1.0 Baseline Conditions

This Chapter provides an overview, or inventory, of the City of Prescott's Ernest A. Love Field (PRC). It is a compilation of all pertinent data relative to the airport including airfield conditions, operational activity, environmental conditions, and economic conditions.

For this Master Plan Update, data was collected from an array of sources. These include:

- Site visits conducted on November 15th and 16th, 2007;
- Tenant and user surveys;
- Airport operation counts and administration records;
- Tower records and FAA 5010 forms;
- PRC Airport Master Plan (January 1998);
- Prescott Airport Economic Impact Study (May 2006); and
- Other pertinent data and studies from the Federal Aviation Administration (FAA), Arizona Department of Aviation (ADOT), Yavapai County, the City of Prescott and surrounding towns.

This Chapter is categorized into the following sections:

- Section 1 – Ernest Love Field;
- Section 2 – Operational Activity;
- Section 3 – Existing Facility Conditions;
- Section 4 – Airspace, Approaches and Air Traffic Control;
- Section 5 – Environmental Conditions; and
- Section 6 – Socio-Economic Conditions.

The collected data and the subsequent analysis provided in this chapter will be utilized throughout the master planning process to assess the current growth, forecast the future needs of PRC Airport, provide recommendations to stimulate new traffic and economic growth, and present an updated Master Plan and Airport Layout Plan (ALP) for the Airport.

1.1 Introduction to Ernest Love Field

The airport serves both the commercial and multi-faceted general aviation needs for the area, including the City of Prescott, Yavapai County and residents of the local Yavapai Reservation. Additionally, PRC serves as the flight training base for Embry-Riddle Aeronautical University.

PRC is classified by the FAA as a Class II Commercial Service public use airport, and is owned by the City of Prescott.

1.1.1 Airport Property and Vicinity

PRC is situated on approximately 760 acres of land located in the West-Central region of Arizona in Yavapai County, and is centrally located approximately 7 miles between the City of

Prescott, and the towns of Chino Valley and Prescott Valley. PRC's current surveyed elevation is 5,045 feet above Mean Sean Level (MSL).

PRC is accessible to I-40 via direct access from State Route 89. Access to I-17 from PRC is available via SR 89A.

Figures 1.1, Location Map, 1.2, Vicinity Map, and 1.3 Airport Layout provide the location and general layout of PRC.

1.1.2 Prescott Municipal Airport History

On July 4, 1926 the Yavapai County Chamber of Commerce celebrated the opening of an airstrip built by volunteers and pilots at the site of Prescott Municipal Airport. In 1928 the first City-owned hangar was built. In the same year on August 28th, the airport was renamed Ernest A. Love Field in honor of Ernest A. Love, First Lieutenant, United States Army Air Service. First Lieutenant Love was raised in Prescott and later served in World War I as an early Army Aviator. Love was shot down near Verdun, France on September 16, 1918 and died of his wounds shortly thereafter.

In 1934, aviation enthusiasts formed the Prescott Flying Club using an old boxcar as their terminal. Until the late 1930s the airport was primarily used for civilian pilot training.

In 1940, the Work Program Administration paved two dirt intersecting runways, and by 1941 the airport acreage had expanded to one square-mile with an operating budget of $2,000. The City of Prescott assumed management of the airport in 1942. Subsequently, the City built a second hangar, remodeled the airport, and added much-needed lighting.

By the end of 1943, three flight training schools were operating on the airport: Stinson Flying Corporation, Monrovia Flying Service and Colbach Flying Service.

The Civil Aeronautic Administration (CAA), the precursor of the FAA, established a Flight Service Station and an Air Traffic Control Tower at PRC in 1944. Additionally the U.S. Weather Bureau began its tenure at the airport along with U.S. Navy cadet training.

Air service from Prescott to Phoenix was established in 1946 with the introduction of Arizona Airways, and in the following years TWA, Frontier Airlines, Cochise Airlines and Bonanza Airlines all have offered commercial air service.

In the 1950's, several significant capital improvements took place: a 1,615 ft extension to Runway 3-21; expansion of the terminal facility; construction of a new parallel taxiway; and water system improvements.

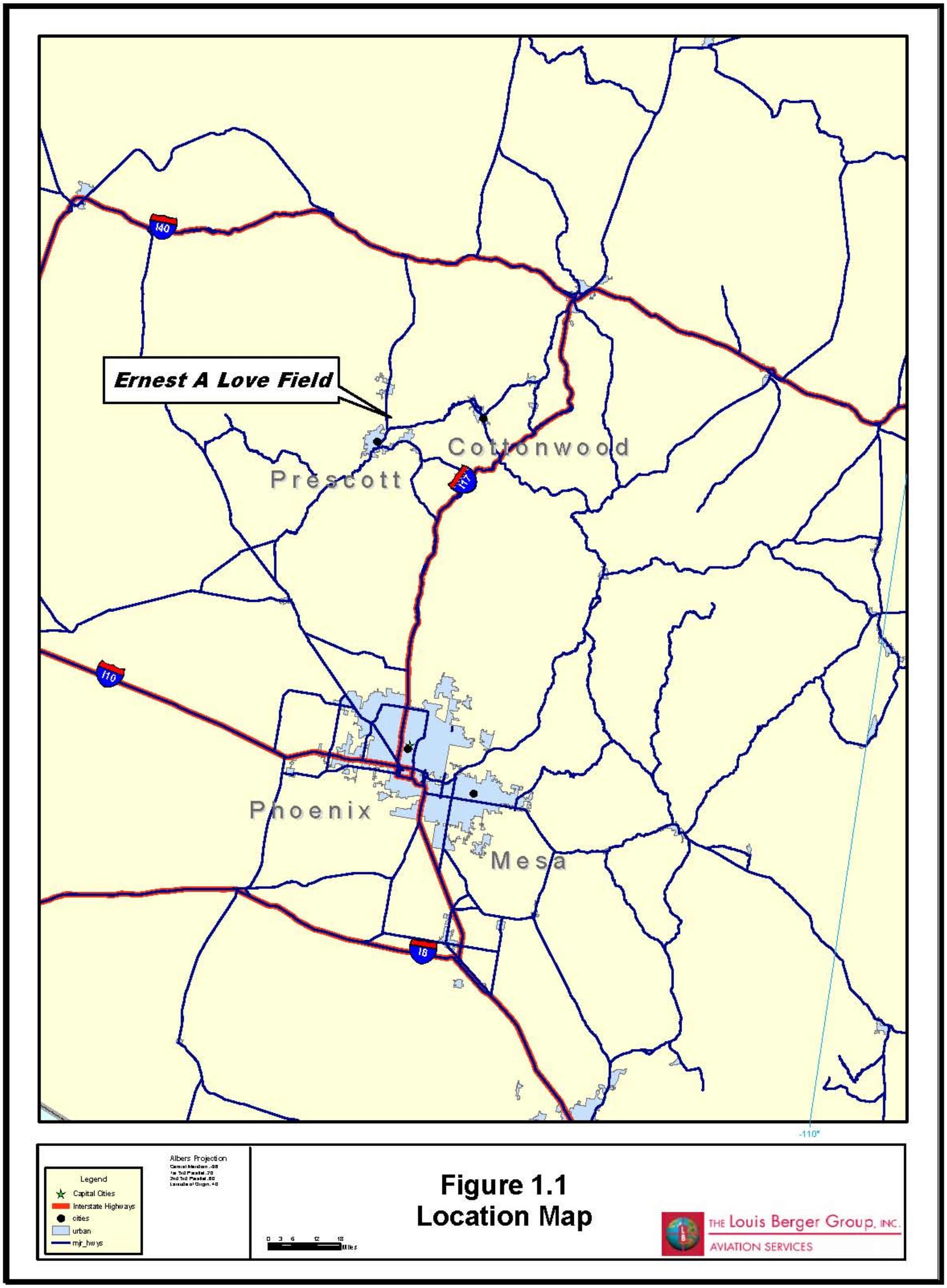


Figure 1.1
Location Map

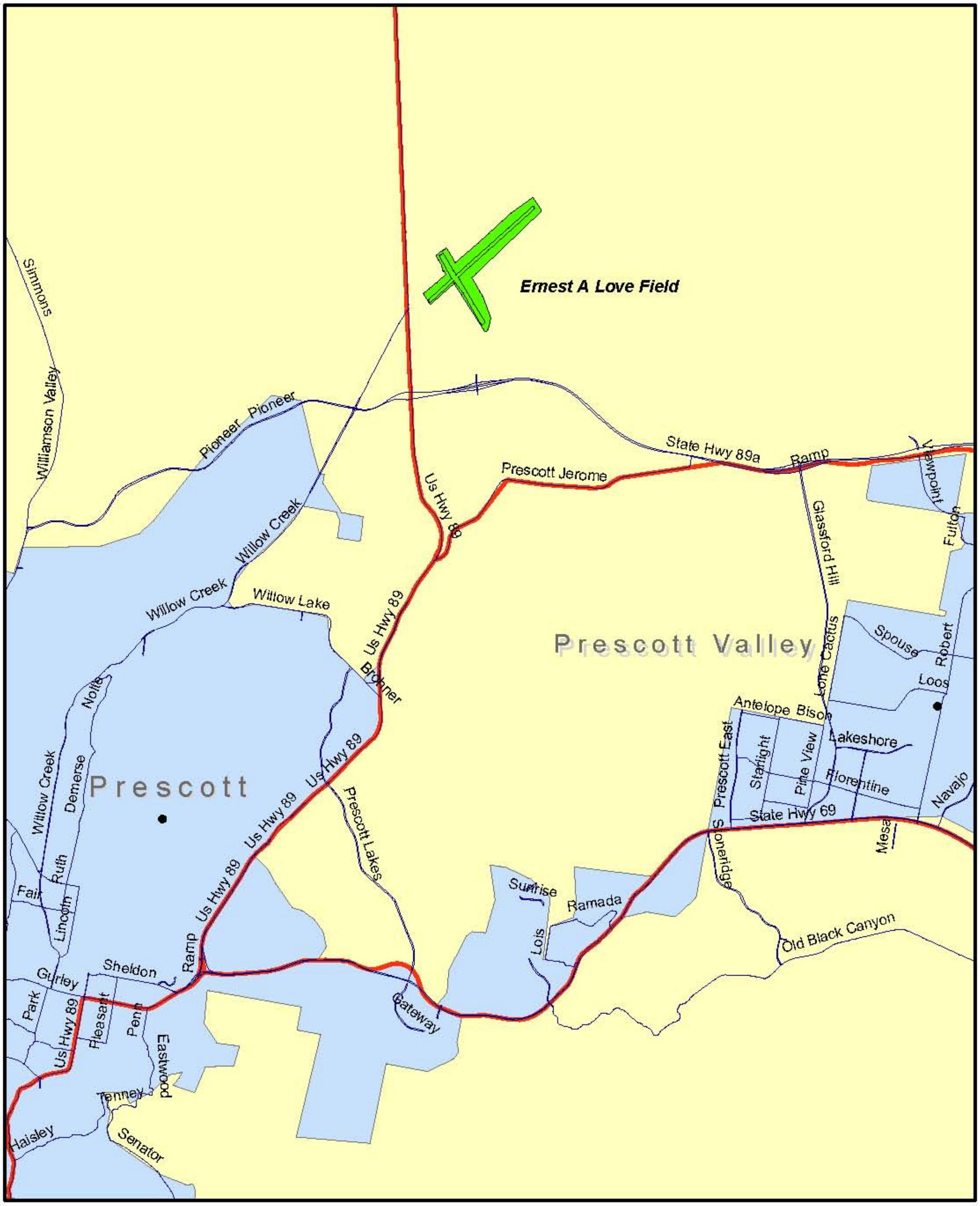
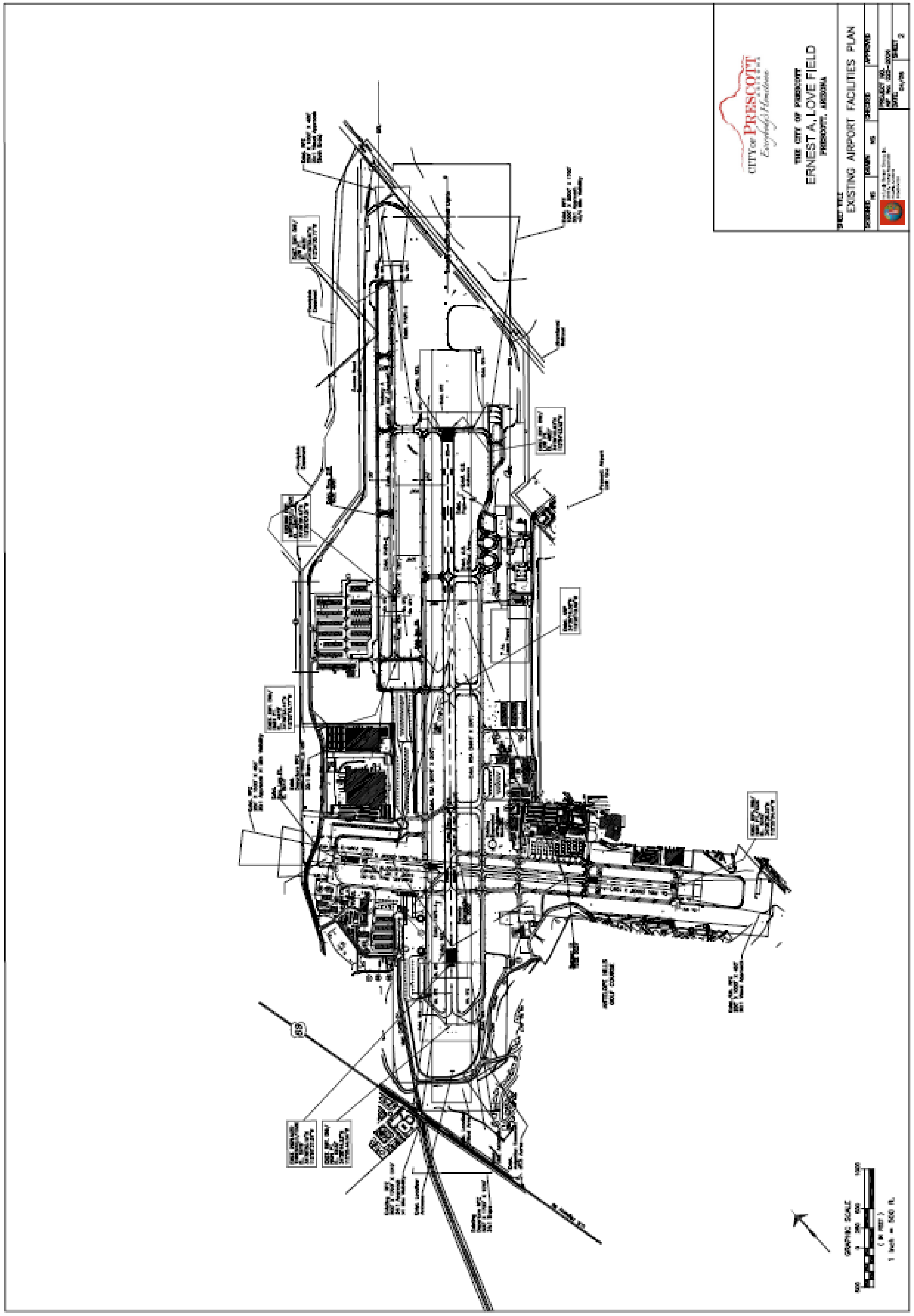


Figure 1.2
Ernest A Love Field Vicinity Map

THE Louis Berger Group, INC.
AVIATION SERVICES GROUP

FIGURE 1.3 – EXISTING AIRPORT LAYOUT



In 1959, 13 aircraft were based at the airport, and by 1971 more than 100 aircraft were based at PRC. In the 1970's, several major improvements occurred at the airport:

- Construction of a new Flight Service Station (FSS);
- Construction of a new 6,400 square feet terminal facility;
- Construction of Hangars A, B, C, and D;
- Development of T-hangars and shaded aircraft parking;
- Reconstruction of Runway 3-21;
- Acquisition of additional land; and
- Construction of additional apron space.

In the latter part of the 1970's Medium Intensity Runway Lighting System (MIRLs), Medium Intensity Taxiway Lighting (MITLs), and the Visual Approach Slope Indicator (VASIs) were all installed.

Another significant change at the airport was the establishment of flight instruction at PRC by Embry-Riddle Aeronautical University (ERAU) between 1977 and 1978, which continues to this day.

In the 1980's, an additional hangar was constructed and the U.S. Forest Service facility was completed on Melville Road.

In the 1990's, Runway 3L-21R was constructed, taxiway connectors were resurfaced, and the MIRLs and Precision Approach Path Indicators (PAPIs) were installed. By 1995, 265 aircraft were based at PRC and in 1999 airfield operations grew to more than 350,000.

By 2003, 17 hangars had been built, aircraft fuel sales exceeded one million gallons and plans were made to facilitate additional growth.

1.1.3 Previous Airport Planning, Development and Improvements Review

Master plans were previously completed for PRC in 1986 and 1998. The last FAA approved ALP on record for PRC is dated May 2000.

Other recent studies relevant to this Master Plan Update are:

- Prescott Municipal Airport Runway Safety Area Standards Evaluation (June, 2005);

- Ernest A. Love Field Pavement Management Report (January, 2007); and

- Prescott Airport Economic Impact Study (May, 2006).

Table 1.1 identifies the FAA funded improvements made at PRC between 1982 and 2006, the years for which FAA Grant History data is available.

Table 1.1
Airport Improvement Projects (1982-2006)

Year	Project Description	FAA Funds
1982	Land Acquisition for Approaches	$169,785
1983	Rehabilitate Aprons & Taxiway	$740,300
1984	Expansion of Runway & Aprons	$729,075
1985	Conduct Airport Master Plan Study	$80,098
1987	Improve Access Road	$369,532
1988	Construct New Apron, Terminal Building, & Taxiway	$650,000
1989	Acquire Security Equipment, Install Guidance Signs, Expand Apron, Land Acquisition for Development, Acquisition of ARFF Equipment, Construct New Taxiway	$904,956
1989	Conduct Airport Master Plan Study	$49,916
1990	Land Acquisition & Construct New Taxiway	$1,303,216
1991	Construct New Runways & Taxiway, Land Acquisition for Development & Approaches	$3,107,981
1992	Construct New Runway & Taxiway, Improve Airport Drainage	$4,481,727
1993	Rehabilitate Apron & Taxiway, Install Runway Vertical/Visual Guidance System	$809,952
1994	Rehabilitate Runway & Taxiway Lighting, Install Apron Lighting, & Construct Taxiway	$989,473
1995	Rehabilitate Runway & Land Acquisition for Approaches	$615,412
1996	Expand Apron	$383,697
1997	Rehabilitate Taxiway & Expand Apron	$467,887
1998	Improve Runway Safety Area	$500,000
2000	Acquire ARFF Equipment & Install Runway Vertical/Visual Guidance System	$374,107
2001	Improve Service Road & Improve Runway Safety Area	$1,585,250
2002	Improve Access Road	$150,000
2003	Conduct Environmental Study	$91,060
2004	Install Perimeter Fencing & Improve Runway Safety Area	$748,805
2005	Rehabilitate Taxiway Lighting & Improve Runway Safety Area	$872,114
2006	Update Airport Master Plan Study	$185,000
	Total:	**$20,356,343**

Source: FAA Grant History

1.2 Operational Activity

This section provides an overview of historical and current aircraft activity at PRC. In the forecast effort for this Master Plan Update, this information will be supplemented with other data to develop projected airport activity for a twenty-year planning period. Data sources for this section include City of Prescott records, FAA records, previous master planning efforts and other studies, and discussions with local officials.

The FAA distinguishes airport operations between local an itinerant and are further subdivided as follows:

- **Local Operations**: Generally, operations occurring within sight of the airport or 20 nautical miles; these are typically training operations. Local Operations are subdivided into two classes:
    - **Civil:** All operations other than military operations; and
    - **Military:** All operations performed by the military (ANG, USMA, etc.).

- **Itinerant Operations**: All aircraft operations other than local operations. Itinerant Operations are subdivided into three classes:
    - **Air Taxi:** Scheduled and non-scheduled passenger service;
    - **General Aviation:** Includes aircraft used for personal, recreational, or business use; and
    - **Military:** All operations performed by the military (Air National Guard, United States Military Academy, etc.).

Tables 1.2 and **1.3** identify the total number of operations at PRC between 1976 and 2007 and the percentage difference between itinerant and local operations.

Table 1.2
PRC Historic Aviation Activity (1976-2007)

Year	Total Operations		Year	Total Operations		Year	Total Operations
1976	58,700		1987	206,641		1998	335,392
1977	58,644		1988	238,102		1999	354,844
1978	131,480		1989	251,729		2000	329,862
1979	178,076		1990	287,736		2001	317,521
1980	229,326		1991	273,179		2002	337,362
1981	240,260		1992	285,914		2003	310,360
1982	237,326		1993	251,560		2004	299,481
1983	216,230		1994	296,758		2005	236,230
1984	216,230		1995	347,721		2006	227,541
1985	6,605		1996	346,295		2007	231,285
1986	163,964		1997	348,441			

Source: FAA Terminal Area Forecast

Table 1.3
PRC Historic Percentage of Itinerant vs. Local Operations (1996-2007)

Year	Itinerant Operations	Percentage of Operations	Local Operations	Percentage of Operations
1996	114,366	33%	231,929	67%
1997	113,363	33%	235,078	67%
1998	114,597	34%	220,795	66%
1999	122,999	35%	231,845	65%
2000	117,476	36%	212,386	64%
2001	112,600	35%	204,921	65%
2002	111,091	33%	226,271	67%
2003	99,904	32%	210,456	68%
2004	104,724	35%	194,757	65%
2005	85,785	36%	150,445	64%
2006	84,529	37%	143,012	63%
2007	85,785	37%	145,500	63%

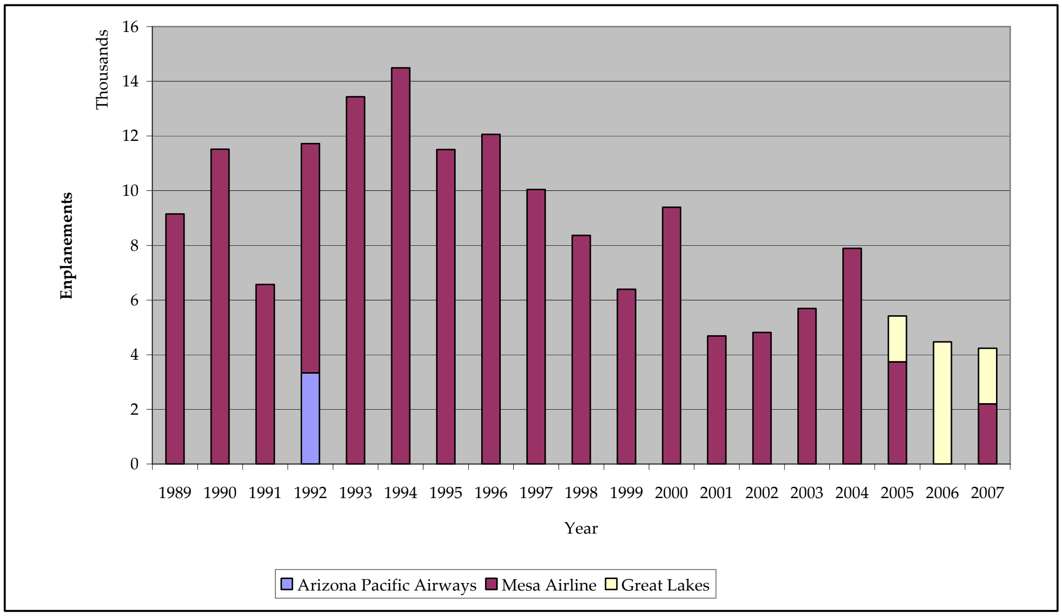
Source: FAA Terminal Area Forecast

Over the last 10 years more than 60% of operations at PCR have been local, highlighting the contribution of flight training operations to the airport.

Airline service is currently offered by Horizon Air and Great Lakes Airline, which operates under the provisions of a Essential Air Service (EAS) contract. The EAS is a program operated by the U.S. Department of Transportation that provides subsidies to airlines which agree to provide service on historically non-profitable routes to rural areas. In order to qualify for the EAS program, communities who want air service must submit a proposal package to USDOT, and approved airlines can then bid on the contract.

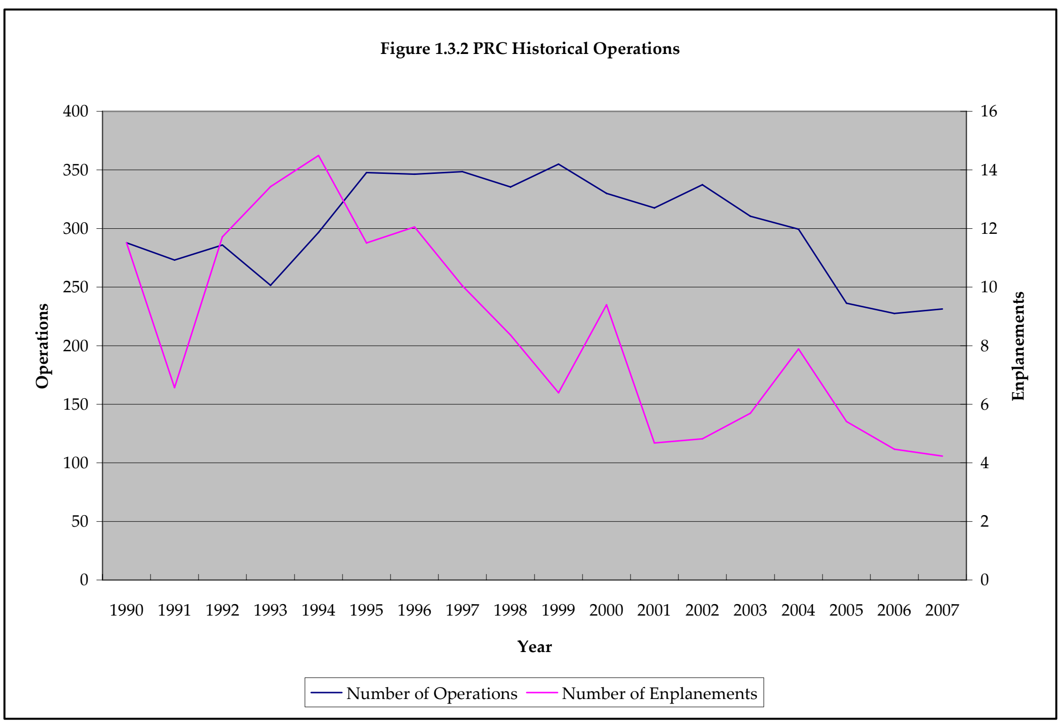
Figure 1.4 provides a summary of airline enplanements, and **Figure 1.5** provides a summary of aviation activity at PRC from 1990 to 2007.

Figure 1.4
PRC Airline Enplanements (1989 – 2007)



Source: FAA TAF & Airport Administration Records

Figure 1.5
PRC Historical Operations (1989 – 2007)



Source: FAA TAF &Airport Administration Records

1.2.1 Based Aircraft

Based aircraft are defined as non-transient aircraft that either hangar or tie down at the airport. These aircraft are one of the biggest factors in planning for future facility needs. The number of based aircraft correlates to the operational demands they place on airport facilities such as runways, taxiways, lighting and navigational/visual aids. Additionally, they directly relate to ground facilities, such as hangar storage, fueling facilities, and aircraft service and repair needs.

Based aircraft data for PRC was collected from the FAA Terminal Area Forecast (TAF) and FAA 5010 Form. **Table 1.5** identifies the based aircraft for each aircraft category dating from 1976.

Table 1.5
PRC Based Aircraft (1996-2007)

Year	Based Aircraft		Year	Based Aircraft
1996	258		2002	335
1997	290		2003	347
1998	290		2004	335
1999	312		2005	349
2000	312		2006	340
2001	312		2007	330

Source: FAA TAF & Airport Administration Records

Airport administration has indicated that in 2007 there were 337 people on a waiting list for non-commercial hangar space and shades and 34 for large hangar space at the airport. The first waiting list consists of 104 people that currently occupy a hangar or a shade and would like to upgrade to a newer or larger facility; 111 people that have requested to remain on the list but do not have an immediate need for hangar space; and 122 are currently waiting for available hangar space.

The current based aircraft fleet mix at PRC is identified in **Table 1.6**, as reported in the FAA Form 5010. This fleet mix includes 300 single-engine aircraft, 26 twin-engine aircraft, 2 jets, and 10 helicopters.

Table 1.6
Based Aircraft Fleet Mix Percentage (2007)

Aircraft Type	Number of Based Aircraft	Percentage of Total Aircraft
Single Engine	277	85.2%
Twin Engine	23	7.1%
Jet	8	2.4%
Helicopters	16	5.0%
Ultra-Light	1	0.3%
Total	**325**	**100%**

Source: FAA Form 5010, July 23, 2008

1.2.2 Flight Training Activity

Historically PRC has been intensively used for flight training operations. Today, flight training operations account for more than 70% of daily operations. **Table 1.7** provides a list of the current flight training schools and other operational details.

Table 1.7
PRC Flight Training Activity (2007)

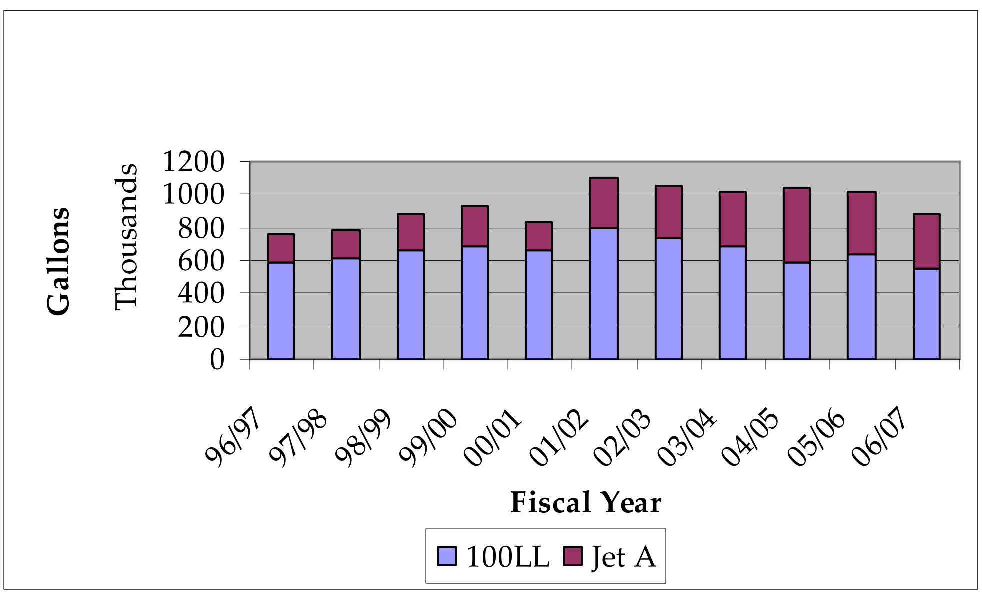
School	Number of Students	Number of Aircraft & Helicopters
Embry-Riddle Aeronautical University	600	30
Guidance Helicopters, Inc.	75	9
North-Aire Aviation, LLC.	100	11
Skyschool, Inc.	50	8

Source: FAA

1.2.3 Fuel Sale Activity

Fueling operations are currently conducted by Legend Aviation Fixed Base Operator (FBO). **Figure 1.6** provides a graphical summary of the annual fuel sale activity between 1996 and 2007 fiscal years.

Figure 1.6
Fuel Sale Activity (1996-2007)



Source: Airport Administration Records

1.3 Existing Facility Conditions

A complete inventory of the airport facilities at PRC was conducted, including airfield pavement, lighting and navigational aids (NAVAIDS); airport terminal and structures; airport access and parking; airport equipment; and airspace and approaches.

The conditions reported here are based upon a review of airport plans, reports and discussions with airport staff.

Basic guidelines for airport design are set forth in the FAA's Advisory Circular (AC) 150/5300-13, Airport Design. Each airport can be classified based on the aircraft which it is designed to serve using the Airport Reference Code (ARC). The ARC is established by two separate factors: Approach Category which group aircraft based on approach speed; and Design Group which group aircraft based on wingspan.

Aircraft approach categories are defined 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; and
- Category E: Speed 166 knots or more.

Airplane design groups are defined as follows:

- Group I: Up to but not including 49 feet (with a subcategory for small aircraft);
- Group II: 49 feet or more, but less than 79 feet;
- Group III: 79 feet or more, but less than 118 feet;
- Group IV: 118 feet or more, but less than 171 feet;
- Group V: 171 feet or more, but less than 214 feet; and
- Group VI: 214 feet or more, but less than 262 feet.

Operations at PRC are characterized mostly by single and twin-engine piston aircraft activity. **Table 1.8** identifies the ARC for each runway at PRC.

Table 1.8
PRC Runway Classification by ARC

Runway	3R-21L	3L-21R	12-30
ARC	C-III	B-I	B-II

Source: Airport Administration, FAA A/C 150/5300-13

As a part of this planning effort, the airport's designation will be reassessed to ensure its accuracy.

1.3.1 Airfield Pavement

PRC has three runways, designated as 12/30, 3R/21L and 3L/21R. Each runway is identified on the existing ALP in Figure 1.2. Runways are numbered based on their magnetic heading, to the nearest 10 degrees, and by removing the final "0". For example, if an aircraft is on the end of the runway labeled "12" facing the "30" end, the magnetic compass for that aircraft should read 120°. Therefore, the difference in runway numbers will always be 18, or 180°. For aviation purposes, North is considered 360°, East is 90°, South is 180°, and West is 270°.

Table 1.9 summarizes the primary characteristics of each runway at PRC.

Table 1.9
Summary of Runway Characteristics

	Runway 3L-21R	Runway 3R-21L	Runway 12-30
Length	4,862	7,616	4,408
Width	60	150	75
Material	Asphalt	Asphalt	Asphalt
Strength*	12,500 lbs. (S)	60,000 lbs. (S) 80,000 lbs. (D)	12,500 lbs. (S)
Lighting	MIRL	MIRL	MIRL
Markings	Visual / Visual	Non-Precision / Precision	Non-Precision / Visual
Visual Aids	PAPI – 2 (Both)	ILS (21L) PAPI – 4 (Both) REIL	VORTAC PAPI – 2 (Both)
RSA	5,342 x 120 ft.	9,616 x 500 ft.	5,008 x 150 ft.
RPZ	250 x 1,000 x 450 ft.	500 x 1,700 x 1,010 ft.	250 x 1,000 x 450 ft.
Approach Slope	20:1 / 20:1	34:1 / 50:1	34:1 / 20:1

Acronyms: MIRLS – Medium Intensity Runway Lighting System; REIL – Runway End Identification Lights; RSA – Runway Safety Area; VASI – Visual Approach Slope Indicator; PAPI – Precision Approach Path Indicator; ILS – Instrument Landing System
***Pavement strengths are expressed in Single (S), Dual (D), and/or Dual Tandem (DT) wheel loading capacity
Source: The Louis Berger Group, 1998 Airport Master Plan, & Airport Administration

The purpose of an airport's taxiways system is to provide aircraft access to runways, ramps and aprons. At PRC, taxiways are typically 40 to 50 feet wide, with the exception of Taxiway A, which is 35 feet wide, and are equipped with either Light-Emitting Diode (LED) or Medium Intensity Taxiway Lights (MITLS). **Table 1.10** provides a detailed summary of the major taxiways at PRC.

Table 1.10
Summary of Taxiway Characteristics

	A	C	D	F	E
Dimensions	25 x 5,100	40 x 6,500	50 x 7,500	40 x 1,300	40 x 1,300
Type	Parallel to 3L/21R	Parallel to 3R/21L	Parallel to 3R/21L	Parallel to 12/30	Parallel to 12/30
Runway Centerline Separation	200 lf	325 lf	400 lf	200 lf	200 lf
Material	AC	AAC	AC	AC	AC
Lighting	MITLS	MITLS	LED	LED/MITLS*	Reflectors
Acronyms: MITLS – Medium Intensity Taxiway Lighting System; AC – Asphalt Concrete; AAC – Asphalt Overlay on AC; LED are installed only from F3 to Taxiway D					

Source: The Louis Berger Group, 1998 Airport Master Plan, & Pavement Management Report (2006)

Aircraft aprons at PRC are accessed from the taxiways and are used for maneuvering, parking, and servicing of aircraft. PRC has five airport apron areas. Two defined aprons are located within the South Apron, with one in the North Apron, Apron-02 east on Runway 12 end, and Apron-04 in the southern corner of the field. All aprons are shown in **Figure 1.7 – PRC Apron Map**.

The aircraft aprons are of varied sizes, and are a combined 125,280 square yards in size. Two additional aprons are privately owned. **Table 1.11** provides additional apron inventory details.

Table 1.11
Summary of Apron Characteristics

	South Apron	Terminal Ramp	Commercial Terminal Apron	West Ramp	North Ramp	Clubhouse Ramp
Dimensions	1,200x200 ft.	400x300 ft.	300x300 ft.	950x150 ft.	1,550x300 ft	200x200 ft
True Area	240,000 ft^2	120,000 ft^2	90,000 ft^2	142,500 ft^2	495,000 ft^2	40,000 ft^2
Material	AC	AC	AC	AC	AC	AC

Source: The Louis Berger Group, 1998 Airport Master Plan, & Pavement Management Report (2006)

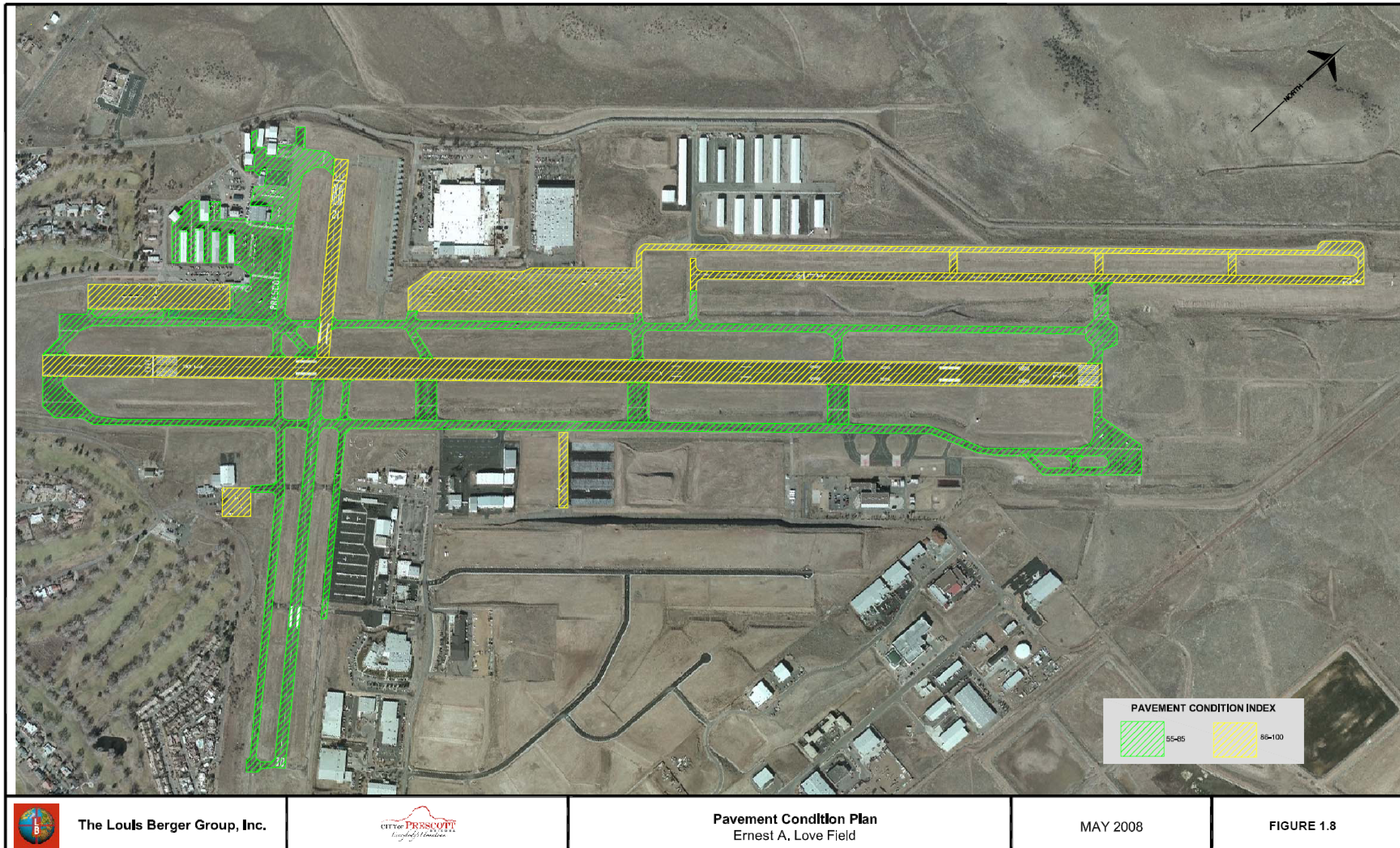
Pavement History and Condition Plan

Figure 1.8 – Pavement Condition provides a graphical representation the runways, taxiways, and aprons at PRC. This figure also provides the pavement rating.

FIGURE 1.7 – PRC APRONS

The Louis Berger Group, Inc.	CITY OF PRESCOTT ARIZONA Everybody's Hometown	**Aircraft Parking Aprons** Ernest A. Love Field	MAY 2008	FIGURE 1.7 DRAFT

FIGURE 1.8 – PAVEMENT CONDITION



Using the Pavement Surface Evaluation and Rating (PASER) system established by the FAA, pavement ratings were established for the airside pavement at PRC. PASER uses visual inspection to evaluate pavement surface conditions for four major categories of pavement surface distress:

- Surface defects: loss of pavement, loss of pavement grooving, or excess asphalt caused by poor mix design;
- Surface deformation: ruts, pavement distortion;
- Cracks: includes but is not limited to thermal cracking, edge and joint cracks, and alligator cracks; and
- Patches and potholes: original surface repairs and pavement holes.

Based up on the results of the visual inspection, each pavement area is given a rating from 1-5, which is further described as follows:

- Rating 5 – Excellent: No maintenance is required;
- Rating 4 – Good: Minor routine maintenance, crack sealing as needed;
- Rating 3 – Fair: Preservative treatments, crack sealing and surface treatment is necessary;
- Rating 2 – Poor: Structural improvement and leveling is needed; and
- Rating 1 – Failed: Reconstruction is necessary.

1.3.2 Utilities, NAVAIDS and Lighting

Utilities

The following is a summary of the utilities serving PRC. Information on utilities was obtained from a review of airport files, on-site investigation, and discussions with airport personnel.

Electric Service

Electric power is provided to the airport from Arizona Public Service (APS) through a 69 kV transmission line. Service to airport buildings are through underground cables from the utility poles. The electrical vault, which controls the airfield lighting and houses the airport’s generator, is located to the south corner of the field.

Water Service

The City of Prescott water service area is located within the Prescott Active Management Area (AMA). The main water supply comes from six production wells that tap into the Little Chino Sub-basin of the Prescott AMA, approximately 15 miles north of the Prescott City limits. Water is transported into the City via three transmission lines, including a 36" high-pressure main. The airport receives its water supply from an 8-inch water main. Approximately 460-3,100 gallons per minute of water per day were produced in 2004 at the well field. The water meets all applicable EPA standards.

Sanitary Sewer

Sewer service is provided by the City of Prescott. Sewage pipes that service the terminal and hangar facilities flow into the City sewage system, which is then treated at the Wastewater Treatment plant.

NAVAIDS

Navigational Aids, or NAVAIDS, are electronic facilities providing enroute or approach guidance information. They are used by pilots to navigate to and from an airport. NAVAIDS are generally used in concert with airport runway lighting and visual aids (such as approach lights, VASI's, etc.) which provide visual cues and orientation to the pilot.

PRC approaches are supported by four different kinds of NAVAIDS:

- Localizer (LOC);
- Very High Frequency Omni-Directional Range (VOR);
- Global Positioning System (GPS) approach (RNAV); and
- ILS/DME.

This section describes the types of NAVAIDS available at PRC, with a summary of the approaches provided later in the section.

Localizer (LOC)

A localizer provides horizontal alignment for approaches to R/W 21. Since a localizer alone cannot provide vertical alignment data, it is typically installed in conjunction with a glide slope (GS) to form an instrument landing system (ILS). That provides a precision approach. With the support of GS, the R/W 21 approach at PRC is identified as a precision approach. The LOC is on a frequency of 108.5 MHz and is identified by the Morse code of K-PRC.

Very High Frequency Omni-Directional Range (VOR)

The VOR provide pilots with bearing and distance (VOR/DME) information to/from the station. They are used to define a system of airways which helps pilots navigate from point to point. It can also be used in non-precision approaches by the pilot flying to/from the station directly over the airport. The VOR located about 1.5 nautical miles northwest of the airport provides guidance for the non-precision approach to R/W 12.

Global Positioning System (GPS) Approach (RNAV)

Global Positioning System (GPS) is one of the more recent developments in air navigation technology and is widely implemented. GPS works on a system of 24 satellites in orbit above the earth. A receiver in the plane accepts signals from multiple satellites and calculates its position and altitude based on the distance from each satellite. GPS technology (when not supported by ground-based error correction stations) has been approved for enroute navigation and non-precision approaches. GPS technology is available on R/W 12 and GPS/RNAV on R/W 21L.

Instrument Landing System (ILS)

Instrument Landing System (ILS) provides aircraft with precision vertical and horizontal navigation guidance information during approach and landing. The localizer generates and radiates signals to provide final approach azimuth navigation information to landing aircraft. The antenna sends 90-HZ and 150-HZ signals that the aircraft instruments determine as left and right of the centerline. The aircraft interprets the signal and displays them on the cockpit indicator guiding the pilot until the runway is in sight. In a similar manner as the localizer (just turned 90 degrees on axis), the glide slope sends two frequencies that aircraft instruments determine as above or below the desired glideslope. This is approximately three degrees to the horizon, which gives the aircraft a descent of approximately 500 feet per minute. The ILS for precision approach is available on R/W 21.

Lighting Systems

Lighting and visual aids are intended to help pilots when within site of the airport. This section identifies the lighting and visual aids on airport property, and a complete list is provided in **Table 1.12**.

Table 1.12
Summary of Runway Lighting Systems

Runway	PAPI (P2L)	PAPI (P4L)	REIL	MALSR	MIRL
3R	NO	YES	YES	NO	YES
21L	NO	YES	YES	YES	YES
3L	YES	NO	NO	NO	YES
21R	YES	NO	NO	NO	YES
12	YES	NO	YES	NO	YES
30	YES	NO	YES	NO	YES

Source: FAA FSS, Airport Administration, Site Inspection

All three runways are equipped with Medium Intensity Runway Lighting (MIRL) outlining each runway with white lights.

Runways 3R, 12, 21L and 30 are equipped with Runway End Identification Light Systems (REIL) providing a circle guidance and visual identification of the end of the runway for landing aircraft. The system consists of two omni-directional flashing light assemblies.

Runways 3R and 21L are equipped with identical 4-light unit Precision Approach Path Indicators (PAPI) located to the left of each runway. Runways 3L, 21R, 12 and 30 are equipped with identical 2-light unit Precision Approach Path Indicators (PAPI) to the left of each runway. PAPI primarily assist pilots by providing visual glide slope guidance in a non-precision approach environment. Light combinations of red and white indicate when an aircraft is slightly high, significantly high, slightly low and significantly low so that the pilot may adjust the approach accordingly.

Runway 21L is equipped with Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR). It is a medium approach intensity lighting system (ALS) installed in airport runway approach zones along the extended centerline of the runway. The MALSR, consisting of a combination of threshold lamps, steady burning light bars and flashers, provides visual information to pilots on runway alignment, height perception, role guidance, and horizontal references for Category I weather conditions.

The airfield lights are activated by remote control by pilots “clicking” their microphone button to the CTAF frequency for primary runway and on frequency 128.75 to activate Medium Intensity Runway Lighting (MIRL) on Runway 12-30.

1.3.3 Prescott Municipal Airport Access and Parking

PRC is accessible via S.R. 89 at MacCurdy Drive. Airport traffic enters or exits the airport using Airport Drive. This road is marked by the intersection of Mac Curdy Drive (U.S. 89) and Willow Creek Road. Airport Drive becomes MacCurdy Drive, which leads to the terminal complex, airport administration building and other airport-related business.

Ruger Road provides access to the North Ramp and Hangar users. The FSS, ATCT and ERAU complexes can be accessed only by exiting S.R. 89A on Larry Caldwell Boulevard and proceeding to Wilkinson Drive.

Identifying Airport signs are located on both highways and local roads. Airport signage should be reviewed continually to assure that signs have not been taken down and that they are adequate for locating the Airport.

Auto parking areas are located in front of and adjacent to the main terminal entrance. There are 110 parking spaces adjacent to the terminal, with four handicapped spaces next to the terminal entrance.

1.3.4 Prescott Municipal Airport Terminal, Support and Service Facilities

This section describes the landside facilities at PRC. These facilities include the terminal building complex, administrative building, fuel storage, Flight Service Station (FSS), Air Traffic Control Tower (ATCT), Aircraft Rescue Firefighting Facility (ARFF), hangars, equipment building, and other structures.

Terminal Building

The terminal building at PRC is a single level structure that was originally constructed in 1948 and expanded in 1957. Its current size is approximately 3,800 sq. ft. The terminal is located west of the intersection between Runways 3R/21L and 12/30, and is accessible via MacCurdy Drive. The main terminal building is used for commercial passenger traffic. Within the terminal is the

Transportation Security Administration (TSA) check point for luggage and passenger screening. All general aviation traffic is directed to the General Aviation Terminal.

The terminal building is currently occupied by Mesa Airline, Skyway Restaurant, North-Aire, Inc. and Hertz Rental Cars.

Terminal Building (Interior)

Terminal Building (Exterior)

Administration Building

The City of Prescott Airport Administrative building was constructed in 1973. The building is a 4,800 sq. ft. two-story structure, located west of the Terminal. The first floor is used by airport administration, while the second remains leasable.

Administration Building

Airport Services

Several businesses on the airport provide a range of services. These services include fixed wing flight training, helicopter training, helicopter tours, air-taxi, aircraft maintenance and upholstery, skydiving, and car rental. Business providing services at the airport are identified in **Table 1.13**.

Skyway Restaurant

North –Aire, Inc.

Embry-Riddle Aeronautical University

Table 1.13
Airport Services

Service Type	Business
Charter, Flight Instruction, & Rental	• Arizona Skyways Airlines • Embry-Riddle Aeronautical University • Guidance Helicopters • North-Aire, Inc.
Aircraft Repairs, Avionics, & Service Support	• Arizona Air-Craftsman/Wing Nuts • Mile High Avionics • Nostalgaire • Prescott Aircraft • Prescott Aircraft Interiors • Powell Upholstery & Aircraft Interiors • Wing Waxers – Aircraft Dealing
Airline Service	• US Airways Express (Operated by Mesa Airlines)
Fixed Base Operator (FBO)	• Legend Aviation
Ground Transportation	• Hertz (Airport Terminal) • Enterprise Rental Car (Airport Terminal)
Miscellaneous	• Antelope Hills Golf Course • Arizona Aviation Supplies • Rittaire • Susie's Skyway Restaurant

Source: Airport Administration

Fuel Storage Facility

The fuel farm is composed of four - 20,000 gallon above-ground fuel tanks. Two tanks are used for Avgas and two for Jet-A fuel. Fuel is delivered approximately three times a week during normal operations, and approximately seven times if there is a forest fire in the area.

Fuel Farm Pump Station

Fuel Farm Storage Tanks

Flight Service Station (FSS) Building and Air Traffic Control Tower (ATCT)

FSS Building and ATCT are located on the east side of the field, and are accessible from Wilkinson Drive. The tower was built in 1987 and is operated by FAA Air Traffic Controllers from 6:00 am – 10:00 pm local time. The Flight Service Station was built in 1984.

Aircraft Rescue Firefighting Facility (ARFF)

The PRC ARFF is currently located south of the Runway 3R/21L and 12/30 intersection and it is accessible from Club House Drive. Sections 315-319 of FAA Federal Aviation Regulation (FAR) Part 139 – *Certification and Operations: Land Airports Serving Certain Air Carriers* sets forth both the ARFF index and the requirements that an airport with air carrier service must meet, in terms of ARFF equipment, firefighting agents, and operational requirements. Presently, PRC is categorized as Index A, which means that the primary air carrier aircraft that serves PRC is less than 90 feet in length or aircraft of longer size with less than 5 daily operations.

Structural Vehicle **E-One Titan ARFF Vehicle**

Based upon Index A requirements, PRC is staffed with four firefighters, of which one is constantly on standby to respond to both structural and airfield emergency response needs. The facility is equipped with one E-One Titan ARFF vehicle and a structural vehicle.

Hangars and Shades

PRC offers a variety of hangar and shade areas suitable for aircraft parking and storage. **Table 1.14** is a complete summary of all City operated hangars and shades.

Shade Parking

T-Hangars

Table 1.14
PRC Hangars Inventory

Type	Identifier	Size (sq. ft.)		Type	Identifier	Size (sq. ft.
T-Hangar	A	954		T-Hangar	J	1,156
T-Hangar	B	1,195		Box	K	2,780
T-Hangar	C	985		T-Hangar	L	1,156
T-Hangar	D	1,724		T-Hangar	M	1,044
T-Hangar	F	985		T-Hangar	N	1,044
T-Hangar	G	1,127		T-Hangar	O	1,044
T-Hangar	H	1,036		Executive	P	3,900
T-Hangar	I	1,036				

Source: Airport Administration Records

Other Structures

The perimeter fence is composed of several different types of fencing: chain-link, wire, and iron bars. The chain-link fence is six feet tall supported by posts and topped with barbed wire. Currently, the fence covers 70% of the entire perimeter. Approximately 1,500 ft adjacent to the Antelope Hills Golf Course are secured with a three foot high iron bar fence and around R/W 30 the perimeter is secured by a 49 inch tall barbed wire fence or “cattle fence”.

Weather Conditions

Weather conditions can affect airfield capacity as well as volume of operations at the airport. For airport planning purposes, weather conditions are classified as either VFR or IFR conditions. Visual Flight Rules (VFR) occurs when cloud ceiling is at least 1,000 feet above ground level (AGL) and visibility is at least three statue miles. IFR conditions occur when the cloud ceiling is less than 1,000 feet AGL and visibility is less then three statue miles.

Climate Summary

As reported in the National Oceanic and Atmospheric Administration (NOAA) Technical Memorandum NWS WR-274: *Climate of Prescott, Arizona* (2007), Prescott's elevation of 5,200 feet assures a variety of weather including cool winters, warm summers, moderate humidity, and considerable daily temperature changes.

The average date of the first and last freeze (32°F) annually generally falls in the spring around May 16th (last freeze) and in the fall around October 10th (first freeze). The average annual precipitation for Prescott is 19.19 inches. Summers (June, July, and August) in Prescott have an average maximum temperature of 86.2°F. On average, only 37 days in the summer have maximum temperatures of 90°F or higher. Summer minimum temperatures are cool, with low temperatures mainly in the 50s.

The fall season averages a temperature range from 80°F during the early part of the season, 50°F by the end of the season and minimum temperatures normally falling below freezing by the middle of October.

Winter weather typically begins by November and becomes well entrenched by December, with increasingly colder weather. By December, minimum temperatures are generally in the low 20s; however, afternoon maximum temperatures still average in the 50s, due to the amount of sunshine the station receives. Spring in Prescott is typically breezy and dry with little precipitation occurring in May and early June.

There are two distinct periods of precipitation in Prescott. One occurs during the winter months from November through April when the jet-stream is located over the state, allowing moist Pacific storm systems to move over the area. The other distinct period is classified as the summer rainy season, or summer monsoon, which usually occurs during July and August when most of Arizona is subjected to widespread thunderstorm activity. These thunderstorms are extremely varied in intensity and location and occur mainly between the hours of 12 p.m. and 8 p.m.

Tables 1.15 and **1.16** provide a climate summary for Prescott AZ.

Table 1.15
PRC Weather Summary (1971 – 2000)

	Precipitation (in)		Snowfall (in)	
Month	**Normal**	**Record Max**	**Normal**	**Record Max**
January	1.58	7.79	4.1	53
February	1.87	10.59	4.6	37.50
March	1.91	7.11	5.7	34.20
April	0.76	6.90	1.5	9.80
May	0.64	2.35	0	6
June	0.40	2.46	0	0
July	2.87	8.80	0	0
August	3.28	10.51	0	0
September	2.07	10.02	0	0
October	1.28	7.82	0.20	5
November	1.25	8.68	1.40	21.30
December	1.28	6.96	2.70	46
Annual	19.19	39.47	20.40	97.4

Source: NOAA Technical Memorandum NWS WR-274

Table 1.16
PRC Temperature (°F) Summary (1971 – 2000)

Month	Record Max	Normal Max	Normal Avg	Normal Min	Record Min
January	73	50.9	37.1	23.3	-21
February	77	54.2	39.9	25.6	-12
March	81	57.9	43.8	29.7	2
April	87	65.2	50.2	35.2	11
May	97	73.8	58.3	42.8	20
June	103	84.6	67.9	51.2	25
July	105	88.3	73.4	58.5	34
August	102	85.7	71.4	57	32
September	98	80.8	65.5	50.1	26
October	92	71.4	55.3	39.1	13
November	83	59.6	44.1	28.5	-1
December	78	51.6	37.5	23.3	-9
Annual	105				-21

Source: NOAA Technical Memorandum NWS WR-274

Wind Rose

FAA Advisory Circular (A/C) 150/5300-13, *Airport Design*, states that an airport's runways should be oriented such that aircraft can take-off and land into the prevailing wind with minimal crosswind exposure. The A/C also states that a single runway, or a runway system, should provide 95% wind coverage. Thus, the goal is to achieve 95% coverage or better.

Wind coverage is calculated using a wind rose, which graphically depicts wind data collected from the National Oceanographic and Atmospheric Administration (NOAA). The wind rose is essentially a compass rose with graduated concentric circles representing wind speed. Each box in the wind rose represents a compass direction and, when filled, indicates the percentage of time wind travels in that direction at that speed.

Since prevailing wind patterns do not usually change, this master planning effort will utilize the existing wind data for PRC. The wind roses are computed based on the following three categories:

- **Visual Flight Rules (VFR) –** ceiling 1,000' and visibility three miles
- **Instrument Flight Rules (IFR)** – ceiling less than 1,000' and visibility less than three miles
- **All Weather** – VFR and IFR combined

Since aircraft characteristics and performance can vary, wind coverage data is presented for 14 and 17 knots. **Table 1.17** presents the percent All Weather Wind Coverage for each runway combined.

Table 1.17
Wind Analysis – Percent Coverage

Runway	Crosswind Speed (14 Kts)	Crosswind Speed (17 Kts)
3-21	96.35%	98.85%
12-30	92.30%	97.70%
Combined Coverage	99.20%	99.95%

Source: 1998 Master Plan and NOAA

Based on this wind data, and on the review of data provided by the National Climatic Data Center, the current runway configuration at PRC provides enough wind coverage to meet the FAA guideline of 95% all weather wind coverage. The VFR and IFR wind roses are depicted on the Airport Layout Plan.

1.4 Airspace, Approaches and Air Traffic Control

PRC is located in the Phoenix Aeronautical Chart within the Albuquerque (NM) ARTCC area of responsibility (128.5 MHz). Radar approach and departure controls are coordinated by the PRC Airport Traffic Control Tower (125.3 MHz), which operates from 6:00 am – 10:00 pm, local time. Ground communication is available on frequency 121.7 MHz.

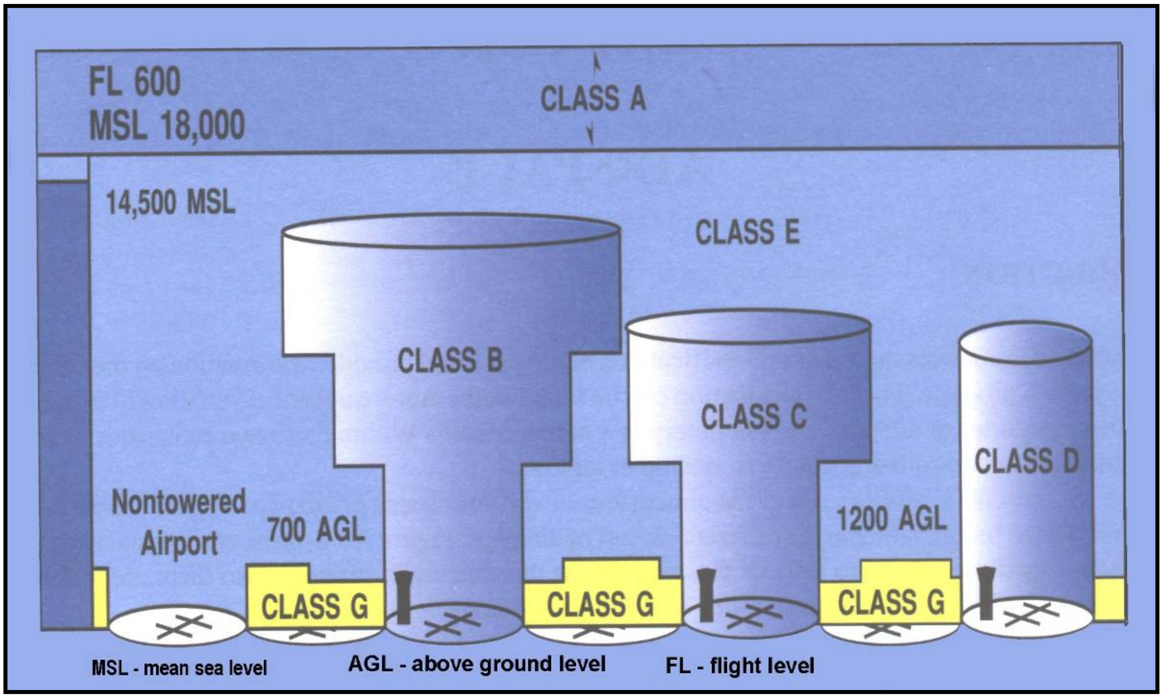
Weather, NAVAID status, and other pertinent airport information are available through the Prescott FSS on 122.4 MHz 122.2 MHz. The Airport operates as Class D airspace from 6:00 am – 10:00 pm local time and Class E 10:00 pm – 6:00 am local time.

CTAF, ATIS and UNICOM communications are transmitted respectively on 125.3 MHz, 127.2 MHz and 122.95 MHz.

1.4.1 Prescott Municipal Airport Airspace Structure

United States airspace is structured into controlled and uncontrolled areas. Controlled airspace, reclassified in 1993, is further delineated as Class A, B, C, D, or E. Uncontrolled airspace is referred to as Class G. Each class of airspace classifications is described below and identified in **Figure 1.9**.

Figure 1.9
Airspace Classifications



Source: FAA

Controlled Airspace

Class A airspace consists of that airspace from 18,000 feet above mean sea level (MSL) up to 60,000 feet MSL over the contiguous 48 states and Alaska. Only IFR flights are permitted in the Class A airspace, and aircraft must be equipped with an operable transponder – an electronic device which provides aircraft identification and performance information (e.g. altitude).

Specific airspace around major U.S. airports is protected by Class B airspace. Class B airspace typically extends from the ground to 10,000 feet above the elevation of the airport, and extends from 15 to 30 nautical miles around an airport.

Airports which have operational air traffic control towers (ATCT), are serviced by a radar approach control facility, and have a certain number of IFR operations or passenger enplanements are protected by Class C airspace. This airspace generally extends from the surface to 4,000 feet above the airport elevation for a radius of 5 nautical miles around an airport, and from 1,200 feet to 4,000 feet above the airport to out to a radius of 10 nautical miles. Airspace around any airport, at which a control tower is operating but without a designated Class B or C airspace, is classified as Class D airspace. Class D airspace generally consists of the airspace within a horizontal distance of 5 statute miles from the geographical center of an airport, and extends from the surface up to an altitude of 2,500 feet above the elevation of the airport.

Class E airspace is the controlled airspace which is not designated as Class A, B, C, or D. No special equipment is required to operate within Class E airspace.

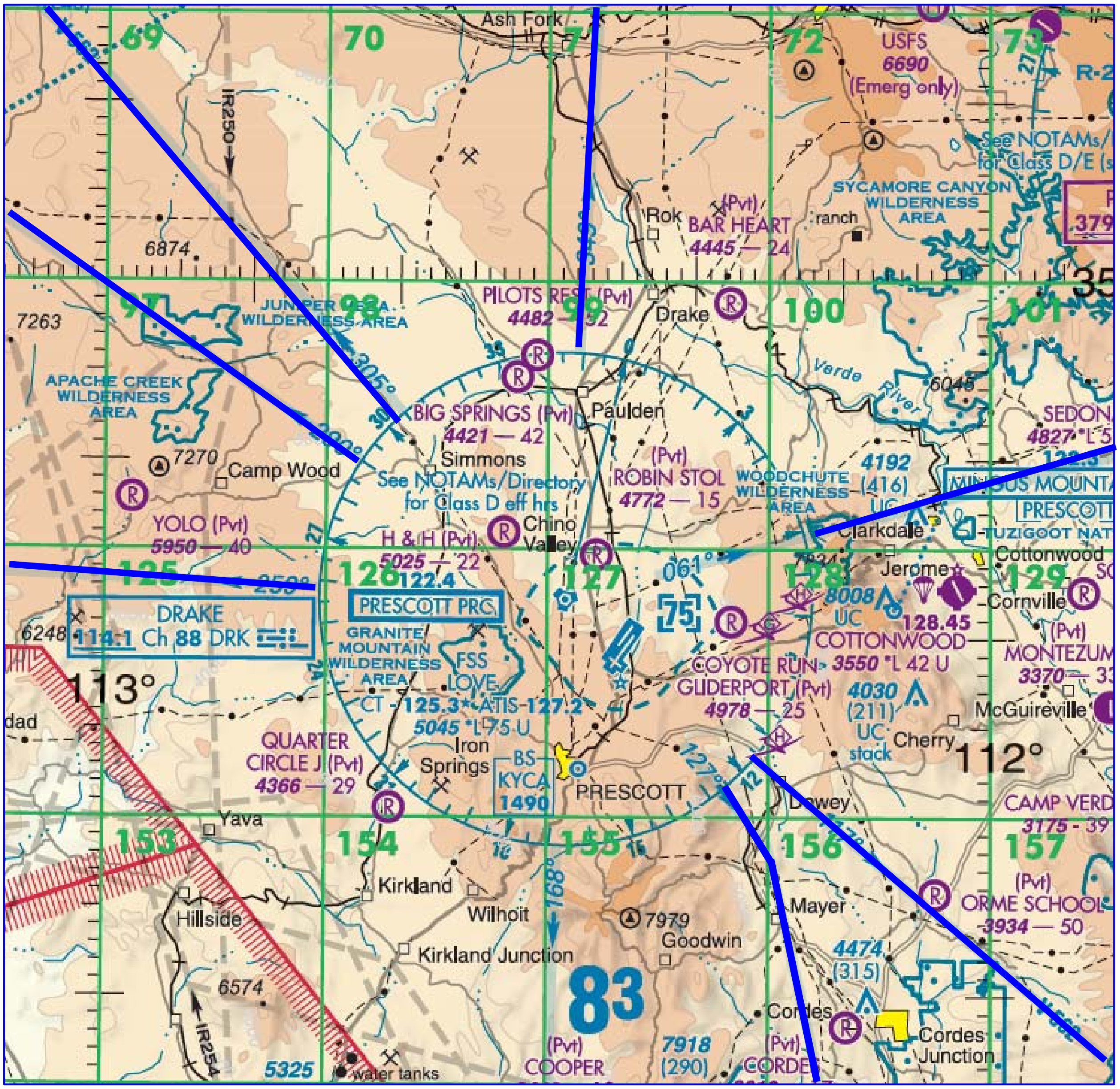
Uncontrolled Airspace

Class G airspace is that portion of the airspace that has not been designated at Class A, B, C, D, or E. No special equipment is required to operate within Class G airspace.

Victor Airways

The U.S. airspace below the Class A airspace is covered by a network of Victor airways, which connect adjacent VOR navigational aids, and provide a system of “highways” for air transportation. A VOR is a Very high Frequency Omni-directional Range, which provides line-of-sight magnetic compass bearing with an accuracy on the order of plus-minus one degree. VOR airways are usually eight nautical miles wide and extended from an altitude of 1,200 feet AGL up to the Floor of Class A airspace, 18,000 feet MLS. These airways are charted and identified (i.e. V 12, V 105, V 562, V 257, V 12-264, V 253, V 105-257) on VFR sectional Charts and IFR low-altitude enroute charts. The network of VOR’s is supplemented by lower-powered Non-Directional-Beacons, which transmit low-frequency radio signals on which a pilot can “home-in” on and fly directly to/from the station. The following **Figure 1.10** depicts the Prescott Aeronautical Section, with Victor vectors highlighted with a blue line.

Figure 1.10
PRC Aeronautical Sectional



Source: FAA

1.4.2 PRC Imaginary Surface (FAR 77) and Approach Categories

Regulations on the protection of an airport's airspace are defined by Federal Aviation Regulation (FAR) Part 77, *Objects Affecting Navigable Airspace*. Part 77 establishes a requirement for anyone proposing to build a structure near an airport to report their intentions to FAA. Additionally, it defines a series of standards used for determining obstructions to an airport's navigable airspace. This is accomplished through the establishment of a set of airport imaginary surfaces, that if penetrated represent an obstruction to air navigation. In some instances they may be also classified by FAA as a “hazard”. Airport imaginary surfaces consist of the following elements:

- **Primary Surface:** This surface is longitudinally centered on each runway and extends 200 feet beyond each runway end (if the runway is paved). The elevation of the primary surface of a given runway is the same as that of the nearest point on the runway centerline.

- **Approach Surface:** The approach surface is a trapezoidal-shaped surface that begins at the primary surface of each runway end, upwards and outwards for a prescribed slope and distance based on the type of approach (visual, non-precision, or precision).

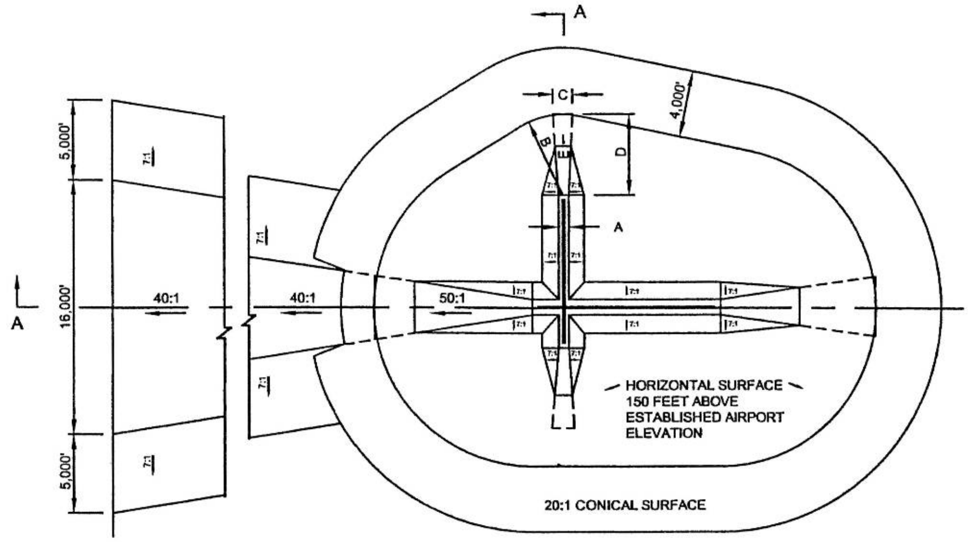
- **Transitional Surface:** This surface is a plane with a 7:1 slope (horizontal to vertical) that extends upwards, outwards, and at right angles from the primary and approach surfaces, terminating at the airport horizontal surface.

- **Horizontal Surface:** This is a horizontal plane 150 feet above the established airport elevation. This surface is defined by drawing semi-circles of a given radius from the ends of the primary surfaces. The radius of the circle is determined by the type of approach serving each runway end.

- **Conical Surface:** The conical surface is an enclosed plane that extends upward and outward from the horizontal surface at a 20:1 slope.

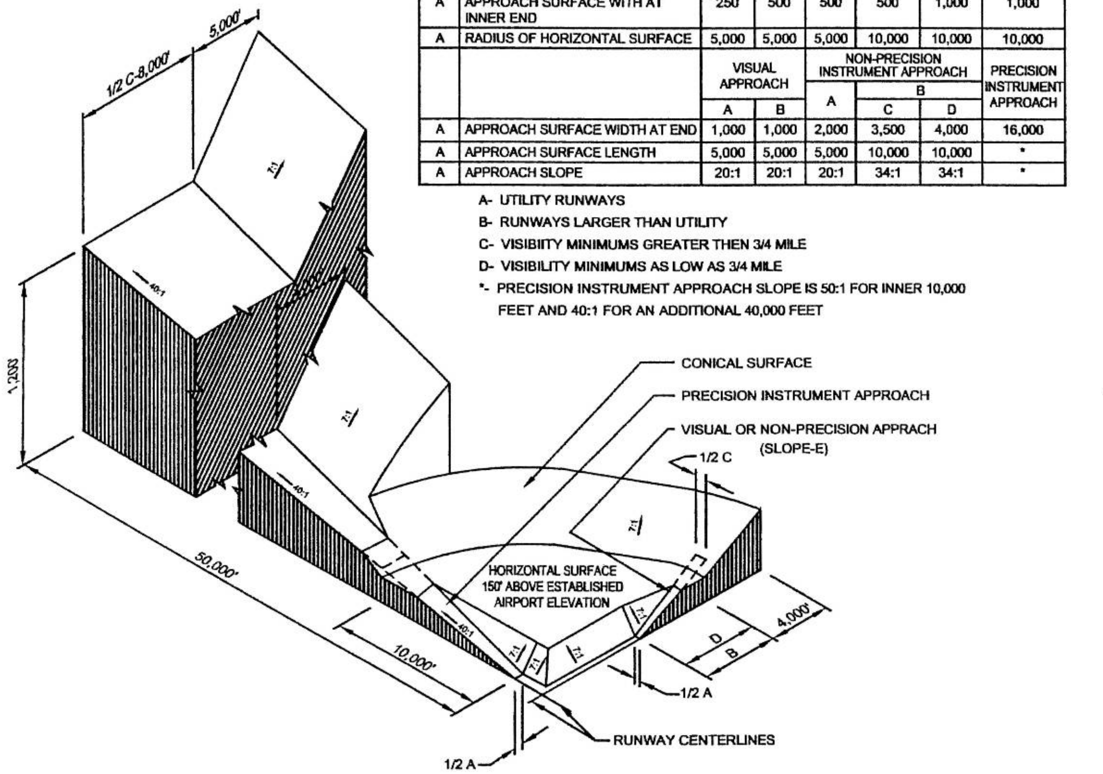
Typical FAR Part 77 surfaces are shown in **Figure 1.11** and defined later in this section.

Figure 1.11
Typical FAR Part 77 Surfaces



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

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



ISOMETRIC VIEW OF SECTION A-A

Source: FAA

All runway ends have an approach surface associated with them. This is an imaginary surface, as previously described, which no obstacles should protrude. This provides a clear area to allow a gradual descent to landing. There are three categories of approach surfaces: visual, non-precision and precision. The slope of the approach surface is based on the category. **Table 1.18** identifies the slope of each approach category.

Table 1.18

Category	Description	Slope
Visual	No instrument approach	20:1
Non-Precision	Served by a non-precision instrument approach (LOC, VOR, NDB, GPS, etc.)	34:1
Precision	Served by a precision instrument approach (ILS, GPS, CAT I, etc.)	50:1
Acronyms: LOC – Localizer; VOR – VHF Omni-directional Range; NDB – Non-Directional Beacon ; GPS – Global Positioning System; ILS – Instrument Landing System ; CATI – Category I		

Source: FAA FAR Part 77

Prescott Municipal Airport Approaches

An instrument approach is used by a pilot who is on an Instrument Flight Rules (IFR) flight plan, providing guidance to an airport or to a specific runway during good, marginal, or bad weather conditions. Instrument approaches utilize a specific NAVAID facility located on or off the airport.

Instrument approaches are categorized as either a precision approach, providing horizontal and vertical guidance; or a non-precision approach, giving horizontal guidance only. Instrument approach procedures require that a pilot fly a specific descent profile. Upon reaching an identified point, the pilot must have visual contact with the runway, or perform a missed approach. The missed approach takes the pilot away from the airport to a point where the approach may be initiated again. Each instrument approach has a ceiling and visibility limit, referred to as minimums. If the reported weather conditions fall below the approach minimums, the approach cannot be attempted. PRC currently has three visual, two non-precision and one precision approaches. **Table 1.19** identifies PRC approaches.

Table 1.19
PRC Approach Categories

Runway	Category	Slope
3L	Visual	20:1
21R	Visual	20:1
3R	Non-Precision	34:1
21L	Precision	50:1
12	Non-Precision	34:1
30	Visual	20:1

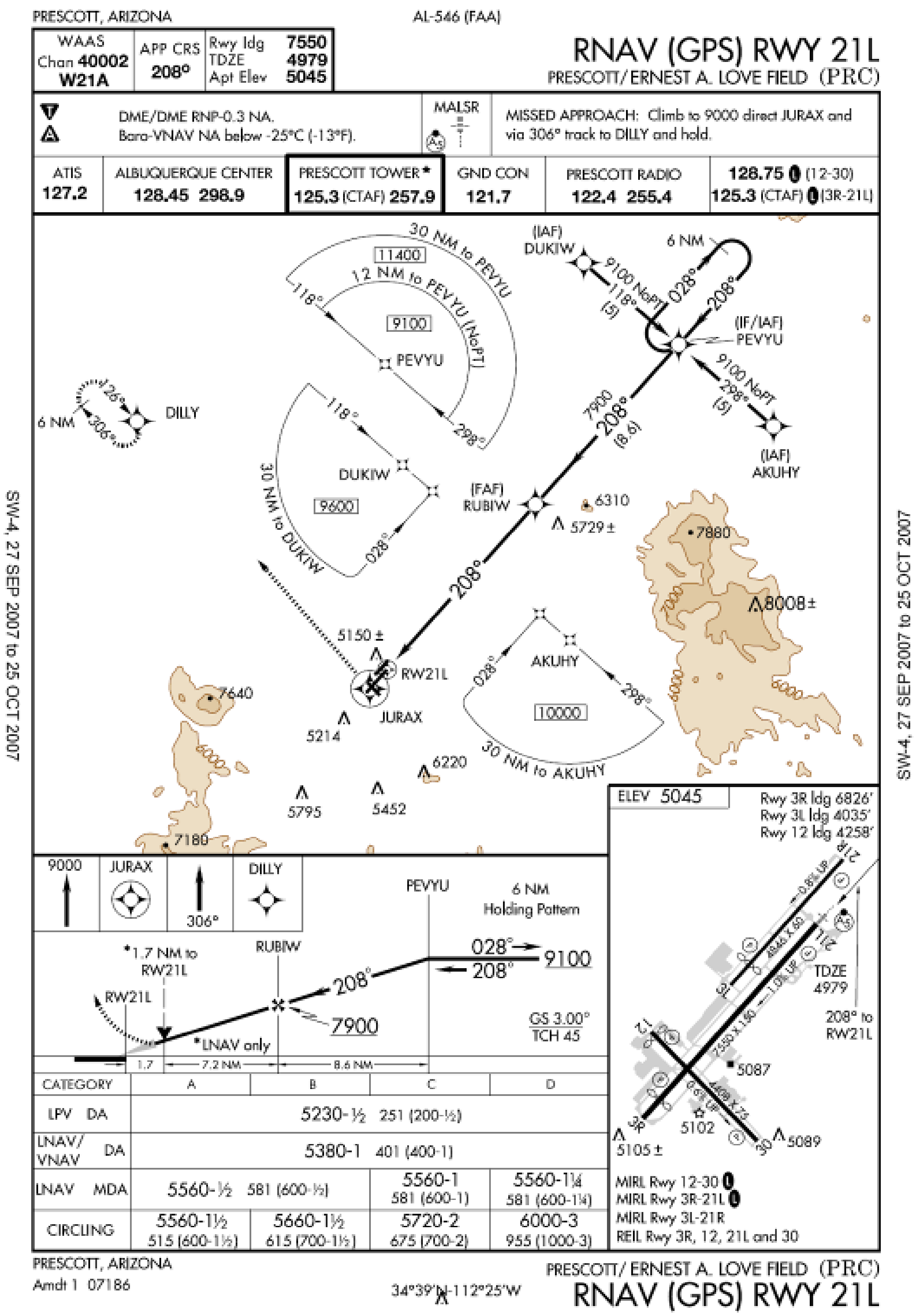
Source: FAA FAR Part 77 & FAA Form 5010: Airport Master Record

The current technology available on each runway is as follows:

- Runway 12 is equipped with VOR providing non-precision approaches;
- Runway 12 is equipped with Global Positioning System (GPS) for reroute navigation and non-precision approaches;
- Runway 21L is equipped for precision approach with a ILS/DME on channel 22 (not available when the tower is closed);
- Runway 21L is equipped for non-precision approach with a LOC on frequency 108.5; and
- Runway 21L is equipped with VOR/DME RNAV (GPS) for reroute navigation and CAT I precision approaches.

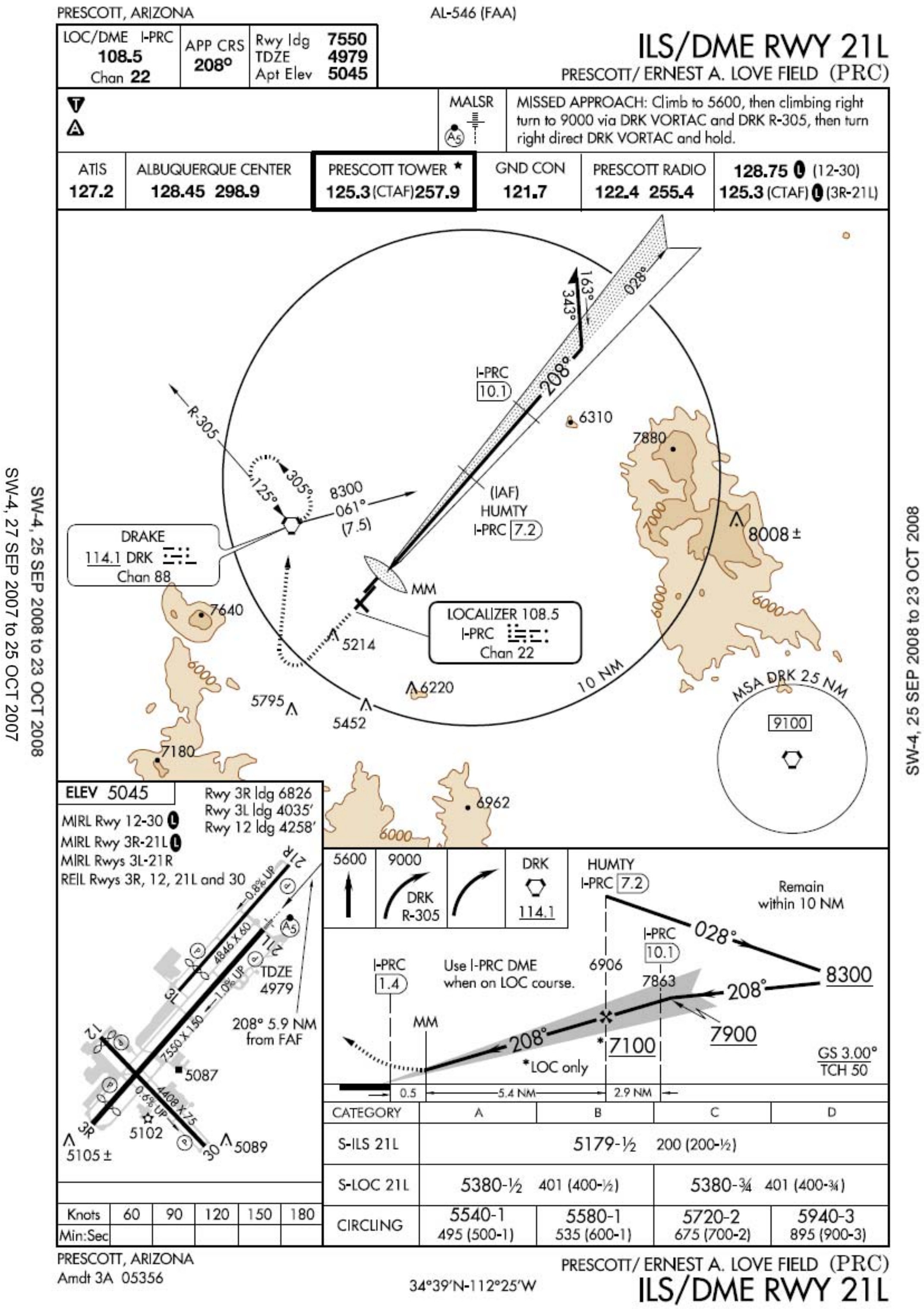
These approaches are shown in **Figures 1.12, 1.13, 1.14, and 1.15** on the following pages.

Figure 1.12
Runway 21L Approach Plate



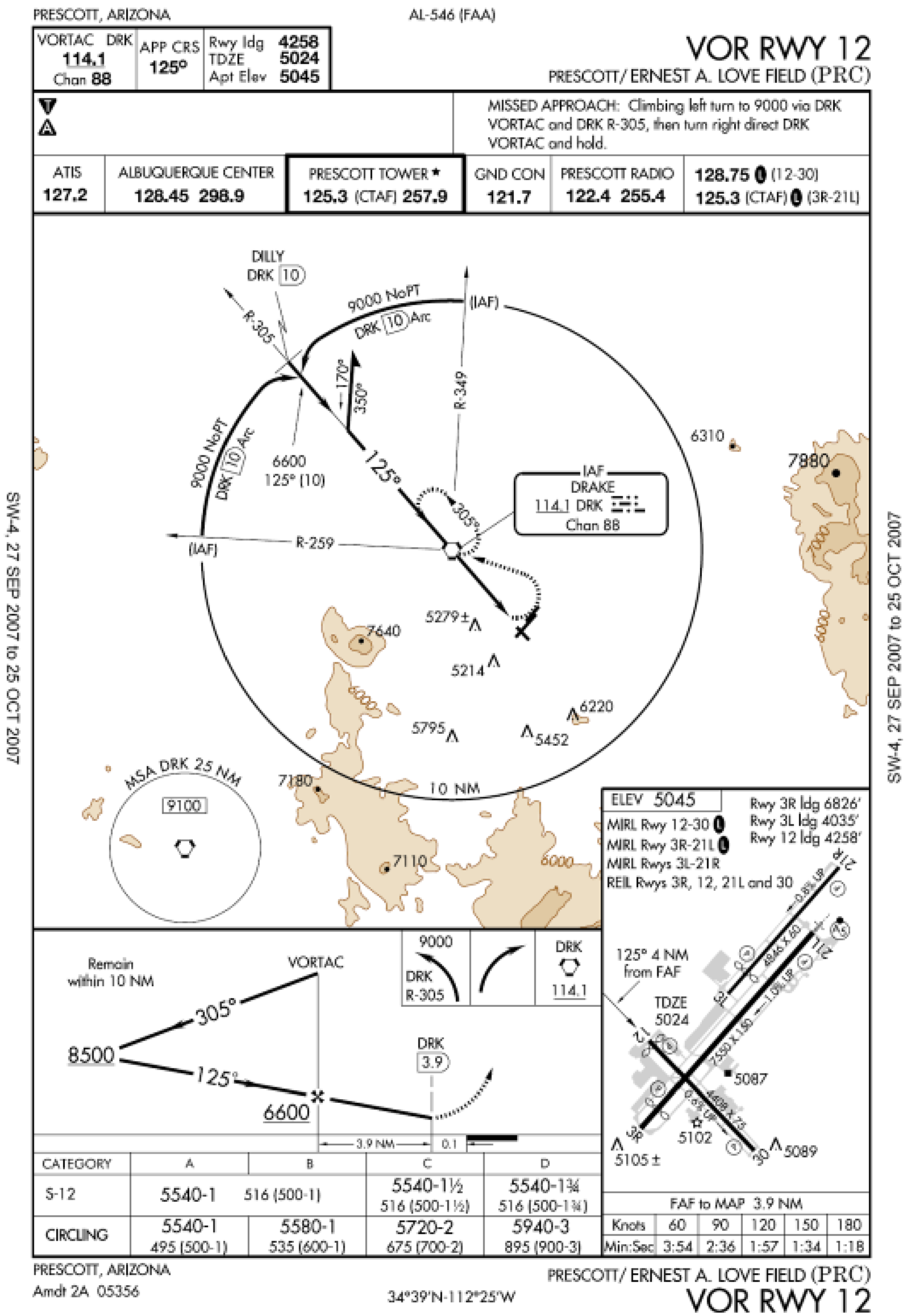
Source: FAA

Figure 1.13
Runway 21L Approach Plate



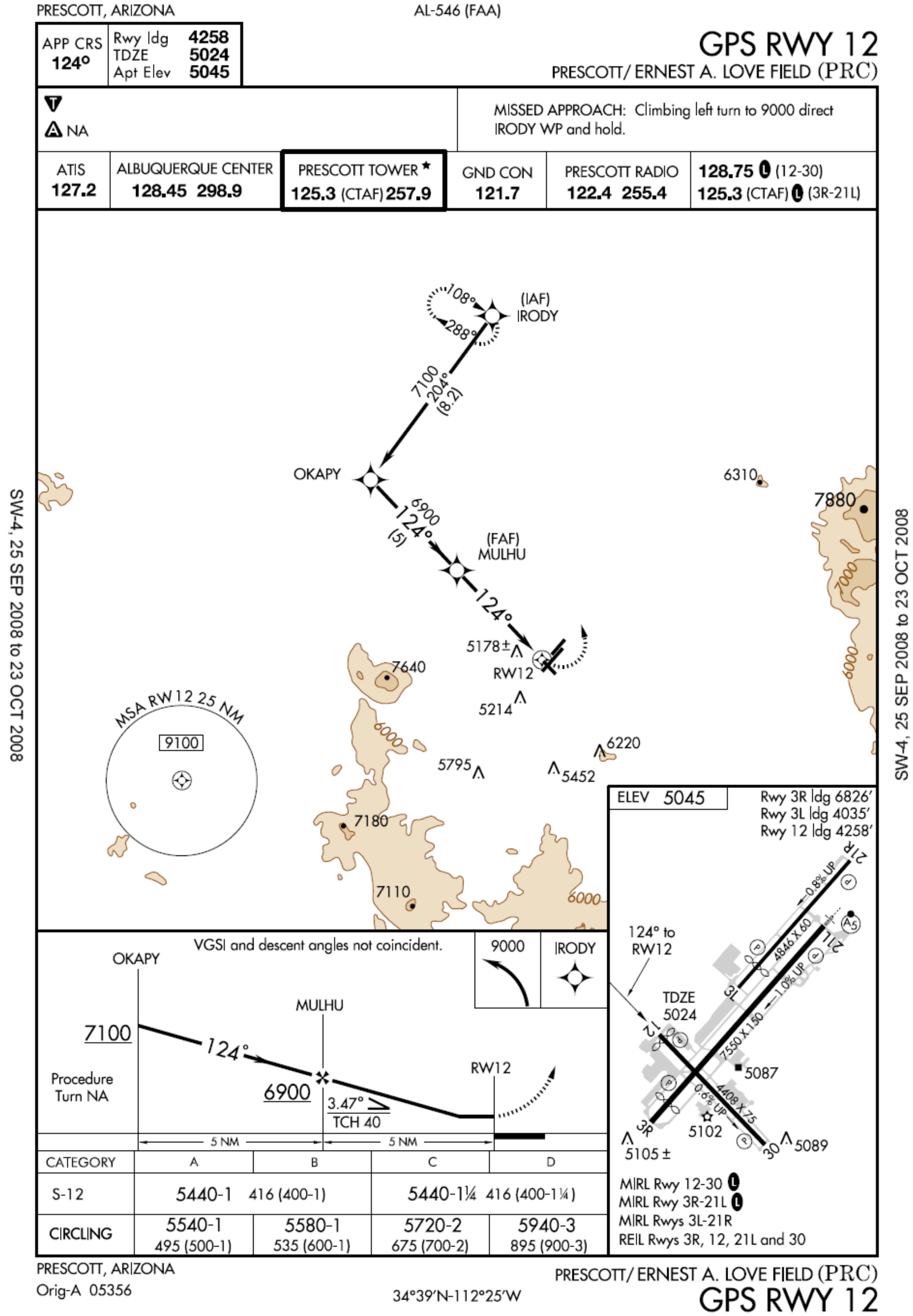
Source: FAA

Figure 1.13
Runway 12 Approach Plate



Source: FAA

Figure 1.14
Runway 12 Approach Plate



Source: FAA

1.4.3 Airport Airspace Obstructions

The FAR Part 77 Surface for PRC is summarized in **Table 1.20**. These dimensions reflect the runway approach categories previously described. Any change in the category approach designated for a runway will change these dimensions.

Table 1.20
PRC Part 77 Surfaces (Feet)

Runway	3L	21R	3R	21L	12	30
Primary Surface Width	500	500	1,000	1,000	500	500
Approach Surface Length	5,000	5,000	10,000	10,000	5,000	5,000
Approach Surface Width	1,500	1,500	3,500	16,000	1,500	1,500
Approach Surface Slope	20:1	20:1	34:1	50:1	20:1	20:1
Horizontal Surface Radius	5,000	5,000	10,000	10,000	5,000	5,000

Source: FAA FAR Part 77& Airport Administration

1.5 Environmental and Land Use Review

This section provides an overview of the environmental conditions at PRC based the review of existing documentation provided in the Previous Master Plan, in the Airport Specific Area Plan (ASAP), in the City of Prescott General Land Use Plan and correspondence from federal, state and local environmental agencies. It is a compilation of pertinent environmental information relative to the airport, including physical setting, historical and cultural resources, and land use requirements.

1.5.1 General Setting

A description of the general settings for PRC was previously given in Section 1.1 Figure 1.5.1 identifies the location of PRC on a U.S. geological Survey topographic map for Prescott quadrangle.

Prescott climate is varied including cool winters, warm summers, moderate humidity, and considerable diurnal temperature changes. The average date of the last occurrence of 32°F in the spring is May 16 and that of the first 32°F temperature in the fall is October 10. The average precipitation for Prescott is 19.19 inches. Summers in Prescott have an average maximum temperature (average maximum for June, July and August) of 86.2°F (the all-time record high is105°F). On average, only 37 days in the summer have maximum temperatures of 90°F or higher. Summer minimum temperatures are with low temperatures mainly in the 50s.

According to the 2000 U.S. Census the population with in a 50 miles radius from the Airport was 177,135. The current estimate for 2007 is 211,935 which represent a 20% increase. The population in the area is currently increasing and projected to reach 243,888 by 2012.

1.5.2 Land Use

The area in which PRC is located is predominately dedicated to agriculture and ranching. The 2003 City of Prescott General Plan – **Figure 1.15** – describes the area as mix of residential, commercial, agricultural, and recreational areas. The City of Prescott Zoning Ordinance has designated the Airport as Zone LI, Light Industrial, IT, Industrial Transition, and BG, Business General, as adopted on the City of Prescott Land Development Code, Amended January 11, 2005. The airport includes a main terminal, hangar buildings, administration and additional structures leased and used by the United States Forest Service, Embry-Riddle and various aviation related business and services.

Section 2.2.4 - Airport, Heliport, Landing of Airplanes (Industrial Use Categories, Aviation and Surface Transportation Facilities**)** of the City of Prescott Land Development Code (LDC) states that: *"Aviation uses shall be subject to the following standards (See also Airport Noise Overlay District at Sec. 5.2):*

A. Documentation shall be submitted to the City showing that the site complies with all applicable state and federal requirements.
B. Setbacks, landscaping and fencing appropriate to the specific nature of the use proposed shall be established during the review process.
C. The site shall be located within the boundaries of the airport property, or shall have frontage on and access to a collector or arterial street, provided the authority with jurisdiction over the subject road may approve alternative access.
D. All areas proposed for active use, including fuel storage areas, shall be fenced.
E. Proposed take off and landing facilities shall be sited with consideration of potential impacts on residential areas".

The Land use for the areas east and north of the airport are classified in the General Plan as Commercial/Employment use for up to ½ mile followed by Recreational/Open Space.

The area east of the airport is classified as Commercial and it falls under the Commercial Corridor Overlay (CCO). The purpose of the CCO as described in the LDC in Section 5.3 is to:

"Promote quality commercial, industrial, and multi-family development that is compatible with surrounding natural areas and/or developed and developing residential neighborhoods. All new development in the CCO District should:

A. Minimize the impacts of new commercial development on nearby neighborhoods;
B. Protect and enhance the character of highway and arterial corridors, which are mainly defined by surrounding residential neighborhoods and scenic natural features;
C. Create pleasing places to view and experience through thoughtful building orientation, parking
D. placement, pedestrian access, landscaping and screening
E. Integrate new development, functionally, internally and externally to the site and to surrounding neighborhoods;
F. Preserve safe and logical access, and the carrying capacity of designated corridors;

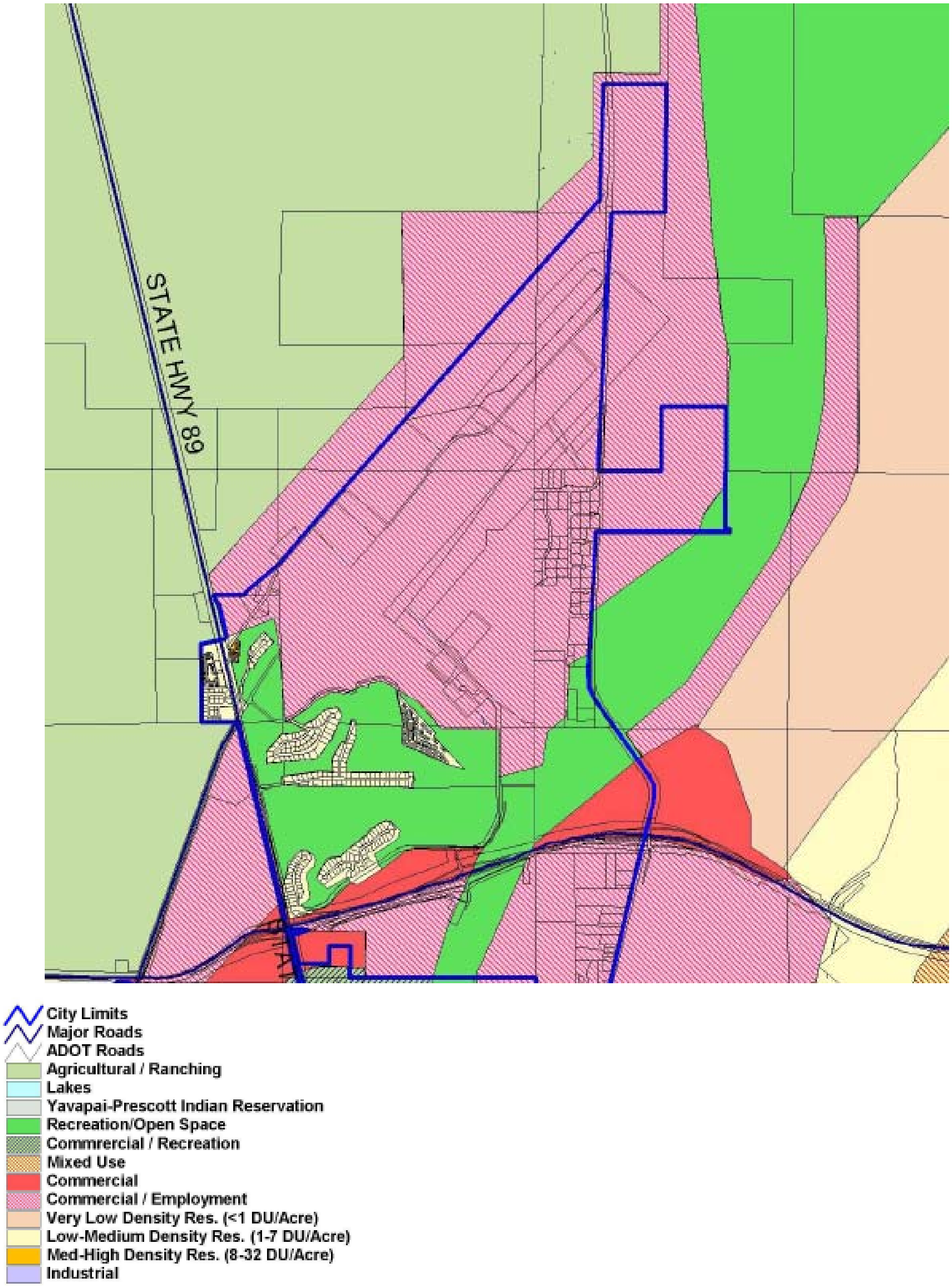
G. Promote the provision of usable pedestrian areas, such as plazas with street furniture, public art, and etc.; and

H. Ensure the provision of public services and facilities needed to accommodate planned land uses and population densities, as well as vehicular-, pedestrian- and bike- access."

The land use for the areas north and west is classified for Agriculture/Ranching. The area southwest and south of the airport is zoned Residential Single Family, Low-Medium Density Residential and Recreational Open Space. A traffic sensitive area along U.S. Highway 89 which provides direct access to the airport terminal area is located in this area. The Antelope Golf Resort and Community is located in this area.

The city of Prescott established a policy with regard to Open Space so that it may be: *"Preserved and managed in a manner consistent with low impact public use. Such lands can include scenic vistas, floodplains, trail corridors, historically recognized wildlife corridors wildlife corridors, farmlands, highly visible natural areas along arterial streets, and open space buffers at the City's perimeter."* Furthermore, it states that: *"Development within the preserved open space will be limited to features that enhance and encourage ecotourism."*

Figure 1.15
General Plan Land Use at PRC



Source: City of Prescott General Plan

1.5.3 Noise

Base Year Aircraft Operations and Noise Exposure

This section presents the aircraft operational parameters and associated exposure for flight operation at PRC for the base year conditions. Runway and flight track utilization by time period, and the aircraft flight profiles and noise data, respectively are presented next. Finally, the section presents the modeled average daily flight operations by aircraft type defined in the FAA's Integrated Noise Model (INM) and discusses the resulting noise exposure for the Base Year conditions.

Annual Flight Operations

The data required to conduct aircraft noise analysis includes:

- Aircraft operations by category (single engine, multiengine, jet, etc.);
- Performance characteristics;
- Flight paths and approach profiles; and
- Time of day when operations occur.

The number of aircraft operations and aircraft types for operations at PRC were determined from FAA's 2007 operations summary and follow up discussions with Air Traffic Control Tower (ATCT) staff.

Aircraft Fleet Mix

The FAA's INM includes data on a wide range of aircraft models; however, it does not include every type and model of aircraft. Thus, in some cases, it was necessary to identify an "equivalent aircraft" that could be modeled with the INM. When this was required, an approved equivalent aircraft was selected that generates equal or higher noise levels than the aircraft active on the airport to ensure a conservative assessment of the noise profile generated by this aircraft. The following table summarizes the aircraft types and their INM equivalent aircraft codes.

The fleet mix presented in **Table 1.21**, that is, the percent of daily activity by specific aircraft models, was estimated using the information obtained from ATC staff by Berger.

Table 1.21
Example Aircraft Types Using PRA and INM Equivalents

Aircraft Type	INM Type
Cessna Skyhawk	CNA172
Piper Archer	GASEPF
Piper Arrow	GASEPV
Diamond Star	BEC400
Piper Seminole	BEC58P
Beechcraft 1900	DHC6
Lockheed Hercules C130	C130
P3A Orion	P3A
Robinson 22 Helicopter	H500D
Bell Jet Ranger 206L	B206L

Source: FAA Integrated Noise Model, Version 6.1

The following table displays the operations and fleet mix percentages for each type of aircraft being modeled. The INM model code, number of daytime and nighttime operations and respective percentages of each, and the combined number of operations and fleet mix distribution are shown in **Table 1.22**.

Table 1.22
Calculation of Fleet Mix Percentages

Aircraft Type	No. Daily	Percent Daily
CNA172	173	17.78%
GASEPF	172	17.68%
GASEPV	172	17.68%
BEC400	172	17.68%
BEC58P	101	10.38%
DHC6	24	2.50%
C130	4	0.41%
P3A	4	0.41%
H500D	75	7.74%
B206L	75	7.74%
Note: Totals are rounded		

Source: The Louis Berger Group

Daily Operations

The INM analyzes airport noise by considering airport activity over a 24-hour period. The standard technique in noise contour development is to consider the annual average day. For this study, the ATCT operation counts were obtained and the fiftieth percentile daily total operations was used to as the annual average day. To determine the number of operations by aircraft type, it was only necessary to multiply the daytime fleet mix percentage by the total number of annual operations of 231,763, and then divide by 365 for the average daily count.

The following **Table 1.23** summarizes the aircraft fleet mix and average daily operations data. Due to the fact that INM models an annual average day, fractions of operations occur.

Table 1.23
Average Daily Operations (2007)

Aircraft Types	No. Daily	Daytime Ops	Night Ops	Arr/Day	Arr/ Night	Dep/Day	Dep/Night	TGO's
CNA172	112.00	144.00	0.80	36.00	0.40	36.00	0.40	72.00
GASEPF	112.00	144.00	0.80	36.00	0.40	36.00	0.40	72.00
GASEPV	112.00	144.00	8.00	36.00	4.00	36.00	4.00	72.00
BEC58P	64.00	62.00	0.80	29.45	0.40	29.45	0.40	3.10
DHC6	16.00	15.00	0.00	7.50	0.00	7.50	0.00	0.00
P2V	3.00	0.25	0.00	0.13	0.00	0.13	0.00	0.00
P3A	3.00	0.25	0.00	0.13	0.00	0.13	0.00	0.00
H500D	50.00	47.00	0.00	11.75	0.00	11.75	0.00	23.50
B206L	50.00	47.00	0.00	23.38	0.00	23.38	0.00	0.25
Total		603.50	10.40	180.33	5.20	180.33	5.20	242.85

Source: PRC Airport Staff, ATCT Staff & The Louis Berger Group Observations

Aircraft Performance

The performance (arrival descent and departure climb profiles) and noise information for all of the fixed-wing aircraft at the airport are provided in a database that is part of the INM. In the model, touch-and-go altitudes for training flights were set at the traffic pattern altitudes prescribed for the airport as indicated in the Airport Facility Directory. The traffic pattern altitude for helicopters used in the model was imported to the INM from another FAA program, the Helicopter Noise Model (HNM).

Flight Tracks and Runway Use

The arrival, departure, and touch-and-go flight tracks and traffic patterns for PRC were taken or estimated from the discussions with airport personnel, ATCT personnel and Berger's flight observations.

The runway utilization levels (i.e. the percent each runway is used for arrivals and departures) adopted for the baseline 2007 Noise Exposure Map are displayed in the following **Table 1.24**. These runway utilizations are derived from and adjusted according to information from airport staff, ATCT staff and observed flight operations.

Table 1.24

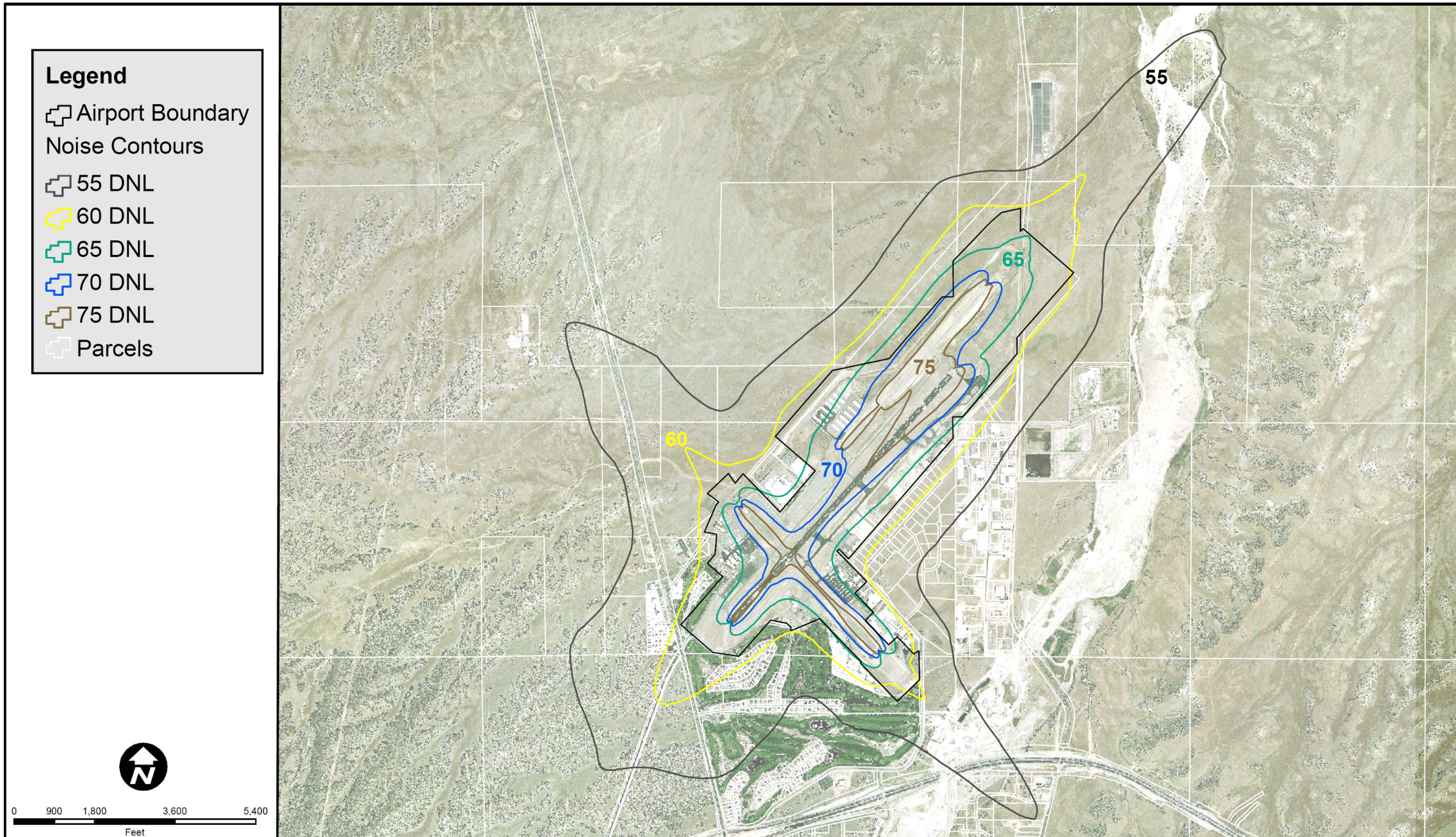
Runway Use by Percentage – Existing Conditions

Runway Use by Percentage (Total Operations)					
RY 3R	**RY 3L**	**RY 21R**	**RY 21L**	**RY 12**	**RY 30**
5%	5%	35%	35%	10%	10%

Source: PRC Airport Staff, ATCT Staff & The Louis Berger Group Observations

Base Year Average Daily Airport Contours

Using the operations information described above, DNL contours were generated for the 2007 Baseline Conditions at PRC. These contours are displayed on the following **Figure 1.16** for DNL levels of 55, 60, 65, 70, and 75 dB.



Prescott Municipal Airport
Existing Noise Contours

JUNE 2008

Figure 1.16

1.5.4 Environmental Review

As identified in the previous Master Plan any new major improvement planned for the airport will require compliance with the National Environmental Policy Act (NEPA) of 1969, as amended. Though the review of previous documentation the following environmental issues or sensitive areas were identified and will require careful planning: Noise, Water Quality, Water of the U.S., DOT Section 4f lands, Historic, Architectural, Archaeological and Cultural Recourses, Biotic Communities, Threatened and Endangered Species of Flora and Fauna.

Water Quality. Several factors make water quality very sensitive issues in Prescott. In 1998 the Prescott Active Management Area (AMA) was declared to no longer be in a state of “safe yield”, prompting restriction and limitations for residential, commercial and agricultural use. Also Granite Creek, an important component of the regional hydrology system is listed as impaired water for dissolved oxygen and is monitored for E coli and mercury levels.

Water of the U.S. Granite Creek and Bottleneck Wash are listed as Water of the U.S. and any project in their vicinity will require a Section 404 permit under the Clean Water Act. In addition to protect underground waters from spill, leaks and other hazardous substances in the stormwater systems, careful planning and design are necessary.

DOT Section 4f Lands. Section 4(f) land to the airport is the Antelope Hills Golf Course, owned by the City of Prescott, adjacent to the south airport boundary; based on FAA Order 5050.4B all future development alternatives must include all possible planning to minimize harm and the disruption of normal activity to the land.

SHPO. The Arizona State Preservation Office advised that the airport property has not been systematically surveyed, and recommended a cultural recourses specialist to inspect the project area, and that should be reviewed pursuant to Section 106 of the National Historic Preservation Act, as implemented by 36 CFR Part 800.

Biotic Communities Coordination with the US Fish and Wildlife Service and Arizona Game and Fish is required since the riparian habitat within Granite Creek supports mule deer, havalina and is prime pronghorn antelope habitat and several Special Status Species are reported within a 3 miles radius from the airport.

1.6 Socio-Economic Conditions

This section provides information regarding the economic contribution the airport provides to the region. Airport financial data is provided to understand the current and most recent airport finances. This is reviewed to understand the airport’s ability to undertake future capital improvements and its continued day-to-day operation. Data on population, employment, and income will be discussed in the forecast chapter of the master plan.

1.6.1 Airport Financial Data

The income statement for Prescott indicates that the airport derives revenue primarily from building and hangar rentals, ground leases, fuels sales, concession revenues, such as car rental, restaurant and other space rentals and non-operating revenues. The following table summarizes the revenues, expenses and net income for the airport in the last five years.

Table 1.25
Revenues, Expenses, Net Income – Prescott Municipal Airport

Fiscal Year	Total Revenue	Total Expenses	Net Income (Loss)
2007	$2,304,458	$2,261,973	$42,485
2006	$3,272,112	$2,262,676	$1,009,436
2005	$2,626,719	$2,197,635	$429,084
2004	$2,988,262	$2,061,565	$926,697
2003	$1,962,762	$2,090,156	$(127,394)

Source: FAA AAS-400: CATS: Report 127 & Airport Administration

1.6.2 Airport Economic Impact

According to the 2006 Prescott Economic Impact Study, the total economic impact of the airport on the local economy totals 738[1] jobs at the airport, with total direct impact of $25,373,538. The following summarize the impact PRC has in its local economy and surrounding communities, based on the 2006 data reported in the Prescott Economic Impact Study.

Table 1.26
Economic Impact – Prescott Municipal Airport

	Estimated amount
Total	$68,759,134
Direct	$25,373,538
Indirect	$10,815,480
Induced	$32,570,116

Source: 2006 Prescott Economic Airport Impact Study

[1] Note: This figure does not reflect the current number of jobs at the Airport. In 2007 the Flight Service Station moved it operation to an off airport location, and Great Lakes Aviation has been replaced by Mesa Air. In addition March 1, 2008 FBO operations were transferred to a private FBO operator which created additional new jobs and Embry-Riddle reported to the Chamber of Commerce the creation of more than 100 additional job since the study was prepared.