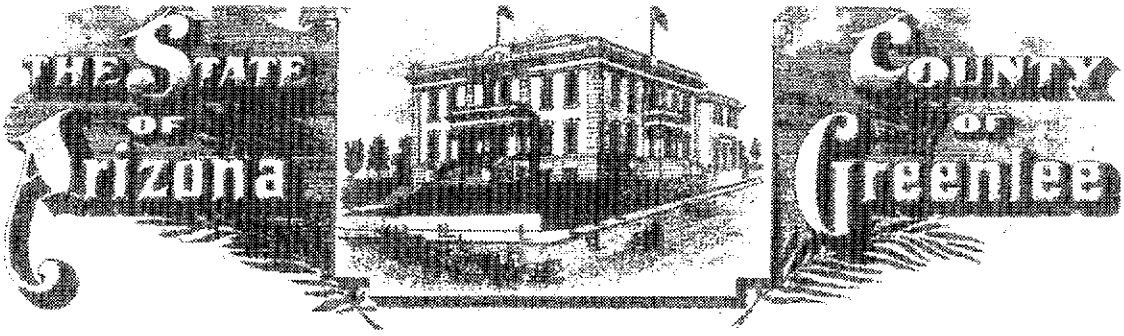

Greenlee County Airport Master Plan

(2000-2020)

Chapter 2 Inventory

June, 2002

Stantec

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2

INVENTORY

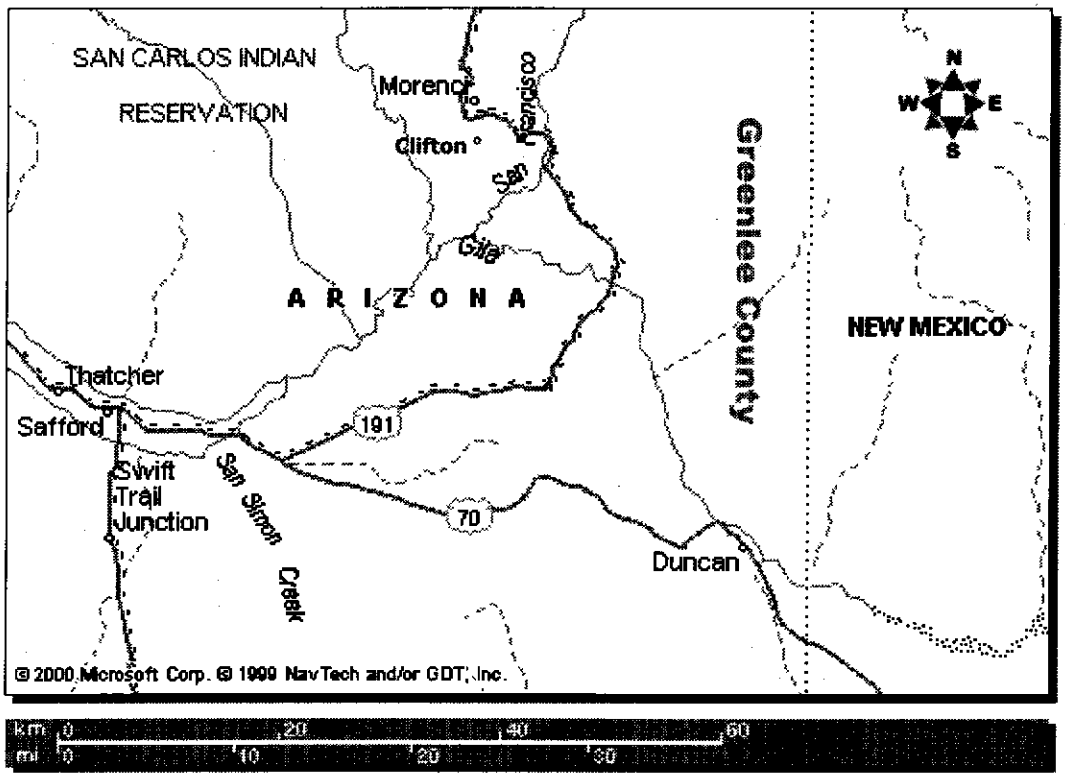
Introduction

The inventory serves as the foundation for completing subsequent elements of the Airport Master Plan. This chapter contains descriptions and inventories of the existing facilities at the Greenlee County Airport. It also provides information concerning airport setting and history, system categories, classification, aviation activity, airspace, traffic pattern, socioeconomic factors, land use, regional transportation and climate.

Regional Setting

Greenlee County, Arizona's 14th County, was created in 1909 by an Act of the 25th Territorial Assembly. There are several towns located within the county boundaries. Clifton, Duncan, and Morenci are among the largest. Clifton and Morenci were established during the late 1800s as mining towns. Clifton, incorporated in 1909, is the Greenlee County seat. The unincorporated town of Morenci has the largest open pit copper mine in the US. Duncan, incorporated in 1938, is astride the Gila River in southern Greenlee County and primarily an agricultural area. See **Exhibit 2-1** below.

Exhibit 2-1 Town Locations



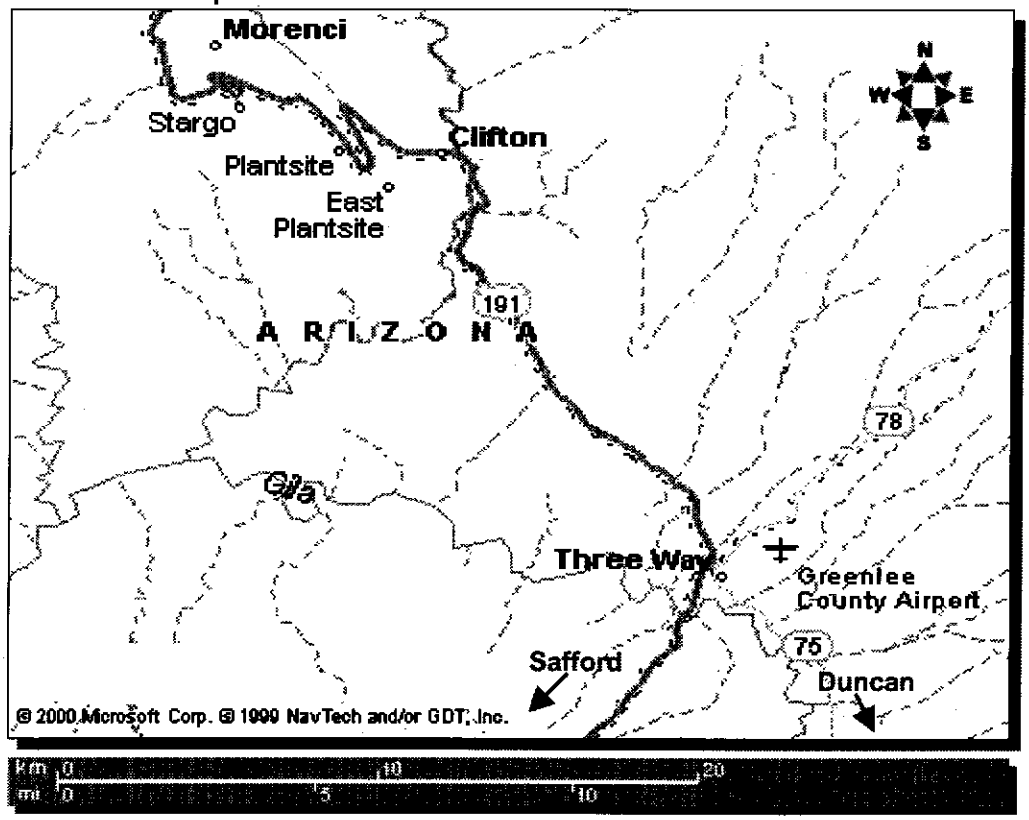
Airport Setting

The Greenlee County Airport is located in Township 5 south Range 30 east approximately 8 ½ miles southeast of the towns of Clifton and Morenci and 24 miles north of Duncan. The 457-acre airport site is located on property owned and operated by Greenlee County. Appendix I includes available deed information. Property owners surrounding the airport include the State and the BLM. The land surrounding the airport belongs to the State of Arizona. The land in the immediate area is classified as undeveloped, open-range or raw natural desert land with no apparent conflicts with residential dwellings.

The official FAA identifier for Greenlee County Airport is **CFT**. The airport (located 32° 57' 25.50" North, 109° 12' 37.98" West) is at an elevation of 3,797 feet mean sea level (MSL). Airport location with respect to the surrounding towns is illustrated in the following **Exhibit 2-2**. Primary facilities at this 458-acre airport include the following:

- A 4,977 x 75-foot asphalt paved runway (Runway 07-25)
- Abandoned 5,350 x 200-foot dirt runway (Runway 18-36)
- Two taxiway exits (T1 and T2)
- A concrete aircraft parking apron with 22 tiedown spaces
- 800-square-foot terminal building (modular)
- Two chip seal macadam surfaced automobile parking areas
- One paved (2-inch thick asphaltic concrete) terminal auto parking area
- One portable metal hangar located on the apron
- Access road that connects State Route 78 to the airport.

Exhibit 2-2 Airport Location



Airport History

The airport was originally a dirt strip built by the U.S. Army in the late 1940's. Improvements were made which included the construction of a paved runway 4,970' in length (later surveyed at 4,977'). However, records are not available for verification of improvement projects prior to 1979. The following **Table 2-1** is a summary of previous major improvement projects and funding participation.

Table 2-1 Airport Development History

Date	Project Description	Remarks
NA	Construct Runway @ 4,970 feet	Recent survey identifies a 4,977' length
1955	Pave access road to airport from 3-Way 1.26 miles	
1956	Airport Master Layout	
1957	Airport land acquisition (377.77 acres)	AIP 9-02-003-0801
	Runway 7-25 grade, drain, pave (2" AC on 3"ABC on 4 ½"ABC on native)	AIP 9-02-003-01 Based on Board notes, the Army Corps contracted the construction
1960	Airport land acquisition (79.04 acres)	U.S. Land patent
	Arizona Highway Department extends and paves SR 78	
1979-1980	Runway Seal Coat	$72,000 - State/Local funding
1981	PCC parking apron extension	$137.620 - State/Local funding
1981-1982	Parking Apron to Portland Cement Concrete	$66, 866 - State/Local funding
1985	Chip seal runway 7-25 (Rehabilitate and Mark Runway)	$65,044 - Federal, State and Local funding
1993	Master Plan	$44,000 - State/Local Funding
1995	Upgrade MIRL System	$204,461 - Federal, State and Local funding
	Runway 7-25 reconstruction	$570,883 - Federal, State and Local funding
	Runway 7-25 reconstruction - subgrade reconstruction	$366,422 - Federal, State and Local funding
1996	Livestock fence around runway	$23,026 - Federal, State and Local funding
1999	Airport Access Road, Automobile Parking lot	$84,753 - Federal, State and Local funding
	Taxiway T1 construction and T2 overlay 1.5 inch AC including reflectors	$66,510 - Federal, State and Local funding
2000	Wind Cone, Segmented Circle, Rotating Beacon	$29,052 - Federal, State and Local funding
	Modular Terminal and Site Improvements	$68,431 - State and Local funding.
	Runway 7-25 overlay and marking	$65,044 - Federal, State and Local funding
	Survey of airport north property line and SR 78	$7,000 - Federal, State and Local funding
	Water system improvements, Closure of old restroom facility	$99,278 - Federal, State and Local funding
	Electrical vault modifications, New Beacon, Segmented Circle, Lighted windcone	$32,690 - Federal, State and Local funding
	Master Plan update	$76,872 - Federal, State and Local funding
	Taxiway Turnaround 07 and 25 including lights	$270,638 - Federal, State and Local funding

Source: Greenlee County Records; NA = Not Available

The Airport System Categories

The Federal Aviation Administration (FAA) defines three broad categories of aviation activities: General Aviation, Certified Air Carrier, and Military. At the national level, the airport has been defined by the FAA in the National Plan of Integrated Airport Systems (NPIAS) and by the Arizona Aeronautics Division in the 2000 Arizona State Aviation Needs Study (SANS), as a **General Aviation** airport.

General Aviation is the largest and the most significant element of the national air transportation system. General aviation aircraft account for approximately 98 percent of all aircraft in use today and 95 percent of all airports. The types of aircraft operations that occur at Greenlee County Airport include charter/air taxi, recreational, firefighting, and military. There are no certificated air carriers (airlines that provide scheduled carriage of passengers and/or are licensed by the FAA) currently operating from Greenlee County Airport.

Airport Classification

An airport can be classified by various airport elements such as types of aircraft operations, airport role, aircraft performance, and aircraft physical characteristics. This section describes the classification of Greenlee County Airport. These classifications serve to identify the various development needs of the airport in later elements of the master plan.

The airport classification is one of four defined in ADOT Aeronautics and other FAA publications.

- **New/Emerging.** This category accommodates areas within the State of Arizona that demonstrate a need for an airport with minimum design standards to be utilized for general aviation, recreation and/or emergency services.

- **Basic Utility.** This type of airport accommodates small, single-engine and small twin-engine airplanes, less than 12,500 lbs. gross weight, used for personal and business purposes. The length of the runway will determine how many types of these aircraft will be able to operate from it. Aircraft that will use this airport will typically have wingspans less than 49 feet in length and approach speeds of less than 121 knots. Precision instrument approach systems are usually not planned for runways in this category.

- **General Utility.** This type of airport accommodates all small airplanes and some larger aircraft weighing more than 12,500 lbs. with wingspans up to but not including 79 feet and approach speeds of less than 121 knots. Precision approach systems may be installed at airports in this category.

- **Commercial Service.** This type of airport is designed for larger aircraft with higher approach airspeeds up to 166 knots. Typical wingspans vary and can reach nearly 262 feet. Furthermore, this type of airport will have regularly scheduled airline service. Precision approach operations are normally planned for most Commercial Service airports.

Based on ADOT Aeronautics' planning guidelines of airport classifications, Greenlee County Airport is identified (by means of its runway length, width, and pavement-bearing capacity), as a General Utility II airport serving "all small airplanes plus some small business and air taxi-type twin-engine airplanes."[1]

[1] *1995 ADOT SANS, pg. 3-12*

Furthermore, the FAA identifies a coding which is used to relate airport design to operational and physical characteristics of aircraft intended to operate at the airport. This code, called the Airport Reference Code (ARC) has two main components listed below:

- The first component, depicted by letter, is the aircraft approach speed. This is based upon 1.3 times an aircraft's stall speed in the landing configuration at the particular aircraft's maximum certified weight.

- The second component, depicted by Roman numeral, is the airplane design group. This relates to the size of an airplane, specifically, the aircraft's wingspan.

The approach categories and aircraft design groups, defined in FAA Advisory Circular 150/5300-13, Airport Design, are summarized in **Table 2-2** as follows.

Table 2-2 Approach Categories and Aircraft Design Groups

Aircraft Approach Categories		Aircraft Design Groups	
Category	Approach Speed	Group	Wingspans
A	Less than 91 knots	I	Up to but not including 49 feet
B	**91 knots or more but less than 121 knots**	**II**	**49 feet up to but not including 79 feet**
C	121 knots or more but less than 141 knots	III	79 feet up to but not including 118 feet
D	141 knots or more but less than 166 knots	IV	118 feet up to but not including 171 feet
E	166 knots or more	V	171 feet up to but not including 197 feet
		VI	197 feet up to but not including 262 feet

Source: FAA AC 15/5300-13, Airport Design, Chg. 4, 11/10/94

The types of aircraft operating on a regular basis at Greenlee County Airport are categorized under Aircraft Approach Category B and Airplane Design Group II. This combination B-II forms the ARC for Greenlee County Airport.

Airport Activity

In order to effectively make projections regarding future airport activities, accurate estimates of current aviation activity levels must exist. However, Greenlee County Airport is without the ability to count actual observed operations. Therefore, airport staff and users provided operation estimates and based aircraft at the airport. Airport with similar circumstances have rented accoustical counters to place at runway ends or hired a student to count and log aircraft operations at various times of the year to obtain more accurate activity estimates.

Tables 2-3 and 2-4 summarize the historical data available for based aircraft and operations, respectively. See appendix E for a based aircraft listing.

Table 2-3 History of Based Aircraft

Year (Source)	Based Aircraft (single-engine only)
1992 (1993 Master Plan)	2
1995 (1995 State Aviation Needs Study)	2
1998 (1998 Terminal Area Forecast)	2
2000 (FAA 5010, Air Nav 2000)	3
2000 (Airport Staff)*	2

* Used as baseline for Master Plan Update

Table 2-4 History of Aircraft Operations

Year (Source)	Total Aircraft Operations
1992 (1993 Master Plan)	4,320
1995 (1995 State Aviation Needs Study)	3,784
1998 (1998 Terminal Area Forecast)	6,000
2000 (FAA 5010, Air Nav 2000)	6,604
2000 (Airport Staff)*	6,726

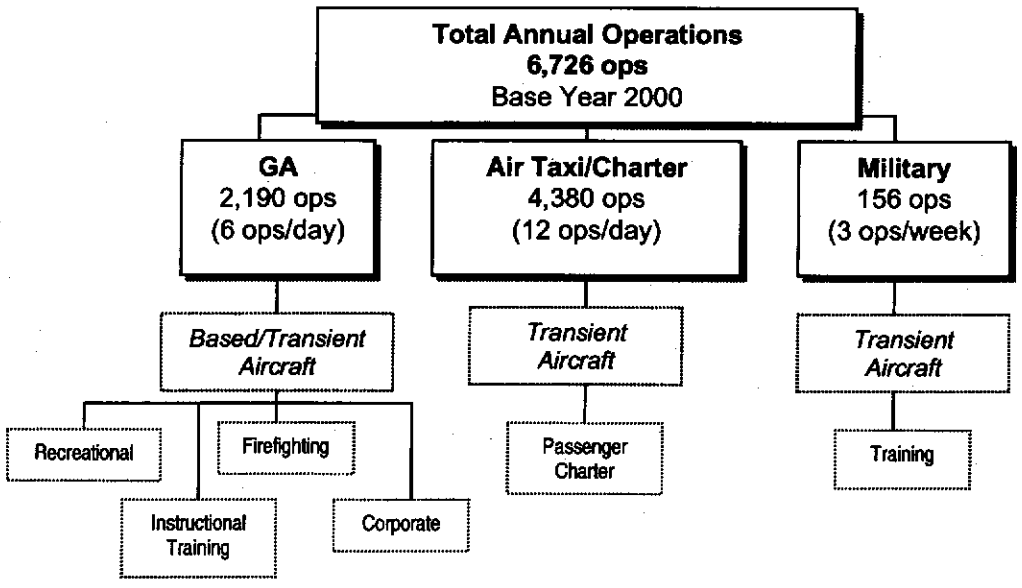
* Used as baseline for Master Plan Update

As noted in Table 2-4, aircraft operations totaling 6,726 for the year 2000 will be used as the baseline operations figure in this Master Plan. This was derived from the following estimates:

- General Aviation = 2,190 annual operations (approximately 6 per day)
- Air Taxi/Charter = 4,380 annual operations (approximately 12 per day)
- Military = 156 annual operations (3 per week)

Airport Users

The primary airport users fall into three categories shown in the chart below with detailed descriptions to follow.



General Aviation. For Greenlee County, this includes both based and transient aircraft operations. These operations represent approximately 33 percent of total operations and primarily include recreational, instructional training, firefighting, and corporate.

- *Recreational Flyers.* These users are both based and transient general aviation aircraft operators. These users comprise about 12 percent of the total operations at the airport.
- *Instructional Training.* From Cochise College located in Douglas, AZ, this includes touch-and-go operations, which occur year-round and comprise approximately eight percent of total operations on the field.
- *Firefighting Operators.* Although the firefighting season changes from one year to another, Greenlee County Airport consistently serves firefighting operators. Based on airport user input, the operators primarily use helicopters and conduct less than one percent of all operations.
- *Corporate Operators.* Other business-related operators include large multi-engine aircraft and small jets such as Lears and Gulfstreams. Caterpillar/Empire operates a King Air at least two to four times a week to Greenlee County Airport. These users comprise approximately 12 percent of total operations at the airport.

Air Taxi / Charter Operators. According to airport staff and users, Phelps Dodge Morenci Inc, continues to charter a twin engine air taxi service from City Link out of Whiskey Creek Airport in New Mexico. Airport staff and City Link staff indicated that the charters are on an average of four to six flights per day. City Link uses Cessna 340, 414, and 425 series twins for all operations. Air Taxi operations comprise nearly two-thirds (65 percent) of the operations at Greenlee County Airport. These are passenger air taxi/charter operations. Cargo activity is insignificant and therefore is not addressed in this Master Plan.

Military Operators. The Helicopter Mine Countermeasures Squadron from Corpus Christi, TX operates the MH-53E to Greenlee County Airport for their maneuvers. The squadron estimates that operations vary from one to three flights a week (or two to six operations per week). For the purpose of this study, the assumption of three operations per week adequately represents the squadron's average operations at Greenlee County.

There may also be other military aircraft users such as the Papago Army National Guard out of Phoenix and undergraduate and graduate level Navy and Air Force joint flight training from Corpus Christi. However, further discussions with specific squadrons have indicated that there are no records of actual jet landings at Greenlee County Airport. They do acknowledge that during "EMERGENCY" situations, the airport may be utilized. Therefore, since emergency occurrences may constitute less than two operations per year, it was assumed that all military operations are conducted by helicopters, which is approximately 2.3 percent of the total operations activity.

Existing Facilities

The following summarizes the inventory of airside and landside facilities at Greenlee County Airport. This inventory will be an important planning tool used in conjunction with forecasts of aviation demand to determine airport needs.

Airside

Airside facilities are those which are directly associated with aircraft operating to and from the airport. Runway, taxiways, navigational aids, and airport lighting are examples of Airside Facilities. **Exhibit 2-3** illustrates existing facilities at Greenlee County Airport.

Runways

Greenlee County Airport has one visual approach runway, identified as Runway 07-25, with dimensions of 75 feet by 4,977 feet (based on a survey conducted in August 2000). Runway 07-25 is comprised of asphaltic concrete in good condition, and with an estimated weight bearing capacity of 25,000 lbs. single wheel loading (SWL). In the past, Greenlee County had a dirt crosswind runway with dimensions of 200 feet by 5,350 feet, which was abandoned several years ago.

Runway Lighting

Runway 07-25 has a Medium Intensity Runway Lighting (MIRL) system. The system was replaced in 1995 and is in good condition.

Taxiway, Taxiway Exits and Turnarounds

There is no parallel taxiway to Runway 07-25. There are two (2) exits; one located west of the parking apron (T1) and the other (T2) located as part of the secondary apron. The exits are 40 feet wide and are from 140 feet (T1) to 170 feet (T2) in length. Both exits have reflectors and are comprised of asphaltic concrete with an estimated weight bearing capacity of 24,000 lbs. SWL.

T-1 was constructed in 2000 and includes adequate drainage. T-2 was created by overlaying the existing parking apron 40 feet wide. No culverts were installed and drainage is inadequate. The pavement section is 1 ½" of AC (2000) over 2" of AC (1957) over 7 ½" of AB (1957) according to construction plans. Additional "chip sealing" may have placed on the 1957 AC.

There are two (2) turnarounds, in good condition, located at each end of Runway 07-25. The turnarounds are approximately 350 feet wide and 380 feet in length with weight bearing capacities of 24,000 lbs. SWL. Both turnarounds are comprised of asphaltic concrete with edge lighting.

Visual and Navigational Aids

Greenlee County Airport is a visual airport with a steel green and white rotating beacon that operates from sunset to sunrise. The beacon is located near the new electrical vault and terminal building

Wind cones available at Greenlee County include:

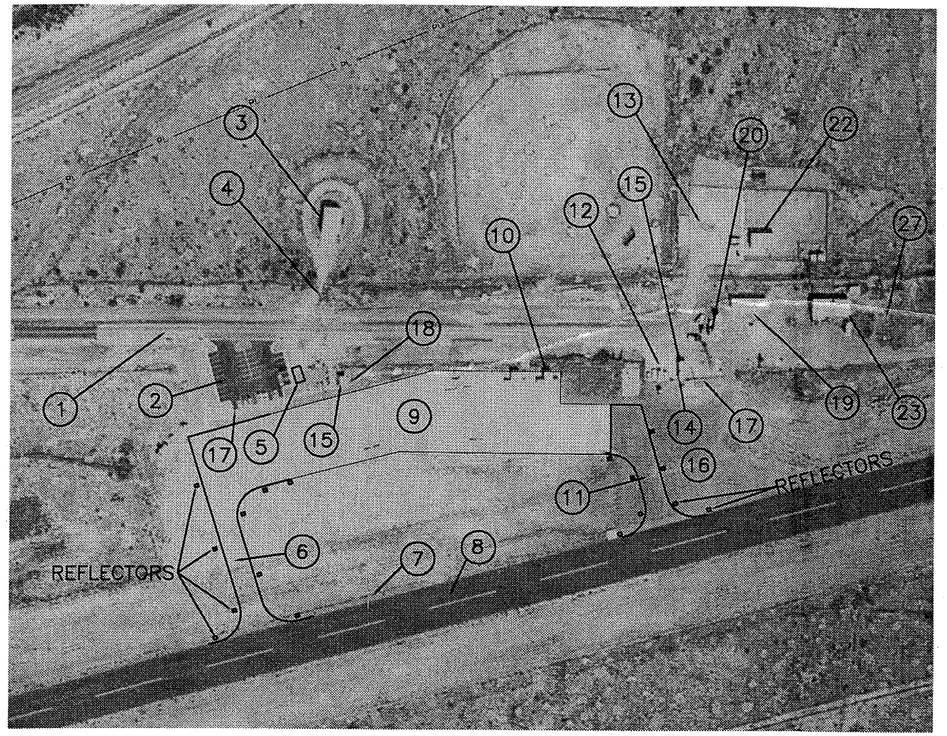
- One (1) lighted wind cone located east of the caretakers residence.
- Two unlighted wind cones adjacent to Runway 07-25, one located near each runway end

Silver City VORTAC located in Silver City, NM offers navigation assistance to aircraft in the Clifton/Morenci vicinity. In addition, aircraft operators use Prescott's Flight Service Center and Albuquerque's Air Route Traffic Control Center (ARTCC) in New Mexico for traffic information as Greenlee County Airport is without an air traffic control tower.

Markings

Runway 07-25 is marked as a visual (basic) runway. This includes designation markings to identify the runway by its magnetic azimuth and a runway centerline marking to provide alignment guidance during takeoff and landing operations. The markings are in good condition.

Exhibit 2-3 Existing Facilities Drawing



TERMINAL AREA

AIRPORT BUILDINGS/FACILITIES			
EXISTING	DESCRIPTION	EXISTING	DESCRIPTION
1	AIRPORT ACCESS ROAD	15	ELECTRICAL VAULT (OLD & NEW)
2	TERMINAL AUTO PARKING	16	SECONDARY PARKING APRON (NOT IN USE)
3	GARAGE	17	TERMINAL AREA FENCING
4	ELECTRICAL SERVICE (OVERHEAD) / UNDERGROUND TELEPHONE	18	ROTATING BEACON AND TOWER (RELOCATED)
5	TERMINAL BUILDING	19	CIVIL AIR PATROL BUILDING (REMOVED)
6	TAXIWAY T-1	20	PUMPHOUSE
7	RUNWAY LIGHTING (M.I.R.L.)		
8	RUNWAY 07-25	22	JUVENILE DETENTION FACILITY
9	PRIMARY AIRCRAFT PARKING APRON	23	AIRPORT CARETAKER'S RESIDENCE
10	HANGAR (PRIVATELY OWNED)	24	UNLIGHTED WIND CONE
11	TAXIWAY T-2	25	RUNWAY FENCING
12	AUTO PARKING AREA (SECONDARY)	26	RUNWAY 18-36 (ABANDONED)
13	DETENTION FACILITY AUTO PARKING	27	LIGHTED WIND CONE & SEGMENTED CIRCLE
14	RESTROOM BUILDING (CLOSED)	28	AIRPORT BOUNDARY (PROPERTY LINE)

Stantec

GREENLEE COUNTY AIRPORT
Master Plan Update

EXHIBIT 2-3
EXISTING FACILITIES

Landside

Landside primarily consists of facilities required to accommodate aircraft, passengers, and pilots while they are at the airport. Landside facilities typically consist of terminal buildings, Fixed Based Operators (FBOs), aircraft parking aprons, hangars, automobile parking, Aircraft Rescue and Firefighting Facilities (ARFF), Air Traffic Control Tower (ATCT), security, fuel storage, weather equipment, utilities, and access roads.

Terminal

Greenlee County Airport has an 800 square-foot terminal building completed in July 2000. The building is a manufactured structure with two restrooms, pilot's lounge and storage area. The building is in good condition. The old restrooms located east of the new terminal building are closed.

Fixed Based Operators (FBOs)

There is no Fixed Based Operator (FBO) to provide aircraft and pilot services at Greenlee County Airport. The closest available FBO is 22 nautical miles west at Safford Regional Airport.

Aircraft Parking Aprons

There is one aircraft parking apron centrally located on the north side of Runway 07-25. This aircraft parking area, constructed in 1981, measures approximately 9,360 square yards (s.y.) and holds 25 aircraft tiedowns (one tiedown space occupied by a hangar). The main apron is composed of two different types of concrete. The west half (approx. 5,834 s.y.) of the apron consists of a six-inch Portland Cement Concrete slab. The east half of the apron consists of a six-inch slab overlaid on an asphaltic concrete apron. The apron has a weight bearing capacity of 24,000 SWL. The apron is in fair condition and has apparent transverse cracking. The tiedowns have built-in holders for chains, however chains are currently unattached. Tiedown markings are not readily visible. Further, there are weeds and brush growing in between the concrete slabs throughout the apron area. Aircraft tiedowns for both local and transient aircraft are co-located on this existing apron.

Hangars

There were two portable hangars located on the aircraft apron with dimensions of approximately 60 feet wide by 30 feet in length. One has recently been removed. The remaining hangar (privately owned) is in a tiedown position at the northeast corner of the apron and is in good condition.

Automobile Parking

There are three automobile parking areas located on the airport adjacent to the Terminal area, the original electrical vault area, and the Juvenile Detention facility. The parking lots are in fair to good condition.

- The Terminal Area Parking is an asphalt-paved area that can accommodate up to 37 vehicles (35 – standard, 2 –handicap spaces).
- The original electrical vault parking area is dirt and can accommodate up to five vehicles.
- The Detention Facility Parking is a 15,000-s.f. gravel-surface area with high-pressure fire control water valves, pump connections located in the center and a double backflow prevention valve and FD connection.

Aircraft Rescue and Firefighting Facilities (ARFF)

The airport is located outside of the surrounding community firefighting jurisdictions. When ARFF support is required, the Sheriff's Department and County Ambulance Service are contacted first with the Morenci Firefighting unit responding. Although the County does not have agreements for fire or rescue services for the airport, there are three firefighting units in the area:

- Morenci/Phelps Dodge - 25 minute response time (responds to all airport fires)
- Duncan Valley - 25 minute response time (responds only to the Detention Facility on the airport
- Clifton - 30 minute response time (does not typically respond to fires outside its boundary)

The fire departments are staffed varying from 10 to 17 volunteers covering a 24-hours basis.

Air Traffic Control Tower (ATCT)

There is no ATCT at Greenlee County Airport. Aircraft operators contact Albuquerque's Air Route Traffic Control Center (ARTCC) in New Mexico for traffic information.

Maintenance

The airport has a caretaker, under a limited agreement with the County, to maintain the airport and lighting system.

Fencing and Security

The airport is completely enclosed by a four-foot chain-link fence with barbed wire and three-foot hog wire at the bottom to prevent wildlife incursions. There are also four entry gates to the airfield. The fence is in good condition.

There is an existing four-foot chain link fence between the terminal building and aircraft parking area. There is a pedestrian gate located near the terminal along the fence to allow access to the aircraft apron. This fence is also in good condition.

The Greenlee County Sheriff's Department located in Clifton provides security and law enforcement. The department has a station 10 miles away and is staffed with 16 officers.

Fuel Storage

There are no fueling facilities at Greenlee County Airport. The closest aviation fueling facility is located at Safford Regional Airport (approximately 22 nautical miles west).

Automated Weather Observation System (AWOS)/ Automated Surface Observation System (ASOS)

There is no AWOS or ASOS at Greenlee County Airport. This system is discussed further in subsequent chapters with costs presented in Chapter 8. A wind monitoring system established by ADOT Aeronautics was in place at the airport from April to December 2000.

Utilities

- Gas - There is no natural gas available to the airport.

- Water - The water table for the area is approximately 250 feet below the surface. The airport has a water well with an adjacent pump house that can deliver 23-30 gallons per minute *(g.p.m.)*. The original pump house is a concrete block building with a corrugated steel roof. The building is in good condition. Recently, the County installed two (2) 30 g.p.m. pumps and one (1) 250 g.p.m. pump that provide water from an 8,000-gallon tank. The tank receives water from a well. The pumps, tank and accessory equipment (pump house and water lines) were installed in 1998.

- Electricity - Duncan Valley supplies single phase electrical service to the airport. A concrete electrical vault is located adjacent to the terminal area and provides power for runway lighting and visual aids. The building is in good condition. Electric service is supplied via overhead lines, which parallel the airport access road. Service is provided to the following facilities on the airport:

  - Garage
  - Portable hangar
  - Terminal Building
  - Caretaker's Residence
  - Juvenile Detention Facility

- Telephone - Copper Valley Telephone provides telephone service. The service is supplied via underground lines and provides service to the following

  - Public Telephone near the electrical vault
  - Caretaker's Residence
  - Juvenile Detention Facility

- Sewer - There is no direct sewer line service available to the airport; however, there are three (3) septic tanks for the following facilities:

  - Old Restrooms, Caretaker's Resident, Civil Air Patrol trailer
  - New Terminal Building
  - Juvenile Detention Facility

Tenants

There is one based aircraft tenant currently leasing one (1) hangar space at Greenlee County Airport.

The airport caretaker's privately owned residence (24-foot wide mobile home) is located northeast of the Terminal Building. The residence is in good condition.

There are three non-aviation related facilities located on airport property.

1. **Softball field** – This facility is approximately 160,000 square feet. The facility has a backstop and an outfield fence owned by a local Little League and is in good condition. The county grades the field occasionally.

2. **Juvenile Detention Facility** – This facility was completed in 1993 and is a 24-foot wide modular building used for short-term detention of juvenile offenders. This building is in good condition.

3. **Garage** – This facility was built of frame construction with corrugated steel roof and siding. The building is owned by the Duncan School District and is used for school bus storage. The garage is in fair condition.

There are no formal tenant lease agreements for the facilities. However, there is an annual "agreement" with the caretaker (Appendix J). This agreement simply represents an arrangement of exchanged services – the caretaker assists in maintaining the airport in exchange for the residential lot (no monetary exchange is involved).

The School District Garage use was granted by the Board of Supervisors in the 1970's.

The Juvenile Detention Facility tenants recently vacated.

The local Civil Air Patrol (CAP) Unit, a former tenant, no longer operates at the airport and the 12-foot wide vacant mobile home (shown on previous airport layout plans for the airport) was recently removed.

Airport Access and Signage

The entrance is located off of State Route 78. The asphalt-paved access road extends over ¾ -mile long and 24 feet in width from State Route 78 to the airport. The road was chip sealed in early 2000 and is in good condition. A portion of the access road entrance (approximately ¼ mile portion) was constructed by the County in early 2000. In addition, a construction entrance off SR 78 near Runway 07 end was constructed in 2000 to route all future construction related traffic. There are two signs directing vehicles to the airport from the surrounding communities.

Airspace and Traffic Pattern

Airspace

Airspace is a three-dimensional area designated for specific aviation purposes and to maintain certain requirements for safe use of airports or recommended restrictions of use. There are two major airspace classifications, uncontrolled and controlled. Controlled airspace implies that some or all aircraft may be subject to air traffic control.

The majority of airspace around Greenlee County Airport is uncontrolled airspace where air traffic services are not provided. However, the Morenci Military Operations Area (MOA) overlies Greenlee County Airport airspace. The MOA occurs between 1,500 feet above ground level (AGL) up to, but not including 11,000 feet mean sea level (MSL). The Reserve MOA is located north of the Morenci MOA and includes airspace 5,000 feet AGL and above. The Jackal and Jackal Low MOAs are located west and includes airspace 11,000 feet above MSL and above and from 100 feet AGL up to but not including 11,000 feet MSL respectively. All four MOAs have the hours of operations from 6:00 am to 9:00 p.m. Monday through Friday and other times are indicated by Notice to Airmen (NOTAM). These areas are for military use and under FAR 73, *Subpart B – Restricted Areas*[2], military aircraft operations are restricted between the designated altitudes and during the time of designation. Other aircraft may enter the MOA above the restricted altitudes or with advance permission and have continual contact with Albuquerque ARTCC. This MOA does not conflict with Greenlee County Airport operations, but like other MOA's, civilian traffic must be alert for possible military flights. The following **Exhibit 2-4** shows the airspace surrounding Greenlee County Airport.

[2] *FAR/AIM 99 – FAR 73, Special Use Airspace, pg. F-179*

There are three route systems designed for air navigation purposes. Two of these systems, the Victor Airway System and the Jet Airway System, rely upon navigational aids to describe the centerline of a course (airway) for an aircraft to follow on its intended route of flight. The Victor Airway System, an airway network between 1,200 feet AGL and 18,000 feet Mean Sea Level (MSL) and the Jet Route System, from 18,000 to 45,000 feet MSL, provide the majority of the routes traveled by aircraft in the United States.

The **Victor Airways** that affect Greenlee County Airport are designated by the letter V and a number (V94 and V202). The Victor Airways pass to the south of the airport and use the Cochise (CIE), San Simon (SSO), and Silver City (SVC) VORTAC stations.

The **Jet Airway System**, layered above the Victor Airway System, is typically designated by the letter J. There are no Jet Airways designated within the Greenlee County Airspace.

The third route system is the **Military Training Route (MTR)**. These routes are low altitude routes used by military aircraft in order to train pilots for various low-level military missions. There are two MTRs located northwest and south of the Morenci MOA, both are visual routes. Visual Route 263 (VR–263) is located at the southern portion about 20 nautical miles from the airport in an easterly direction and VR-1233 is further south within 30 nautical miles of the airport oriented in a easterly direction.

The Gila Box Riparian National Conservation Area lies approximately five miles west of the airport. Both the Fishhooks Wilderness Area to the northwest and the Peloncillo Mountains Wilderness Area to the southeast are at least 45 miles from the airport.

Traffic Pattern

The current traffic pattern at Greenlee County Airport is a standard left pattern with the majority of traffic (95%) landing on Runway 07 end and taking off on 25 end. There are no published noise abatement procedures for the airport.

Exhibit 2-4 Airspace

LEGEND

SOURCE: PHOENIX SECTIONAL, MAY 18,2000

	AIRPORT WITH HARD-SURFACED RUNWAYS 1,500' TO 8069' IN LENGTH	11⁰	HIGH POINT ELEVATION
11°30'	ISOGONIC LINE (1995 VALUE)		VICTOR AIRWAYS
	MILITARY OPERATIONS AREA (MOA)		WILDERNESS AREA

Socioeconomic Factors

This section provides the socioeconomic factors (i.e. population, employment) that are likely to have a significant impact on the demand for air transportation at Greenlee County Airport.

Population

Population trends in Arizona have reflected growth in the past decade for the surrounding communities in Greenlee County. Population estimates for Clifton, Morenci, Duncan and Guthrie in 2000 reflect a total growth of approximately nine percent, five percent and 23 percent respectively since 1990 (Guthrie population data not available through Department of Economic Security, Population Division). Greenlee County population has increased 12 percent since 1990. In contrast, Arizona has experienced dynamic growth within the last ten years of over 35 percent.

Historical populations for the Clifton/Morenci and Duncan communities, Greenlee County, and Arizona are presented in **Table 2-5.**

Table 2-5 Airport Community Populations

Location	1990	2000 (estimates)	Total Growth since 1990
Clifton	2,840	3,087	8.7 %
Morenci CDP	1,799	1,890	5.0 %
Duncan	662	816	23.2 %
Guthrie	NA	NA	NA
Greenlee County	8,008	8,984	12.2 %
Arizona	3,665,228	4,961,953	35.4 %

Source: Population Division, US Census Bureau; March 9, 2000. Note: NA = data not available
CDP = Census Designated Place

Employment

The economy of Clifton and Morenci are closely tied to the Phelps Dodge Inc. mining and mineral processing operations. Phelps Dodge Morenci, Inc., is a business unit of Phelps Dodge Mining Company, the mining and metals division of Phelps Dodge Corporation. Phelps Dodge Corporation is among the world's largest producers of copper, operating mining and manufacturing facilities in 28 countries.

Active mining operations at Clifton/Morenci include an open-pit mine and two solution extraction/electrowinning (SX/EW) facilities. In 1999, Phelps Dodge announced plans to convert all production at the Morenci operation to SX/EW by 2002. As part of a restructuring initiative, Morenci closed one of the facility's two concentrators in 1999 and the operation recovered eight million pounds of salable copper and recycled 20,000 tons of scrap steel. [3] More recently, the second concentrator was closed.

Today, Phelps Dodge Corporation is a substantially larger, stronger and more resilient company than it was even five years ago. Since 1992, Phelps Dodge Corporation's

[3] *1999 Annual Report, © Copyright 1997 Phelps Dodge, Inc.*

operating cash flow has risen from $431 million to $765 million in 1997, a 77 percent increase.[3]

The mining industry is dynamic and the response to world market conditions can be dramatic as evidenced by the current readjustment in the copper industry. These copper mining operations employ upwards of two-thirds of the workforce in Clifton and Morenci. The government and educational sectors are also major employers with about 200 employees. As a result of the community's reliance on mining, temporary or permanent unemployment has a significant and widespread impact. Despite fluctuating market conditions, the mining industry is expected to continue to grow and remain the primary employer in the area for the foreseeable future. Thus, the towns of Clifton and Morenci's job market have remained generally stable. **Table 2-6,** presents community employment for 1990 and 1998.

Duncan is in the heart of Greenlee County's agricultural area. According to the Agricultural Center in Safford, about 4,900 acres is under irrigation in Greenlee County with another contiguous 3,200 acres across the state line in New Mexico. Estimates show that there are approximately 800 acres of cotton in Greenlee County and another contiguous 400 acres in Hidalgo County, New Mexico for 1996-97. Current annual estimates of cotton-producing acreage are slightly less this year (2000) at approximately 1,100 acres. Other crops and livestock that continue to play an important role in the economy are grains, potatoes, melons, chilies, and cattle. As a result of a decrease of nearly half of the agricultural base in Greenlee County in the last ten years, the town of Duncan experienced a decline in the total workforce. This results in an unemployment rate for the area that has decreased 9.3 percent since 1990, relative to the current workforce.

Table 2-6 Community Employment

Employment Descriptions	Clifton		Morenci		Duncan	
	1990	1998	1990	1998	1990	1998
Civil Labor Force	1,103	1,544	792	1,127	241	168
Employed	1,042	1,451	733	1,042	203	157
Unemployed	61	93	59	85	38	11
Unemployment Rate	5.5 %	6.0 %	7.4 %	7.5 %	15.8 %	6.5 %

Source: Arizona Department of Economic Security and Community Profile 6/99

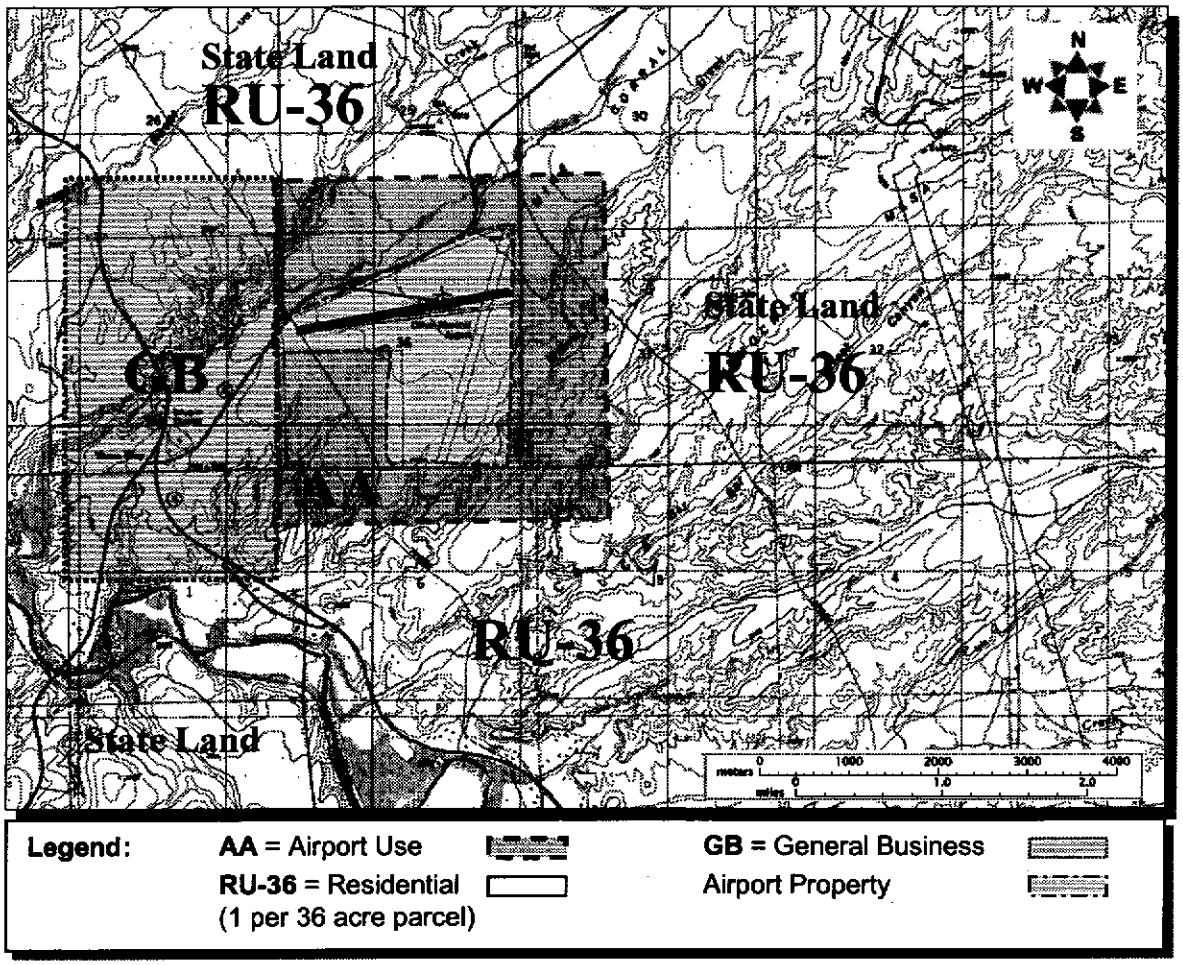
Land Use

The major concerns for land use compatibility with airports are noise and airspace. In addition, activities near the airport should not emit smoke, produce glare, produce electromagnetic interference that could affect radio navigation and approach aids, nor attract wildlife, which may interfere with aviation activity. Airport land use planning seeks to maximize compatibility between airport activities and other land uses in the vicinity of the airport and minimizes the impacts of aircraft activity on the surrounding community.

As shown in **Exhibit 2-5**, the present jurisdictions around Greenlee County Airport consist of State lands (surrounding airport property) and BLM property (3.5 miles west of airport property). The land immediately adjacent to airport property is open undeveloped grazing land. To the west, the land is zoned General Business (GB) and the remainder is zoned

residential (RU-36, one residential unit per 36 acre parcel). The airport does not have an established and adopted airport influence area (AIA). Additional discussion of land use is presented later in Chapter 6.

Exhibit 2-5 Airport Land Use



Regional Transportation

Highways

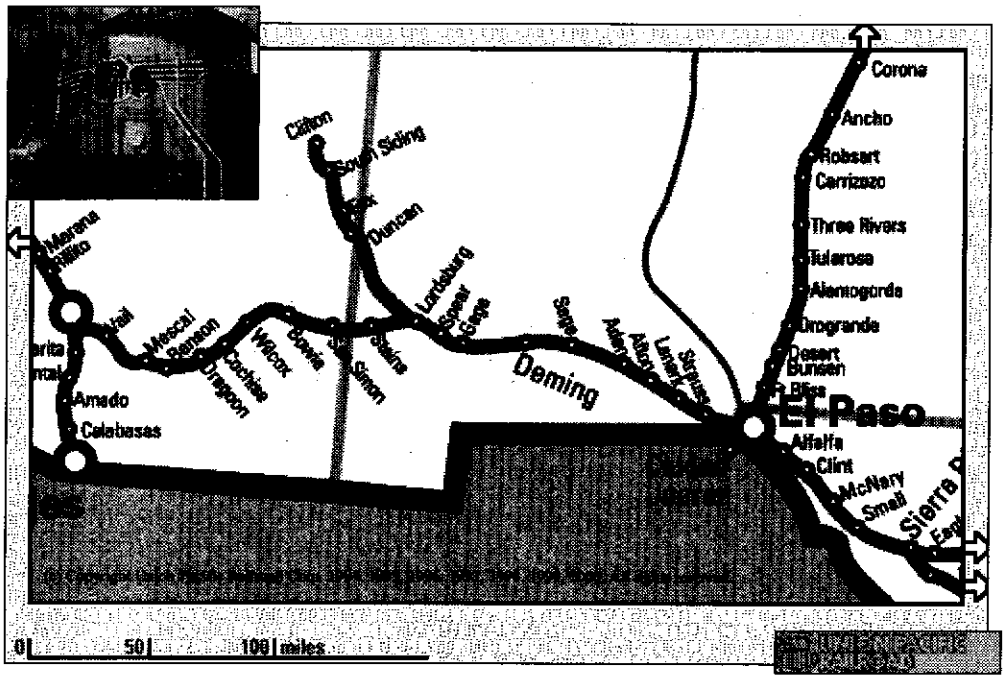
U.S. Route 191 and Arizona State Route 78 serve the Greenlee County Airport. Truck transportation is provided by interstate trucking companies and delivery services.

Railroads

The Phelps Dodge Industrial Railroad ties to the Union Pacific Railroad at Clifton. Clifton is a "runthrough" facility, which means the trains are generally not scheduled to add (pick up) or reduce (set out) railcars enroute. The closest major freight handling facilities are

located in El Paso, Texas approximately 275 miles southwest of Clifton. The following **Exhibit 2-6** shows the train destinations as published by Union Pacific Railroad.[4]

Exhibit 2-6 Union Pacific Railroad Destinations



Air

The closest general aviation airports to Greenlee County Airport in Arizona (AZ) and New Mexico (NM) of similar services include:

- Safford Regional Airport, AZ (22 nautical miles west)
- Whiteriver, AZ (68 nautical miles north)
- Grant County Airport, NM (58 nautical miles southeast)
- Cochise County Airport , AZ (54 nautical miles southwest)
- Lordsburg Municipal, NM (46 nautical miles southeast)
- Silver City, NM (50 nautical miles east)

The closest air passenger service is at Tucson, Tucson International Airport (100 nautical miles southwest), where flights from 10 different airlines depart to several destinations daily (Las Vegas, Denver, Minneapolis, and others).

Climate

Weather plays an important part in planning an airport facility. Temperature is critical in determining runway lengths. When other conditions (barometric pressure and humidity) remain the same, an aircraft requires a longer takeoff run as the temperature increases. Prevailing wind direction and

[4] *© 2000 Union Pacific Corporation*

intensity affect runway orientation. Ceiling (height of cloud coverage) and visibility data are used in determining the need for specific instrument navigational aids.

The Clifton and Morenci communities experience approximately 350 days of Visual Flying Rules (VFR) with 50-mile visibility, clear skies and light surface winds. Situated at approximately 3,800 feet MSL, the town enjoys moderate winters and warm summers.

The general wind pattern in Arizona is from west to east, but individual sites are subject to highly localized wind patterns. The FAA requires 10 or more years of wind data for reliability. While this volume of wind information for Greenlee County Airport is currently unavailable, ADOT Aeronautics had a wind recorder on-site to collect data from April through December of 2000. The most current wind data available for Greenlee County Airport prior to this 2000 data is from the previous 1993 Master Plan, which used Frontier Airline records (1950-1955). This 1950's data showed that Runway 07-25 has 97.5 percent for 15 mph (13 knots). However, the wind data only covered daylight hours. ADOT's limited wind data for 2000 reflects wind coverage of 98.10% for the same wind speed.

During July, the maximum daily temperature at Clifton and Morenci area is over 100 degrees Fahrenheit. Precipitation is light and winds are usually under 10 miles an hour. During periods of thunderstorm activity in July and August, winds may sometimes reach peak gusts of 20 miles per hour or more. There are occasional periods of low visibility, due to rain and low ceilings during storm passage. **Table 2-7** shows climate data from the towns of Clifton and Morenci readings.

Table 2-7 Airport Area Climate

Month	Average Temperature (^{0}F) Daily Max.	Daily Min.	Average Total Precipitation (inches)
January	61.2	31.1	.95
February	67.4	35.9	.62
March	72.7	40.9	.77
April	81.9	48.3	.36
May	90.4	56.2	.22
June	99.3	65.5	.33
July	101.4	71.3	2.17
August	99.0	69.7	2.27
September	95.2	64.5	1.60
October	85.3	53.5	1.04
November	72.0	39.9	.49
December	62.5	32.1	1.24
Year	82.4	50.7	12.06

Average Total Snow, Sleet and Hail Annually: 1-2 inches (based on a 30-year average)
Source: National Weather Service & 1999 The Weather Underground, Inc.
Location: Clifton and Morenci, AZ.

Summary

This chapter presented a summary of current airport facilities and serves as a basis for the development of aviation activity forecasts and the determination of facility requirements.