Profit Authorization
- Car Rental
- Auto Parking Meters and Charges
- Business License Tax
- Display Rental
- Restaurant Leases
- Residence Lease/Rental

Many of these sources are not applicable funding sources for major capital improvements, but may become useful during future construction phases.

PROJECTED AIRPORT REVENUE AND EXPENDITURES

The ideal and ultimate goal of any airport should be the capability of supporting its own operation and development through airport user fees. Unfortunately, very few general aviation airports do this. Often this is because of the fee structure being assessed to airport users. For example, an airport cannot expect to meet operating expenses when the revenue received from hangar rentals will not even amortize the cost of construction. This is often the case, which makes it clear why many communities often complain about the high costs of maintaining their airports. These same communities, however, continue to subsidize the airport's operation because they recognize its value to the area. Yet, by establishing reasonable fees, these airports may still not reach the break-even point, but will certainly gain a more positive position financially.

The following sections discuss the areas of revenue potential for Cochise County Airport and make some realistic suggestions for fee structures to help meet operating expenses and to help support the capital improvement program. It should be noted that the existing agreement between the FBO and County is working well and should continue.

Every effort should be made to make the airport as self-sufficient as possible. The best way of accomplishing this is through adequate user fees. Based on user revenue rates developed from the analysis of regional U.S. airports, the following rates, as given on the next pages, would be applicable to the Cochise County Airport.¹ The following section suggests some parameters in which new leases could be structured. However, local economic factors must be considered when new leases are formed.

Lease Agreements

Those areas on the airport which are not expressly required for aeronautical purposes should provide income to the airport through a variety of lease agreements. Property leases range from ground leases for those individuals wanting to build hangars on the airport, to agricultural leases, to rental of space in the terminal building.

Terminal Building Area - The terminal/administration building is to remain at approximately 1,300 square feet, of which about 35% could be leased for office space. For 2002, average rent for office space would be about \$5.50 per square foot annually.

¹ User revenue rates developed from information contained in An Analysis of Airport Rates and Charges, National Air Transportation Association, 1992.

Terminal Building revenue rates suggested through the plan period are:

1997 - \$5.00/square foot/year
2002 - \$5.50/square foot/year
2007 - \$6.10/square foot/year
2012 - \$6.80/square foot/year
2017 - \$7.50/square foot/year

Private T-Hangar or Conventional Ground Lease Areas - As development at the airport occurs, construction of privately-owned hangar space should be encouraged. Suggested user revenue rates should be lower than those of any County-owned space to encourage private hangar development. Assumes that a 1,600 square foot hangar is constructed.

Suggested user revenue rates are:

1997 - \$0.25/square foot/year
2002 - \$0.30/square foot/year
2007 - \$0.35/square foot/year
2012 - \$0.40/square foot/year
2017 - \$0.50/square foot/year

County-Owned T-Hangars - The number of T-hangars on the airport is expected to increase through the plan period. Rental rates for County-owned facilities must be sufficient to cover amortization and construction costs, assuming an average of 1,200 square feet per hangar.

Suggested user revenue rates are:*

1997 - \$1.20/square foot/year = \$120/month
2002 - \$1.50/square foot/year = \$150/month
2007 - \$1.55/square foot/year = \$155/month
2012 - \$1.60/square foot/year = \$160/month
2017 - \$1.65/square foot/year = \$165/month

*Based upon new hangar construction

County-Owned Conventional Hangars - Any hangars constructed by the County must provide sufficient annual income to pay for construction.

Suggested user rates are:

1997 - \$4.90/square foot/year
2002 - \$5.10/square foot/year
2007 - \$5.50/square foot/year
2012 - \$5.90/square foot/year
2017 - \$6.30/square foot/year

Tie-Downs - With increased apron and tie-down areas planned throughout the phases of the Master Plan, it is anticipated that aircraft tie-down fees for based aircraft could provide significant yearly income. A tie-down of \$10 per month or \$3 per night was used in this analysis and escalating as follows:

Based Aircraft:

1997 - \$10.00/space/month
2002 - \$15.00/space/month
2007 - \$20.00/space/month
2012 - \$25.00/space/month
2017 - \$30.00/space/month

Itinerant Aircraft:

1997 - \$3.00/night
2002 - \$4.00/night
2007 - \$5.00/night
2012 - \$6.00/night
2017 - \$8.00/night

Fuel Sales - Based on 1996 fuel sales figures, it is estimated that about 1,900 gallons of fuel are sold per based aircraft. Assuming that level, annual fuel sales would be expected to total 64,600 gallons by 2017. By continuing to collect fuel flowage fees at the airport, the County will generate more revenue as based aircraft and aircraft operations increase.

Concessions and Miscellaneous - There are several other sources of income that would likely be applicable to the new airport including royalties from vending machines, car rental, pay telephones, etc. Additional percentages from FBO sales might include oil, engine maintenance, and pilot services. In general, revenues from concessions are estimated to be about five cents per operation.

Operating Expenses

For the most part, operating expenses at general aviation airports fall into four main categories: administration/maintenance, utilities, and supplies and miscellaneous. Normally, the number of based aircraft at an airport and level of activity is a rough indicator of levels of operating expenses; that is, as the numbers of based aircraft increase, operating expenses increase at relatively the same proportion. Operating deficits at a similar utility-type airport range from about \$10,000 to \$40,000 annually depending on types of services provided and maintenance procedures.

Administration - Administrative costs include items such as employee salaries, benefits, liability insurance, dues, etc.

Maintenance - General maintenance costs include the day-to-day upkeep of the airfield and terminal area facilities. These costs include runway and apron crack sealing, mowing, snow removal, solid waste disposal, and repairs to all airport-owned equipment and facilities.

Utilities - Electricity for airfield lighting-- runway and taxiway lights, the rotating beacon, terminal building requirements, etc. -- will account for the primary utility expense at the new airport. Other utilities for the terminal building include gas, sewage treatment, water, and phones. Utilities to privately-owned buildings would be paid by the tenants.

Supplies and Miscellaneous - This general category includes those items and commodities required for the day-to-day operation of the airport. These include office supplies, minor equipment, postage, etc. At general aviation airports, these costs normally are about 10 percent of other operating expenses.

COCHISE COUNTY AIRPORT

Airport Master Plan

Table 8.1 Cash Flow Analysis Cochise County Airport				
Revenues	Existing	2002	2007	2012
County Owned Hangars	\$4,400	\$7,800	\$8,800	\$9,800
Federal/State Grants	236,250	-- *	-- *	-- *
Existing Ground Lease	400	600	800	1,000
Fuel Sales	1,500	2,100	2,700	3,300
Future Ground Lease from Hangars	0	2,500	3,000	3,500
Tiedown Fees	0	360	480	600
Total Operating Revenue	\$242,550	\$13,360	\$15,780	\$18,200
Expenses				
Expenses	Existing	2002	2007	2012
Supplies (Office, Jan. Misc.)	\$1,050	\$1,217	\$1,410	\$1,635
Motor Vehicle	450	522	605	701
Airport Professional Services (Grants, Construction, Planning)	270,875	-- *	-- *	-- *
Telephone	1,300	1,506	1,745	2,023
Postage/Legal Notices	400	463	537	622
Insurance	12,100	14,023	16,253	18,837
Electricity	8,000	5,800	6,722	7,791
Refuse Disposal	528	612	709	822
B & G (Bowie Airstrip)	3,500	0	0	0
Building and Grounds	0	3,000	3,500	4,000
Fuel Tanks and Fees	12,100	2,400	2,800	3,250
Total Expenses	\$302,103	\$29,480	\$34,281	\$39,681
Net Operating Income <Deficit> Less Grants	<\$42,228>	<\$16,120>	<\$18,501>	<\$21,481>

* Note - Federal and state grants cannot be assumed. Cash flow analysis for purpose of reviewing airport driven revenues and expenses.

COCHISE COUNTY AIRPORT

Airport Master Plan

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APPENDIX

WILLCOX - COCHISE COUNTY AIRPORT SURVEY
1996 Airport Master Plan

Dear Aircraft Owner or Pilot:

We are presently preparing an Airport Master Plan for the Willcox - Cochise County Airport. As an aircraft operator, you could provide valuable information concerning airport usage, current problems and long-range improvement priorities. We are interested in your opinions, comments, and suggestions, and assure you that your response will be held in our strictest confidence.

Below is a brief questionnaire which we would appreciate your completing and returning to us in the postage-paid, self-addressed envelope. The information you provide is important and greatly appreciated. Thank you for your help!

Sincerely,

BUCHER, WILLIS & RATLIFF CORPORATION

Kansas City, Missouri

Contact: Brad Weisenburger/Rick Bowen 1-800-748-8276

Name:	_____	Aircraft:	_____
Address:	_____	Tail No.:	_____
	_____	Aircraft:	_____
Phone:	_____	Tail No.:	_____
	Date:		_____

1. Is your aircraft based at the Willcox-Cochise County Airport? Yes No
If No, please indicate where? _____
If No, why not at Willcox? _____
If No, would you consider basing at Willcox-Cochise County Airport: Yes No
2. How many years have you been an aircraft owner in the Willcox Area? _____
3. On average, how many flights do you conduct per month at Willcox-Cochise County Airport? _____
4. Please indicate the "type" and percent of activity you normally use your aircraft for?

Recreational:	<input type="checkbox"/>	_____ %
Personal Business:	<input type="checkbox"/>	_____ %
Corporate:	<input type="checkbox"/>	_____ %
Agricultural:	<input type="checkbox"/>	_____ %
Other:	<input type="checkbox"/>	_____ %
5. What most accurately describes your future aircraft ownership plans?

Keep existing aircraft	_____	Purchase larger aircraft	_____
Purchase additional aircraft	_____	Sell aircraft	_____
6. On average, how many passengers do you carry per trip? _____
7. Would you consider building a hangar on the airport on land leased from the county? _____

(OVER)

WILLCOX - COCHISE COUNTY AIRPORT SURVEY
1996 Airport Master Plan

8. Are there adequate services at the Willcox-Cochise County Airport? Yes No

9. Do you travel to other airports for routine aircraft service? Yes No
 If yes, please explain: _____

10. Please describe any aircraft service, facility or equipment related problems associated with the airport. _____

11. What Willcox-Cochise County Airport FBO services do you utilize:
 Fuel Maintenance Neither

12. Please rate the importance of the following equipment service characteristics (5 is the most important; 1 being the least);

Fuel Cost and Supply	_____	Hangar Space	_____
Maintenance/Repair Facility	_____	Instrument Procedures	_____
Runway Length	_____	Terminal Building Facilities	_____
Runway Surface	_____	Terminal Area Nav aids	_____
Runway/Approach Lighting	_____	Crosswind Runway Availability	_____
Approach Obstructions	_____	Courtesy/Rental Car Availability	_____
Safe/Reliable Facilities	_____	Airport Access/Location	_____

13. What would you consider as an appropriate monthly rental charge if the County built a;
 T-hangar? \$ _____ Shade hangar? \$ _____

14. How would you rate the overall community attitude toward the existing Airport?
 Strong Support ____ Moderate Support ____ Indifferent ____ Opposed ____

15. Would you support a bond election for airport improvements? Yes No

16. Please offer *any* comments which are important to you, but not previously addressed.

*Please insert this questionnaire into the postage paid, self-addressed envelope.
 Thank you for your time!*

1. Yes - 10
No - 9
2. Avg. 9 years
3. Range 25-2 operations per month
4. 40% Recreational
45% Personal Business
15% Corporate
5. Keep Existing -14
Add - 1
Purchase Larger - 2
Sell - 0
6. 1-2 passengers most common answer
7. Yes - 9
No - 9
8. Yes - 12
No - 6 (need avionics)
9. Yes - 4 (avionics)
No - 11
10. Hangar Space - 6, Taxiway Repair - 3, Ramp Conditions -2
11. Fuel - 14, Maintenance -9, Neither - 1
12. Hangar Space - 10, Safe Facilities - 10, Fuel Cost - 9, Crosswind -6, Runway Surface -6,
Maintenance - 5, Terminal Facilities -2,
13. T-Hangar - \$100 most common answer, range \$15- \$150
Shade Hangar - \$ 30 most common answer, range \$15-\$75
14. Strong - 0
Moderate - 5
Indifferent - 12
Opposed - 0
15. Yes - 7
No - 4
16. Good comments about current FBO
Need Hangar Space - several expressed interest to build
County not responsive to airport needs and hinders hangar development
Airport is important due to location in county and to Willcox

HYDRIC SOILS LIST

Willcox Area (665)

SYMBOL

NAME

Ce	Cogswell clay loam, alkali (minor inclusions of intermittent ponded areas)
Ct	Crot sandy loam (intermittent ponded areas and wet spots are a part of this unit)
Du	Duncan loam (intermittent ponded areas are a part of this unit)
Dv	Duncan loam, shallow variant (intermittent ponded areas are a part of this unit)
Go	Gothard fine sandy loam (intermittent ponded areas are a part of this unit)
Gt	Guest clay loam (inclusion of wet spots in area south of Sierra Bonita Reservoir only)
Pr	Pridham loam (has small wet areas throughout the unit)
SnA	Sonoita sandy loam, 0 to 2 percent slopes (inclusion of wet spots in area south of Sierra Bonita Reservoir only)
St	Stewart loam (intermittent ponded areas are a part of this unit)
TrC	Torriorthents, hummocky (intermittent ponded areas are a part of this unit)

FARMLAND CONVERSION IMPACT RATING

PART I (To be completed by Federal Agency)		Date Of Land Evaluation Request	2/18/97
Name Of Project	COCHISE COUNTY AIRPORT - WILLOW	Federal Agency Involved	FAA
Proposed Land Use	AIRPORT	County And State	COCHISE COUNTY, AZ
PART II (To be completed by SCS)		Date Request Received By SCS	

Does the site contain prime, unique, statewide or local important farmland? (If no, the FPPA does not apply -- do not complete additional parts of this form).		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Acres Irrigated	Average Farm Size
Major Crop(s)	Farmable Land In Govt. Jurisdiction Acres: %	Amount Of Farmland As Defined in FPPA Acres: %		Date Land Evaluation Returned By SCS	
Name Of Land Evaluation System Used	Name Of Local Site Assessment System				

PART III (To be completed by Federal Agency)		Alternative Site Rating			
		Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly		0			
B. Total Acres To Be Converted Indirectly		0			
C. Total Acres In Site		600			

PART IV (To be completed by SCS) Land Evaluation Information					
A. Total Acres Prime And Unique Farmland		0			
B. Total Acres Statewide And Local Important Farmland		0			
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted		0			
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value					

PART V (To be completed by SCS) Land Evaluation Criterion					
Relative Value Of Farmland To Be Converted (Scale of 0 to 100 Points)					

PART VI (To be completed by Federal Agency)		Maximum Points			
Site Assessment Criteria (These criteria are explained in 7 CFR 658.5(b))					
1. Area In Nonurban Use					
2. Perimeter In Nonurban Use					
3. Percent Of Site Being Farmed					
4. Protection Provided By State And Local Government					
5. Distance From Urban Builtup Area					
6. Distance To Urban Support Services					
7. Size Of Present Farm Unit Compared To Average					
8. Creation Of Nonfarmable Farmland					
9. Availability Of Farm Support Services					
10. On-Farm Investments					
11. Effects Of Conversion On Farm Support Services					
12. Compatibility With Existing Agricultural Use					
TOTAL SITE ASSESSMENT POINTS		160			

PART VII (To be completed by Federal Agency)					
Relative Value Of Farmland (From Part V)		100	0		
Total Site Assessment (From Part VI above or a local site assessment)		160	45		
TOTAL POINTS (Total of above 2 lines)		260	45		

Site Selected: EXISTING SITE	Date Of Selection: 3/10/97	Was A Local Site Assessment Used? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
------------------------------	----------------------------	--

Reason For Selection:
 SITE SELECTED BASED UPON EXISTING TOPOGRAPHY, ACCESS, AIRSPACE + COMPATIBLE LAND USE.

March 24, 1997

RECEIVED

MAR 28 1997

Bradley C. Weisenburger, ASLA
Bucher, Willis & Ratliff
7920 Ward Parkway
Kansas City, Missouri 64114-2021

BUCHER, WILLIS & RATLIFF
ARCHITECTS
KANSAS CITY, MO

RE: Willcox; Cochise County Airport, Environmental Assessment; Cochise County and FAA

Dear Mr. Weisenburger,

Thank you for consulting our office regarding the preparation of an Environmental Assessment for this proposed undertaking. I have reviewed the information submitted and have the following comments.

1. Your letter indicates that planned activities include additional runway and taxiway construction and expansion of the terminal area.
2. Our records check does not indicate that archaeological sites or other cultural resources have been identified within or adjacent to the area identified on your map and photograph; however, the property has not been systematically surveyed.
3. Therefore we recommend that the area be surveyed by a qualified archaeologist in order to locate any existing cultural resources prior to any ground-disturbing activity. Attached is a list of consultants who could do the work. Once the survey report has been completed, a copy should be sent to this office for review and comment.

Your continued cooperation with this office in considering the impacts of this project on historic preservation is greatly appreciated. If you have any questions, please contact me at (602) 542-7137 or 542-4009.

Sincerely,

Carol Heathington
Compliance Specialist
State Historic Preservation Office



1300 W. Washington
Phoenix, Arizona
85007

Tel: 602-542-4174
Fax: 602-542-4188

<http://www.pr.state.az.us>

Fife Symington
Governor

STATE PARKS
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Kenneth E. Travous
Executive Director

Charles R. Eatherly
Deputy Director

**ARIZONA SHPO ARCHAEOLOGICAL AND ETHNOGRAPHIC
CONSULTANTS LIST**

(Revised March 24, 1997)

**--THIS LIST IS NOT A COMPREHENSIVE LIST OF QUALIFIED
CONSULTANTS IN THE STATE OR AN OFFICIAL ENDORSEMENT
BY THE SHPO--**

CRITERIA FOR INCLUSION ON THIS LIST:

- 1) Firm or individual must be based in or have an office in Arizona.
Note: The SHPO does maintain a file on out-of-state firms that is available to the public upon request.
- 2) Firm or individual must meet the Secretary of Interior's Standards for professional qualifications.
- 3) Firm or individual must have successfully completed a project reviewed by the SHPO within the last 5 years.
- 4) Firm or individual must have submitted a written request to be on the list and documentation of professional qualifications to the SHPO.

Archaeological Consulting Services, Ltd., Attn: Margerie Green, Ph.D.
424 W. Broadway Road, Tempe, AZ 85282. Phone: (602) 894-5477.
Fax: (602) 894-5478.

Archaeological Research Services, Inc., Attn: Lyle M. Stone, Ph.D.
2124 S. Mill Avenue, Tempe, AZ 85282. Phone: (602) 966-3508.
Fax: (602) 303-0080.

James E. Ayres, Archaeologist
1702 East Waverly, Tucson, AZ 85719. Phone: (520) 325-4435 -or-
(520) 620-1480.

Aztlan Archaeology, Inc., Attn: Laurie V. Slawson, Ph.D.
P.O. Box 44068, Tucson, AZ 85733-4068. Phone: (520) 620-1480.
Fax: (520) 620-1432.

Belagana Research Institute
P.O. Box 44068, Tucson, AZ 85733-4068. Phone: (520) 620-1480.
Fax: (520) 620-1432.

David S. Boloyan, Archaeologist/Ethnologist
1323 West Laird Street, Tempe, AZ 85281. Phone: (602) 858-9563.

Andrew L. Christenson, Archaeological Consultant
746 Redondo Road, Prescott, AZ 86303. Phone: (520) 445-7341.

Cultural & Environmental Systems, Inc., Attn: Mary Lou Heuett
P.O. Box 2324, Tucson, AZ 85702-2324. Phone: (520) 622-2782.
(Same as Phone #) Fax: (520) 622-2782.

Dames & Moore, Inc., Attn: J. Simon Bruder, Ph.D.
7500 N. Dreamy Draw Drive, Suite 145, Phoenix, AZ 85020.
Phone: (602) 371-1110.
Fax: (602) 861-7431.

Desert Archaeology, Inc., Attn: William H. Doelle, Ph.D.
3975 N. Tucson Boulevard, Tucson, AZ 85716.
Phone: (520) 881-2244.
Fax: (520) 881-0325.

Gila River Indian Community, Cultural Resource Management Program
Post Office Box E, Sacaton, AZ 85247.
Phone: (520) 562-3301.
Fax: (520) 562-4008.

Howard Archaeological Surveys, Jerry B. Howard, Principal
3302 N. Salida del Sol, Chandler, AZ 85224. Phone: (602) 345-2185, and/or
(602) 644-3428.

Kinlani Archaeology Ltd, Cultural Resource Consultants, Attn: Deborah Dosh
P. O. Box 67, Flagstaff, AZ 86002. Phone: (520) 526-9797.
Fax: (520) 527-9797.

Robert A. Larkin, M.S., M.A., SFC Engineering
7776 Pointe Parkway West, Suite 290, Phoenix, AZ 85044. Phone: (602) 438-2200.
Fax: (602) 431-9562.

Northland Research, Inc.,
(Flagstaff) P.O. Box 1401, Flagstaff, AZ 86002. Phone: (520) 774-5057.
Attn: William S. Marmaduke, Ph.D. Fax: (520) 774-3089.

(Tempe) 2308 S. Rural Road, Tempe, AZ 85282-2425. Phone: (602) 894-0020.
Attn: Ms. Johna Hutira Fax: (602) 894-0957.

Old Pueblo Archaeology Center, Attn: Allen Dart, Executive Director
1000 E. Fort Lowell Road, Tucson, AZ. Phone: (520) 798-1201.
Fax: (520) 798-1966.
Mailing Address: P.O. Box 40577, Tucson, AZ 85717-0577.

P.A.S.T. - Professional Archaeological Services & Technologies
5036 Golder Ranch Road, Tucson, AZ 85739-9602. Phone: (520) 825-3536.
Fax: (520) 825-2636.

Pima Community College, Archaeology Centre, Attn: David V.M. Stephen, Director/Professor
2202 W. Anklam Road, Tucson, AZ 85709-0001. Phone: (520) 884-6022.

Plateau Mountain Desert Research, Attn: Donald E. Weaver, Jr.
P.O. Box 3463, Flagstaff, AZ 86003. Phone: (520) 779-3274.

Dr. Glen E. Rice, Head, OCRM/Department of Anthropology
Arizona State University, Box 872402, Tempe, AZ 85287-2402. Phone: (602) 965-7181.

Rincon Archaeology/SEC, Inc., Attn: Noel Logan/Sarah Horton
(Rincon) - P.O. Box 2783, Sedona, AZ 86339. Phone: (520) 282-1544.

(SEC) - 20 Stutz Bearcat #6, Sedona, AZ 86336. Phone: (520) 282-7787.
Fax: (520) 282-0731.

(OVER)



United States Department of the Interior

Fish and Wildlife Service

Arizona Ecological Services Field Office

2321 W. Royal Palm Road, Suite 103

Phoenix, Arizona 85021-4951

(602) 640-2720 Fax (602) 640-2730



In Reply Refer To:

AESO/SE

2-21-97-I-161

CCN 97-0332

February 28, 1997

RECEIVED

MAR 03 1997

Mr. Bradley Wessenburger, ASLA
Bucher, Willis & Ratliff Corporation
7920 Ward Parkway
Kansas City, Missouri 64114-2021

RECEIVED
KANSAS CITY, MO

RE: Cochise County (Willcox) Airport - BWR Job Number 96-414

Dear Mr. Wessenburger:

This letter responds to your February 20, 1997, request for an inventory of threatened or endangered species, or those that are proposed to be listed as such under the Endangered Species Act of 1973, as amended (Act), which may potentially occur in your project area (Cochise County). The attached list may include candidate species as well. In the past, the U.S. Fish and Wildlife Service has provided project-specific species lists and information. However, staff reductions no longer permit us to provide this detailed level of assistance. We regret any inconvenience this may cause you and hope the enclosed county list of species will be helpful. In future communications regarding this project, please refer to consultation number 2-21-97-I-161.

The enclosed list of the endangered, threatened, proposed, and candidate species includes all those potentially occurring anywhere in the county, or counties, where your project occurs. Please note that your project area may not necessarily include all or any of these species. The information provided includes general descriptions, habitat requirements, and other information for each species on the list. Also on the enclosed list is the Code of Federal Regulations (CFR) citation for each listed or proposed species. Additional information can be found in the CFR and is available at most public libraries. This information should assist you in determining which species may or may not occur within your project area. Site-specific surveys could also be helpful and may be needed to verify the presence or absence of a species or its habitat as required for the evaluation of proposed project-related impacts.

Endangered and threatened species are protected by Federal law and must be considered prior to project development. If the action agency determines that listed species or critical habitat may be adversely affected by a federally funded, permitted, or authorized activity, the action agency must request formal consultation with the Service. If the action agency determines that the planned action may jeopardize a proposed species or destroy or adversely modify proposed critical habitat, the action agency must enter into a section 7 conference with the Service.

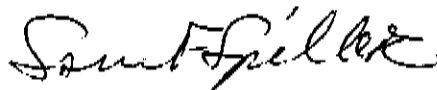
Candidate species are those which are being considered for addition to the list of threatened or endangered species. Candidate species are those for which there is sufficient information to support a proposal for listing. Although candidate species have no legal protection under the Act, we recommend that they be considered in the planning process in the event that they become listed or proposed for listing prior to project completion.

If any proposed action occurs in or near areas with trees and shrubs growing along watercourses, known as riparian habitat, the Service recommends the protection of these areas. Riparian areas are critical to biological community diversity and provide linear corridors important to migratory species. In addition, if the project will result in the deposition of dredged or fill materials into waterways or excavation in waterways, we recommend you contact the Army Corps of Engineers which regulates these activities under Section 404 of the Clean Water Act.

The State of Arizona protects some plant and animal species not protected by Federal law. We recommend you contact the Arizona Game and Fish Department and the Arizona Department of Agriculture for State-listed or sensitive species in your project area.

The Service appreciates your efforts to identify and avoid impacts to listed and sensitive species in your project area. If we may be of further assistance, please contact Tom Gatz.

Sincerely,



Sam F. Spiller
Field Supervisor

Enclosure

cc: Director, Arizona Game and Fish Department, Phoenix, AZ

2/11/97

LISTED TOTAL= 19

NAME: CANELO HILLS LADIES' TRESSES

SPIRANTHES DELITESCENS

STATUS: ENDANGERED

CRITICAL HABITAT: No RECOVERY PLAN: No CFR: 62 FR 665, 01-06-97

DESCRIPTION: SLENDER ERECT MEMBER OF THE ORCHID FAMILY (ORCHIDACEAE).

FLOWER: STALK 50 CM TALL, MAY CONTAIN 40 WHITE FLOWERS
SPIRALLY ARRANGED ON THE FLOWERING STALK.

ELEVATION

RANGE: about 5000 FT.

COUNTIES: COCHISE, SANTA CRUZ

HABITAT: FINELY GRAINED, HIGHLY ORGANIC, SATURATED SOILS OF CIENEGAS

POTENTIAL HABITAT OCCURS IN SONORA, MEXICO, BUT NO POPULATIONS HAVE BEEN FOUND.

NAME: COCHISE PINCUSHION CACTUS

CORYPHANTHA ROBBINSORUM

STATUS: THREATENED

CRITICAL HABITAT: No RECOVERY PLAN: Yes CFR: 51 FR 952, 1-9-1986

DESCRIPTION: A SMALL UNBRANCHED CACTUS WITH NO CENTRAL SPINES AND 11-17

WHITE RADIAL SPINES. THE BELL-SHAPED FLOWERS ARE BORNE ON
THE ENDS OF TUBERCULES (Protrusions). FLOWERS: BELL SHAPED,
PALE YELLOW-GREEN. FRUITS: ORANGE-RED TO RED

ELEVATION

RANGE: >4200 FT.

COUNTIES: COCHISE AND SONORA, MEXICO

HABITAT: SEMIDESERT GRASSLAND WITH SMALL SHRUBS, AGAVE, OTHER CACTI, AND GRAMA GRASS.

GROWS ON GRAY LIMESTONE HILLS.

NAME: HUACHUCA WATER UMBEL

LILAEOPSIS SCHAFFNERIANA ssp *RECURVA*

STATUS: ENDANGERED

CRITICAL HABITAT: No RECOVERY PLAN: No CFR: 62 FR 665, 01-06-97

DESCRIPTION: HERBACEOUS, SEMI-AQUATIC PERENNIAL IN THE PARSLEY FAMILY
(UMBELLIFERAE) WITH SLENDER ERECT, HOLLOW, LEAVES THAT GROW
FROM THE NODES OF CREEPING RHIZOMES. FLOWER: 3 TO 10
FLOWERED UMBELS ARISE FROM ROOT NODES.

ELEVATION

RANGE: 3500-6500 FT.

COUNTIES: PIMA, SANTA CRUZ, COCHISE

HABITAT: CIENEGAS, PERENNIAL LOW GRADIENT STREAMS, WETLANDS

AND IN ADJACENT SONORA, MEXICO, WEST OF THE CONTINENTAL DIVIDE. POPULATIONS ALSO ON FORT
HUACHUCA MILITARY RESERVATION.

LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY:

COCHISE

2/11/97

NAME: MEXICAN GRAY WOLF

CANIS LUPUS BAILEYI

STATUS: ENDANGERED CRITICAL HABITAT: No RECOVERY PLAN: Yes CFR: 32 FR 4001, 03-11-67; 43

DESCRIPTION: LARGE DOG-LIKE CARNIVORE WITH VARYING COLOR, BUT USUALLY A SHADE OF GRAY. DISTINCT WHITE LIP LINE AROUND MOUTH. WEIGH 60-90 POUNDS. ELEVATION RANGE: 4,000-12,000 FT.

COUNTIES: COCHISE, PIMA, SANTA CRUZ

HABITAT: CHAPPARAL, WOODLAND, AND FORESTED AREAS. MAY CROSS DESERT AREAS.

HISTORIC RANGE IS CONSIDERED TO BE LARGER THAN THE COUNTIES LISTED ABOVE. UNCONFIRMED REPORTS OF INDIVIDUALS IN THE SOUTHERN PART OF THE STATE CONTINUE TO BE RECEIVED. INDIVIDUALS MAY STILL PERSIST IN MEXICO.

NAME: OCELOT

FELIS PARDALIS

STATUS: ENDANGERED CRITICAL HABITAT: No RECOVERY PLAN: Yes CFR: 47 FR 31670; 07-21-82

DESCRIPTION: MEDIUM-SIZED SPOTTED CAT WHOSE TAIL IS ABOUT 1/2 THE LENGTH OF HEAD AND BODY. YELLOWISH WITH BLACK STREAKS AND STRIPES RUNNING FROM FRONT TO BACK. TAIL IS SPOTTED AND FACE IS LESS HEAVILY STREAKED THAN THE BACK AND SIDES. ELEVATION RANGE: <8000 FT.

COUNTIES: SANTA CRUZ, PIMA, COCHISE

HABITAT: HUMID TROPICAL & SUB-TROPICAL FORESTS, SAVANNAHS, AND SEMI-ARID THORNSCRUB.

MAY PERSIST IN PARTLY-CLEARED FORESTS, SECOND-GROWTH WOODLAND, AND ABANDONED CULTIVATION REVERTED TO BRUSH. UNIVERSAL COMPONENT IS PRESENCE OF DENSE COVER. UNCONFIRMED REPORTS OF INDIVIDUALS IN THE SOUTHERN PART OF THE STATE CONTINUE TO BE RECEIVED.

NAME: BEAUTIFUL SHINER

CYPRINELLA FORMOSA

STATUS: THREATENED CRITICAL HABITAT: Yes RECOVERY PLAN: Yes CFR: 49 FR 34490, 8-31-1984

DESCRIPTION: SMALL (2.5 INCHES) SHINY MINNOW AND VERY SIMILAR TO RED SHINER. MALES COLORFUL DURING BREEDING (YELLOW-ORANGE OR ORANGE ON CAUDAL AND LOWER FINS AND BLUISH BODY. ELEVATION RANGE: <4500 FT.

COUNTIES: COCHISE

HABITAT: SMALL TO MEDIUM SIZED STREAMS AND PONDS WITH SAND, GRAVEL, AND ROCK BOTTOMS.

VIRTUALLY EXTIRPATED IN THE UNITED STATES, WITH THE EXCEPTION OF A FEW ISOLATED POPULATIONS ON NATIONAL WILDLIFE REFUGES AND IN MEXICO. SAME CRITICAL HABITAT AS YAQUI CHUB AND CATFISH (SEE 49 FR 34490, 08-31-1984).

2/11/97

NAME: AMERICAN PEREGRINE FALCON

FALCO PEREGRINUS ANATUM

STATUS: ENDANGERED

CRITICAL HABITAT: No RECOVERY PLAN: Yes CFR: 35 FR 16047, 10-13-70; 35

DESCRIPTION: A RECLUSIVE, CROW-SIZED FALCON SLATY BLUE ABOVE WHITISH
BELOW WITH FINE DARK BARRING. THE HEAD IS BLACK AND APPEARS
TO BE MASKED OR HELMETED. WINGS LONG AND POINTED. LOUD
WAILING CALLS ARE GIVEN DURING BREEDING PERIOD.

ELEVATION

RANGE: 3500-9000 FT.

COUNTIES: MOHAVE COCONINO NAVAJO APACHE SANTA CRUZ MARICOPA COCHISE YAVAPAI GILA PINAL PIMA
GREENLEE GRAHAM

HABITAT: CLIFFS AND STEEP TERRAIN USUALLY NEAR WATER OR WOODLANDS WITH ABUNDANT PREY

THIS IS A WIDE-RANGING MIGRATORY BIRD THAT USES A VARIETY OF HABITATS. BREEDING BIRDS ARE YEAR-
ROUND RESIDENTS. OTHER BIRDS WINTER AND MIGRATE THROUGH ARIZONA. SPECIES IS ENDANGERED FROM
REPRODUCTIVE FAILURE FROM PESTICIDES.

NAME: CALIFORNIA CONDOR

GYMNOPS CALIFORNIANUS

STATUS: ENDANGERED

CRITICAL HABITAT: No RECOVERY PLAN: Yes CFR: 32 FR 4001, 03-11-67

DESCRIPTION: VERY LARGE VULTURE (55 INCHES HEAD TO TAIL, WING=34, TAIL=16,
TARSUS=4.25). HEAD AND UPPER PARTS OF NECK BARE, BILL YELLOW,
CERE, HEAD, AND NECK YELLOWISH-RED, PLUMAGE GREY-BLACK.

ELEVATION

RANGE: VARIES FT.

COUNTIES: MOHAVE, COCONINO, NAVAJO COCHISE

HABITAT: HIGH DESERT CANYONLANDS, AND PLATEAUS

RECOVERY/REINTRODUCTION PROGRAM CURRENTLY EVALUATING THE FEASIBILITY OF REINTRODUCTION INTO
ARIZONA BY 1996. NO LONGER OCCURS IN ARIZONA.

NAME: MEXICAN SPOTTED OWL

STRIX OCCIDENTALIS LUCIDA

STATUS: THREATENED

CRITICAL HABITAT: Yes RECOVERY PLAN: Yes CFR: 56 FR 14678, 04-11-91

DESCRIPTION: MEDIUM SIZED WITH DARK EYES AND NO EAR TUFTS. BROWNISH AND
HEAVILY SPOTTED WITH WHITE OR BEIGE.

ELEVATION

RANGE: 4100-9000 FT.

COUNTIES: MOHAVE, COCONINO, NAVAJO, APACHE, YAVAPAI, GRAHAM, GREENLEE, COCHISE, SANTA CRUZ, PIMA,
PINAL, GILA, MARICOPA

HABITAT: NESTS IN CANYONS AND DENSE FORESTS WITH MULTI-LAYERED FOLIAGE STRUCTURE

GENERALLY NESTS IN OLDER FORESTS OF MIXED CONIFER OR PONDEROSA PINE/GAMBEL OAK TYPE, IN
CANYONS, AND USE VARIETY OF HABITATS FOR FORAGING. SITES WITH COOL MICROCLIMATES APPEAR TO BE
OF IMPORTANCE OR ARE PREFERRED.

2/11/97

NAME: SONORA TIGER SALAMANDER

AMBYSTOMA TIGRINUM STEBBINSI

STATUS: ENDANGERED . CRITICAL HABITAT: No RECOVERY PLAN: No CFR: 62 FR 665, 01-06-97

DESCRIPTION: 2.6 TO 4.9" SNOUT-VENT LENGTH WITH LIGHT-COLORED BANDS ON A
DARK BACKGROUND. AQUATIC LARVAE ARE UNIFORM DARK COLOR
WITH PLUME-LIKE GILLS AND TAIL FINS.

ELEVATION
RANGE: 4000-6300 FT.

COUNTIES: SANTA CRUZ, COCHISE

HABITAT: STOCK TANKS AND IMPOUNDED CIENEGAS IN SAN RAFAEL VALLEY, HUACHUCA MOUNTAINS

ALSO OCCURS IN THE FOOTHILLS OF THE EAST SLOPE OF THE PATAGONIA AND HUACHUCA MOUNTAINS.
POPULATIONS ALSO ON FORT HUACHUCA.

2/11/97

CANDIDATE TOTAL= 6

NAME: BLUMER'S DOCK

RUMEX ORTHONEURUS

STATUS: CANDIDATE CRITICAL HABITAT: No RECOVERY PLAN: No CFR:

DESCRIPTION: LARGE LONG-LIVED PERENNIAL PLANT IN THE BUCKWHEAT FAMILY THAT CAN REACH 1.2-2.0 METERS. LARGE BROAD, OVAL SEMI-SUCCULENT LEAVES ARE BRIGHT GREEN. CONSPICUOUS SECONDARY VEINS AT RIGHT ANGLES TO THE MIDVEIN

ELEVATION RANGE: 6500-9000 FT.

COUNTIES: GILA, COCHISE

HABITAT: MID TO HIGH ELEVATION SPRINGS, STREAMS, & WETLANDS WITH MOIST ORGANIC SOILS OR SHADED CANYONS

NAME: LEMMON FLEABANE

ERIGERON LEMMONII

STATUS: CANDIDATE CRITICAL HABITAT: No RECOVERY PLAN: No CFR:

DESCRIPTION: A PROSTRATE PERENNIAL IN THE SUNFLOWER FAMILY. STEMS AND LEAVES ARE DENSELY HAIRY. FLOWERS LOOK LIKE SMALL DELICATE DAISIES, WITH WHITE TO LIGHT PURPLE OUTER PETALS AND YELLOW INNER PETALS.

ELEVATION RANGE: 1500-6000 FT.

COUNTIES: COCHISE

HABITAT: GROWS IN DENSE CLUMPS IN CREVICES, LEDGES, AND BOULDERS IN CANYON BOTTOMS IN PINE-OAK WOODLAND

NAME: HUACHUCA SPRINGSNAIL

PYRGULOPSIS THOMPSONI

STATUS: CANDIDATE CRITICAL HABITAT: No RECOVERY PLAN: No CFR:

DESCRIPTION: VERY SMALL (1.7-3.2mm) CONICAL SHELL. IDENTIFICATION MUST BE VERIFIED BY CHARACTERISTICS OF REPRODUCTIVE ORGANS.

ELEVATION RANGE: 4500-6000 FT.

COUNTIES: COCHISE, SANTA CRUZ

HABITAT: AQUATIC AREAS, SMALL SPRINGS WITH VEGETATION SLOW TO MODERATE FLOW.

INDIVIDUALS FOUND ON FIRM SUBSTANCES (ROOTS, WOOD, AND ROCKS)



DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
ARIZONA-NEVADA AREA OFFICE
3636 NORTH CENTRAL AVENUE, SUITE 760
PHOENIX, ARIZONA 85012-1936

REPLY TO
ATTENTION OF:

February 26, 1997

Office of the Chief
Regulatory Branch

RECEIVED

MAR 03 1997

Cochise County
C/O Bucher, Willis & Ratliff Corporation
ATTN: Bradley C. Weisenburger
7920 Ward Parkway
Kansas City, Missouri 64114-2021

RECEIVED
KANSAS CITY, MO

File Number: 974-0234-RJD

Dear Mr. Weisenburger:

Reference is made to your February 20, 1997 request for Department of the Army comments on projects within current property boundaries of the Cochise County Airport, Sections 3 and 4, T14S, R24E, near Willcox, Cochise County, Arizona.

We have assigned file number 974-0234-RJD to your request. Your request for a Department of the Army comments has been reviewed and found incomplete. In order to continue processing your request, the information designated on the enclosed check list is required. We ask that you re-submit your request, referencing our file number, and the additional information checked on the enclosed list. If the requested information is not submitted within 30 days from the date of this letter, your request will be withdrawn.

Please be aware that no dredged or fill material can be discharged into waters of the United States and, if applicable, no structures can be built and no work take place in navigable waters of the United States (Colorado River) while the Corps of Engineers is processing your request.

If you have questions, please contact Robert J. Dummer at (602) 640-5385 x 224.

Sincerely,

Cindy Lester
Chief, Arizona Section
Regulatory Branch

Enclosure(s)

LIST OF ADDITIONAL INFORMATION REQUIRED FOR COMPLETE APPLICATION

APPLICANT

- ___ Complete the enclosed ENG Form 4345
- ___ Signature of Applicant _____ Signature of Agent
- ___ Signature for statement designating official agent
- ___ Telephone number during business hours

DESCRIPTION OF ACTIVITY

- ___ Complete written description of activity to be permitted
- ___ Complete written description of overall project
- ___ Location and name of watercourse
- Estimated acreage of waters or wetlands that will be impacted by the entire proposed activity *(Need to delineate waters of US at airport, see "Delineation" memo enclosed)*
- ___ Quantity of material to be dredged or used as fill
- ___ Method of dredging
- ___ Method of transporting dredged material
- ___ Location of disposal site for dredged material
- ___ Source and composition of fill material
- ___ Proposed use of fill area, including specific structures to be erected on fill

PROJECT PURPOSE

- ___ Overall project purpose (if different from activity needing a permit)
- ___ Purpose of proposed fill/activity
- ___ Need for project
- ___ Names and addresses of adjoining property owners/lessees (If greater than four, please submit these on pre-typed address labels.)

STATUS OF ADDITIONAL PERMITS OR CERTIFICATIONS

- ___ Arizona Department of Environmental Quality
- ___ _____
- ___ _____

REQUIRED DRAWINGS

All drawings should be legible, and on 8 1/2 x 11" white paper, and include a north arrow, scale, and pertinent project information.

- ___ Vicinity map
- ___ Scale plan view diagram of existing (preproject) conditions
- ___ Scale plan view diagram of proposed conditions following construction of project
- ___ Cross section or lateral view of proposed activity
- ___ All drawings and maps should be properly labeled
- ___ River mile if known
- ___ Name of water body
- ___ Identifiable landmarks
- ___ Area of Corps jurisdictional delineation juxtaposed on project plans
- ___ Ordinary high water mark
- ___ Average water depth around the activity
- ___ Dimensions of the activity and distance it extends beyond ordinary high water mark
- ___ Location of structures and dimensions immediately adjacent to the proposed activity

*****LIST OF ADDITIONAL INFORMATION RECOMMENDED*****
 TO EXPEDITE PERMIT EVALUATION

PROJECT DESCRIPTION

- ___ Name of USGS Quadrangle on which project is located
- ___ Range, Township, Section that describes site location
- ___ Project site as sketched on a xeroxed portion of USGS quad map
- ___ Report describing the biological resources on the project site
- Aerial photographs with project site delineated (see enclosed "Delineation" memo)

ALTERNATIVES ANALYSIS

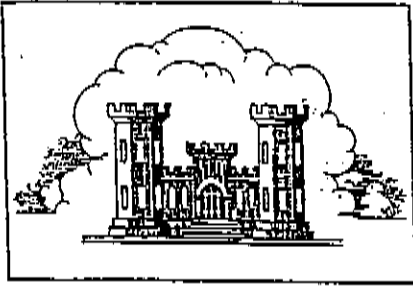
To verify project compliance with the 404(b)(1) guidelines, you will need to demonstrate that there is no other practicable alternative that would have less adverse impact on the aquatic ecosystem.

- ___ Statement of overall project purpose
- ___ Cost estimates for each alternative, relative to that of the preferred alternative
- ___ Project maps and designs for each alternative
- ___ Description of a project alternative that avoids the need for a 404 permit
- ___ Delineation in acreage of waters of the U.S. impacted in each project alternative
- ___ A thorough treatment of why each alternative project design or site that may have few impacts to water of the U.S. is impracticable relative to the preferred project in terms of cost, logistics and existing technology.

MITIGATION

- ___ A preliminary plan to compensate the anticipated loss of wetland habitat which should include:
 - ___ A map or layout of proposed mitigation
 - ___ A description of proposed mitigation
 - ___ A schedule of proposed planting and preparation
 - ___ A list of the species to be planted
 - ___ A proposed maintenance and monitoring program

SUGGESTED PROCEDURE FOR OBTAINING A SECTION 404 CLEAN WATER ACT DELINEATION



U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT
ARIZONA REGULATORY FIELD OFFICE
3636 NORTH CENTRAL AVENUE, SUITE 760
PHOENIX, ARIZONA 85012-1936
Telephone: (602) 640-5385
Fax: (602) 640-5382

1. Letters requesting delineation of Section 404 Clean Water Act jurisdictional areas (i.e. ordinary high water mark and/or wetlands) should be sent to the address noted above.
2. Two copies of a recent vintage (following the latest major flood event) aerial photograph must accompany the jurisdictional request letter. The aerial photograph scale shall be a minimum of 1":400'. Larger scale photographs with sufficient clarity and detail as to easily identify most natural and man made ground features are preferred. Blackline or blueline paper copies are acceptable if of good quality. Photocopies or inferior quality aerial photographs will be returned with no action taken by the Corps of Engineers. A vicinity map or directions to the project site should accompany the aerial photographs along with the name and address of the property owner.
3. Delineations are typically performed within 30 days from the date received. Delineation requests for large land parcels or remote locations may require additional time.
4. Qualified individuals may propose an ordinary high water mark and/or wetland delineation for acceptance by the Corps of Engineers. Wetland delineations shall be performed in accordance with the criteria identified in the 1987 Corps Wetland Delineation Manual (Y-87-1), as modified by subsequent guidance. Field indicator data forms must be included with any delineation submitted. Copies of data forms are available upon request.
5. There is currently no fee associated with the performance of a Section 404 Clean Water Act delineation.

Legend and labeling requirements to be provided on the aerial photograph:

- ◆ North arrow
- ◆ Scale
- ◆ Date of photograph
- ◆ Project area boundary
- ◆ Section, Township, and Range
- ◆ Prominent roads, watercourses, and other major features



REPLY TO
ATTENTION OF.

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
ARIZONA-NEVADA AREA OFFICE
3636 NORTH CENTRAL AVENUE, SUITE 760
PHOENIX, ARIZONA 85012-1936

May 7, 1997

Office of the Chief
Regulatory Branch

Cochise County
C/O Bucher, Willis & Ratliff Corporation
ATTN: Bradley C. Weisenburger
7920 Ward Parkway
Kansas City, Missouri 64114-2021

File Number: 974-0234-RJD

Dear Mr. Weisenburger:

This is in reply to your February 20, 1997 letter concerning your proposal to upgrade and expand facilities at the Cochise County Airport. No Section 404 permit is required for all activities within the area shown in "pink" on the enclosed aerial photograph. The Corps of Engineers believes that there is no more than 0.33 acres of waters of the United States within the area shown in "blue" on the enclosed aerial photograph. Therefore the proposed hangar expansion within this "blue" area is authorized under Nationwide Permit No. 26. Cochise County Airport is located within Sections 3 and 4, T14S, R24E, Willcox, Cochise County, Arizona.

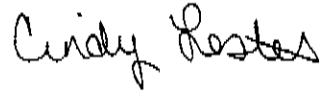
The Corps of Engineers has determined, under Section 404 of the Clean Water Act (33 U.S.C. 1344), that your proposed activity complies with the terms of Nationwide Permit No. 26, "Headwaters and Isolated Waters Discharges." See Enclosure 1 for complete description. You must comply with the enclosed regional, general, and 404 only conditions (Enclosure 1) and the compliance statement (Enclosure 2).

This letter of verification is valid until Nationwide Permit No. 26 expires on February 11, 1999. Furthermore, if you commence or are under contract to commence an activity authorized by Nationwide Permit No. 26 before it expires you will have until February 11, 2000 to complete the activity under the present terms and conditions of Nationwide Permit No. 26.

A nationwide permit does not grant any property rights or exclusive privileges. Also, it does not authorize any injury to the property or rights of others or authorize interference with any existing or proposed Federal project. Furthermore, it does not obviate the need to obtain other Federal, state, or local authorizations required by law.

Thank you for participating in our regulatory program. If you have questions, please contact Robert J. Dummer at (602) 640-5385 x 224.

Sincerely,

A handwritten signature in cursive script that reads "Cindy Lester".

Cindy Lester
Chief, Arizona Section
Regulatory Branch

Enclosures

*LOS ANGELES DISTRICT
U.S. ARMY CORPS OF ENGINEERS*

**CERTIFICATION OF COMPLIANCE WITH
DEPARTMENT OF THE ARMY NATIONWIDE PERMIT**

Permit Number: 974-0234-RJD

Date of Issuance: May 7, 1997

Name of Permittee:

Cochise County
C/O Bucher, Willis & Ratliff Corporation
ATTN: Bradley C. Weisenburger
7920 Ward Parkway
Kansas City, Missouri 64114-2021

Upon completion of the activity authorized by this permit, sign this certification and return it with an original signature to the following address:

U.S. Army Corps of Engineers
ATTENTION: Regulatory Branch(974-0234-RJD)
3636 North Central Avenue Suite 760
Phoenix, Arizona 85012-1936

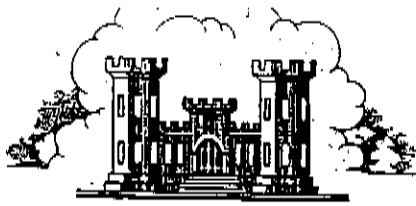
Please note that your permitted activity is subject to a compliance inspection by a Corps of Engineers' representative. If you fail to comply with this Nationwide permit you may be subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced Nationwide permit has been completed in accordance with the terms and conditions of said permit.

Signature of Permittee

Date

Enclosure 2



U.S. ARMY CORPS OF ENGINEERS

NATIONWIDE PERMIT NUMBER 26

"HEADWATERS AND ISOLATED WATERS
DISCHARGES"

Pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344) the U.S. Army Corps of Engineers published the "Final Notice of Issuance, Reissuance, and Modification of Nationwide Permits" in the Federal Register (61 FR 65873) on December 13, 1996. Nationwide Permit (NWP) Number 26, effective February 11, 1997 is as follows:

- 26. Headwaters and Isolated Waters Discharges.** Discharges of dredged or fill material into headwaters and isolated waters provided that the activity meets all of the following criteria:
- a. The discharge does not cause the loss of more than 3 acres of waters of the United States nor cause the loss of waters of the United States for a distance greater than 500 linear feet of the stream bed;
 - b. For discharges causing the loss of greater than 1/3 acre of waters of the United States, the permittee notifies the District Engineer in accordance with the "**Notification**" general condition;
 - c. For discharges causing a loss of 1/3 acre or less of waters of the United States the permittee must submit a report within 30 days of completion of the work, containing the information listed below;
 - d. For discharges in special aquatic sites, including wetlands, the notification must also include a delineation of affected special aquatic sites, including wetlands (Also see 33 CFR 330.1(e)); and
 - e. The discharge, including all attendant features, both temporary and permanent, is part of a single and complete project. Note, this NWP will expire on February 11, 1999.

For the purposes of this NWP, the acreage of loss of waters of the United States includes the filled area plus waters of the United States that are adversely affected by flooding, excavation or drainage as a result of the project. The 3 acre and 1/3 acre limits of NWP 26 are absolute, and cannot be increased by any mitigation plan offered by the applicant or required by the District Engineer. Whenever any other NWP is used in conjunction with this NWP, the total acreage of impacts to waters of the United States of all NWPs combined cannot exceed 3 acres.

Subdivisions: For any real estate subdivision created or subdivided after October 5, 1984, a notification pursuant to subsection (b) of this NWP is required for any discharge which would cause the aggregate total loss of waters of the United States for the entire subdivision to exceed 1/3 acre. Any discharge in any real estate subdivision which would cause the aggregate total loss of waters of the United States in the subdivision to exceed 3 acres is not authorized by this NWP; unless the District Engineer exempts a particular subdivision or parcel by making a written determination that: (1) The individual and cumulative adverse environmental effects would be minimal and the property owner had, after October 5, 1984, but prior to February 11, 1997, committed substantial resources in reliance on NWP 26 with regard to a subdivision, in circumstances where it would be inequitable to frustrate the property owner's investment-backed expectations, or (2) that the individual and cumulative adverse environmental effects would be minimal, high quality wetlands would not be adversely affected, and there would be an overall benefit to the aquatic environment. Once the exemption is established for a subdivision, subsequent lot development by individual property owners may proceed using NWP 26. For purposes of NWP 26, the term "real estate subdivision" shall be interpreted to include circumstances where a landowner or developer divides a tract of land into smaller parcels for the purpose of selling, conveying, transferring, leasing, or developing said parcels. This would include the entire area of a residential, commercial or other real estate subdivision, including all parcels and parts thereof.

Report: For discharges causing the loss of 1/3 acre or less of waters of the United States the permittee must submit a report within 30 days of completion of the work, containing the following information:

- (a) Name, address, and telephone number of the permittee;
- (b) Location of the work;
- (c) Description of the work; and,
- (d) Type and acreage (or square feet) of the loss of waters of the United States (e.g., 0.10 acre of marsh and 50 Square feet of a stream.) (Section 404)

(Over)

BWR Trend Line Analysis for Based Aircraft: Cochise County Airport Jan. 1997

Year	Based Aircraft
1980	22
1985	24
1990	27
1995	24
1997	24
2002	
2007	
2012	
2017	
2022	

Correlation Analysis: Trend Line For Based Aircr
 1.00000 Forecast Years (2002-2022)
 0.79911 All Years (1980-2022)
 0.50243 Historic Years (1980-1997)