KINGMAN AIRPORT

Chapter One

INVENTORY

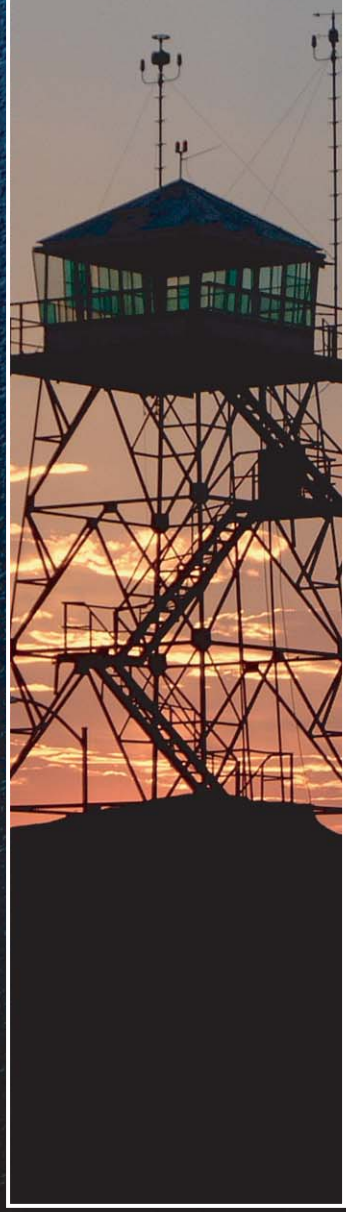
INVENTORY

The initial step in the preparation of the Airport Master Plan Update for Kingman Airport is the collection of information pertaining to the airport and the area it serves. The information collected in this chapter will be used in subsequent analysis in this study. The inventory of existing conditions at Kingman Airport provides an overview of the airport facilities, airspace, and air traffic control. Background information regarding the regional area is also collected and presented. This includes information regarding the airport's role in regional, state, and national aviation systems, surface transportation, and a socioeconomic profile.

The information was obtained from several sources, including on-site inspections, airport records, review of related planning studies, the Federal Aviation Administration (FAA), Arizona Department of Transportation - Aeronautics Division (ADOT), various government agencies, a number of on-line (Internet) sites (which presently summarize much of the statistical information and facts about the airport). Interviews with airport staff, planning associations, and airport tenants also contributed to the data collection.

AIRPORT FACILITIES

Airport facilities can be functionally classified into two broad categories: airside and landside. The airside category includes those facilities directly associated with aircraft operations. The landside category includes those facilities necessary to provide a safe transition from surface to air transportation, and support aircraft



servicing, storage, maintenance, and operational safety.

AIRSIDE FACILITIES

Airside facilities include runways, taxiways, airfield lighting, and navigational aids. Airside facilities are identified on **Exhibit 1A**. **Table 1A** summarizes airside facility data.

TABLE 1A
Airside Facility Data
Kingman Airport

	Runway 3-21	Runway 17-35
Runway Length (feet)	6,831	6,725
Runway Width (feet)	150	75
Runway Surface Material	Asphalt	Asphalt-Concrete
Condition	Good	Good
Pavement Markings	Nonprecision	Basic
Runway Load Bearing Strengths (lbs.)		
Single Wheel Loading (SWL)	45,000	22,000
Double Wheel Loading (DWL)	85,000	60,000
Dual Tandem Wheel Loading (DTWL)	125,000	-
Double Dual Tandem Wheel Loading (DDTWL)	265,000	-
Runway Lighting	Medium Intensity Distance Remaining Signs	Medium Intensity
Taxiway Lighting	Medium Intensity [1]	
Approach Lighting	PAPI-4L (3 and 21) REIL (3 and 21)	PAPI-2L (17 and 35)
Instrument Approach Procedures	VOR/DME Runway 21 GPS Runway 3 GPS Runway 21	
Weather or Navigational Aids	Automated Surface Observation System (ASOS) Segmented Circle Lighted Wind Cone; Wind Tee	

Source: *Airport/Facility Directory, Southwest U.S.* (April 15, 2004); FAA Form 5010-1, Airport Master Record; Kingman Airport Certification Specifications, April 1999

[1] Except Taxiway B

GPS – Global Positioning System
PAPI – Precision Approach Path Indicator
REIL – Runway End Identification Lighting
VOR/DME - Very High Frequency Omnidirectional Range/Distance Measuring Equipment

Runways

The existing runway configuration at Kingman Airport includes two intersecting runways. Runway 3-21, which is oriented in a northeast-southwest direction, serves as the primary runway and is 6,831 feet long and 150 feet wide. Runway 17-35 serves as the crosswind runway and is 6,725 feet long and 75 feet wide. (There was a third runway previously at Kingman Airport. This runway, which has been officially closed since 1984, is oriented in an east-west direction and measures 6,725 feet in length and 150 feet

03MP10-1A-4/26/05

LEGEND
Airport Property Line

Date of Photo: April 2004
0 1,000 2,000
SCALE IN FEET
NORTH

Historic Route 66 (Andy Devine Blvd.)
Burlington Northern and Santa Fe Railway
Kingman Airport Industrial Park
Mohave Airport Dr.
Flightline Dr.
Water Well
Compass Rose
Pistol Range
Helipads
150'
C1
75'
PAPI-2L & Supplemental Wind Cone
Taxiway C
538'
Blast Pad
150'
D1
REIL
Wind Cone
PAPI-4L & Supplemental Wind Cone
75'
D2
Taxiway D
Closed Taxiways
VOR
Runway 3-21 (6,831' x 150')
Runway 17-35 (6,725' x 75')
70'
D3
ASOS
75'
Holdline (typical)
522.5'
75'
PAPI-2 & Supplemental Wind Cone
Taxiway A
PAPI-4L & Supplemental Wind Cone
Lighted Wind Cone, Segmented Circle, and Lighted Tetrahedron
Taxiway B
75'
150'
D4
Airport Beacon
Closed Runway
REIL
Blast Pad

DISTANCE REMAINING SIGN

AIRPORT BEACON

LIGHTED WIND CONE, SEGMENTED CIRCLE, AND LIGHTED TETRAHEDRON

AUTOMATED SURFACE OBSERVATION SYSTEM (ASOS)

VERY HIGH FREQUENCY OMNI-DIRECTIONAL RANGE FACILITY (VOR)

DIRECTIONAL SIGNS

RUNWAY

TAXIWAY

PRECISION APPROACH PATH INDICATOR (PAPI)

KINGMAN AIRPORT

Exhibit 1A
EXISTING AIRSIDE FACILITIES

in width. This closed runway is now used for the parking and storage of aircraft.)

Both runways are constructed of asphalt. The load bearing strengths of each runway are shown in **Table 1A**. Single wheel loading (SWL) refers to the design of certain aircraft landing gear which has a single wheel on each main landing gear strut. Dual wheel landing (DWL) refers to the design of certain aircraft landing gear which has two wheels on each main landing gear strut. Dual tandem wheel loading (DTWL) refers to the aircraft landing gear struts with a tandem set of dual wheels (four wheels) on each main landing gear strut. Double dual tandem wheel loading refers to aircraft landing gear struts with two tandem wheels on each landing gear strut (eight wheels).

Runway gradient describes the upward or downward slope of a runway. The gradient is determined by dividing the difference in runway end elevations by the runway length. Runway 3-21 slopes upward to the southwest and has a 0.3 percent gradient. Runway 17-35 has a 1.3 percent gradient and slopes upward to the south.

Helipads

Two helipads are available at Kingman Airport. These two helipads are located on the north end of the airfield, west of Taxiway C.

Taxiways

The existing taxiway system at Kingman Airport, as illustrated on **Exhibit 1A**, consists of parallel, connecting, and entrance/exit taxiways. Runway 3-21 is served by a full-length parallel taxiway. Taxiway D is 75 feet wide and located 522 feet from the Runway 3-21 centerline. Taxiway C is a partial parallel taxiway extending between Taxiway D and the Runway 17 end. Taxiway C is 75 feet wide and located 538 feet from the Runway 17-35 centerline. Taxiway B extends to the west along the southern edge of the southwest apron area. Taxiway B is 75 feet wide.

Several entrance/exit taxiways, which are designated as Taxiways C1, D1, D2, D3, and D4, provide connections between the parallel taxiways and runways. These taxiways vary in width from 75 to 150 feet. An additional 75-foot taxiway, designated as Taxiway A, connects the terminal apron with the Runway 35 end. Flightline Drive and Finance Way provide access to the airport for aircraft stored in the industrial park.

Airfield Lighting

Airfield lighting systems extend an airport's usefulness into periods of darkness and/or poor visibility. A variety of lighting systems are installed at the airport for this purpose. These lighting systems, categorized by function, are summarized as follows:

Identification Lighting: The location of the airport at night is universally identified by a rotating beacon. A rotating beacon projects two beams of light, one white and one green, 180 degrees apart. The rotating beacon at Kingman Airport is located near the center of the runway system, next to the lighted wind cone and segmented circle, south of Taxiway A.

Pavement Edge Lighting: Pavement edge lighting utilizes light fixtures placed near the edge of the pavement to define the lateral limits of the pavement. This lighting is essential for safe operations during night and/or times of low visibility, in order to maintain safe and efficient access to and from the runway and aircraft parking areas. Both runways are equipped with medium intensity runway lighting (MIRL). Taxiways A, C, and D are equipped with medium intensity taxiway lighting (MITL). Taxiway B has no lighting.

Visual Approach Lighting: A precision approach path indicator (PAPI-4L) is installed on both ends of Runway 3-21, while a PAPI-2L is installed on both ends of Runway 17-35. The PAPI consists of a system of lights located at various distances from the runway threshold. When interpreted by the pilot, these lights give the pilot an indication of being above, below, or on the designed descent path to the runway. The PAPI-4 consists of four separate light boxes arranged in a row. The PAPI-2 consists of two separate light boxes arranged in a row.

Runway End Identification Lighting: Runway end identifier lights (REILs) provide rapid and positive identification of the approach end of a runway. REILs are typically used on runways without more sophisticated approach lighting systems. The REIL system consists of two synchronized flashing lights, located laterally on each side of the runway facing the approaching aircraft. REILs are installed on both ends of Runway 3-21.

Pilot-Controlled Lighting: A pilot-controlled lighting system (PCL) allows pilots to activate and/or increase the intensity of the airfield lighting systems from the aircraft, with the use of the aircraft's radio transmitter. At Kingman Airport, the Runway 3-21 MIRLs, Runway 17-35 MITLs, PAPIs, REILs, and taxiway lights are on the PCL system.

There is a diesel-powered 60KW standby electrical generator with adequate capacity to operate the entire airfield lighting system on high-intensity in the event of a commercial power outage. The generator will start automatically for anything over a two-second power interruption.

Airfield Signs: Airfield identification signs assist pilots in identifying their location on the airfield and directing them to their desired location. Lighted signs are installed at all taxiway and runway intersections.

Distance Remaining Signs: Distance remaining signs are installed on Runway 3-21. Distance remaining signs give pilots an indication of the remaining runway length available when landing or departing. The signs are lighted and located at 1,000-foot intervals from the end of the runway.

Runway Threshold Lighting: Runway threshold lights identify the runway end. Runway threshold lights have specially designed lights that are green on one side and red on the other. The green side is oriented towards the landing aircraft. There are eight threshold lights at each runway end.

Pavement Markings

Pavement markings aid in the movement of aircraft along airport surfaces and identify closed or hazardous areas on the airport. The nonprecision markings on Runway 3-21 identify the runway designation, threshold, centerline, and aiming point. The basic markings on Runway 17-35 identify the runway designation, aiming point, and centerline. The closed runway is marked with yellow Xs.

Taxiway and apron centerline markings are provided to assist aircraft using these airport surfaces. Taxiway centerline markings assist pilots in maintaining proper clearance from pavement edges and objects near the taxiway/taxilane edges. Pavement markings also identify aircraft parking and aircraft holding positions.

Weather and Communication Aids

The airport is equipped with an Automated Surface Observing System (ASOS). The ASOS provides automated aviation weather observations 24 hours-a-day. The system updates weather observations every minute, continuously reporting significant weather changes as they occur. The ASOS system reports cloud ceiling, visibility, temperature, dew point, wind direction, wind speed, altimeter setting (barometric pressure), and density altitude (airfield elevation corrected for temperature). The ASOS is located east of Runway 17-35, south of the Runway 21 end.

The airport is also equipped with a lighted wind cone, lighted tetrahedron, and segmented circle. The wind cone provides information on wind direction and velocity. The tetrahedron provides pilots with information about wind direction. The tetrahedron points into the direction of the wind. A segmented circle indicates the traffic pattern location for pilots. The lighted wind cone and segmented circle are located southeast of Taxiway A. Four supplemental wind cones are also located near each runway end, adjacent to the PAPIs.

Compass Rose

A compass rose is located on the south end of the apron and is accessed from Taxiway B. The compass rose is a painted area on the pavement showing the primary magnetic headings. It is used to calibrate the compass in aircraft.

LANDSIDE FACILITIES

Landside facilities are the facilities that support the aircraft and pilot/passenger handling functions. These facilities typically include the terminal building, aircraft storage/maintenance hangars, aircraft

parking aprons, and support facilities such as fuel storage, automobile parking, roadway access, and aircraft rescue and firefighting. The landside facilities south of Taxiway D3 are identified on **Exhibit 1B**. The landside facilities north of Taxiway D3 are identified on **Exhibit 1C**.

Passenger Terminal Building

The passenger terminal building is located at the terminus of Mohave Airport Drive, near the center of the aircraft parking apron. Constructed in 1957, the terminal building encompasses 2,640 square feet. The terminal building includes space for airline ticketing, airline operations, rental cars, restrooms, and a restaurant. The secure holdroom and passenger screening functions are handled outside the terminal in a separate building located on the apron. The Transportation Security Administration (TSA) administrative offices are located in a separate modular building located south of the terminal. There are a total of 72 parking spaces west of the terminal building. This includes 18 rental car spaces, 38 long-term parking spaces, 12 short-term parking spaces, and four handicap parking spaces.

Aircraft Hangar Facilities

There are 21 separate hangar facilities totaling approximately 196,800 square feet located at the airport. Hangar space is comprised of conventional hangars, T-hangars, individual T-hangars, and shade hangars. Conventional hangars provide a large enclosed space, typically accommodating more than one aircraft. T-hangars provide for separate, single aircraft storage areas, typically in one large building where as many as 20 T-hangars are located next to each other. One particular T-hangar design provides for separate T-hangar structures that are designed for easy relocation. Shade hangar structures are very similar to T-hangar structures. The shade hangar structure provides individual aircraft locations within a single structure. However, the shade hangar only provides a roof to protect the aircraft from excess sunshine and other weather elements. T-hangars provide totally-enclosed individual hangars within a larger structure; whereas, the shade hangars do not provide enclosed space.

Conventional hangar space at the airport totals approximately 144,500 square feet, in 13 separate structures. There are three T-hangar structures totaling approximately 50,000 square feet. There are three individual T-hangars totaling approximately 2,400 square feet.

Apron

The aircraft parking apron at Kingman Airport totals approximately 260,000 square yards. The portion of apron adjacent to the terminal building is designated for airline operations only. Approximately 166 tiedown positions are available on the apron.

03MP10-1B-4/26/05

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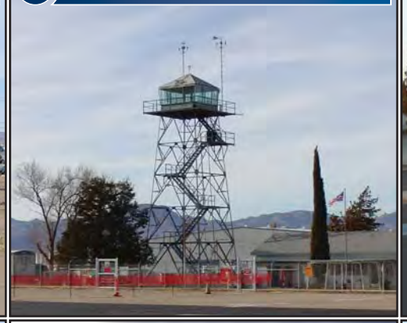
Exhibit 1B
SOUTH LANDSIDE FACILITIES

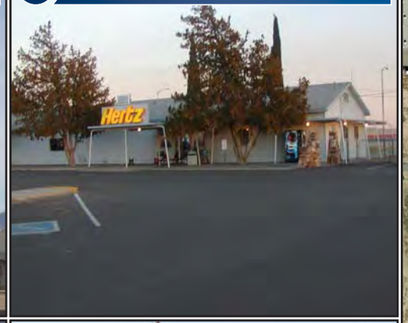
03MP10-1C-6/1/04

C1 TSA ADMINISTRATION

C2 HISTORIC TOWER



C3 TERMINAL BUILDING



C4 SECURITY SCREENING/ HOLDROOM

C5 FUEL ISLAND

C6 KAA ADMINISTRATION/ ARFF

C7 AIR MEDICAL ADMINISTRATION (GUARDIAN AIR)

C8 CONVENTIONAL HANGAR (AIR'ZONA AIRCRAFT SERVICES)

C9 FLIGHT TRAINING (SHEBLE AVIATION)

C10 CONVENTIONAL HANGAR (KINGMAN AIRLINE SERVICES)

C11 CONVENTIONAL HANGAR (KINGMAN AIRLINE SERVICES)

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Exhibit 1C
NORTH LANDSIDE FACILITIES

The abandoned runway is used for aircraft storage. There are approximately 24 aircraft parking pads located on each side of the abandoned runway west of Runway 3-21.

Fuel Storage Facilities

All aircraft fuel storage facilities at the airport are privately-owned and operated. Fuel storage totals 80,000 gallons, with 36,000 gallons of Jet-A storage and 44,000 gallons of 100LL storage capability. Air'zona Aircraft Services operates the self-service fuel island located on the aircraft apron, northeast of the terminal building. Their three underground storage tanks are located adjacent to the fuel island and include two 10,000-gallon tanks for 100LL fuel storage and one 12,000-gallon tank for Jet-A fuel storage. Air'zona Aircraft Services also operates one 700-gallon and one 1,200-gallon mobile fuel truck for 100LL dispensing, and one 2,200-gallon mobile fuel truck for Jet-A fuel dispensing.

Kingman Aero Services dispenses fuel entirely with mobile fuel trucks. Kingman Aero Services maintains one 1,200-gallon mobile truck for 100LL fuel dispensing, and one 1,200-gallon mobile fuel truck and one 5,000-gallon mobile fuel truck for dispensing Jet-A fuel. Their storage facilities are located north of Taxiway B and consist of four 12,000-gallon aboveground tanks, of which two are for 100LL fuel storage and two are for Jet-A fuel storage.

Aviation Services

A full range of aviation services are provided at the airport. Air'zona Aircraft Services provides aircraft fueling (100LL and Jet-A), aircraft maintenance (including avionics and engine maintenance), and aircraft tie-down and hangar space. Kingman Aero Services provides aircraft fueling (100LL and Jet-A), pilot supplies, as well as tie-down space. Sheble Aviation provides flight training and aircraft rental services. Straube Aircraft Services provides aircraft painting services. Kingman Airline Services provides aircraft maintenance and storage services.

Other Tenants

The following businesses and organizations on located on airport property:

- Guardian Air – air medical services
- Bureau of Land Management (BLM)
- Mohave County Sheriff's Department (aviation)
- Transportation Security Administration
- Experimental Aircraft Association (EAA)
- Kingman Airport Café
- Aeroflight – air tanker services
- Kingman Army Airfield Historical Society & Museum – museum
- FedEx – cargo services
- Ameriflight – cargo services for UPS
- Hertz
- Arturo's Aircraft Refurbishing

Aircraft Rescue and Firefighting

The aircraft rescue and firefighting (ARFF) facilities are located in the Kingman Airport Authority (KAA) administration building, north of the terminal building. The airport maintains rescue and firefighting equipment and agents for aircraft less than 90 feet in length, which meets FAA Index A criteria. The airport ARFF vehicle is a three-quarter-ton truck which carries 450 pounds of Purple K dry chemical and 100 gallons of aqueous film forming foam (AFFF). This vehicle is "grandfathered in" under 14 CFR Part 139.37 and is authorized for use until such time as the vehicle is replaced. The ARFF vehicle is operated by the Hualapai Valley Fire Department.

General Aviation Parking

Parking for general aviation activities is located adjacent to individual hangars and buildings. Approximately 112 automobile parking spaces are located on the airport for general aviation activities.

Fencing and Gate Access

The entire airside areas are enclosed with six-foot chain link fencing, with three-strand barbed wire on top. The fencing was installed in 2003. Six automated gates control access to the apron area. The six automated security gates are identified on **Exhibits 1B** and **1C**.

Utilities

Water and sewer services are provided by the City of Kingman. The city has 13 active wells (100-2,300 GPM each) and one reserve well. The city also owns 46 undeveloped well sites in the Sacramento Valley Basin. Electricity, natural gas, and telephone services are provided by Unisource Utilities.

Kingman Airport Industrial Park

The Kingman Airport Industrial Park encompasses approximately 1,100 acres on the western portion of the airport property. The industrial park land was originally part of the airport. The entire airport site was deemed surplus following World War II. The FAA released the industrial park property from grant obligations in 1979, allowing the land to be sold. A condition of the release is that an amount equal to the net proceeds from the sale of property must be reinvested for airport development within five years from the date of the land sale. The industrial park is bounded on the west by the main line of the Burlington Northern and Santa Fe Railway, and several of the parcels have rail access. Several parcels along Flightline Drive and Finance Way have access to the airfield via Flightline Drive.

ENROUTE NAVIGATION AND AIRSPACE

Navigational aids are electronic devices that transmit radio frequencies, which pilots of properly equipped aircraft translate into point-to-point guidance and position information. The types of electronic navigational aids available for aircraft flying to or from Kingman Airport include the very high frequency omnidirectional range (VOR) facility, Loran-C, and global positioning system (GPS).

The VOR, in general, provides azimuth readings to pilots of properly equipped aircraft by transmitting a radio signal at every degree to provide 360 individual navigational courses. Frequently, distance measuring equipment (DME) is combined with a VOR facility (VOR/DME) to provide distance as well as direction information to the pilot. In addition, the military Tactical Air Navigational Systems (TACANS) and civil VORs are commonly combined to form a VORTAC. A VORTAC provides distance and direction information to civil and military pilots. Pilots flying to or from the airport can utilize the Kingman VOR/DME located at the airport. **Exhibit 1D**, a map of the regional airspace system, depicts the location of the Kingman VOR/DME.

GPS is an additional navigational aid for pilots enroute to the airport. GPS was initially developed by the United States Department of Defense for military navigation around the world. Increasingly, GPS has been utilized more in civilian aircraft. GPS uses satellites placed in orbit around the globe to transmit electronic signals, which properly equipped aircraft use to determine altitude, speed, and position information. GPS allows pilots to navigate directly to any airport in the country. In contrast with the VOR, pilots are not required to navigate from one specific navigational aid to the next. Loran-C uses a system of ground-based transmitters. Similar to GPS, pilots can navigate directly to their destination.

A GPS modernization effort is underway by the FAA and focuses on augmenting the GPS signal to satisfy requirements for accuracy, coverage, availability, and integrity. For civil aviation use, this includes the development of the Wide Area Augmentation System (WAAS), which was launched on July 10, 2003. The WAAS uses a system of reference stations to correct signals from the GPS satellites for improved navigation and approach capabilities. The present GPS provides for enroute navigation and instrument approaches with both course and vertical navigation. The WAAS upgrades are expected to allow for the development of approaches to most airports with cloud ceilings as low as 250 feet above the ground and visibilities restricted to three-quarters mile, after 2015.

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 and landing at an airport during low visibility and cloud ceiling conditions. At Kingman Air-

port, there are three published instrument approaches: (1) VOR/DME Runway 21, (2) GPS Runway 3, and (3) GPS Runway 21. The Kingman Airport instrument approaches are nonprecision instrument approaches. Nonprecision approaches provide only course guidance information to the pilot.

The capability of an instrument approach is defined by the visibility and cloud ceiling minimums associated with the approach. Visibility minimums define the horizontal distance that the pilot must be able to see in order to complete the approach. Cloud ceilings define the lowest level a cloud layer (defined in feet above the ground) can be situated for the pilot to complete the approach. If the observed visibility or cloud ceilings are below the minimums prescribed for the approach, the pilot cannot complete the instrument approach. The different minimum requirements for visibility and cloud ceilings are varied, dependent on the approach speed of the aircraft. A circling approach is when the instrument approach procedure is used to land at another runway end. This maneuver increases the visibility and/or ceiling height minimums. **Table 1B** presents the instrument approach data for Kingman Airport.

TABLE 1B
Instrument Approach Data
Kingman Airport

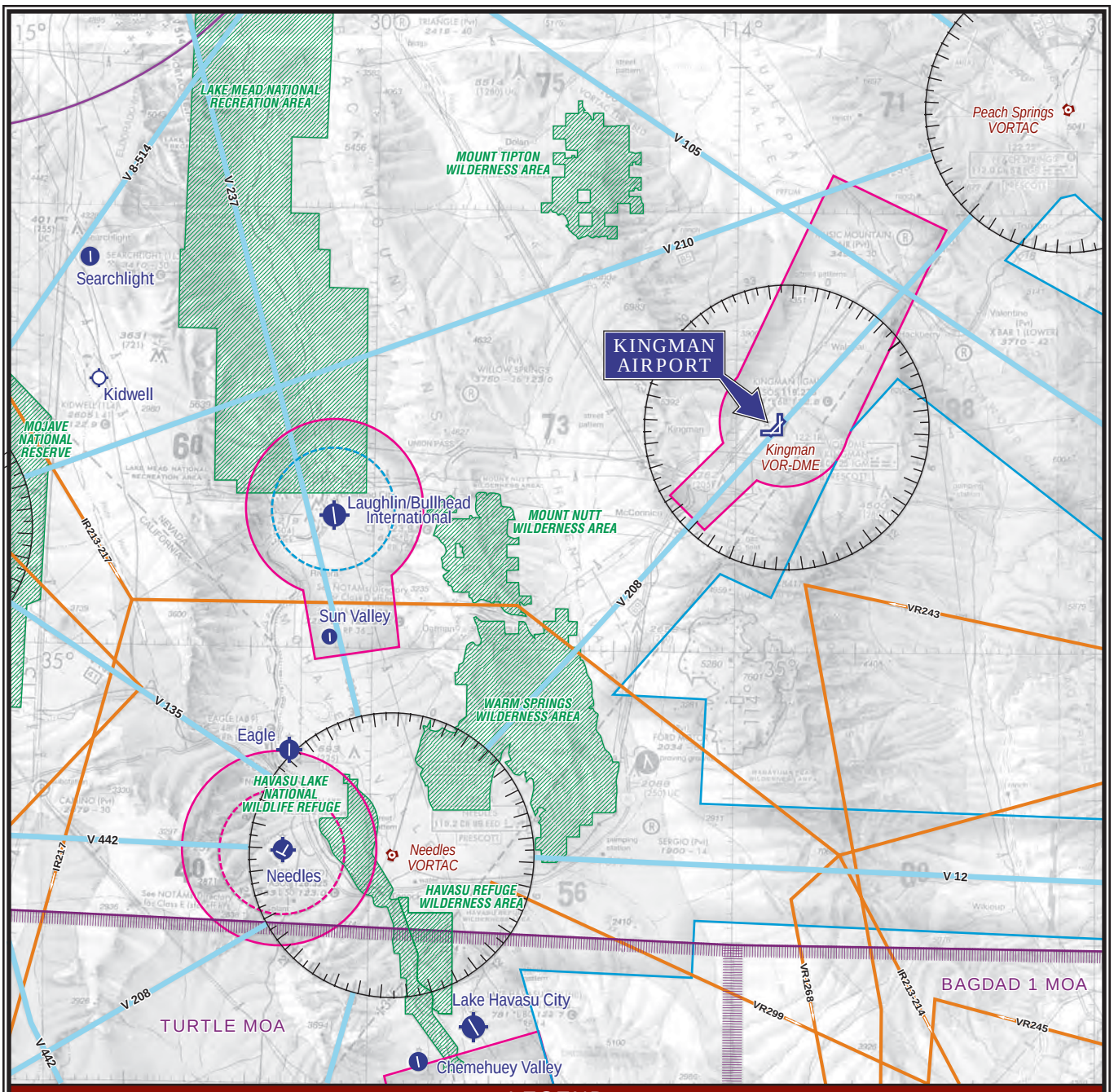
	WEAHTER MINIMUMS BY AIRCRAFT TYPE					
	Category A/B		Category C		Category D	
	CH	VIS	CH	VIS	CH	VIS
VOR/DME Runway 21 Approach						
Straight-In	400	1	400	1	400	1.25
Circling	600	1	600	1.5	700	2.25
GPS Runway 3 Approach						
Straight-In	500	1	500	1.25	500	1.50
Circling	600	1	600	1.50	700	2.25
GPS Runway 21 Approach						
Straight-In	400	1	400	1	400	1.25
Circling	600	1	600	1.50	700	2.25

Source: FAA *Terminal Procedures, Southwest U.S.*, April 15, 2004 Edition.

Aircraft categories are based on 1.3 times the stall speed of the aircraft in landing configuration as follows:

- Category A < 91 knots (Cessna 172)
- Category B 91-120 knots (Beechcraft King Air)
- Category C 121-140 knots (Canadair Challenger)
- Category D 141-165 knots (Gulfstream IV)

CH – Cloud Height (in feet above ground level)
VIS – Visibility (in miles)



LEGEND

- Airport with other than hard-surfaced runways
- Airport with hard-surfaced runways 1,500' to 8,069' in length
- Airports with hard-surfaced runways greater than 8,069' or some multiple runways less than 8,069'
- Non-Directional Radiobeacon (NDB)
- VORTAC
- VHF Omni Range (VOR)
- VOR-DME
- Compass Rose
- Mode C
- Class D Airspace
- Class E Airspace
- Class E Airspace with floor 700 ft. above surface
- Class E Airspace with floor 1,200 ft. or greater above surface
- Victor Airways
- Military Training Routes
- Wilderness Area
- Military Operations Area - MOA

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

NORTH

NOT TO SCALE

KINGMAN AIRPORT

Exhibit 1D
AREA AIRSPACE

VICINITY AIRSPACE

To ensure a safe and efficient airspace environment for all aspects of aviation, the FAA has established an airspace structure that regulates and establishes procedures for aircraft using the National Airspace System. The U.S. airspace structure provides two basic categories of airspace, controlled and uncontrolled, and identifies them as Classes A, B, C, D, E, and G.

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-capacity commercial service airports (i.e., Phoenix-Sky Harbor International Airport). Class C airspace is controlled airspace surrounding lower activity commercial service airports and some military airports (i.e., Tucson International Airport). Class D airspace is controlled airspace surrounding airports with an airport traffic control tower (i.e., Laughlin/ Bullhead International Airport). All aircraft operating within Classes A, B, C, and D airspace must be in contact with the air traffic control facility responsible for that 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. Aircraft conducting visual flights in Class E airspace are not required to be in radio communications with air traffic control facilities. Visual flight can only be conducted if minimum visibility and cloud ceilings exist. Class G airspace is uncontrolled airspace that does not require contact with an air traffic control facility.

Airspace in the vicinity of Kingman Airport is depicted on **Exhibit 1D**. The airport is located in Class E airspace, beginning at 700 feet above the surface and extending to 18,000 feet MSL. Class E airspace also encompasses the low-altitude Victor Airways in the vicinity of the airport. Victor Airways are corridors of airspace eight miles wide that extend upward from 1,200 feet AGL to 18,000 feet MSL and extend between VOR navigational facilities. Victor Airways in the area emanate from the Peach Springs VORTAC and the Needles VORTAC.

SPECIAL USE AIRSPACE

Airspace may be reserved for use by a specific agency, primarily the military, within which operations of other aircraft are restricted or prohibited. The special use airspace in the vicinity of Kingman Airport is defined in the following paragraphs and is identified on **Exhibit 1D**.

Located south of the airport are the Turtle and Bagdad 1 Military Operations Areas (MOAs). MOAs define areas of high level military activity and are intended to segregate military and civilian aircraft. While civilian operations are not restricted within the OA, civilian aircraft are cautioned to be alert for military aircraft when operating in the MOA. The Turtle MOA is under control of the Los Angeles Air Route Traffic Control Center (ARTCC) and military operations are authorized

from 11,000 feet MSL upward, with no upper limit. Hours of operation are between 6:00 a.m. and 7:00 p.m., Monday through Friday. The Bagdad 1 MOA is under the control of the Albuquerque ARTCC and military operations are authorized from 7,000 feet MSL or 5,000 feet AGL (which ever is higher) upward, with no upper limit. Hours of operation are between 6:00 a.m. and 11:00 a.m., Monday through Friday.

A number of military training routes (MTRs) are located near Kingman Airport. These routes are used by military training aircraft which commonly operate at speeds in excess of 250 knots and at altitudes to 10,000 feet MSL. While general aviation flights are not restricted within this area, pilots are strongly cautioned to be alert for high-speed military jet training aircraft.

Several areas in the vicinity of Kingman Airport are designated as National Recreation and Wilderness Areas. The Lake Mead Recreation Area is located approximately 30 nautical miles west of the airport. The Lake Havasu Wilderness Area is located approximately 40 nautical miles southwest of the airport. As shown on **Exhibit 1D**, several additional wilderness areas are located in the vicinity of Kingman Airport. Aircraft in and over these designated areas are requested to remain above 2,000 feet AGL.

Located northeast of the airport is the SFAR 50-2 Grand Canyon National Park Special Flight Rules Area. Special regulations apply to all aircraft operations in this area below 14,500 feet MSL. Pilots intending to fly within SFAR 50-2 airspace should refer to the Grand Canyon VFR Aeronautical Chart for detailed information.

AIR TRAFFIC CONTROL

Kingman Airport does not currently have an airport traffic control tower (ATCT) to regulate flight operations. Instead, pilots follow general flight procedures for arriving and departing the airport. Pilots announce their position and intentions on the Unicom frequency 122.8.

Enroute air traffic control service to Kingman Airport is provided by the Los Angeles Air Route Traffic Control Center (ARTCC). ARTCCs control aircraft in a large multi-state area. All aircraft in radio communication with the ARTCC are provided with altitude, aircraft separation, and route guidance to and from the airport.

LOCAL OPERATING PROCEDURES

Kingman Airport is situated at 3,446 feet MSL. The traffic pattern altitude at the airport is 1,000 feet above airfield elevation (4,446 feet MSL). Runway 3-21 and Runway 17-35 utilize left-hand traffic patterns. For left-hand traffic patterns, aircraft approach the runway end following a series of left-hand turns.

AREA AIRPORTS

A review of airports within 40 nautical miles of Kingman Airport has been

made to identify and distinguish the type of air service provided in the area surrounding the airport. Public-use airports within 40 nautical miles of the airport were previously illustrated on **Exhibit 1D**. Information pertaining to each airport was obtained from FAA master airport records.

Laughlin/Bullhead International Airport, the nearest commercial service airport, is located approximately 31 nautical miles west-southwest of Kingman Airport in Bullhead City, Arizona. A single asphalt runway (7,520 feet in length) serves the airport. The airport is equipped with an airport traffic control tower and there are three published instrument approaches. There are approximately 61 based aircraft at the airport, the majority of which are single-engine. Services available at Laughlin/Bullhead International Airport include fuel sales (100LL and Jet A), aircraft parking (hangars and tie-downs), aircraft maintenance, a passenger terminal and lounge, catering, rental cars, and courtesy transportation.

Sun Valley Airport is located approximately 34 nautical miles west-southwest of Kingman Airport in Bullhead City, Arizona. The airport is served by a single asphalt runway, which is 3,700 feet in length. The airport is not equipped with an airport traffic control tower and there are no published instrument approaches available at the airport. There are 11 based aircraft at Sun Valley Airport, all of which are single-engine. Services available at the airport include 100LL fuel sales, aircraft tie-downs, and minor airframe and powerplant repair.

Eagle Airpark Airport is located approximately 40 nautical miles southwest of Kingman Airport in Bullhead City, Arizona. The airport is served by a single asphalt runway, 4,800 feet in length. The airport is not equipped with an airport traffic control tower and there are no published instrument approaches available at the airport. Approximately 53 aircraft are based at Eagle Airpark Airport, the majority of which are single-engine. Services available at the airport include fuel sales (100LL and Jet A), aircraft parking (hangars and tie-downs), aircraft maintenance, aircraft parts, aviation accessories, and pilot supplies.

REGIONAL SETTING

Kingman Airport and the adjacent Industrial Park are located in an unincorporated portion of Mohave County, northeast of the City of Kingman as shown on **Exhibit 1E**. The City of Kingman is located at the intersection of U.S. Highway 93 (which extends between Wickenburg to the south and Canada to the north) and Interstate 40 (which extends between Barstow, CA, to the west and Wilmington, NC, to the east). Kingman lies on the longest stretch (approximately 158 miles) of Historic Route 66 still intact.

The City of Kingman is located approximately 103 statute miles southeast of Las Vegas, Nevada; 143 statute miles west of Flagstaff, Arizona; 186 statute miles northwest of Phoenix, Arizona; and 324 statute miles east of Los Angeles, California. The location of the airport in its regional and na-

tional setting is presented on **Exhibit 1E**.

The city is situated in the Hualapai Valley, between the Cerbat and Hualapai mountain ranges, at an elevation of 3,446 feet. Kingman is a historic city with 62 buildings on the National Register of Historic Buildings. The city was incorporated in 1952 and has served as the county seat of Mohave County since 1887.

Geographically, Mohave County is the second largest county in the state. The Colorado River forms the western boundary of Mohave County and an estimated 1,000 miles of shoreline lie within the county along the Colorado River and Lakes Havasu, Mohave, and Mead. The rivers and lakes offer fishing, along with other forms of recreation, and nearby Hoover Dam offers visitor tours.

GROUND TRANSPORTATION

Both freight and passenger rail lines head into Kingman; the Burlington Northern and Santa Fe Railway provides direct rail connections for Mohave County (includes a railhead to the Kingman Industrial Park), while Amtrak provides daily passenger rail service. In addition, a full-service commercial bus station (Greyhound Bus Lines) provides passenger and parcel connections. Daily parcel and overnight express services have pick-up and delivery routes in Kingman. Local transportation service includes several taxi companies, some of which cater to customers with special needs.

CLIMATE

At an elevation of 3,449 feet, Kingman offers a mild, high-desert climate. The region experiences moderate winters and warm summers. Normally, July is the hottest month, with a mean maximum daily temperature of 97.8º Fahrenheit (F). The average annual high temperature is 77º Fahrenheit, while the average annual low is 47º Fahrenheit. Precipitation in the Kingman area averages 10.37 inches per year, with higher monthly totals in both the winter and late summer months.

Winds in the Kingman area are normally mild to moderate, with periods of higher velocity wind gusts. Seasonal periods with relatively higher wind velocities are more common during the summer monsoon season. Annual snowfall in Kingman averages 2.5 inches, with the majority occurring in January. A climatological summary for the City of Kingman is presented in **Table 1C**.

Since the airport is in the lowest part of the valley, there is normally no snow accumulation and the pavement normally retains enough heat to melt snow. Temperatures do drop below freezing, causing ice to form on pavements if there is any retained water. Kingman has no snow removal equipment; therefore, the airport would normally be closed if dry snow exceeded two inches or slush exceeded one inch.

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KINGMAN AIRPORT

Exhibit 1E
VICINITY MAP

TABLE 1C
Climate Summary
Kingman, AZ

Month	Average Low	Average High	Average Precipitation (in.)
January	31ºF	56ºF	1.11
February	34ºF	60ºF	1.30
March	37ºF	66ºF	1.06
April	43ºF	74ºF	0.66
May	50ºF	83ºF	0.25
June	58ºF	93ºF	0.15
July	67ºF	98ºF	0.91
August	65ºF	95ºF	1.45
September	58ºF	90ºF	0.94
October	48ºF	79ºF	0.65
November	38ºF	67ºF	0.71
December	32ºF	57ºF	1.18
Average	47ºF	77ºF	Annual = 10.37

Source: Western Regional Climate Center

AIRPORT SYSTEM PLANNING ROLE

Airport planning exists on many levels: local, state, and national. Each level has a different emphasis and purpose. An airport master plan is the primary local airport planning document.

An Airport Master Plan was previously competed for Kingman Airport in 1991. The 1991 Master Plan's principal airside recommendations included preserving an ultimate length of 10,000 feet for Runway 3-21, extending Taxiway C to the Runway 35 end, installing an Automated Surface Observation System (ASOS), installing medium intensity taxiway lighting (MITL) on all existing taxiways and extensions, acquiring land to support the installation of an Instrument Landing System (ILS) to Runway 21 (including a medium intensity approach lighting system with runway alignment indicator lights [MALSR]) and larger runway protection zones (RPZs) on Runways 17 and 21, and the installation of distance remaining signs on Runway 17-35. Principal landside recommendations included the construction of a new terminal building, relocating individual T-hangars and shade hangars, constructing new shade and T-hangars, providing additional general aviation apron area, constructing a new fixed base operator (FBO) facility, and relocating the underground storage tanks to an aboveground storage area.

At the national level, the airport is included in the *National Plan of Integrated Airport Systems* (NPIAS). This plan identifies 3,364 existing airports which are significant to national air transportation, as well as airport de-

velopment necessary to meet the present and future requirements in support of civil needs. An airport must be included in the NPIAS to be eligible for federal funding assistance. Kingman Airport is classified as a non-primary commercial service airport in the NPIAS.

At the state level, Kingman Airport is included in the *Arizona State Aviation System Plan* (SASP). The purpose of the SASP is to ensure that the state has an adequate and efficient system of airports to serve its aviation needs. The SASP defines the specific role of each airport in the state's aviation system and establishes funding needs. Through the state's continuous aviation system planning process, the SASP is updated every five years. The most recent update to the SASP was in 2000 when the *State Aviation Needs Study* (SANS) was prepared. The SANS provides policy guidelines that promote and maintain a safe aviation system in the state, assess the state's airports' capital improvement needs, and identify resources and strategies to implement the plan. Kingman Airport is one of 112 airports included in the 2000 SANS, which includes all public and private airports and heliports in Arizona that are open to the public, including American Indian and recreational airports.

AIRPORT HISTORY AND ADMINISTRATION

Aviation has been an important part of Kingman's history. The Santa Fe Airway provided an air route from Los Angeles, California, to Amarillo, Texas, and the City of Kingman was the first community to become a "rest and refueling" point on the route.

In the 1930s, scheduled passenger service was brought to the city by Western Air Express and Transcontinental Air Transport (TAT). Both airline companies built their own airfields in Kingman, with Western Air completing their field first and naming it Berry Field. TAT dedicated their field, Port Kingman, to the city on July 4, 1929. Four days later, Charles Lindbergh piloted the first TAT flight into Port Kingman. Both airlines eventually merged to form Trans World Airlines (TWA) and Berry Field was closed.

In 1941, at the beginning of World War II, the United States Army established a gunnery school on the site of the existing airport. Following the war, the military airfield was selected as a military aircraft surplus field. Storing approximately 7,000 aircraft, it became one of the largest military aircraft supply fields in the country.

In 1948, the Army Airfield of Kingman became the property of Mohave County through a government program initiated throughout the country, permitting military airfields to be acquired by each respective city. The old Port Kingman was closed permanently and operations began at the present Kingman Airport.

In 1979, Mohave County obtained a deed release from the FAA allowing a portion of the airport property to be

sold and developed as an industrial park. The Mohave County Airport Authority was also established in 1979 as an independent agency to operate the Kingman and Bullhead City airports. Previously named Mohave County Airport, the airport's name was changed to Kingman Airport in 1984.

Kingman Airport is currently owned by the City of Kingman (who is also the grant sponsor) and operated by the Kingman Airport Authority (KAA). The KAA also operates the Kingman Industrial Park. The authority has a 25-year lease expiring in 2028. There is a 25-year option. Day-to-day administration and management of the airport is the responsibility of the airport manager. Seven full-time and one part-time staff positions support administration, operations, and maintenance.

Membership in the KAA is reserved for residents of the City of Kingman, or residents within 20 miles outside the boundaries of the city. Members of the KAA must be elected by a two-thirds majority of the membership. A seven to nine member board of directors manages the KAA. Each member of the board of directors is chosen for a three-year term. Four standing committees focus on the business of the KAA. The airfield committee focuses on the operation of the airport.

The KAA has approved minimum standards for aeronautical activities at the airport, as well as administering defined rules and regulations.

FUTURE LAND USE

The environs in which the airport is located are defined by future land uses surrounding the airport. **Exhibit 1F** depicts the future land use around the City of Kingman as derived from the City of Kingman land use planning and Mohave County planning.

Kingman Airport is located in Mohave County, southeast of State Route 66. The airport is northeast of the City of Kingman, adjacent to City limits. The Kingman Airport Industrial Park is located on the west side of the airport. According to the *Kingman Area General Plan*, this area is designated for heavy manufacturing/industrial land uses. The general plan characterizes this area by industrial business and uses having more intensive types of industrial processes such as mechanical and/or chemical processing, extractive uses, materials transfer, multiple-shift operations, and large structures. Heavy industrial activity has historically been located within Kingman Airport Industrial Park. Southeast and northeast of the airport are small tracts of light industrial land use.

To the south is Vista Bella development. This development consists of The Villas and Valle del Sole subdivisions. Development began in the 1980s, but has been slow in recent times. A new master plan with hard zoning has recently been approved for future development of the area.

West and northwest of the airport, across State Route 66, is Camel-

back/New Kingman Addition. This area is a mixture of medium, low, and rural density residential with neighborhood and community commercial uses mixed in. The area is characterized as a mixture of older affordable site-built and manufactured homes, with newer developing neighborhoods. Mohave Community College is located in this area.

East of the airport is State Trust and Bureau of Land Management (BLM) lands.

HEIGHT AND HAZARD ZONING

Height and hazard zoning establishes height limits for new construction near the airport and within the runway approaches. It is based upon an approach plan which describes artificial surfaces defining the edges of airspace which are to remain free of obstructions for the purpose of safe air navigation. It requires that anyone who is proposing to construct or alter an object that affects airspace must notify the FAA prior to its construction. Rules and regulations regarding height and hazard zoning are found in the *Mohave County General Plan*, Section 3.

AIRPORT DEVELOPMENT ZONE

The Kingman Airport and Industrial Park both lie within an Airport Development (A-D) Zone. The purpose of an A-D Zone is to provide for manufacturing and warehousing uses in locations which are suitable and appropriate, taking into consideration the land uses and resources in areas near airports. Regulations regarding the A-D Zone are found in the *Mohave County General Plan*, Section 13.1. Any change in the individual use of current A-D zoned property requires approval.

PUBLIC AIRPORT DISCLOSURE MAP

Arizona Revised Statues (ARS) 28-8486, *Public Airport Disclosure,* provides for a public airport owner to publish a map depicting the "territory in the vicinity of the airport." The territory in the vicinity of the airport is defined as the traffic pattern airspace and the property that experiences 60 day-night noise level (DNL) or higher in counties with a population of more than 500,000, and 65 DNL or higher in counties with less than 500,000 residents. The DNL is calculated for the 20-year forecast condition. ARS 28-8486 provides for the State Real Estate Office to prepare a disclosure map in conjunction with the airport owner. The disclosure map is recorded with the County Recorder.

Kingman Airport does not have a public airport disclosure map; however, this Master Plan will prepare a disclosure map based on the ultimate airfield configuration and projected 20-year DNL contours.

SOCIOECONOMIC CHARACTERISTICS

For an airport master plan, socioeconomic characteristics are collected and

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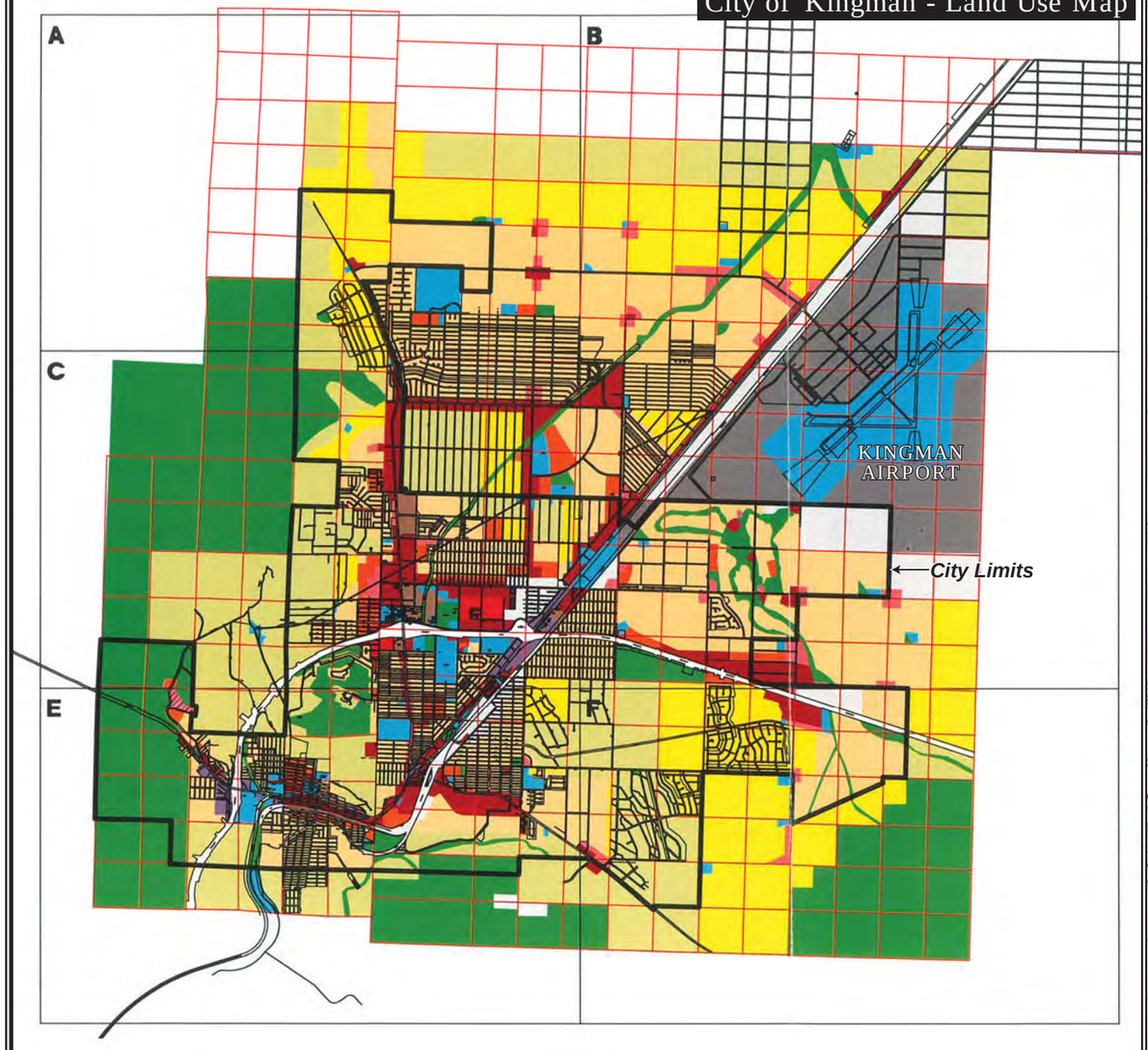
City of Kingman - Land Use Map

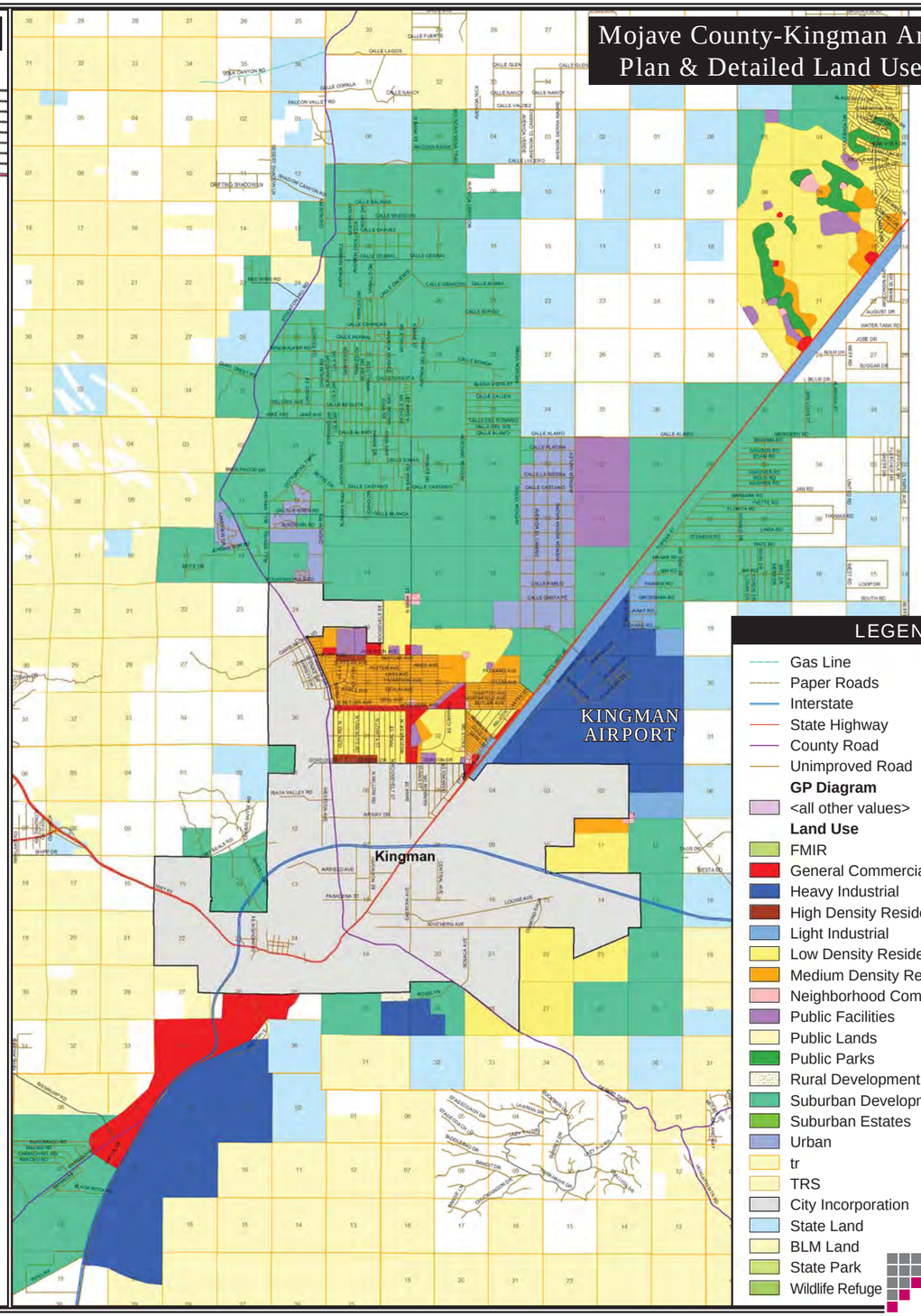


LEGEND

- Rural Density Residential
- Low Density Residential
- Medium Density Residential
- Intermediate Density Residential
- High Density Residential
- Neighborhood Commercial
- Community Commercial
- Regional Commercial
- Highway Service Commercial
- Light Industrial
- Manufacturing Industrial
- Public / Quasi-Public
- Parks / Open Space

SOURCE: RBF Consulting

Mojave County-Kingman Area General Plan & Detailed Land Use Diagram



LEGEND

- Gas Line
- Paper Roads
- Interstate
- State Highway
- County Road
- Unimproved Road

GP Diagram

- <all other values>

Land Use

- FMIR
- General Commercial
- Heavy Industrial
- High Density Residential
- Light Industrial
- Low Density Residential
- Medium Density Residential
- Neighborhood Commercial
- Public Facilities
- Public Lands
- Public Parks
- Rural Development Area
- Suburban Development Area
- Suburban Estates
- Urban
- tr
- TRS
- City Incorporation
- State Land
- BLM Land
- State Park
- Wildlife Refuge

KINGMAN AIRPORT

Exhibit 1F
LAND USE MAP

examined to derive an understanding of the dynamics of growth within the study area. This information is essential in determining aviation service level requirements, as well as forecasting future aviation demand. Aviation forecasts are typically related to the population base, economic strength of the region, and the ability of the region to sustain a strong economic base over an extended period of time.

Population

Historical population totals are presented in **Table 1D**. Historical population totals were obtained from the Arizona Department of Economic Security, Population Statistics Unit. Between 1990 and 2002, Arizona's population grew more than three times as fast as the rest of the nation, becoming home to more than 5.4 million people. This represents an average annual growth rate of 4.9 percent, or a 40 percent increase overall, making it the nation's second fastest growing state during the 90s, behind Nevada's 66 percent increase. Today, Arizona ranks as the 20th largest state.

The historical population of Mohave County and the City of Kingman are also shown in **Table 1D**. Between 1990 and 2002, Mohave County experienced an average annual growth rate of 4.9 percent, adding more than 72,000 residents. During this same time, the city experienced an average annual growth rate of 4.6 percent, resulting in a net increase of more than 9,200 residents.

TABLE 1D
Historical Population

Area	1990	2002	Average Annual Growth Rate 1990-2002
City of Kingman	12,722	22,045	4.6%
Mohave County	93,497	166,465	4.9%
State of Arizona	3,665,228	5,472,750	4.9%

Source: Arizona Department of Economic Security, Population Statistics Unit.

Employment

Analysis of a community's employment base can provide valuable insight into the overall well-being of the community. In most cases, the community make-up and health is significantly impacted by the availability of jobs, variety of employment opportunities, and types of wages provided by local employers.

Employment by economic sector for Mohave County was first examined. The most recent data (2002), which was obtained from the Arizona Department of Economic Security, is presented in **Table 1E**. As shown in the table, the county's main economic sectors include services, trade, and government. The single largest economic sector in the county is trade (wholesale and retail), which employed more than 12,000 people in 2002. The ser-

vices sector is also a major sector of the economy, employing over 10,000 people in 2002. Many of the jobs in the trade and services sectors are directly related to tourism, which is a major contributor to Mohave County's economy. The government and construction sectors, also very important to the economy, accounted for 7,950 jobs and 4,675 jobs, respectively, in 2002.

TABLE 1E
Employment by Economic Sector
Mohave County

Economic Sector	Mohave County	% of Total Employment
Total Employment	**42,675**	**100.0%**
Mining	75	7.4%
Manufacturing	3,150	0.2%
Construction	4,675	11.0%
Transportation, Comm., & Public Utilities	2,250	5.3%
Trade	12,350	28.9%
Finance, Insurance, & Real Estate	1,500	3.5%
Services	10,725	25.1%
Government	7,950	18.6%

Source: Arizona Department of Economic Security, 2002.

Table 1F presents the major employers in Mohave County. Seven of the top ten are located in the City of Kingman. Of that, four are located at the Kingman Airport Industrial Park. The city is a regional trade, service, and distribution center for northwestern Arizona. Kingman's proximity to major cities such as Los Angeles, Las Vegas, and Phoenix, as well as the Grand Canyon, has made tourism, manufacturing/distribution, and transportation leading industries in the city. Favorable Arizona taxes, Interstate 40, the Burlington Northern and Santa Fe Railway mainline, and the proximity to the California market make Kingman a prime site for industries and distributors.

TABLE 1F
Major Employers in Mohave County

Employer Name	Location (city)	Employment Type
American Woodmark Corp.	Kingman	Manufacturer Kitchen Cabinets
Bullhead Community Hospital	Bullhead City	Hospital/Medical
Cyprus Climax Metals Co.	Kingman	Copper Ore
Ford Proving Grounds	Yucca	Automotive Test Site
General Cable	Kingman	Manufacturer Fabricated Wire Products
Goodyear	Kingman	Manufacturer Aircraft Components
Guardian Fiber Glass	Kingman	Manufacturer Fluorine Products
Havasu Regional Hospital	Lake Havasu City	Hospital/Medical
IWX Motor Freight	Kingman	Trucking/Heavy Hauling
Kingman Regional Medical Center	Kingman	Hospital/Medical

Source: Arizona Department of Commerce.

ENVIRONMENTAL INVENTORY

Available information concerning existing environmental conditions at Kingman Airport has been derived from the 1993 *Environmental Assessment for Proposed Development* at Kingman Airport (EA), as well as from Internet resources, agency maps, and existing literature. The intent of this task is to inventory potential environmental sensitivities that might affect future improvements at the airport.

HISTORIC AND CULTURAL RESOURCES

As part of the 1993 EA, a survey was conducted at the recommendation of the Arizona State Historic Preservation Office (SHPO) to determine the potential for World War II resources which would be eligible for the National Register. This survey resulted in the identification and recording of 24 cultural resource features, of which 17 of these sites are historic archaeological and seven are historic architectural features.

These features were developed during World War II (1942-1945) when the existing airport site served as the Kingman Army Air Field. With the exception of the existing terminal building, all features are considered to be elements of a National Register of Historic Places-eligible historic site. This complex of features, located northwest of the aircraft apron (with the exception of the terminal building), is considered to represent a National Register of Historic Places property.

These features are located in the landside facilities area northeast of Runway 3-21, across from the aircraft apron. The archaeological sites are comprised of concrete building floors, a bunker, L-shaped concrete floors, concrete floor water-use facility, flood pads and associated water/septic tanks, electric manholes, concrete curb, Runway 3, and roads. Architectural sites are the terminal building, control tower, a monument, electrical vault, wood frame hangars, and wood frame building. The terminal building is not considered to be eligible for nomination to the National Register because it is not in its original location and extensive modifications would be difficult and expensive to reverse. The building's architectural integrity has been lost.

Based on the findings, portions of the airport contain elements of a National Register-eligible, World War II-period historic site. It was determined in the 1993 EA that the majority of features could be negatively impacted by future development if proper consideration and mitigation were not considered. The SHPO concurred with the survey and expressed that "National Register quality features be avoided by project activities." If avoidance is not feasible, then a data recovery plan will need to be developed to mitigate adverse impacts to these resources.

WETLANDS

The U.S. Army Corps of Engineers (ACOE) regulates the discharge of dredge and/or fill material into waters of the United States, including adjacent wetlands, under Section 404 of the Clean Water Act.

Wetlands are defined by *Executive Order 11990, Protection of Wetlands,* as "those areas that are inundated by surface or groundwater with a frequency sufficient to support and under normal circumstances does or would support a prevalence of vegetation or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction." Categories of wetlands include swamps, marshes, bogs, sloughs, potholes, wet meadows, river overflows, mud flats, natural ponds, estuarine area, tidal overflows, and shallow lakes and ponds with emergent vegetation. Wetlands exhibit three characteristics: hydrology, hydrophytes (plants able to tolerate various degrees of flooding or frequent saturation), and poorly drained soils.

Correspondence included in the 1993 EA from the U.S. Fish and Wildlife Service (USFWS) indicated that no wetlands are present within the project area.

FLOODPLAINS

As defined in the FAA *Order 5050.4A,* floodplains consist of "lowland and relatively flat areas adjoining inland and coastal water including flood prone areas of offshore islands, including at a minimum, that area subject to one percent or greater chance of flooding in any given year." Federal agencies are directed to take action to reduce the risk of flood loss, minimize the impact of floods on human safety, health and welfare, and restore and preserve the natural and beneficial values served by floodplains. Floodplains have natural and beneficial values, such as providing ground water recharge, water quality maintenance, fish, wildlife, plants, open space, natural beauty, outdoor recreation, agriculture and forestry. FAA *Order 5050.4A (12) (*c) indicates that "if the proposed action and reasonable alternatives are not within the limits of a base floodplain (100-year flood area)," that it may be assumed that there are no floodplain impacts. The limits of base floodplains are determined by Flood Insurance Rate Maps (FIRM) prepared by the Federal Emergency Management Agency (FEMA). Kingman Airport is not located within the 100-year floodplain.

WATER SUPPLY AND QUALITY

Pursuant to FAA *Order 5050.4A*, the 1982 Airport Act requires that Airport Improvement Program applications for projects involving airport location, runway location, or a major runway extension shall not be approved unless the governor of the state in which the project is located certifies that there is "reasonable assurance" that the project will be located, designed, constructed, and operated in compliance

with applicable air and water quality standards.

Water supply and quality concerns related to airport development most often relate to the following:

- Domestic sewage disposal
- Surface runoff and soil erosion
- Storage handling of fuel, petroleum products, solvents, etc.

Domestic Sewage Disposal

Kingman Airport is connected to the Kingman Municipal Sewer System. The City of Kingman operates two separate wastewater treatment plants. The hilltop collection and treatment plant serves most of Kingman, (except downtown) including Kingman Airport. It consists of seven aerated lagoons, a polishing pond with a pump station, seventy-five acres of wetland treatment, and about forty acres of evaporation/percolation basins. The plant treats about 1,300,000 gallons per day. Both treatment plants are permitted by state and federal agencies. Total sewer connections number 5,356. Both systems serve approximately 14,500 people.

Surface Runoff and Soil Erosion

According to a letter received from the Arizona Department of Environmental Quality (ADEQ) as part of the 1993 EA, an extensive dike protects the Kingman Airport and intercepts flows from the East and the South. The dike eliminates the ADEQ's concerns related to watercourse impacts caused by flows through the airport area.

As an industrial facility, Kingman Airport is required to comply with Section 402(p) of the Clean Water Act which includes the National Pollutant Discharge Elimination System (NPDES) General Permit for storm water discharges. Kingman Airport has been included with a number of airports for the preparation of a group NPDES permit.

Storage Handling of Fuel, Petroleum Products, Solvents, Etc.

Spills, leaks, and other releases to the environment of hazardous substances are often a concern at airports due to fuel storage, fueling activities, and maintenance of aircraft. Stormwater flowing over impermeable surfaces may pick up petroleum products residues, and, if not controlled, transport them off-site. Perhaps the most crucial concern would be spills or leaks of substances that could filter through the soil and contaminate groundwater resources. Federal and state laws and regulations have been established to safeguard these facilities and activities. These regulations include standards for underground tank construction materials, the installation of leak or spill detection devices, and regulations for stormwater discharge.

Fuel at the airport is dispensed by Fixed Base Operators (FBOs) who distribute major-brand aviation fuel and products. Jet-A and 100LL fuel is available. Storage tanks and fuel

trucks are clearly marked, including specification of specific types of fuel octane designations, and fire extinguishers are in all fuel trucks and fuel dispensing areas. There are two fuel farms on the airport which are maintained and operated by respective operators.

Kingman Airport conducts quarterly inspections of fuel storage facilities, fuel dispensing equipment for items including, but not limited to, fuel leaks, proper signage, storage area free from flammable materials, security of storage facilities, current fire extinguishers, and proper handling.

BIOTIC RESOURCES

Biotic resources refer to those flora and fauna (i.e., vegetation and wildlife) habitats which are present in an area. Impacts to biotic communities are determined based on whether a proposal would cause a minor permanent alteration of existing habitat or whether it would involve the removal of a sizable amount of habitat, habitat which supports a rare species, or a small, sensitive tract.

As part of the previous Master Plan, and outlined in the 1993 EA, the U.S. Fish and Wildlife Service (USFWS), and the Arizona Game and Fish Department (AG&F) were contacted regarding potential impacts relating to biotic resources. The USFWS indicated that "our data indicate no listed or proposed threatened or endangered species in the vicinity of the proposed action alternative. The potential for habitat for the candidate category 2 desert tortoise (Gopherus agasizzii) in the project area should be evaluated." The AF&G indicated that no special status species are present in the project area.

The previous EA concluded that because of the degree of disturbance on the airport property, and the lack of habitat present for the desert tortoise (steep slopes), no significant impacts to biological resources would occur.

AIR QUALITY

The Environmental Protection Agency (EPA) has adopted air quality standards that specify the maximum permissible short-term and long-term concentrations of various air contaminants. The National Ambient Air Quality Standards (NAAQS) consist of primary and secondary standards for six criteria pollutants which include: Ozone (O_3), Carbon Monoxide (CO), Sulfur Dioxide (SO_x), Nitrogen Dioxide (NO_x), Particulate Matter (PM_{10} and PM_{25}), and Lead (Pb).

Primary air quality standards are established at levels to protect the public health and welfare from any known or anticipated adverse effects of a pollutant. All areas of the country are required to demonstrate attainment with NAAQS. Arizona has adopted the federal ambient air quality standards.

Air contaminants increase the aggravation and the production of respiratory and cardiopulmonary diseases.

The standards also establish the level of air quality which is necessary to protect the public health and welfare, including, among other things, affects on crops, vegetation, wildlife, visibility, and climate, as well as affects on materials, economic values, and on personal comfort and well-being.

According to the EPA Greenbook website, Mohave County is in attainment for all criteria pollutants. As outlined within the 1993 EA, a State Air Quality Certification is required previous to construction. This certification comes with standard preventive and mitigative measures to lessen the impacts of fugitive dust in relation to construction activities.

An air quality analysis was not performed for the 1993 EA. Arizona is a state which does not have applicable indirect source review (ISR) requirements. In this case, projected airport activity levels were examined, and Kingman Airport's general aviation activity did not warrant an air quality analysis.

GEOLOGY AND SOILS

In correspondence received as part of the 1993 EA, the Soil Conservation Service expressed that their main concern with proposed development relates to soil erosion and farmland conversion. In the State of Arizona, prime and unique farmland, by definition, includes only those lands which are currently being irrigated. As outlined within the EA, there is no irrigated land that was affected by previous projects.

SOLID WASTE DISPOSAL SITES

Currently, solid waste at the airport is collected by Waste Management Incorporated. The existing sanitary landfill is located approximately 10 miles north of Kingman on U.S. Highway 93.

DEVELOPMENT HISTORY

Table 1G summarizes historical federal and state grants to the KAA for the improvement of Kingman Airport between 2001 and 2005. As shown in the table, over $3.3 million in federal grants and $1.6 million in state grants have been used to improve Kingman Airport in the past five years.

SUMMARY

The information discussed on the previous pages provides a foundation upon which the remaining elements of the planning process will be constructed. Information on current airport facilities and utilization will serve as a basis, with additional analysis, and data collection, for the development of forecasts of aviation activity and facility requirement determinations. The inventory of existing conditions is the first step in the process of determining those factors which will meet projected aviation demand in the community and the region.

TABLE 1G
Development History

Grant Number	Date	Description	Amount
Federal Grants			
3-04-0021-11	7-May-01	Rehabilitate Terminal Apron	499, 009.00
3-04-0021-12	2-Sep-02	Improve Runway Safety Areas Security Enhancements	1,146,927.00
3-04-0021-13	13-Aug-03	Airport Security Enhancements Phase 2 Master Plan Update	350,000.00
3-04-0021-14	13-Jul-04	Rehabilitate Terminal Apron Phase 2	573,432.00
3-04-0021-15	8-Aug-05	Purchase ARFF Vehicle, Construct ARFF Building, Design Terminal Building Phase 1	783,750.00
Total Federal Grants			**$3,353,118.00**
State Grants			
E2F26	15-Apr-02	Rehabilitate Terminal Apron	24,496.00
E3F25	16-Dec-02	Improve Runway Safety Areas	56,301.00
E4F17	15-Dec-03	Master Plan Update	7,363.00
E4F16	15-Dec-03	Airport Security Enhancement Phase 2	9,818.00
E5F20	21-Sep-04	Rehabilitate Terminal Apron Phase 2	15,091.00
E6S10	2-Aug-05	Reconstruct Mohave Airport Drive	1,542,209.00
E6F47	8-Nov-05	Purchase ARFF Vehicle, Construct ARFF Building, Design Terminal Building Phase 1	20,626.00
Total State Grants			**$1,675,904.00**

Source: KAA

DOCUMENT SOURCES

As mentioned earlier, a variety of different sources were utilized in the inventory process. The following listing reflects a partial compilation of these sources. This does not include data provided by airport management as part of their records, nor does it include airport drawings and photographs which were referenced for information. On-site inventory and interviews with staff tenants also contributed to the inventory effort.

2000 Arizona State Aviation Needs Study (SANS), Arizona Department of Transportation, Aeronautics Division.

Airport/Facility Directory, Southwest U.S., U.S. Department of Transportation, Federal Aviation Administration, National Aeronautical Charting Office, April 15, 2004 Edition.

Kingman Airport Certification Specifications (December 9, 1999), Kingman Airport Authority.

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

U.S. Terminal Procedures, Southwest U.S., U.S. Department of Transportation, Federal Aviation Administration, National Aeronautical Charting Office, April 15, 2004 Edition.

Phoenix Sectional Aeronautical Chart, U.S. Department of Transportation, Federal Aviation Administration, National Aeronautical Charting Office, 70th Edition, October 30, 2003.

1991 Airport Master Plan Update, Coffman Associates, Inc.

A number of Internet sites were also used to collect information for the inventory chapter. These include the following:

FAA 5010 Data
http://www.airnav.com

Arizona Department of Economic Security:
http://www.de.state.az.us

Arizona Department of Transportation, Aeronautics Division:
http://www.dot.state.az.us/Aero/index.htm

Arizona Workforce Informer:
http://www.workforce.az.gov/

Kingman Chamber of Commerce:
http://www.kingmanchamber.org/

U.S. Census Bureau:
http://www.census.gov/