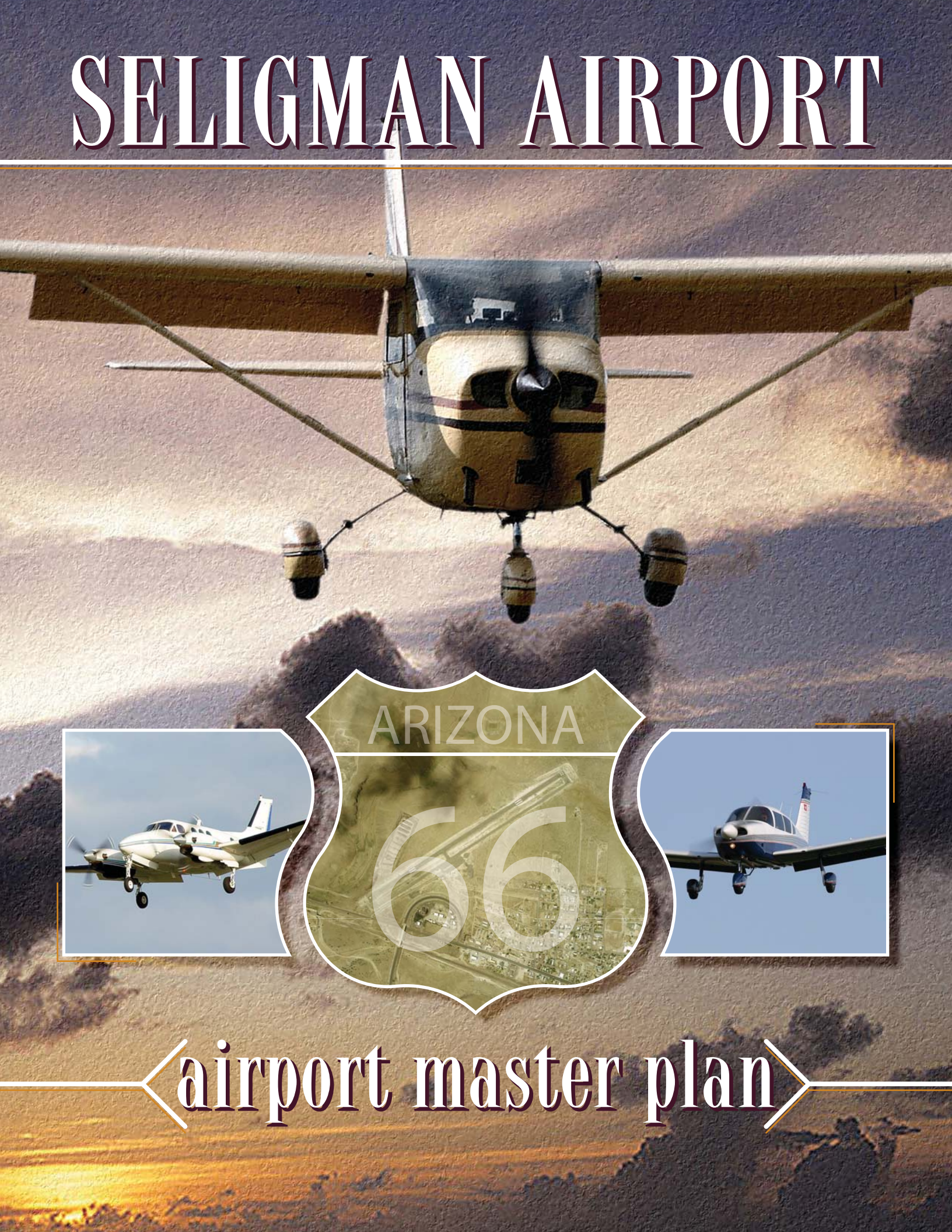
SELIGMAN AIRPORT



airport master plan

SELIGMAN AIRPORT

Seligman, Arizona

AIRPORT MASTER PLAN

FINAL

Prepared By
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June 2005

TABLE OF CONTENTS

CONTENTS

SELIGMAN AIRPORT
Seligman, Arizona

AIRPORT MASTER PLAN
Final

INTRODUCTION AND SUMMARY

AIRPORT ROLE ii
DEMAND-BASED PLANNING ii
AIRPORT PLANS iii
    Airfield Recommendations iii
    Landside Improvements iv
CAPITAL NEEDS FINANCING v

Chapter One INVENTORY

AIRPORT SETTING 1-1
CLIMATE 1-2
THE AIRPORT'S SYSTEM ROLE 1-2
AIRPORT MANAGEMENT 1-3
AIRPORT HISTORY 1-4
AIR TRAFFIC ACTIVITY 1-4
AIRPORT FACILITIES 1-5
    Airside Facilities 1-5
    Landside Facilities 1-8

Chapter One (Continued)

LOCAL OPERATING PROCEDURES 1-10
Instrument Approach Procedures 1-10
VFR Arrival Procedures 1-10
LOCAL AIRSPACE AND AIR TRAFFIC CONTROL 1-11
Airspace Structure 1-11
Special Use Airspace 1-12
Area Airports 1-12
Air Traffic Control 1-13
COMMUNITY AND REGIONAL PROFILE 1-14
SOCIOECONOMIC CHARACTERISTICS 1-15
Population 1-15
Employment 1-16
Per Capita Personal Income 1-16
Existing Area Land Uses 1-16
SUMMARY 1-16
DOCUMENT SOURCES 1-17

Chapter Two
AVIATION DEMAND FORECASTS

NATIONAL AVIATION TRENDS 2-2
General Aviation 2-2
AIRPORT SERVICE AREA 2-4
DEMOGRAPHIC PROJECTIONS 2-6
FORECASTING METHODOLOGY 2-8
BASED AIRCRAFT 2-9
Registered Aircraft Forecasts 2-9
Based Aircraft Forecasts 2-11
FLEET MIX 2-13
ANNUAL OPERATIONS 2-14
AIR CARGO 2-16
PEAKING CHARACTERISTICS 2-16
ANNUAL INSTRUMENT APPROACHES 2-17
FORECAST SUMMARY 2-17

Chapter Three
FACILITY REQUIREMENTS

PLANNING HORIZONS 3-1
AIRFIELD REQUIREMENTS 3-2
- Airfield Design Standards 3-3
- Airfield Capacity 3-5
- Runways 3-5
- Helipad 3-9
- Taxiways 3-9
- Navigational Aids 3-10
- Airfield Lighting, Pavement Markings, and Wind Indicators 3-12
- Conclusions 3-13

LANDSIDE REQUIREMENTS 3-14
- Aircraft Storage Hangars 3-14
- Aircraft Parking Apron 3-15
- General Aviation Terminal Facilities 3-16

AVIATION SUPPORT FACILITIES 3-17
- Airport Access and Vehicle Parking 3-18
- Fuel Storage 3-18
- Aircraft Wash Rack/Maintenance Facility 3-19
- Public Utilities 3-19
- Other Facilities 3-19
- Conclusions 3-20

SUMMARY 3-20

Chapter Four
ALTERNATIVES

ISSUE CONSIDERATIONS 4-1
NON-DEVELOPMENT ALTERNATIVES 4-4
- No Action Alternative 4-4
- Airport Closure 4-5
- Construct New Airport 4-5

AIRFIELD ALTERNATIVES 4-5
- Airfield Alternative 1 4-5
- Airfield Alternative 2 4-7

LANDSIDE ALTERNATIVES 4-8
- Landside Alternative A 4-8
- Landside Alternative B 4-9

SUMMARY 4-9

Chapter Five
DEVELOPMENT CONCEPT

RECOMMENDED CONCEPT 5-1
Airfield Design Standards 5-2
Landside 5-4
CAPITAL IMPROVEMENT PROGRAM 5-5
Demand-Based Plan 5-6
Capital Needs and Cost Summaries 5-7
Short Term Capital Needs 5-8
Intermediate Term Capital Needs 5-9
Long Term Capital Needs 5-9
CAPITAL IMPROVEMENTS FUNDING 5-10
Federal Grants 5-10
FAA Facilities and Equipment Program 5-12
State Aid to Airports 5-12
Local Funding 5-13
RATES AND FEES ANALYSIS 5-14
PLAN IMPLEMENTATION 5-17

EXHIBITS

A RECOMMENDED DEVELOPMENT CONCEPT . . . . . after page iv

1A VICINITY MAP . . . . . after page 1-2
1B EXISTING FACILITIES . . . . . after page 1-6
1C AREA AIRSPACE . . . . . after page 1-12
1D LAND USE ZONING . . . . . after page 1-16

2A U.S. ACTIVE GENERAL AVIATION AIRCRAFT FORECASTS . . . . . after page 2-4
2B REGISTERED AIRCRAFT BY ZIP CODE . . . . . after page 2-6
2C YAVAPAI COUNTY REGISTERED AIRCRAFT PROJECTIONS . . . . . after page 2-12
2D FORECAST SUMMARY . . . . . after page 2-17

3A AIRPORT REFERENCE CODES . . . . . after page 3-4
3B WINDROSES . . . . . after page 3-6
3C FACILITY REQUIREMENTS SUMMARY . . . . . after page 3-20

EXHIBITS (Continued)

4A ALTERNATIVE ISSUES . . . . . after page 4-2
4B AIRFIELD ALTERNATIVE 1
REMAIN ARC B-I DESIGN . . . . . after page 4-6
4C AIRFIELD ALTERNATIVE 2
UPGRADE TO ARC B-II DESIGN . . . . . after page 4-8
4D LANDSIDE ALTERNATIVES . . . . . after page 4-8

5A RECOMMENDED DEVELOPMENT CONCEPT . . . . . after page 5-2
5B CAPITAL IMPROVEMENT PROGRAM . . . . . after page 5-8
5C DEVELOPMENT STAGING . . . . . after page 5-10

A EXISTING AND ULTIMATE NOISE CONTOURS . . . . after page B-2

C-A AIRPORT MASTER RECORD . . . . . after page C-5

Appendix A
GLOSSARY AND ABBREVIATIONS

Appendix B
ENVIRONMENTAL OVERVIEW

Appendix C
AIRPORT PLANS

Appendix D
MINIMUM STANDARDS

Appendix E
RULES AND REGULATIONS

INTRODUCTION AND SUMMARY

INTRODUCTION AND SUMMARY

The Seligman Airport Master Plan study was undertaken by Yavapai County and the Arizona Department of Transportation (ADOT) - Aeronautics Division to outline a long-range plan for the use of the airport, which will yield a safe, efficient, economical, and environmentally-acceptable air transportation facility.

This master plan is a timely reassessment of the development direction of the airport with regards to changes in the general aviation industry and local economy. General aviation has experienced a resurgence in recent years, particularly as it relates to business aviation. With changes occurring in the general aviation aircraft fleet mix, it is important to evaluate the impact of future general aviation facility needs.

An important part of the process was public involvement. The planning process included a Planning Advisory Committee (PAC), which directly reviewed study materials and provided input. The PAC was comprised of local citizens, airport users, as well as other state, regional, and local government agencies. Yavapai County staff also took part in the committee meetings. The committee met four times during the study to review the information and findings, and to provide input and comment throughout the process. Local citizens were also able to review and comment on the planning study through Public Information Workshops (PIWs). The PAC and PIWs were instrumental in shaping the final airport plan.

The preparation of this master plan is evidence that Yavapai County and ADOT recognize the importance of general aviation to the community and the associated challenges inherent in providing for its unique operating and improvement needs. With a sound and

realistic master plan, Seligman Airport can maintain its role as an important link in the local, regional, and national air transportation system, and the community can continue to realize the economic benefits from the public and private investments in the facility.

AIRPORT ROLE

The federal government has had an important role in the development of airports in the United States. Many of the nation's existing airports were either initially constructed by the federal government, or their development and maintenance was partially funded through various federal grant-in-aid programs to local communities. In large measure, the system of airports existing today is due to the existence of federal policy that promotes the development of civil aviation. As part of its effort to maintain a system of airports to meet the needs of civil aviation and promote air commerce, the United States Congress has continually supported a national plan for the development and maintenance of airports.

The current national airport system plan is the *National Plan of Integrated Airport Systems* (NPIAS). A primary purpose of the NPIAS is to identify the airports that are important to national transportation. This includes all commercial service airports, all reliever airports, and selected general aviation airports. A total of 3,489 airports are identified in the NPIAS, of which 3,364 are existing airports and 125 are proposed airports. The study indicated that Seligman Airport is not currently included in the NPIAS. Recommended development will require state and federal funding assistance. It is highly recommended that Yavapai County continue to solicit approval for the airport's inclusion in the NPIAS. If included, the airport would become eligible for federal grant-in-aid funds as well as annual federal entitlement funds. At this time, the airport is only eligible for state grant funds.

DEMAND-BASED PLANNING

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

Recognizing this reality, the Master Plan is keyed more to potential demand "horizon" levels than future dates in time. These "planning horizons" were established as levels of activity that will call for consideration of the implementation of the next step in the Master Plan program. By developing the airport to meet the aviation demand levels instead of specific points in time, the airport will serve as a safe and efficient aviation facility which will meet the operational demands of its users, while being developed in a cost-efficient manner. This program allows

the County to change specific development in response to unanticipated needs or demand. The forecast planning horizons are summarized in **Table A**.

TABLE A
Planning Horizon Activity Levels
Seligman Airport

	2003	Short Term	Intermediate Term	Long Term
Based Aircraft	1	2	4	10
Annual Operations	3,500	6,000	10,000	15,000

AIRPORT PLANS

The Master Plan for Seligman Airport provides for the orderly use of existing airport facilities to enhance the safety of aircraft operations, maintain existing airfield and terminal facilities, and support future aviation demand (should new levels of demand be experienced). The master plan includes provisions to ensure the long-term viability of the airport by maximizing available areas at the airport for aviation-related opportunities. **Exhibit A** depicts elements of the master plan for Seligman Airport.

AIRFIELD RECOMMENDATIONS

The principal airfield recommendations focus first upon safety and efficiency. It is of key importance to ensure that airport design standards are upheld to the maximum extent feasible, particularly in relation to the runway safety area (RSA) and object free area (OFA). Other recommendations are provided to improve the efficiency on the airfield.

Runway 4-22 is currently 4,800 feet long by 75 feet wide. The recommended concept, shown on **Exhibit A**, provides a runway length fully capable of accommodating ARC B-II aircraft needs, especially during hot weather conditions. Accordingly, the plan includes the extension of Runway 4-22 1,900 feet northeast. This extension will allow the runway to provide adequate operational length for the full array of ARC B-II aircraft, including many business jets carrying moderate loads.

In order to extend the runway to the northeast, additional property needs to be acquired. As depicted, the plan includes the future acquisition of 63.2 acres, including 16.6 acres along the eastern portion of the runway and 46.6 acres at the northern end of the runway. Moreover, the plan includes rerouting the drainage channel under the runway extension through piping

and/or box culvert. The resultant plan will provide a runway capable of serving ARC B-II that also meets FAA and ADOT safety standards.

The recommended concept considers maintaining the existing runway width and upgrading pavement strength for Runway 4-22. The runway is currently 75 feet wide, meeting FAA criteria for ARC B-II aircraft design. Also, the existing pavement strength is not adequate to accommodate large aircraft (those weighing more than 12,500 pounds) on a regular basis. The plan considers upgrading the pavement strength to at least 25,000 pounds single wheel gear loading (SWL) strength.

Analysis indicated that Runway 4-22 does not currently conform with FAA design standards for the RSA or the runway OFA. Currently, fencing and a drainage channel obstruct the OFA and RSA. It should be noted that the RSA requirements include a stabilized area capable of supporting the design aircraft during over-run or undershoot operations. The existing RSAs, both north and south, do not conform to FAA standards for ARC B-II aircraft. Both RSAs should be improved 300 feet beyond the runway pavement edge and 75 feet to either side of the runway centerline (150 feet total width) in the future.

The plan also considers meeting FAA runway OFA standards. As mentioned in the previous chapter, the existing and future OFA is hindered at the southwestern corner and along the southeastern portion of the runway by perimeter fencing. The plan includes the acquisition of property to the northeast and northwest from the Navajo Nation. The property could be fully acquired fee simple or through an avigation or other easement. The intent is to simply move the fence line outside of the OFA, as the ultimate development concept does not include placing facilities on the northern side of the airport. As a result, the fence needs to be relocated 101 feet further north. The perimeter fence will need to be relocated at the southwesternmost corner of the airport as well.

The recommended development concept includes taxiway improvements. The existing parallel taxiway is located 240 feet east of the runway. As depicted on **Exhibit A**, the recommended concept includes the extension of the parallel taxiway located 240 feet east of Runway 4-22. Also depicted is the addition of an entrance/exit taxiway located at the extended end of the runway.

LANDSIDE IMPROVEMENTS

The primary goal of landside facility planning is to provide adequate spaces while also maximizing operational efficiencies and land uses. Achieving this goal yields a development scheme which segregates aircraft users (large vs. small aircraft) while maximizing the airport's revenue potential.

Exhibit A depicts the recommended landside development plan for the airport. As depicted, the plan includes aviation facility development in and

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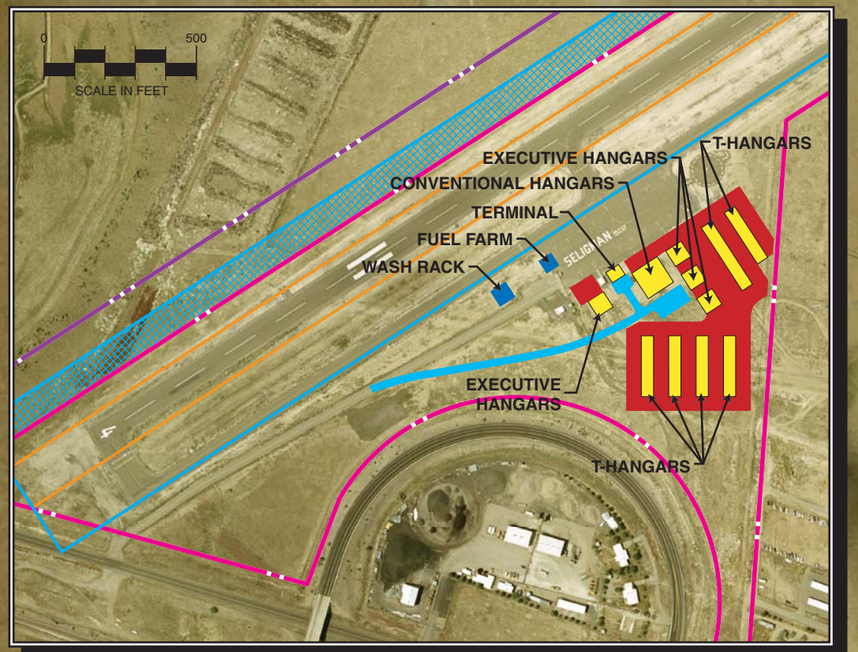

AWOS SITE 2

500'

LEGEND

- Existing Airport Property Line
- Ultimate Property Line
- Ultimate Airfield Pavement
- Ultimate Building
- Ultimate Road/Parking
- Runway Safety Area (RSA)
- Obstructed RSA
- Object Free Area (OFA)
- Obstructed OFA
- Runway Protection Zone (RPZ)

NORTH

0 800 1600

SCALE IN FEET

Date of Photo: 5/25/03

SELIGMAN AIRPORT

Exhibit A
RECOMMENDED DEVELOPMENT CONCEPT

around the existing aircraft apron and restroom facilities. The plan considers allowing the apron to serve as the future development focal point, or flight line.

The existing terminal facilities consist of the apron, sheltered restroom, and electrical vault/storage. The recommended plan considers the development of a terminal building facility to be consolidated with the existing restroom facility. The terminal area is supported with a road providing a direct link to Historic Route 66 to the south. This road is planned to be rerouted to allow future development expansion potential south of the existing apron. Furthermore, the road would lead into a proposed parking lot which would serve the terminal building and hangar facilities.

It is envisioned that corporate and other larger aircraft needs will be met with facilities at the north and south ends of the apron. The plan considers developing two 100-foot by 100-foot hangars centrally on the existing apron. Also, the plan calls for the southerly extension of the apron to accommodate corporate/executive hangars (60-foot by 60-foot). The expansion could support larger hangars such as 80-foot by 80-foot as well.

Immediately east of the proposed flight line, T-hangars are planned. As depicted, the T-hangar area could support four T-hangar facilities providing 50 individual storage units. The plan calls for the development of a taxilane leading from the northern edge of the existing apron. This taxilane would provide ingress/egress with the T-hangar area, as well as a planned aircraft wash rack just west of the existing apron and planned taxiway.

The ultimate landside plan far exceeds the needs and goal of this planning effort. Consideration of facility development beyond the scope of this planning effort will, however, provide the County with a vision which will yield a first-class aviation facility capable of generating revenues which exceed operational costs. It should be noted that the development of all facilities should consider aesthetics a high priority. The airport is often the first and last impression that the airport user has of the community. Consideration should always be given to the development of facilities which meet aviation demand while presenting a positive image to all users.

CAPITAL NEEDS FINANCING

The master plan has identified approximately $4.1 million in capital needs over the planning period (see **Table B**). Nearly 90 percent of the total costs are eligible for grant-in-aid from ADOT and/or the FAA (if the airport is included in the NPIAS). State or federally-eligible projects can receive up to 95 percent federal funding from the ADOT or the FAA.

TABLE B
Development Funding Summary
(Million $)

Planning Horizons	Total Needs	ADOT/FAA Eligible	Local Share
Short Term	$429,000	$353,050	$75,950
Intermediate Term	257,500	244,625	12,875
Long Range	3,410,000	2,645,750	764,250
TOTAL	$4,096,500	$3,243,425	$853,075

Note: ADOT/FAA share considers the amount eligible for state or federal funding assistance. Actual grants for each project could be less.

Chapter One

INVENTORY

INVENTORY

The first step in the preparation of the airport Master Plan for Seligman Airport is the collection of information relating to both the airport and the area it serves. Information pertaining to existing airport facilities, regional airspace, and air traffic control is gathered, along with pertinent background information regarding the airport and surrounding region.

The data collected and presented in this chapter will be used in subsequent analyses in this study. This includes material relating to the airfield's role in county, state, and national aviation systems, as well as the area's socioeconomic profile. The information outlined in this chapter serves as the foundation, or starting point, for all subsequent chapters.

This information was gathered through on-site investigations of the airport and interviews with county airport staff, airport users, representatives of various county, state, and federal entities, and regional economic development agencies. Additional information was obtained from documents provided by Yavapai County, the Arizona Department of Transportation, Aeronautics Division (ADOT) and the Federal Aviation Administration (FAA).

AIRPORT SETTING

The Town of Seligman is located at the junction of Historic Route 66 and Interstate 40, nearly equidistant from Flagstaff to the east (74 miles), Kingman to the west (69 miles), and Prescott to the south (75 miles). The Town of Seligman was founded in 1886 in support of the railroad and was later named for two brothers who provided funding for the railroad. The Town is also considered the genesis point of Route 66.

As shown on **Exhibit 1A**, Seligman Airport is located in the northwestern portion of Yavapai County, immediately west of the Town of Seligman. The airport lies immediately north of Historic Route 66. Seligman is afforded regional access from both Historic Route 66 and an interchange with Interstate 40. Located in the elevated area of northwestern Arizona, the airport is situated on 140 acres of land at an elevation of 5,237 feet above mean sea level (MSL).

CLIMATE

Weather conditions play an important role in the operational capabilities and capital development of an airport. Temperature is an important factor in determining runway length requirements for aircraft. Wind speed and direction determine operational flow characteristics. The percentage of time visibility is impaired due to cloud coverage is a major influence in determining the need for instrument approach aids.

The number of good flying days and nights in northwestern Arizona makes Seligman an ideal location for aviation. The area records 270 days with clear or partly cloudy skies. Winds are generally moderate, with periods of strong winds that are from the northeast or southwest.

July is the hottest month with an average daily maximum temperature of 91 degrees Fahrenheit and average daily minimum of 55 degrees Fahrenheit. The coolest month is January with an average daily maximum temperature of 51 degrees Fahrenheit and average daily minimum of 21 degrees Fahrenheit. The average annual total precipitation is 11.45 inches, with August being the wettest month averaging 2.06 inches per year. **Table 1A** presents historical monthly averages for the Seligman area.

THE AIRPORT'S SYSTEM ROLE

Airport planning exists at several levels, from local and regional, to state and national. Each level has its own emphasis and purpose. This airport master plan serves as the primary local airport planning document.

The federal planning document is the FAA's *National Plan of Integrated Airport Systems* (NPIAS). The NPIAS includes 3,364 of the 5,314 airports open to the public. There are 1,950 airports open to the public that are not included in the NPIAS. Approximately 1,000 publicly owned, public-use airports are not included because they do not meet the minimum entry criteria of 10 based aircraft, are within 20 miles of a NPIAS airport, or are located at inadequate sites and cannot be expanded and improved to provide safe and efficient airport facilities. The FAA usually recommends replacement of inadequate airports. The remaining airports are privately owned, public-use airports that are not included because they are located at inadequate sites, are redundant to publicly owned airports, or have too little activity to qualify for inclusion. In addition, almost 14,000 civil landing areas that are not open to the general public are not included in

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Exhibit 1A
VICINITY MAP

the NPIAS. The airports that are not included in the NPIAS have an average of one based aircraft, compared to 32 based aircraft at the average NPIAS general aviation airport. ***Seligman Airport is not currently included in the NPIAS.***

TABLE 1A
Weather Summary

	Average Temperature (°F)		
Month	**Daily Maximum**	**Daily Minimum**	**Average Total Precipitation (inches)**
January	51.1	21.2	0.95
February	55.1	24.0	0.96
March	61.2	26.9	1.00
April	69.1	32.0	0.52
May	77.7	38.7	0.35
June	87.5	46.2	0.34
July	91.1	55.0	1.79
August	88.4	54.0	2.06
September	83.8	46.8	1.11
October	73.7	36.5	0.74
November	62.0	26.9	0.69
December	52.5	21.6	0.92
Year	**71.1**	**35.8**	**11.45**

Source: Arizona Department of Commerce, Community Profile; Period of Record, 1904-2002

At the state level, Seligman Airport is included in the *2000 Arizona State Aviation Needs Study (*SANS) as a public-use general aviation airport. The purpose of the SANS is to ensure that Arizona has an adequate and efficient airport system that will serve its aviation needs for many years to come.

The most recently updated airport master plan for Seligman Airport (May 1993) proposed several improvements at the airport to accommodate increased traffic. Several projects were identified within the proposed capital improvement program that have either been implemented or are scheduled for implementation. This study will update the findings of the previous plan.

AIRPORT MANAGEMENT

Seligman Airport is owned by Yavapai County. The airport is directly managed by the County's Public Works department. The airport manager of record is the Director of Public Works. An airfield inspection is done Monday through Thursday, a County Public Works maintenance employee.

AIRPORT HISTORY

Yavapai County has operated Seligman Airport since the early 1960s. The County originally leased the land from the Bouquillas Cattle Company and the State of Arizona; however, purchased the property outright in 1985. The airport provided only a dirt strip and no other facilities. From its inception until recently, the only capital improvement made at the airport was the construction of a helipad in the late 1970s. In the last few years, Yavapai County has, with the aid of State funding assistance, paved the runway and parallel taxiway, constructed a paved aircraft apron, installed an airfield lighting system, built an access road and parking lot, and constructed security perimeter fencing. **Table 1B** presents historical grant information for the airport.

TABLE 1B
Historical Improvements and Grants Received
Seligman Airport

Fiscal Year	Project Description	State Grant	Local Match
1968	Land acquisition; site preparation; construction	$80,225	$51,313
1976	Construct heliport	$21,511	$21,511
1977	Construct heliport (continuation of previous year's grant project)	$20,150	$20,150
1978	Airport Master Plan	$19,967	$1,667
1979	Unknown	$72,000	$8,000
1992	Airport Master Plan Update	$43,000	$4,300
1995	Environmental Assessment Study; engineering/design	$100,000	$5,000
1998	Land Acquisition, drainage and avigation easements	$152,633	$8,033
1998	Grade, drain & surface runway, taxiway and apron	$1,400,664	$71,351
2000	Construct terminal building and install lighting and security fencing	$1,008,000	$53,053
2002	Master Plan Update	$71,250	$3,750
Total		$2,989,400	$248,128

Source: Yavapai County records

AIR TRAFFIC ACTIVITY

At general aviation airports, the number of based aircraft and total annual operations (takeoffs and landings) are the main indicators of aviation activity. These indicators are then used in subsequent analyses later in the master plan process, for projecting future aviation activity, as well as for determining future facility requirements.

Based aircraft and annual operation data was obtained from the FAA *Form 5010* annual inspection worksheet. According to the Form 5010, Seligman Airport has four based single engine aircraft and experiences an estimated 1,100 total operations. Actual activity is likely different from the estimates. It should be noted, however, that discussions with county staff indicate that the airport has only one based aircraft that is stored on the owner's personal property adjacent the airport. The airfield is accessed from this property via a dirt road and access gate.

AIRPORT FACILITIES

This section describes the existing facilities at the Seligman Airport. Airport facilities can be categorized into two broad categories: airside and landside. The airside category includes those facilities directly associated with aircraft operations. The landside category includes those facilities necessary to provide the transition from surface to air transportation and support facilities necessary for the safe operation of the airport.

AIRSIDE FACILITIES

Airside facilities typify those needed for the safe and efficient movement of aircraft, including runways, taxiways, airport lighting, and navigational aids. In most cases, airside facilities dictate the types and levels of aviation activity capable of operating at an airport.

An aerial view of the airside facilities at the airport is shown on **Exhibit 1B**. **Table 1C** summarizes key airside facility data for the airport.

Runway

Seligman Airport is served by a single asphalt runway, Runway 4-22, which is, as the magnetic headings indicate, oriented northeast to southwest. The runway measures 4,800 feet in length by 75 feet in width. The FAA *Form 5010* (last inspection date 3/12/1998) reports the runway surface as being in good condition. Although not published, county officials indicate that the runway has an estimated strength rating of 12,500 pounds single wheel loading (SWL).

Runway 4-22 does not currently conform to FAA's Runway Safety Area (RSA) standards. Analysis in the following chapters will discuss this issue further.

Taxiways

Taxiways facilitate aircraft movement between the runway and the aircraft parking or storage areas. The runway is supported by a full-length parallel taxiway which is located 240 feet east of the runway centerline. The parallel taxiway also provides three entrance/exit accesses with Runway 4-22, at each end of the runway and near midfield.

Navigational Aids

Navigational aids (navaids) are electronic devices that transmit radio

frequencies which provide properly equipped aircraft and pilots with in-flight point-to-point guidance and position data. Located on or near an airport, navigational aids can be classified as either enroute or terminal area navigational aids. Four types of enroute electronic navigational aids typically available are the very high frequency omnidirectional range (VOR) facility, the very high frequency omnidirectional range and tactical air navigation (VORTAC) facility, the nondirectional radio beacon (NDB), and the global positioning system (GPS).

TABLE 1C
Airside Facilities Data
Seligman Airport

	Runway 4-22
Runway Length (feet)	4,799
Runway Width (feet)	75
Runway Surface Material	Asphalt
Surface Treatment	None
Runway Load Bearing Strength (lbs.)	
Single Wheel Loading (SWL)	12,500
Runway Markings	Basic
Runway Lighting	MIRL
Taxiway Lighting	MITL
Approach Lighting	REIL PAPI-2L
Visual Aids	Rotating Beacon Lighted Wind Cone Segmented Circle
Navigational Aids	Peach Springs VORTAC

MIRL-Medium Intensity Runway Lighting
MITL-Medium Intensity Taxiway Lighting
REIL-Runway End Identification Lights
PAPI-Precision Approach Path Indicator

Sources: FAA Form 5010 (September 2003)

The most common navaid is the VOR, which transmits azimuth readings via radio signals at every degree, thus providing 360 individual navigational courses. Often, the VOR is combined with distance measuring equipment (DME) which provides both distance and directional information to pilots. The VORTAC is a VOR combined with the military air navigational aid (TACAN), which provides distance-measuring information, similar to the

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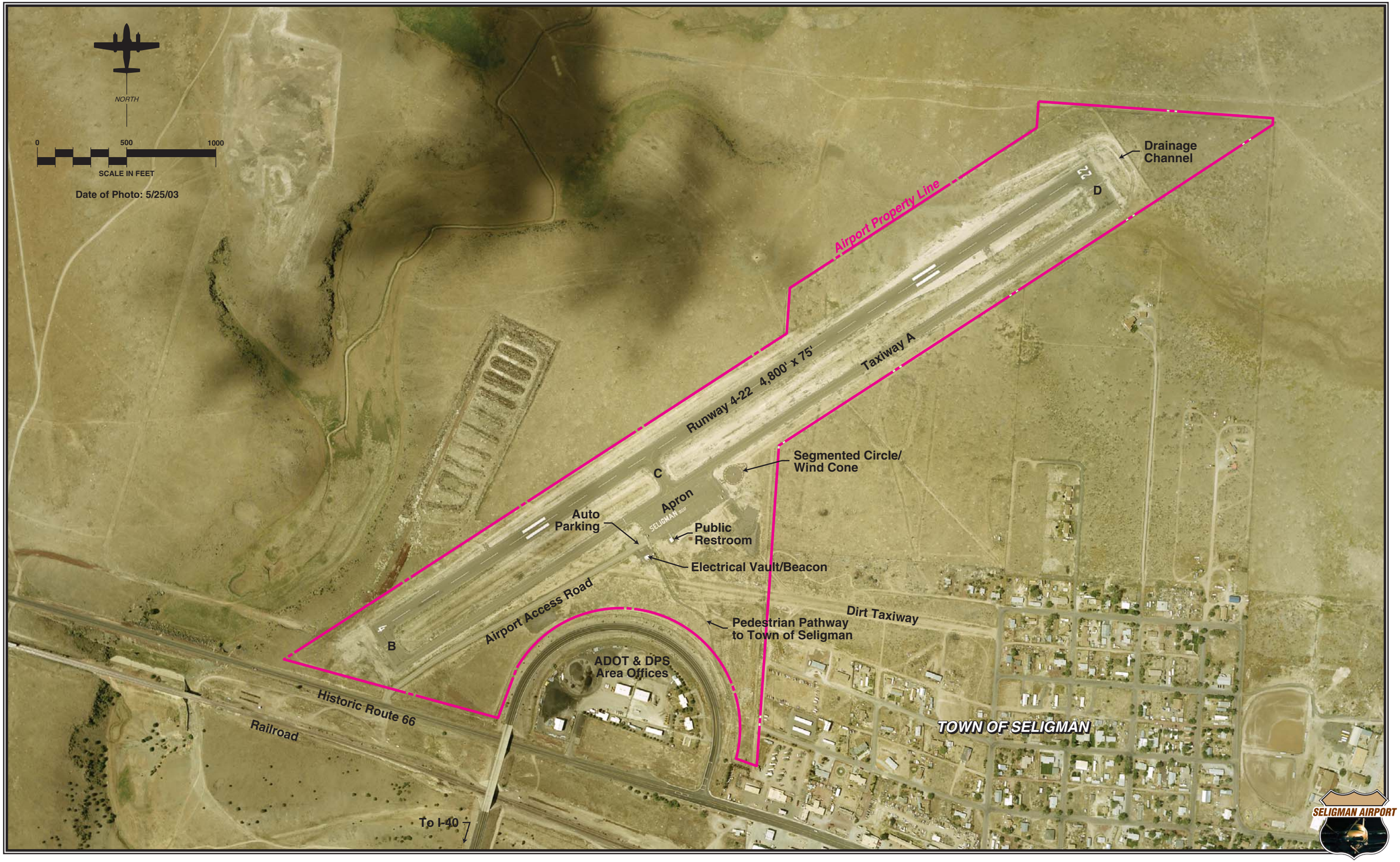


Exhibit 1B
EXISTING FACILITIES

DME. The VORTAC measures distance from the facility to an aircraft in nautical miles. The Peach Springs VORTAC is the only enroute navaid in the region, located 15 miles east of the airport.

The NDB transmits nondirectional radio signals whereby pilots of properly equipped aircraft can determine the bearing to or from the NDB facility and then "home" or track to or from the station. Although Seligman Airport does not have an NDB on-field, there are several available within the area, as indicated in **Table 1D**.

GPS is an enroute and approach navigational system initially developed by the United States Department of Defense for military navigation around the world. Over the last several years, GPS has been utilized more in civilian aircraft. GPS uses satellites in a fixed orbit to transmit electronic signals. Properly equipped aircraft can intercept the signals to determine altitude, speed, and navigational information. GPS provides similar precision and safety factors offered by the older, ground-based systems, yet can be instituted and maintained at a far lower overall cost.

The FAA is proceeding with a program to replace traditional enroute navigational aids with GPS over a twenty-year time period. Based on *The Federal Radionavigation Plan* (FRP) developed in 1996, the FAA had originally planned to begin phasing out traditional ground-based, enroute navigational aids beginning in 2005, with GPS becoming the sole means of navigation by 2010. The FAA schedule had called for phase-out of established navigational aids including Loran-C by the year 2005, and VORs between 2005 and 2010. According to the 1999 FRP, the FAA now plans to maintain a backup network of ground systems, well beyond 2010, for pilots flying under very low visibility conditions (Category II and Category III). The new FAA plan delays the final phase-out of the older conventional navigational systems to 2020.

Airfield Lighting And Pavement Markings

Airfield lighting and pavement markings are essential elements to efficient and safe aircraft operations at an airport. Lighting aids extend airport use into periods of darkness and/or poor visibility, while pavement markings assist in aircraft ground movement. The lighting systems and pavement markings existing at Seligman Airport are described in the following sections.

Identification Lighting: The location and presence of an airport at night is universally indicated by the rotating airport beacon. The rotating beacon at Seligman Airport is located atop the electrical vault adjacent to the aircraft parking apron. This beacon is equipped with an optical system that alternately projects two beams of light, one green and one white, 180 degrees apart, indicating a lighted land airport.

Runway and Taxiway Lighting: Runway 4-22 is equipped with medium intensity runway lighting (MIRL). The MIRL is a system of runway edge (white) lights which define the lateral

limits (width) of the runway for nighttime operation and during periods of low visibility. These lights are essential to safe operations through these periods. Similarly, the blue taxiway edge lights define the outer limits of aircraft taxiways. Seligman Airport has medium intensity taxiway lighting (MITL).

Runway end identification lights (REILs) are provided at both ends of the runway. REILs provide positive and rapid identification of the approach end of the runway, and are typically used where approach lighting is unavailable. The REIL system consists of two synchronized flashing lights that face approaching aircraft.

Visual Approach Lighting: Two-light precision approach path indicators (PAPI-2) are available for both Runways 4 and 22. The PAPI-4 consists of a system of lights which, when interpreted by the pilot, give him or her an indication of being above, below, or on the designed descent path to the runway. The glide slopes of these PAPIs at Seligman Airport are set at three degrees for both runway ends.

Other Lighting: Three lighted wind cones and a segmented circle are provided. One wind cone is located near each runway end, while the third wind cone and segmented circle are located just northeast of the aircraft apron, near midfield. Pilots use the wind cone to verify surface wind direction and approximate speed prior to takeoffs and landings. The segmented circle provides traffic pattern directions.

Pavement Markings: Pavement markings, both on the runways and taxiways, assist in aircraft movement at the airport. The basic markings on Runway 4-22 indicate the runway centerline, designation number, and aiming points. Taxiway and apron taxilane markings consist of centerline striping and runway holding position markings.

Signage: Installation of runway/ taxiway signage is an essential component of a surface movement guidance control system necessary for the safe and efficient operation of an airport. The lighted signage system installed at the airport includes runway and taxiway designations, holding positions, and runway end/exits.

It should be noted that the airport navigational aids can be controlled in-flight by the pilots, through a series of clicks on their microphones on the common traffic advisory frequency (CTAF). This feature allows lights to be off, conserving electricity for periods when the airport is not being used.

LANDSIDE FACILITIES

Landside facilities are essential to the transition of aircraft from the air to the ground and the accommodation of aircraft, pilots, and passengers once on the airport. Typical landside facilities include terminal buildings/facilities, aircraft parking aprons, aircraft storage hangars, fuel storage/dispensing facilities, auto parking, airport access, firefighting facilities, utilities, fencing,

and other ancillary businesses that may contribute to an airport's support. The landside facilities available at Seligman Airport are also depicted on **Exhibit 1B** and are further described below.

Terminal Facilities

The airport is not served by an airport terminal building. Recently, however, the County has constructed an enclosed public restroom facility located adjacent to the aircraft apron. Also, a public payphone is provided.

Aircraft Parking Apron and Tie-downs

One paved aircraft parking apron is provided at Seligman Airport. The apron is located southeast of midfield, providing for 16 aircraft parking positions. The asphalt apron provides approximately 9,300 square yards of total space.

Fuel Storage/Dispensing

The airport does not provide fueling services at this time.

Airport Access

As mentioned previously, Seligman Airport is accessed via an airport access road, with immediate access from Historic Route 66 to the south. The airport also lies adjacent an interchange with Interstate 40, which links the area with Flagstaff to the east and Kingman to the west.

An electric access gate has been installed to protect against unauthorized access after hours. The gate, which can be opened by key code, segregates the aircraft parking apron and the automobile parking lot. There are manual gates installed in the perimeter fence. The entry gates are opened electronically.

Auto Parking

The airport is supported by one public parking area. The terminal parking lot is located just west of the aircraft parking apron at the end of the airport terminal roadway. The parking lot provides 15 automobile parking spaces.

Airport Emergency Response

Seligman Airport does not have a dedicated full-time aircraft rescue and firefighting facility (ARFF). Fire suppression and extinction services for the area are provided by the Town of Seligman from a station located approximately one mile east.

Perimeter Fencing

The perimeter fencing at the airport consists of an eight-foot chain link fence with a two-foot barbed wire top extension surrounding most of the property. The fence runs the perimeter of the airport property, and has warning signs posted at select locations to alert would-be trespassers.

Utilities

The availability of utilities at an airport is an important factor in determining future airport development. The utility providers to Seligman Airport follow:

- **Water**: Water is supplied to the newly constructed public restroom facility by a two-inch water service line. Water services are provided by Cherry Creek Water Company (private).

- **Sanitary Sewer**: The airport is not supported with sanitary sewer services. The Town of Seligman has a small system which is not planned to be extended to the airport. The airport's public restroom is served by a septic system.

- **Electrical**: The airport is supported by an electrical vault. Electricity is provided to the airport by Arizona Public Service.

- **Telephone**: The airport provides a public pay telephone operated by Pacific Communications. Telephone services are provided to the area by Sprint.

- **Natural Gas**: There are no natural gas services provided to the airport, although natural gas lines are located near the airport.

LOCAL OPERATING PROCEDURES

Flights in and out of Seligman Airport may be conducted under visual flight rules (VFR). VFR conditions exist when flight visibility is three miles or greater and cloud ceilings are a minimum of 1,000 feet above ground level (AGL).

INSTRUMENT APPROACH PROCEDURES

When the visibility and cloud ceilings deteriorate to a point where visual flight can no longer be conducted, aircraft must follow published instrument approach procedures to locate and land at the airport. Instrument approach procedures are a series of predetermined maneuvers established by the FAA, using electronic navigational aids that assist pilots in locating an airport during low visibility and cloud ceiling conditions.

Currently, the airport is not supported by an instrument approach procedure, thus, flights during instrument flight rules (IFR) are not approved at Seligman Airport. The airport is closed during IFR weather conditions.

VFR ARRIVAL PROCEDURES

Seligman Airport uses the left-hand (standard) traffic pattern for Runway 4 and the right-hand (nonstandard) traffic pattern for Runway 22. The traffic patterns keep fixed-wing aircraft to the northwest of the airport away from the Town of Seligman. Arriving aircraft can broadcast their intentions on CTAF (122.9 Megahertz) for entry into the airport traffic pattern environment. Traffic pattern altitude (TPA) is 6,035 feet MSL, or approximately 800 feet above the airport elevation.

LOCAL AIRSPACE AND AIR TRAFFIC CONTROL

The FAA Act of 1958 established the FAA as the responsible agency for control and use of navigable airspace within the United States. The FAA has instituted the National Airspace System (NAS) to protect persons and property on the ground and to build a safe and efficient airspace environment for civil, commercial, and military aviation. The NAS is defined as the common network of U.S. airspace, including air navigation facilities; airports and landing areas; aeronautical charts; associated rules, regulations, and procedures; technical information; personnel and material. Those systems shared jointly with the military are included.

AIRSPACE STRUCTURE

The U.S. airspace structure provides for two basic categories of airspace, controlled and uncontrolled, and identifies them as Classes A, B, C, D, E, and G. **Exhibit 1C** depicts generalized airspace classifications.

Class A airspace is controlled airspace and includes all airspace from 18,000 feet MSL to Flight Level 600 (approximately 60,000 feet MSL). Class B airspace is controlled airspace surrounding high activity commercial service airports (i.e., Phoenix Sky Harbor International Airport). Class C airspace is controlled airspace surrounding lower activity commercial service and some military airports. Class D airspace is controlled airspace surrounding airports with an airport traffic control tower (i.e., Ernest A. Love Field in Prescott). All aircraft operating within Classes A, B, C, and D airspace must be in contact with the air traffic control facility responsible for the particular airspace.

Class E airspace is controlled airspace that encompasses all instrument approach procedures and low altitude federal airways. Only aircraft conducting instrument flights are required to be in contact with air traffic control when operating in Class E airspace. While aircraft conducting visual flights in Class E airspace are not required to be in radio communication with air traffic control facilities, visual flight can only be conducted if visual flight rule (VFR) minimums are met or exceeded and cloud ceilings exist. Class G is uncontrolled airspace that is not Class A, B, C, D, or E controlled airspace. In general, within the United States, Class G airspace extends up to 14,500 feet above MSL. At and above this altitude, all airspace is within Class E airspace, excluding the airspace less than 1,500 feet above the terrain and certain special use airspace areas.

Seligman Airport lies in Class G airspace under Class E airspace. The Class E airspace in the vicinity of the airport begins 1,200 feet above ground level (AGL). Thus, all airspace up to 1,200 feet AGL is uncontrolled. Above 1,200 feet, aircraft operate under rules and restrictions of Class E airspace.

SPECIAL USE AIRSPACE

Aircraft normally travel between airports on airways. These airways are marked on aeronautical charts with enroute navigational aids that assist pilots in controlling their aircraft along these routes. There are two airway systems: **Victor Airways** and **Jet Airways**. Victor Airways is a system of federal airways, established by the FAA, which utilize VOR navigational facilities. These airways are corridors of airspace eight miles wide that extrude upward from 1,200 feet MSL to 18,000 feet MSL and extend between VOR navigational facilities. The Jet Airway System is layered above the Victor Airway System, beginning at 18,000 feet MSL and extending upward to 45,000 feet MSL.

The airway system influencing the area includes Victor Airways V291, V208-210, V562, and V105, which crisscross the area defined by four VOR facilities: Peach Springs VORTAC to the northwest; Grand Canyon VOR/DME to the northeast; Flagstaff VOR/DME to the east; and Prescott VORTAC to the southeast. A military training route (IR-250) begins approximately one mile south of the airport, extending south.

There is a military operations area (MOA) located approximately 50 nautical miles northeast of Seligman Airport. The sectional chart indicates that there is high performance military jet activity at 12,000 feet MSL, advised by notice to airmen (NOTAM) within 24 hours of planned activity.

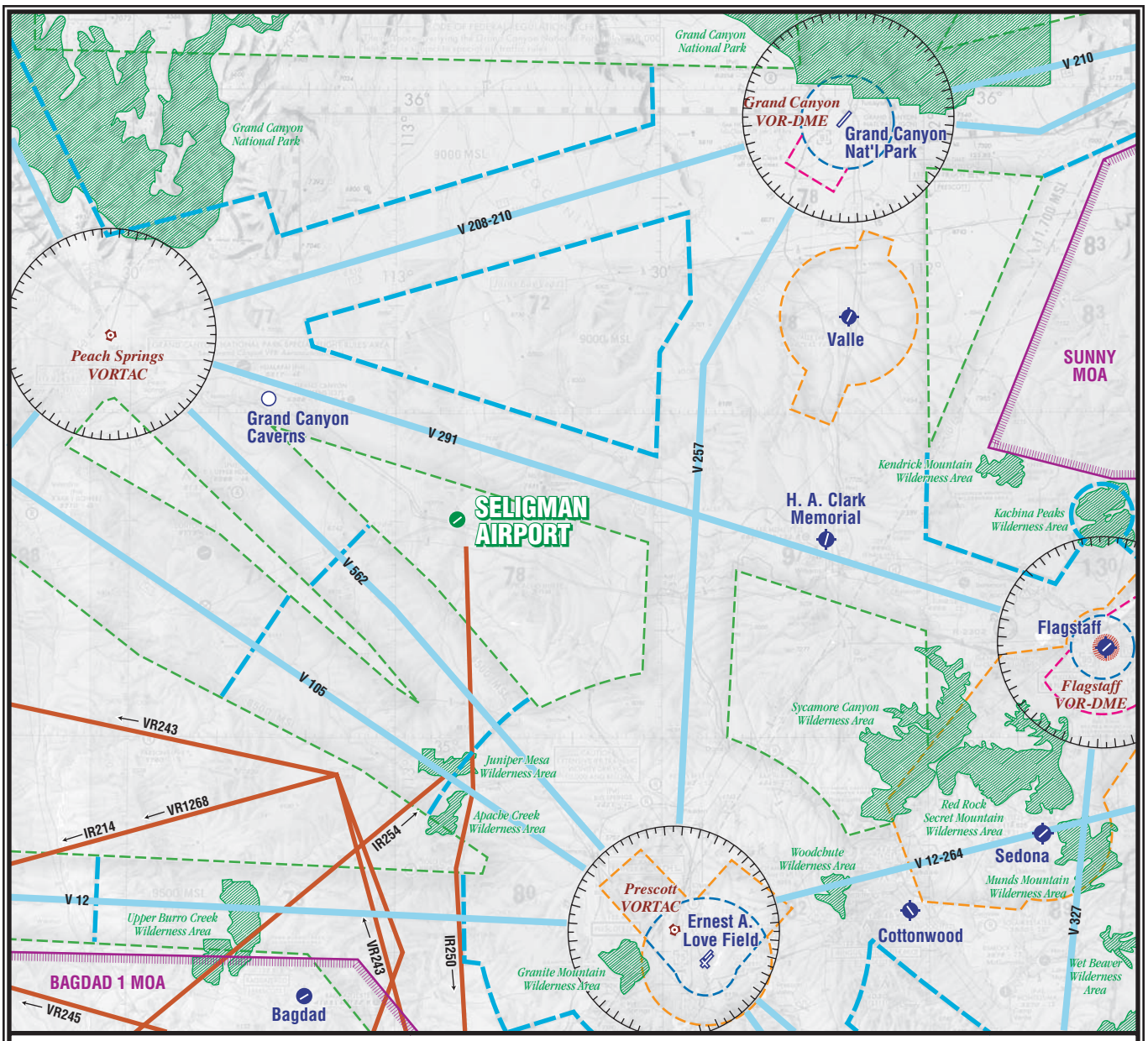
AREA AIRPORTS

Within approximately 50 nautical miles of Seligman Airport are five public-use airports. Only Ernest A. Love Field Airport in Prescott is tower-controlled. The non-towered public-use airports are Grand Canyon Caverns Airport, H. A. Clark Memorial Field Airport, Valle Airport, and Bagdad Airport. A brief description of each airport follows.

Grand Canyon Caverns Airport (L37) is located approximately 21 nautical miles (nm) west northwest of Seligman Airport in Peach Springs. L37 is served by a single gravel runway (5-23) measuring 5,100 feet in length by 45 feet in width. Grand Canyon Caverns Airport does not provide fueling services, however, aircraft parking and restrooms are provided. There are no reported based aircraft at the airport, and operations (takeoffs or landings) are estimated at 58 per week (approximately 3,000 per year).

H. A. Clark Memorial Field Airport (P32) is located approximately 34 nm east of Seligman Airport in Williams. The airport is served by a single asphalt runway. Runway 18-36 is 5,992 feet by 100 feet. H.A. Clark Memorial Field Airport offers a number of aviation services, including fuel, flight training, aircraft rental, and aircraft maintenance. The latest FAA *Form 5010, Airport Master Record*, for the airport reports 15 based aircraft at the airport, with estimated operations totaling 4,000 annually.

02MP20-1C-11/24/03



LEGEND

- Airport with other than hard-surfaced runways
- Airport with hard-surfaced runways 1,500' to 8,069' in length
- Airports with hard-surfaced runways greater than 8,069' or some multiple runways less than 8,069'
- VORTAC
- Non-Directional Radiobeacon (NDB)
- Compass Rose
- Military Operations Area (MOA)
- Wilderness Areas
- Military Training Routes
- Victor Airways
- Class D Airspace
- Class E Airspace
- Class E Airspace with floor 700' above surface
- Class E Airspace with floor 1200' or greater above surface that abuts Class G Airspace
- Differentiates Floors of Class E Airspace greater than 700' above surface

NORTH

NOT TO SCALE

Source: Phoenix Sectional Chart, US Department of Commerce, National Oceanic and Atmospheric Administration, October 30, 2003

SELIGMAN AIRPORT

Exhibit 1C
AREA AIRSPACE

Valle Airport (40G) is located at Grand Canyon, Arizona approximately 41 nm east-northeast of Seligman Airport. Valle Airport is served by a single runway (1-19) which is 4,199 feet by 45 feet wide. The runway, constructed of asphalt, is served by three nonprecision instrument approaches. Valle Airport offers both Avgas and Jet A fuel. The most recent FAA *Form 5010, Airport Master Record*, for the airport reports five based aircraft, and estimated operations of less than 500 annually.

Bagdad Airport (E51) is located approximately 47 nm south-southwest of Seligman Airport. Yavapai County also owns and maintains this airport. Bagdad Airport is served by a single runway, 5-23, which is 4,575 feet by 60 feet and strength-rated at 4,000 SWL. The runway is constructed of asphalt. No aviation services are provided at the airport. The latest FAA *Form 5010* for E51 reports 14 based aircraft at the airport, with estimated operations totaling approximately 14,000 annually.

Ernest A. Love Field Airport (KPRC) is located approximately 47 nm south-southeast in Prescott. KPRC is served by two parallel runways and a crosswind runway. Primary Runway 3R-21L measures 7,550 feet by 150 feet and is strength-rated at 63,000 pounds SWL. Runway 21L is served by an instrument landing system (ILS) approach supported by a medium intensity approach light system with runway alignment lights (MALSR). Parallel Runway 3L-31R is 4,846 feet long by 60 feet wide. Crosswind Runway 12-30 is 4,408 feet long by 75 feet wide and is served by a nonprecision approach to Runway 12. All three runways are constructed of asphalt and have medium intensity runway lighting. KPRC offers fuel, flight training (Embry-Riddle Aeronautical University is on the field), aircraft rental, aircraft maintenance, a restaurant, and pilot services. The latest FAA *Form 5010* reports 335 based aircraft (including four jets) at the airport, with operations surpassing 300,000 annually.

It should be noted that within the 50-mile radius are located 13 privately-owned closed-to-the-public airports. These facilities typically support ranching operations or local landowners who own their own aircraft.

AIR TRAFFIC CONTROL

The Seligman Airport is not served by an airport traffic control tower (ATCT). UNICOM/CTAF is utilized for airport traffic advisory. For flight planning information, weather briefing, and notices to airmen information, the Prescott Flight Service Station (FSS) can be contacted by telephone at 1-800-wx-brief. Enroute air traffic control services are provided by the Los Angeles Center, the Air Route Traffic Control Center (ARTCC).

Emergency Services

Seligman Airport is not served by an on-site, aircraft rescue and firefighting (ARFF) facility. As a general aviation airport not utilized by commercial airlines (either passenger or cargo), the airport is not required by the FAA or ADOT to perform this service. The airport should, however, have available

nearby firefighting services provided by the locality in which it resides. Emergency fire and rescue services are provided to the Seligman Airport by the Seligman Volunteer Fire Department with a station less than two miles northeast of the airport in the Town of Seligman.

Police and public safety is provided to the airport and area by the Yavapai County Sheriff's office and Arizona Department of Public Safety. There is no major medical center/hospital in the Town of Seligman. The nearest hospitals are located in Prescott (approximately 59 miles southeast), Cottonwood (approximately 73 miles south/southeast), Kingman (approximately 75 miles southwest), and Flagstaff (approximately 80 miles east).

Environmental Conditions

There is no current storm water pollution and prevention plan (SWPPP), procedures in place for hazardous waste spills, or a documented drainage plan for Seligman Airport. The airport was designed and is maintained to have a minimal impact to receiving watercourses. There is a watercourse with a drainage area of approximately one square mile that enters the airport property at the southeast corner. The County is considering re-routing this watercourse through the property to allow for improved FAA design criteria. A SWPPP, drainage plan, and hazardous waste procedures plan would be developed for this project and the re-routed watercourse would be designed and constructed to minimize sediment transport.

Airport Height and Hazzard Zoning

The County has not enacted a height and hazzard zoning ordinance for Seligman Airport. Moreover, the Airport does not have a Disclosure Map filed with the Arizona Real Estate Department which typically identifies/establishes an Airport Influence Area. Enacting an ordinance or filing an Airport Influence Area map is common for airports near residential areas.

COMMUNITY AND REGIONAL PROFILE

Seligman was originally developed in response to the western railroad construction, but is most well known for being located on Route 66, an identity that the community strongly embraces to this day. One of the main railroad routes to and from the west coast still passes through the town. The primary economic activities are service (e.g., hotels, restaurants, memorabilia sales, etc.), mining, and ranching. Over the years, there has been minimal municipal development in the town proper. The town is served by a small sanitary sewer system maintained by the County, a private water company to service the community, and local school system. The town is supported by a volunteer fire department.

Attempts to develop the area have been restricted by the difficulty in obtaining potable water, usually only accomplished by drilling very deep wells. Two other similar communities in the area, Ash Fork and Williams, also Route 66/railroad towns, have had a similar experience.

Many of Arizona's scenic attractions are readily accessible from Seligman. The Grand Canyon is only a two-hour drive. The Grand Canyon Caverns are located west of town, and the Prescott, Kaibab, and Coconino National Forests are all within a short drive of Seligman.

SOCIOECONOMIC CHARACTERISTICS

POPULATION

The size and structure of the surrounding communities, and the airport's service area are crucial factors when considering the planning of future airport facilities. These elements provide a more comprehensive understanding of the economic base required to determine future airport requirements. Historical population statistics for Yavapai County, including the population for specific municipalities/communities in the county are presented in **Table 1D**.

As reflected in the table, the population of Yavapai County has grown steadily for the period 1970 through estimated 2002, increasing from 37,680 in 1970 to 180,260 in 2002 - an impressive average annual growth rate of 5.01 percent. As presented, population nearly doubled between 1970 and 1980; however, the total resident growth between 1990 and 2000 nearly matched the total growth experienced over the previous two decades.

TABLE 1D
Historical Socioeconomic Factors

	1970	1980	1990	2000	2002*	Average Annual Change
Yavapai County						
Population	37,680	68,145	107,714	167,517	180,260	5.01%
Employment	12,550	24,820	42,570	71,980	74,791	5.74%
PCPI**	$13,192	$16,097	$17,853	$18,973	$19,461	1.22%
Population in Major Cities/Communities in Yavapai County						
Ash Fork			550	457	470	-1.27%
Bagdad			1,858	1,578	1,698	-0.75%
Camp Verde			6,243	9,451	9,940	3.95%
Chino Valley			4,837	7,835	8,205	4.50%
Clarkdale			2,144	3,422	3,570	4.34%
Cottonwood			5,918	9,179	10,020	4.49%
Jerome			403	329	330	-1.65%
Prescott			26,592	33,938	36,375	2.64%
Prescott Valley			8,858	23,535	26,115	9.43%
Sedona			7,720	10,192	10,540	2.63%
Seligman			680	456	469	-3.05%
Verde Village			7,000	10,610	11,417	4.16%

Source: Historical population from U.S. Census data and Arizona Department of Economic Security; all other information from Woods & Poole, CEDDS 2003.
* Estimated: Population and employment by Arizona Department of Economic Security (Based on County growth rate); while employment and PCPI from CEDDS 2003.
** (1996$)
Note: Population statistics for cities/communities for 1970 and 1980 not available.

The table also presents historical population for cities and communities in Yavapai County over the last 12 years. The fastest growing community is Prescott Valley, increasing at an average annual rate of 9.43 between 1990 and 2002. This growth is impressive, as resident population nearly tripled. Other areas experiencing strong growth include Chino Valley, Clarkdale, Cottonwood, and Verde Village; all experiencing greater than four percent average annual resident population increases.

EMPLOYMENT

Table 1D also summarizes employment totals for Yavapai County since 1970. As presented in the table, employment growth has been strong, increasing by 5.74 percent on an average annual basis between 1970 and 2002. In fact, total employment growth for the county has slightly outpaced population increases over the period.

The majority of jobs in the Town of Seligman are those supporting tourism related to Historic Route 66 visitors. Countywide, the three largest employment sectors in 2002 (in ranking order) are services/miscellaneous (15,725), trade (14,400), and government (10,400). It should be noted that Yavapai County has relatively low unemployment. The Arizona Department of Commerce reports unemployment of 3.5 percent in 2002 for Yavapai County.

PER CAPITA PERSONAL INCOME

Table 1D also presents the per capita personal income (PCPI) for Yavapai County between 1970 and 2002. The PCPI figures in the table have been adjusted for inflation according to a 1996 baseline dollar. The adjustment aids in depicting actual change without aid of inflationary causes. As presented, the adjusted PCPI increased from $13,192 in 1970 to $19,461 in 2002, or 1.22 percent on an annual average basis.

EXISTING AREA LAND USES

The Town of Seligman is unincorporated and has not completed a land use plan. Yavapai County has not completed planning for the area at this time. In general, land uses around the airport include the Town and open or ranching areas. The town is located approximately one mile east of the airport and includes residential, commercial and industrial land uses. Also, ADOT has a facility immediately south of the airport. The land to the north, south, and west is open with little or no development. **Exibit 1D** depicts generalize land uses around the airport

SUMMARY

The information discussed in this chapter provides a foundation from

02MP20-1D-10/28/04

Seligman Land Use Zoning

LEGEND

- Existing Airport Property line
- County Boundary
- Cities & Towns
- State Hwy
- Paved Maintained
- Unpaved Maintained
- Other Non-Maintained Roads
- Parcels

Zoning

- R1L
- RMM
- R1
- RCU
- R2
- RS
- P1
- C1
- C2
- C3
- PM
- M1
- M2
- PAD
- PUD
- RCD
- OS

N W E S

0 400 800

1 in. = 800 ft.

Septe NORTH

NOT TO SCALE

Yavapai County assumes no responsibility for errors, omissions, and/or inaccuracies in this mapping product.

SELIGMAN AIRPORT

Exhibit 1D
LAND USE ZONING

which the remaining elements of the master plan can be prepared. The inventory information on the current facilities at Seligman Airport will be the basis, along with additional analysis and data collection, for developing forecasts of aviation activity and defining future facility requirements. This chapter also provides the proper perspective from which to develop a feasible master plan that serves the needs of Yavapai County and the surrounding region.

DOCUMENT SOURCES

A variety of documents were referenced in the development of this chapter. The following listing reflects a partial compilation of these sources. The listing does not reflect data provided by Yavapai County, nor drawings which may have been referenced for information. An on-site interview and interviews with County personnel contributed to the development of the inventory effort.

Airport/Facility Directory, Southwest U.S., U.S. Department of Commerce, National Oceanic and Atmospheric Administration, October 30, 2003.

Phoenix Sectional Aeronautical Chart, U.S. Department of Commerce, National Oceanic and Atmospheric Administration, 70th Edition, October 30, 2003.

National Plan of Integrated Airport Systems (NPIAS), U.S. Department of Transportation, Federal Aviation Administration, 2001-2005.

1995 Arizona State Aviation Needs Study (SANS), Bucher, Willis & Ratliff, prepared for the Arizona Department of Transportation Aeronautics Division, 2001.

Seligman Airport Master Plan, Coffman Associates, May 1993.

Several Internet sites were also accessed and contributed information to the inventory effort. These include:

Seligman Airport FAA *Form 5010, Airport Master Record*, data
www.airnav.com
www.gcr1.com

Arizona Department of Commerce
http://www.commerce.state.az.us/default.html

Chapter Two

AVIATION DEMAND FORECASTS

CHAPTER TWO

AVIATION DEMAND FORECASTS

The next step in facility planning is a definition of the demand that may reasonably be expected to occur at the facility over an extended period of time. This analysis involves forecasts of aviation activity for the next 20 years. In this master plan, forecasts of based aircraft, based aircraft fleet mix, and annual aircraft operations will serve as the basis for facility planning.

Forecasting any type of future activity is as much an art as it is a science. Regardless of the methodology used, assumptions must be made about how activities might change in the future. It is virtually impossible to predict with any certainty year-to-year fluctuations of activity when looking 20 years into the future. Because aviation activity can be affected by many influences at the local, regional, and national levels, it is important to remember that forecasts are to serve only as guidelines and planning must remain flexible enough to respond to unforeseen facility needs. The objective of the forecast process is to develop estimates of the degree of these changes so that their impacts may be determined. Plans and preparations may then be made to accommodate them smoothly and cost-effectively.

The following forecast analysis examines recent developments, historical information, and current aviation trends, to provide an updated set of aviation demand projections for Seligman Airport. The intent is to provide Yavapai County with the tools to make planning adjustments as necessary to ensure the airport meets projected demands in an efficient and cost-effective manner.

NATIONAL AVIATION TRENDS

Each year, the FAA publishes its national aviation forecast. Included in this publication are forecasts for air carriers, regional/commuters, general aviation, air cargo, and military activity. The forecasts are prepared to meet budget and planning needs of the constituent units of the FAA and to provide information that can be used by state and local authorities, the aviation industry, and by the general public. The current edition when this chapter was prepared was FAA *Aerospace Forecasts-Fiscal Years 2003-2014,* published in March 2003. The forecasts use the economic performance of the United States as an indicator of future aviation industry growth. Similar economic analyses are applied to the outlook for aviation growth in international markets.

The FAA expects modest recovery in 2003. However, a return to pre-September 11 levels is not expected to be achieved until 2005, and even then the level of enplanements may not return to, or surpass those of 2001 until 2006. The majority of this decline is forecast to occur with the large air carriers, while the regional airline industry is expected to continue its growth, possibly returning to its long-term historical growth trend in 2004. Air cargo traffic is expected to grow faster than passenger traffic. General aviation is expected to achieve low-to-moderate increases in the active fleet and hours flown, with most of the growth occurring in business/corporate flying.

The forecasts prepared by the FAA assume that aviation demand will follow a similar path to recovery, as with previous altering incidents such as the 1991 Gulf War, the 1997-98 Southeast Asia financial crisis, the 1998 Northwest Airlines' strike, or the September 11 terrorist attacks. However, these forecasts were prepared prior to the war in Iraq. How deeply the aviation industry is impacted by the war can only be determined over time.

GENERAL AVIATION

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

However, this continued growth in the general aviation industry slowed considerably in 2001 and 2002, negatively impacted by the events of September 11. Thousands of general aviation aircraft were grounded for weeks due to "no-fly zone" restrictions imposed on operations of aircraft in security-sensitive areas. This, in addition to the economic recession

already taking place in 2001-02, has had a profoundly negative impact on the general aviation industry.

According to statistics released by the General Aviation Manufacturers Association (GAMA), shipments of general aviation aircraft declined for a second consecutive year in 2002. During the first three quarters of calendar year (CY) 2002, aircraft shipments and billing declined 16.9 percent and 25.2 percent, respectively. Business jet shipments were down 5.6 percent during the same period, the first reported decline since 1996. The Aerospace Industries Association of America (AIAA) expects general aviation shipments to total 2,153 in 2002, a decline of 17.7 percent. AIAA also projects that industry billings will decline 13.8 percent to $6.9 billion in 2002. This would also be the first reported decline in billings since 1990.

At the end of 2002, the total pilot population, including student, private, commercial, and airline transport, was estimated at 661,358, an increase of almost 4,000 over 2001. Student pilots were the only group to experience a significant decrease in 2002, down 8.9 percent from 2001. It is assumed that much of this decline is due to the restrictions placed on flight schools and student pilot training, particularly with regard to foreign students after September 11, 2001.

The events of September 11, 2001, however, have not had the same negative impact on the business/ corporate segment of general aviation. The increased security measures placed on commercial flights has increased interest in fractional and corporate aircraft ownership, as well as on-demand charter flights for short-haul routes. The most notable trend in general aviation is the continued strong use of general aviation aircraft for business and corporate uses. The forecast for general aviation aircraft assumes that business use of general aviation will expand much more rapidly than personal/sport use, due largely to the expected growth in fractional ownership.

In 2001, total active general aviation aircraft decreased over the previous year, which was the second straight year of recorded decline, following five consecutive years of growth. Single-engine piston aircraft continue to dominate the fleet, accounting for 68.6 percent of the total active fleet in 2001. The next largest groups are experimental aircraft (9.7 percent) and multi-engine piston aircraft (8.6 percent). Turboprops, rotorcraft, and turbojets make up relatively small shares of the active fleet, accounting for 3.1, 3.2, and 3.7 percent, respectively.

Exhibit 2A depicts the FAA forecast for active general aviation aircraft in the United States. The FAA forecasts general aviation aircraft to increase at an average annual rate of 0.7 percent over the 13-year forecast period, reaching 229,490 by 2014. Single-engine piston aircraft are expected to decrease from 145,034 in 2001, to 144,500 in 2002, and then begin a period of slow recovery, reaching 149,600 in 2014. The number of multi-engine piston aircraft is expected to

decline by 0.2 percent per year over the forecast period, totaling 17,810 in 2014.

The turbine-powered fleet is expected to grow at an average annual rate of 2.5 percent over the forecast period. The number of turboprop aircraft is forecast to grow 1.5 percent per year, increasing from 6,596 in 2001, to 8,020 in 2014. Turbojet aircraft are expected to provide the largest portion of this growth, with an annual average growth rate of 3.6 percent. This strong growth projected for the turbojet aircraft can be attributed to a strong recovery in both the U.S. and global economy, continued success and growth in the fractional ownership industry, new product offerings (which include new entry level aircraft and long-range global jets), and a shift from commercial travel by many travelers and corporations.

Over the past several years, manufacturer and industry programs and initiatives have continued to revitalize the general aviation industry. Notable initiatives include the "No Plane, No Gain" program promoted jointly by the General Aviation Manufacturers Association (GAMA) and the National Business Aircraft Association (NBAA). This program was designed to promote cost-effectiveness of using general aviation aircraft for business and corporate uses. Other programs, which are intended to promote growth in new pilot starts and to introduce people to general aviation include "Project Pilot," sponsored by the Aircraft Owners and Pilots Association (AOPA), "Be a Pilot," jointly sponsored and supported by more than 100 industry organizations, and "Av Kids," sponsored by the NBAA.

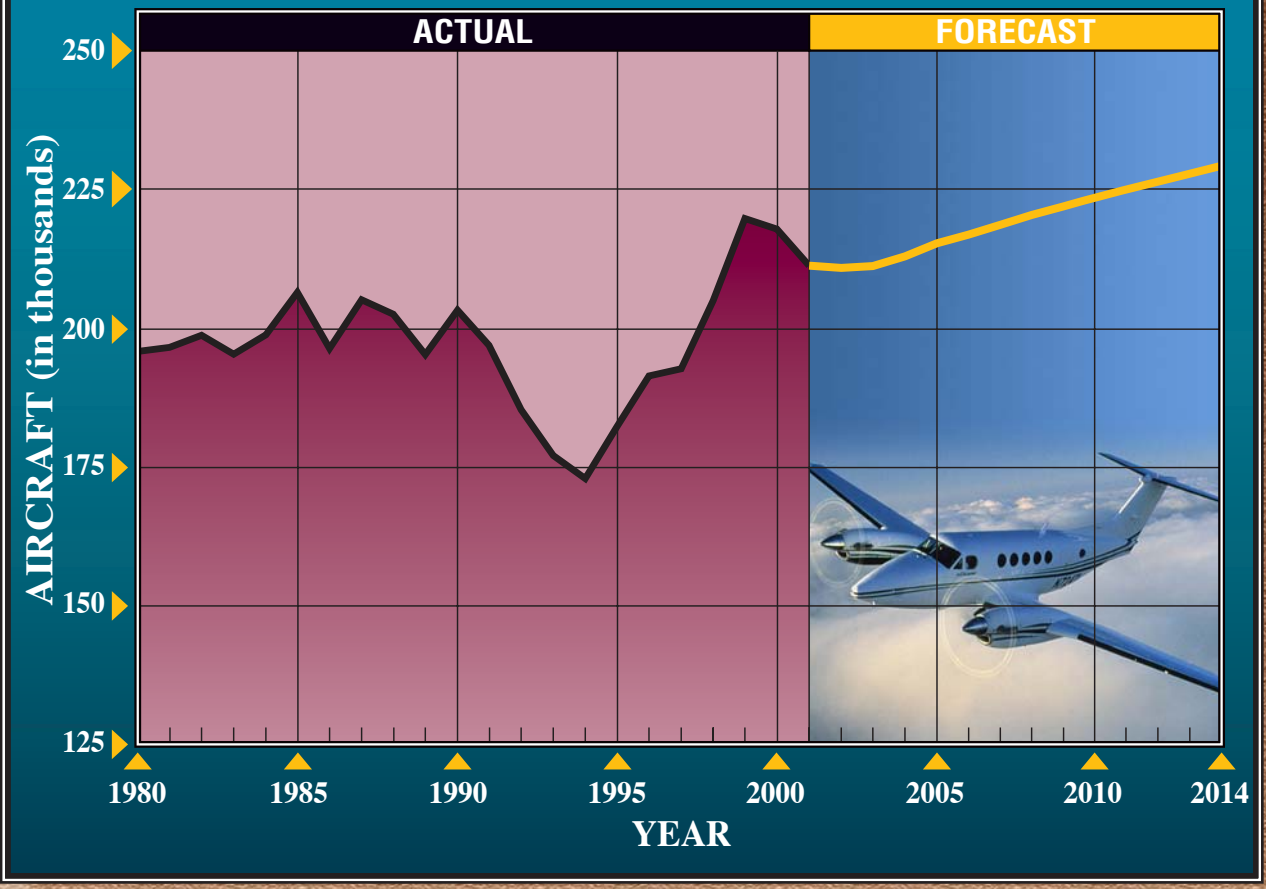
The general aviation industry is also launching new programs to make aircraft ownership easier and more affordable. Piper Aircraft Company has created Piper Financial Services (PFS) to offer competitive interest rates and/or leasing of Piper aircraft. The Experimental Aircraft Association (EAA) offers financing for kit-built airplanes through a private lending institution. Over the years, programs such as these have played an important role in the success of general aviation, and will continue to be vital to its growth in the future.

AIRPORT SERVICE AREA

The first step in determining aviation demand for an airport is to define its generalized service area for the various segments of aviation the airport can accommodate. The airport service area is determined primarily by evaluating the location of competing airports, their capabilities and services, and their relative attraction and convenience. With this information, a determination can be made as to how much aviation demand would likely be accommodated by a specific airport. It should be understood that aviation demand does not necessarily conform to political or jurisdictional boundaries.

The airport service area is an area where there is a potential market for airport services. Access to general aviation airports, commercial air

ACTIVE GENERAL AVIATION AIRCRAFT



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

Year	FIXED WING				ROTORCRAFT		Experimental	Other	Total
	PISTON		TURBINE						
	Single Engine	Multi-Engine	Turboprop	Turbojet	Piston	Turbine			
2001 (Actual)	145.0	18.3	6.6	7.8	2.3	4.5	20.4	6.5	211.0
2004	144.9	18.2	6.8	8.4	2.5	4.4	20.5	6.5	213.1
2009	147.6	18.0	7.5	10.3	2.7	4.5	21.0	6.6	222.2
2014	149.6	17.8	8.0	12.3	2.8	4.6	21.5	6.7	229.5

Sources: FAA General Aviation and Air Taxi Activity (and Avionics) Surveys.
FAA Aerospace Forecasts, Fiscal Years 2003-2014.

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

SELIGMAN AIRPORT

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

service, and transportation networks enter into the equation that determines the size of a service area, as well as the quality of aviation facilities, distance, and other subjective criteria.

In determining the aviation demand for an airport, it is necessary to identify the role of the airport. As previously mentioned, Seligman Airport is not included in the FAA's National Plan of Integrated Airport Systems *(NPIAS)*. The airport is included in the Arizona State Aviation Needs Study and is recognized by the State as a general aviation airport.

General aviation includes all components of the aviation field, with the exception of the military and commercial air carriers. General Aviation includes all business flying (corporate and executive), all agricultural aviation, personal flying for sport or pleasure, as well as flight schools and flight clubs. Aircraft manufacturers and aircraft maintenance facilities are also a part of general aviation.

General aviation airports such as Seligman have been traditionally developed to provide another means of transportation to a specified region in a manner that provides the best network of airports state and nationwide. This is especially true, for example, for medical transportation needs. Helicopters are widely utilized in metropolitan areas for medical evacuation operations, however, airplanes are used more often in more remote settings due to expediency. For this reason alone, it is important that the region be served by a functional airport which can accommodate medical evacuation operations. The airport should also be capable of accommodating the aviation demand of the region in which it is located.

The airport's service area is often limited by factors such as demographic conditions of the region, impediments to airport access (e.g., limited or nonexistent roadway networks), and other nearby airports. Seligman Airport is actually bolstered by its roadway system access. The airport is located within one mile of an entrance/exit point of Interstate 40, as well as being located immediately adjacent to Historic Route 66. In fact, the location of Route 66 makes the location a tourist attraction, primarily for those using automobiles, but also for those using aviation as a means for transportation.

The local populace does not provide significant aviation demand. According to County staff, the airport is home to just one based aircraft. The airport is important to the region as it serves to accommodate visitors to Historic Route 66 and other tourism in the region, including the Grand Canyon area. The airport is also a vital tool utilized for training by Embry Riddle Aeronautical University (ERAU). ERAU is a major aviation university with a campus located in Prescott. A portion of the university is dedicated to flight training. ERAU currently operates 44 aircraft from Ernest A. Love Field in Prescott. Discussions with the ERAU flight department indicate that they

utilize Seligman Airport daily for training operations.

Nearby airports likely have little if any impact on aviation demand at Seligman Airport. The nearest airport, Grand Canyon Caverns located 21 nautical miles northwest, reports no based aircraft. Another nearby airport, H. A. Clark Memorial Field, is located 34 miles east of Seligman Airport. This airport has 15 reported based aircraft and operations are estimated at 4,000 annually. It is very apparent that nearby airports have little if any impact on the aviation demand at Seligman Airport due to limited demand in the region in general. The only exception would be ERAU activity at Seligman. Operating from Prescott, ERAU is the single largest operator at Seligman Airport.

The potential for increased aviation demand for Seligman Airport lies in the growing population and promising business growth of the Town of Seligman and the surrounding region. Tourism and recreation industries promise increased private flying activity in the region, while the continued growth in the services and trade sectors offer a potential for corporate and business general aviation activity. Also, the training operations by ERAU will continue to drive the majority of operations at Seligman Airport well into the future.

The primary locale in the airport's service area is the Town of Seligman. The study will consider the airport's service area to extend outward to at least a 30-mile radius of the airport. **Exhibit 2B** depicts the area, along with a history of aircraft registered within the general limits of the service area. Obviously, the service area extends into Coconino County to the north/northeast, however, the majority of populace and area within the service area is within Yavapai County.

It is important to note that municipalities such as the Town of Seligman have not traditionally been capable of supporting an airport due to financial limitations. The County's involvement has provided the Town with a valuable asset. The forecast analyses conducted in the following sections take into consideration the expected local and regional growth, as well as the competing airports which influence the Seligman Airport service area.

DEMOGRAPHIC PROJECTIONS

Population growth provides an indication of the potential for sustaining growth in aviation activity over the planning period. A summary of historical and forecast population for the Town of Seligman and Yavapai County is presented in **Table 2A**. Historical information was obtained from the U. S. Department of Commerce and the Arizona Department of Economic Security. Forecasts for the town of Seligman were made by extending outward the growth rate (1.42 percent) experienced over the last two years.

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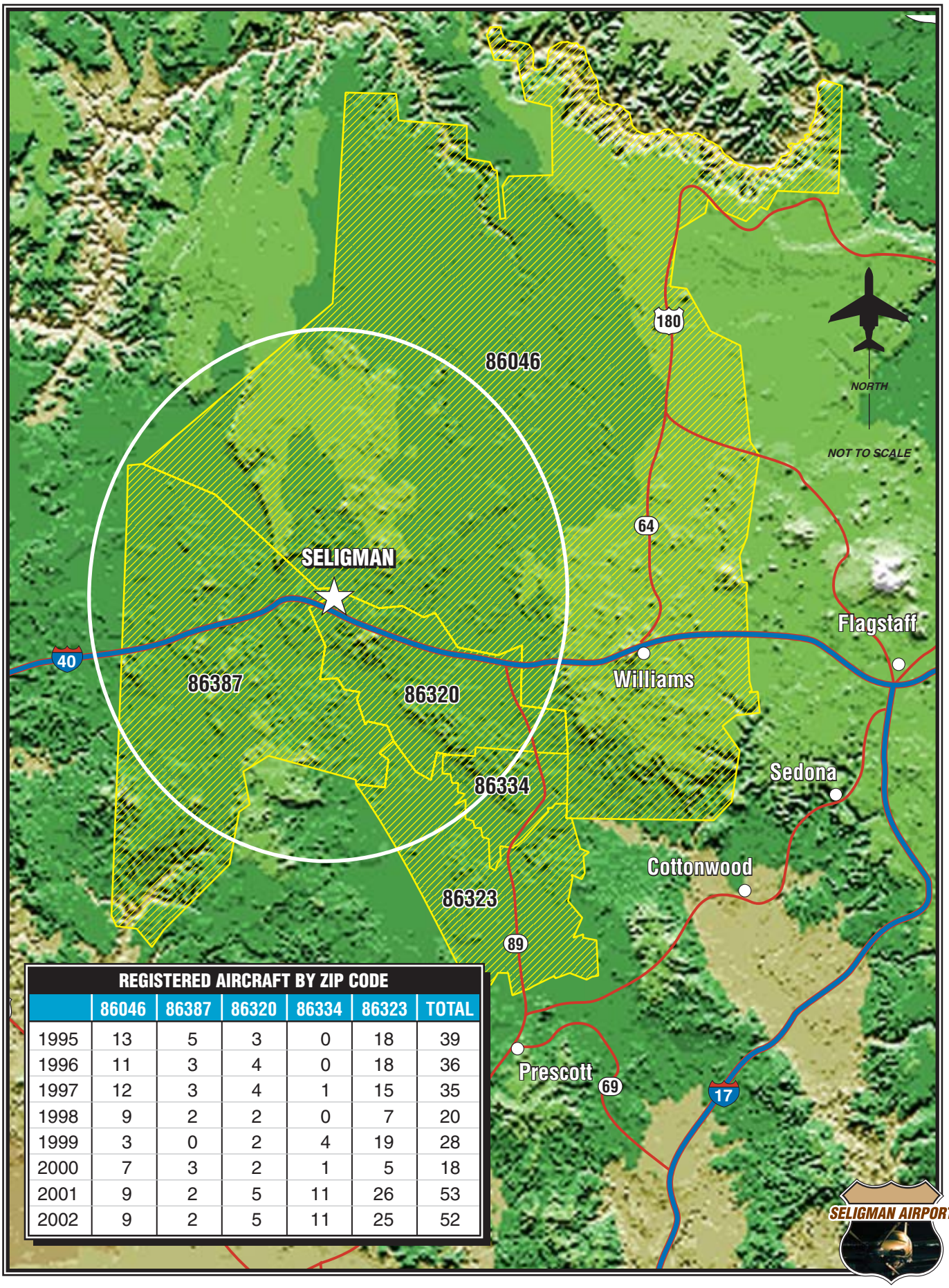

REGISTERED AIRCRAFT BY ZIP CODE

	86046	86387	86320	86334	86323	TOTAL
1995	13	5	3	0	18	39
1996	11	3	4	0	18	36
1997	12	3	4	1	15	35
1998	9	2	2	0	7	20
1999	3	0	2	4	19	28
2000	7	3	2	1	5	18
2001	9	2	5	11	26	53
2002	9	2	5	11	25	52

Exhibit 2B
REGISTERED AIRCRAFT
BY ZIP CODE

TABLE 2A
Socioeconomic Projections for Yavapai County

		Yavapai County		
Year	**Seligman Population***	**Population**	**Employment**	**Adjusted PCPI**
1980	n/a	68,145	24,820	$16,097
1990	680	107,714	42,570	$17,853
2000	456	167,517	71,980	$18,973
2002	469	180,260	74,791	$19,461
FORECASTS				
2008	510	219,698	93,479	$21,024
2013	547	252,010	107,633	$22,487
2023	630	318,242	135,398	$25,747

Source: Historic data from U.S. Department of Commerce and Arizona Department of Economic Security; County forecasts from Woods & Poole CEDDS (2003);
* Seligman population projection by Coffman Associates.

Projections for the County were obtained from Woods and Poole, *The Complete Economic and Demographic Data Source*(CEDDS 2003). Typically, the study would utilize the projections made by the Arizona Department of Economic Security (D.E.S.) or Yavapai County; however, the latest D.E.S. forecast effort was completed in July 1997. Since that time, the U. S. Census Bureau completed the 2000 Census and has released statistics for 2000. Comparing the year 2000 population forecast for Yavapai County prepared by the Arizona Department of Economic Security versus the actual census figures, indicates that the forecasts are considerably lower than actual census figures. The projected 2000 population for Yavapai County was 152,966, while the actual Census figure for 2000 was 167,517. Obviously, the remainder of the forecast years would be considerably low as well.

The Yavapai County General Plan (April 2003) also discussed the differences. The General Plan indicated that the D.E.S. utilized a 2.87 percent annual growth rate. Utilizing this growth rate with the actual 2000 census yields a forecast similar to the Woods and Poole projection. For this reason, the Woods and Poole forecasts were utilized. This data was prepared in 2002.

As reflected in the table, Yavapai County has experienced significant growth in population and employment over the last three decades. As detailed in the previous chapter, Yavapai's population and employment increased at an average annual rate of more than five percent since 1970. Prescott Valley experienced the largest percentage growth over the period, while other localities such as Camp Verde, Chino Valley, Clarkdale, Cottonwood, and Verde Village also experienced strong population growth. PCPI has experienced slower growth, increasing at only 1.22 percent on an average annual basis since 1970.

Population forecasts for Yavapai County indicate continued growth at a slower pace. As presented in **Table 2A**, Yavapai County population is expected to increase to 318,242 by 2023. This equates to an average annual growth rate of 2.74 percent. County employment is expected to increase at an average annual rate of 2.87 percent, reaching 135,398 in 2023. PCPI is projected to reach $25,747 in 2023. There were no available forecasts for the Town of Seligman. For planning purposes, Seligman population projections presented in the table consider simply extending the growth rate experienced between 2000 and 2002. This projection would yield 630 Town of Seligman residents by 2023.

FORECASTING METHODOLOGY

The development of aviation forecasts is both an analytical and judgmental process. Several mathematical relationships are tested and applied to establish statistical logic and rationale for projected aviation growth. In addition, the forecast analyst must depend upon their own professional experience, aviation industry knowledge, and personal assessment of the service area situation in making the final determination of the preferred forecast.

Reliable aviation demand estimates are best arrived at through the utilization of more than one analytical technique. Methodologies frequently employed include trend line projections, correlation/regression analysis, and market share analysis.

Aviation forecasts which extend beyond five years should not be granted an overly high level of confidence. Due to the fact that it often takes longer than five years to complete a major facility development program, facility and financial planning usually require a minimum ten-year projection. It is important, however, to use forecasts which do not overestimate the Airport's revenue-generating capability or underestimate future facility needs which are required to meet aviation activity demands.

Many factors influence the aviation industry, some of which can have significant impact, both locally and nationally. Advances in aviation technology have in the past and will in the future continue to affect the growth rate of aviation demand. As these technologies evolve and new ones emerge, it is hard to predict their impact on the aviation industry; simply put, there is no way to mathematically estimate what influence they may have. Therefore, a broad band of local, regional, and national socioeconomic information must be applied in the analysis and development of aviation forecasts. The following forecast analysis examines general aviation demand at Seligman Airport over the next twenty years.

To determine the types and sizes of facilities that should be planned to accommodate general aviation activity, certain elements of this activity must be

forecast. Indicators of general aviation demand usually include:

- Based Aircraft
- Based Aircraft Fleet Mix
- Annual Operations
- Peak Activity

The remainder of this chapter will examine historical trends regarding these areas of general aviation, and project future demand for these segments of general aviation activity at Seligman Airport.

BASED AIRCRAFT

The number of aircraft based at an airport is, to a large degree, dependent upon the nature and magnitude of aircraft ownership in the local service area. In addition, Seligman Airport is one of a handful of airports serving the general aviation needs of the region.

As detailed earlier, the Seligman Airport service area consists primarily of Northern Yavapai County and areas within a 30-mile radius of the airport. The primary service area will continue to be the Town of Seligman, however, outlying areas and operations from other airports (e.g., ERAU) will continue to influence aviation demand at Seligman Airport.

In order to project based aircraft at the airport, it is important to first identify the market conditions from which those aircraft are derived. As previously mentioned, Yavapai County, especially the northern portion of the county serves as the primary service area for Seligman Airport. It is important, then, that the process of developing forecasts of based aircraft for Seligman Airport begins with a review of historical aircraft registrations in the county.

REGISTERED AIRCRAFT FORECASTS

Historical records of aircraft ownership in Yavapai County since 1980 were obtained from records of the FAA's *U.S. Census of Civil Aircraft*. Yavapai registered aircraft since 1990 are presented in **Table 2B**. Aircraft registered in the county has increased significantly over the last 13 years. Over this period, the county's registered aircraft increased from 375 in 1990 to 624 in 2003. This growth equates to an average annual increase of 3.99 percent. Since 1980, registered aircraft have increased 4.58 percent on an annual average basis. Applying both growth ratios would yield 1,365 and 1,527 Yavapai County registered aircraft, respectively, by 2023.

The strong growth of aircraft ownership in the region is not surprising given the relatively warm weather, growing population, and strong economic conditions. Moreover, the State of Arizona is one of the busiest aviation regions in the country. Future aircraft ownership in Yavapai County will be largely dependent upon continued growth in the region's economy and population.

Another method of projecting registered aircraft is to compare county aircraft registrations with U.S. Active aircraft.

Table 2B presents two market share projections. First, a constant share projection considers that the county-registered aircraft will remain at 0.30 percent of U.S. active aircraft over the next 20 years. This projection yields 695 registered aircraft. Next an increasing market share was considered. Over the last 13 years, the trend has been generally increasing. The increasing market share projection, reaching 0.48 percent of U.S. active aircraft, yields 1,112 registered aircraft by 2023.

TABLE 2B
Yavapai County Registered Aircraft - Market Share Projections

Year	U.S. Active Aircraft	County Registered Aircraft	% of National
1990	198,000	375	0.19%
1991	198,700	419	0.21%
1992	185,700	401	0.22%
1993	177,100	406	0.23%
1994	172,900	423	0.24%
1995	188,100	464	0.25%
1996	191,100	468	0.24%
1997	192,400	486	0.25%
1998	204,700	514	0.25%
1999	219,500	541	0.25%
2000	217,500	568	0.26%
2001	216,150	624	0.29%
2002	211,040	628	0.30%
2003	211,370	624	0.30%
CONSTANT MARKET SHARE PROJECTION			
2008	215,490	646	0.30%
2013	223,720	671	0.30%
2023	231,617	695	0.30%
INCREASING MARKET SHARE PROJECTION			
2008	215,490	733	0.34%
2013	223,720	873	0.39%
2023	231,617	1,112	0.48%

Source: Registered Aircraft from Census of U.S. Civil Aircraft; U.S. active aircraft from FAA Aerospace Forecasts, Fiscal Years 2003-2014 (note 2023 extrapolated by Coffman Associates)

The next projection for Yavapai County aircraft registrations was developed utilizing trend line analysis. The correlation coefficient **(Pearson's "r")** measures the association between changes in the dependent variable (aircraft registrations) and the independent variable(s) (calendar years). An r^2 greater than 0.90 indicates good predictive reliability. A value below 0.90 may be used with the understanding that the predictive reliability is lower. The strong growth of aircraft registrations in the region yielded an r^2 value of 0.97 for registered aircraft for the period of 1980-2003. This projection yields 985 registered aircraft by 2023. Another time-series analysis considering the time period between 1990-2003 yields an r^2 value of 0.95 and 1,045 registered aircraft by 2023.

Several statistical regressions were analyzed comparing the County's registered aircraft versus demographic conditions presented in **Table 2A**. The population and employment regressions provided the best correlation with r^2 values of 0.99. The projections associated with the population and employment regression analyses yield 1,109 and 1,075 registered aircraft, respectively. The PCPI comparison provided a r^2 value of 0.97 and 1,385 registered aircraft by 2023. Registered aircraft projections are summarized in **Table 2C** and are depicted on **Exhibit 2C**.

TABLE 2C
Registered Aircraft Projections Summary

Projection	2008	2013	2023
Time Series			
vs. 1980-2003 r^2 = 0.97	710	802	985
vs. 1990-2003 r^2 = 0.95	734	838	1,045
Regression Analysis			
vs. Population r^2 = 0.99	761	875	1,109
vs. Employment r^2 = 0.99	754	863	1,075
vs. PCPI r^2 = .97	807	986	1,385
Market Share Analysis			
Constant Share of U.S. Active Aircraft	646	671	695
Increasing Share of U.S. Active Aircraft	733	873	1,112
Historic Growth Rates			
Since 1990 @ 3.99%	759	923	1,365
Since 1980 @ 4.58%	780	976	1,527
Selected Forecast	***720***	***840***	***1,050***

BASED AIRCRAFT FORECASTS

In the preparation of based aircraft forecasts for Seligman Airport, existing and historical based aircraft records maintained by the County, the State and the FAA were obtained and reviewed. According to Yavapai County, as of December 2003, there was one based aircraft at Seligman Airport.

Based aircraft totals for the FAA are usually derived from annual inspection of the airport, and are often carried over from year-to-year, depending on the frequency of inspection. The current FAA Form 5010 Airport Master Record for Seligman Airport indicates four based aircraft for the Airport in 2003. It should be noted, however, this total has not changed in their reporting for several years. ADOT's State Aviation Needs Study (SANS) indicates four based aircraft as well.

For purposes of determining future airport facility needs and developing based aircraft projections, this master plan will utilize current based aircraft figures provided by the County, as it appears to more accurately reflect existing airport conditions. **Table 2D** presents historical registered based aircraft for Seligman Airport and offers a future market share analysis based on

percentages of Yavapai County registered aircraft.

Future based aircraft demand at Seligman Airport has been analyzed by evaluating the Airport's share of the County and State aviation markets. According to **Table 2D**, the percent of County registered aircraft currently based at Seligman Airport totals 0.16 percent. The constant market share analysis shown in **Table 2D** assumed that the Airport's share of Yavapai County registered aircraft remains unchanged at 0.20 percent, and would result in two based aircraft by 2023.

TABLE 2D
Seligman Airport Based Aircraft Forecast

Year	Yavapai County Registered Aircraft	Seligman Airport Based Aircraft	Seligman Airport % of County Registered
1980	223	2	0.90%
1990	375	3	0.80%
2000	628	4	0.64%
2003	624	1	0.16%
CONSTANT SHARE PROJECTION			
2008	720	1	0.20%
2013	840	2	0.20%
2023	1,050	2	0.20%
INCREASING SHARE PROJECTION			
2008	720	2	0.25%
2013	840	4	0.50%
2023	1,050	10	0.95%

The forecast of continued population growth and improved economic conditions in Seligman and other nearby communities, to the overall economic outlook for Yavapai County, should translate to a greater share of County registered aircraft for the Airport. The forecast increasing market share of County registered aircraft reaching the level experienced in 1980 (0.95 percent) yields ten based aircraft by the end of the planning period.

Seligman Airport's aviation demand is somewhat limited due to its location. The airport is remotely located and has a relatively small service area populace to provide support. Most of the County's registered aircraft growth has been in areas outside of Seligman's service area. **Exhibit 2B** depicted the service area, as well as a listing of historical registered aircraft for the zip code areas within the service area. As presented, the area has experienced a low of 18 registered aircraft, to a peak of 53 registered aircraft since 1995. Moreover, the two zip codes with the greatest amount of registered aircraft are nearer other airports in Prescott and Williams. Obviously, Seligman Airport based aircraft growth will be largely dependent upon the growth of aircraft ownership in the service area.

Since 1995, registered aircraft in the service area has remained near eight percent of total Yavapai County

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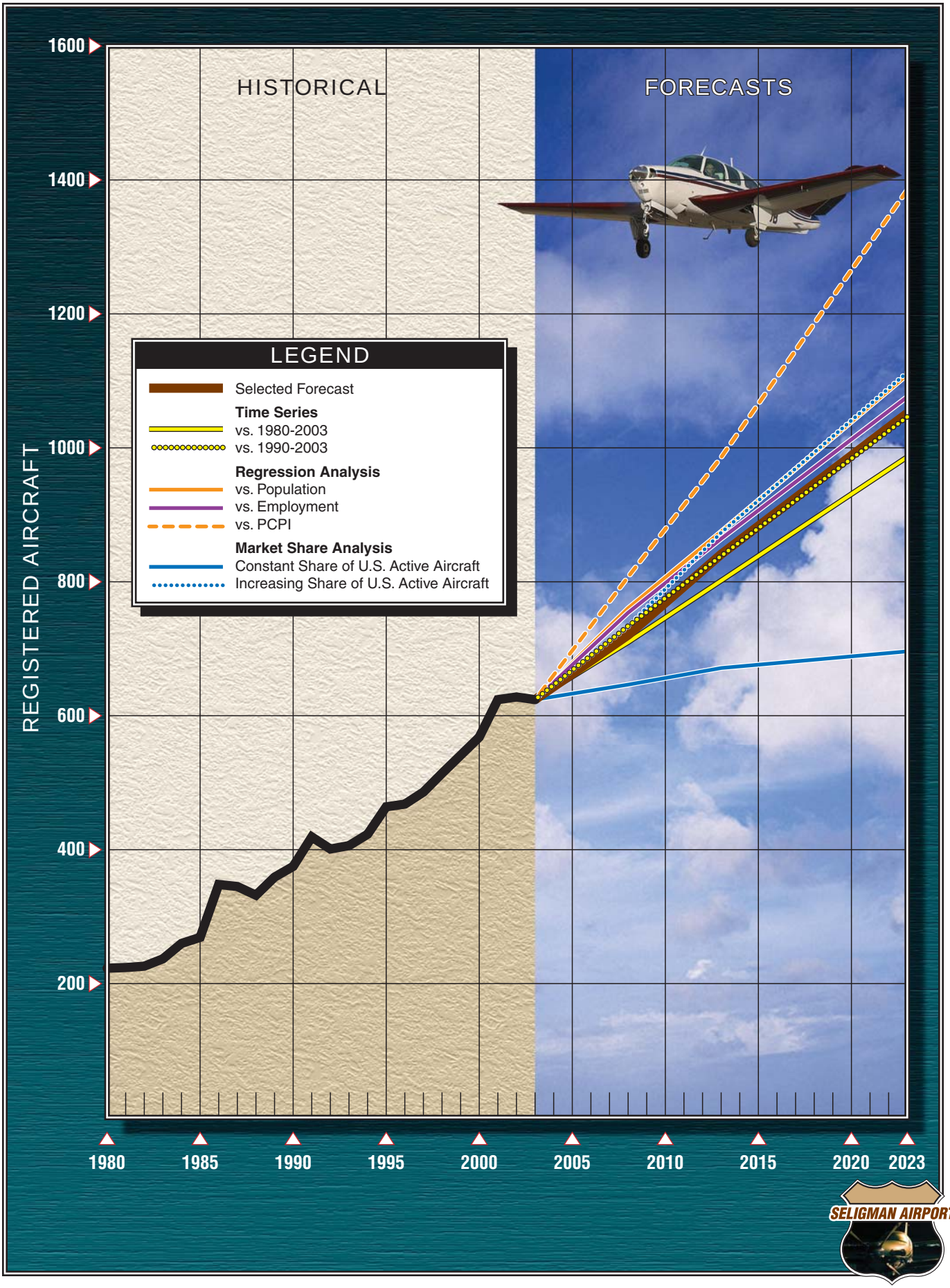


Exhibit 2C
YAVAPAI COUNTY REGISTERED
AIRCRAFT PROJECTIONS

registered aircraft. This comparison is made knowing that some of the area in the zip code service area extends into Coconino County, but serves as a good comparative measure. Simply extending out a constant eight percent share yields 84 aircraft in the service area by 2023. It is likely that the majority of those aircraft will base at airports in Prescott and Williams or even in Flagstaff. It is not unreasonable to assume, however, that Seligman can attract up to ten of those aircraft, similar to the increasing share of County registered aircraft presented in **Table 2D**.

The previous master plan and SANS considered aircraft reaching 20 by the end of the planning period. This figure now appears to be somewhat high. As mentioned earlier, the airport has few aircraft to draw from in its service area. It is important, however, to always plan for reasonable levels of demand to ensure that facility improvements to meet potential needs can be made. It appears that the increasing share of Yavapai County registered aircraft is reasonable and would provide ample facility planning opportunities. This will be the selected forecast and will be used for the remainder of this plan.

FLEET MIX

Anticipating the future aircraft fleet mix expected to utilize Seligman Airport is necessary to properly plan the facilities that will best serve, not only the level of activity, but also the type of activities occurring at the Airport. As previously mentioned, the airport has one based, single engine aircraft. The based aircraft information was provided by Yavapai County.

The forecast mix of based aircraft for Seligman Airport was determined by examining existing and forecast U.S. general aviation fleet trends. The *FAA Aviation Forecasts - Fiscal Years 2003-2014* was consulted for the U.S. general aviation fleet mix trends and considered in the fleet mix projections. Although the majority of the fleet make-up at Seligman Airport will continue to be single-engine piston aircraft, there is expected to be an increasing percentage of multi-engine, turboprop, jet, and helicopters in the future mix, all of which is consistent with national trends. **Table 2E** summarizes the based aircraft fleet mix projections for the Airport.

Due to its location and nature, Seligman Airport will most likely serve primarily the needs of single engine piston aircraft. The future fleet mix projection considers the long term potential for the airport to base both a turboprop and rotor aircraft. These aircraft are typically associated with medical evacuation operations and may not base at Seligman year round, but could base at the airport for extended periods of time. It would be important to consider this potential to ensure that facility plans are in place to accommodate these aircraft needs in the future.

ANNUAL OPERATIONS

There are two types of general aviation operations at an airport: local and itinerant. A local operation is a take-off or landing performed by an aircraft that operates within sight of the airport, or which executes simulated approaches or touch-and-go operations at the airport. Generally, local operations are characterized by training operations. Itinerant operations are those performed by aircraft with a specific origin or destination away from the airport. Typically, itinerant operations increase with business and industry use, since business aircraft are used primarily to carry people from one location to another.

TABLE 2E
Projected Based Aircraft Fleet Mix
Seligman Airport

Year	Total Based Aircraft	Single Engine	Multi Engine	Turbo Prop	Jet	Rotor
Historical						
2001	1	1	0	0	0	0
Forecast						
2008	2	2	0	0	0	0
2013	4	3	1	0	0	0
2023	10	6	2	1	0	1

Seligman Airport has no airport traffic control tower, therefore, aircraft operations have not been regularly counted. Instead, only general estimates of historical and current activity is available. Historical operations have come from the FAA Form 5010 for Seligman Airport. On examination of these records, it would appear that operations estimates have been carried over from year-to-year. During this time, the itinerant to local operations split is approximately 55 percent to 45 percent, respectively. In the previous master plan, an acoustical operations count was conducted. The results indicated approximately 850 annual operations.

Discussions with ERAU indicate that both the FAA Form 5010 and previous count may be somewhat low. ERAU indicates that they conduct an average of ten operations per day at the airport.

That would equate to 2,500 annual operations. Also, County staff work in the vicinity of the airport and confirm this estimate as reasonable. The airport also experiences weekend traffic due to the attraction of Historic Route 66 and local restaurants. Estimates of 20 operations per weekend were made. With these factors considered, it is reasonable to assume that annual operations at Seligman Airport are higher than presented in the FAA Form

5010. For planning purposes, an estimate of 3,500 will be used for 2003 annual operations.

The FAA Form 5010 also indicates that itinerant operations outnumber local operations. In all likelihood, local operations dominate. The estimate of 3,500 considers 2,500 annual operations by ERAU. The vast majority of these operations are local, associated with pilot training. **Table 2F** presents the local and itinerant operations estimates. Local operations are estimated to comprise 60 percent of total operations.

TABLE 2F
Operations Forecasts

Year	Itinerant	Local	Total Operations	Seligman Based Aircraft	Operations per Based Aircraft
2003	1,400	2,100	3,500	1	3,500
FORECAST					
2008	2,400	3,600	6,000	2	3,000
2013	4,000	6,000	10,00	4	2,500
2023	6,000	9,000	15,000	10	1,500

The most common method of forecasting aircraft operations is to compare annual operations with based aircraft. For airports similar to Seligman, the operations per based aircraft ratio can range up to 1,000, while typically remaining below 500. Given that the airport has only one based aircraft, however, the current ratio is one based aircraft to 3,500 operations. While this number of operations per based aircraft is higher than most GA airports, it is reasonable, due to the large number of training operations (touch-and-go's) conducted at Seligman Airport. As previously mentioned, ERAU located at Prescott's Ernest A. Love Field utilizes Seligman Airport as part of its flight training program. ERAU operations consist primarily of touch-and-go maneuvers.

The projections of annual operations at Seligman Airport, which are summarized in **Table 2F**, have been prepared by examining the number of operations per based aircraft. It is unreasonable to expect that the airport maintains 3,500 operations per based aircraft. As based aircraft increase, the operations per based aircraft ratio will decrease. For this reason, a decreasing operation per based aircraft ratio was used in forecasting annual operations. As presented in **Table 2F**, a decreasing ratio, falling to 1,500 operations per based aircraft in 2023, yields 15,000 annual operations. This projection is reasonable given the nature of the airport as a training facility for ERAU and the forecast ten based aircraft.

Although based aircraft are projected to increase in the future, it is assumed that the current 60 percent local and 40 percent itinerant split of operations will remain the same throughout the planning period. The projection of local and itinerant operations are summarized in **Table 2F**.

AIR CARGO

Seligman Airport is not currently utilized by air cargo operators. Given its remote location, use of the airport by air cargo operators could occur. There use, however, would never likely include regularly scheduled/daily service. The surrounding community does not provide a substantial industrial/commercial base. All future air cargo operations would likely be sporadic if they are to occur. For this reason, the forecasts will not include specific projections for air cargo operations.

PEAKING CHARACTERISTICS

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

- ***Peak Month*** - The calendar month when peak aircraft operations occur.

- ***Design Day*** - The average day in the peak month. Normally this indicator is easily derived by dividing the peak month operations by the number of days in a month.

- ***Busy Day*** - The busy day of a typical week in the peak month. This descriptor is used primarily to determine apron space requirements.

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

Actual operational information is not available to directly determine peak aviation activity at the airport; therefore, peak period forecasts have been determined according to trends experienced at similar airports across the country. Typically, the peak month for activity at general aviation airports approximates 10-12 percent of the airport's annual operations. Peak month operations have been estimated as 10 percent of annual operations, as no special circumstances have been found which would result in a higher percentage. The forecast of busy day operations at the airport was calculated as 1.4 times design day activity. Design hour operations were calculated as 15.0 percent of design day operations. **Table 2G** summarizes peak activity forecasts for Seligman Airport.

TABLE 2G
Forecasts of Peak Activity Seligman

	2003	2008	2013	2023
OPERATIONS				
Annual	3,500	6,000	10,000	15,000
Peak Month (10%)	350	600	1,000	1,500
Design Day	12	20	33	50
Busy Day	16	28	47	70
Design Hour (15%)	2	3	5	6

ANNUAL INSTRUMENT APPROACHES

Annual instrument approach (AIA) data provides guidance in determining an airport's need for navigational aids. An instrument approach is defined by the FAA as an "approach to an airport with the intent to land by an aircraft in accordance with an instrument flight rule (IFR) flight plan, when visibility is less than three miles and/or when the ceiling is at or below the minimum initial approach altitude."

Currently, Seligman Airport is not served by a published instrument approach. It is unlikely that the airport would ever qualify for an instrument landing system (ILS) approach, however, global position system (GPS) technology provides a cheaper alternative. GPS is now available for all public use airports if selected by FAA. For planning purposes, future AIAs will consider the implementation of a GPS approach to the airport.

While AIAs can be partially attributable to weather, they may be expected to increase as transient operations and operations by more sophisticated (and consequently properly equipped aircraft) increase through the planning period. For general aviation airports, AIAs can range up to five percent of itinerant operations. On average, AIAs equate to two percent of itinerant operations. For this reason, AIA projections for Seligman Airport consider AIAs being two percent of annual itinerant operations. The projections of AIAs for the airport are summarized in **Table 2H**.

TABLE 2H
Annual Instrument Approaches (AIAs) Projections
Seligman Airport

Year	AIA's	Itinerant Operations	Ratio
2008	48	2,400	2.00%
2013	80	4,000	2.00%
2023	120	6,000	2.00%

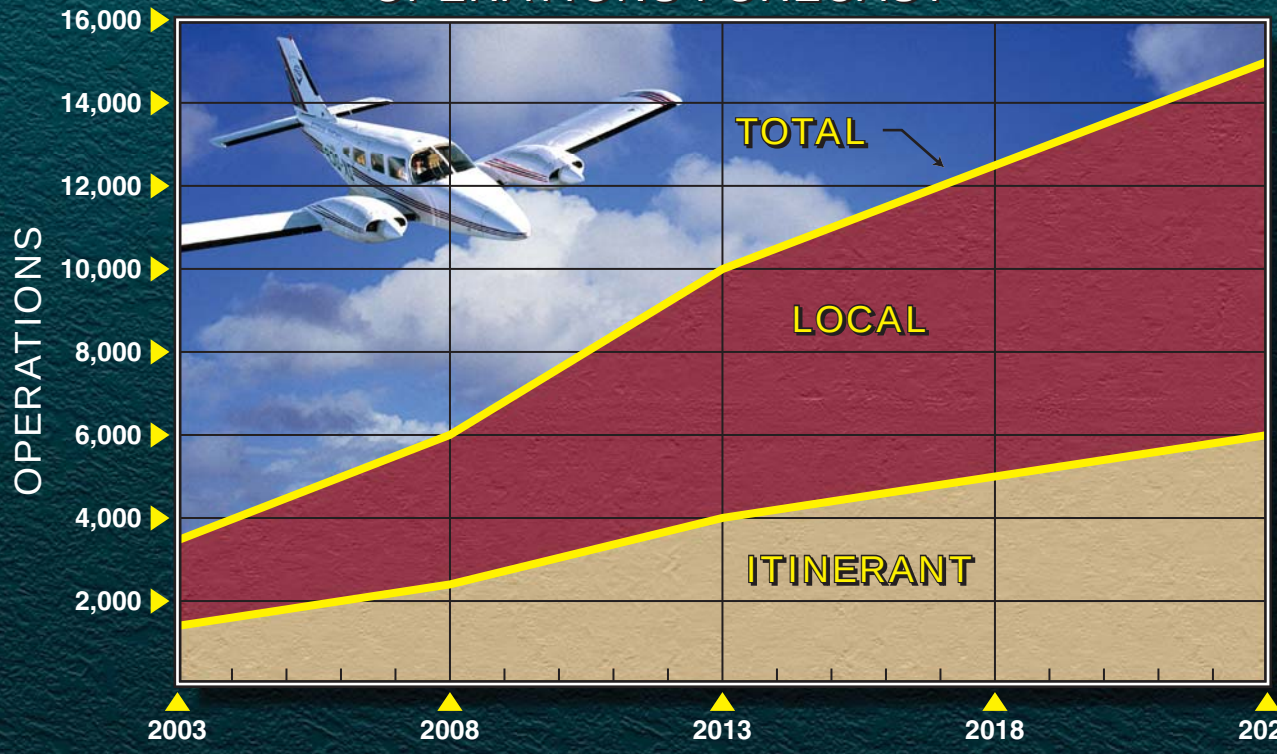
FORECAST SUMMARY

This chapter has outlined the various aviation demand levels anticipated over the planning period. The next step in the master plan is to assess the capacity of existing facilities to accommodate forecast demand and determine which facilities will need to be improved to meet these demands. This will be examined in the next chapter -- Chapter Three, Aviation Facility Requirements. **Exhibit 2D** presents a summary of the aviation forecasts developed for Seligman Airport.

FORECAST SUMMARY

ACTIVITY	2003	2008	2013	2023
OPERATIONS				
Itinerant	1,400	2,400	4,000	6,000
Local	2,100	3,600	6,000	9,000
Total Operations	***3,500***	***6,000***	***10,000***	***15,000***
AIA's	**n/a**	**48**	**80**	**120**
BASED AIRCRAFT				
Single Engine	1	2	3	6
Multi-Engine	0	0	1	2
Turboprop	0	0	0	1
Jet	0	0	0	0
Rotor	0	0	0	1
Total Based Aircraft	***1***	***2***	***4***	***10***

OPERATIONS FORECAST



SELIGMAN AIRPORT

Exhibit 2D
FORECAST SUMMARY

Chapter Three

FACILITY REQUIREMENTS

CHAPTER THREE

FACILITY REQUIREMENTS

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

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

PLANNING HORIZONS

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

It is important to consider that the actual activity at the airport may be higher or lower than projected activity levels. By planning according to

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

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

TABLE 3A
Planning Horizons

	Short Term	Intermediate Term	Long Term
OPERATIONS			
Itinerant	2,400	4,000	6,000
Local	3,600	6,000	9,000
TOTAL OPERATIONS	6,000	10,000	15,000
Annual Instrument Approaches	48	80	120
Total Based Aircraft	2	4	10

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

AIRFIELD REQUIREMENTS

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

- Airfield Design Standards
- Airfield Capacity
- Runways
- Taxiways
- Navigational Approach Aids
- Airfield Lighting, Marking, and Signage

AIRFIELD DESIGN STANDARDS

The selection of appropriate Federal Aviation Administration (FAA) and Arizona Department of Transportation (ADOT) - Aeronautics Division design standards for the development and location of airport facilities is based primarily upon the characteristics of the aircraft which are currently using, or are expected to use, the airport. Planning for future aircraft use is of particular importance since design standards are used to plan separation distances between facilities. These standards must be determined now since the relocation of these facilities will likely be extremely expensive at a later date.

The FAA has established a coding system to relate airport design criteria to the operational and physical characteristics of aircraft expected to use the airport. This code, the airport reference code (ARC), has two components: the first component, depicted by a letter, is the aircraft approach speed (operational characteristic); the second component, depicted by a Roman numeral, is the airplane design group and relates to aircraft wingspan (physical characteristic). Generally, aircraft approach speed applies to runways and runway-related facilities, while aircraft wingspan primarily relates to separation criteria involving taxiways, taxilanes, and landside facilities. **Exhibit 3A** depicts typical aircraft within each ARC.

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

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

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

Group I: Up to but not including 49 feet.
Group II: 49 feet up to but not including 79 feet.
Group III: 79 feet up to but not including 118 feet.
Group IV: 118 feet up to but not including 171 feet.
Group V: 171 feet up to but not including 214 feet.
Group VI: 214 feet or greater.

In order to determine facility requirements, an ARC should first be determined, then appropriate airport

design criteria can be applied. This begins with a review of the type of aircraft using and expected to use Seligman Airport.

The FAA recommends designing airport functional elements to meet the requirements of the most demanding ARC for that airport. It is important to note that the FAA has established 500 annual operations as the threshold for defining an airport's critical aircraft. This threshold is used to establish justification (for State or Federal funding assistance) for airport improvement projects aimed at accommodating the critical aircraft. For some airports, however, other means of identifying critical aircraft can be used, such as identifying aircraft basing at the airport that may not reach the 500 annual operational level.

Critical Aircraft

Seligman Airport is currently designed to meet ARC B-I standards. This design standard corresponds to both the airport's based aircraft and itinerant aircraft operators. Currently, the airport has one based, single engine aircraft. As discussed in the previous chapter, the airport is also utilized by aircraft from Embry Riddle Aeronautical University (ERAU). These are typically flight training operations conducted in single or multi-engine piston aircraft within ARC B-I. Thus, the current design meets the needs of the airport's current critical aircraft.

Defining the future critical aircraft can sometimes be a difficult task. Typically, the design aircraft is based upon the most demanding aircraft actually based at the airport. For airports similar to Seligman Airport, the critical aircraft can be defined by a group of similar aircraft which operate at the airport on a regular basis.

Future aircraft mix can expect to include a larger percentage of aircraft falling in Group II, however, still within approach category B. The primary role of the Seligman Airport is, and will continue to be, to serve general aviation aircraft operations, especially those within ARC B-I. Given its remote location, however, the Seligman Airport should also be designed to accommodate medical evacuation flights when necessary. Many times, rotorcraft are used. For Seligman and the surrounding communities, however, turboprop or small jet aircraft from Flagstaff could be used for expediency. In many cases the aircraft of choice is the Beechcraft King Air. The King Air is an ARC B-II airplane (except for the 350 model). These aircraft are based in Flagstaff and utilized by two medical evacuation operators. In some cases, small business jets are used, such as Cessna Citations which also fall within ARC B-II (except for the X model). Planning for ARC B-II may also be useful in aiding community development as it would allow availability for corporate operators within ARC B-II to utilize the airport.

Given all of these considerations, ultimate planning should conform to full ARC B-II standards, to meet the needs of small business jets (e.g., Cessna Citations or those weighing less than 30,000 pounds), and especially for medical emergency evacuation aircraft

02MP20-3A-12/17/03

A-I

- Beech Baron 55
- **Beech Bonanza**
- Cessna 150
- Cessna 172
- Piper Archer
- Piper Seneca

B-I less than 12,500 lbs.

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

B-II less than 12,500 lbs.

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

B-I, II over 12,500 lbs.

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

A-III, B-III

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

C-I, D-I

- **Lear** 25, **35**, 55
- Israeli Westwind
- HS 125

C-II, D-II

- **Gulfstream** II, III, **IV**
- Canadair 600
- Canadair Regional Jet
- Lockheed JetStar
- Super King Air 350

C-III, D-III

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

C-IV, D-IV

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

D-V

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

Note: Aircraft pictured is identified in bold type.

SELIGMAN AIRPORT

Exhibit 3A
AIRPORT REFERENCE CODES

up to and including the Beechcraft King Air 200 and Pilatus aircraft. Analysis presented in the following sections will consider the runway lengths required by both B-II aircraft.

The airfield facility requirements outlined in this chapter correspond to the design standards described in the *FAA's Advisory Circular 150/5300-13, Change 7, Airport Design*. The following airfield facilities are outlined to describe the scope of facilities that would be necessary to accommodate the airport's role throughout the planning period.

AIRFIELD CAPACITY

A demand/capacity analysis measures the capacity of the airfield facilities (i.e., runways and taxiways) in order to identify and plan for additional development needs. The capacity of the airport's airfield can provide up to 230,000 annual operations. FAA Order 5090.3B, *Field Formulation of the National Plan of Integrated Airport Systems (NPIAS)*, indicates that improvements should be considered when operations reach 60 percent of the airfield's annual service volume (ASV). The FAA also suggests that airports implement capacity-enhancing projects once operations reach 80 percent of the airports ASV.

If the projected long range planning horizon's level of operations comes to fruition, the airfield ASV will not exceed the 60 percent level. In fact, the long term operational projection would remain below 10 percent of the airfield's approximate ASV. For this reason, planning will not include airfield capacity improvements.

RUNWAYS

The adequacy of the existing runway system at Seligman Airport has been analyzed from a number of perspectives, including runway orientation, runway length, pavement strength, width, and safety standards. From this information, requirements for runway improvements were determined for the airport.

Runway Orientation

The airfield configuration includes Runway 4-22, oriented in a northeast-southwest manner. Ideally, the primary runway should be oriented as close as practical in the direction of the predominant wind, to maximize the runway's usage. This minimizes the percent of time that a crosswind could make the preferred runway inoperable.

FAA Advisory Circular 150/5300-13, Change 7, Airport Design, recommends that a crosswind runway should be made available when the primary runway orientation provides for less that 95 percent wind coverage for any aircraft forecast to use the airport on a regular basis. The 95 percent wind coverage is computed on the basis of the crosswind component not exceeding 10.5 knots (12 mph) for Airport Reference Codes (ARC) A-I and B-I; 13 knots (15 mph) for ARC A-II and B-II; 16 knots (18 mph) for ARC C-I through D-II; and 20 knots for ARC A-IV through D-VI.

Wind data specific to the airport was not available. There are three weather reporting stations which could be considered for use at Seligman, however, each is fairly distant. The three stations are located at Flagstaff, Prescott, and Kingman. Kingman likely has the most similar topography. The wind data for all three weather reporting stations is depicted on **Exhibit 3B**.

As depicted on the exhibit, the Kingman weather data results in a 92.12 percent crosswind coverage for 12 mph winds and 95.58 percent for 15 mph winds. Prescott data improves the crosswind coverage at Seligman airport to 94.48 percent for 12 mph crosswinds and 97.09 percent for 15 mph crosswinds. Finally, the Flagstaff weather data yields 98.33 percent for 12 mph crosswinds and 99.41 for 15 mph crosswinds.

Considering all stations, it is very likely that the existing runway orientation is adequate for Seligman Airport most of the time. For this reason, future plans will not consider the construction of a crosswind runway.

Runway Length

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

- Critical aircraft type expected to use the airport.
- Stage length of the longest nonstop trip destination.
- Mean maximum daily temperature of the hottest month.
- Runway gradient.
- Airport elevation.

An analysis of the existing and future fleet mix indicates that turboprop and small jet aircraft within ARC B-II will be the most demanding aircraft for runway length at Seligman Airport. The typical itinerant business aircraft could range from the Cessna Citation family to Lear Jets, while the turboprops will likely be Beechcraft King Air or Pilatus aircraft.

Aircraft operating characteristics are affected by three primary factors: the mean maximum daily temperature of the hottest month, the airport's elevation, and the gradient of the runway. An increase in the maximum difference in runway centerline elevation increases the runway requirement in large aircraft weighing less than 60,000 pounds, while an increase in haul length of airplanes weighing more than 60,000 pounds will also increase runway lengths for these aircraft.

The mean maximum daily temperature of the hottest month for Seligman Airport is 91.8 degrees Fahrenheit. The airport elevation is 5,237.8 feet MSL (high point on runway). Gradient for Runway 4-22 is 0.23 percent, with the maximum difference in runway elevation being 12 feet.

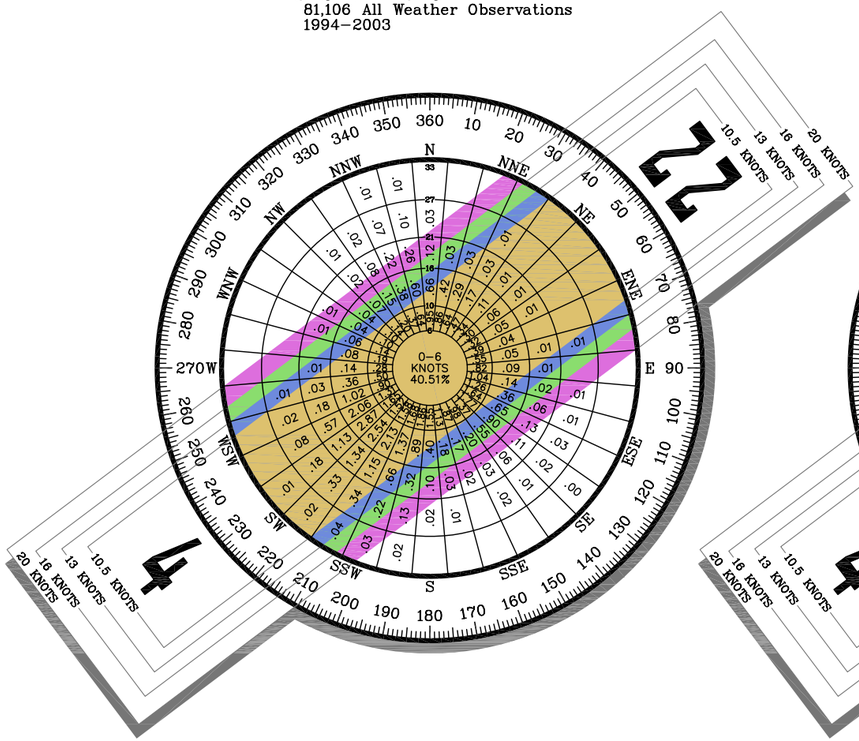
Table 3B outlines the runway length requirements for various classifications

ALL WEATHER WIND COVERAGE

Runway	10.5 Knots 10.5 MPH	13 Knots 10.5 MPH	16 Knots 10.5 MPH	20 Knots 10.5 MPH
Runway 4–22	*92.12%*	*95.58%*	*98.36%*	*99.50%*

SOURCE:
NOAA National Climatic Center
Asheville, North Carolina
Kingman Airport (IGM)
Kingman, Arizona

OBSERVATIONS:
81,106 All Weather Observations
1994–2003

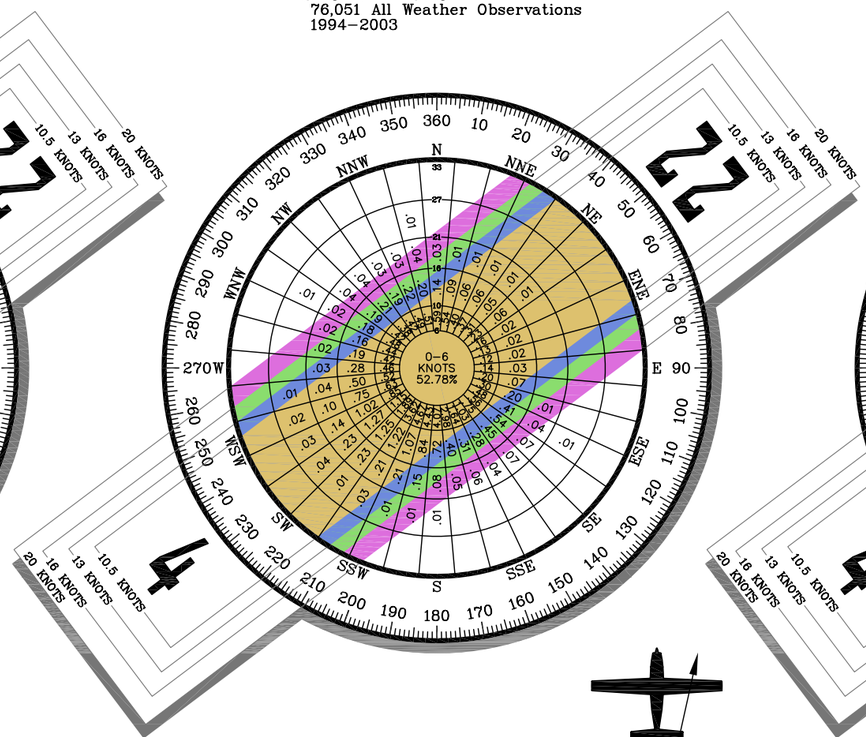


ALL WEATHER WIND COVERAGE

Runway	10.5 Knots 10.5 MPH	13 Knots 10.5 MPH	16 Knots 10.5 MPH	20 Knots 10.5 MPH
Runway 4–22	*94.48%*	*97.09%*	*99.24%*	*99.83%*

SOURCE:
NOAA National Climatic Center
Asheville, North Carolina
Ernest A Love Field (PRC)
Prescott, Arizona

OBSERVATIONS:
76,051 All Weather Observations
1994–2003

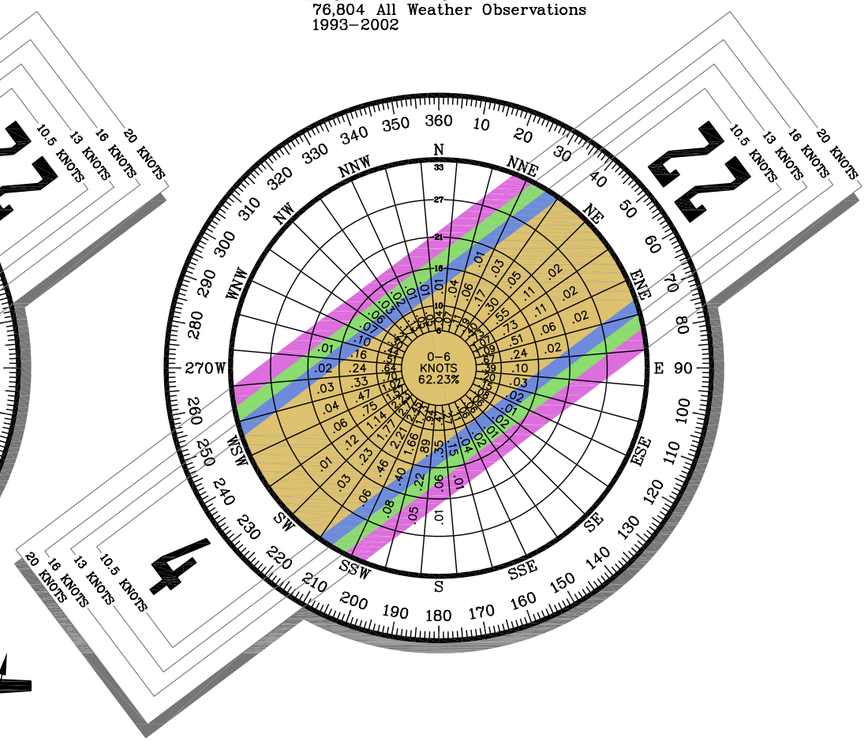


ALL WEATHER WIND COVERAGE

Runway	10.5 Knots 10.5 MPH	13 Knots 10.5 MPH	16 Knots 10.5 MPH	20 Knots 10.5 MPH
Runway 4–22	*98.33%*	*99.41%*	*99.89%*	*99.98%*

SOURCE:
NOAA National Climatic Center
Asheville, North Carolina
Flagstaff Pulliam Airport (FLG)
Flagstaff, Arizona

OBSERVATIONS:
76,804 All Weather Observations
1993–2002



Magnetic Variance
12° 32' East (December 2004)
Annual Rate of Change
2' West (December 2004)

SELIGMAN AIRPORT

Exhibit 3B
WINDROSES

of aircraft that utilize Seligman Airport. These standards were derived from the *FAA Airport Design Computer Program* for recommended runway lengths. As with other design criteria, runway length requirements are based upon the critical aircraft grouping with at least 500 annual operations.

Based upon the forecast of aircraft fleet mix through the long range planning period, Seligman Airport should be designed to accommodate, at a minimum, 100 percent of small aircraft (ARC B-II aircraft). According to the FAA design program, to fully accommodate these aircraft, the runway length should be at least 6,700 feet. Currently Runway 4-22 is 4,800 feet, which falls short of this requirement. Analysis in the next chapter will further examine the possibility of extending Runway 4-22.

TABLE 3B
Runway Length Requirements
Seligman Airport

AIRPORT AND RUNWAY DATA*	
Airport elevation	5,237 feet
Mean daily maximum temperature of the hottest month	91.8 F
Maximum difference in runway centerline elevation	12 feet
Length of haul for airplanes of more than 60,000 pounds	500 miles
* Dry runways	
RUNWAY LENGTHS RECOMMENDED FOR AIRPORT DESIGN	
Small airplanes with less than 10 passenger seats	
75 percent of these small airplanes	4,800 feet
95 percent of these small airplanes	6,600 feet
100 percent of these small airplanes	6,700 feet
Small airplanes with 10 or more passenger seats	6,700 feet

Source: FAA Airport Design computer program Version 4.2D.

Runway Width

The existing Runway 4-22 width of 75 feet meets FAA design standards for ADG II aircraft. This width is adequate given the forecast level of aviation activity for Seligman Airport.

Runway Strength

The pavement strength for Runway 4-22 has not been published by the FAA. Discussions with County staff indicate that the pavement was designed and constructed to meet 12,500 pounds

single wheel (SWL) strength. To have the runway's pavement strength rating published, the County must submit a pavement analysis report, along with a copy of the Airport's FAA 5010 form (highlighting the revision), to the FAA's Western Pacific Region Airports Division Office in Los Angeles, California. FAA publications should reflect this change within six to 12 months of submittal, as the FAA updates their 5010 database approximately twice annually.

The current 12,500 pound SWL strength will be adequate for the majority of aircraft anticipated to utilize the airport. Ultimately, however, the runway pavement strength should be increased to 25,000 pounds SWL. This strength rating is recommended by ADOT for ARC B-II aircraft, and will accommodate all aircraft projected to utilize the airport on a regular basis.

Runway Safety Areas

Consideration of runway length requirements must also factor other design criteria established by the FAA. FAA design criteria regarding runway object free area (OFA), runway safety area (RSA), and height clearances must be considered.

The runway OFA is defined in *FAA Advisory Circular 150/5300-13 Change 5, Airport Design,* as an area centered on the runway extending out in accordance to the critical aircraft design category utilizing the runway. The OFA must provide clearance of all ground-based objects protruding above the runway safety area (RSA) edge elevation, unless the object is fixed by function serving air or ground navigation.

The RSA is also centered on the runway, reaching out in accordance to the approach speed of the critical aircraft using the runway. The FAA requires the RSA to be cleared and graded, drained by grading or storm sewers, capable of accommodating fire and rescue vehicles, and free of obstacles not fixed by navigational purpose.

Analysis in the previous section indicated that Runway 4-22 should currently be designed for ARC B-I aircraft and be planned to ultimately accommodate aircraft in ARC B-II. In order to meet the current design criteria for category B-I aircraft, the cleared and graded RSA would need to be 120 feet wide (centered on the runway) and extend 240 feet beyond each runway end. The OFA is required to be a cleared area 200 feet on each side of the runway centerline, extending 240 feet beyond each runway end. For the ultimate ARC B-II design, the RSA is 150 feet wide, extending 300 feet beyond the runway end. The OFA increases to 500 feet in total width, extending 300 feet beyond the runway ends.

Runway 22 does not conform to ARC B-I standards for RSA length beyond the runway end. Currently, a 10-foot perimeter fence obstructs the RSA to provide only 199 feet of the required 240 feet. Obviously, this obstruction will need to be improved in order to meet ARC B-II aircraft standards. Also,

a drainage ditch obstructs the 240-foot RSA width on the Runway 22 end. Both of these obstructions will need to be improved to meet standards and to become eligible for a runway extension as discussed above.

HELIPAD

Originally, Seligman Airport included an on-site, dedicated helipad to serve helicopter operations. The helipad was removed once the runway/taxiway and apron were constructed of asphalt. Given the relatively low amount of aircraft operations forecast for the airport, planning for a dedicated helipad at the airport is unnecessary.

TAXIWAYS

Taxiways are primarily constructed to facilitate aircraft movements to and from the runway system. Parallel taxiways, in particular, serve to enhance airfield capacity and are extremely essential to aircraft movement about an airfield. Some taxiways are necessary simply to provide access between the aprons and runways, whereas other taxiways become necessary as activity increases at an airport, in order to provide safe and efficient use of the airfield. Three crucial elements involved in taxiway design are: taxiway width, separation distance between runways and parallel taxiways, and pavement strength rating.

FAA Airport Design standards for taxiway width and separation distances between runways and parallel taxiways are based primarily on the Airplane Design Group (ADG). Design Group II has been designated for future airfield design. ADG II design standards stipulate a taxiway width of 35 feet and runway/parallel taxiway separation distance of 240 feet.

Parallel Taxiway A and midfield exit Taxiway C are both 35 feet wide, which meets FAA standards for Group II aircraft. Both entrance/exit taxiways B and D, located at either end of the runway, are 80 feet wide, exceeding FAA design standards. The existing runway/parallel Taxiway A separation distance of 240 feet also meets ARC B-II design standards. Future runway consideration should consider the extension of parallel Taxiway A, to follow the addition of runway length. An additional entrance/exit taxiway should be constructed at the extended end of the runway.

The FAA recommends that holding aprons be provided at or near each runway end for ARC B-II runways. These aprons provide aircraft with an area to conduct final checks prior to takeoff. Aircraft which are unable to takeoff due to a malfunction, can be bypassed here by other aircraft ready for takeoff. Typically, holding aprons are designed large enough to accommodate from two to four aircraft, which is dependent on the average size of aircraft utilizing the runway in question. Currently, Taxiways B and D are 80 feet wide and serve as hold aprons. The current design works for ADG I aircraft; however, needs to be larger for full Group II design. The

recommended plan may need to consider redesigning the hold aprons for the ultimate ARC B-II design.

The hold lines on all entrance/exit taxiways are currently marked at 125 feet to the side of runway centerline. This distance meets FAA standards for ARC B-I aircraft design. For ARC B-II, however, FAA design standards require the hold lines be placed 200 feet from runway centerline. Thus, the long term plan should consider relocating the hold lines to 200 feet from runway centerline.

NAVIGATIONAL AIDS

Electronic navigational aids are used by aircraft during an approach to an airport. Instrument approach procedures are a series of maneuvers designed by the FAA which utilize navigational aids to assist pilots in locating and landing at an airport, and are especially helpful during inclement weather conditions. Additionally, pilots often use instrument approaches during good visibility conditions. Presently, there are no instrument approaches available at Seligman Airport. Having no instrument approaches means that the airport is effectively closed during poor weather situations when visual flight can no longer be attempted. The closest public use airports providing instrument approach capability are Prescott's Ernest A. Love Field and Flagstaff Pulliam Airport (both approximately 70 miles from Seligman).

Throughout the United States, the increased use of general aviation aircraft for business and corporate aircraft has magnified the need for instrument approaches at noncommercial airports. In order to support this growing segment of general aviation, as well as provide convenient local air access to Seligman and other surrounding communities, it is vital that Seligman Airport is accessible in all weather conditions and that weather-related down time (currently estimated at less than two percent) at the Airport be eliminated to the greatest extent possible. The advent of Global Positioning System (GPS) technology will ultimately provide the capability of establishing instrument approaches at the airport. As discussed in Chapter One, the FAA is proceeding with a program to transition from existing, ground-based navigational aids, to a satellite-based navigation system utilizing GPS technology.

Currently, GPS is certified for enroute guidance and for use with instrument approach procedures. The initial GPS approaches being developed by the FAA provide only course guidance information. In the near future, it is expected that GPS will also be certified for use in providing descent information for an instrument approach. For now, this capability is only available using an Instrument Landing System (ILS). Presently, there are three categories of GPS approaches, each based upon the desired visibility minimum of the approach. The three categories of GPS approaches are: one-half mile, three-quarter mile, and one mile. To be eligible for a GPS approach, the airport landing surfaces must meet specific standards as outlined in Appendix 16 of the FAA Airport Design Circular. The specific airport landing surface

requirements which must be met in order to establish a GPS approach, and a comparison of these standards to existing airport facilities are summarized in **Table 3C**. The table reveals that Runway 4-22 currently meets or exceeds the requirements to support a one-mile-visibility minimum GPS approach.

TABLE 3C
GPS Instrument Approach Requirements

Requirement	One-Half Mile Visibility	3/4-Mile Visibility Greater Than 300-Foot Cloud Ceiling	One-Mile Visibility Greater Than 400-Foot Cloud Ceiling	Runway 4-22 Existing
Minimum Runway Length	4,200 Feet	3,200 Feet	3,200 Feet	4,800 Feet
Parallel Taxiway	Required	Required	Not Required	Available Taxiway A
Runway Markings	Precision	Nonprecision	Nonprecision (= 1 mile) Visual (> 1 mile)	Visual
Runway Edge Lighting	High/Medium Intensity	High/Medium Intensity	Medium/Low Intensity	Medium Intensity
Approach Lighting	MALSR	ODALS or similar	Not Required	None
Primary Surface	500 feet clearance on each side of runway	500 feet clearance on each side of runway	250 feet clearance on each side of runway	250 feet clearance on each side of runways

Source: Appendix 16, FAA AC 150/5300-13, Airport Design, Change 7
Notes: MALSR - Medium Intensity Approach Lighting System with Runway Alignment Lighting ODALS - Omni-directional Approach Lighting System

The *Navigational Aids and Aviation Special Services Study*, released in March 1999 by the Aeronautics Division of ADOT, does not recommend the establishment of an instrument approach at Seligman Airport. The study indicated that the runway primary surface and object free area (OFA) were penetrated and the cost to improve the primary surface and OFA would exceed the operational benefits of establishing the approach.

While ADOT did not recommend a GPS approach to Runway 4-22, long term planning should consider a GPS approach. The report notes that the approach is not economically viable, however, if improvements are made (some have been and others are

planned), the approach would be feasible. Once the OFA and primary surfaces are cleared (fence relocation), establishment of a GPS approach at Seligman Airport can be accomplished at little or no cost to the Airport. The best choice for the approach would be Runway 22. However, once the obstructions are cleared, both ends may be capable of being served by GPS.

AIRFIELD LIGHTING, PAVEMENT MARKINGS, AND WIND INDICATORS

Airfield lighting and pavement markings assist pilots in locating an airport at night and in poor weather conditions, as well as facilitate aircraft movement on the ground. The current and future requirements for each of these components at Seligman Airport are summarized below.

Identification Lighting: The Airport is equipped with a rotating beacon which assists pilots in locating the airport at night. The existing beacon is adequate and should be maintained in the future.

Visual Approach Lighting: Visual approach lighting systems are configurations of lights which are positioned symmetrically along the extended runway centerline and extend toward the approach. Currently, there are no approach lighting systems located at Seligman Airport. An approach lighting system is not required for the implementation of the recommended GPS approach(es) to Runway 4-22. This condition isadequate regarding the proposed airside improvements presented in this report.

Runway end identifier lights (REILs), in conjunction with runway threshold lights, are installed at each end of Runway 4-22. As discussed in Chapter One, REILs provide positive and rapid identification of the approach end of the runway, and are typically used where approach lighting is unavailable. These existing systems will serve to enhance the recommended GPS approaches at the Airport and should, therefore, be maintained in the future.

Visual Approach Aids: Visual glide slope indicators (VGSI) are a system of lights located at the side of the runway and provide visual descent guidance information to pilots during an approach to the runway. At Seligman Airport, PAPI-2s are provided on the left side, near each end of Runway 4-22. These light systems will also enhance future GPS approaches at the Airport and should be maintained for the future.

Runway Lighting: The purpose of runway edge lighting at an airport is to provide an outline of the runway, thus enabling both nighttime and low-visibility operations. Runway 4-22 is equipped with medium intensity runway lighting (MIRL) which will be adequate for the future.

Taxiway Lighting: Taxiway lighting/illumination at an airport increases the safety and efficiency of

aircraft ground movement operations at night. Currently, medium intensity taxiway lighting (MITL) is provided, which will be adequate for the future.

Runway/Taxiway Pavement Markings: The basic (visual) markings of Runway 4-22 denote runway centerline, runway edge, aiming point, and designation number. The runway/taxiway hold lines have been marked at 140 feet from runway centerline. The future hold lines will need to be placed at 200 feet, to meet ARC B-II standards. Taxiway and apron taxilane markings consist of centerline striping only. The existing runway markings are sufficient for the future GPS approaches and should be maintained through the planning period. Any future taxiways at the Airport should be marked to match existing markings at the Airport.

Weather Measurement Equipment: An AWOS (Automated Weather Observing System) is a computerized system that automatically measures one or more weather parameters, analyzes the data, prepares a weather observation that consists of the parameter(s) measured, and broadcasts the observation to the pilot using an integral very high frequency (VHF) radio or an existing navigational aid. The AWOS is a modular system utilizing a central processor which may receive input from several sensors. Basically, there are five standard groups of sensors, however, an AWOS may be certified with any combination of sensors. Dependent upon system design, additional sensors may be certified to any AWOS configuration. For a more detailed description of the standards of AWOS systems and the types of weather sensors available, please reference *FAA Advisory Circular (AC) 150-5220-16C, Automated Weather Observing Systems for Non-federal Applications*, dated December 13, 1999. Additionally, installation criteria are available in *FAA Order 6560.20B, Siting Criteria for Automated Weather Observing Systems (AWOS),* dated July 20, 1998.

At present, there are no weather measurement facilities available at Seligman Airport. Consideration should be given to the installation of an AWOS facility at Seligman Airport. Remotely located, Seligman Airport does not have a nearby airport to provide local weather information.

Wind Indicators: Currently, the airport is equipped with a lighted wind cone/segmented circle near midfield and west of the runway. Supplemental wind cones are also located near each end of the runway. Wind-indicating devices provide pilots with information as to ground-level wind conditions, while segmented circles indicate airport traffic patterns. These facilities are adequate and should be maintained in the future.

CONCLUSIONS

Runway 4-22's current 4,800-foot length can accommodate 75 percent of small aircraft with less than 10 passenger seats. While this is adequate for the

bulk of general aviation aircraft presently using the Airport, future planning should examine the possibility of extending the runway to 6,700 feet. This length would accommodate up to 100 percent of small aircraft with less than 10 passenger seats, thus, enabling the airport to serve medical evacuation and business/corporate type aircraft. Alternatives presented in the next chapter will explore the possibility of extending Runway 4-22.

Also recommended is the establishment of a GPS approach to Runway 22. Long term planning should consider the implementation of a similar GPS approach to Runway 4 as well. The ultimate plan will also include the installation of an AWOS to provide local weather conditions, thereby enhancing the planned approach(es).

LANDSIDE REQUIREMENTS

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

- Aircraft Storage Hangars
- Aircraft Parking Apron
- General Aviation Terminal Facilities
- Automobile Parking
- Access
- Fuel Storage
- Airport Support Facilities

AIRCRAFT STORAGE HANGARS

The space required for hangar facilities is dependent upon the number and type of aircraft expected to be based at the airport. Future planning utilizes forecast aviation activity in the determination of estimated future hangar requirements. Future hangar development should be based on actual demand, as well as financial investment considerations.

Demand for hangar space at an airport is dependent on such factors as local climate, security, and owner preference. Emerging trends in general aviation aircraft are toward more sophisticated, expensive aircraft. In light of this trend, many owners are turning to hangar space, rather than outside tiedowns. Currently, there are no hangars at Seligman Airport. The airport's only based aircraft is stored in a private facility off of airport property.

In the future, aircraft storage requirements at the Airport will likely be met by a combination of hangar types, which is dependent in large part, upon aircraft owner demand and preferences. Projected future hangar requirements for Seligman Airport are summarized in **Table 3D**.

For the sake of this analysis, it is assumed that all aircraft will desire hangar space in the future. A planning standard of 1,200 square feet for single-engine aircraft and 2,000 square feet for multi-engine and rotor aircraft was used to determine aircraft storage hangar requirements. Aircraft maintenance area was derived as 15 percent of all hangar spaces.

The first assumption made in this analysis is that T-hangars would be first desired. Small aircraft owners typically prefer T-hangar or shade hangar space, as it is commonly less expensive to lease and provides individualized storage. It is less likely, however, that a T-hangar facility would be constructed first at Seligman. In all likelihood, a larger conventional hangar will be constructed that will provide community storage and may also house a maintenance provider. Thus, the only alternative in the near term could be a conventional hangar. Preferences, however, will likely favor a T-hangar, thus, the assumption in **Table 3D**.

TABLE 3D
Aircraft Storage Hangar Requirements

		Future Requirements		
	2003	**Short Term**	**Inter. Term**	**Long Term**
Aircraft to be Hangared	1	2	4	10
T-Hangar/Shade Hanger Positions	0	2	3	6
Conventional Hangar Positions	0	0	1	4
Hangar Area Requirements				
T-Hangar Area (s.f.)	0	1,900	3,600	7,200
Conventional Hangar Storage Area (s.f.)	0	0	2,000	8,000
Total Maintenance Area (s.f.)	0	300	800	2,300
Total Hangar Area (s.f.)	0	2,200	6,400	17,500

Total hangar requirements in the future will call for the construction of a large conventional hangar, likely 100-feet by 100-feet, or two smaller 80-feet by 80-feet hangars. Also, at some point a T-hangar facility providing six, eight, or ten individual storage units will be constructed. It is not uncommon for a shade hangar to be constructed first, then enclosed to become a T-hangar at a later date.

Dependent on Airport sponsor and aircraft owner preferences and demand, space allocated to future T-Hangar requirements could be shifted to the construction of T-Shades (covered tiedowns) instead. Not only are T-Shades less expensive to construct and maintain, they offer the private aircraft owner a low-cost alternative to enclosed hangar leasing. Alternatives presented in Chapter Four will examine the options available for future hangar development at the airport, and determine the best location for each type of hangar facility.

AIRCRAFT PARKING APRON

A parking apron should be provided for at least the number of locally-based aircraft that are not stored in hangars, as well as transient aircraft. The apron at Seligman Airport is not used by based aircraft, and is not formally divided into local and transient parking positions. The current apron provides approximately 9,300 square yards of space and 16 tiedown positions.

Future total apron area requirements were determined by applying a planning criterion of 800 square yards per transient aircraft parking position and 650 square yards for locally-based aircraft parking position (both include a factor for taxilanes). The results of this analysis are presented in **Table 3E**. It should be noted that the analysis considered that based aircraft will occupy two spaces, while the hangar analysis considered all aircraft hangared. It is important that the apron be capable of accommodating aircraft maintenance operations which will require apron storage. For this reason, the based aircraft total of two was applied for each planning horizon.

Based upon the above planning criteria and the number of assumed transient and based aircraft users, the number of existing tiedowns will more than cover future demand throughout the planning period. However, additional apron area may be required as new hangar areas are developed on the airport which are not contiguous with the existing apron area.

TABLE 3E
Aircraft Parking Apron Requirements

	2003	Short Term	Inter. Term	Long Term
Transient Aircraft Positions		2	3	5
Apron Area (s.y.)		1,600	2,400	4,000
Locally-Based Aircraft Positions	0	2	2	2
Apron Area (s.y.)	0	1,300	1,300	1,300
Total Positions	16	4	5	7
Total Apron Area (s.y.)	9,300	2,900	3,700	5,300

GENERAL AVIATION TERMINAL FACILITIES

General aviation terminal facilities serve several functions at an airport. These functions can include providing passenger waiting areas, a pilots' lounge and flight planning area, restrooms, food and beverage concessions, administrative and management offices, storage, plus various other needs. The area required for these facilities is not necessarily limited to a single building, but also includes the space used by fixed base operators for similar functions and services.

General aviation terminal facility needs are, for the most part, a function of fixed base operator (FBO) needs. Typically, an FBO which constructs a large aircraft storage and maintenance hangar, will also construct pilot and passenger facilities adjacent to the hangar. This may fulfill some of the Airport's projected terminal requirements, therefore, eliminating the necessity of constructing a single

building designed to satisfy general aviation terminal needs.

The methodology used in estimating general aviation terminal facility needs was based on the number of airport users expected to utilize general aviation facilities during the design hour. Future space requirements were then based upon providing 90 square feet per design hour itinerant passenger. **Table 3F** outlines these future requirements for general aviation terminal services at Seligman Airport throughout the planning period. It should be noted that the airport is not supported by an on-airport FBO or specialty operator. Also, ADOT recommends the construction of a terminal building providing 600 square feet of space for ARC B-II airports. For these reasons, short term planning should consider upgrading the current restroom facility into a public use terminal building. The facility should include vending machines for food items, and telephone (now provided outdoors). The facility should also provide other pilot services such as weather briefing and lounge areas. If an AWOS were installed, the terminal machine could be located in the terminal building.

AVIATION SUPPORT FACILITIES

Certain facilities that do not logically fall under classifications of airfield, terminal building, or general aviation have been identified for inclusion within this Master Plan. Facility requirements, where applicable, have been identified for the following facilities:

- Airport Access and Vehicle Parking
- Fuel Storage
- Aircraft Wash Rack/Maintenance Facility
- Public Utilities
- Other Facilities

TABLE 3F
Terminal Building Requirements
Seligman Airport

		Future Requirements		
	Existing Space Available	**Short Term**	**Intermediate Term**	**Long Term**
Design Hour Passengers	--	2	4	5
Building Space (s.f.)	±180	180	360	450

AIRPORT ACCESS AND VEHICLE PARKING

As discussed in Chapter One, the main access to Seligman Airport is provided by Historic Route 66 and/or U.S. Interstate 40 immediately south of the airport. From Historic Route 66, Airport Access Road leads to both the gated aircraft parking apron and automobile parking lot, located immediately southwest of the apron. The existing airport access is adequate and should be maintained in the future.

Designated, marked vehicle parking at the Airport consists of 15 paved parking spaces located directly southwest of the aircraft apron. Automobile parking requirements for future terminal area activities have been determined using a planning standard of 1.8 spaces per design hour passenger, and 400 square feet for each parking position. Additionally, general aviation parking requirements are calculated under the assumption that up to half of the based aircraft will require automobile parking at any one time. The parking area required per space is the same that is used in terminal area activities parking requirements. Future vehicle parking requirements for Seligman Airport are presented in **Table 3G**.

TABLE 3G
Vehicle Parking Requirements
Seligman Airport

	Existing	Short Term	Intermediate Term	Long Term
Design Hour Passengers		2	4	5
Terminal Vehicle Spaces		4	7	9
Parking Area (s.f.)		1,440	2,880	3,600
General Aviation Spaces		1	2	5
Parking Area (s.f.)		400	800	2,000
Total Airport Parking Spaces	15	5	9	14
Total Airport Parking Area (s.f.)	±4,900	1,840	3,680	5,600

FUEL STORAGE

The airport does not currently provide fueling services. Future planning should consider the installation of fuel storage and dispensing devices. At a minimum, AvGas, or 100LL fuel should be provided. In the long term, consideration could be given to adding Jet A fuel capacity.

An airport's fuel storage requirements can vary based upon individual supplies and distributor policies, therefore, future fuel storage requirements for Seligman Airport will be dependent upon the independent distributor. At a minimum, consideration should be given to constructing a facility capable of accommodating a full truckload of fuel, or 8,000 gallon capacity. Due to environmental considerations, the fuel tank should also be located aboveground, with double wall construction and containment enhancements.

Many airports similar to Seligman have had self-serve facilities with credit card readers installed. These facilities require no staffing to dispense fuel, and provide a valuable service to the aviation community. For planning purposes, short term improvements will consider the installation of fueling facilities. Long term consideration will be given to Jet fuel facilities.

AIRCRAFT WASH RACK/ MAINTENANCE FACILITY

The presence of a designated aircraft wash rack/maintenance facility at an airport offers convenience to the individual aircraft owner and allows the airport sponsor to monitor and maintain their environmental compliance responsibilities. These areas typically provide for the collection of used aircraft oil and other hazardous materials, as well as provide a covered area for aircraft washing and light maintenance. Presently, there is no such designated facility at Seligman Airport. Any future facility should be large enough to accommodate, at a minimum, ADG I aircraft (49 foot wingspan). Additionally, an enclosed or covered structure should include a minimum 20-foot tail height clearance. The location of the aircraft wash rack/maintenance facility should be convenient to both aircraft storage and maintenance hangars, as well as the aircraft parking aprons. Furthermore, this facility should comply with all applicable waste water recovery/disposal, as well as hazardous material collection/disposal practices and procedures.

PUBLIC UTILITIES

Electrical, water, and septic services are available at the airport. The existing water line into the airport is limited and would need upgrading for additional facility usage. Natural gas lines abut airport property, however, were not extended onto the airport. Sanitary sewer lines have not been extended from the Town of Seligman. The Town's line is somewhat small and may not be capable of ever serving the airport. Construction of new facilities such as hangars, etc., however, will likely require new utility extensions to primary service lines and should be included in future design estimates.

OTHER FACILITIES

As it has no immediate future plans for scheduled airline passenger service, Seligman Municipal Airport is exempt from Federal Aviation Regulation (FAR) Part 139 Standards and is not required to have aircraft rescue and firefighting (ARFF) equipment on site.

CONCLUSIONS

Landside facility requirements are illustrated on **Exhibit 3C.** To meet future forecast demand, an increase in available T-hangar/T-Shade space and the development of additional conventional hangar space will be required through the planning period. Dependant on their location, additional apron area may need to be constructed to accommodate the development of these new hangars. Aircraft parking apron needs will not likely surpass the existing facility, however, new facilities may be needed as hangars are constructed.

The airport is not served by a terminal building. Planning should consider the construction of a terminal building. General aviation parking needs appear to be sufficient to meet future needs. Future planning must consider the installation of fuel storage and dispensing devices. Short term needs would include a self-serve AvGas facility, while long term consideration should be given to adding Jet A fuel facilities.

Given the current and future projected levels of activity at the airport, the existing vehicle access is adequate. Finally, future planning should consider locating an aircraft wash rack/ maintenance facility at the Airport. Such a facility can benefit both the individual aircraft owner and airport sponsor as well.

SUMMARY

A summary of airside and landside requirements is presented on **Exhibit 3C**. The purpose of this chapter has been to identify the facilities required to meet potential aviation demands projected for Seligman Airport throughout the 20-year planning horizon. The next step is to develop a direction for development that can best meet these projected needs. The remainder of this master plan will focus on outlining this direction, its schedule, and costs.

	AVAILABLE	SHORT TERM	INTERMEDIATE TERM	LONG TERM
RUNWAYS AND TAXIWAYS				
	**Runway 4-22** 4,800' x 75' 12,500# SWL Full-length parallel txwy 3 exit taxiways	**Runway 4-22** Improve Rwy. 22 RSA	**Runway 4-22** Same	**Runway 4-22** 6,700' x 75' 25,000# SWL Add: entrance/exit taxiway
NAVIGATIONAL AIDS & LIGHTING				
	Airport Beacon Wind Cone/ Segmented Circle MIRL, MITL, PAPI-2L	Same Add: GPS to Rwy. 22 AWOS	Same Same	Same Same
AIRCRAFT STORAGE & TIEDOWNS				
	**T-hangars/ Shade Hangars** N/A **Conventional Hangars** N/A **Maintenance Area** 0 s.f. **Apron** 16 Positions 9,300 s.y.	**T-hangars/ Shade Hangars** 2 Positions 1,900 s.f. **Conventional Hangars** 0 Positions 0 s.f. **Maintenance Area** 300 s.f. **Apron** 4 Positions 2,900 s.y.	**T-hangars/ Shade Hangars** 3 Positions 3,600 s.f. **Conventional Hangars** 1 Position 2,000 s.f. **Maintenance Area** 800 s.f. **Apron** 5 Positions 3,700 s.y.	**T-hangars/ Shade Hangars** 6 Positions 7,200 s.f. **Conventional Hangars** 4 Positions 8,000 s.f. **Maintenance Area** 2,300 s.f. **Apron** 7 Positions 5,300 s.y.
TERMINAL SERVICES				
	**Terminal Building Space** 180 s.f. **Auto Parking** 15 Spaces 4,900 s.f. **Fuel Storage** JetA: N/A Avgas: N/A	**Terminal Building Space** 180 s.f. **Auto Parking** 5 Spaces 1,840 s.f. **Fuel Storage** JetA: N/A Avgas: Self-serve 8,000 gal. minimum	**Terminal Building Space** 360 s.f. **Auto Parking** 9 Spaces 3,680 s.f. **Fuel Storage** JetA: N/A Avgas: Same	**Terminal Building Space** 450 s.f. **Auto Parking** 14 Spaces 5,600 s.f. **Fuel Storage** JetA: 8,000 gal. Avgas: 12,000 gal. minimum

KEY:

AWOS - Automated Weather Observation System
GPS - Global Positioning System
MIRL - Medium Intensity Runway Lighting
MITL - Medium Intensity Taxiway Lighting
PAPI - Precision Approach Path Indicator
SWL - Single Wheel Landing Gear

SELIGMAN AIRPORT

Exhibit 3C
FACILITY REQUIREMENTS SUMMARY

Chapter Four
ALTERNATIVES

ALTERNATIVES

The previous chapters have focused on the available facilities, the existing and potential future demand, as well as quantified the level of facilities that are needed both now and in the future. The purpose of this chapter is to formulate and examine rational airport development alternatives that can address the planning horizon demand levels. Because there are literally a multitude of possibilities and combinations thereof, intuitive judgment is necessary to focus in on those opportunities which have the greatest potential for success.

The major functional areas of an airport must be considered in the formulation of alternatives. At Seligman Airport, these include the airfield and landside general aviation facilities. In addition, operational support facilities and surface access for all these functions must be considered. The interrelationships of these functional areas require that they be evaluated both separately and as a whole to ensure the most functionally efficient, cost-effective, and environmentally-compatible plan is derived. With this information, as well as the input and direction from government agencies, airport users, and other local stakeholders, a basic airport concept can evolve into a realistic development plan.

ISSUE CONSIDERATIONS

The primary goal for Yavapai County and airport management is to develop and operate the airport as an efficient and fully functional general aviation facility, to meet the needs of a relatively remote region. With this designation, the goals for developing the airport should consider providing adequate facilities to meet the general aviation

operator demands in the Seligman region. Specifically, the airport should consider the needs of general aviation piston aircraft up to airport reference code (ARC) B-II. **Table 4A** outlines FAA design criteria, while **Exhibit 4A** presents alternative issues.

TABLE 4A
Airfield Design Standards
Seligman Airport

Critical Aircraft	***B-I (small)***	***B-I***	***B-II***
Runway Length	*4,800'*	*4,800'*	*6,700'*
Runway Width	*60'*	*60'*	*75'*
Taxiway Width	35'	35'	35'
Blastpad (width x length)	*80' x 60'*	*80' x 100'*	*95' x 150'*
Building Restriction Line (BRL)			
Not Lower than One-Mile Visibility Minimums	495'	495'	495'
Runway Safety Area (RSA)			
Width	*120'*	*120'*	*150'*
Length Beyond Runway End	*240'*	*240'*	*300'*
Object Free Area (OFA)			
Width	*250'*	*400'*	*500'*
Length Beyond Runway End	*240'*	*240'*	*300'*
Runway Protection Zone (RPZ) >= one-mile visibility			
Inner Width	250'	500'	500'
Outer Width	400'	700'	700'
Length	1,000'	1,000	1,000
Threshold Siting Surfaces (TSS)			
Visual of Not Lower than one mile (daytime only)			
Beginning point from Runway End	0'	0'	0'
Inner Width	400'	400'	400'
Outer Width	1,000'	1,000'	1,000'
Length	1,500	1,500	1,500
Approach Slope Clearance Required	20:1	20:1	20:1
Nighttime Approaches			
Beginning point from Runway End	200'	200'	200'
Inner Width	800'	800'	800'
Outer Width	3,800'	3,800'	3,800'
Length	10,000'	10,000'	10,000'
Approach Slope Clearance Required	20:1	20:1	20:1

Source: FAA Advisory Circular 5300-13, Change 7, Airport Design

The table depicts applicable airport design standards for the airport under three design scenarios, with differences italicized. First, the airport could be designed for small aircraft exclusively (aircraft weighing less than 12,500

02MP20-4A-1/7/04

AIRSIDE ISSUES

- ☑ Airport Design and Related Criteria
- ☑ Upgrade form ARC B-I to ARC B-II
- ☑ Improve Northern OFA for ARC B-II
- ☑ Improve the Southern RSA/OFA/Reroute Drainage Channel
- ☑ Extend Runway 4-22 to 6,700 feet
- ☑ Instrument Approach Capability
- ☑ Land Acquisition

LANDSIDE ISSUES

- ☑ Develop Airport Terminal Building
- ☑ Develop Hangars, Conventional and T-Hangars
- ☑ Install Fuel Farm Including Self-Service Capability

SELIGMAN AIRPORT

Exhibit 4A
ALTERNATIVE ISSUES

pounds) within approach categories A and B. In general, this is the case currently. The second consideration is for all ARC B-I aircraft, as few weigh more than 12,500 pounds. Lastly, consideration should be given to the standards for ARC B-II aircraft. ARC B-II aircraft were outlined in the previous chapter as the potential future critical aircraft. The differences of each category design will be depicted in the following sections.

Runway 4-22 is currently 4,800 feet long by 75 feet wide. Analysis in the previous chapter indicated that the current length of the runway is adequate to accommodate the majority of aircraft operating at the airport, but falls short for ARC B-II aircraft. For B-II aircraft such as Beechcraft King Air and small business jets, however, the runway length should be at least 6,700 feet. Alternatives presented in the next section analyze future runway extension potentials.

Consideration must also be given to maintaining adequate object free areas (OFA) and runway safety areas (RSA). The Federal Aviation Administration (FAA) defines the OFA as "a two-dimensional ground area surrounding runways, taxiways, and taxilanes which is clear of objects except for objects whose location is fixed by function (i.e., airfield lighting)." The RSA is defined as "a defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway."

Furthermore, the FAA has placed a higher significance on maintaining adequate RSAs at all airports, due to recent aircraft accidents. Under Order 5200.8, the FAA established a Runway Safety Area Program. The Order states, "The goal of the Runway Safety Area Program is that all RSAs at federally obligated airports and all RSAs at airports certificated under 14 CFR Part 139 shall conform to the standards contained in Advisory Circular 150/5300-13, *Airport Design*, to the extent practical." Under the Order, each regional Airports Division of the FAA is obligated to collect and maintain data on the RSA for each runway at federally obligated airports.

Currently, Runway 4-22 does not provide the full RSA beyond the northeast end of the runway. A drainage channel interrupts the RSA and OFA approximately 20 feet short of meeting ARC B-I standards. The County plans to replace the ditch with a culvert or reroute the ditch in the future. If the airport is to receive future federal grant funding assistance, the RSA must first be improved.

It should be noted that the southwestern OFA (ARC B-I standards) is obstructed by the perimeter fence approximately 40 feet short of standard. The fence has been planned to be relocated in the future. Alternatives in the following section will consider meeting RSA and OFA standards.

Future planning should consider the potential of receiving an instrument approach to the runway, providing not

lower than one-mile visibility. Given its remote location and use of the airport by Embry-Riddle Aeronautical University (ERAU), Seligman Airport should be served by at least one GPS approach. It is likely that this approach would be better served on Runway 22. Wind patterns are nearly even, however, slightly favoring Runway 22. Also, the location of a railroad line and major thoroughfares could pose as obstructions to an approach to Runway 4.

On the landside, consideration must be given to providing hangar space for a wide variety of general aviation needs. This includes hangar storage for small single engine aircraft to larger corporate aircraft such as medical evacuation flights or visiting business jets. Ultimate development must also consider the most practical, yet beneficial use of lands for specific hangar uses (e.g., T-hangars versus executive or conventional hangars).

Another consideration will be support facilities. The airport is not served by a terminal building, only a public restroom and a pay phone. Future consideration should be given to developing a terminal building large enough to provide shelter, restrooms, briefing room (weather data), and vending machines. Other support facility considerations include siting a fuel farm (current need for Avgas, ultimate need for Jet A fuel), weather facility, and a wash rack. These facilities will play an important role in meeting future aviation demand requirements.

NON-DEVELOPMENT ALTERNATIVES

Non-development alternatives include the no action or “do nothing” alternative, transferring service to an existing airport, or developing an airport at a new location. These alternatives need to be examined first to determine whether future development of Seligman Airport is in the best interest of Yavapai County and the region as a whole.

NO ACTION ALTERNATIVE

The no action or "do-nothing" alternative essentially considers keeping the airport in its present condition and not providing for any type of improvement to the existing facilities. The primary result of this alternative would be the inability of the airport to satisfy the projected aviation demands of the region.

One of the key considerations of this Master Plan is the potential for providing additional runway length to better accommodate medical evacuation aircraft and small business jets projected to use Seligman Airport. Another consideration is providing hangar space, terminal space, and fueling services to meet future demand. A no action approach would ignore the needs of existing aircraft and future airport operators.

AIRPORT CLOSURE

The alternative of shifting all aviation services to another existing airport and closing Seligman Airport was found even less desirable due to the impact on both the existing airport users and residents in the region. The remote location demands a functional facility capable of, at a minimum, providing for medical evacuation needs.

Shifting or closing the Seligman Airport would be a disservice to the residents in the region which currently use or could have need for the airport. Seligman Airport provides an invaluable link with major metropolitan areas which highways, interstates, and other roadways cannot match. Furthermore, relocating demand or closing the airport would represent a significant waste of recently expended funds (both State and County). For these reasons, closure of the airport is not considered a viable option.

CONSTRUCT NEW AIRPORT

Another option would be constructing a new airport. From social, political, and environmental standpoints, the commitment of a new large land area must also be considered. There has been significant opposition in the past to attempts to develop new airports. Furthermore, the development of a new airport similar to Seligman Airport would likely take a minimum of five years to become a reality. The potential exists for significant environmental impacts associated with disturbing a large land area when developing a new airport site. To develop a new site with the capabilities of Seligman Airport could easily cost more than $10 million, and would not provide the strategic location that Seligman Airport does today.

AIRFIELD ALTERNATIVES

The facility requirements analysis in the previous chapter indicated that the runway should be extended to better meet the needs of aircraft currently operating at the airport. While more options may be available, the analysis considers four airfield alternatives. Two alternatives are considered not feasible, while two are feasible.

AIRFIELD ALTERNATIVE 1

Exhibit 4B presents Alternative 1, which considers that the airport's critical aircraft does not change. If this were to occur, the airport would need to conform to ARC B-I standards. Planning for ARC B-I allows for two conditions: use by small aircraft exclusively (weighing less than 12,500 pounds) or all B-I aircraft, including those weighing more than 12,500 pounds.

The exhibit is a split screen, depicting design standards for each condition. The top frame depicts criteria for ARC B-I, small aircraft exclusively, while the bottom depicts full ARC B-I standards. It is important that the airport conform to the most applicable standard, as applying a more restrictive standard could require additional expenditures

(e.g., facility improvements) not necessary with the more appropriate standard.

There are two primary differences in these design scenarios. The greatest difference is the OFA. The OFA for ARC B-I small aircraft exclusively is not as wide as the full ARC B-I standard and remains unobstructed, except for the portion extending off airport property to the northeast (as does the RSA). To meet full ARC B-I standards, the OFA and RSA are obstructed at the northeast end by fence, but the OFA is also obstructed at the southwest corner and along the western edge by fence.

It should be noted that the OFA can, in cases, be allowed to be outside airport property if no obstructions currently or would ever likely exist. The RSA should always be within airport property. Thus, at a minimum, land acquisition to the northeast is required for both scenarios to maintain adequate RSA. The OFA along the southwestern to south-central portions of the runway for the full ARC B-I design scenario may not need to be acquired, as the land may never be developed (owned by the Navajo Nation and operated as a ranch). The airport property fence, however, is an obstruction to the OFA.

The exhibit also depicts a difference in the size of the runway protection zones (RPZ) for the two scenarios. The runway protection zone (RPZ) is a trapezoidal area centered on the runway and typically beginning 200 feet beyond the runway end. The RPZ has been established by the FAA to provide an area clear of obstructions and incompatible land uses, in order to enhance the protection of approaching aircraft as well as people and property on the ground.

The FAA does not necessarily require the fee simple acquisition of the RPZ area, but recommends that airports maintain positive control over development within the RPZ. It is preferred that the airport own the property through fee simple acquisition, however, avigational easements (providing control of designated airspace within the RPZ) can be pursued if fee simple purchase is not possible. It should be noted, however, that avigation easements can often cost nearly as much as the underlying land value and may not fully prohibit incompatible land uses from the RPZ. Also, the area encompassed by the RPZ envelops the required RSA, OFA, and areas needed for installation of approach lighting systems, all of which would be required for purchase.

The RPZ for both ends of the runway considers visual approach conditions or instrument approaches with “not lower than one-mile” visibility minimums. For small aircraft exclusively, each RPZ encompasses 8.035 acres. For full ARC B-I, each RPZ covers 13.770 acres. The southern RPZ falls in areas which will not likely be developed in the future, as it lies between Historic Route 66, a railroad, and I-40. For this reason, an avigation easement would be adequate. For the northern RPZ, however, consideration should be given to fee simple acquisition. Any potential approach in the future will likely be for Runway 22, as the area could be

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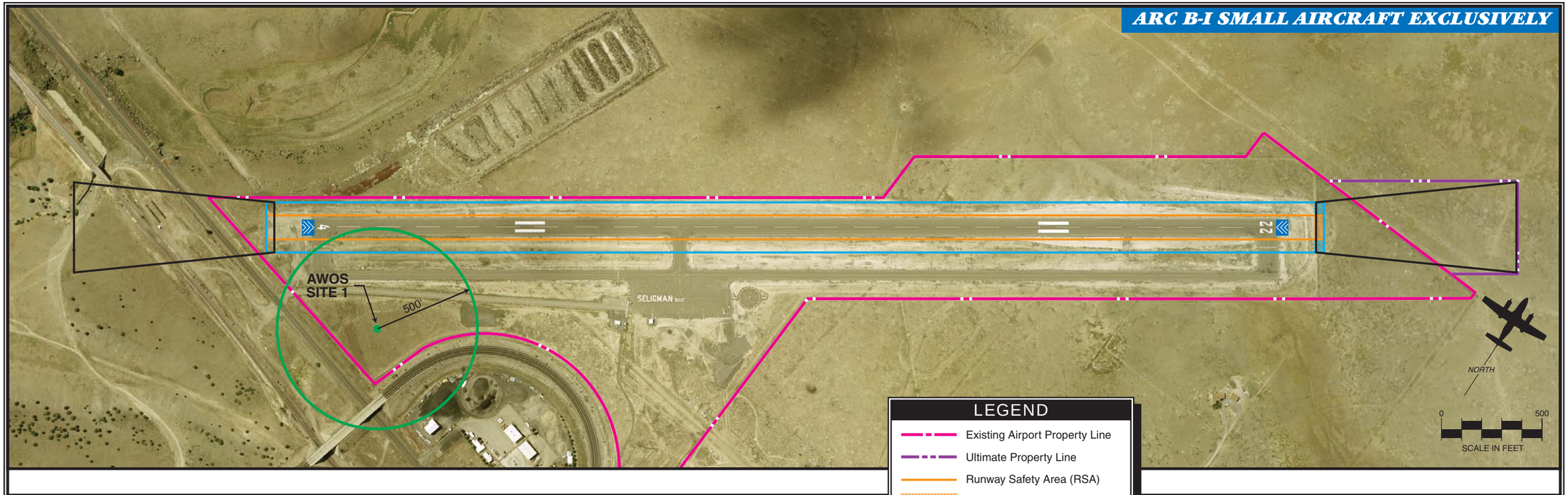
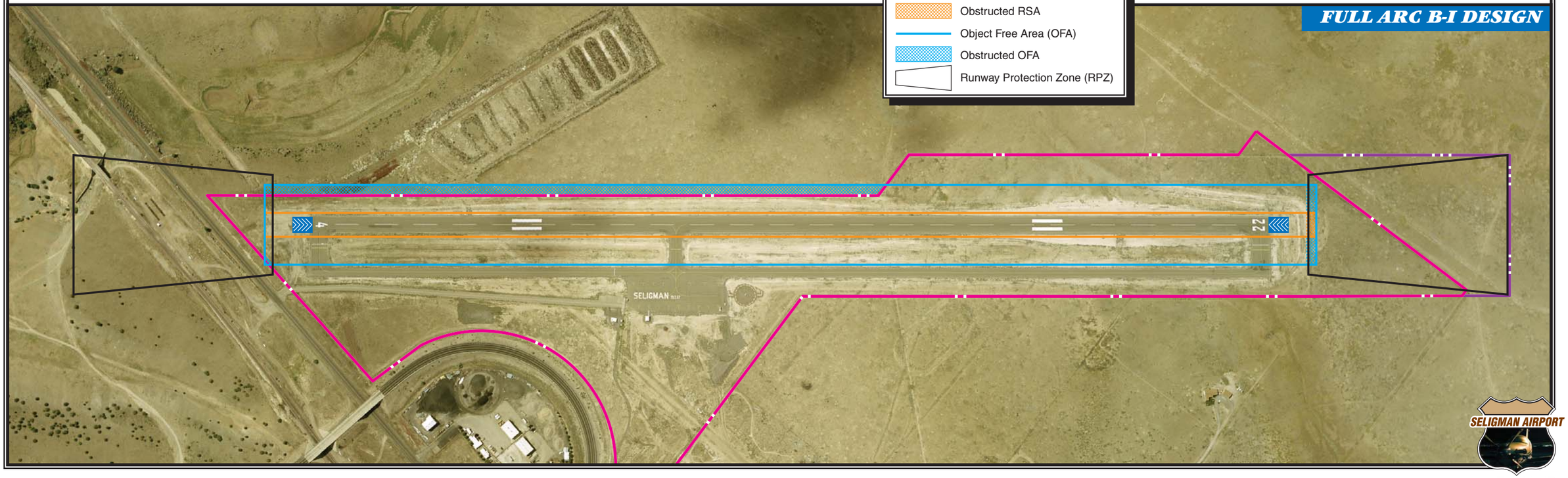
ARC B-I SMALL AIRCRAFT EXCLUSIVELY



LEGEND

- Existing Airport Property Line
- Ultimate Property Line
- Runway Safety Area (RSA)
- Obstructed RSA
- Object Free Area (OFA)
- Obstructed OFA
- Runway Protection Zone (RPZ)

FULL ARC B-I DESIGN



SELIGMAN AIRPORT

Exhibit 4B
AIRFIELD ALTERNATIVE 1
REMAIN ARC B-I DESIGN

developed for residential or other non-compatible purposes. Thus, the northern RPZ would be planned to be acquired fee simple in both scenarios.

Airfield Alternative 1 also considers the siting of an Automated Weather Observation System (AWOS). AWOS-III units provide the pilot with the airfield's current altimeter setting, wind direction and speed, temperature, dewpoint, density altitude, visibility, and cloud-height. The observations are broadcast to the pilot using an integral VHF radio or an existing navigational aid. Both scenarios depicted on **Exhibit 4B** consider siting the AWOS in the southwestern corner of the airport. This site is near the runway end and would have mostly unobstructed environs. The ADOT facilities may require the AWOS to be placed higher than normal to ensure that the sensors are not obstructed. Typically, a cleared radius of 500 feet is desired.

Advantages: Capital costs would be less for meeting design standards if the airfield would conform to small aircraft exclusively standards (versus full ARC B-I). In fact, the only capital costs with the small aircraft exclusively scenario would be land acquisition to provide for the northern RPZ, RSA, and OFA. Meeting full ARC B-I design would accommodate heavier aircraft within approach categories A and B.

Disadvantages: Conforming to ARC B-I standards could deter use of the airport by larger aircraft in the future. The airport may not be suitable for use by faster medical evacuation or other law enforcement aircraft.

AIRFIELD ALTERNATIVE 2

Airfield Alternative 2 considers airfield design conforming to ARC B-II design criteria. Shifting to ARC B-II design would require several improvements, as depicted on **Exhibit 4C**.

As presented in the previous chapter, Runway 4-22 would need to be extended to accommodate ARC B-II aircraft. Any future extension of the runway would need to be to the northeast, as Historic Route 66, a railroad, and I-40 are all constraints to southerly extensions. **Exhibit 4C** depicts a 1,900-foot extension. As a result, Runway 4-22 would measure 6,700 feet and would be fully capable of accommodating medical evacuation aircraft, as well as all other ARC B-II aircraft. The runway extension would also require extending parallel Taxiway A and adding a new entrance/exit taxiway as depicted.

Upgrading to ARC B-II design will also require meeting a higher level of safety standards. The OFA and RSA are wider and extend an additional 60 feet beyond each runway end. Obviously, the northern OFA and RSA would extend beyond airport property. The southern and western portions of the OFA, however, would also extend beyond airport property. In both cases, the FAA may grant an allowance or modification, as the areas outside the property line will not likely be developed. If possible, however, all attempts should be made to conform to standard. Thus, the County should make attempts to acquire property to the west, as has been done in the past.

This alternative considers siting the AWOS at the northeastern corner of the airport. This site is more remote than the previous alternative and would provide better reporting of the planned instrument runway (Runway 22). Also, there would be no obstructions to the sensors at this location.

Advantages: Airfield Alternative 2 would better suit regional needs, especially for medical evacuation or law enforcement purposes. The longer runway would serve the needs of B-II aircraft, including turboprop and small business jets. The AWOS site, though remote, would be situated at the end of the runway planned for an instrument approach.

Disadvantages: The costs of implementing this alternative will be far greater than the previous alternative. Extending the runway could require environmental study/ review and would likely need to be justified through a benefit-cost analysis.

LANDSIDE ALTERNATIVES

The orderly development of the airport terminal area can be the most critical, and probably the most difficult development to control on the airport. A terminal area development approach simply taking the short term path of least resistance can have a significant effect on the long term viability of an airport. Allowing development without regard to a functional, long term plan could result in a haphazard array of buildings and small ramp areas, which will eventually preclude the most efficient use of valuable space.

The following sections outline two landside development alternatives. It is important to note that a multitude of sub-alternatives, or tweaking of the two, could be developed. But for the sake of this plan, two alternatives will be shown. Keep in mind that the final plan could be a combination of both or a modification of one or both. The purpose of this analysis, however, is to present ideas than can start the process and stimulate thought. Also, both alternatives would provide facilities exceeding aviation demand projected in Chapter Two. It is always prudent to not only consider the 20-year planning envelope, but also extend the concept further to determine the ultimate potential of a plan.

LANDSIDE ALTERNATIVE A

The left side of **Exhibit 4D** depicts development of landside terminal facilities considering moderate growth, likely over a long period of time. This alternative would also conform to the needs of an ARC B-I airport. The alternative development scheme considers developing various-sized hangars to meet the needs of a variety of operators.

This alternative considers modifying the entrance road around the existing vault to provide access to hangars placed on the existing apron edge. As depicted, the alternative considers developing a terminal building adjacent to the existing restroom facility. A wash rack is proposed immediately south of the terminal building. The proposal also considers developing a fuel farm with immediate access to the

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LEGEND

- Existing Airport Property Line
- Ultimate Property Line
- Ultimate Airfield Pavement
- Runway Safety Area (RSA)
- Obstructed RSA
- Object Free Area (OFA)
- Obstructed OFA
- Runway Protection Zone (RPZ)

NORTH

0 800 1600

SCALE IN FEET

Date of Photo: 5/25/03

SELIGMAN AIRPORT

Exhibit 4C
AIRFIELD ALTERNATIVE 2
UPGRADE TO ARC B-II DESIGN

02MP20-4D-5/4/04

ALTERNATIVE A

T-HANGARS
EXECUTIVE HANGAR
CONVENTIONAL HANGAR
TERMINAL
FUEL FARM
RELOCATED SEGMENTED CIRCLE/ WIND CONE
WASH RACK
SELIGMAN 5237

ALTERNATIVE B

LEGEND
- Existing Airport Property Line
- Ultimate Building
- Ultimate Arifield Pavement
- Ultimate Road/Parking

NORTH

0 200 400
SCALE IN FEET

Date of Photo: 5/25/03

WASH RACK
CONVENTIONAL HANGARS
TERMINAL
FUEL FARM
EXECUTIVE HANGARS
T-HANGARS
SELIGMAN 5237

SELIGMAN AIRPORT

Exhibit 4D
LANDSIDE ALTERNATIVES

southern apron edge. This location would be good for self-service fueling.

Two hangars are proposed to the north of the terminal building. The conventional hangar is 100 feet by 100 feet, while the executive hangar is shown at 60 feet by 60 feet. The conventional hangar would likely house an airport business such as a fixed base operation (FBO) or maintenance operation. It could also be utilized for bulk aircraft storage. The executive hangar could be utilized by a specialty operator or individual owning several aircraft. Two eight-unit T-hangar facilities are depicted at the northern pavement edge.

LANDSIDE ALTERNATIVE B

Exhibit 4D also depicts another potential development scheme for providing for future aviation demand at Seligman Airport. The most significant difference between this alternative and the previous Alternative B, considers the airport shifting to a B-II design. Airport Access Road would need to be modified under this alternative.

Alternative B also considers developing a terminal building adjacent but this time south of the existing restroom facility. Two 10,000-square-foot hangars (100 feet x 100 feet) are proposed to the north of the terminal building on the eastern apron edge.

This alternative considers developing four, 10-unit T-hangar facilities in the south-central portion of the terminal area. The alternative also considers three, 60-foot by 60-foot executive hangar facilities to the south, on a proposed expanded apron. A wash rack is proposed in the northern portion of the terminal area.

SUMMARY

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

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

The proposed development plan for the airport must represent a means by which the airport can grow in a balanced manner, both on the airside as well as the landside, to accommodate forecast demand. In addition, it must provide (as all good development plans should) for flexibility in the plan to meet activity growth beyond the long term planning period. The remaining chapters will be dedicated to refining the basic concept into a final plan, with recommendations to ensure proper implementation and timing for a demand-based program.

Chapter Five

DEVELOPMENT CONCEPT

DEVELOPMENT CONCEPT

The planning process has evolved through several analytic efforts in the previous chapters. These efforts intended to analyze future aviation demand, establish airside and landside needs, and evaluate options for the future development of the airport and its facilities.

In the previous chapter, several development alternatives were analyzed to explore different options for the future growth and development of Seligman Airport. The development alternatives were refined into a single recommended concept for the terminal area plan after meeting with the Planning Advisory Committee (PAC) which provided feedback to the consultant. It is expected that this concept could be further refined after the final review meeting with the PAC. This chapter describes, in narrative and graphic form, the recommended direction for the future use and development of Seligman Airport.

RECOMMENDED CONCEPT

The recommended development concept incorporates the airfield development proposed in Airfield Alternative 2 and the improvements suggested in Landside Alternative B with new concepts added to the alternative. The recommended concept provides the airport with the availability to meet the increasing aviation demands on the airport for small general aviation aircraft operators, while also including development concepts for accommod-ating corporate aircraft operators.

The finalized concept provides for both anticipated facility needs over the next twenty years, as well as for some facility needs beyond the planning period. The following sections summarize specific airside and landside recommendations included in the final concept. The recommended concept is shown on **Exhibit 5A**.

AIRFIELD DESIGN STANDARDS

The Federal Aviation Administration (FAA) and the Arizona Department of Transportation (ADOT) - Aeronautics Division have established design criteria to define the physical dimensions of runways and taxiways, and the imaginary surfaces surrounding them which protect the safe operation of aircraft at the airport. These design standards also define the separation criteria for the placement of landside facilities.

As discussed previously, FAA and ADOT design criteria primarily center around the airport's critical design aircraft. The critical aircraft is the most demanding aircraft or family of aircraft which will conduct 500 or more operations (take-offs or landings) per year at the airport. Factors included in airport design are an aircraft's wingspan, approach speed and, in some cases, the runway approach visibility minimums. The FAA has established an Airport Reference Code (ARC) to relate these factors to airfield design standards.

Seligman Airport is presently used by a variety of general aviation aircraft. The majority of these aircraft include single and multi-engine aircraft which range between ARC A-I and B-I categories. On occasion, the airport is utilized by larger aircraft in ARC B-II (e.g., Beech King Air).

Analysis conducted in Chapter Three, Facility Requirements, concluded that Seligman Airport's current critical design aircraft is the ARC B-I aircraft. The majority of operations are performed by single engine aircraft, with a large portion of the activity generated by pilot training from Embry Riddle Aeronautical University (ERAU). Also, the airport attracts several weekend "fly-in" events which capitalize on the tourism opportunity of Historic Route 66 and the Town of Seligman. These fly-ins typically attract single engine aircraft.

In the future, it is anticipated that this type of activity will remain dominant, however, more aircraft in ARC B-II will utilize the airport. ARC B-II aircraft such as the King Air or small business jets are commonly used for medical transportation services. Given the relatively remote location of Seligman, planning for medical transportation needs is critical. For this reason, the ultimate plan considers the need for the airfield to conform to ARC B-II standards. As a result, the development concept considers meeting the needs of ARC B-II aircraft in the long term. The plan anticipates that turbine aircraft use would increase in the future consistent with national trends and FAA forecasts.

For planning purposes, the future critical aircraft for Seligman Airport will be ARC B-II. Planning for ARC B-II aircraft will allow the airport to accommodate nearly all piston general aviation aircraft and half of the business jet aircraft in the fleet today. Moreover, meeting ARC B-II design requirements will ensure that the airport is suitable to meet the existing and future demands of medical transportation operators and many business jet operators, ensuring that Seligman Airport will remain

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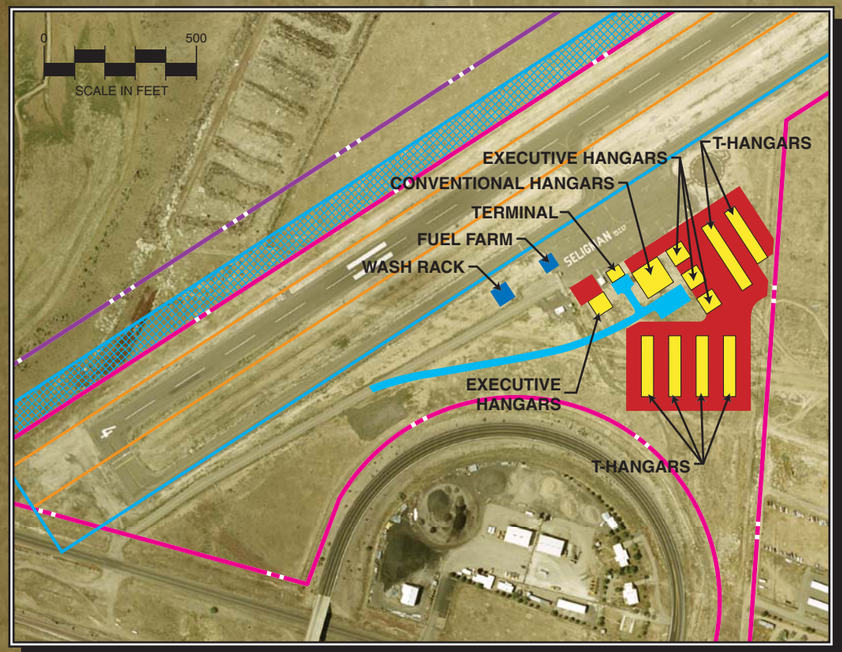

AWOS SITE 2

500'

LEGEND

- Existing Airport Property Line
- Ultimate Property Line
- Ultimate Airfield Pavement
- Ultimate Building
- Ultimate Road/Parking
- Runway Safety Area (RSA)
- Obstructed RSA
- Object Free Area (OFA)
- Obstructed OFA
- Runway Protection Zone (RPZ)

NORTH

0 800 1600

SCALE IN FEET

Date of Photo: 5/25/03

SELIGMAN AIRPORT

Exhibit 5A
RECOMMENDED DEVELOPMENT CONCEPT

competitive with other regional airports.

It should also be noted that the airport will be key in supporting the economic growth of the Town of Seligman. The airport serves as a critical spoke in the hub of economic development for any community. This is true of Seligman as well. In fact, Seligman Airport is even more valuable to the Town as it is owned, operated, and maintained by Yavapai County, resulting in the local availability and access to a key commodity while having no capital investment or maintenance costs.

The recommended concept, shown on **Exhibit 5A**, includes recommendations provided on Airfield Alternative 2 presented in the previous chapter. Of primary consideration, Alternative 2 provides a runway length fully capable of accommodating ARC B-II aircraft needs, especially during hot weather conditions. Accordingly, the plan includes the extension of Runway 4-22 1,900 feet northeast. This extension will allow the runway to provide adequate operational length for the full array of ARC B-II aircraft including many business jets carrying moderate loads.

In order to extend the runway to the northeast, additional property needs to be acquired. As depicted, the plan includes the future acquisition of 63.2 acres including 16.6 acres along the southwestern portion of the runway and 46.6 acres at the northern end of the runway. Moreover, the plan includes rerouting the drainage channel under the runway extension through piping and/or box culvert. The resultant plan will provide a runway capable of serving ARC B-II, that also meets FAA and ADOT safety standards.

The recommended concept considers maintaining the existing runway width and upgrading pavement strength for Runway 4-22. The runway is currently 75 feet wide, meeting FAA criteria for ARC B-II aircraft design. Also, the existing pavement strength is not adequate to accommodate large aircraft (those weighing more than 12,500 pounds) on a regular basis. The plan considers upgrading the pavement strength to at least 25,000 pounds single wheel gear loading (SWL) strength.

It should be noted that the RSA requirements include a stabilized area capable of supporting the design aircraft during over-run or undershoot operations. The existing RSAs, both north and south, do not conform to FAA standards for ARC B-II aircraft. Both RSAs should be improved 300 feet beyond the runway pavement edge and 75 feet to either side of the runway centerline (150 feet total width) in the future.

The plan also considers meeting FAA runway object free area (OFA) standards. As mentioned in the previous chapter, the existing and future OFA is hindered at the southwestern corner and along the southeastern portion of the runway by perimeter fencing. The plan includes the acquisition of property to the northwest and northeast from the Navajo Nation. The property could be fully acquired fee simple or through an avigation or other easement. The intent is to simply move the fence line outside the OFA, as the ultimate development concept does not include placing

facilities on the northern side of the airport. As a result, the fence needs to be relocated 101 feet further north. The perimeter fence will need to be relocated at the southwesternmost corner of the airport as well.

The recommended development concept includes taxiway improvements. The existing parallel taxiway is located 240 feet east of the runway. As depicted on **Exhibit 5A**, the recommended concept includes the extension of the parallel taxiway located 240 feet east of Runway 4-22. Also depicted is the addition of an entrance/exit taxiway located at the extended end of the runway.

The design of taxiway and apron areas must also consider the critical aircraft identified for Seligman Airport. The primary consideration is given to the wingspan of the most demanding aircraft to operate at the airport. The parallel and connecting taxiways, transient apron areas, and aircraft maintenance areas have all been designed to accommodate aircraft within ADG II.

As previously mentioned, analysis in previous chapters indicated that plans should be made to upgrade the instrument approach capabilities of the airport. Currently, Seligman Airport is not served by an instrument approach procedure. In the future, the airport could be served by a global positioning system (GPS) approach providing minimums with greater than one mile visibility. For this reason, future plans consider the implementation of a not lower than one mile approach to Runway 22. It is planned that GPS will provide this opportunity in the future. Runway 4 is not being planned for an instrument approach.

The existing runway protection zones (RPZs) for both runway ends extend beyond the existing airport property boundary. FAA standards for RPZs would require the County to obtain property rights, either in the form of an avigation easement or in fee simple. The FAA would prefer fee simple acquisition of properties in the RPZ, but avigation easements are acceptable under certain circumstances. Fee simple acquisition is recommended and planned for the northeastern RPZ.

The plan recommends obtaining avigation easements for the area in the southwest RPZ. This area is highly unlikely to be developed as it is traversed by Historic Route 66 and a rail line. The remaining area is likely to remain undeveloped. Avigation easements give the County the rights of certain airspace over a given property. The height is limited in such a manner that approaches and departures will not be obstructed by future development in the approach. In addition, development that would encourage a congregation of people in the RPZ would be prohibited.

LANDSIDE

The primary goal of landside facility planning is to provide adequate spaces while also maximizing operational efficiencies and land uses. Achieving this goal yields a development scheme which segregates aircraft users (large vs. small aircraft) while maximizing the airport's revenue potential.

Exhibit 5A depicts the recommended landside development plan for the airport. As depicted, the plan includes aviation facility development in and

around the existing aircraft apron and restroom facilities. The plan considers allowing the apron to serve as the future development focal point, or flight line.

The existing terminal facilities consist of the apron, sheltered restroom, and electrical vault/storage. The recommended plan considers the development of a terminal building facility to be consolidated with the existing restroom facility. The terminal area is supported with a road providing a direct link to Historic Route 66 to the south. This road is planned to be rerouted to allow future development expansion potential south of the existing apron. Furthermore, the road would lead into a proposed parking lot which would serve the terminal building and hangar facilities.

It is envisioned that corporate and other larger aircraft needs will be met with facilities at the north and south ends of the apron. The plan considers developing two 100-foot by 100-foot hangars centrally on the existing apron. Also, the plan calls for the southerly extension of the apron to accommodate corporate/executive hangars (60-foot by 60-foot). The expansion could support larger hangars such as 80-foot by 80-foot as well.

Immediately east of the proposed flight line, T-hangars are planned. As depicted, the T-hangar area could support four T-hangar facilities providing 50 individual storage units. The plan calls for the development of a taxilane leading from the northern edge of the existing apron. This taxilane would provide ingress/egress with the T-hangar area as well as a planned aircraft wash rack just north of the existing apron and planned taxiway.

The ultimate landside plan far exceeds the needs and goal of this planning effort. Consideration of facility development beyond the scope of this planning effort will, however, provide the County with a vision which will yield a first-class aviation facility capable of generating revenues which exceed operational costs. It should be noted that the development of all facilities should consider aesthetics a high priority. The airport is often the first and last impression that the airport user has of the community. Consideration should always be given to the development of facilities which meet aviation demand while presenting a positive image to all users.

CAPITAL IMPROVEMENT PROGRAM

The analyses conducted in the previous chapters evaluated airport development needs based upon safety, security, potential aviation activity, and operational efficiency. However, one of the more important elements of the master planning process is the application of basic economic, financial, and management rationale to each development item so that the feasibility of implementation can be assured. The purpose of this chapter is to identify capital needs at Seligman Airport and identify when these needs should be implemented according to need, function, and demand.

The presentation of the financial program contains two distinct categories. First, the airport's capital

needs are presented in narrative and graphic form. Secondly, funding sources on the federal and local levels are identified and discussed. The following sections outline the program's funding requirements and potential revenue sources.

DEMAND-BASED PLAN

The Master Plan for Seligman Airport has been developed according to a demand-based schedule. Demand-based planning refers to the intention to develop planning guidelines for the airport based upon airport activity levels, instead of guidelines based on points in time. By doing so, the levels of activity derived from the demand forecasts can be related to the actual capital investments needed to safely and efficiently accommodate the level of demand being experienced at the airport. More specifically, the intention of this Master Plan is that the facility improvements needed to serve new levels of demand should only be implemented when the levels of demand experienced at the airport justify their implementation.

For example, the aviation demand forecasts projected that based aircraft could be expected to grow through the year 2025. This forecast was supported by strong growth in the region in many areas including economic and aircraft ownership.

The forecasts noted, however, that future based aircraft levels will be dependent upon a number of economic factors. These factors could slow or accelerate based aircraft levels differently than projected in the aviation demand forecasts. Since changes in these factors cannot be realistically predicted for the entire forecast period, it is difficult to predict, with the level of accuracy needed to justify a capital investment, exactly when an improvement will be needed to satisfy demand level.

For these reasons, the Seligman Airport Master Plan has been developed as a demand-based plan. The Master Plan projects various activity levels for short, intermediate, and long term planning horizons. When activity levels begin to reach or exceed the level of one of the planning horizons, the Master Plan suggests planning begin to consider the next planning horizon level of demand. This provides a level of flexibility in the Master Plan, as the development program can be accelerated or slowed to meet demand. This can extend the time between Master Plan updates.

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

CAPITAL NEEDS AND COST SUMMARIES

Once the specific needs for the airport have been established, the next step is to determine a realistic schedule and costs for implementing each project. The capital needs presented in this chapter outline the costs and timing for implementation. The program outlined on the following pages has been evaluated from a variety of perspectives and represents the culmination of a comparative analysis of basic budget factors, demand, and priority assignments.

The recommended improvements are grouped into three planning horizons: short, intermediate, and long term. Each year, Yavapai County should re-examine the priorities for funding in the short-term period, adding or removing projects on the capital programming lists. **Table 5A** summarizes the key activity milestones for each planning horizon.

TABLE 5A
Planning Horizon Activity Levels
Seligman Airport

	2003	Short Term	Intermediate Term	Long Term
Based Aircraft	1	2	4	10
Annual Operations	3,500	6,000	10,000	15,000

While some projects will be demand-based, others will be dictated by design standards, safety, or rehabilitation needs. In putting together a listing of projects, an attempt has been made to include anticipated rehabilitation needs through the planning period, and capital replacement needs. However, it is difficult to project with certainty, the scope of such projects when looking 10 or more years into the future.

Exhibit 5B summarizes capital needs for Seligman Airport through the planning period of this Master Plan. An estimate has been included with each project of federal/state and state funding eligibility, although none of these amounts are guaranteed. Federal funding will not be available until/unless the airport is included in the *National Plan of Integrated Airports* (NPIAS).

As will be discussed in greater detail later in this chapter, the primary advantage of being included in the NPIAS is the availability of more discretionary dollars than currently available by the Arizona Department of Transportation - Aeronautics Division (ADOT) grants. The ADOT program only has several million dollars available each year, whereas, the federal program has had more than $3.0 billion dollars available annually to airports nationwide over the past four years. Additionally, most NPIAS general aviation airports qualify for an annual entitlement grant. The amount

of the grant ranges upward to an annual limit of $150,000 which can be used for federally-eligible projects.

Individual project cost estimates account for engineering and other contingencies that may be experienced during implementation of the project and are in current (2004) dollars. Due to the conceptual nature of a Master Plan, implementation of capital improvement projects should occur only after further refinement of their design and costs through engineering and/or architectural analyses. Capital costs in this chapter should be viewed only as estimates subject to further refinement during design. Nevertheless, these estimates are considered sufficient for performing the feasibility analyses in this chapter.

SHORT TERM CAPITAL NEEDS

The short term planning horizon is the only planning horizon correlated to time. This is because development within this initial period is concentrated on the most immediate needs of the airfield and landside areas. Year-to-year funding assistance for small general aviation airports such as Seligman Airport is many times difficult to obtain from either the FAA or ADOT. Moreover, annualized grants require annualized local match funds. In many cases for communities sponsoring small general aviation airports, annual local funds are not available for general aviation airports. For this reason, the short term program presents a grouping of projects which will allow the County to pursue projects as needed and as funds become available. The projects are prioritized based on what is believed to be the most critical needs.

Short term projects, generally associated with those necessary for the next five years, are listed in the order of perceived importance at the time of completing this document. It is not uncommon for those needs to change with changing demand which could spur the need to expedite or delay specific projects. Short term capital needs presented on **Exhibit 5B** are estimated at $304,000.

A focus of the short term planning horizon is improving the airfield to meet FAA standards. As previously mentioned, the current airfield layout does not conform to ARC B-II standards for RSA and OFA. The existing perimeter fence obstructs the OFA at both ends and along the southwestern portion of the airport. Moreover, the RSA beyond the northeast end of the runway is obstructed by a drainage channel.

The short term CIP includes projects that will relocate the fencing. The southwestern OFA improvement project will require placing the fence on property not currently owned by the airport. The land is currently owned by the Navajo Nation. The short term plan considers obtaining an easement that would allow for the fence relocation. Later, the land is planned for fee simple acquisition. If possible, fee simple acquisition would be ideal in the short term.

The fence at the southwest end of the runway is planned to be rerouted along the Route 66 right-of-way, outside of the

PROJECT	TOTAL COST	ADOT/FAA SHARE	LOCAL SHARE
SHORT TERM PROGRAM (0 to 5 Years)			
1. Improve Runway 4 OFA - Relocate Fencing	$13,000	$12,350	$650
2. Install Self-serve Fuel Farm	60,000	0	60,000
3. Conduct SWPP, Drainage, & Hazardous Waste Studies	75,000	71,250	3,750
4. Improve Runway 22 RSA & OFA - Drainage/Fencing	60,000	57,000	3,000
5. Acquire Easement for Southwest Fencing Relocation	25,000	23,750	1,250
6. Relocate Southwest Perimeter Fencing (Improve OFA)	51,000	48,450	2,550
7. Construct Hangar Access Taxiway - Phase I	95,000	90,250	4,750
8. Install AWOS	50,000	50,000	0
Subtotal Short Term	$429,000	$353,050	$75,950
INTERMEDIATE TERM PROGRAM (6-10 years)			
1. Acquire Land for Southwest OFA (approx. 16.6 acres)	$40,000	$38,000	$2,000
2. Earthwork/Fencing to Improve OFA and Transitional Surfaces	70,000	66,500	3,500
3. Construct Hangar Access Taxiway - Phase II	115,000	109,250	5,750
4. Pavement Maintenance - Apron	32,500	30,875	1,625
Subtotal Intermediate Term	$257,500	$244,625	$12,875
LONG TERM PROGRAM (11 to 20 Years)			
1. Construct Terminal Building	$125,000	$0	$125,000
2. Relocate Airport Access Road/Construct Parking Lot	104,000	98,800	5,200
3. Construct Water Storage and Distribution Facility	500,000	0	500,000
4. Construct Wash Rack	35,000	33,250	1,750
5. Conduct Environmental Assessment for Runway Extension	250,000	237,500	12,500
6. Acquire Land for Runway/Taxiway Extension (62 ac.)	186,000	176,700	9,300
7. Extend Runway/Parallel Taxiway 1,900' Northeast	1,660,000	1,577,000	83,000
8. Construct Hangar Access Taxiway - Phase III	360,000	342,000	18,000
9. Pavement Maintenance - Runway 4-22/Parallel Taxiway	190,000	180,500	9,500
Subtotal Long Term	$3,410,000	$2,645,750	$764,250
TOTAL PROGRAM COSTS	***$4,096,500***	***$3,243,425***	***$853,075***

SELIGMAN AIRPORT

Exhibit 5B
CAPITAL IMPROVEMENT PROGRAM

runway OFA. The northeastern fence line will be rerouted north and east, outside the RSA. Also, the plan considers improving the drainage channel with concrete pipe and earthwork to cover the channel. As a result of these changes, the RSA and OFA will conform to FAA standards. These projects will also include a storm water pollution prevention (SWPP) plan and other drainage and hazardous waste studies.

The short term program also includes two projects that are aimed at improving landside amenities and aviation services. Construction of a 10,000-gallon self-serve, 100LL fuel facility is proposed at the southwestern portion of the existing apron. This facility would allow for credit card fuel purchases 24 hours-per-day. The plan also includes the construction of a hangar access taxiway which would allow for private hangar development. Both of these projects would enhance the airport and could be an attractant for based aircraft.

The short term planning horizon also includes the installation of the Automated Weather Observation System (AWOS). The AWOS will provide automated weather observation and reporting at the airport which will also enhance the possibility for an instrument approach procedure to the airport.

Short term projects presented on Exhibit 5B and graphically depicted on Exhibit 5C have been estimated at $429,000 total cost. Of that total, approximately $75,950 will be required to be provided by the County.

INTERMEDIATE TERM CAPITAL NEEDS

Developments within the intermediate term planning horizon are improving airfield FAA standards and landside facilities for both transient and locally-based aircraft.

The short term plan considered acquiring an easement which would allow for relocating the northwestern perimeter fence outside the runway OFA. It was assumed that the fee simple acquisition of this land would not be feasible in the first five years. The intermediate term plan considers acquiring the property in fee so that the County would maintain full control. Controlling this property will allow the County to excavate terrain currently obstructing the transitional surfaces defined by F.A.R. Part 150. This project could better situate the airport for an instrument approach to Runway 22 as planned.

Other projects in the intermediate term planning horizon include slurry sealing the apron and construction of a hangar access taxiway. The taxiway would allow for the construction of additional hangar facilities. **Exhibit 5C** graphically depicts development staging of projects in the intermediate term. **As proposed, projects in the intermediate term program are estimated to cost $257,500 with $12,875 being the County's share.**

LONG TERM CAPITAL NEEDS

The long term planning horizon considers several projects which would

be needed if demand levels dictate. Among those projects which will require demand are construction of an airport terminal building, relocation of the terminal road, construction of a new parking lot, construction of hangar access taxiways, and extension of the runway/taxiway system.

In order to extend the runway as proposed, additional land needs to be acquired. The plan considers the acquisition of approximately 62 acres of land. The acquisition would allow for the runway and parallel taxiway to be extended 1,900 feet to the northwest and provide adequate RSA and OFA for ARC B-II aircraft.

The long term plan considers the construction of an on-site water facility. The facility would include a water tank, which could amply support water needs of proposed landside development and fire fighting.

Other projects included in the long term program are the construction of an aircraft wash rack, and pavement maintenance of the existing portion of Runway 4-22 and the parallel taxiway. **Long term projects presented on Exhibit 5B and graphically depicted on Exhibit 5C have been estimated at $3.4 million total cost. Of that total, approximately $764,250 will be required to be provided by the County.**

CAPITAL IMPROVEMENTS FUNDING

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

FEDERAL GRANTS

Through federal legislation over the years, various grant-in-aid programs have been established to develop and maintain a system of public airports throughout the United States. The purpose of this system and its federally-based funding is to maintain national defense and promote interstate commerce. The most recent legislation was enacted in late 2003 and is entitled the *Century of Aviation Reauthorization Act* or *Vision 100*.

The four-year Bill covers FAA fiscal years 2004, 2005, 2006, and 2007. This Bill presented similar funding levels to the previous Bill - Air 21. Airport Improvement Program (AIP) funding was authorized at $3.4 billion in 2004, $3.5 billion in 2005, $3.6 billion in 2006, and $3.7 billion in 2007. This new Bill provides the FAA and ADOT the opportunity to plan for longer term projects versus simple one-year reauthorizations.

The source for *Vision 100* funds is the Aviation Trust Fund. The Aviation Trust Fund was established in 1970 to provide funding for aviation capital investment programs (aviation development, facilities and equipment, and research and development). The Trust Fund also finances the operation of the FAA. It is funded by user fees,

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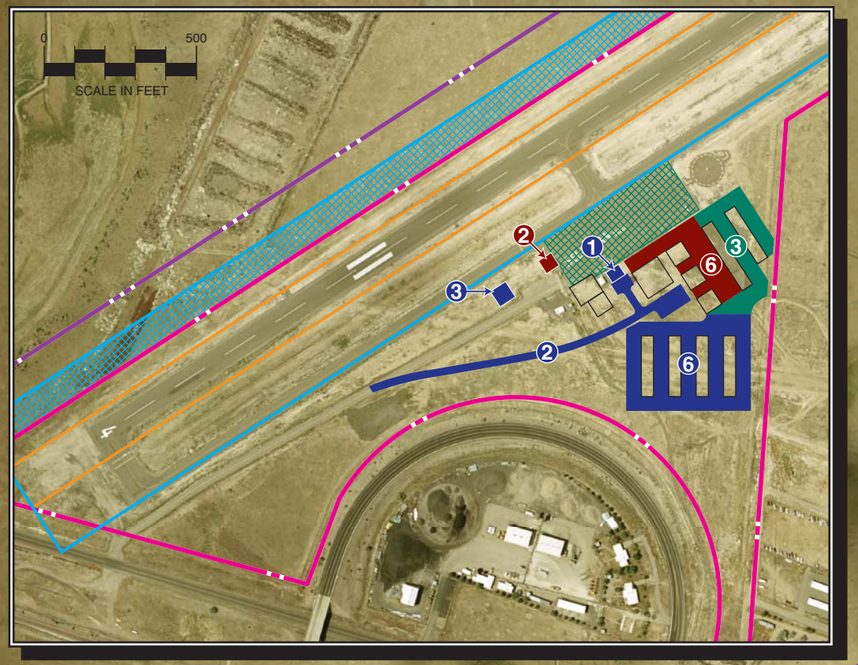

LEGEND

- Existing Airport Property Line
- Ultimate Property Line
- Ultimate Airfield Pavement
- Ultimate Building
- Ultimate Road/Parking
- Runway Safety Area (RSA)
- Obstructed RSA
- Object Free Area (OFA)
- Obstructed OFA
- Runway Protection Zone (RPZ)
- Short Term Program
- Intermediate Program
- Long Term Program

SHORT TERM PROGRAM (0 to 5 Years)

1. Improve Runway 4 OFA - Relocate Fencing
2. Install Self-serve Fuel Farm
3. Improve Runway 22 RSA & OFA - Drainage/Fencing
4. Acquire Easement for Northwest Fencing Relocation
5. Relocate Northwest Perimeter Fencing (Improve OFA)
6. Construct Hangar Access Taxiway - Phase I
7. Install AWOS

INTERMEDIATE TERM PROGRAM (6-10 years)

1. Acquire Land for Northwest OFA (approx. 16.6 acres)
2. Earthwork to Improve OFA and Transitional Surfaces
3. Construct Hangar Access Taxiway - Phase II
4. Pavement Maintenance - Apron

LONG TERM PROGRAM (11 to 20 Years)

1. Construct Terminal Building
2. Relocate Airport Access Road/Construct Parking Lot
3. Construct Wash Rack
4. Acquire Land for Runway/Taxiway Extension (62 ac.)
5. Extend Runway/Parallel Taxiway 1,900' Northeast
6. Construct Hangar Access Taxiway - Phase III
7. Pavement Maintenance - Runway 4-22/Parallel Taxiway

NORTH

0 800 1600

SCALE IN FEET

Date of Photo: 5/25/03

SELIGMAN AIRPORT

Exhibit 5C
DEVELOPMENT STAGING

taxes on airline tickets, aviation fuel, and various aircraft parts.

Funds are distributed each year by the FAA from appropriations by Congress. A portion of the annual distribution is to primary commercial service airports based upon enplanement levels. If Congress appropriates the full amounts authorized by *Vision 100*, eligible general aviation airports could receive up to $150,000 of funding each year (NPIAS inclusion required for general aviation entitlement funding). The remaining AIP funds are distributed by the FAA based upon the priority of the project for which they have requested federal assistance through discretionary apportionments. A National Priority Ranking System is used to evaluate and rank each airport project. Those projects with the highest priority are given preference in funding.

Should Seligman Airport eventually be included in the NPIAS, each airport project for Seligman Airport would be required to follow this procedure and compete with other airport projects in the state for AIP state apportionment dollars and across the country for other federal AIP funds. An important point to consider is that, unlike entitlement dollars for commercial service airports, most funding for Seligman Airport would not be guaranteed.

General aviation airport development that meets the FAA's eligibility requirements can receive 95 percent federal funding assistance from *Vision 100*. Property acquisition, airfield improvements (e.g., runway extensions), aprons, perimeter service roads, and access road improvements are examples of eligible items. General aviation terminal buildings and fueling facilities are not generally eligible, however, *Vision 100* has made provisions for limited inclusion. The new Bill would allow for grant funding assistance for aircraft hangar and fuel farm construction if the airport is not in need of other more important projects. It should be noted that grant assistance for hangars and fuel farms will likely be very low priority items, thus, could be difficult to receive.

As evident from the airport development schedule and cost summaries, Yavapai County could benefit significantly from federal funding. Federal funding extends the amount of state dollars available for airport funding and guarantees a limited amount of entitlement dollars each year (assuming the current program contained in *Vision 100* is continued through the planning period).

As previously mentioned, the airport is not included in the current federal system of airports as defined in the NPIAS. Thus, the airport is not eligible for federal grant-in-aid programs. It is recommended that the County pursue inclusion in the NPIAS in order to be eligible for federal funding in the future. Until it is included, Seligman Airport and its sponsor, Yavapai County, are only eligible for state grant funding assistance.

If included in the NPIAS, the airport could be eligible for annual entitlement funds, ranging up to $150,000 annually, and other discretionary grants. The annual entitlement amount is based on the NPIAS's projected CIP needs for the airport. Although the entitlement funds are available annually, they may be

banked up to three years if local funds are not available or if no project is planned. Thus, Yavapai County could bank three years worth of FAA entitlement funds for a single year's grant of up to $450,000. The local match requirement would be $22,500. If ADOT funds were used to help match the local share, the County's share could be reduced to only $11,250. Again, the airport must be part of the NPIAS to become eligible for entitlement funds.

FAA FACILITIES AND EQUIPMENT PROGRAM

The Airway Facilities Division of the FAA administers the national Facilities and Equipment (F&E) Program. This annual program provides funding for the installation and maintenance of various navigational aids and equipment for the national airspace system and airports. Under the F&E program, funding is provided for FAA airport traffic control towers, enroute navigational aids, and on-airport navigational aids such as approach lighting systems. Assuming inclusion in the NPIAS, as activity levels and other developments warrant, the airport may be considered by the FAA Airways Facilities Division for the installation and maintenance of navigational aids through the F&E program. The airport cannot receive F & E grants until it is included in the NPIAS.

STATE AID TO AIRPORTS

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

Under the State of Arizona grant program, an airport can receive funding for one-half (five percent) of the local share of projects receiving federal AIP funding. The state also provides 90 percent funding for State of Arizona primary airport projects which are typically not eligible for federal AIP funding or have not received federal funding. Secondary airports in the state, such as Seligman Airport, can be funded at 95 percent of the project cost since these airports are not included in the NPIAS. This funding level is the same as the newly passed *Vision 100* Bill.

State Airport Loan Program

The Arizona Department of Transportation-Aeronautics Division (ADOT) Airport Loan Program was established to enhance the utilization of state funds and provide a flexible funding mechanism to assist airports in funding improvement projects. Eligible projects include runway, taxiway, and apron improvements; land acquisition, planning studies, and the preparation of plans and specifications for airport construction projects, as well as revenue generating improvements such as hangars and fuel storage facilities. Projects which are not currently eligible

for the State Airport Loan Program are considered if the project would enhance the airport's ability to be financially self-sufficient.

There are three ways in which the loan funds can be used: Grant Advance, Matching Funds, or Revenue Generating Projects. The Grant Advance loan funds are provided when the airport can demonstrate the ability to accelerate the development and construction of a multi-phase project. The project(s) must be compatible with the Airport Master Plan and be included in the ADOT 5-year Airport Development Program. The Matching Funds are provided to meet the local matching fund requirement for securing federal airport improvement grants or other federal or state grants. The Revenue Generating funds are provided for airport-related construction projects that are not eligible for funding under another program.

LOCAL FUNDING

The balance of project costs, after consideration has been given to grants, must be funded through local resources. Assuming federal funding, this essentially equates to 2.5 percent of the project costs if all eligible FAA and state funds are available. If only ADOT grants were available, the local share would be five percent of the project, or five percent higher, or ten percent of the eligible project amount.

There are several alternatives for local financing options for future developments at the airport, including airport revenues, direct funding from the County, issuing bonds, and leasehold financing. These strategies could be used to fund the local matching share, or complete the project if grant funding cannot be arranged.

The capital improvement program has assumed that some landside facility development would be completed privately, while other developments (namely T-hangars, the aircraft wash rack, and public terminal building) would be completed by Yavapai County. Yavapai County would complete the necessary infrastructure improvements as this development is grant-eligible.

There are several municipal bonding options available to Yavapai County including: general obligation bonds, limited obligation bonds, and revenue bonds. General obligation bonds are a common form of a municipal bond which is issued by voter approval and is secured by the full faith and credit of the County. County tax revenues are pledged to retire the debt. As instruments of credit, and because the community secures the bonds, general obligation bonds reduce the available debt level of the community. Due to the community pledge to secure and pay general obligation bonds, they are the most secure type of municipal bond and are generally issued at lower interest rates and carry lower costs of issuance. The primary disadvantage of general obligation bonds is that they require voter approval and are subject to statutory debt limits. This requires that they be used for projects that have broad support among the voters, and that they be reserved for projects that have the highest public priorities.

In contrast to general obligation bonds, limited obligation bonds (sometimes

referred to as a self-liquidating bonds) are secured by revenues from a local source. While neither general fund revenues nor the taxing power of the local community is pledged to pay the debt service, these sources may be required to retire the debt if pledged revenues are insufficient to make interest and principal payments on the bonds. These bonds still carry the full faith and credit pledge of the local community and, therefore, are considered, for the purpose of financial analysis, as part of the debt burden of the local community. The overall debt burden of the local community is a factor in determining interest rates on municipal bonds.

There are several types of revenue bonds, but in general they are a form of municipal bond which is payable solely from the revenue derived from the operation of a facility that was constructed or acquired with the proceeds of the bonds. For example, a lease revenue bond is secured with the income from a lease assigned to the repayment of the bonds. Revenue bonds have become a common form of financing airport improvements. Revenue bonds present the opportunity to provide those improvements without direct burden to the taxpayer. Revenue bonds normally carry a higher interest rate because they lack the guarantees of general and limited obligation bonds.

Leasehold financing refers to a developer or tenant financing improvements under a long term ground lease. The obvious advantage of such an arrangement is that it relieves the community of all responsibility for raising the capital funds for improvements. However, the private development of facilities on a ground lease, particularly on property owned by a municipal agency, produces a unique set of problems.

In particular, it is more difficult to obtain private financing as only the improvements and the right to continue the lease can be claimed in the event of a default. Ground leases normally provide for the reversion of improvements to the lessor at the end of the lease term, which reduces their potential value to a lender taking possession. Also, companies that want to own their property as a matter of financial policy may not locate where land is only available for lease. Yavapai County has used long term lease arrangements successfully to finance capital improvements at the airport in the past.

RATES AND FEES ANALYSIS

Seligman Airport is not currently supported by any facility rates or fees. In fact, the only facility which could support revenue collection would be the aircraft parking apron. The recommended concept will generate the opportunity for the County to establish revenue streams. Obviously, the County, having not had to establish a rates/fees structure in the past, will have to consider establishing a structure and collection mechanism sometime in the future.

The FAA places several stipulations on rates/fees establishment and collection, however, two primary considerations need to be addressed here. First, the rates/fees must be fair, equally applied, and resemble market value. Second,

the rates/fees collected must be returned to and used only by and/or for the airport. In other words, the revenues generated by airport operations cannot be diverted to the general use of Yavapai County (or any airport sponsor). The FAA requires funds to be used at airports as these funds are many times needed to either support the day-to-day operational costs or offset capital improvement costs.

Given its remote location, the rates/fees structure at Seligman will not necessarily need to be fully competitive with other airports in the region or the State of Arizona. If the costs are set too high, some users will choose other airports such as H.A. Clark Memorial Field in Williams or Valle Airport in Peach Springs. If the rates/fees are set too low, some facilities will not be capable of being amortized, thus, requiring a subsidy from the County.

As part of this study, a rates and fees survey of other regional airports was conducted. The results of the study are presented in **Table 5B**. The surveys requested information regarding rate structures for several categories including hangar and lease rates, fuel charges (flowage fees and average price markup), and tie-down fees (nightly and monthly rates).

The table presents financial information for six regional airports. Two airports, Flagstaff Pulliam Airport and Ernest A. Love Field in Prescott, provide both commercial airline and general aviation services. The other airports are dedicated for general aviation services. These airports provide a reasonable comparison for rental and lease rates for facilities which could be based at Seligman Airport in the future. Obviously, the only comparable facility currently provided at Seligman is for aircraft tie-downs. It should be noted that collection of fees for tie-downs or other rentals will require day-to-day management of the facility.

Currently, Seligman Airport does not have any aircraft hangar facilities for aircraft storage. At some airports, hangar facilities are constructed by the airport sponsor, while at other airports, hangars are built by private entities. In some cases, airports have both public and private hangar facilities available. Hangars can be expensive to construct and offer minimal return on investment in the short term. This is especially true for T-hangars which could cost between $20,000 and $30,000 per unit to construct. In order to amortize the cost of constructing hangars, lease rates should be developed at a minimum to recover development and finance costs. In the case of a T-hangar, the rate would be approximately $200 per month (assuming $20,000 construction cost, with an amortization schedule at five percent for 15 years).

As presented in the table, the other regional airports offer a variety of hangar facilities for similar rental rates. The hangar rates listed below include the rates offered by the airport sponsor. Other rates were not available as private entities own the hangars. For example, Flagstaff Pulliam Airport has T-hangar facilities, however, none provided by the airport sponsor. The private lease rates were not obtained.

At Seligman Airport, hangar construction should first consider private development. This allows the

airport to lease a parcel of land to the developer, who in turn will construct, maintain, and operate the hangar facilities. Private hangar development allows the County the freedom of day-to-day lease functions, while generating land lease revenues from the developer. The land lease rates for other regional airports vary between $0.04 per square-foot monthly and $0.28 per square-foot annually. It should be noted that land leases should include the opportunity to periodically review the lease and adjust the rate according to the consumer price index (CPI) increase. Moreover, many leases will include a reversion clause which stipulates that any leasehold improvement will revert the airport at some point in the future (typically 20 years or more).

TABLE 5B
Rates and Fees Analysis

	AIRPORT THREE LETTER IDENTIFIER					
	FLG	**P32**	**SEZ**	**GCN**	**PRC**	**40G**
Hangar Rental Rates (Monthly Flat Rate or $ per square foot)						
Conventional Hangar	$235	N/A	$600	$0.00	$211	N/A
T-Hangar	N/A	N/A	$225	$0.00	$131	$150 $200 $400
Shade Hangar	$85	N/A	$60	$0.00	$89.00	$0.00
Tie-down Rates (Flat Rates)						
Daily Rates						
Single Engine	$5.40	$3.00	$7.50	N/A	$5.50	N/A
Multi-engine	$8.00	$3.00	$10.00	N/A	$6.50	N/A
Jet	$25.00	$3.00	$15.00	N/A	N/A	N/A
Rotor	$8.00	$3.00	$10.00	N/A	N/A	N/A
Monthly Rates						
Single Engine	$40.00	$30.00	$50.00	$30.00	$38.00	N/A
Multi-engine	$40.00	$30.00	$50.00	$40.00	$38.00	N/A
Jet	$40.00	$30.00	$50.00	N/A	$73.00	N/A
Rotor	$40.00	$30.00	$50.00	$40.00	N/A	N/A
Generalized Land Lease for Aviation Development						
Rate (per s.f.)	$0.28/yr.	$0.04/mo.	$0.04/mo.	$0.00	$0.15/mo.	N/A
Fuel Services						
Self Service (Yes or No)	Y	N	N	N	N	N
Fuel Flowage Fee	$0.00	$0.08	$0.02	$0.00	$0.00	N/A
Mark-up per gallon	N/A	N/A	$0.80	$0.00	$0.65	$0.85

Airport Identifier Key:
FLG - Flagstaff Pulliam Airport
P32 - H.A. Clark Memorial Field Airport - Williams, Arizona
SEZ - Sedona Airport
GCN - Grand Canyon National Park Airport
PRC - Ernest A. Love Field Airport - Prescott, Arizona
40G - Valle Airport
Note: N/A refers to either unavailable information or facility/service not provided at airport.

PLAN IMPLEMENTATION

The successful implementation of the Seligman Airport Master Plan will require sound judgment on the part of Yavapai County with regard to the implementation of projects proposed to meet future activity demands, while maintaining the existing infrastructure and improving this infrastructure to support new development. While the projects included in the capital improvement program have been broken into short, intermediate, and long term planning periods, the County will need to consider the scheduling of projects in a flexible manner and add new projects from time-to-time to satisfy safety or design standards, or newly created demands.

In summary, the planning process requires that Yavapai County continually monitor the need for new or rehabilitated facilities, since applications for eligible projects must be submitted to the FAA and the state each year. Yavapai County should continually monitor, with the FAA and the state, the projects which are required for safety and security.

The Master Plan and recommended concept have been developed in conjunction with the PAC and Yavapai County, and are designed to assist the County in making decisions on future development and growth of Seligman Airport. This plan provides the necessary development to accommodate and satisfy the anticipated growth over the next twenty years and beyond.

Flexibility will be very important to future development at the airport. Activity projected over the next twenty years may not occur as predicted. The plan has attempted to consider demands that may be placed on the airport even beyond the twenty-year planning horizon to ensure that the facility will be capable of handling a wide range of circumstances. The recommended plan provides the Town with a general guide that if followed can maintain the airport's long term viability and allow the airport to continue to provide air transportation services to the region.

Appendix A

GLOSSARY AND ABBREVIATIONS

Appendix A
GLOSSARY OF TERMS

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

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

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

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

AIRPORT ELEVATION: The highest point on an airport's usable runway expressed in feet above mean sea level (MSL).

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

AIRCRAFT APPROACH CATEGORY: a grouping of aircraft based on 1.3 times the stall speed in their landing configuration at their maximum certificated landing weight. The categories are as follows:

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

AIRPLANE DESIGN GROUP (ADG): a grouping of aircraft based upon wingspan. The groups are as follows:

- *Group I:* Up to but not including 49 feet.
- *Group II:* 49 feet up to but not including 79 feet.
- *Group III:* 79 feet up to but not including 118 feet.
- *Group IV:* 118 feet up to but not including 171 feet.
- *Group V:* 171 feet up to but not including 214 feet.
- *Group VI:* 214 feet or greater.

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

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

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

ALERT AREA: see special-use airspace.

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

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

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

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

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

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

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

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

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

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

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

CIRCLING APPROACH: a maneuver initiated by the pilot to align the aircraft with the runway for landing when flying

a predetermined circling instrument approach under IFR.

CLASS A AIRSPACE: see Controlled Airspace.

CLASS B AIRSPACE: see Controlled Airspace.

CLASS C AIRSPACE: see Controlled Airspace.

CLASS D AIRSPACE: see Controlled Airspace.

CLASS E AIRSPACE: see Controlled Airspace.

CLASS G AIRSPACE: see Controlled Airspace.

CLEAR ZONE: see Runway Protection Zone.

CROSSWIND: wind flow that is not parallel to the runway of the flight path of an aircraft.

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

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

- *CLASS A:* generally, the airspace from 18,000 feet mean sea level (MSL) up to but not including flight level FL600. All persons must operate their aircraft under IFR.

- *CLASS B:* generally, the airspace from the surface to 10,000 feet MSL surrounding the nation's busiest airports. The configuration of Class B airspace is unique to each airport, but typically consists of two or more layers of air space and is designed to contain all published instrument approach procedures to the airport. An air traffic control clearance is required for all aircraft to operate in the area.

- *CLASS C:* generally, the airspace from the surface to 4,000 feet above the air port elevation (charted as MSL) surrounding those airports that have an operational control tower and radar approach control and are served by a qualifying number of IFR operations or passenger enplanements. Although individually tailored for each airport, Class C airspace typically consists of a surface area with a five nautical mile (nm) radius and an outer area with a 10 nautical mile radius that extends from 1,200 feet to 4,000 feet above the airport elevation. Two-way radio communication is required for all aircraft.

- *CLASS D:* generally, that airspace from the surface to 2,500 feet above the air port elevation (charted as MSL) surrounding those airport that have an operational control tower. Class D air space is individually tailored and configured to encompass published instrument approach procedures. Unless otherwise authorized, all

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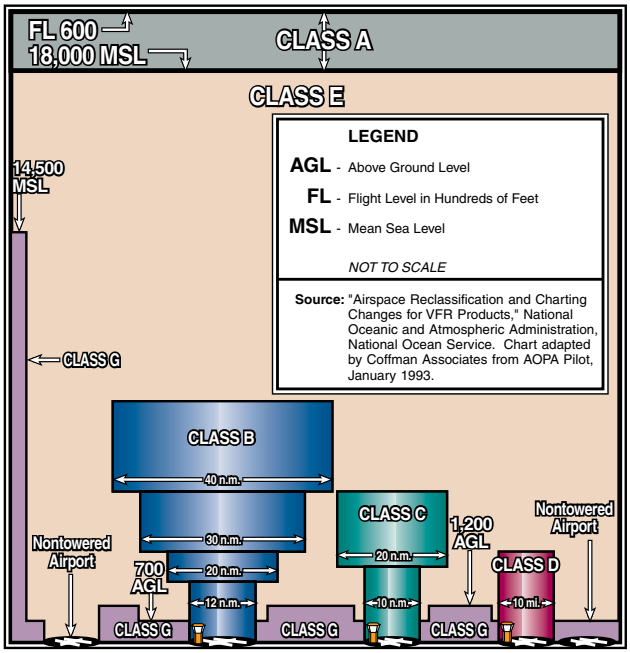
persons must establish two-way radio communication.

- *CLASS E:* generally, controlled airspace that is not classified as Class A, B, C, or D. Class E airspace extends upward from either the surface or a designated altitude to the overlying or adjacent controlled airspace. When designated as a surface area, the airspace will be configured to contain all instrument procedures. Class E airspace encompasses all Victor Airways. Only aircraft following instrument flight rules are required to establish two-way radio communication with air traffic control.

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



CONTROLLED FIRING AREA: see special-use airspace.

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

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

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

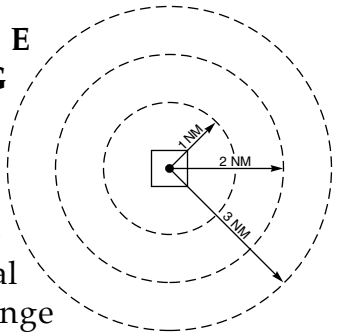
- *TAKEOFF DISTANCE AVAILABLE (TODA):* The TORA plus the length of any remaining runway and/or clear way beyond the far end of the TORA;

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

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

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

DISTANCE MEASURING EQUIPMENT (DME): Equipment (airborne and ground) used to measure, in nautical miles, the slant range



distance of an aircraft from the DME navigational aid.

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

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

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

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

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

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

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

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

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

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

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

GLOBAL POSITIONING SYSTEM: See "GPS."

GPS - GLOBAL POSITIONING SYSTEM: A system of 24 satellites

used as reference points to enable navigators equipped with GPS receivers to determine their latitude, longitude, and altitude.

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

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

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

INSTRUMENT FLIGHT RULES (IFR): Rules governing the procedures for conducting instrument flight. Also a term used by pilots and controllers to indicate type of flight plan.

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

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

LANDING DISTANCE AVAILABLE (LDA): see declared distances.

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

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

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

LORAN: long range navigation, an electronic navigational aid which determines aircraft position and speed by measuring the difference in the time of reception of synchronized pulse signals from two fixed transmitters. Loran is used for enroute navigation.

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

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

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

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

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

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

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

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

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

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

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

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

OPERATION: a take-off or a landing.

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

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

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

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

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

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

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

PROHIBITED AREA: see special-use airspace.

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

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

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

RESTRICTED AREA: see special-use airspace.

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

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

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RUNWAY BLAST PAD: a surface adjacent to the ends of runways provided to reduce the erosive effect of jet blast and propeller wash.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

TAKEOFF RUNWAY AVAILABLE (TORA): see declared distances.

TAKEOFF DISTANCE AVAILABLE (TODA): see declared distances.

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

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

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

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

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

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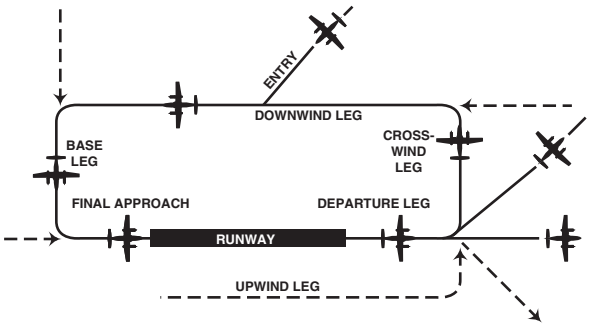
TOUCH-AND-GO: an operation by an aircraft that lands and departs on a runway without stopping or exiting the runway. A touch-and-go is recorded as two operations: one operation for the landing and one operation for the takeoff.

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

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

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

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

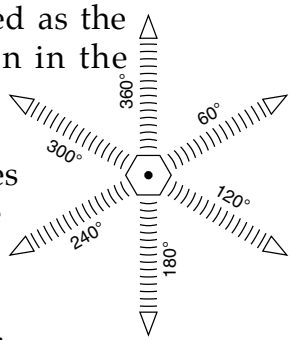


UNICOM: A nongovernment communication facility which may provide airport information at certain airports. Locations and frequencies of UNICOM's are shown on aeronautical charts and publications.

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

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

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



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

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

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

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

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

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

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

WARNING AREA: see special-use airspace.

ABBREVIATIONS

AC: advisory circular

ADF: automatic direction finder

ADG: airplane design group

AFSS: automated flight service station

AGL: above ground level

AIA: annual instrument approach

AIP: Airport Improvement Program

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

ALS: approach lighting system

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

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

APV: instrument approach procedure with vertical guidance

ARC: airport reference code

ARFF: aircraft rescue and firefighting

ARP: airport reference point

ARTCC: air route traffic control center

ASDA: accelerate-stop distance available

ASR: airport surveillance radar

ASOS: automated surface observation station

ATCT: airport traffic control tower

ATIS: automated terminal information service

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

AWOS: automated weather observation station

BRL: building restriction line

CFR: Code of Federal Regulations

CIP: capital improvement program

DME: distance measuring equipment

DNL: day-night noise level

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

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

FAA: Federal Aviation Administration

FAR: Federal Aviation Regulation

FBO: fixed base operator

FY: fiscal year

GPS: global positioning system

GS: glide slope

HIRL: high intensity runway edge lighting

IFR: instrument flight rules (FAR Part 91)

ILS: instrument landing system

IM: inner marker

LDA: localizer type directional aid

LDA: landing distance available

LIRL: low intensity runway edge lighting

LMM: compass locator at middle marker

LOC: ILS localizer

LOM: compass locator at ILS outer marker

LORAN: long range navigation

MALS: medium intensity approach lighting system

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

MIRL: medium intensity runway edge lighting

MITL: medium intensity taxiway edge lighting

MLS: microwave landing system

MM: middle marker

MOA: military operations area

MSL: mean sea level

NAVAID: navigational aid

NDB: nondirectional radio beacon

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

NPES: National Pollutant Discharge Elimination System

NPIAS: National Plan of Integrated Airport Systems

NPRM: notice of proposed rule-making

ODALS: omnidirectional approach lighting system

OFA: object free area

OFZ: obstacle free zone

OM: outer marker

PAC: planning advisory committee

PAPI: precision approach path indicator

PFC: porous friction course

PFC: passenger facility charge

PCL: pilot-controlled lighting

PIW: public information workshop

PLASI: pulsating visual approach slope indicator

POFA: precision object free area

PVASI: pulsating/steady visual approach slope indicator

RCO: remote communications outlet

REIL: runway end identifier lighting

RNAV: area navigation

RPZ: runway protection zone

RSA: Runway Safety Area

RTR: remote transmitter/receiver

RVR: runway visibility range

RVZ: runway visibility zone

SALS: short approach lighting system

SASP: state aviation system plan

SEL: sound exposure level

SID: standard instrument departure

SM: statute mile (5,280 feet)

SRE: snow removal equipment

SSALF: simplified short approach lighting system with sequenced flashers

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

STAR: standard terminal arrival route

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

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

TACAN: tactical air navigational aid

TDZ: touchdown zone

TDZE: touchdown zone elevation

TAF: Federal Aviation Administration (FAA) Terminal Area Forecast

TODA: takeoff distance available

TORA: takeoff runway available

TRACON: terminal radar approach control

VASI: visual approach slope indicator

VFR: visual flight rules (FAR Part 91)

VHF: very high frequency

VOR: very high frequency omni-directional range

VORTAC: VOR and TACAN collocated

Appendix B

ENVIRONMENTAL OVERVIEW

Appendix B
ENVIRONMENTAL OVERVIEW

The protection and preservation of the local environment are essential concerns in the master planning process. Chapter One provided an inventory known environmental issues at Seligman Airport. These issues were considered during the preparation of this master plan's final recommendations. Now that a program for the use and development of Seligman Airport has been finalized, it is necessary to review environmental issues to ensure that the program can be implemented in compliance with applicable environmental regulations, standards, and guidelines.

All of the improvements planned for Seligman Airport as depicted on the Airport Layout Plan (ALP) will require compliance with the *National Environmental Policy ACT (NEPA) of 1969,* as amended. Many of the improvements will be categorically excluded and will not require further NEPA documentation; however, some improvements will likely require further NEPA analysis and documentation. Compliance with the provisions of NEPA for these projects will be required prior to project implementation and is outside the scope of the master plan. As detailed in *FAA Order 5050.4A, Airport Environmental Handbook,* compliance with NEPA is generally satisfied with the preparation of an Environmental Assessment (EA). In cases where a categorical exclusion is issued, environmental issues such as wetlands, threatened or endangered species, and cultural resources are further evaluated during the federal, state, and/or local permitting processes.

This section of the master plan is not intended to satisfy NEPA's requirements for an EA, it is intended only to supply a preliminary review of environmental issues that would need to be analyzed in more detail within the NEPA or the permitting process. Consequently, this analysis ***does not*** address mitigation or the resolution of

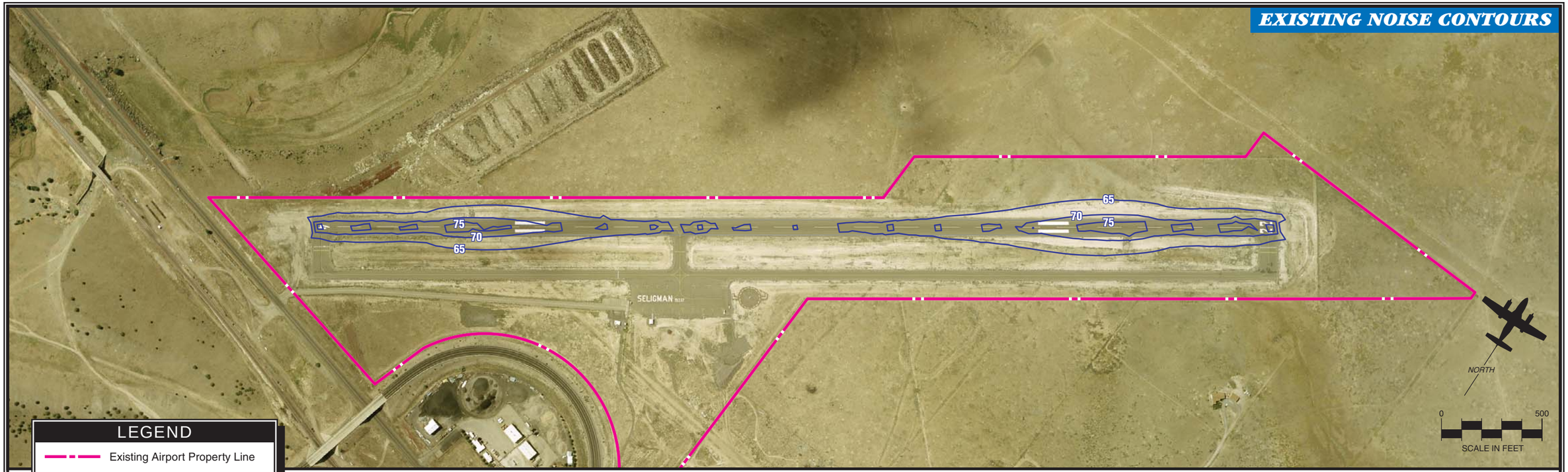
environmental issues. The following pages consider the environmental resources as outlined in *FAA Order 5050.4A*.

A large amount of environmental information is available from numerous internet resources. Information for this overview was obtained by web sites operated by: The Environmental Protection Agency; U.S. Fish and Wildlife Service; U.S. Army Corps of Engineers; Federal Emergency Management Agency; Natural Resource Conservation Service; National Parks Service; Arizona State Parks; and Yavapai County. In circumstances where further information was warranted, a phone call was made to the proper agency. In addition, a review of a recent preliminary draft environmental assessment contributed to this analysis. Issues of concern that were identified are presented on the following pages.

Summary of Environmental Resources Potentially Impacted by the Proposed Improvements	
Environmental Resource	**Anticipated Impacts**
Noise. The Yearly Day-Night Average Sound Level (DNL) is used in this study to assess aircraft noise. DNL is the metric currently accepted by the Federal Aviation Administration (FAA), Environmental Protection Agency (EPA), and Department of Housing and Urban Development (HUD) as an appropriate measure of cumulative noise exposure. These three federal agencies have each identified the 65 DNL noise contour as the threshold of incompatibility.	• The extension of the Runway 22 end 1,900 feet northeast will not result in any impacts to noise sensitive land uses. There are currently no residents or noise sensitive facilities located within the 65 DNL contour as depicted on **Exhibit A**. • In addition, the ultimate noise contours extend only slightly outside the existing airport boundary and are contained entirely within the proposed acquisition area.
Compatible Land Use. F.A.R Part 150 recommends guidelines for planning land use compatibility within various levels of aircraft noise exposure. In addition, *Advisory Circular 150/5200-33* identifies land uses that are incompatible with safe airport operations because of their propensity for attracting birds or other wildlife, which in turn results in an increased risk of aircraft strikes and damage. Finally, F.A.R. Part 77 regulates the height of structures within the vicinity of the airport.	• Implementation of the runway extension will not result in additional noise impacts on noise sensitive development. There are no noise sensitive land uses or residential uses in the 65 DNL. • The proposed airport improvements will not provide wildlife attractants, nor will any development impede the airport's Part 77 surface.

02MP20-A-3/4/04

EXISTING NOISE CONTOURS



LEGEND

- Existing Airport Property Line
- Ultimate Airport Property Line
- 65 DNL Noise Contours
- Ultimate Airfield Pavement

ULTIMATE NOISE CONTOURS

SELIGMAN AIRPORT

Exhibit A
EXISTING AND ULTIMATE
NOISE CONTOURS

Summary of Environmental Resources (Continued) Potentially Impacted by the Proposed Improvements	
Environmental Resource	**Anticipated Impacts**
Social Impacts. These impacts are often associated with the relocation of residents or businesses or other community disruptions.	• The extension of the Runway 22 end will result in the RPZ, OFA, and RSA extending beyond the current property line. This will require the acquisition of approximately 16.6 acres of land from a private land owner. • Additional land acquisition is proposed north of the Runway to gain control of the entire Object Free Area (OFA). This land is currently owned by the Navajo Nation. Coordination with the Navajo Nation has begun and is necessary to determine potential impacts and to outline mitigation procedures. • Additional property is proposed for acquisition south of the runway, east of the proposed landside development. This land is currently owned by the state. • Compliance with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970* (URAUPAPA) will be required during all property acquisitions. *FAA Order 5050.4A* provides that where the relocation or purchase of a residence, business, or farmland is involved, the provisions of the URARPAPA must be met. The Act requires that landowners, whose property is to be purchased, be compensated fair market value for their property. • The proposed development and associated land acquisition are not anticipated to divide or disrupt an established community, interfere with orderly planned development, or create a short-term, appreciable change in employment.

Summary of Environmental Resources (Continued) Potentially Impacted by the Proposed Improvements	
Environmental Resource	**Anticipated Impacts**
Induced Socioeconomic Impacts. These impacts address those secondary impacts to surrounding communities resulting from the proposed development, including shifts in patterns of population growth, public service demands, and changes in business and economic activity to the extent influenced by the airport development.	• Significant shifts in patterns of population movement or growth, or public service demands are not anticipated as a result of the proposed development. It could be expected, however, that the proposed development would potentially induce positive socioeconomic impacts for the community over a period of years. The airport, with expanded facilities and services, would be expected to attract additional users. It is also expected to encourage tourism, industry, and trade and to enhance the future growth and expansion of the community's economic base. Future socioeconomic impacts resulting from the proposed development would be primarily positive in nature.
Air Quality. The US Environmental Protection Agency (EPA) has adopted air quality standards that specify the maximum permissible short-term and long-term concentrations of various air contaminants. The National Ambient Air Quality Standards (NAAQS) consist of primary and secondary standards for six criteria pollutants which include: Ozone (O3), Carbon Monoxide (CO), Sulfur Dioxide (SO2), Nitrogen Oxide (NO), Particulate matter (PM10), and Lead (Pb). Various levels of review apply within both NEPA and permitting requirements. For example, an air quality analysis is typically required during the preparation of a NEPA document if enplanement levels exceed 3.2 million enplanements or general aviation operations exceed 180,000.	• Seligman Airport is located in Yavapai County which has been classified as being in attainment for all six criteria pollutants under NAAQS. • The forecasted number of annual operations is below 180,000, according to the Airport Master Plan. From this data, it is presumed that the airport confirms to the Clean Air Act and SIP requirements. It is not anticipated that a air quality assessment will be required. • As the proposed projects are undertaken, FAA will undergo a conformity determination prior to approving the construction of the proposed improvements.
Water Quality. Water quality concerns associated with airport expansion most often relate to domestic sewage disposal, increased surface runoff and soil erosion, and the storage and handling of fuel, petroleum, solvents, etc.	• With regard to construction activities, the airport and all applicable contractors will need to comply with the requirements and procedures of the construction related NPDES General Permit, including the preparation of a *Notice of Intent* and a *Stormwater Pollution Prevention Plan*, prior to the initiation of product construction activities.

Summary of Environmental Resources (Continued) Potentially Impacted by the Proposed Improvements	
Environmental Resource	**Anticipated Impacts**
Section 303 Lands. These include publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or any land from a historic site of national, state, or local significance.	• No impacts anticipated.
Historical and Cultural Resources	• The proposed improvements will disturb previously undisturbed land. Coordination with the State Historic Preservation Officer will be required to determine potential impacts to cultural resources.
Threatened or Endangered Species and Biological Resources	• An online search of the U.S. Fish and Wildlife Service database indicated 13 threatened or endangered species with habitat in Yavapai County. Of these 13 species, 10 are found within perennial streams or rivers, or within riparian habitats. Habitat that would support these species are not present in the proposed project area. • The remaining three species include the Arizona agave, Arizona cliffrose, and the Mexican spotted owl. It is not anticipated that these species would be found within the project area; however, further coordination with the United States Fish and Wildlife Service is required for a final determination.
Waters of the U.S. Including Wetlands	• The Big Chino Wash is located immediately east of the airport. No improvements are proposed for this area.
Floodplains	• No impacts. Airport improvements are not contained within a designated floodplain.
Wild and Scenic Rivers	• No impacts. The only river in Arizona designated as wild and scenic is the Verde River, which is located approximately 50 miles southeast, near the town of Paulden.
Farmland	• No impacts. The proposed development will not affect prime or unique farmland.

Summary of Environmental Resources (Continued) Potentially Impacted by the Proposed Improvements	
Environmental Resource	**Anticipated Impacts**
Energy Supply and Natural Resources	• The proposed alternative will result in a less-than significant impact to energy supply and natural resources. This is a result of increased operations and upgraded facilities.
Light Emissions	• Lighting improvements are part of the proposed alternative. Impacts related to lighting will be less-than significant.
Solid Waste	• As a result in operations at the airport, solid waste will slightly increase. These impacts are expected to be less-than significant.

Appendix C

AIRPORT PLANS

Appendix C
AIRPORT PLANS

The alternatives discussed in the previous section were reviewed by the Federal Aviation Administration (FAA), Arizona Department of Transportation (ADOT) - Aeronautics Division, Yavapai County, and the Planning Advisory Committee (PAC), as well as the public at a public information workshop. The feedback obtained was considered in developing the final recommendations for the airport. This chapter discusses those recommendations. The airport layout plan (ALP) is the set of planning drawings that must be approved by the State and/or FAA to be eligible for state and/or federal funding. This reduced-size, colored set of drawings can be found at the end of this chapter.

AIRPORT LAYOUT PLAN SET

Per FAA and ADOT requirements, an official Airport Layout Plan (ALP) has been developed for Seligman Airport and can be found at the end of this chapter. The ALP drawing graphically presents the existing and ultimate airport layout. The ALP is used by FAA and ADOT to determine funding eligibility for future development projects.

The ALP was prepared on a computer-aided drafting (CAD) system for future ease of use. The computerized plan set provides detailed information of existing and future facility layout on multiple layers that permits the user to focus in on any section of the airport at a desirable scale. The plan can be used as base information for design, and

can be easily updated in the future to reflect new development and more detail concerning existing conditions as made available through design surveys.

A number of related drawings, which depict the ultimate airspace and landside development, will be included with the ALP once the draft master plan concept detailed in this chapter is finalized. The following provides a brief discussion of the additional drawings to be included with the ALP.

F.A.R. PART 77 AIRSPACE PLAN

Federal Aviation Regulation (F.A.R.) Part 77, **Objects Affecting Navigable Airspace**, was established for use by local authorities to control the height of objects near the airport. The Part 77 Airspace Plan included in this master plan is a graphic depiction of this regulatory criterion. The Part 77 Airspace Plan is a tool to aid local authorities in determining if proposed development could present a hazard to aircraft using the airport. The Airspace Plan can be a critical tool for the airport sponsor's use in planning against future development limitations.

The County should do all in its power to ensure development stays below the Part 77 surfaces to protect the future role of the airport. This could especially be true with Seligman Airport as the County looks to a future of increased operations by aircraft which rely heavily on the best navigational technology, providing the most precise approaches at the lowest cloud ceiling heights and runway visibility minimums available. The following discussion will describe those approach surfaces that make up the recommended F.A.R. Part 77 operations at Seligman Airport.

F.A.R. Part 77 Imaginary Surfaces

The Part 77 Airspace Plan assigns three-dimensional imaginary areas to each runway. These imaginary surfaces emanate from the runway centerline and are dimensioned according to the visibility minimums associated with the approach to the runway end and size of aircraft to operate on the runway. The Part 77 imaginary surfaces include the primary surface, approach surface, transitional surface, horizontal surface, and conical surface. Part 77 imaginary surfaces are described in the following paragraphs.

- PRIMARY SURFACE

The primary surface is an imaginary surface longitudinally centered on the runway. The primary surface extends 200 feet beyond each runway end. The elevation of any point on the primary surface is the same as the elevation along the nearest associated

point on the runway centerline. Under Part 77 regulations, the primary surface for the future approaches to existing Runway 4-22 is 500 feet wide.

- APPROACH SURFACE

An approach surface is also established for each runway. The approach surface begins at the same width as the primary surface and extends upward and outward from the primary surface end and is centered along an extended runway centerline. The future approach surface to Runway 4 is proposed for nonprecision approach, and extends 10,000 feet from the end of the primary surface at an upward slope of 34 to 1, to a width of 3,500 feet. Runway 22 considers a visual of not lower than one-mile approach, requiring a 20 to 1 approach slope.

- TRANSITIONAL SURFACE

Each runway has a transitional surface that begins at the outside edge of the primary surface at the same elevation as the runway. The transitional surface also connects with the approach surfaces of each runway. The surface rises at a slope of 7 to 1, up to a height 150 feet above the highest runway elevation. At that point, the transitional surface is replaced by the horizontal surface.

- HORIZONTAL SURFACE

The horizontal surface is established at 150 feet above the highest elevation of the runway surface. Having no slope, the horizontal surface connects the transitional and approach surfaces to the conical surface at a distance of 10,000 feet from the end of the primary surfaces of each runway.

- CONICAL SURFACE

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

INNER PORTION OF THE APPROACH SURFACE PLAN

The Inner Portion of the Approach Surface Plan is a scaled drawing of the RPZ, RSA, OFZ, and OFA for each runway end. A plan and profile view of each RPZ is provided to facilitate identification of obstructions that lie within these safety areas. Detailed obstruction and facility data is provided to identify planned improvements and the disposition of obstructions.

TERMINAL AREA PLAN

The Terminal Area Plan provides greater detail concerning landside improvements and at a larger scale than on the ALP. This drawing depicts the east development plans. The west side plan is included on the ALP drawing.

ON-AIRPORT LAND USE PLAN

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

There are two primary considerations for airport land use planning: first, to secure those areas essential to the safe and efficient operation of the airport; and second, to determine compatible land uses for the balance of the property which would be most advantageous to the airport and community. The plan depicts the recommendations for ultimate land use development on the airport. When development is proposed, it should be directed to the appropriate land use area depicted on this plan.

PROPERTY MAP

The Property Map provides information on the acquisition and identification of all land tracts under control of the airport.

SUMMARY

The recommended master plan concept has been developed in conjunction with the PAC, Yavapai County, and the local citizens and is designed to assist the County in making decisions on future development and growth of Seligman Airport. This plan

provides the necessary development to accommodate and satisfy the anticipated growth over the next twenty years and beyond.

Flexibility will be very important to future development at the airport. Activity projected over the next twenty years may not occur as predicted. The plan has attempted to consider demands that may be placed on the airport even beyond the twenty-year planning horizon, to ensure that the facility will be capable of handling a wide range of circumstances. The recommended plan provides the County with a general guide that, if followed, can maintain the airport's long term viability and allow the airport to continue to provide air transportation services to the region.

FAA Form 5010-1

The FAA publishes Form 5010-1, Airport Master Record, which outlines airport facilities and other related information. The Form 5010-1 is updated annually, or when needed. As a part of this study, the Arizona Department of Transportation (ADOT) Aeronautics has requested that a review of the Form 5010-1 information be completed. The existing document is included as **Exhibit C-A**.

Review of the document reveals that most of the information is currently accurate. Some items cannot be addressed as they fall outside of the scope of services of this study. The most glaring inaccuracy is the total based aircraft. The Form 5010-1 indicates that the airport supports four based, single engine aircraft. Our study could only confirm one based aircraft. Also, the document estimates approximately 1,100 annual operations. Our study estimates 3,500 current annual operations. These items should be changed on the form.

02MP20-C-A-12/20/04

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

AIRPORT MASTER RECORD

PRINT DATE: 12/17/2004
AFD EFF 11/25/2004
Form Approved OMB 2120-0015

> 1 ASSOC CITY: SELIGMAN
> 2 AIRPORT NAME: SELIGMAN
3 CBD TO AIRPORT (NM): 01 NW
4 STATE: AZ
6 REGION/ADO: AWP/NONE
LOC ID: P23
5 COUNTY: YAVAPAI AZ
7 SECT AERO CHT: PHOENIX
FAA SITE NR: 00791.1*A

GENERAL

10 OWNERSHIP: PUBLIC
> 11 OWNER: YAVAPAI COUNTY
> 12 ADDRESS: 1100 COMMERCE DRIVE
PRESCOTT, AZ 86305
> 13 PHONE NR: 928-771-3183
> 14 MANAGER: RICHARD STRAUB
> 15 ADDRESS: YAVAPAI COUNTY DIR PUBLIC
PRESCOTT, AZ 86305
> 16 PHONE NR: 928-771-3183
> 17 ATTENDANCE SCHEDULE:

MONTHS	DAYS	HOURS
UNATNDD		

18 AIRPORT USE: PUBLIC
19 ARPT LAT: 35-20-06.0000N ESTIMATED
20 ARPT LONG: 112-53-14.0000W
21 ARPT ELEV: 5235 ESTIMATED
22 ACREAGE: 140
> 23 RIGHT TRAFFIC: 22
> 24 NON-COMM LANDING: NO
25 NPIAS/FED AGREEMENTS:
26 FAR 139 INDEX:

SERVICES

> 70 FUEL:
> 71 AIRFRAME RPRS: NONE
> 72 PWR PLANT RPRS: NONE
> 73 BOTTLE OXYGEN: NONE
> 74 BULK OXYGEN: NONE
75 TSNT STORAGE: TIE
76 OTHER SERVICES:

FACILITIES

> 80 ARPT BCN: CG
> 81 ARPT LGT SKED: DUSK-DAWN
> 82 UNICOM:
> 83 WIND INDICATOR: YES-L
84 SEGMENTED CIRCLE: YES
85 CONTROL TWR: NONE
86 FSS: PRESCOTT
87 FSS ON ARPT: NO
88 FSS PHONE NR: 928-778-7810
89 TOLL FREE NR: 1-800-WX-BRIEF

BASED AIRCRAFT

90 SINGLE ENG:	4
91 MULTI ENG:	0
92 JET:	0
TOTAL:	4
93 HELICOPTERS:	0
94 GLIDERS:	0
95 MILITARY:	0
96 ULTRA-LIGHT:	0

OPERATIONS

100 AIR CARRIER:	0
101 COMMUTER:	0
102 AIR TAXI:	0
103 G A LOCAL:	500
104 G A ITNRNT:	600
105 MILITARY:	0
TOTAL:	1,100

OPERATIONS FOR
MOS ENDING

RUNWAY DATA

> 30 RUNWAY IDENT:	04/22
> 31 LENGTH:	4,800
> 32 WIDTH:	75
> 33 SURF TYPE-COND:	ASPH-G
> 34 SURF TREATMENT:	
35 GROSS WT: SW	
36 (IN THSDS) DW	
37 DTW	
38 DDTW	

LIGHTING/APCH AIDS

> 40 EDGE INTENSITY:	MED
> 42 RWY MARK TYPE-COND	BSC - G / BSC - G
> 43 VGSI	P2L / P2L
44 THR CROSSING HGT	/
45 VISUAL GLIDE ANGLE	3.00 / 3.00
> 46 CNTRLN-TDZ	N - N / N - N
> 47 RVR-RVV	- N / - N
> 48 REIL	Y / Y
> 49 APCH LIGHTS	/

OBSTRUCTION DATA

50 FAR 77 CATEGORY	A(V) / A(V)
> 51 DISPLACED THR	/
> 52 CTLG OBSTN	FENCE /
> 53 OBSTN MARKED/LGTD	/
> 54 HGT ABOVE RWY END	9 /
> 55 DIST FROM RWY END	270 /
> 56 CNTRLN OFFSET	125R /
57 OBSTN CLNC SLOPE	7:1 / 50:1
58 CLOSE-IN OBSTN	N / Y

DECLARED DISTANCES

> 60 TAKE OFF RUN AVBL (TORA)	/
> 61 TAKE OFF DIST AVBL (TODA)	/
> 62 ACLT STOP DIST AVBL (ASDA)	/
> 63 LNDG DIST AVBL (LDA)	/

(>) ARPT MGR PLEASE ADVISE FSS IN ITEM 86 WHEN CHANGES OCCUR TO ITEMS PRECEDED BY >

110 REMARKS:
A 011 LEASED TO YAVAPAI COUNTY AS LONG AS AN ARPT IS MAINTAINED.
A 058 RY 22, 9 FT FENCE 199 FT FM RY END 0B.
A 081 ACTVT MIRL RY 04/22 AND PAPI RYS 04 & 22 - CTAF. REIL RYS 04 & 22 ACTIVATED WITH 7-CLICKS ONLY - CTAF.
A 110-05 DRAINAGE CHANNEL BOTH SIDES FULL LENGTH OF RY 04/22, VARIES IN WIDTH AND DEPTH.
A 110-06 DRAINAGE CHANNEL 65 FT WIDE, 4-10 FT DEEP LCTD 200-265 FT FM APCH END RY 22.

111 INSPECTOR: (S)
112 LAST INSP: 03/12/1998
113 LAST INFO REQ:

FAA Form 5010-1 (5-91) SUPERSEDES PREVIOUS

SELIGMAN AIRPORT

Exhibit C-A
AIRPORT MASTER RECORD

SELIGMAN AIRPORT

AIRPORT LAYOUT PLAN SET
SELIGMAN, ARIZONA

INDEX OF DRAWINGS

1. AIRPORT LAYOUT PLAN
2. TERMINAL AREA DRAWING
3. FAR PART 77 AIRSPACE DRAWING
4. INNER PORTION OF THE RUNWAY 4-22 APPROACH SURFACE DRAWING
5. RUNWAY 4-22 OUTER APPROACH SURFACE DRAWING
6. ON-AIRPORT LAND USE DRAWING
7. AIRPORT PROPERTY MAP

PREPARED FOR
YAVAPAI COUNTY ARIZONA

Coffman Associates
Airport Consultants

Coffman Associates E2Seal.dwg 12/15/2004

AIRPORT DATA

SELIGMAN AIRPORT (P23)			
CITY: SELIGMAN, ARIZONA		COUNTY: YAVAPAI, ARIZONA	
RANGE: 6W. TOWNSHIP: 23N.		CIVIL TOWNSHIP: N/A	
		EXISTING	ULTIMATE
DESIGN AIRCRAFT		CESSNA 421	SUPER KINGAIR 200
AIRPORT REFERENCE CODE		B-1	B-II
AIRPORT ELEVATION		5,238'	SAME
MEAN MAXIMUM TEMPERATURE OF HOTTEST MONTH		91.8° (JULY)	SAME
AIRPORT REFERENCE POINT (ARP) COORDINATES NAD 1983	Latitude	35°20'06.252" N	35°20'11.807" N
	Longitude	112°53'11.383" W	112°53'02.212" W
AIRPORT and TERMINAL NAVIGATIONAL AIDS		SEGMENTED CIRCLE ROTATING BEACON	SEGMENTED CIRCLE ROTATING BEACON

DEVIATIONS FROM FAA AIRPORT DESIGN STANDARDS

DEVIATION DESCRIPTION	EFFECTED DESIGN STANDARD	STANDARD	EXISTING	PROPOSED DISPOSITION
Drainage Ditch in Approach 22 RSA	Runway Safety Area (RSA)	240'	120'	Replace ditch with culvert
10' Perimeter Fence in Approach 22 RSA	Object Free Area/OFZ	240'	199'	Relocate after land acquisition
10' Perimeter Fence in Rwy. 4-22 OFA	Object Free Area	240'	150'	Relocate after land acquisition

BUILDINGS/FACILITIES

EXISTING	ULTIMATE	DESCRIPTION	EL.
1	--	ELECTRIC FAULT/ROTATING BEACON	5248
2	--	STORAGE SHED	--
3	--	RESTROOMS	5230
--	4	TERMINAL BUILDING	--
--	5	CONVENTIONAL HANGARS	--
--	6	T-HANGARS	--
--	7	EXECUTIVE HANGARS	--
--	8	FUEL FARM	--
--	9	WASH RACK	--
--	--	--	--

NOTE: BUILDING EL. WILL BE ADDED WHEN THEY ARE AVAILABLE.

OBSTACLE FREE ZONE (OFZ) OBJECT PENETRATIONS

OBJECT	PENETRATION	DISPOSITION
10' FENCE RWY. 22	10'	Relocate after land acquisition

THRESHOLD SITING SURFACE OBJECT PENETRATIONS

OBJECT	PENETRATION	DISPOSITION
FENCE RWY. 4	6'	Relocate Fence
FENCE RWY. 22	6'	Relocate Fence
--		

RUNWAY DATA

	RUNWAY 4-22 EXISTING	RUNWAY 4-22 ULTIMATE
RUNWAY CATEGORY/AIRCRAFT DESIGN GROUP	B-I	B-II
CRITICAL DESIGN AIRCRAFT	CESSNA 421	SUPER KING AIR 200
WINGSPAN OF DESIGN AIRCRAFT	41'7"	54'6"
APPROACH SPEED OF DESIGN AIRCRAFT (KNOTS)	96	103
MAXIMUM TAKE OFF WIEGHT (lbs)	7,450	12,500
RUNWAY AZIMUTH	53.0167	SAME
RUNWAY BEARING (TRUE)	N53°0'32.231" E	SAME
RUNWAY DIMENSIONS	4,800' x 75'	6,700' x 75'
ELEVATION OF RWY. TOUCH DOWN ZONE (MSL)	5,237.80'/5,234.00'	5,237.80'/5,226.82'
ELEVATION OF RUNWAY HIGH POINT (above MSL)	5,237.80'	SAME
ELEVATION OF RUNWAY LOW POINT (above MSL)	5,226.82'	5,225.0'
WIND COVERAGE IN MPH	12.1-96.59%/15-98.59%	SAME
APPROACH VISIBILITY MINIMUMS	VISUAL/VISUAL	SAME
FAR PART 77 CATEGORY	VISUAL/VISUAL	SAME
RUNWAY INSTRUMENTATION	VISUAL/VISUAL	SAME
RUNWAY APPROACH SURFACES	20:1/20:1	SAME
RUNWAY THRESHOLD DISPLACEMENT	NONE	NONE
RUNWAY STOPWAY	NONE	NONE
RUNWAY SAFETY AREA WIDTH (RSA)	120'	150'
RSA DISTANCE BEYOND EACH RUNWAY END	240'	300'
RUNWAY OBJECT FREE AREA WIDTH (OFA)	400'	500'
OFA DISTANCE BEYOND EACH RUNWAY END	240'	300'
RUNWAY OBSTACLE FREE ZONE WIDTH (OFZ)	400'	400'
OFZ DISTANCE BEYOND EACH RUNWAY END	200'	200'
LINE OF SITE REQUIREMENT	NO	SAME
RUNWAY PAVEMENT MATERIAL	ASPHALT	SAME
RUNWAY PAVEMENT SURFACE TREATMENT	NONE	SAME
PAVEMENT STRENGTH (in thousand lbs.)	12.5(S)	SAME
RUNWAY EFFECTIVE GRADIENT (in %)	0.23%	0.13%
MAXIMUM GRADIENT (in %)	2%	SAME
RUNWAY LIGHTING	MIRL	SAME
RUNWAY MARKINGS	VISUAL/VISUAL	SAME
RUNWAY APPROACH LIGHTING	NONE	SAME
TAXIWAY PAVEMENT MATERIAL	ASPHALT	SAME
TAXIWAY LIGHTING	MITL	SAME
TAXIWAY MARKING	CENTERLINE	SAME
DISTANCE FROM RWY. CL TO HOLD LINES	120'/100'	200'
NAVIGATIONAL AIDES	PAPI-2 WIND SOCK SEGMENTED CIRCLE REIL	SAME -- -- --

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

RUNWAY END COORDINATES NAD 1983

RUNWAY END COORDINATES NAD 1983		EXISTING	ULTIMATE
RUNWAY 4	Latitude	35°19'51.97359" N	SAME
	Longitude	112°53'34.51442" W	SAME
RUNWAY 22	Latitude	35°20'20.52810" N	35°19'51.9740" N
	Longitude	112°52'48.25104" W	112°53'34.5140" W

SOURCE:
NOAA National Climatic Center
Asheville, North Carolina
Kingman Airport (IGM)
Kingman, Arizona

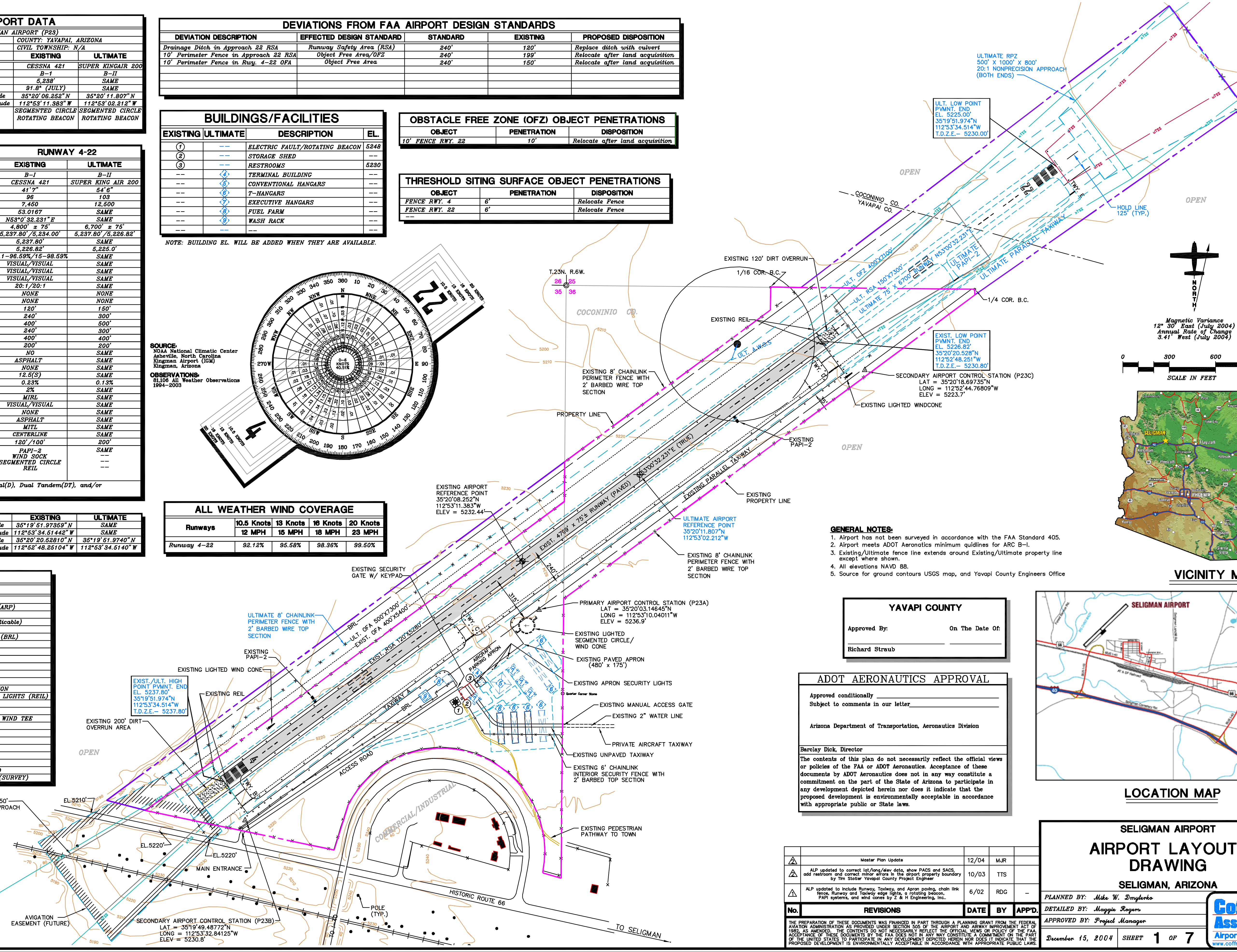
OBSERVATIONS:
81,106 All Weather Observations
1994–2003

ALL WEATHER WIND COVERAGE

Runways	10.5 Knots 12 MPH	13 Knots 15 MPH	16 Knots 18 MPH	20 Knots 23 MPH
Runway 4-22	92.12%	95.58%	98.36%	99.50%

LEGEND

EXISTING	ULTIMATE	DESCRIPTION
		AIRPORT PROPERTY LINE
		AIRPORT REFERENCE POINT (ARP)
		AIRPORT ROTATING BEACON
		AVIGATION EASEMENT (if applicable)
		BUILDING CONSTRUCTION
BRL	SAME	BUILDING RESTRICTION LINE (BRL)
		OBJECT FREE AREA (OFA)
		RUNWAY SAFETY AREA (RSA)
		OBSTACLE FREE ZONE (OFZ)
		DRAINAGE
		FACILITY CONSTRUCTION
		FENCING
PAPI-2	PAPI-2	NAVIGATIONAL AID INSTALLATION
		RUNWAY END IDENTIFICATION LIGHTS (REIL)
		RUNWAY THRESHOLD LIGHTS
		SECTION CORNER
		SEGMENTED CIRCLE/LIGHTED WIND TEE
1080	1080	TOPOGRAPHIC CONTOURS
		WIND INDICATOR (Lighted)
		POWER POLE
3	3	TAXIWAY DESIGNATION
		DIRT ROADS
		RUNWAY EDGE LIGHTING
		PAVEMENT TO BE ABANDONED
		AIRPORT CONTROL STATIONS (SURVEY)



N
O
R
T
H

Magnetic Variance
12° 30' East (July 2004)
Annual Rate of Change
3.41' West (July 2004)

0 300 600 900
SCALE IN FEET

VICINITY MAP

GENERAL NOTES:

1. Airport has not been surveyed in accordance with the FAA Standard 405.
2. Airport meets ADOT Aeronatics minimum quidlines for ARC B-I.
3. Existing/Ultimate fence line extends around Existing/Ultimate property line except where shown.
4. All elevations NAVD 88.
5. Source for ground contours USGS map, and Yavapi County Engineers Office

YAVAPI COUNTY

Approved By: ______ On The Date Of: ______

Richard Straub

ADOT AERONAUTICS APPROVAL

Approved conditionally ______

Subject to comments in our letter ______

Arizona Department of Transportation, Aeronautics Division

Barclay Dick, Director

The contents of this plan do not necessarily reflect the official views or policies of the FAA or ADOT Aeronautics. Acceptance of these documents by ADOT Aeronautics does not in any way constitute a commitment on the part of the State of Arizona to participate in any development depicted herein nor does it indicate that the proposed development is environmentally acceptable in accordance with appropriate public or State laws.

LOCATION MAP

No.	REVISIONS	DATE	BY	APP'D.
2	Master Plan Update	12/04	MJR	
2	ALP updated to correct lat/long/elev data, show PACS and SACS, add restroom and correct minor errors in the airport property boundary by Tim Stotler Yavapai County Project Engineer	10/03	TTS	
1	ALP updated to include Runway, Taxiway, and Apron paving, chain link fence, Runway and Taxiway edge lights, a rotating beacon, PAPI systems, and wind cones by Z & H Engineering, Inc..	6/02	RDG	–

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SELIGMAN AIRPORT
AIRPORT LAYOUT DRAWING
SELIGMAN, ARIZONA

PLANNED BY: Mike W. Dmyterko
DETAILED BY: Maggie Rogers
APPROVED BY: Project Manager

December 15, 2004 SHEET 1 OF 7

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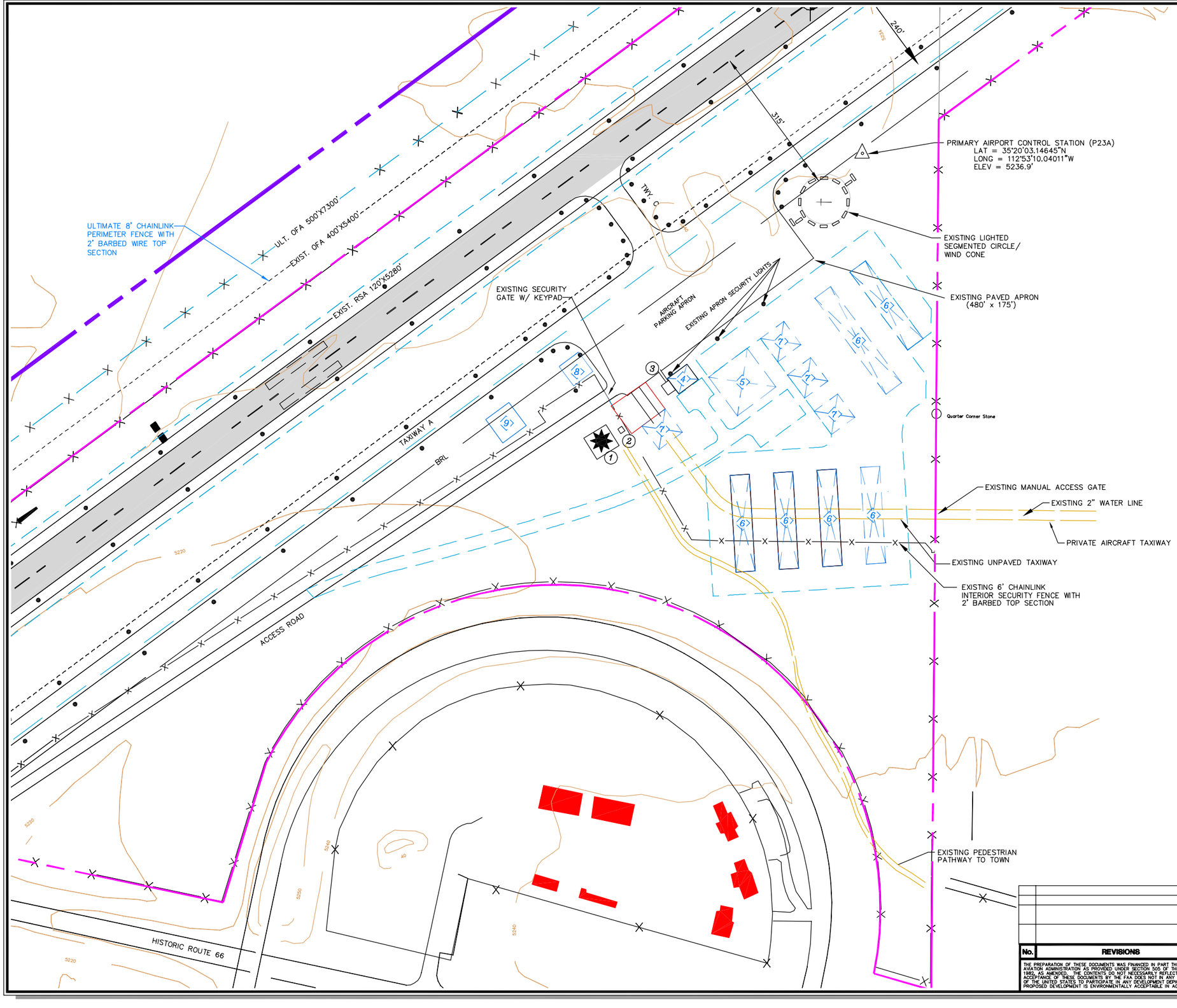

LEGEND

EXISTING	ULTIMATE	DESCRIPTION
		AIRPORT PROPERTY LINE
		AIRPORT REFERENCE POINT (ARP)
		AIRPORT ROTATING BEACON
		AVIGATION EASEMENT (if applicable)
		BUILDING CONSTRUCTION
BRL	BRL	BUILDING RESTRICTION LINE (BRL)
		OBJECT FREE AREA (OFA)
		RUNWAY SAFETY AREA (RSA)
		OBSTACLE FREE ZONE (OFZ)
		DRAINAGE
		FACILITY CONSTRUCTION
		FENCING
PAPI-2	PAPI-2	NAVIGATIONAL AID INSTALLATION
		RUNWAY END IDENTIFICATION LIGHTS (REIL)
		RUNWAY THRESHOLD LIGHTS
34|35 31|2	34|35 31|2	SECTION CORNER
		SEGMENTED CIRCLE/LIGHTED WIND TEE
1080	1080	TOPOGRAPHIC CONTOURS
		WIND INDICATOR (Lighted)
		POWER POLE
3	3	TAXIWAY DESIGNATION
		DIRT ROADS
		RUNWAY EDGE LIGHTING
		PAVEMENT TO BE ABANDONED
		AIRPORT CONTROL STATIONS (SURVEY)

BUILDINGS/FACILITIES

EXISTING	ULTIMATE	DESCRIPTION	EL.
1	--	ELECTRIC FAULT/ROTATING BEACON	5248
2	--	STORAGE SHED	--
3	--	RESTROOMS	5230
--	4	TERMINAL BUILDING	--
--	5	CONVENTIONAL HANGARS	--
--	6	T-HANGARS	--
--	7	EXECUTIVE HANGARS	--
--	8	FUEL FARM	--
--	9	WASH RACK	--
--	--	--	--

NOTE: BUILDING EL. WILL BE ADDED WHEN THEY ARE AVAILABLE.

No.	REVISIONS	DATE	BY	APP'D.

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SELIGMAN AIRPORT

TERMINAL AREA DRAWING

SELIGMAN, ARIZONA

PLANNED BY: Mike W. Dmytenko
DETAILED BY: Maggie Rogers
APPROVED BY: Project Manager

December 15, 2004 | SHEET 2 OF 7

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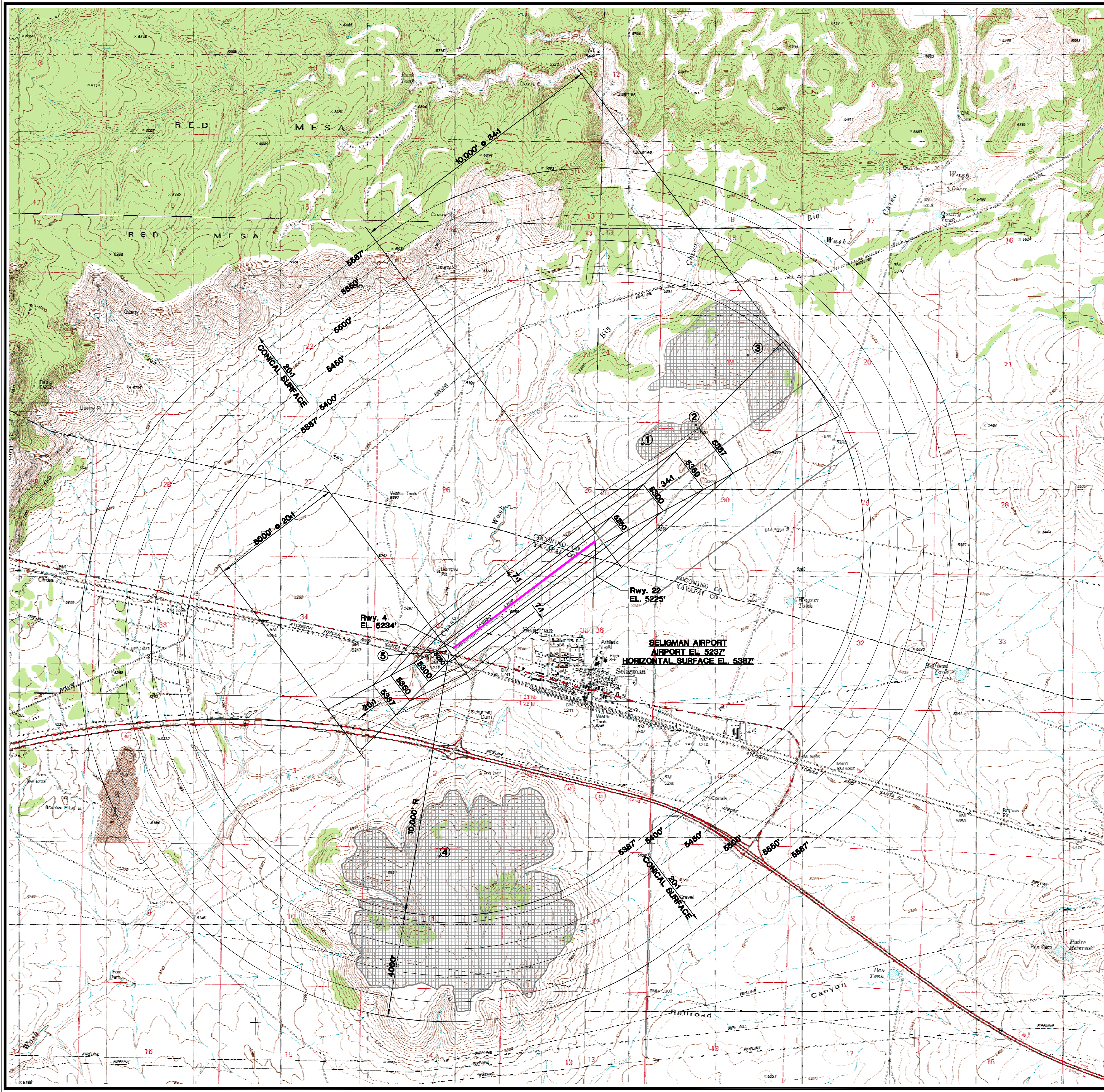
Coffman Associates D:\CAD\Seligman\2004\ALPlan1\02SELTAP04.dwg 12/15/2004



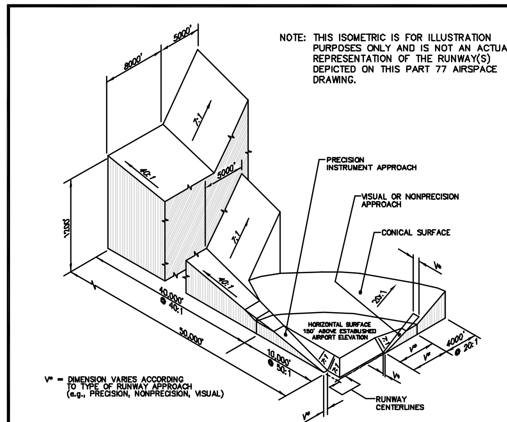
OBSTRUCTION TABLE

	Object Description	Object Elevation	Obstructed Part 77 Surface	Surface Elevation	Object Penetration	Proposed Object Disposition
1	TERRAIN	5440'	HORIZONTAL	5387'	+53'	REQUEST FAA AERONAUTICAL STUDY
2	TERRAIN	5537'	HORIZONTAL/APPROACH	5400'	+137	
3	TERRAIN	5620'	HORIZONTAL	5550'	+70'	
4	TERRAIN	5580'	HORIZONTAL	5550'	+80'	
5	FENCE	5580'	APPROACH	5547'	+6'	TO BE REMOVED

OBSTRUCTION LEGEND

•1 OBSTRUCTION

GROUP or MULTIPLE OBSTRUCTIONS



ISOMETRIC VIEW OF SECTION THRU CENTERLINE OF RUNWAYS

N.T.S.

NORTH

0 2000 4000 6000

SCALE IN FEET

GENERAL NOTES:

1. Obstructions, clearances, and locations are calculated from ultimate runway end elevations and ultimate approach surfaces, unless otherwise noted.

2. Depiction of features and objects within the outer portion of the approach surfaces, is illustrated on the INNER APPROACH ZONES PROFILES, sheet 4 of these plans.

3. Depiction of features and objects within the inner portion of the approach surfaces, is illustrated on the OUTER APPROACH PROFILE, sheet 5 of these plans.

4. Existing and future height and hazard ordinances are to be amended and/or referenced upon approval of updated PART 77 AIRSPACE PLAN.

No.	REVISIONS	DATE	BY	APP'D.

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SELIGMAN AIRPORT

FAR PART 77 AIRSPACE DRAWING

SELIGMAN, ARIZONA

PLANNED BY: Mike W. Dmyterko

DETAILED BY: Maggie Rogers

APPROVED BY: Project Manager

December 15, 2004 SHEET 3 OF 7

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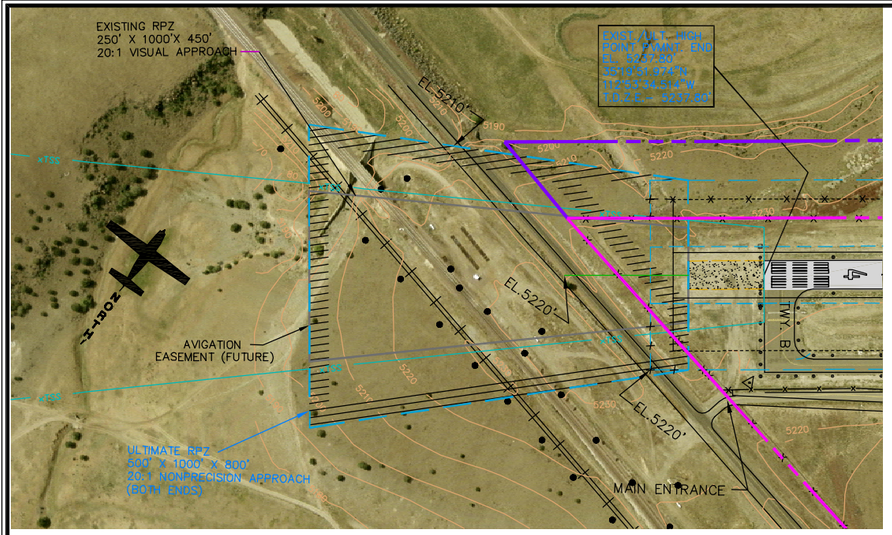

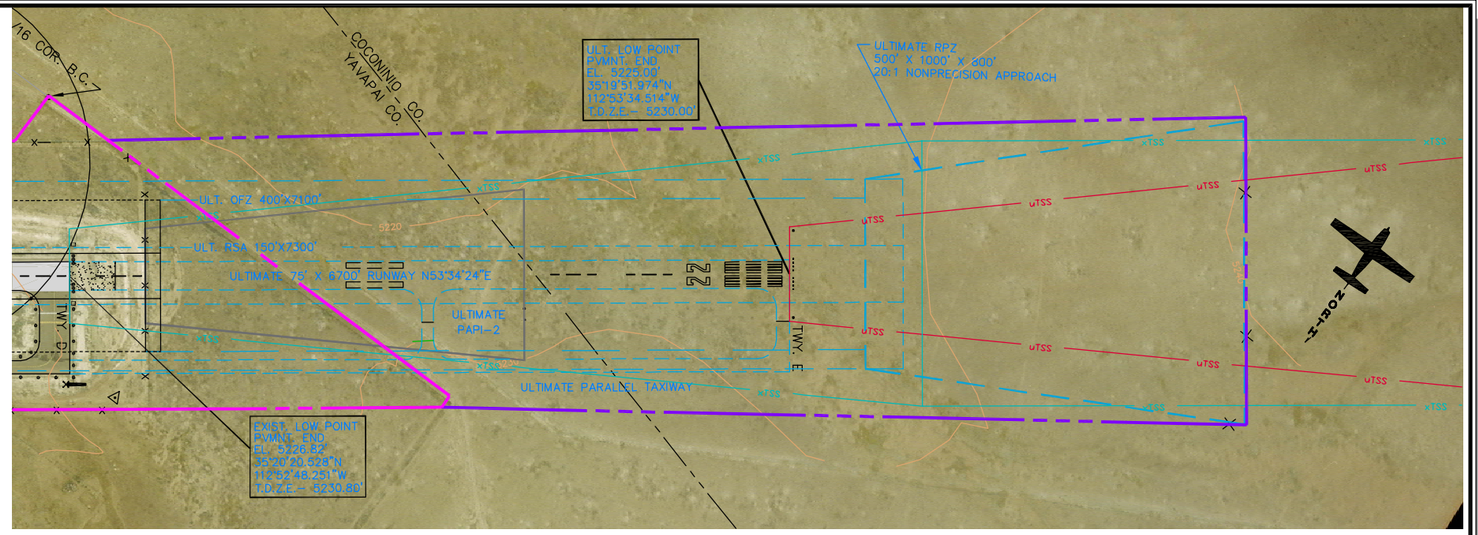

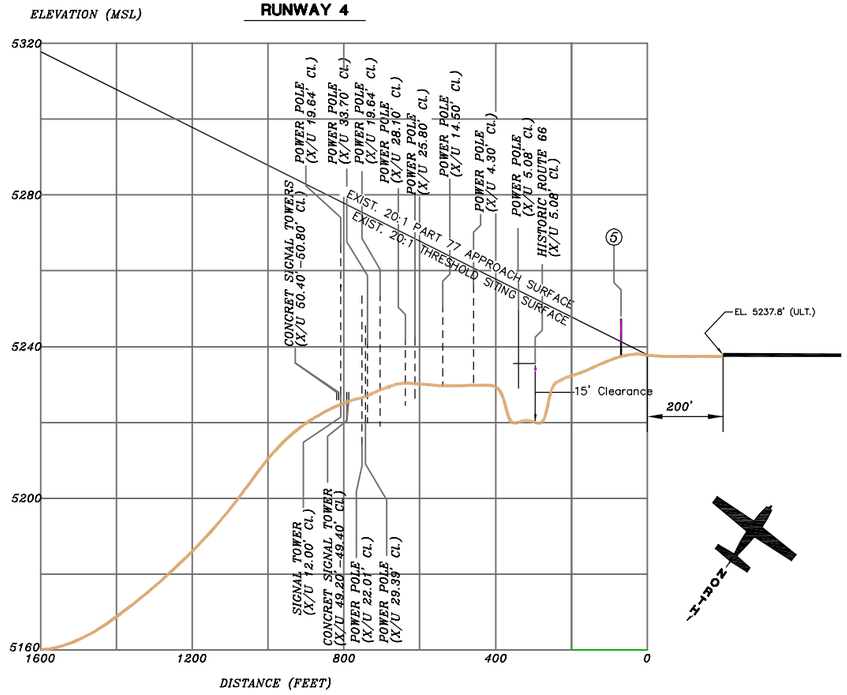

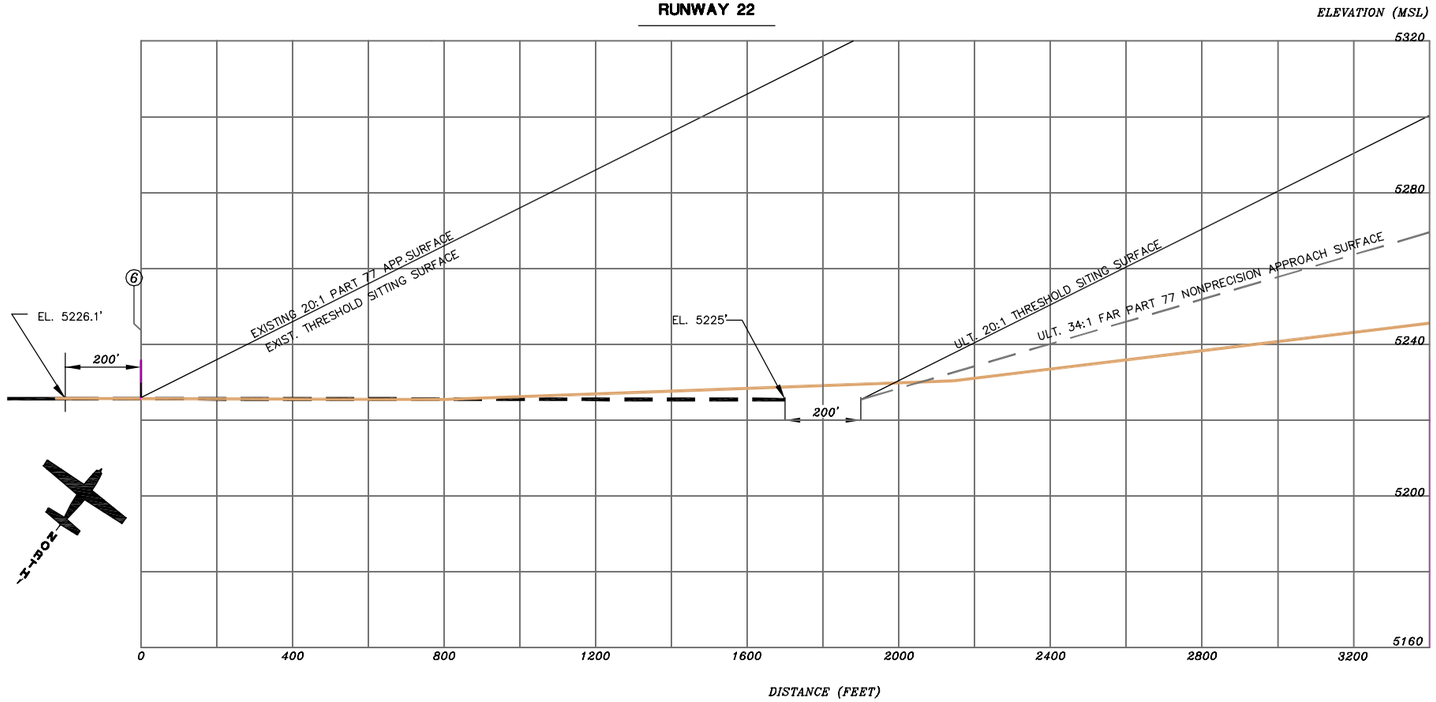

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3	TERRAIN	5620'	HORIZONTAL	5550'	+70'	
4	TERRAIN	5580'	HORIZONTAL	5550'	+80'	
5	FENCE	5580'	APPROACH	5547'	+6'	TO BE REMOVED
6	FENCE	5236'	PRIMARY	5160'	+10'	TO BE REMOVED

0 20 40
VERTICAL SCALE IN FEET

0 200 400
HORIZONTAL SCALE IN FEET

No.	REVISIONS	DATE	BY	APP'D.

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SELIGMAN AIRPORT

INNER SURFACE OF THE RUNWAY 4-22 APPROACH SURFACE

SELIGMAN, ARIZONA

PLANNED BY: Mike W. Dmytenko
DETAILED BY: Maggie Rogers
APPROVED BY: Project Manager
December 14, 2004
SHEET 4 OF 7

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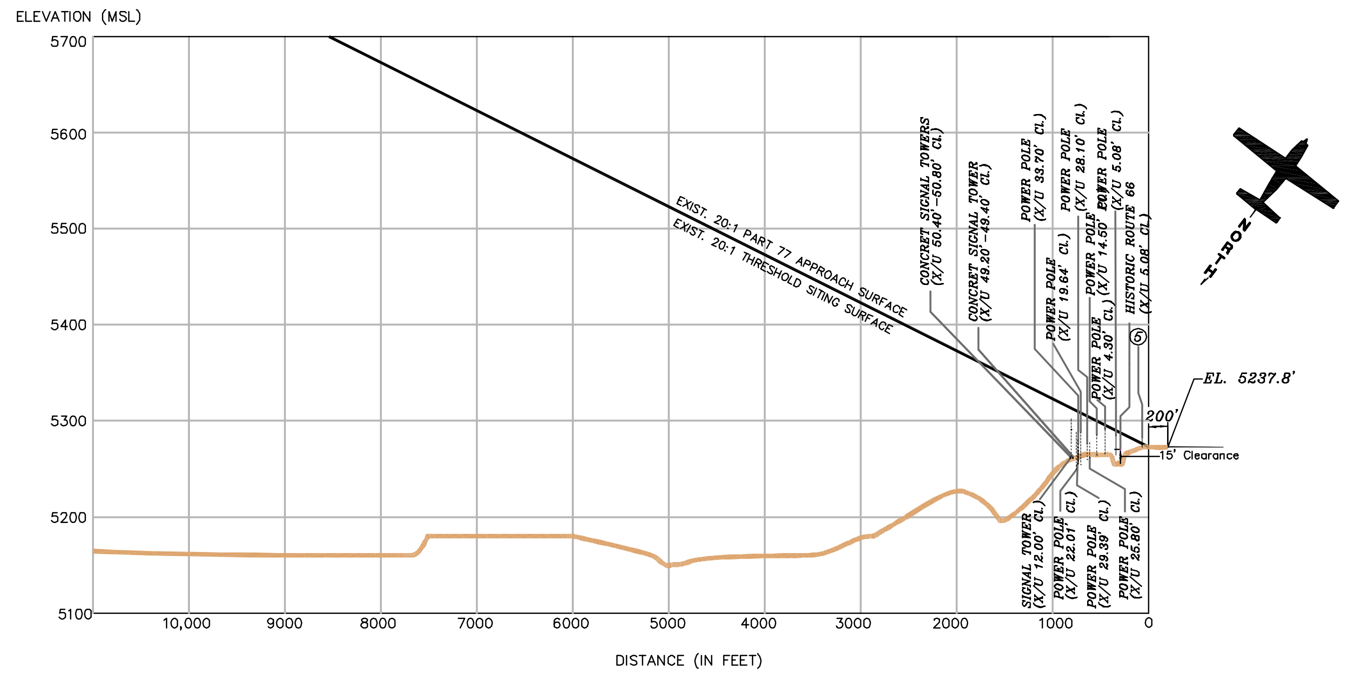
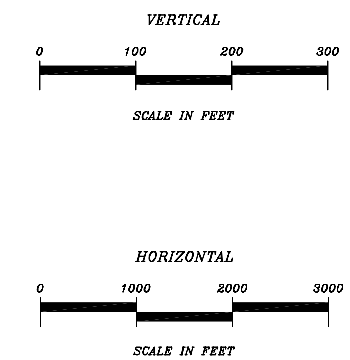
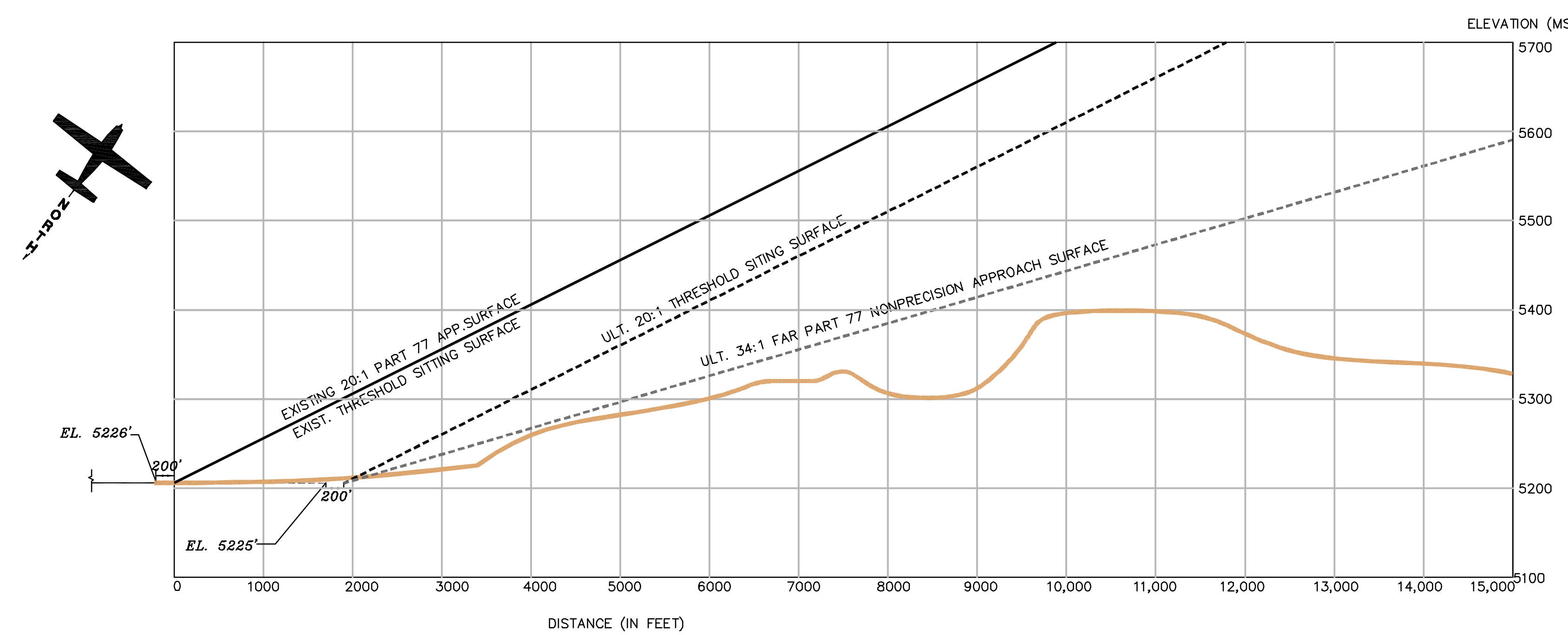
RUNWAY 4





RUNWAY 22



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4	TERRAIN	5580'	HORIZONTAL	5550'	+80'	
5	FENCE	5580'	APPROACH	5547'	+6'	TO BE REMOVED

RUNWAY 4-22 APPROACH SURFACE PROFILES

No.	REVISIONS	DATE	BY	APP'D.

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SELIGMAN AIRPORT
RUNWAY 4-22 OUTER APPROACH SURFACE PROFILE DRAWING
SELIGMAN, ARIZONA

PLANNED BY: Mike W. Dmyterko
DETAILED BY: Maggie Rogers
APPROVED BY: Project Manager

December 15, 2004 SHEET 5 OF 7

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ON-AIRPORT LAND USE LEGEND

AO	AIRFIELD OPERATIONS (149.00 ACRES)
GA	GENERAL AVIATION AREA (27.00 ACRES)

BASE MAP: AERIAL PHOTO TAKEN MAY 25 2003

LEGEND

EXISTING	ULTIMATE	DESCRIPTION
		AIRPORT PROPERTY LINE
		AIRPORT REFERENCE POINT (ARP)
		AIRPORT ROTATING BEACON
		AVIGATION EASEMENT (if applicable)
		BUILDING CONSTRUCTION
BRL	BRL	BUILDING RESTRICTION LINE (BRL)
		OBJECT FREE AREA (OFA)
		RUNWAY SAFETY AREA (RSA)
		OBSTACLE FREE ZONE (OFZ)
		DRAINAGE
		FACILITY CONSTRUCTION
		FENCING
PAPI-2	PAPI-2	NAVIGATIONAL AID INSTALLATION
		RUNWAY END IDENTIFICATION LIGHTS (REIL)
		RUNWAY THRESHOLD LIGHTS
		SECTION CORNER
		SEGMENTED CIRCLE/LIGHTED WIND TEE
		TOPOGRAPHIC CONTOURS
		WIND INDICATOR (Lighted)
		POWER POLE
		TAXIWAY DESIGNATION
		DIRT ROADS
		RUNWAY EDGE LIGHTING
		PAVEMENT TO BE ABANDONED
		AIRPORT CONTROL STATIONS (SURVEY)

NORTH

Magnetic Variance
12° 30' East (January 2004)
Annual Rate of Change
3.41' West (January 2004)

0 300 600 900
SCALE IN FEET

No.	REVISIONS	DATE	BY	APP'D.

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SELIGMAN AIRPORT

ON AIRPORT LAND USE DRAWING

SELIGMAN, ARIZONA

PLANNED BY: Mike W. Dmytenko
DETAILED BY: Maggie Rogers
APPROVED BY: Project Manager
December 15, 2004
SHEET 6 OF 7

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Airport Consultants
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AIRPORT PROPERTY INFORMATION				
PARCEL #	OWNER/TITLE	FAA GRANT #	ADOT GRANT #	ACRES
1	YAVAPAI COUNTY BOOK: 1091 PG:90 & 91 DATE: 08/24/1987	N/A N/A	N/A N/A	±58.64
2	YAVAPAI COUNTY BOOK:3588 PG:356 DATE: 07/24/1998	N/A N/A	N/A	±7.79
3	YAVAPAI COUNTY BOOK: 10 PG: 33 of SURVEYS DATE: UNKNOWN	N/A N/A	N/A	±15.24
4	YAVAPAI COUNTY BOOK: 3588 PG:356 DATE: UNKOWN	N/A N/A	N/A	±3.97
5	YAVAPAI COUNTY BOOK: 3543 PG:629 DATE: UNKNOWN	N/A N/A	N/A	±8.59
6	YAVAPAI COUNTY BOOK: 3564 PG:218 DATE: UNKNOWN	N/A N/A	N/A	±1.17
7a	YAVAPAI COUNTY PARCEL# 301-28-005J BOOK: 4145 PG:558 DATE: 11/17/2003	N/A N/A	N/A	±6.15
7b	YAVAPAI COUNTY PARCEL# 301-28-005J BOOK: 4145 PG:558 DATE: 11/17/2003	N/A N/A	N/A	±.33

ULTIMATE AIRPORT PROPERTY ACQUISITION/EASMENT				
PARCEL #	OWNER/TITLE	FAA GRANT #	ADOT GRANT #	ACRES
8	COUNTY PARCEL-BOOK 3588, PAGE 356	N/A	N/A	±.02
9	PARCEL 301-28-001F - FEE	N/A	N/A	±11.03
10	COCONINO COUNTY PARCEL - FEE	N/A	N/A	±33.51
11	PARCEL 301-28-241B - FEE	N/A	N/A	±12.71

LEGEND		
EXISTING	ULTIMATE	DESCRIPTION
		AIRPORT PROPERTY LINE
		AIRPORT REFERENCE POINT (ARP)
		AIRPORT ROTATING BEACON
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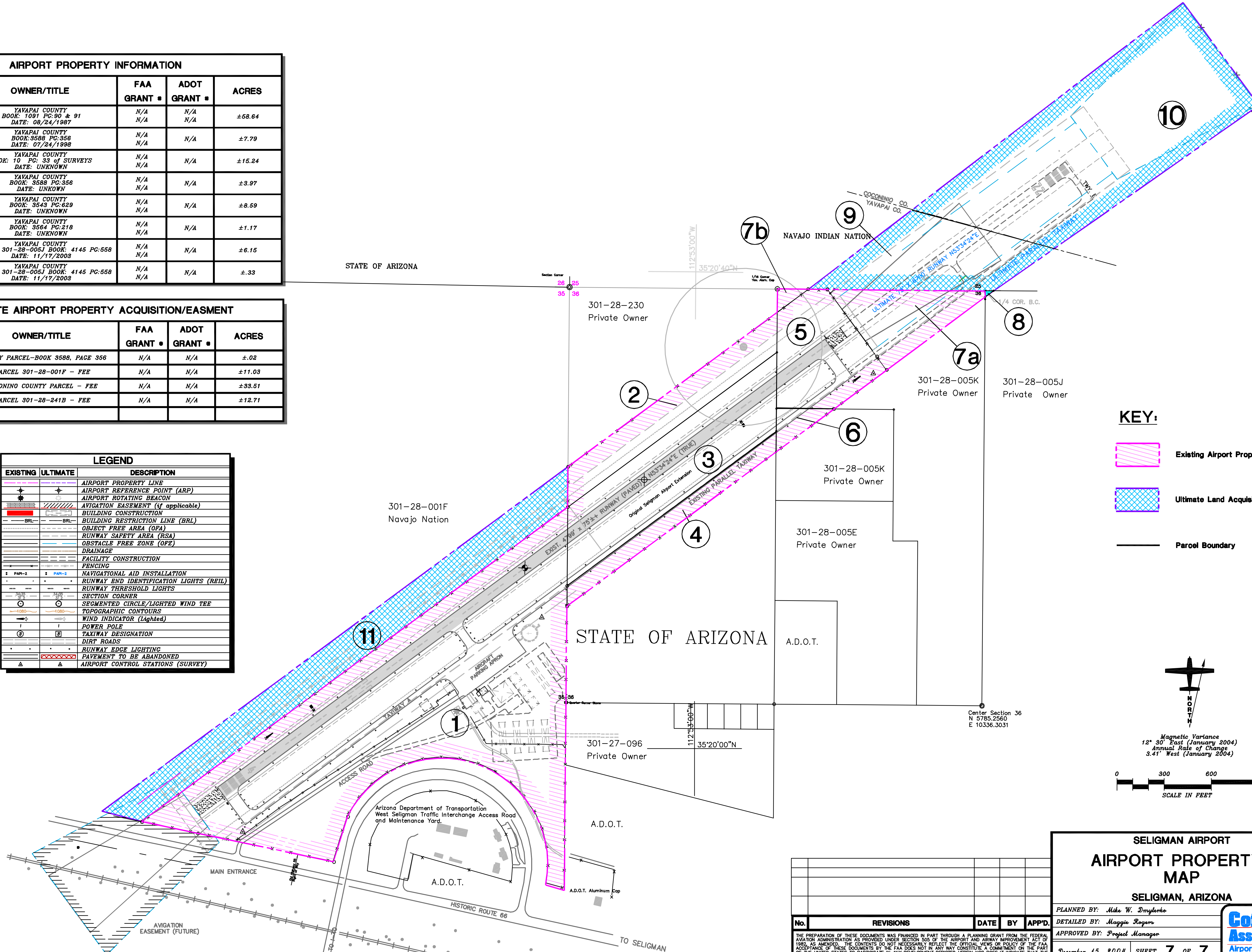
		PAVEMENT TO BE ABANDONED
		AIRPORT CONTROL STATIONS (SURVEY)



KEY:

Existing Airport Property

Ultimate Land Acquisition

Parcel Boundary

NORTH

Magnetic Variance
12° 30' East (January 2004)
Annual Rate of Change
3.41' West (January 2004)

0 300 600 900
SCALE IN FEET

No.	REVISIONS	DATE	BY	APP'D.

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SELIGMAN AIRPORT

AIRPORT PROPERTY MAP

SELIGMAN, ARIZONA

PLANNED BY: Mike W. Dmyterko
DETAILED BY: Maggie Rogers
APPROVED BY: Project Manager

December 15, 2004 SHEET 7 OF 7

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Appendix D

MINIMUM STANDARDS

MINIMUM STANDARDS FOR AIRPORT OPERATORS AT SELIGMAN AIRPORT

TABLE OF CONTENTS

Section 1 - Policy Statement
Section 2 - Definitions
Section 3 - Application and Qualifications
Section 4 - Action on Application
Section 5 - Minimum Standards for all FBOs
Section 6 - Aircraft Sales
Section 7 - Airframe, Engine, and Accessory Maintenance & Repair
Section 8 - Aircraft Lease and Rental
Section 9 - Flight Training
Section 10 - Aircraft Fuel and Oil Service
Section 11 - Avionics, Instrument, or Propeller Repair Station
Section 12 - Aircraft Charter and Air Taxi
Section 13 - Aircraft Storage
Section 14 - Specialized Commercial Flying Services
Section 15 - Multiple Services
Section 16 - Flying Clubs
Section 17 - FBO Subleasing from Another FBO
Section 18 - Environmental

Appendix A - Minimum Insurance Policy Limits

Appendix B - Minimum Requirements for a Business Plan

SECTION 1 - POLICY STATEMENT

The County Commission of Yavapai, Arizona being in a position of responsibility for the administration of the Seligman Airport, hereinafter called the "Airport", does hereby establish the following Minimum Standards policy:

The Minimum Standards are intended to be the threshold entry requirements for those wishing to provide aeronautical services to the public and to insure that those who have undertaken to provide commodities and services as approved are not exposed to unfair or irresponsible competition. These Minimum Standards were developed taking into consideration the aviation role of the Airport, facilities that currently exist at the Airport, services being offered at the Airport, the future development planned for the Airport and to promote fair competition at the Airport. The uniform application of these Minimum Standards, containing the minimum levels of service that must be offered by the prospective service provider, relates primarily to the public interest and discourages substandard entrepreneurs, thereby protecting both the established aeronautical activity and the Airport patrons.

Final decisions regarding application of these standards rests with the Yavapai County Board of Supervisors (BOS), with recommendations provided by County staff.

SECTION 2 - DEFINITIONS

- ADOT - means Arizona Department of Transportation - Aeronautics Division.

- Aeronautical Activity - means any activity conducted at airports which involves, makes possible or is required for the operation of aircraft, or which contributes to or is required for the safety of such operations. These activities include, but are not limited to, air taxi and charter operations, pilot training, aircraft renting, sightseeing, aerial photography, aerial advertising, aerial surveying, air carrier operations, aircraft sales and services, sale of aviation petroleum products, repair and maintenance of aircraft and aircraft parts, sale of aircraft parts, and aircraft storage.

- Aeronautical Service means any service which involves, makes possible or is required for the operation of aircraft, or which contributes to or is required for the safety of aircraft operations commonly conducted on the airport by a person who has a lease from the airport owner to provide such service.

- Aircraft Lease (pertaining to the lease of aircraft by an aeronautical activity) means a long-term written agreement established on a minimum basis of six (6) months wherein the lessee shall have full control over the scheduling and use of

aircraft and the aircraft is insured as required by these Minimum Standards for the use of the aircraft by Lessee. (Also referred to as aircraft lease-back.)

- Airport means the Seligman Airport, and all of the property, buildings, facilities and improvements within the exterior boundaries of such airport as it now exists on the Airport Layout Plan or Exhibit A or as it may hereinafter be extended, enlarged or modified.

- Airport Manager means the Airport Manager or his/her designee. If the airport does not have a hired, dedicated airport manager, this means the appointed member of the Yavapai County staff which is respnsible for airport operations and development.

- FAA means the Federal Aviation Administration.

- FAR means Federal Aviation Regulation.

- FBO stands for Fixed Base Operator means any aviation business duly licensed and authorized by written agreement with the airport owner to provide aeronautical activities at the airport under strict compliance with such agreement and pursuant to these regulations and standards.

- Flying Club means a non-commercial organization established to promote flying, develop skills in aeronautics, including pilotage, navigation, and awareness and appreciation of aviation requirements and techniques. See the Airport Rules and Regulations for requirements.

- Fuel - As defined in an operator's lease agreement.

- Fueling Operations means the dispensing of aviation fuel into aircraft.

- Fuel Vendor means an entity engaged in selling or dispensing aviation fuel to aircraft other than that owned or leased by the entity.

- Fueling Operations Permit means a permit issued by the airport manager to a person or entity who dispenses aviation fuel at the Airport (see Airport Rules and Regulations for requirements and procedure). There are two types: (1) Fuel Vendor's Permit; and (2) Self-fueling Permit.

- Independent Contractor in this context refers to persons whose place of business is located off the airport property, performing aeronautical services for individual airport tenants and/or operators of transient aircraft.

- Landside means all buildings and surfaces on the airport used by surface vehicular

and pedestrian traffic.

- Large Aircraft is an aircraft of more than 12,500 pounds maximum certified takeoff weight or turboprop and turbojet aircraft.

- Minimum Standards means the standards which are established by the airport owner as the minimum requirements to be met as a condition for the right to conduct an aeronautical activity on the airport.

- NFPA means the National Fire Protection Association.

- NOTAM means a Notice to Airmen published by the FAA.

- Owner means the Yavapai County, Arizona or other entity providing a combination of aeronautical services to or for aviation users at the Airport.

- Person means an individual, corporation, government or governmental subdivision, partnership, association, or any other legal entity.

- Ramp Privilege means the driving of an automobile or other vehicle upon an aircraft parking ramp on the airside of the airport to deliver persons, cargo or equipment to an aircraft as a matter of convenience or necessity. See Airport Rules and Regulations for requirements and procedure.

- Self-fueling operator means a person who dispenses aviation fuel to aircraft owned by such person, or leased from others and operated by such person. See Airport Rules and Regulations for requirements and procedure.

- Small Aircraft is an aircraft of 12,500 pounds or less maximum certified take-off weight.

- UNICOM means a non-governmental communication facility which provides airport advisory information.

SECTION 3 - APPLICATION AND QUALIFICATIONS

Demonstration of intent to conduct a business operation at the Airport shall be by application to the Airport Manager. The written application shall contain at the minimum:

1. The proposed nature of the business. A business plan may be used to express the proposed nature of the business. (See Appendix B, "Minimum Requirements for a Business Plan".)

2. The signatures of all parties whose names are being submitted as owning an interest in the business or will appear on leases or other documents as being a partner, director, or corporate officer, and those who will be managing the business.

3. A current financial statement prepared or certified by a Certified Public Accountant.

4. A listing of assets owned, or being purchased, or leased which will be used in the business on the Airport.

5. A current credit report for each party owning or having a financial interest in the business and a credit report on the business itself covering all geographical areas in which it has done business in the ten-year period immediately prior to such application.

6. An agreement to provide a suitable guarantee of adequate funds to the Airport Manager to be used to defray any expenses and fees normally paid by the Lessee between the estimated time the Lessee may default and a new lease is executed and another Lessee takes over.

7. A written authorization for the FAA, ADOT, any aviation or aeronautics commissions, administrators, and departments of all states in which the applicant has engaged in aviation business to release information in their files relating to the applicant or its operation. The applicant will execute such forms, releases, or discharges as may be required by those agencies.

8. Preliminary plans, specifications and dates for any improvements which the applicant intends to make on the Airport as part of the activity for which approval is sought. Applicant must comply with appropriate Building Code and Airport Manager Plan Review Procedures and other applicable development code requirements.

9. Proof of liability coverage or insurance company letter of intent for the business operation, flight operations, itinerant aircraft and operators and premises insurance.

10. Such other information as the Airport Manager may require.

SECTION 4 - ACTION ON APPLICATION

All compliant applications will be reviewed and acted upon by the Airport Manager within 45 days from the receipt of the application.

Applications may be denied for one or more of the following reasons:

1. The applicant does not meet qualifications, standards and requirements established by these Minimum Standards.

2. The applicant's proposed operations or construction will create a safety hazard on the Airport.

3. The granting of the application will require the expenditure of local funds, labor or materials on the facilities described in or related to the application, or the operation will result in a financial loss to the Yavapai County.

4. There is no appropriate or adequate available space or building on the Airport to accommodate the entire activity of the applicant.

5. The proposed operation, Airport development or construction does not comply with the approved Airport Master Development Plan.

6. The development or use of the area requested will result in a congestion of aircraft or buildings, or will result in undue interference with the operations of any present fixed base operator on the Airport, such as problems in connection with aircraft traffic or service, or preventing free access and egress to the existing fixed base operator area, or will result in depriving, without the proper economic study, an existing fixed base operator of portions of its leased area in which it is operating.

7. Any party applying, or interested in the business, has supplied false information, or has misrepresented any material fact in the application or in supporting documents, or has failed to make full disclosure on the application.

8. Any party applying, or having an interest in the business, has a record of violating the Rules, or the Rules and Regulations of any other Airport, Civil Air Regulations, Federal Aviation Regulations, or any other Rules and Regulations applicable to this or any other Airport.

9. Any party applying, or having an interest in the business, has defaulted in the performance of any lease or other agreement with the Airport Manager or any lease or other agreement at any other airport.

10. Any party applying, or having an interest in the business, is not sufficiently credit worthy and responsible in the judgment of the Airport Manager to provide and maintain the business to which the application relates and to promptly pay amounts due under the FBO lease.

11. The applicant does not have the finances necessary to conduct the proposed operation for a minimum period of six months.

12. The applicant has committed any felony, or violated any local ordinance rule or regulation, which adversely reflects on its ability to conduct the FBO operation applied for.

SECTION 5 - MINIMUM STANDARDS FOR ALL FBOS

The following shall apply to all prospective aeronautical service providers wishing to become FBOs at the Airport:

1. Leases shall be for a term to be mutually agreed upon between the parties with due consideration for the financial investment and the need to amortize improvements to the leasehold.

2. A person shall have such business background and shall have demonstrated his business capability to the satisfaction of, and in such manner as to meet with the approval of the Airport Manager.

3. Any prospective FBO seeking to conduct aeronautical activity at the Airport should demonstrate that they have adequate resources to realize the business objectives agreed to by the Airport Manager and the applicant.

4. The prospective FBO shall lease from the Owner an area of not less than 2600 square feet of ground space to provide for outside display and storage of aircraft. The prospective FBO shall also lease from the owner a sufficient area of land to erect a building with at least 2600 square feet of floor space and to provide paved parking for the FBO's customers and employees. Space in the building shall be provided for aircraft storage, and, for properly lighted, heated, and air conditioned office and lounge space, with telephone and restrooms available to customers.

-- or --

The prospective FBO shall lease an existing building with no less than 1,000 square feet of floor space with properly lighted, heated, and air conditioned office and lounge space with public parking, telephone, and restroom facilities available for customer use.

5. All prospective FBOs shall demonstrate to the Airport Manager's satisfaction, evidence of its ability to acquire insurance coverage as stipulated for each particular type of operation. An FBO should make its own analysis to determine if more is needed. However, such policies of insurance shall be maintained in full

force and effect during all terms of existing leases, agreements or business licenses or renewals or extensions thereof with a 30-calendar day notice of cancellation to the Airport Manager. Such policies shall not be for less than the amounts listed at APPENDIX A; however, in all cases, amounts of policies must meet the statutory requirements of applicable governmental agencies and be approved in writing by the Airport Manager.

6. Independent contractors, or, airport tenants and operators of transient aircraft performing aeronautical activities incidental to businesses located off the airport, shall not be considered to be FBOs for the purposes of Minimum Standard Requirements for Airport Aeronautical Services.

SECTION 6 - AIRCRAFT SALES

Statement of Concept

1. New Aircraft Sales: An aircraft sales FBO engages in the sale of new aircraft through franchises or licensed dealerships (if required by local, county or state authority) or distributorship (either on a retail or wholesale basis) of an aircraft manufacturer or used aircraft; and provides such repair, services, and parts as necessary to meet any guarantee or warranty on aircraft sold.

2. Used Aircraft Sales: Many companies engage in the purchasing and selling of used aircraft. This is accomplished through various methods including matching potential purchasers with an aircraft (brokering), assisting a customer in the purchase or sale of an aircraft, or purchasing used aircraft and marketing them to potential purchasers. In many cases these FBOs also provide such repair, services, and parts as necessary to support the operation of aircraft sold. Some of the requirements for the sale of new aircraft may not be appropriate to the sale of used aircraft because of each aircraft's unique operational purpose.

Minimum Standards:

1. The FBO shall provide necessary and satisfactory arrangements for repair and servicing of aircraft, but only for the duration of any sales guarantee or warranty period. The FBO who is engaged in the business of selling new aircraft shall have available a representative example of the product(s), as required by the manufacturer.

2. The FBO shall have in his employ, and on duty during the appropriate business hours, trained personnel in such numbers as are required. The FBO shall also maintain, during all business hours, a responsible person in charge to supervise the operations in the leased area with the authorization to represent and act for

and on behalf of the FBO, and to provide appropriately rated pilots for aircraft demonstrations and make and model training in aircraft sold.

3. At least one aircraft storage space (tiedowns or hangars) shall be leased from the owner for each aircraft in inventory.

SECTION 7 - AIRFRAME, ENGINE, AND ACCESSORY MAINTENANCE AND REPAIR

Statement of Concept

An aircraft airframe, engine, and accessory maintenance and repair FBO provides one or a combination of airframe, engine and accessory overhauls and repair services on aircraft up to and may include business jet aircraft and helicopters. This category shall also include the sale of aircraft parts and accessories.

Minimum Standards:

1. The FBO shall provide sufficient equipment, supplies, manuals and availability of parts equivalent to that required for certification by the FAA.

2. The FBO shall have in his employ, and on duty during the appropriate business hours, trained personnel in such numbers as are required to meet the Minimum Standards set forth in this category of services in an efficient manner, but never less than one person currently certificated by the FAA with ratings appropriate to the work being performed and who holds an airframe, power plant or an aircraft inspector rating.

3. At least two aircraft storage spaces (tiedowns or hangars) shall be leased from the owner.

SECTION 8 - AIRCRAFT LEASE AND RENTAL

Statement of Concept

An aircraft lease or rental FBO engages in the rental or lease of aircraft to the public.

Minimum Standards:

1. The FBO shall have available for rental, either owned or under written lease to FBO, a certified and currently airworthy aircraft.

2. The FBO shall make available during business hours an appropriately rated and current FAA certified flight instructor for aircraft check flights as required.

3. At least one tiedown or adequate hangar space shall be leased from the owner for each owned or leased aircraft.

SECTION 9 - FLIGHT TRAINING

Statement of Concept

A flight training FBO engages in instructing pilots in fixed and/or rotary wing aircraft, and provides dual flight instruction and related ground school instruction as necessary preparatory to taking written examinations and flight tests appropriate to the pilot certificates and ratings sought by the applicant.

Minimum Standards:

1. The FBO shall have available for use in flight training, either owned or under written lease to FBO, a certified and currently airworthy aircraft, which must be a two place aircraft suitable for private pilot training.

2. The FBO shall employ at least one FAA certified flight instructor to provide the type of training offered.

3. At least one tie-down or adequate hangar space shall be leased from the owner for each owned or leased aircraft.

SECTION 10 - AIRCRAFT FUEL AND OIL SERVICE

Statement of Concept

An aircraft fuel and oil service FBO provides aviation fuels, lubricants and other services supporting itinerant aircraft operations and operations of aircraft based on the airport.

Minimum Standards:

Except as otherwise provided in any agreement between the FBO and the Authority, an FBO conducting aviation fuel and oil sales or service to the public on the Airport shall be required to provide the following services and equipment.

1. Appropriate grades of aviation fuel.
    a. 100 LL
    b. Jet A

2. An adequate inventory of generally accepted grades of aviation engine oil and lubricants.

3. Fuel dispensing equipment, meeting all applicable Federal, State, and Authority requirements for each type of fuel dispensed.

4. Proper equipment for aircraft towing, inflating aircraft tires, washing aircraft windscreens, and recharging aircraft batteries.

5. The safe storage and handling of fuel in conformance with all Federal, State, County requirements and fire codes pertaining to safe storage and handling of fuel.

6. The lawful and sanitary handling and timely disposal, away from the Airport, of all solid waste, regulated waste, and other materials including, but not limited to, used oil, solvents, and other regulated waste. The piling and storage of crates, boxes, barrels, and other containers will not be permitted within the leased premises.

7. Adequate grounding wires will be installed, continuously inspected and maintained on all fueling equipment, to reduce the hazards of static electricity.

8. An adequate supply of properly located fire extinguishers and other precautions and/or equipment required by applicable fire codes.

9. Unless provided by the airport owner, the FBO shall have a fixed fuel storage system which shall contain safety fixtures and filtration systems to ensure airline-type quality. The system shall be required to have at least 8,000 gallons of storage for each type of fuel the FBO is required to provide. The storage system must include adequate fuel spill prevention features and containment capabilities, together with an approved fuel Spill Prevention Countermeasures and Control Plan (SPCC), as applicable.

10. The prospective FBO shall have his premises open and services available at least 8 hours per day, 7 days a week, and shall make provision for an office attendant to be on duty at all times during the required operating hours, unless otherwise negotiated with the Airport Manager.

11. A designated parking space for each fueling vehicle shall be leased from the owner.

SECTION 11 - AVIONICS, INSTRUMENTS OR PROPELLER REPAIR STATION

Statement of Concept

An avionics, instrument, or propeller repair station FBO engages in the business of and provides a shop for the repair of aircraft avionics, propellers, instruments, and accessories for general aviation aircraft. This category may include the sale of new or used aircraft avionics, propellers, instruments, and accessories. The FBO shall hold the appropriate repair station certificates issued by FAA for the types of equipment he plans to service and/or install.

Minimum Standards:

1. The FBO shall have in his employ and on duty during the appropriate business hours, trained personnel in such numbers as are required to meet the Minimum Standards set forth in this category in an efficient manner but never less than one person who is an FAA rated radio, instrument or propeller repairman.

2. At least one aircraft storage space (tie-downs or hangars) shall be leased from the owner.

SECTION 12 - AIRCRAFT CHARTER AND AIR TAXI

Statement of Concept

An unscheduled, or scheduled air charter or air taxi FBO engages in the business of providing air transportation (persons or property) to the general public for hire, on an unscheduled or scheduled basis under Code of Federal Regulations CFR 14 Part 135 of the Federal Aviation Regulations.

Minimum Standards:

1. The FBO shall provide, either owned or under written lease type, class, size and number of aircraft intended to be used by the FBO, not less than one single engine four place aircraft which must meet the requirements of the commercial air taxi certificate held by the FBO.

2. The FBO shall have in his employ and on duty during the appropriate business hours trained personnel in such numbers as are required to meet the Minimum Standards in an efficient manner but never less than one person who is an FAA

certified commercial pilot and otherwise appropriately rated to permit the flight activity offered by FBO.

3. At least one tie-down or adequate hangar space shall be leased from the owner for each owned or leased aircraft.

SECTION 13 - AIRCRAFT STORAGE

Statement of Concept
An aircraft storage FBO engages in the rental of conventional hangars or multiple T hangars.

Minimum Standards:

1. The conventional hangar FBO shall have his facilities available for the tenant's aircraft removal and storage on a continuous basis.

2. The FBO shall demonstrate that it can provide sufficient personnel trained to meet all requirements for the storage of aircraft with appropriate equipment.

SECTION 14 - SPECIALIZED COMMERCIAL FLYING SERVICES

Statement of Concept

Specialized commercial flying services FBO engages in air transportation for hire for the purpose of providing the use of aircraft for the following activities:

a. Non stop sightseeing flights that begin and end at the same airport.
b. Aerial advertising.
c. Aerial photography or survey.
d. Power line or pipe line patrol.
e. Fire fighting.
f. Any other operations specifically excluded from Part 135 of the Federal Aviation Regulations.

Minimum Standards:

1. All FBOs shall demonstrate that they have the availability of aircraft suitably equipped for the particular type of operation they intend to perform.

2. The FBO shall have in his employ, and on duty during appropriate business

hours, trained personnel in such numbers as may be required to meet the Minimum Standards herein set forth in an efficient manner.

SECTION 15 - MULTIPLE SERVICES

Statement of Concept

A multiple services FBO engages in any two or more of the aeronautical services for which Minimum Standards have been herein provided.

Minimum Standards:

1. The FBO shall comply with the aircraft requirements, including the equipment thereon for each aeronautical service to be performed except that multiple uses can be made of all aircraft owned or under lease by FBO.

2. The FBO shall provide the facilities, equipment and services required to meet the Minimum Standards as herein provided for all aeronautical service the FBO is performing.

3. The FBO shall obtain, as a minimum, insurance coverage which is equal to the greater requirement for all individual aeronautical services being performed by FBO.

4. The FBO shall have in his employ, and on duty during the appropriate business hours, trained personnel in such numbers as are required to meet the Minimum Standards for each aeronautical service the FBO is performing as herein provided. Multiple responsibilities may be assigned to meet the personnel requirements for each aeronautical service being performed by the FBO.

5. The FBO providing 3 or more services, shall lease from owner a sufficient number of aircraft tie-down spaces to meet the combined needs of the operations proposed.

6. A flight planning/pilot lounge area with appropriate seating, work areas, and communication facilities necessary for complete flight planning separate from other public areas.

SECTION 16 - FLYING CLUBS

See requirements for Flying Clubs in Airport Rules and Regulations.

SECTION 17 - FBO SUBLEASING FROM ANOTHER FBO

Prior to finalizing an agreement, the lessee and sub-lessee shall obtain the written approval of the Airport Manager for the business proposed. Said sublease shall define the type of business and service to be offered by the sub-lessee FBO.

The sub-lessee FBO shall meet all of the Minimum Standards established by the Owner for the categories of services to be furnished by the FBO. The Minimum Standards may be met in combination between lessee and sub-lessee. The sublease agreement shall specifically define those services to be provided by the lessee to the sub-lessee that shall be used to meet the standards.

SECTION 18 - ENVIRONMENTAL

Any FBO, person, party, firm or corporation operating on this airport must comply with all federal, state and local environmental requirements.

APPENDIX A

Schedule of Minimum Insurance Requirements:

A. FIXED BASE OPERATOR

1. Commercial general aviation liability policy with coverages for premises, operations, and product liability ($1,000,000 CSL)

2. Hangar Keeper's Liability -Value of Aircraft in care, custody and control

B. AIRFRAME AND POWERPLANT REPAIR, AVIONICS, INSTRUMENTS, OR PROPELLER REPAIR

1. Commercial general aviation liability policy with coverages for premises, operations, and product liability ($1,000,000 CSL)

2. Hangar Keeper's Liability -Value of Aircraft in care, custody and control

C. AIR TAXI AND/OR AIRCRAFT CHARTER

1. Commercial general aviation liability policy with coverages for premises and operations ($1,000,000 CSL)

2. Aircraft liability with coverage for bodily injury and property damage, including passengers ($1,000,000 CSL)

D. AIRCRAFT RENTAL, FLIGHT TRAINING, COMMERCIAL FLYING CLUB

1. Commercial general aviation liability policy with coverages for premises and operations ($1,000,000 CSL)

2. Aircraft liability with coverage for bodily injury and property damage, including passengers ($1,000,000 CSL)

E. SPECIALIZED COMMERCIAL AERONAUTICAL ACTIVITIES, AIRCRAFT SALES

1. Commercial general aviation liability policy with coverages for premises and operations ($1,000,000 CSL)

2. Aircraft liability, if aircraft used in operation ($1,000,000 CSL)

F. EXEMPT FLYING CLUBS

1. Commercial general aviation liability policy with coverages for premises and operations ($1,000,000 CSL)

G. AIRCRAFT HANGAR OPERATOR

1. General Liability Policy ($1,000,000 CSL)

H. Hangar Keeper's Liability -Value of Aircraft in care, custody and control

SPECIAL INSTRUCTIONS

1. Any operator fueling aircraft shall have a minimum $1,000,000 CSL general liability policy with the coverage specified in the Seligman Airport Rules and Regulations.

2. Any Operator using service vehicles on the Airport premises in support of its operations shall maintain additional coverage of Motor Vehicle Liability in the amount of $500,000 CSL.

Note: CSL = Combined Single Limit

APPENDIX B

Minimum Requirements for a Business Plan:

1. All services that will be offered.

2. Amount of land desired to lease.

3. Building space that will be constructed or leased.

4. Number of aircraft that will be provided.

5. Equipment and special tooling to be provided.

6. Number of persons to be employed.

7. Short resume for each of the owners and financial backers.

8. Short resume of the manager of the business (if different from"7" above) including this person's experience and background in managing a business of this nature.

9. Periods (days and hours) of proposed operation.

10. Amounts and types of insurance coverage to be maintained.

11. Evidence of the projections for the first year and the succeeding 4 years.

12. Methods to be used to attract new business (advertising and incentives).

13. Amenities to be provided to attract business.

14. Plans for physical expansion, if business should warrant such expansion.

Appendix E

RULES AND REGULATIONS

SELIGMAN AIRPORT RULES AND REGULATIONS

The following rules and regulations shall be observed in the use, operation, and conduct of the Seligman Airport:

SECTION 1 - USE OF AIRPORT RESTRICTED

No person, firm, association, corporation, or entity, incorporated or otherwise, shall use the Airport as a home for any commercial aviation activity, or use the airport for any commercial activity, unless approved by a written lease with approval from the County Board of Supervisors or in accordance with the rules and regulations.

SECTION 2 - GENERAL RULES AND REGULATIONS

RULE 1 - FEDERAL AIR TRAFFIC RULES

Federal Aviation Administration air traffic rules for aircraft operated anywhere in the United States, and presently or hereafter effective, are hereby referred to, adopted, and made a part hereof as though fully set forth and incorporated herein.

RULE 2 - SAFEGUARD OF PERSONS AND PROPERTY

The Airport Director shall at all times have the authority to take such necessary and legal actions to safeguard any person, aircraft, equipment, or property at the Airport.

RULE 3 - HANGARS

T-hangars constructed and owned by the County may be rented to private individuals, companies or corporations on a monthly basis for the storage of aircraft and required aircraft support items. T-Hangars will be rented at rates approved by the County Board of Supervisors as a part of the budget process, dependent upon age and location of the structure. Hangar rent will be paid by the first day of the month, the first month's rent paid in advance. Hangars will not be modified from their original state unless authorized by the Airport Manager. The Airport Manager will be authorized to

enter into any leases or contracts substantially meeting the general terms and conditions of the attached contracts.

Commercial hangars constructed and owned by the County may be rented to companies or corporations on an annual basis for the purpose of conducting commercial, aviation related, activities. Commercial hangars will be rented at the greater of:

1) rates approved by the County Board of Supervisors as a part of the budget process, or
2) the rental rate proposed by interested parties submitting proposals to lease the hangar.

Rentals will be paid by the first day of the month, the first month's rent paid in advance. Hangars will not be modified from their original state unless authorized by the Airport Manager. The Airport Manager will be authorized to enter into any leases or contracts substantially meeting the general terms and conditions of the attached contracts.

RULE 4 - LEASE OF UNIMPROVED AIRPORT PROPERTY

The County may lease property within the building area or other portions of the Airport for the private construction of hangars, buildings, lean-tos, aprons, taxiways, and auto parking lots in accordance with the approved Airport Master Plan/Airport Layout Plan.

RULE 5 - LEASE PROVISIONS AND RESTRICTIONS

The following provisions/restrictions shall apply to all leased Airport property:

a. The County may allow the lease of Airport property for a period not to exceed thirty (30) years in any one lease contract.

b. No leases will exceed periods of twenty-five (25) years.

c. The County may allow for the long-term lease of property on the Airport with the provision that at the end of a twenty-five (25) year period, title to all structures, buildings, or hangars erected on the leased property shall revert to the County.

d. Any private structure or hangar not in use for aviation purposes for a period in excess of three (3) months, or not available for rent or sublease for aviation purposes, unless so authorized by the County, must be removed after due notice is

given in writing. If not removed, the County will consider such structures or hangars abandoned and possession and control will pass to the County.

e. Leased land from which any building, hangar, or structure is removed after due notice will be cleaned and returned to good condition by the owner of said building, hangar, or structure. Portable and temporary building will not be allowed on airport grounds, unless they are necessary for construction projects.

f. Leased property on the Airport may be subleased by the lessee only with approval by the Airport Manager, or the County Board of Supervisors if appropriate.

g. No structures may be erected beyond the building restriction line (BRL) or in conflict with the approved Airport Master Plan/Airport Layout Plan.

h. All construction must be authorized by the County Board of Supervisors and must be a compatible standard capable of withstanding winds of 70 mph, with doors open or closed.

i. All structures must comply with all Uniform Building Codes and Airport zoning and land-use ordinances.

j. All leased property and all buildings or structures erected on the leased property will be utilized for aviation related activity only, unless specifically otherwise approved by the Airport Manager.

k. Storage of non-aviation vehicles or equipment in a private hangar, or conducting non-aviation business in any structure is prohibited unless approved by the Airport Manager. In no circumstances, whether approved or not, will the County be liable for damage or destruction of any vehicles or equipment.

RULE 6 - LIEN FOR CHARGES

To enforce the payment of any charge made for repairs, improvements, storage, or care of any property, made or furnished by the Yavapai County or its agents, in connection with the operation of said Seligman Airport, the Yavapai County shall have a lien upon such personal property, which shall be enforceable as provided by law.

RULE 7 - LIEN POSSESSORY RIGHTS

To the extent provided by law, the Airport Manager may retain possession of any personal property located on the Airport until all reasonable, customary, and usual compensations shall have been paid in full.

RULE 8 - UNAUTHORIZED SIGNS AND STRUCTURES

No signs, equipment, portable buildings, house trailers, poles, or towers of any kind may be erected, installed, or relocated on the Airport property without specific authorization from the Airport Manager. All signs must comply with all other County ordinances and regulations, and if required, the proposed owner of the sign must have appropriate approval of other County departments or Boards and Commissions.

RULE 9 - SURREPTITIOUS ACTIVITIES

Any person observing suspicious, unauthorized, or criminal acts on the Airport property is encouraged to report such activities immediately to the Airport Manager.

RULE 10 - WRECKED/DISABLED AIRCRAFT

Every aircraft owner, pilot, or their agent(s), shall be responsible for notifying the FAA and for the prompt removal from the operational areas of the Airport of any disabled or wrecked aircraft. In the event the aircraft owner shall fail to arrange for the prompt removal of said aircraft, the County may, within its discretion, have the aircraft removed as it deems necessary on behalf of the aircraft owner and for the performance of the aircraft owner's obligations hereunder, and in such event, the cost of such removal shall be the payment obligation of the aircraft owner.

RULE 11 - REPAIRS TO AIRCRAFT

All aircraft repairs performed outside the confines of hangars shall be made at the place(s) designated by the Airport Manager for such purpose.

Rule 12 - AIRCRAFT WASHING

Aircraft may only be washed at the airport wash rack to comply with the Seligman Airport's Storm Water Pollution Prevention Plan (SWPPP).

RULE 13 - DAMAGE TO AIRPORT

Any person, corporate or individual, and the owner of any aircraft causing damage of any kind to the Seligman Airport, whether through violation of these rules or through vandalism or any act of negligence, shall be liable to pay for the damages to the Yavapai County.

RULE 14 - INJURY TO PERSONS

Persons entering upon Airport grounds do so at their own risk and with no liability incurring to the Airport authority/sponsor for any injury or damage to personal property.

RULE 15 - LICENSED PILOTS

Only properly registered aircraft and persons holding current airman and medical certificates issued by the FAA shall be authorized to operate aircraft upon the Airport grounds. This limitation shall not apply to students in training under licensed instructors, nor to public aircraft of the Federal Government, or of a state, territory, or political subdivision thereof, nor to aircraft licensed by a foreign government with which the United States has a reciprocal agreement covering the operation of such licensed aircraft.

RULE 16 - INTOXICANTS, DRUGS, AND NARCOTICS

No person under the influence of any intoxicant, drug, or narcotic shall operate any aircraft, vehicle, or equipment on Seligman Airport; provided however, such prohibition shall not apply to a passenger when accompanied in an aircraft by a nurse or medical caretaker apart from the pilot.

RULE 17 - FOREIGN OBJECT DAMAGE

All persons are encouraged to pick-up and properly dispose of trash and objects, including bottles, cans, scrap, or any other object that could cause damage to an aircraft or injury to persons.

SECTION 3 - GROUND OPERATIONS

RULE 18 - GROUND TRAFFIC

All vehicular traffic shall be confined to avenues of passage designated and provided for that purpose by the Airport Manager and shall not be operated at a speed in excess of 10 miles per hour. Private vehicles shall not operate on the runway(s) or taxiway(s) unless specifically authorized by the Airport Manager. Furthermore, private vehicle should make use of the service roads on the east side of the hangar buildings when

proceeding to individual hangars or business locations on the Airport. The ramp area is restricted to aircraft, fuel trucks, and Airport maintenance vehicles only, except for tenants proceeding to assigned tie-downs occupied by their owned aircraft. Tenants and visitors conducting business with one of the established commercial operators of the Airport shall make use of parking lot areas that have been provided for this purpose.

RULE 19 - FUELING OF AIRCRAFT

The following shall apply to all fueling activity on the Airport property:

a. Aircraft shall not be fueled when an engine is running or while in a hangar or other enclosed place, except that helicopters on a fast-turn-around may be fueled with the aircraft engine idling, at the discretion of the Fixed Base Operator and the pilot. There cannot be any passengers inside the helicopter during "hot" refueling.

b. All aircraft shall be positively grounded when being serviced with fuel. Aircraft being serviced by a fuel truck shall be grounded to the fuel truck and the fuel truck shall be positively grounded.

c. To comply with local and state fire laws, aircraft must be completely outside and clear of hangars or other enclosed spaces when being refueled.

d. Aircraft fuel trucks shall be equipped, operated, and maintained in accordance with National Fire Protection Association, Inc., NFPA Manual 407, "Aircraft Fuel Servicing".

e. Persons and or aviation businesses wishing to supply and dispense aviation fuel for their own private use must first obtain authorization from the Airport Manager.

f. Fueling of aircraft or fuel trucks is prohibited during thunderstorm activity at or within five (5) to ten (10) statute miles of the airport.

g. Fuel trucks are prohibited from all grassy areas of the Airport.

h. Public sale of automobile gasoline for use in aircraft shall not be permitted on the Airport without approval by the Airport Manager. Aircraft authorized by the FAA to use auto gas may be privately fueled by their owner only after compliance with established rules adopted by the Airport Manager.

i. Aviation or automobile fuels shall not be stored within any hangar, except that which is contained in aircraft fuel tanks or other approved containers, in quantities established by the Fire Marshall.

RULE 20 - GROUND SAFETY

a. All fire lanes are to be kept clear.

b. All taxiways and taxilanes are to be kept clear.

c. The use of bicycles, motor scooters, and motorcycles on the ramp is restricted to licensed drivers only. These modes of transportation are NOT allowed past the west end of the hangar row with the exception of loading or unloading of aircraft.

d. Playing on ramp, taxiways, or runway is prohibited.

e. Double parking at hangars is prohibited.

RULE 21 - TIE-DOWN/PARKING OF AIRCRAFT

a. All aircraft not hangared shall be tied down and secured at night or during inclement weather.

b. All aircraft owners or their agent(s) are responsible for the tie-down ropes or chains and security of their aircraft at all times, particularly during inclement weather.

c. Transient aircraft must be tied-down at the Airport if parked for more than 4 hours or at anytime after sunset. Transient aircraft shall pay a posted rate per night for overnight parking on County tie-downs. Aircraft owner must furnish ropes/chains used for tiedowns.

d. Unoccupied aircraft shall NOT be parked or tied down within two hundred (200) feet of the centerline of a VFR runway, two hundred-fifty (250) feet of the centerline of a nonprecision runway, three hundred-fifty feet of the centerline of a precision runway. All aircraft not hangared shall be parked in the areas designated by the Airport Manager.

e. All aircraft shall be parked in such a manner as to not hinder the normal movement of other aircraft and vehicular traffic, unless otherwise specifically authorized by the Airport Manager.

f. It is the responsibility of the pilot, when leaving an aircraft unattended, to ensure that the brakes are set or that the aircraft is properly chocked and/or tied down.

RULE 22 - RUNNING AIRCRAFT ENGINES

a. If not equipped with adequate brakes, the aircraft's engine(s) shall not be started until and unless the wheels have been set with blocks attached to ropes or other suitable means for removing the blocks.

b. No aircraft engine shall be propped, started, or left running without a qualified person at the controls of the aircraft.

c. No mounted aircraft engine shall be started or run inside ANY hangar or building.

d. No aircraft engine shall be started, run, or warmed up until and unless the aircraft is positioned so that the propeller stream/jet blast will not cause damage to property or injury to persons.

RULE 23 - TAXIING AIRCRAFT

a. Persons taxiing aircraft shall ensure that there will be no danger of collision with any person or object.

b. Aircraft shall be taxied at a safe and prudent speed.

c. Aircraft not equipped with adequate brakes shall NOT be taxied near buildings or parked aircraft unless an attendant is at a wing of the aircraft to assist the pilot.

d. Aircraft taxiing from the ramp shall yield to other aircraft on the main taxiway area.

e. Taxiing aircraft into or out of hangars by engine power is prohibited.

f. Aircraft being taxied shall be operated by aircraft mechanics, licensed pilots, or students receiving instruction from a certified flight instructor.

RULE 24 - DAMAGE TO AIRPORT LIGHTING

Any person damaging any airport light or light fixture by operation of any aircraft or other manner shall immediately report such damage to the Airport Manager. Persons causing damage to runway/taxiway lights, VASI, REIL, or other essential operating lighting apparatus, as a result of negligence or willful acts, shall be liable for replacement cost of the lights and/or fixtures.

RULE 25 - LOADING/UNLOADING AIRCRAFT

Pilots are encouraged to shut down engines(s) when loading/unloading aircraft or enplaning/deplaning an aircraft.

SECTION 4 - LANDING AND TAKE-OFF RULES

RULE 26 - AUTHORITY TO SUSPEND OPERATIONS

The Airport Manager may suspend or restrict any or all operations at the Seligman Airport without regard to weather conditions, whenever such action is deemed necessary in the interest of safety.

RULE 27 - RUNWAY USE

When prevailing winds are calm or at up to a ninety (90) degree cross wind, all take-offs and landings will be conducted on Runway 4.

RULE 28 - TAKE-OFFS FROM TAXIWAYS

No fixed-wing take-offs or landings shall be made on the apron, parking ramp, or taxiway except by special permission of the Airport Manager.

RULE 29 - TAKE-OFF CLIMB

A standard take-off pattern is used at Seligman Airport. On departure, all aircraft shall climb straight ahead to 5,700 feet MSL, clear the Airport boundary and then execute a 90-degree turn into the traffic pattern. To leave the pattern, the aircraft shall climb to 6,100 feet MSL before executing a 45-degree climbing turn out of the traffic pattern.

RULE 30 - VFR TRAFFIC FLOW

All aircraft landing on Runway 4 shall fly a standard left-hand traffic pattern at an altitude of 6,100 feet MSL. When landing on Runw22, all aircraft shall use a right hand traffic pattern at 6,100 feet MSL. Pattern entry shall be made at an angle of 45 degrees to the active runway.

RULE 31 - NOISE ABATEMENT

Except when in the Airport traffic pattern, aircraft should be operated over the Town of Seligman at an altitude no less than 1,000 above the ground. Aircraft engines should not be accelerated or decelerated while over populated areas in such a manner as to disturb persons on the ground.

RULE 32 - STRAIGHT-IN APPROACHES

Straight-in approaches shall NOT be used unless authorized by the Airport Manager, or unless two-way radio contact with Airport UNICOM has been established prior to the aircraft reaching five (5) miles from the Airport.

RULE 33 - STOP AND GO APPROACHES

Stop and go maneuvers on the runways of Seligman Airport shall NOT be used unless intentions are broadcast in advance on Airport UNICOM.

RULE 34 - STUDENT TRAINING AND FAMILIARIZATION

a. Flight Instructors shall keep themselves informed of all rules and regulations in effect at the Airport and shall be responsible for informing their students of said rules and regulations.

b. By notice posted at the Airport Manager's office, the Airport Manager may designate limited areas of the Airport and local areas for practice flying and training of students.

RULE 35 - FLYING CLUBS

Flying clubs desiring to base their aircraft and operate on the airport must comply with the applicable provisions of the Minimum Standards and these rules and regulations. They shall be exempt from the regular Fixed Base Operator and/or Commercial Operator requirements upon satisfactory fulfillment of the conditions contained herein.

a. The club shall be a nonprofit entity (corporation, association or partnership) organized for the express purpose of providing its members with aircraft for their personal use and enjoyment only. The ownership of the aircraft must be vested in the name of the flying club (or owned proportionately by all of its members).

b. Flying clubs may not offer or conduct charter, air taxi, or rentals of aircraft operations. They may not conduct aircraft flight instruction except for regular members, and only members of the flying club may act as pilot in command of the aircraft except when receiving dual instruction

c. All flying clubs and their members are prohibited from leasing or selling any goods or services whatsoever to any person or firm other than a member of such club at the airport except that said flying club may sell or exchange its capital equipment.

d. A flying club shall abide by and comply with all Federal, State and local laws, ordinances, regulations, and Rules and Regulations of the airport.

e. Flying clubs, with its permit request, shall furnish the Airport Manager with:

1) a copy of its charter and by-laws, articles of association, partnership agreement and other documentation supporting its existence;
2) a roster, or list of members, including names of officers and directors, and investment share held by each member to be revised on a semi-annual basis;
3) evidence of insurance in the form of a Certificate of Insurance as set out in the Minimum Standards under Exempt Flying Clubs;
4) number and type of aircraft;
5) evidence that ownership is vested in the club;
6) operating rules of the club.

f. The club's books shall be subject to audit by the Yavapai County and/or its auditors to ensure of the non-profitability of the club and to determine its compliance with other provisions of these Rules and Regulations.

Commercial flying clubs are described as those entities engaged in the ownership or lease of aircraft and providing flying services for its members and others but which do not meet the rigid requirements established for not-for-profit clubs. Commercial flying clubs shall have at least one tiedown or adequate hangar space leased from the airport owner or FBO for each owned or leased aircraft.

Proof of purchase of insurance coverage shall be furnished to the Yavapai County in the limits established in the Minimum Standards as detailed under Exempt Flying Clubs.

RULE 36 - SPECIAL PROCEDURES

The Airport Manager may, in the interest of safety, designate special traffic procedures for certain operations, such as air shows, agricultural operations, blimp operations,

ultralights, etc.

SECTION 5 - FIRE REGULATIONS

RULE 37 - FIRE REGULATIONS

a. Every person using the Airport or its facilities, in any manner, shall exercise care and caution to prevent fire.

b. Smoking or any open flame within fifty (50) feet of any aircraft, fuel truck, or fuel storage tank is prohibited.

c. Compressed or inflammable gas shall NOT be kept or stored upon the Airport, except in places designated by the Airport Manager.

d. No flammable substances shall be used in cleaning motors or other parts of an aircraft inside a hangar or other building without adequate ventilation.

e. No person shall smoke, ignite a match or lighter in any building, except in offices, waiting rooms, or buildings where specifically designated.

f. Hangar entrances shall be kept clear at all times.

g. The floors in all buildings shall be kept clean and free from oil. Volatile, flammable substances shall NOT be used for cleaning floors.

h. Where aircraft fueling is performed by a fuel truck, an adequate number of suitable grounding connections shall be provided on the apron or servicing ramp.

i. At least two (2) 20 lb. portable fire extinguishers shall be available within fifty (50) feet of the fuel pumps where open hose discharge capacity of the pump is not more than 200 gallons per minute.

j. All aviation fuel nozzles will have "dead man" controls which will shut off the fuel flow when the nozzle hand control is released. Automatic fuel cut-off nozzles will MAY NOT be substituted for "dead man" controls for fueling.

k. At least one (1) fire extinguisher with a 2A, 10BC, rating shall be installed in each hangar to comply with the County Code of Ordinances. Extinguishers shall be mounted not less than five (5) inches from the floor of the hangar, and not more than five (5) feet from the hangar floor. Fire extinguishers should be inspected and tagged by an authorized agency yearly.

l. The County has the right to inspect all facilities with proper notice to ensure that fire extinguishers are properly mounted and that the hangar houses an airworthy aircraft.

SECTION 6 - KNOWLEDGE OF RULES IMPLIED

By publication of these rules and regulations, as required by law, all persons based at Seligman Airport will be deemed to have knowledge of its contents. The Airport Manager shall have copies of these rules and regulations available at all times in the Yavapai County offices or Airport Manager's office.

SECTION 7 - CONFLICT IN RULES

If and where there is conflict in these rules and procedures and the Federal Aviation Rules (FARs), the FARs will prevail.

SECTION 8 - PENALTY FOR VIOLATION

a. Any person operating or handling an aircraft in violation of any of these rules, or refusing to comply therewith, may, at once, be ejected from the Airport, or may, for any period of time not to exceed thirty (30) days, be denied use of the Airport by the Airport Manager and, upon public hearing by the County Board of Supervisors, may be deprived of the further use of the Airport and its facilities for such period of time as may be deemed appropriate.

b. Any violation of these rules and regulations shall be a misdemeanor, punishable by fine in a sum not to exceed two hundred dollars ($200) and any such violation is subject to citation and punishment in County Court. This action is cumulative of all other penalties for violation of federal, state, and local laws, rules, regulations, and ordinances.

SECTION 9 - MAINTENANCE, UPDATE, AND DISTRIBUTION OF RULES AND REGULATION DOCUMENT

Maintenance and Update - The Airport Manager will ensure that the Rules and Regulations document is kept current and will submit proposed revisions to the County Board of Supervisors as needed dependent upon the urgency of the subject matter to be revised.

Each time a revision is made to the Rules and Regulations, the date of the adoption of the revision will be reflected on a master copy of the document to be kept in the office of the Airport Manager.

Distribution - a copy of the most current publication of the Rules and Regulations will be provided to each new tenant upon the signing of the lease. Tenants renewing leases will also be provided a copy of the most current publication. A copy will also be posted on the bulletin board located in the airport terminal building. Copies will be provided to other interested parties, upon request at the County's rate for reproduction of printed material.

By the nature of the activity, the following parties will be provided with a copy of the revised document immediately after adoption and issuance of it.

Distribution list:
Manager of each fixed base operation (FBO)
Manager of each flight school
County Secretary, Yavapai County

SECTION 10 - SAVING CLAUSE

Should any part of these rules and regulations be held invalid, no other part shall necessarily be affected thereby.

READ, PASSED, AND ADOPTED, the _____ day of _____, 20___

County Board of Supervisors:
Yavapai County, Arizona

County Secretary
APPROVED BEFORE ADOPTION:

County Attorney

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