



CHAPTER ONE
Inventory

INVENTORY

The first step in the preparation of the Airport Master Plan for Cottonwood Municipal Airport is the collection of information relating to both the Airport and the area that it serves. Information pertaining to existing Airport facilities, regional airspace, and air traffic control is gathered along with pertinent background information regarding the City of Cottonwood and the 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. An accurate and complete inventory is, therefore, essential to the success of the master plan. This is extremely important since the findings, conclusions and recommendations made in the plan are dependent upon information collected. This information



was gathered during the months of September and October 2001, through on-site investigations of the Airport and interviews with Airport staff, airport users, representatives of various city, state, and federal entities, and regional economic development agencies. Additional information was obtained from documents provided by the Federal Aviation Administration (FAA) and the Arizona Department of Transportation - Aeronautics Division (ADOT). The inventory data and supporting information presented in this chapter are deemed the most current and accurate data available at the time of this publication.



AIRPORT SETTING

Cottonwood Municipal Airport (P52) is located approximately two miles west of State Highway (SR) 260 and one-quarter mile southwest of SR 89A, at 1001 West Mingus Avenue in the City of Cottonwood. The Airport is situated on 210 acres at an elevation of 3,550 feet MSL (above mean sea level). The City of Cottonwood is easily accessed from either Phoenix (approximately 100 miles south) or Flagstaff (approximately 50 miles north) via Interstate 17 and SR 260. The **Location Map, Exhibit 1A**, depicts Cottonwood Municipal Airport and its relationship to the surrounding vicinity.

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.

At the state level, Cottonwood Municipal Airport is included in the *Arizona State Aviation System Plan (SASP)*. The purpose of the *SASP* is to ensure that Arizona has an adequate and efficient airport system that will well serve its aviation needs for many years to come. The *SASP* determines each airport's specific role in the State aviation system and establishes funding requirements. Cottonwood Municipal Airport is classified as a "Primary Airport" under public ownership within the Arizona Airport System. ADOT

defines a Primary Airport as "All public use airports in Arizona categorized as *Reliever, Commercial Service, or General Aviation* that have 10 or more based aircraft or 2000 annual operations or are projected to meet any of these criteria within the next 10 years." Through the *State's Continuous Aviation System Planning Process (CASPP)*, the *SASP* is updated approximately every five years. The most recently published update is the *1995 Arizona State Aviation Needs Study (SANS)*; however, the year 2000 *SANS* update is currently in progress and is due for release sometime in the fall or winter of 2001. The mission of the *SANS* is to provide policy guidelines that promote and maintain a safe aviation system in Arizona, assess the State's airports capital improvement needs, and identify resources and strategies to implement the plan. The Arizona *SANS* encompasses all public and private airports and heliports that are open to the public, including Native American and recreational airports.

At the national level, the *National Plan of Integrated Airport Systems (NPIAS) (1998-2002)* identifies more than 3,540 airports (both existing and proposed) that are important to the national air transportation system. These airports are further classified into seven Airport Type categories. To be included in the *NPIAS*, an airport must meet the definition of one these categories. Additionally, an airport must be included in the *NPIAS* to be eligible for federal funding assistance. Cottonwood Municipal Airport is one of 35 general aviation airports in Arizona included in the *NPIAS*. General aviation airports

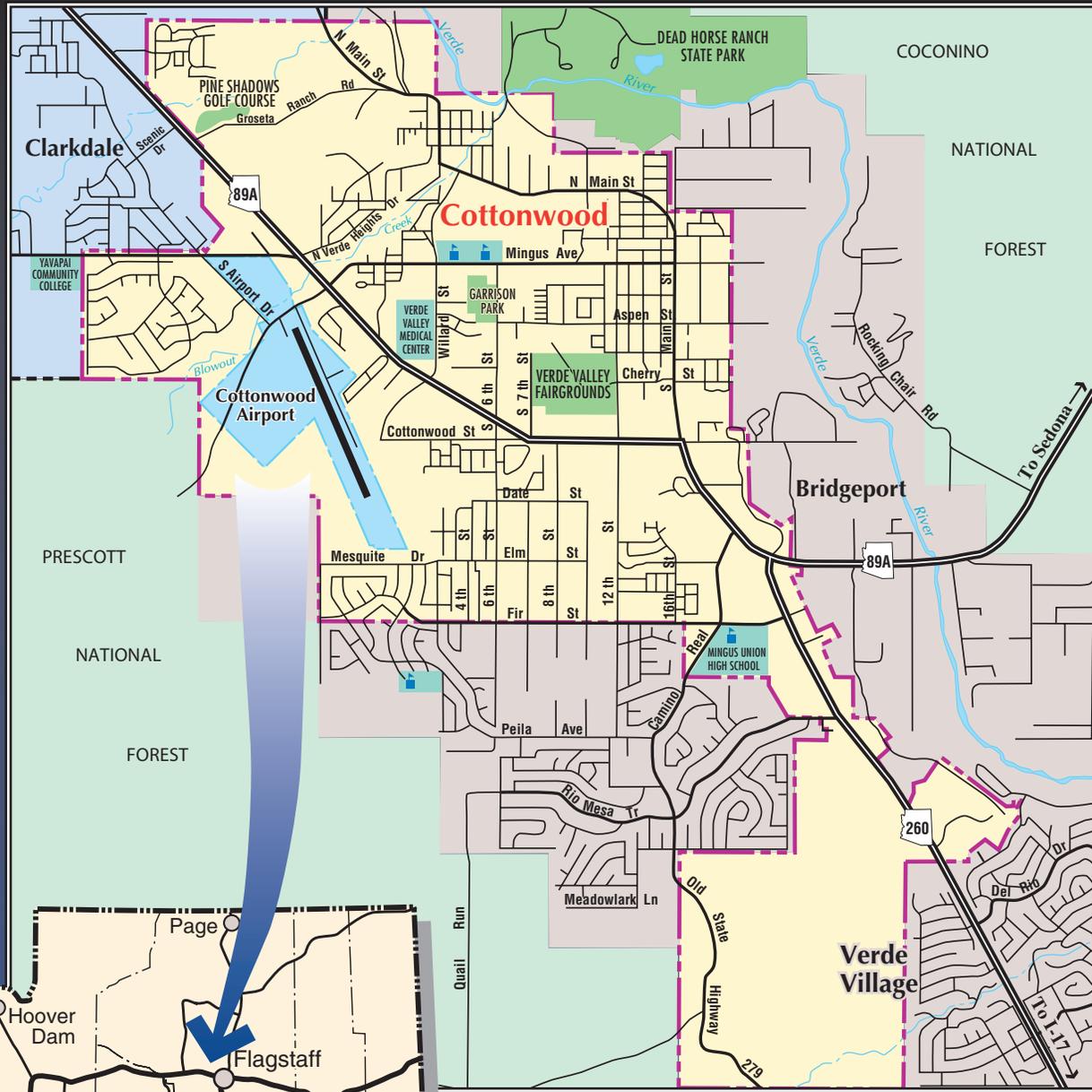


Exhibit 1A

are normally included if they account for enough activity (usually 10 based aircraft) and are at least 20 miles from the nearest NPIAS airport. The 2,472 general aviation airports that are currently within the *NPIAS* have an average of 29 based aircraft and account for 37 percent of the nation's general aviation fleet. The remainder of the NPIAS airports account for 55 percent of all GA aircraft, while the remaining eight (8) percent are based at airports or landing sites that are not part of the *NPIAS*. General aviation airports are the most convenient form of air transportation for nearly 19 percent of the population and are of particular importance to rural areas. The *NPIAS* includes total estimates on development needs for the nation's airports that qualify for federal funding assistance.

AIRPORT HISTORY

Cottonwood Municipal Airport, formerly known as Cottonwood/Clemenceau Airport, was originally established in the early 1940s as a military training base for World War II naval cadets. The original dirt runway was 3,600 feet in length, while other airport facilities included a storage and maintenance hangar, along with a group of offices. Yavapai County acquired the Airport upon termination of its military training use. Federal, State and local funding sources were used to construct a 3,600-foot-long paved runway in 1962.

Cottonwood was originally incorporated as a town in 1960, and later became a City in 1987. In 1968, ownership of the Airport property was transferred from

the County to the Town. Since 1968, Cottonwood has operated the Airport through either Town/City management or an airport operators lease agreement.

Currently, Aerobear Aviation operates the Airport (per lease agreement) and provides aircraft maintenance, aircraft rentals, fuel dispensing and tiedown rentals. The City receives revenue from the ground leases of the three (3) conventional hangars and the 10 City-owned T-Hangar units which are leased directly to private individuals. In addition, they collect a commission on fuel sales and a portion of the covered tie-down (T-shades) rental fees. The City is responsible for the building and ground maintenance, airport planning and capital improvements to the airport.

Cottonwood Industrial Airpark is a 140-acre, City-owned, planned business/industrial park surrounding the Airport. Presently, the majority of development is located east of the Airport along Airpark Road, where several businesses currently hold ground leases with the City. Types of businesses located within the Airpark include warehousing/distribution, manufacturing, light assembly, medical transport, high tech, and research and development. Taxiway/taxilane access is being developed at the south end of the east side Airpark. A portion of the planned development on the Airport's west side will also have such access. While several Airpark businesses lease directly from the City, Cottonwood Airpark, Inc., is the main lease holder, subleasing and managing Airport property for the City.

In 1976, using both federal and state grant monies, the City constructed a paved taxiway and aircraft tiedown/parking apron. Additionally, at that time, Low Intensity Runway Lighting (LIRL) was installed using ADOT and City funding.

The City of Cottonwood funded part of the 600-foot runway extension constructed in 1980. In 1984, Medium Intensity Runway Lighting (MIRL) was installed, along with the completion of security fencing through state and federal grants. The existing access road and parallel taxiway were constructed in the late 1980s. Apron lights were also installed at that time.

In November 2001, a slurry seal was applied to the runway, taxiways, aircraft parking apron, and roadways at the Airport. This project was completed using state and local monies.

Many additional projects have been completed throughout the 1990s, mostly as a result of recommendations from the 1993 Master Plan. Details of these projects are presented in the following section.

PREVIOUS MASTER PLAN

The previous Master Plan was completed in September 1993, and recommended a number of various improvements, both airside and landside. Proposed airside improvements included: the relocation of Taxiway A; the installation of REILS to Runway 14; the replacement of existing visual (basic) runway markings with nonprecision markings; the

installation of a non-directional radio beacon (NDB) at the Airport; the relocation of the segmented circle; and the acquisition of land or easements for runway approach and RPZ protection. Of these recommendations, only the acquisition of 6.3 acres northwest of Runway 14 for runway approach/RPZ protection and the installation of REILS to Runway 14 have been completed.

Landside recommendations from the 1993 Master Plan included: the construction of a general aviation terminal building; T-hangar/T-shade construction and/or relocation; conventional hangar construction; apron expansion; removal of the existing fuel facility; aboveground fuel facility installation; the construction of additional auto parking; the construction of a new airport access road; land acquisition (15 acres) west of Runway 32. Improvements completed since 1993 consist of the construction of new T-hangars; a new 3,600 s.f. conventional hangar; apron expansion and additional tiedowns; removal of the underground fuel facility and construction of the new aboveground fuel facility; additional auto parking; and the construction of a gated access road located west of the terminal building. The proposed 15-acre land acquisition west of Runway 32 was abandoned following unsuccessful negotiations with the current land owners.

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 on in the Master Plan process, for projecting future aviation activity as well as for determining future facility requirements.

Historical based aircraft totals for Cottonwood Municipal Airport are shown in **Table 1A**. The latest data is from current Airport management records, while previous years' totals are from historic ADOT and FAA records. Detailed current based aircraft information is presented in **Appendix B**.

Year	Based Aircraft
2001 ¹	40
2000 ²	32
1999 ²	33
1998 ²	32
1997 ²	30
1996 ²	32
1995 ²	29
1993 ³	29
1990 ³	46
1988 ³	37

Source: ¹ Cottonwood Municipal Airport Records (October 2001).
² ADOT - Aeronautics Division, Historical Aircraft Registration Records, Cottonwood Municipal Airport.
³ Historical FAA Terminal Area Forecast (TAF) System Records (Query Date: September 2001)

Since Cottonwood Municipal Airport has no airport traffic control tower (ATCT), annual aircraft operations have not been officially recorded. Operations totals for the Airport can only be estimated. The operations estimates for the Airport, summarized in **Table 1B**, were obtained from the Airport's FAA

5010 Form (Airport Master Record), and historical FAA Terminal Area Forecast (TAF) System Records. Estimated operations statistics from other sources will be presented for comparison in Chapter Two, Aviation Demand Forecasts.

TABLE 1B
Aircraft Operations Summary

Year	Air Taxi	GA Local	GA Itinerant	Military	Total
2000 ¹	1,000	9,000	9,400	10	19,410
1995 ²	1,000	9,000	9,400	10	19,410
1990 ²	3,000	9,000	9,400	10	21,410
1985 ²	1,000	7,500	3,600	10	12,110
1980 ²	1,000	7,500	3,600	10	12,110

Source: ¹ FAA Form 5010, Airport Master Record (Year 2000), Cottonwood Municipal Airport.

² Historical FAA Terminal Area Forecast (TAF) System Records (Query Date: September 2001)

AIRPORT FACILITIES

Airport facilities can functionally be divided into two broad categories: airside and landside. The airside category includes those facilities directly affecting take-offs and landings. Landside facilities are those facilities that provide for a safe and efficient transition between ground and air transportation, as well as support facilities necessary for the daily operations of the Airport.

AIRSIDE FACILITIES

Airside facilities include runways, taxiways, airport lighting systems, and navigational aids. The existing airside and landside facilities at Cottonwood Municipal Airport are depicted on **Exhibit 1B**. Airside facilities data is summarized in **Table 1C**.

Runway

Cottonwood Municipal Airport is served by a single asphalt runway, Runway 14-32, which is oriented in a northwest-southeast direction. The runway measures 4,250 in length by 75 feet in width, with 300-foot stopways at each runway end. The FAA Form 5010 (last inspection date 11/24/1999) reports the runway surface condition as being in good condition, with a published pavement strength rating of 4,000 pounds single wheel loading (SWL). However, a pavement strength evaluation conducted by Western Technologies, Inc., in 1992 indicated a runway strength rating of 30,000 pounds DWL. Steps to address this discrepancy between the published runway pavement strength and the "tested" runway pavement strength are outlined in Chapter Three.

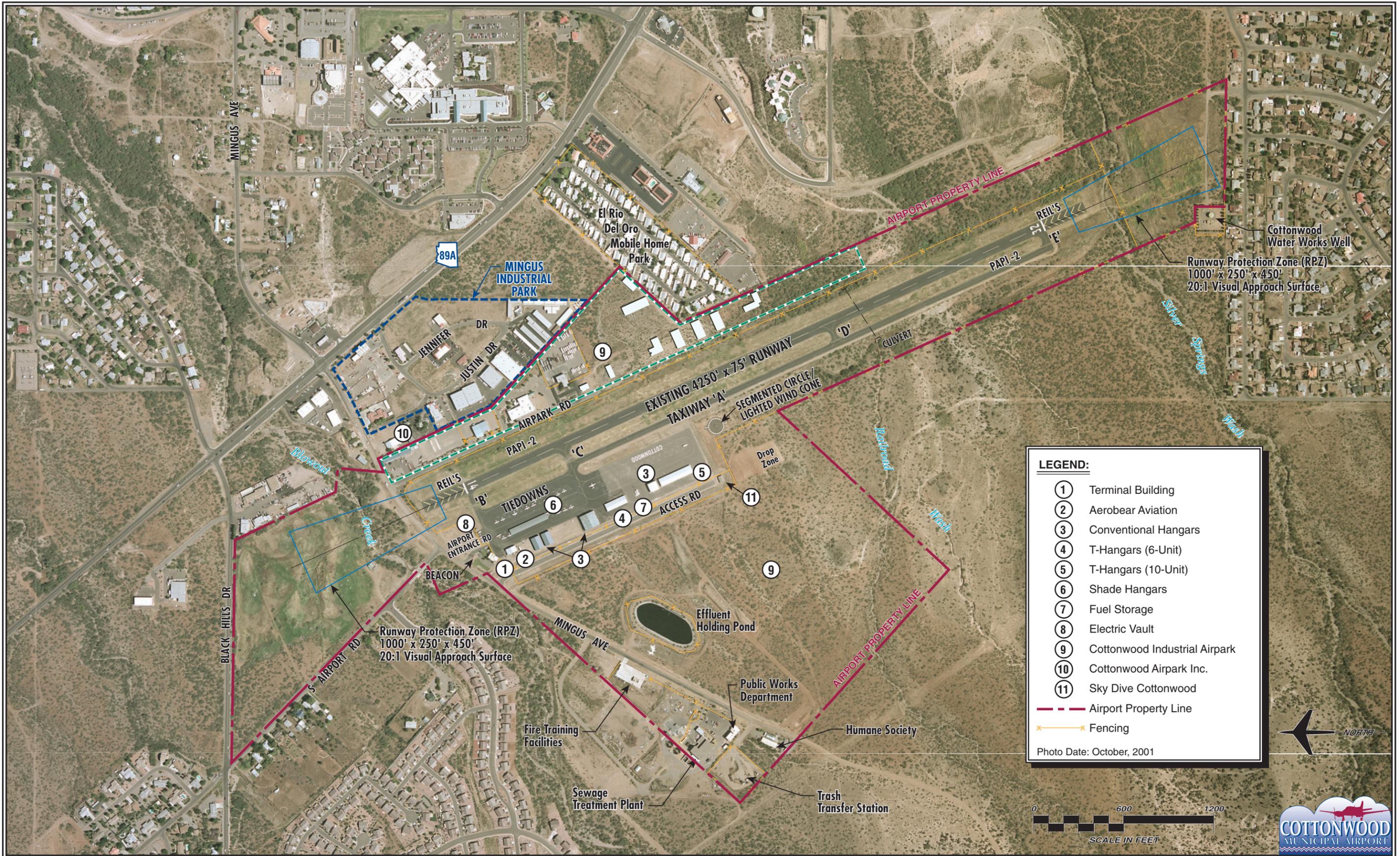


TABLE 1C
Runway Data - Runway 14-32
Cottonwood Municipal Airport

Runway Length (feet)	4,250
Runway Width (feet)	75
Runway Surface Material (Condition)	Asphalt (Good)
Runway Pavement Strength (lbs.)	4,000 SWL (FAA 5010 Form) 30,000 DWL (See Note 1)
Runway Effective Gradient	0.97 %
Pavement Edge Lighting Runway Taxiway	MIRL None
Visual Approach Aids	PAPI-2 (Each Runway End)
Traffic Pattern	Rwy. 14: Left; Rwy. 32: Right
Runway Pavement Markings (Condition)	Rwy. 14: Basic (Good); Rwy. 32: Basic (Good)
Taxiway, Taxilane, and Apron Markings (Condition)	Center striping (Good)
Instrument Approach Procedures	None
Additional Facilities	Airport Beacon, Segmented Circle/Lighted Wind Cone

Source: *FAA 5010 Airport Master Record Form* (Inspection Date: 11-24-1999)

Abbreviations:

- SWL - Single Wheel Loading
- MIRL - Medium Intensity Runway Lighting
- PAPI - Precision Approach Path Indicator

Notes:

1. *Pavement Strength Evaluation, Cottonwood Municipal Airport, Cottonwood, Arizona, by Western Technologies Inc., dated October 12, 1992.*

Taxiways

Taxiways facilitate aircraft movement between the runway and the aircraft parking or storage areas. Taxiway A is a partial length, parallel taxiway which connects to the runway via four exit taxiways designated B, C, D and E. Taxiways B and C connect the runway

to Taxiway A and the aircraft parking apron near the Runway 14 end. Taxiways D and E, meanwhile, serve the southeast portion of the runway. These five taxiways are equal in pavement strength load-bearing capacity to the runway and are in good condition.

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. Three types of enroute electronic navigational aids typically available in this region of Central Arizona are the very high frequency omnidirectional range (VOR) facility, Loran-C, and global positioning system (GPS).

The most common navaid is the VOR, which transmits azimuth readings via radio signal at every degree, thus providing 360 individual navigational courses. Often, the VOR is combined with Distance Measuring Equipment (DME) which provides both distance and direction information to pilots.

The second type of navaid, the Loran-C, is a ground-based enroute navigational aid which utilizes a system of transmitters located in various locations across the continental United States. Loran-C varies from the VOR as pilots and aircraft are not required to navigate using a specific facility (with the VOR, pilots must navigate to and from a specific VOR facility). With a properly equipped aircraft, pilots using Loran-C can directly navigate to any airport in the United States.

The third type of navaid, GPS, is relatively new to general aviation when compared to the previously discussed navigational systems. GPS was

initially developed by the United States Department of Defense for military navigation around the world. Increasingly, over the last several years, GPS has been utilized more in civilian aircraft. GPS uses satellites placed in a fixed orbit around the globe to transmit electronic signals which properly equipped aircraft can use to determine altitude, speed, and navigational information. GPS is similar to Loran-C in that pilots do not have to navigate to or from a specific navigational facility. GPS provides the same precision and safety factors offered by the older, ground-based systems, yet can be instituted and maintained at a far lower cost. The *Navigational Aids and Aviation Services Special Study* (December 1998) completed by ADOT's Aeronautics Division, recommends a future 1-1/2 mile visibility minimum GPS approach be implemented to Runway 32 at Cottonwood Municipal Airport.

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 2000, and VORs between 2005 and 2010. According to the 1999 FRP, however, the FAA now plans to maintain a backup network of ground systems for pilots flying under very low visibility conditions (Category II and Category III) well beyond 2010. The new FAA plan pushes the final phase-out of the older, conventional navigational systems to 2020.

At present, there are no nav aids located at or near Cottonwood Municipal Airport. Two primary nav aids located within this region, however, are the Flagstaff (VOR) and the Drake VOR. The Flagstaff VOR is located 31 nautical miles (NM) northeast of Cottonwood Municipal Airport at the Flagstaff-Pulliam Airport. The Drake VOR is located four (4) NM northwest of Prescott's Ernest A. Love Field and 22 miles NM southwest of Cottonwood Municipal Airport. These two nav aids service the regional enroute system, as well as perform terminal area navigational functions at each respective airport.

Airfield Lighting and Pavement Markings

Airfield lighting and pavement markings are essential elements to efficient and safe aircraft operations at an airport. Lighting aids enable nighttime, and poor visibility operations at an airport, while pavement markings assist in aircraft ground movement. The lighting systems and pavement markings existing at Cottonwood Municipal Airport are described in the following sections.

Identification Lighting: The location and presence of an airport at night is indicated by the rotating airport beacon. The tower-mounted, rotating beacon at Cottonwood Municipal Airport is located just north of the FBO office on the west side of the runway. This 36-inch diameter beacon is equipped with an optical system that alternately projects two beams of light, one green and one white, 180 degrees apart.

Runway, Taxiway and Apron Area Lighting: Runway 14-32 is equipped with medium intensity runway lighting (MIRL). The MIRLs are 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.

Runway end identification lights (REILs) are provided at each end of Runway 14-32, and are installed in conjunction with runway threshold lights. 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.

At present, taxiway edge lighting is not available at the Airport. Area lighting is provided for the terminal building, aircraft parking apron, and hangars.

Visual Approach Lighting: PAPI-2s are available near each end of Runway 14-32. A PAPI is a system of colored lights arranged to provide visual descent guidance information to the pilot during approach to the runway. These light systems are placed on the left side of the runway, perpendicular to the runway centerline. The lights produce a signal presentation that indicates to the pilot whether they are above, below, or on the designed descent path to the runway. The visual glide angles of these lights at Cottonwood Municipal Airport are set at 3 degrees.

Other Lighting: A lighted wind cone with a segmented circle is located atop an elevated berm-like feature near midfield and west of the runway. Pilots use the wind cone to determine surface wind direction and approximate speed prior to takeoffs and landings.

Pavement Markings: Pavement markings, both on the runways and taxiways, assist in aircraft movement at the Airport. The basic (visual) markings of Runway 14-32 indicate runway centerline, runway edge, and designation number. Additionally, chevron-shaped markings identify the runway stopways at each runway end. Taxiway and apron taxilane markings consist of centerline striping only. New pavement markings were applied to the runways, stopways, taxiways, and apron areas following the seal coat project which was completed in November 2001.

LANDSIDE FACILITIES

Landside facilities consist of those entities that are essential to the accommodation of aircraft, pilots and passengers 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 contribute to an airport's support. The landside facilities available at Cottonwood Municipal Airport are depicted on **Exhibit 1B**, and are further described below.

Terminal Building/Facilities: The airport terminal building is located at the north end of the aircraft parking apron next to Mingus Avenue. The airport's FBO, Aerobear Aviation, operates from the terminal. Some of the services offered by Aerobear Aviation include aircraft fueling and parking, flight school/flight training, aircraft rentals, pilot supplies, car rentals, public telephone, and restrooms. As previously discussed, day-to-day airport management operations are performed by the FBO. The Airport's UNICOM frequency and pilot flight planning facilities are contained within the terminal building.

Aircraft Parking Apron and Tiedowns: The apron area is located west of the Runway 14 end and is accessed from Taxiway A via Taxiways B and C. Located on this asphalt apron are 12 T-shade hangar positions, and 68 aircraft tiedown positions. All 12 T-shade hangar positions are currently leased, while only 18 percent (12 positions) of the tiedowns are occupied.

Aircraft Storage Hangars: Five conventional hangars and two T-hangar structures are located along the apron's western edge. A 2,400-square-foot conventional hangar located nearest the terminal building is leased to Aerobear Aviation for their aircraft maintenance facilities. Four additional conventional hangars are ground leased from the City to private individuals. The largest of these four hangars measures approximately 10,450 square feet and all are located south of the Aerobear Aviation hangar.

Located south of the large conventional hangar is a 6-unit T-hangar facility. The occupants of this structure belong to the Cottonwood Hangar Association and hold ground leases with the City of Cottonwood. The 10-unit T-hangar facility located at the southern end of the apron is owned by the City, which leases the individual units directly to aircraft owners.

Fuel Storage/Dispensing: The fuel facility is located in the hangar development area along the apron's western edge and consists of two 10,000-gallon aboveground tanks. One tank contains 100LL fuel and is owned by the City of Cottonwood. Aerobear Aviation collects fuel fees and uses this tank to supply its 500-gallon-capacity 100LL AvGas fuel truck, which in turn services aircraft.

The second tank contains JetA fuel and is privately owned by an airport tenant, who utilizes this fuel for his own aircraft.

Airport Access: Cottonwood Municipal Airport is accessed via State Route 89A to Mingus Avenue to Airport Entrance Road on the Airport's north side. Airport Entrance Road leads to the apron, just east of Aerobear Aviation. State Route 89A is a four-lane road, while Mingus Avenue and Airport Entrance Road are both two-lane roads. Additional access is provided by the new gated access road west of the terminal building. This road allows access to the hangar development area, as well as the skydiving business located west of the hangars.

Auto Parking: Nine paved parking spaces are provided directly in front of the Aerobear Aviation Building. In addition, unmarked paved parking (approximately 1,600 square feet) is available along the south side of this building. A third parking area (approximately 4,475 square feet), also paved and unmarked, is adjacent to the electrical vault which is located across from the FBO building. Undesignated parking is also available near each hangar facility. In addition, roadside parking (totaling 50 spaces) is available at three separate locations along the new access road west of the hangar development area.

Airport Emergency Response Ability: No dedicated full-time Aircraft Rescue and Fire Fighting (ARFF) facility or personnel is available at Cottonwood Municipal Airport. The Cottonwood Fire Department, which is located approximately 1.5 miles east of the Airport, provides emergency response service to the Airport. Their equipment and training are limited to the more conventional, non-aviation type of emergency response.

Perimeter Fencing: The perimeter fencing at the Airport consists of a chain link fence which varies in height from four to six feet at different locations on the Airport. This fence runs the perimeter of the Airport property, and has warning signs posted at select locations to alert would-be trespassers. The road west of the terminal/FBO building is gated for restricted access.

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

- **Water:** City of Cottonwood
- **Sanitary Sewer:** City of Cottonwood
- **Electrical:** Arizona Public Service
- **Telephone:** Qwest Communications, Inc.
- **Natural Gas:** Citizens Gas Company

AIR TRAFFIC CONTROL

As Cottonwood Municipal Airport has no airport traffic control tower, no formal terminal air traffic control services are available. The Airport, however, is attended from 8:00 a.m. to 5:00 p.m. daily. Weather related information and air traffic advisories are provided by the FBO on the Airport's UNICOM frequency (122.7). The UNICOM is also monitored by the Flight Services Station (FSS) located in Prescott. Aircraft operating in the vicinity of the Airport are not required to file any type of flight plan or to contact any air traffic control facility unless they are entering airspace where contact is mandatory. Enroute air traffic control services are provided by the Albuquerque Air Route Traffic Control Center (ARTCC).

Instrument Approach Procedures

Instrument approach procedures are a series of predetermined maneuvers established by the FAA, using electronic navigational aids that assist pilots in locating an airport during low visibility and cloud ceiling conditions. Currently, Cottonwood Municipal Airport has no instrument approach procedures, which means the Airport is essentially closed to all operations when weather conditions deteriorate to a point where visual flight is no longer feasible.

LOCAL OPERATING PROCEDURES

Flights in and out of Cottonwood Municipal Airport are conducted under Visual Flight Rules (VFR) conditions. 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).

Arrival Procedures: Cottonwood Municipal Airport uses the left-hand traffic pattern for Runway 14 and the right-hand traffic pattern for Runway 32. Arriving aircraft must utilize the standard traffic pattern entry procedures for an uncontrolled airport. Traffic pattern altitude (TPA) for single engine aircraft is 4,350 feet MSL; 4,550 feet MSL for multi-engine; turbine (turboprop) is 5,050 feet MSL; and the TPA for helicopters is 4,050 feet MSL.

Departure Procedures: Aircraft departing Runway 14 are requested to maintain runway heading for one (1) mile beyond the runway end and attain 500 feet AGL prior to turning. Runway 32 departing aircraft are requested to maintain runway heading for 0.6 miles beyond the runway end and reach 500 feet AGL before turning. These are not formal noise abatement procedures, however, they were instituted by the former airport manager in response to the increasing encroachment of residential development in the Airport vicinity.

Additional considerations for both arriving/departing aircraft: No multiple takeoff and landing or touch-and-go's are permitted from 30 minutes past sunset until 6:00 a.m. To avoid flyover of Cottonwood, multi-engine aircraft should land on Runway 14 and depart from Runway 32. Runway 32 is the designated calm wind runway.

Downdrafts can occur at the Runway 14 approach end, while midfield air turbulence can be created by a small hill located west of the runway. Pilots are warned to be aware of density altitude (see **Glossary**) which can affect both landing and takeoff distances. In addition, both arriving and departing pilots need be aware of brush and fence at the Runway 14 end. After hours, runway edge lights, precision approach path indicators (PAPIs) and runway end identification lights (REILs) can all be activated via UNICOM (by keying frequency 122.7 - 3, 5 or 7 times).

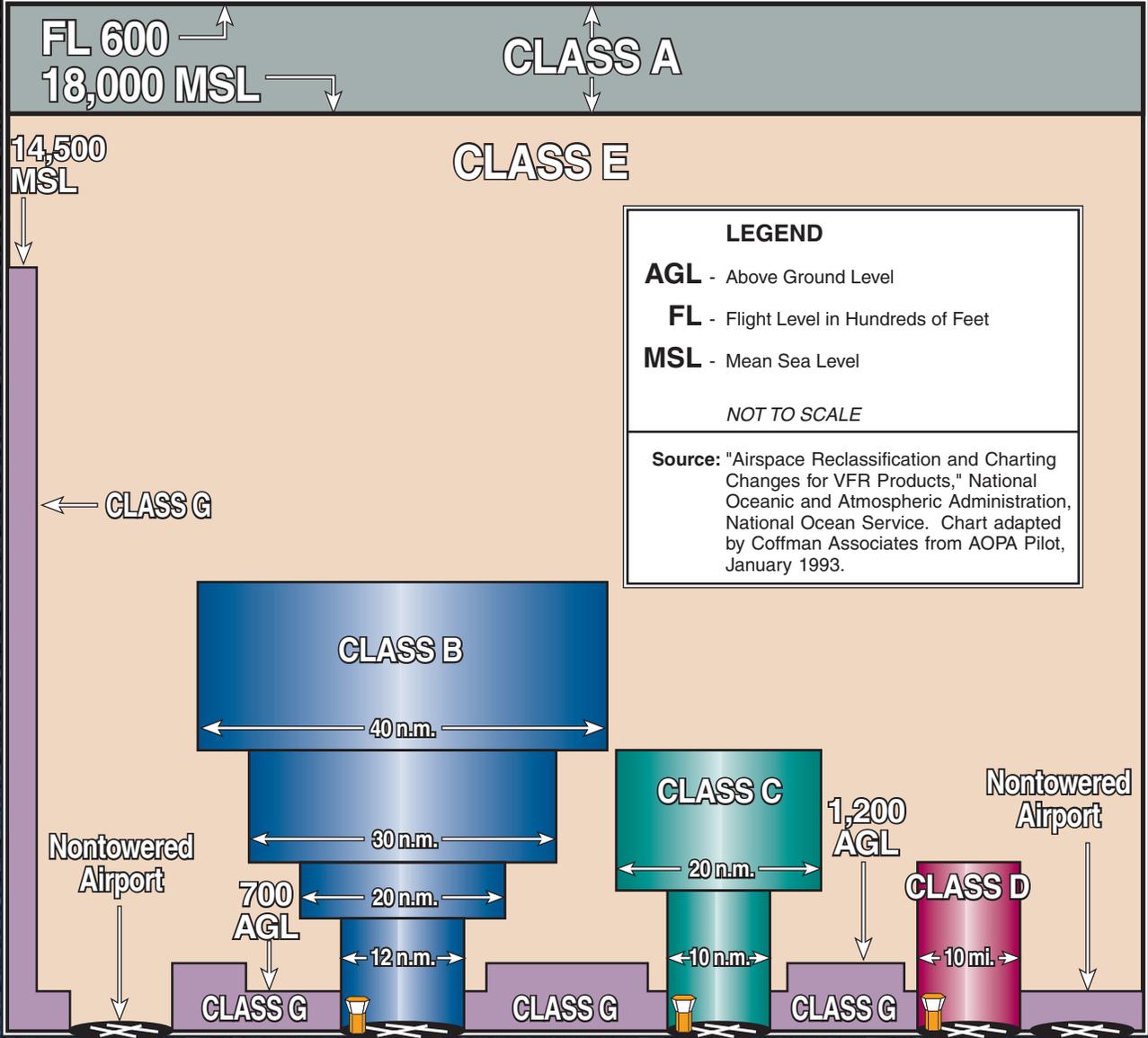
AIRSPACE

The FAA Act 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** further defines airspace classifications.

Class A airspace is controlled airspace and includes all airspace from 18,000 feet mean sea level (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



LEGEND

AGL - Above Ground Level

FL - Flight Level in Hundreds of Feet

MSL - Mean Sea Level

NOT TO SCALE

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

CLASSIFICATION	DEFINITION
CLASS A	Generally airspace above 18,000 feet MSL up to and including FL 600 .
CLASS B	Generally multi-layered airspace from the surface up to 10,000 feet MSL surrounding the nation's busiest airports.
CLASS C	Generally airspace from the surface to 4,000 feet AGL surrounding towered airports with service by radar approach control.
CLASS D	Generally airspace from the surface to 2,500 feet AGL surrounding towered airports.
CLASS E	Generally controlled airspace that is not Class A, Class B, Class C, or Class D.
CLASS G	Generally uncontrolled airspace that is not Class A, Class B, Class C, Class D, or Class E.



commercial service (i.e., Tucson International Airport) and some military airports (i.e., Davis-Monthan Air Force Base). Class D airspace is controlled airspace surrounding airports with an airport traffic control tower (i.e., Phoenix - Deer Valley). All aircraft operating within Class 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 minimum visibility 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 mean sea level (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.

VICINITY AIRSPACE

Cottonwood Municipal Airspace lies within Class G Airspace. The nearest controlled airspace is the Class E airspace containing both Sedona Airport and Flagstaff-Pulliam Airport, which begins approximately 2 NM to the north, and the Class E airspace surrounding Prescott's Ernest A. Love

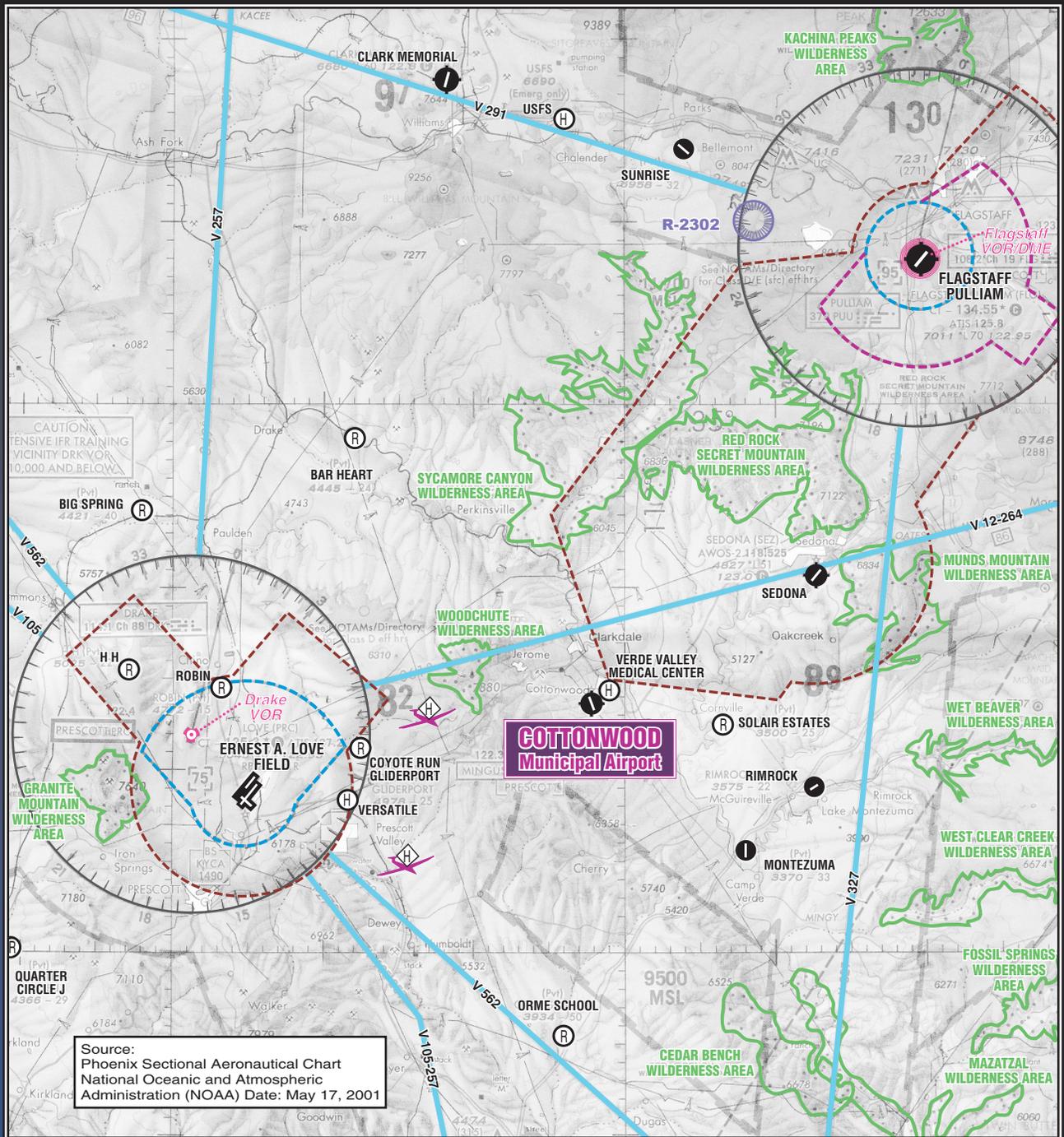
Field to the west, located approximately 10 NM to the west. **Exhibit 1D** depicts Cottonwood Municipal Airport and its relationship with the regional airspace.

Airways

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 only airway system influencing the area is Victor Airway V12-264, which runs east-west and crosses the Cottonwood Area about four miles north of the Airport. This airway is used to navigate between the Drake VOR and the Winslow VOR.

Other Airspace

A number of wilderness areas are located within 20 nautical miles (NM) of Cottonwood Municipal Airport (See **Exhibit 1D**). These include Woodchute Wilderness Area to the west; Sycamore Canyon Wilderness Area and Red Rock Secret Mountain Wilderness Area to the north; Munds Mountain Wilderness Area to the northeast; Wet Beaver



Source:
Phoenix Sectional Aeronautical Chart
National Oceanic and Atmospheric
Administration (NOAA) Date: May 17, 2001

LEGEND:

	Hard-surfaced runways greater than 8069 ft. or some multiple runways less than 8069 ft.		Compass Rose
	Hard-surfaced runways 1500 ft. to 8069 ft.		Victor Airways
	Other than hard-surfaced runways		Prohibited, Restricted, Warning and Alert Areas
	Services/Fuel Available		Class D Airspace
	Private (Pvt)		Class E Airspace
	Heliport		Class E Airspace with floor 700' above surface
	VORTAC		Hang Glider Activity
	Non-Directional Radiobeacon (NDB)		

0 10
SCALE IN MILES

NORTH

Wilderness Area and West Clear Creek Wilderness Area to the east; and Cedar Branch Wilderness Area to the south. While aircraft operations are not restricted over these areas, aircraft are requested to maintain a minimum altitude of 2,000 feet above ground level.

AREA AIRPORTS

Within a 30 NM radius of Cottonwood Municipal Airport are two public use airports and seven private airports. The two public use airports are Sedona Airport and Prescott's Ernest A. Love Field. These two airports provide hard surface (paved) landing surfaces, while only two of the seven private airports are paved. A brief description of Sedona Airport and Ernest A. Love Field follows.

Sedona Airport (SEZ) is located approximately 14 NM northeast of Cottonwood Municipal Airport. SEZ is served by a single asphalt runway measuring 5,132 feet in length by 75 feet in width. This runway has a pavement strength rating 15,000 single wheel loading (SWL) and 30,000 pounds dual wheel loading (DWL). Sedona Airport's FAA 5010 Airport Master Record (dated July 2001) indicates 98 based aircraft at the airport, with reported operations (takeoff or landing) for the year 2000 totaling 41,500.

Ernest A. Love Field (PRC) is located approximately 20 NM west of Cottonwood Municipal Airport, and is the closest airport providing scheduled commercial service. Three asphalt runways are available at PRC, with

Runway 3R-21L serving as the primary runway. Runway 3R-21L is 7,550 feet long by 150 feet wide, with pavement strength ratings (in thousands of pounds) of 63 SWL, 80 DWL, and 100 dual-tandem wheel loading (DTWL). Runway 3L-21R, which parallels the main runway, is 4,846 feet long and 60 feet wide, and is considered the training runway. The third runway, Runway 12-30, is the crosswind runway, and measures 4,408 feet long by 75 feet wide. Both Runway 3L-21R and Runway 12-30 are pavement strength rated at 12,500 pounds SWL. The latest (July 2001) FAA 5010 Airport Master Record for PRC reports 310 based aircraft at the airport, with year 2000 operations totaling 337,132.

Also, located within the vicinity of Cottonwood Municipal Airport are two private heliports; one at the Verde Valley Medical Center (AZ22) which is located ½ NM northeast of the Airport; and the second one, known as Versatile (AZ70), located in Prescott Valley approximately 17 NM west of Cottonwood Municipal Airport. The helicopters from the hospital often refuel at Cottonwood Municipal Airport.

COMMUNITY AND REGIONAL PROFILE

A community and regional profile provides a general look at the socioeconomic make-up of the community that utilizes an airport. It further provides an understanding of the dynamics for growth and the potential changes that may affect aviation demand. Aviation demand

forecasts (see Chapter Two - Forecasts) are usually directly related to the population, economic strength of the region, and the ability of the region to sustain a strong economic base over an extended period of time. This section contains background information on the City of Cottonwood and the surrounding region. Data regarding population, personal income, employment, land uses surrounding the Airport, climate, and the regional surface transportation network are presented in this section.

CITY OF COTTONWOOD

The City of Cottonwood is located in Yavapai County in an area known as the Verde Valley, near the geographic center of Arizona. Cottonwood was founded in 1879 and incorporated in 1960. The community gets its name from a circle of 16 cottonwood trees found near the Verde River which runs through the City. Cottonwood is the main services, retail, employment and economic center for the Verde Valley region. Leading industries in Cottonwood include tourism, professional services, retail services, medical services, senior citizen/retirement-related services, and manufacturing.

Several natural, historical, and cultural attractions are located within a short drive of the City. The Verde River supports a large riparian habitat. To the north of Cottonwood are the red rocks of Sedona and Oak Creek Canyon; to the west is the Prescott National Forest. The Fort Verde State Historic Park and the ghost mining town of

Jerome are within close proximity of Cottonwood. Additionally, the Sinaguan Indian ruins at Tuzigoot National Monument and the cliff dwellings at Montezuma Castle National Monument are also located nearby.

YAVAPAI COUNTY

Yavapai County is one of Arizona's oldest counties. At 8,125 square miles, it is approximately the size of the state of New Jersey. The County's largest community and County seat, Prescott, was twice the territorial capital of Arizona in the 1800s. The U.S. Forest Service owns 38 percent of the land in Yavapai County, including the Prescott, Tonto, and Coconino National Forests. Other substantial government interests include the State, which owns 24.6 percent of the land; the U.S. Bureau of Land Management, 11.6; and the Yavapai Indian Reservation, with 0.5 percent. The County's major industries include tourism and recreation, ranching, manufacturing, and copper mining.

REGIONAL TRANSPORTATION

Cottonwood is located approximately 100 miles north of Phoenix and approximately 50 miles south of Flagstaff. It is easily accessed from Interstate 17 and State Route 260. State Route 89A, off which the Airport is located, connects Cottonwood to Sedona on the north, and to Prescott via Granite Dells and State Route 89 on the south.

Light shuttle bus service is available between the Cottonwood/Sedona/Verde Valley and Phoenix areas. Limited local bus service is provided in Cottonwood. Local taxi service is available in the City. No rail service is available to the community. As Cottonwood is located near major state and interstate trucking routes, several freight companies serve the community.

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 Cottonwood, Yavapai County, and the state of Arizona are presented in **Table 1D**.

POPULATION

The size and structure of the surrounding communities, and the

TABLE 1D Historical Population Statistics			
	Cottonwood	Yavapai County	Arizona
1960	1,879	28,912	1,302,161
1970	2,610	37,005	1,775,399
1980	4,550	68,145	2,716,546
1990	5,918	107,714	3,665,339
1995	6,545	129,500	4,228,900
1998	7,775	148,500	4,764,025
2000	9,179	167,517	5,130,632

Sources: Arizona Department of Economic Security, U.S. Census Bureau, and the Arizona Department of Commerce Internet Web Sites, November 2001.

As reflected in the table, the population of Cottonwood grew steadily for the period 1960 through 2000. Cottonwood's population increased from 1,879 in 1960 to 9,179 in 2000, for an annual average

growth rate (AGR) of 4.0 percent. This growth rate is below the County's AGR of 4.5 percent, and above the State's (3.5 percent AGR) for the same period.

EMPLOYMENT

Table 1E summarizes Yavapai County employment by sector for the period 1995 to 1999. The services and miscellaneous sector has enjoyed the strongest annual growth rate with 6.61 percent over this period, with the construction sector second at 6.04 percent annual growth rate, followed by

the government sector with a 5.03 percent annual growth rate. Two sectors that showed a negative annual growth rate for this five-year period were the agriculture, farming, ranching, forestry, and fishing sector (at minus 4.31 percent), and the transportation, communications, and public utilities category (minus 0.52 percent).

	1995	1996	1997	1998	1999	1995-1999 Annual Growth (%)
Agriculture (Farming, Ranching, Forestry, and Fishing)	21,525	19,300	17,275	17,475	18,050	-4.31 %
Manufacturing	3,100	3,225	3,325	3,250	3,250	1.19 %
Mining and Quarrying	775	800	850	850	900	3.81 %
Construction	3,500	3,550	3,825	4,150	4,425	6.04 %
Transportation, Communications, and Public Utilities	1,225	1,250	1,275	1,375	1,200	-0.52 %
Retail/Wholesale Trade	11,075	11,450	12,125	12,300	12,700	3.48 %
Finance, Insurance, and Real Estate	1,550	1,525	1,775	1,950	1,600	0.80 %
Services and Miscellaneous	10,800	11,325	12,500	13,475	13,950	6.61 %
Government	7,500	7,600	8,500	8,875	9,125	5.03 %
Totals	61,050	60,025	61,450	63,700	65,200	1.66 %

Source: Arizona Department of Economic Security, Research Administration

The growth in the services and miscellaneous sector, and the construction sector can be attributed to the growing population. A growing population attracts more service-oriented businesses, and benefits construction through both new business and new home construction. The drop in agricultural-related employment is similar to nationwide statistics, while the slight drop in the transportation,

communications, and public utilities sector is not significant.

Unemployment in Yavapai County dropped steadily between 1995 and 1999, from 4.8 percent to 3.4 percent, respectively. In comparison, Arizona's unemployment rate in 1999 was 4.4 percent, while nationally the unemployment rate was 4.2 percent.

INCOME

County, the State of Arizona, and the United States, for the years 1995 through 1999.

Table 1F compares the per capita personal income (PCPI) for Yavapai

TABLE 1F Per Capita Income Comparison					
	1995	1996	1997	1998	1999
Yavapai County	\$17,995	\$16,572	\$17,172	\$18,639	\$18,452
Arizona	\$20,634	\$21,611	\$22,780	\$24,133	\$25,173
United States	\$23,562	\$24,651	\$25,874	\$27,321	\$28,546

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

The table shows that the PCPI for the County fell in 1996, then rebounded in 1997 and 1998, before dropping again the following year. Meanwhile, both Arizona and U.S. PCPI rose steadily throughout the five-year period.

AREA LAND USE

Existing Land Uses

Cottonwood Municipal Airport is located within the corporate boundaries of the City of Cottonwood. Land uses within the immediate vicinity of the Airport are shown on **Exhibit 1E, Existing Land Use**. To the west, a small portion of the Airport’s boundary borders the Prescott National Forest. The Verde Village residential development (single-family homes) is located south of the Airport, off the Runway 32 end. East of the Runway 32 end is a second, single-family home development known as Tierra Verde. Adjacent to the Airport’s eastern boundary, located south of Mingus

Avenue and west of State Route 89A, is a commercial/industrial development: Mingus Industrial Park. South along State Route 89A and less than 1/8 mile east of the Airport is the El Rio De Oro Mobile Home Park. The Cottonwood Ranch residential development is located northwest of Runway 14. Further to the northwest is the Black Hills subdivision, which is located within the Town of Clarkdale. The remaining land bordering the Airport is mostly undeveloped open space under the jurisdiction of the City of Cottonwood.

On the Airport are located many commercial/industrial uses known collectively as Cottonwood Industrial Airpark.

Several Public/Semi Public entities are located on Airport property west of the runway and north of Mingus Avenue. Located north of Mingus Avenue is the City of Cottonwood’s trash transfer station; public works department; wastewater treatment plant; fire

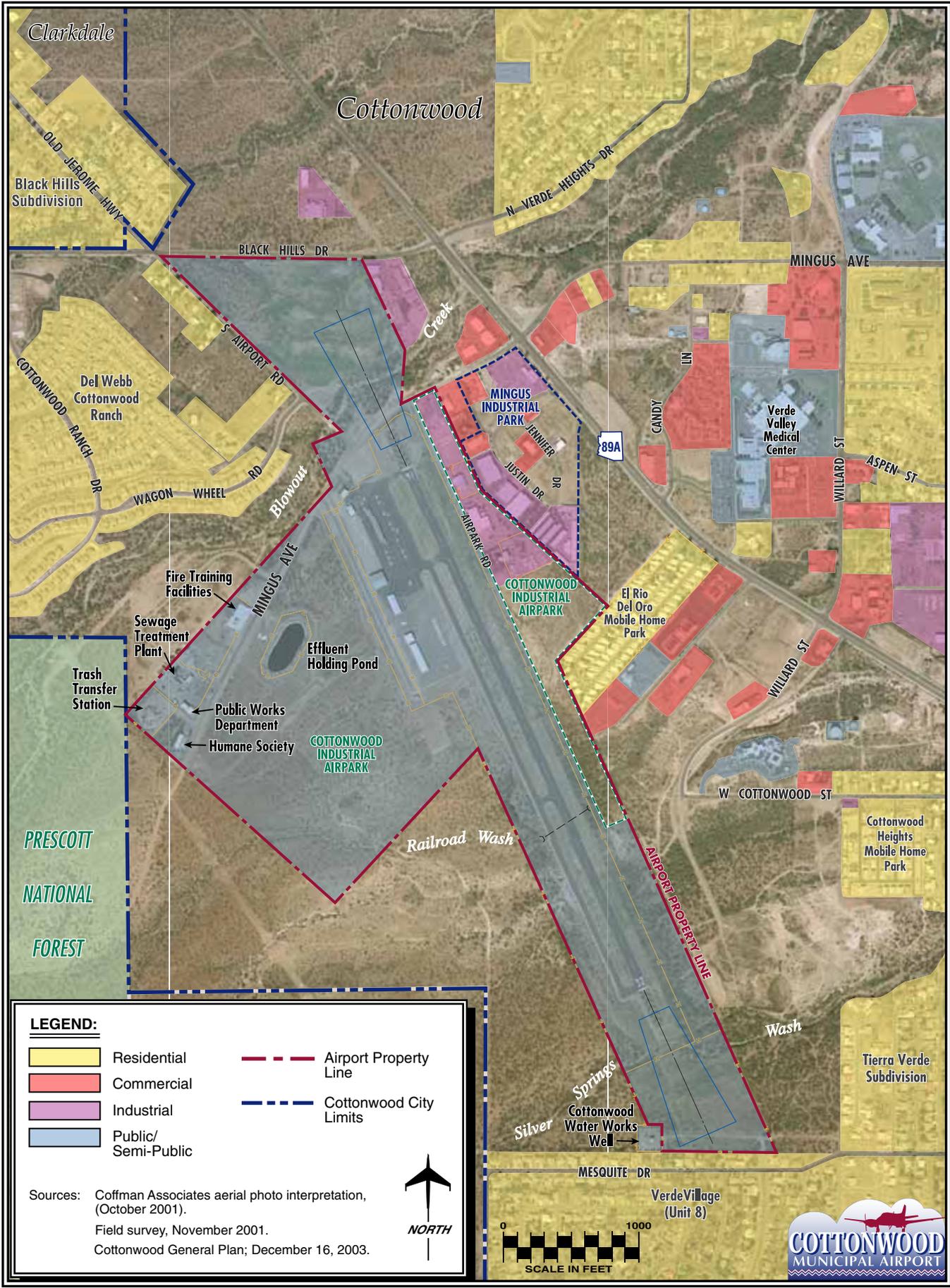


Exhibit 1E
EXISTING LAND USE

training facilities; and the Arizona Humane Society. The effluent holding pond for the City's wastewater treatment facility, however, is located south of Mingus Avenue and west of the hangar development area on Airport property reserved for the future development of Cottonwood Industrial Airpark.

City of Cottonwood General Plan

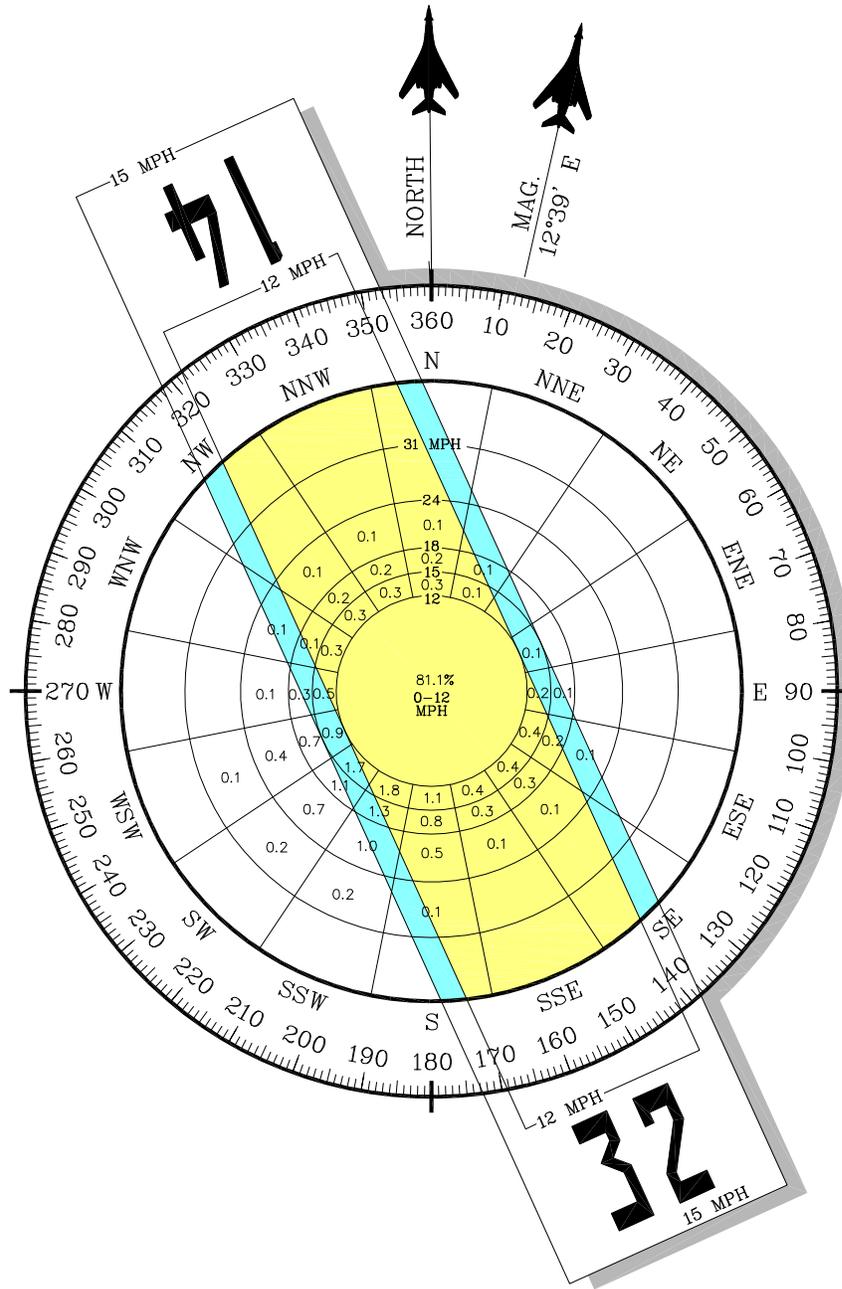
With regard to overall land use, the *City of Cottonwood General Plan (adopted September 19, 1995)* divides the City into six Planning Areas. According to the Plan, the Airport is located in *Planning Area 4 - Airport/Industrial*. This area contains large tracts of public-owned land used primarily as a buffer for the Airport. Most of the land in Area 4 is undeveloped, with a large amount of undeveloped industrial-zoned land which can be compatible with the Airport. Undeveloped land comprises 83 percent of Area 4, while single-family residential land use comprises 1.7 percent, and mobile home land use 2.2 percent. Other Area 4 land uses include: Public/Quasi Public; Commercial, and Roadway/Alley.

Future Area 4 development recommendations of the General Plan call for additional commercial development, expansion of the City wastewater treatment facility located west of the Airport, and some expansion of mobile home and low density single-family residential development.

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 required for aircraft operation. 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 moderate climate surrounding Cottonwood Municipal Airport is ideal for aviation. The area records nearly 300 sunny days per year. The hottest month is July, with an average daily maximum temperature of 98.4 degrees Fahrenheit and average daily minimum of 66.0 degrees Fahrenheit. The coolest month is January, with an average daily maximum temperature of 58.2 degrees Fahrenheit and average daily minimum of 28.4 degrees Fahrenheit. The average annual total precipitation is 12.21 inches, with the majority of it coming in the summer monsoon months of July, August, and September.

The prevailing winds at the Airport are out of the southwest. Runway 32 is the designated calm wind runway. **Exhibit 1F, All Weather Wind Rose**, illustrates a more detailed analysis of wind conditions as they pertain to runway orientation. The wind rose was constructed using historical data collected at Prescott's Ernest A. Love Field, which is located 20 NM to the west. This data represents hourly



SOURCE:
 U.S. Department of Commerce,
 National Oceanic and
 Atmospheric Administration

DATA STATION:
 National Climate Center
 Ashville, North Carolina

OBSERVATIONS:
 90,000 Estimated
 1948-1978
 Ernest A. Love Field
 Prescott, Arizona

WIND COVERAGE		
	12 MPH	15 MPH
Runway 14-32	91.68%	96.38%



weather observations covering a 30-year period from 1948 to 1978. At the time of this report, this was the most recent and closest climatic wind data available.

According to this exhibit, Runway 14-32 provides 91.4 percent coverage of the 10.5 knot (12 mph) crosswind component and 95.9 percent of the 13 knot (15 mph) crosswind component. Changing wind patterns and frontal movements over the mountains occasionally disturb the air flow. Wind speeds greater than 43.5 knots (50 mph) are quite common during these short periods.

SUMMARY

The information discussed in this chapter provides a foundation from which the remaining elements of the master plan can be prepared. The inventory information on the current facilities at Cottonwood Municipal Airport will be the basis, along with additional analysis and data collection, for developing forecasts of aviation activity (Chapter Two), and defining future facility requirements (Chapter Three). This chapter also provides the proper perspective from which to develop a feasible master plan that serves the needs of the City of Cottonwood 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 City and Airport management, nor drawings which may have been referenced for information. An on-site interview and interviews with City and Airport 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, November 1, 2001.

Phoenix Sectional Aeronautical Chart, U.S. Department of Commerce, National Oceanic and Atmospheric Administration, November 1, 2001.

National Plan of Integrated Airport Systems (NPIAS), U.S. Department of Transportation, Federal Aviation Administration, 1998-2002.

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

Cottonwood Municipal Airport FAA
5010 Form Airport Master Record data
www.airnav.com
www.gcr1.com

City of Cottonwood
www.ci.cottonwood.az.us

Yavapai County
www.co.yavapai.az.us