

Chapter One

INVENTORY

F.A.R. Part 150
Noise Compatibility Study
Williams Gateway Airport

This chapter presents an overview of Williams Gateway Airport and its relationship to the surrounding communities. The background information in this chapter, which will be used in later stages of the noise compatibility planning process, is as follows:

- A description of the setting, local climate, and historical perspective of the airport.
- A description of airspace and air traffic control.
- A description of key airport facilities and navigational aids.
- A description of existing land uses in the study area.
- A discussion of the local land use planning and regulatory framework within the study area.

This noise study involves the preparation of two official documents: the Noise Exposure Maps (NEM) and the Noise Compatibility Program (NCP). The NEM document is a baseline analysis showing existing and potential future noise conditions at the airport. It will include Chapters One, Two, and Three of this Study. The NCP document, which will include Chapters Four, Five, and Six, presents a plan for effectively dealing with adverse noise impacts based on a three-part perspective. First, it will address steps to abate or reduce aircraft noise. Second, it will address noise mitigation techniques to reduce the impact of

noise on sensitive land uses in the area. Third, it will address land use planning to encourage future development that is compatible with the airport.

A glossary in the section titled "Technical Information Papers" at the back of this document provides a description of airport terms and acronyms.

JURISDICTIONS AND RESPONSIBILITIES

Reduction of aircraft noise impacts is a complex issue, with several parties sharing in the responsibility: the federal government, state and local governments and planning agencies, the airport proprietor, military and civilian airport users, shippers of cargo, and local residents. All interests must be considered in the noise compatibility planning process.

FEDERAL

Aviation plays a vital role in interstate commerce. Recognizing this, the federal government has assumed the role of coordinator and regulator of the nation's aviation system. Congress has assigned administrative authority to the Federal Aviation Administration (FAA). Specific responsibilities of the FAA include:

- The regulation of air commerce in order to promote its development, safety and to fulfill the requirements of national defense.
- The promotion, encouragement and development of civil aeronautics.
- The control of the use of navigable airspace and the regulation of civil and military aircraft

operations to promote the safety and efficiency of both.

- The development and operation of a common system of air traffic control and navigation for both military and civil aircraft.

The FAA also administers a program of federal grants-in-aid for the development of airport master plans, the acquisition of land and for the planning, design and construction of eligible airport improvements. In addition, Congress has passed legislation and the FAA has established regulations governing the preparation of noise compatibility programs. They have also created laws and regulations requiring the conversion of the commercial aircraft fleet to quieter aircraft.

F.A.R. Part 150 Noise Compatibility Studies

The Aviation Safety and Noise Abatement Act of 1979 (ASNA, P.L. 96-193), signed into law on February 18, 1980, was enacted, ". . . to provide and carry out noise compatibility programs, to provide assistance to assure continued safety in aviation, and for other purposes." The FAA was vested with the authority to implement and administer the Act.

Federal Aviation Regulation (F.A.R.) Part 150, the administrative rule promulgated to implement the Act, sets requirements for airport operators who choose to undertake an airport noise compatibility study with federal funding assistance. Part 150 provides for the development of two final documents: noise exposure maps and a noise compatibility program.

Noise Exposure Maps. The noise exposure maps document (NEM) shows existing and future noise conditions at the airport. It can be thought of as a baseline analysis defining the scope of the noise situation at the airport. It includes maps of noise exposure for the current year and a five-year forecast. The noise contours are shown on a land use map to reveal areas of non-compatible land use. The document includes detailed supporting information explaining the methods used to develop the maps.

Part 150 requires the use of standard methodologies and metrics for analyzing and describing noise. It also establishes guidelines for the identification of land uses which are incompatible with noise of different levels. Airport proprietors are required to update noise exposure maps when changes in the operation of the airport would create any new, substantial non-compatible use. This is defined as an increase in the Yearly Day-Night Average Sound Level (DNL) of 1.5 decibels over noncompatible land uses.

The ASNA Act provides that "constructive knowledge" shall be attributed to any person if a copy of the noise exposure map was provided to him at the time of property acquisition, or if notice of the existence of the noise exposure map was published three times in a newspaper of general circulation in the area. In addition, Part 150 defines "significant increase" as an increase of 1.5 DNL. For purposes of this provision, FAA

A limited degree of legal protection can be afforded to the airport proprietor through preparation and submission of noise exposure maps. Section 107(a) of the ASNA Act provides that:

No person who acquires property or an interest therein . . . in an area surrounding an airport with respect to which a noise exposure map has been submitted . . . shall be entitled to recover damages with respect to the noise attributable to such airport if such person had actual or constructive knowledge of the existence of such noise exposure map unless . . . such person can show --

(i) A significant change in the type or frequency of aircraft operations at the airport; or

(ii) A significant change in the airport layout; or

(iii) A significant change in the flight patterns; or

(iv) A significant increase in night-time operations occurred after the date of acquisition of such property.

officials consider the term "area surrounding an airport" to mean an area within the 65 DNL contour. (See F.A.R. Part 150, Section 150.21 (d), (f) and (g).)

Acceptance of the noise exposure maps by the FAA is required before it will approve a noise compatibility program for the airport.

Noise Compatibility Program. A noise compatibility program includes provisions for the abatement of aircraft noise through aircraft operating procedures, air traffic control procedures, airport regulations, or airport facility modifications. It also includes provisions for land use compatibility planning and may include actions to mitigate the impact of noise on noncompatible land uses. The program must contain provisions for updating and periodic revision.

F.A.R. Part 150 establishes procedures and criteria for FAA evaluation of noise compatibility programs. Among these, two criteria are of particular importance: the airport proprietor may take no action that imposes an undue burden on interstate or foreign commerce, nor may the proprietor unjustly discriminate between different categories of airport users.

With an approved noise compatibility program, an airport proprietor becomes eligible for funding through the Federal Airport Improvement Program to implement the eligible items of the program.

In 1998, the FAA established a new policy for Part 150 approval and funding of noise mitigation measures. This policy increases the incentives for The FAA has required reduction of aircraft noise at the source through certification, modification of engines, or replacement of aircraft. F.A.R. Part 36 prohibits the further escalation of noise levels of subsonic civil turbojet and transport category aircraft. It also requires new airplane types to be markedly quieter than earlier models. Subsequent amendments have extended the noise standards to include small, propeller-driven airplanes and supersonic transport aircraft.

F.A.R. Part 36 has three stages of certification. Stage 3 is the most rigorous and applies to

airport operators to discourage the development of new noncompatible land uses around airports and to assure the most cost-effective use of Federal funds spent on noise mitigation measures.

The FAA will not approve measures in Noise Compatibility Programs proposing corrective noise mitigation actions for new noncompatible development that is allowed to occur in the vicinity of airports after October 1, 1998, the effective date of this policy. As of the same effective date, AIP funding under the noise set-aside will be determined using criteria consistent with this policy. Specifically, corrective noise mitigation measures for new noncompatible development that occurs after October 1, 1998 will not be eligible for AIP funding under the noise set-aside regardless of previous FAA approvals under Part 150. The new policy does not affect funding under the Airport Improvement Program for noise mitigation projects that do not require Part 150 approval, that can be funded with Passenger Facility Charges (PFC) revenue, or that are included in FAA-approved environmental documents for airport development.

F.A.R. Parts 36 And 91 Federal Aircraft Noise Regulations

aircraft certificated since November 5, 1975. Stage 2 applies to aircraft certificated between December 1, 1969 and November 5, 1975. Stage 1 includes all previously certificated aircraft.

F.A.R. Part 91, Subpart I, known as the "Fleet Noise Rule," mandated a compliance schedule under which Stage 1 aircraft were to be retired or refitted with hush kits or quieter engines by January 1, 1988. A very limited number of exemptions have been granted by the U.S.

Department of Transportation for foreign aircraft operating into specified international airports.

Pursuant to the Congressional mandate in the *Airport Noise and Capacity Act of 1990*, FAA has established amendments to F.A.R. Part 91 by setting December 31, 1999 as the date for discontinuing use of all Stage 2 aircraft exceeding 75,000 pounds. FAA may grant an airline an extension of the deadline to December 31, 2003 if, by July 1, 1999, their fleets include no more than 15 percent Stage 2 aircraft. The Part 91 amendments also provide for two alternative phase-out schedules through the 1990s. The first is described in terms of the phase-out of Stage 2 aircraft; the second in terms of the phase-in of Stage 3 aircraft.

Under the first alternative, an airline must have eliminated or retrofitted 25 percent of its Stage 2 fleet by the end of 1994, 50 percent by the end of 1996, and 75 percent by the end of 1998. Under the second alternative, an airline must have a fleet of no less than 55 percent Stage 3 aircraft by the end of 1994, 65 percent by the end of 1996, and 75 percent by the end of 1998.

In order to implement noise or access restrictions on Stage 2 aircraft, the airport operator must provide public notice of the proposal and provide at least a 45-day comment period. This includes notification of FAA and publication of the proposed restriction in the *Federal Register*. An analysis must be prepared describing the proposal, alternatives to the proposal, and the costs and benefits of each.

Noise or access restrictions on Stage 3 aircraft can be implemented only after receiving FAA approval. Before granting approval, the FAA must find that six conditions specified in the statute, and listed below, are met.

Neither F.A.R. Part 36 nor Part 91 apply to military aircraft. Nevertheless, many of the advances in quiet engine technology are being used by the military as they upgrade aircraft to improve performance and fuel efficiency.

F.A.R. Part 91 does not apply to aircraft under 75,000 pounds, including most business jets, and propeller driven aircraft.

F.A.R. Part 161 Regulation Of Airport Noise And Access Restrictions

F.A.R. Part 161 sets forth requirements for notice and approval of local restrictions on aircraft noise levels and airport access. Part 161 was developed in response to the *Airport Noise and Capacity Act of 1990*. It applies to local airport restrictions that would have the effect of limiting operations by Stage 2 or 3 aircraft. These include direct limits on maximum noise levels, nighttime curfews, and special fees intended to encourage changes in airport operations to lessen noise.

- (1) The restriction is reasonable, non-arbitrary and nondiscriminatory.
- (2) The restriction does not create an undue burden on interstate or foreign commerce.
- (3) The proposed restriction maintains safe and efficient use of the navigable airspace.
- (4) The proposed restriction does not conflict with any existing federal statute or regulation.
- (5) The applicant has provided adequate opportunity for public comment on the proposed restriction.

- (6) The proposed restriction does not create an undue burden on the national aviation system.

In its application for FAA review and approval of the restriction, the airport operator must include an environmental assessment of the proposal and a complete analysis addressing the six

conditions. Within 30 days of the receipt of the application, the FAA must determine whether the application is complete. After a complete application has been filed, the FAA publishes a notice of the proposal in the Federal Register. It must approve or disapprove the restriction within 180 days of receipt of the completed application.

Airport operators that implement noise and access restrictions in violation of F.A.R. Part 161 are subject to termination of eligibility for airport grant funds and authority to impose and collect passenger facility charges.

Air Traffic Control

The FAA is responsible for the control of navigable airspace and the operation of air traffic control systems at the nation's airports. Airport proprietors have no direct control over airspace management and air traffic control, although they can propose changes in procedures.

The FAA reviews any proposed changes in flight procedures, such as flight tracks or runway use programs, proposed for noise abatement on the basis of safety of flight operations, safe and efficient use of the navigable airspace, management and control of the national airspace and traffic control systems, effect on security and national defense, and compliance with applicable laws and regulations. Typically, FAA implements and regulates flight procedures pertaining to noise abatement through the local air traffic control manager.

STATE AND LOCAL

Control of land use in noise-impacted areas around airports is a key tool in limiting the number of citizens exposed to noise. The FAA

encourages land use compatibility in the vicinity of airports and F.A.R. Part 150 has guidelines relating to land use compatibility based on varying levels of noise exposure. Nevertheless, the federal government has no direct legal authority to

regulate land use. That responsibility rests exclusively with state and local governments.

State

Although the State of Arizona does not directly implement and administer general purpose land use regulations, it has vested cities, towns, and counties with that power through enabling legislation. *Arizona Revised Statutes* do not mandate the establishment of planning commissions, agencies or departments in municipalities; however, where such appointments are made, the municipality is required to prepare and adopt a long-range general plan, and may regulate zoning, subdivision and land development, consistent with the plan.

The Arizona Department of Transportation (ADOT) is required by state law A.R.S. 28-1598 Section I to reassess the State's aviation needs every five years. ADOT adopted its first *Arizona State Aviation Needs Study* (SANS) in 1985, with subsequent updates in 1990 and 1995. The SANS

In 1999, Arizona Revised Statute §28-8464 (Public Airport Disclosure) was added requiring the disclosure of public use airports to prospective purchasers of real estate within the airport "vicinity" ("vicinity" is defined as the area within the 60 DNL contour and traffic pattern

serves as a guide for meeting the future air transportation needs of the region. The SANS provides state decision makers with a full assessment of the state's existing and future aviation needs, direction for meeting projected demand levels, and projected system costs for maintaining the State's aviation network. State officials can then budget state-allotted funds for projected system wide expenditures.

The State of Arizona also provides for the disclosure of aviation activities to prospective buyers of real estate. In 1997, the state adopted legislation allowing airport sponsors to identify Airport Influence Areas (AIA) around public and commercial use airports. The establishment of an AIA is voluntary and requires a public hearing. The boundary of the AIA must be recorded with the County.

The establishment of an AIA was proposed for Williams Gateway Airport in 1998. This was met with objection from area residents due to a disclosure statement which would subsequently be included in their property title report. This disclosure statement was seen as having an adverse effect on property values. Subsequent to a public hearing in February 1998, the proposed AIA was tabled by the Williams Gateway Airport Authority Board in lieu of alternative ways to ensure notification such as aviation easements, realtor education, and House Bill 2404 (the predecessor to Arizona Revised Statute §28-8464) which requires builders of new homes to advise buyers they are in the vicinity of an airport.

airspace). Under this law, a map will be made available upon request to prospective buyers showing areas designated to be within the disclosure area. In addition, all developers of subdivisions or undivided lands must, in their public report, provide a map showing the location

of the property and its proximity to area airports.

If the property is determined to be within an airport's "vicinity", then this information will be provided to prospective buyers.

City/Town and County

In the Williams Gateway Airport Study Area, Maricopa and Pinal Counties, the cities of Mesa and Apache Junction, and the Towns of Gilbert and Queen Creek share responsibilities for land use regulation.

Maricopa and Pinal Counties are each administered by a County Board of Supervisors, made up of representatives of five and three voting districts, respectively. The Towns of Gilbert and Queen Creek, and the Cities of Mesa and Apache Junction have a council/manager form of government. The Council for each City/Town is composed of six members plus the mayor who is elected directly by the voters.

In addition to regulating land use, local governments may acquire property to mitigate or prevent airport noise impacts or may sponsor sound insulation programs for this purpose. They are also eligible to apply for FAA grants under Part 150 if they are designated as a sponsor of a project in an approved noise compatibility program.

Maricopa Association of Governments

The Maricopa Association of Governments (MAG), serves as the designated Metropolitan Planning Organization (MPO) for all jurisdictions within Maricopa County, Arizona. MAG is a regional planning agency consisting of 24 cities and towns, Maricopa County, the Gila River Indian Community, and ADOT for transportation related issues.

As the MPO, MAG is responsible for conducting regional transportation planning and preparing air and water quality plans. It is also responsible, in accordance with *FAA Order 5100.38*, for sponsoring regional aviation system planning studies. MAG adopted its first *Regional Aviation System Plan (RASP)* in 1979, with updates in 1986 and 1993. The RASP serves as a guide for meeting the future air transportation needs of the region.

AIRPORT PROPRIETOR

Williams Gateway Airport is owned and operated by the Williams Gateway

Airport Authority (WGAA). The Authority is comprised of the City of Mesa, Town of Gilbert, Town of Queen Creek, and the Gila River Indian Community. A four-member Board of Directors, consisting of a representative from each of these governing bodies, provides policy direction for the authority. An executive director and professional staff conduct the day-to-day activities of the Authority.

As airport proprietor, the WGAA has limited power to control what types of civil aircraft use its airport and to impose curfews or other use restrictions. This power is limited by the rules of F.A.R. Part 161, described earlier. Airport proprietors may not take actions that (1) impose an undue burden on interstate or foreign commerce, (2) unjustly discriminate between different categories of airport users and (3) involve unilateral action in matters preempted by the federal government.

The Authority may take steps to control on-airport noise by installing sound barriers and acoustical shielding and by controlling the times when aircraft engine maintenance run-up operations may take place. Within the limits of the law and financial feasibility, airport proprietors may acquire land or partial interests in land, such as air rights, easements, and development rights, to assure the use of property for purposes which are compatible with airport operations.

AIRPORT SETTING

Weather plays an important role in the operational capabilities of an airport. Temperature is an important factor in determining runway length required for aircraft operations. The percentage of time that visibility is impaired due to cloud coverage is a major factor in determining the use of instrument approach aids. Wind speed and direction determine runway selection and operational flow.

The National Plan of Integrated Airport Systems (NPIAS), as established by the FAA, identifies the 3,660 airports that are important to national transportation. Williams Gateway Airport is identified as a general aviation reliever airport. Reliever airports are designated to provide general aviation pilots with an attractive alternative to using congested hub airports. There are approximately 290 reliever airports in the nation. Williams Gateway is one of eight reliever airports in Arizona and is joined by Scottsdale, Glendale, Chandler, Falcon Field and Deer Valley as the reliever airports for Phoenix Sky Harbor International Airport. **Exhibit 1A** depicts the airport in its regional and national setting.

LOCALE

Williams Gateway Airport encompasses 3,019 acres of the former Williams Air Force Base. Located in the southeastern portion of the Phoenix Metropolitan Area, Williams Gateway Airport is within the jurisdictional boundaries of the City of Mesa. The airport is located approximately 20 miles east of the City of Phoenix in an area commonly referred to as the East Valley. **Exhibit 1A** depicts the location of Williams Gateway Airport within the Phoenix Metropolitan Area and local vicinity.

CLIMATE

The regional climate is typical of south-central Arizona: warm, dry desert. The normal daily minimum temperature ranges from 41 degrees Fahrenheit in January to 81 degrees Fahrenheit in July. The normal daily maximum temperature ranges from 66 degrees Fahrenheit in January to 106 degrees Fahrenheit in July. July is usually the

hottest month with a mean maximum temperature of 108.4 degrees Fahrenheit.

The region can expect approximately 7.6 inches of precipitation annually. Clear skies predominate in this climate. On average, there are 210 clear days each year, 85 partly cloudy days, and 70 days with cloudy skies.

Winds are generally calm in this region with an average annual wind speed of 6.2 miles per hour from the east-south-east.

AIRPORT HISTORY

Williams Gateway Airport is a component of the reuse of the former Williams Air Force Base. Williams Air Force Base served as a pilot training base for more than 52 years. The site was first developed as an Army Air Corps Advanced Flying School in 1941 to train combat pilots for World War II. In February 1942, the facility was designated Williams Field in honor of an Arizona-born pilot. The facility was

renamed Williams Air Force Base in 1948 and remained that until it was closed in 1993. From 1941 to 1993 more than 26,000 men and women earned their wings at the Base.

Williams Air Force Base was recommended for closure in 1991 by the Base Closure and Realignment Commission (BRAC). In response to this action, the Williams Air Force Base Economic Reuse Advisory Board was established by the Governor in 1991 to develop a long range plan for the reuse of Williams Air Force Base. The resulting Economic Reuse Plan recommended that the former air base be redeveloped as an aerospace, educational, and training facility with the airport serving as a reliever for Phoenix Sky Harbor International Airport.

Williams Air Force Base closed in September 1993 and Williams Gateway Airport opened in March 1994. After operating four years under a lease agreement, the Williams Gateway Airport Authority obtained ownership of the airport facilities by Quit Claim Deed on April 14, 1998.

The Williams Educational, Research and Training (ERT) Campus encompasses approximately 734-acres of the former air base. The Arizona State University East campus and Chandler-Gilbert Community Campus are located on the Williams Campus. The Williams Campus is primarily owned and operated by Arizona State University East and the Maricopa Community College District.

AIRPORT FACILITIES

Airfield facilities influence the utilization of airspace and are important to the noise compatibility planning process. These facilities include the runway and taxiway systems and aircraft and terminal activity areas. Current airfield facilities are depicted on **Exhibit 1B**.

RUNWAYS

The existing airfield configuration at Williams Gateway Airport includes three parallel runways generally aligned in an northwest-southeast orientation and designated as Runway 12L-30R, 12C-30C, and 12R-30L. Runway 12L-30R is 9,301 feet long and 150 feet wide. This runway recently received a 15 inch concrete overlay to the existing runway surface. This runway will serve as the primary heavy aircraft runway. Runway 12C-30C is 10,201 feet long, 150 feet wide, and serves as the primary instrument runway. Runway 12C-30C was rehabilitated in 1997. Runway 12R-30L is 10,401 feet long by 150 feet wide and serves as the primary general aviation training runway. There are 1,000-foot paved overruns available at each end of Runways 12R/30L and 12C/30C. Runway 12L/30R has a 400-foot overrun at each end.

Table 1A summarizes runway information for Williams Gateway Airport. Runway pavement strengths are expressed in terms of aircraft landing gear configurations. Single wheel (SW) refers to the design of certain aircraft landing gear which has

Identification Lighting: The location of an airport at night is universally indicated by a rotating beacon. A rotating beacon projects two beams of

a single wheel on each main landing gear strut. Dual wheel (DW) refers to the design of certain aircraft landing gear which have two wheels on each main landing gear strut. Dual Tandem Wheel (DTW) refers to aircraft landing gear struts with a tandem set of dual wheels (four wheels) on each main landing gear strut. Double Dual Tandem Wheel (DDTW) refers to the aircraft landing gear with dual sets of dual tandem wheels (eight wheels on each strut).

TAXIWAYS

Taxiway A is the primary taxiway providing access between the runway ends and apron area and includes two partial parallel taxiway segments. Taxiways G, H, K, L, N, and P are connecting taxiways providing access from the runways and apron to parallel Taxiway A. Taxiway V provides direct access from mid-field to the apron area.

Holding aprons are available at the ends of Runways 30L, 30C, 30R, and 12R. Holding aprons provide an area for aircraft to prepare for departure without blocking other taxiing aircraft. The existing taxiway system is shown on **Exhibit 1C**.

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:

light, one white and one green, 180 degrees apart. The rotating beacon is located on top of the airport traffic control tower.

TABLE 1A Runway Information			
	Runway 12L-30R	Runway 12C-30C	Runway 12R-30L
Runway Length (feet)	9,301	10,201	10,401
Runway Width (feet)	150	150	150
Runway Surface Material	Concrete	Concrete/asphalt	Concrete
Runway Load Bearing Strength (pounds)			
SW	75,000	55,000	55,000
DW	180,000	95,000	95,000
DTW	350,000	185,000	185,000
DDTW	850,000	550,000	550,000
Lighting Runway Pavement Edge Approach	Medium Intensity PAPI	Medium Intensity PAPI	Medium Intensity None
Runway Markings	Precision	Precision	Precision
Instrument Approach Procedures	None	ILS Runway 30C GPS Runway 30C VOR or TACAN Runway 30C	None
Traffic Pattern	Left 12L Right 30R	Left 12C Right 30C	Right 12R Left 30L
Source: Airport Facility Directory, Southwest U.S., August 13, 1998; U.S. Terminal Procedures, Southwest Volume 2, August 13, 1998; Williams Gateway Airport Authority			
Notes:			
SW - Single Wheel Aircraft		PAPI - Precision Approach Path Indicator	
DW - Dual Wheel Aircraft		ILS - Instrument Landing System	
DTW - Dual Tandem Wheel Aircraft		GPS - Global Positioning System	
DDTW - Double-Dual Tandem Wheel Aircraft		TACAN - Tactical Air Navigation Aid	
VOR - Very High Frequency Omnidirectional Range			

Runway and Taxiway Lighting: Runway and taxiway lighting utilizes light fixtures placed near the pavement edge to define the lateral limits of the pavement. This lighting is essential for maintaining safe operations at night and/or during times of poor visibility in order to maintain safe and efficient access from the runway and aircraft parking areas. Medium intensity pavement edge lighting is provided along Runways 12R-30L and

12C-30C. The lighting for runways 12R-30L and 12C-30C was recently replaced by the WGAA and included new cabling, conduit, transformers, and light fixtures. Medium intensity pavement edge lighting will be installed on Runway 12L-30R and connecting taxiways as part of the reconstruction project. Runway threshold lighting identifies each runway end.

A project to install taxiway and runway identification signage was recently completed. Taxiway and runway identification signage assists pilots in locating their position on the airfield and directing them to their desired location.

Visual Approach Lighting: A Precision Approach Path Indicator (PAPI) is installed at the ends of Runways 12L, 12C, 30R, and 30C. The PAPI consist of a series of four lights located near the runway threshold. When interpreted by the pilot they give him or her a detailed indication of being above, below, or on the designed descent path until touchdown on the runway. A PAPI system has a range of five miles during the day and up to nearly 20 miles during nighttime operations.

PASSENGER TERMINAL COMPLEX

The Williams Gateway Airport Authority has initiated site improvements and remodeling plans for a new passenger terminal complex in

Building 15. The new passenger terminal complex will encompass airline ticketing, security screening and a baggage claim area. In addition, the final complex will include an addition of 362 parking spaces for passengers and rental cars. This project is expected to be completed in the year 2000. The location of Building 15 is depicted on **Exhibit 1C**.

GENERAL AVIATION COMPLEX

General aviation amenities are contained within Building 19. These include a pilot's lounge, flight planning room, pilot shop, and a restaurant. The airport currently has 52 based private and instructional aircraft.

OTHER FACILITIES

A number of additional aviation facilities and services are offered at the airport. These include but are not limited to:

- Aircraft fueling
- Flight training
- Fire services (contracted with the City of Mesa F.D.)
- Aircraft towing
- Wash rack
- Line services.

A number of additional facilities and services are being planned for the airport in both the short and long term planning horizons. These are illustrated on **Exhibit 1C**.

AIRSPACE AND AIR TRAFFIC CONTROL

The Federal Aviation Administration (FAA) Act of 1958 established the FAA as the responsible agency for the control and use of navigable airspace within the United States. The FAA Western-Pacific Region, with offices in Lawndale, CA, controls the airspace in Arizona.

The FAA has established the National Airspace System (NAS) to protect persons and property on the ground and to establish a safe and efficient airspace environment for civil, commercial, and military aviation. The NAS covers the common network of U.S. airspace, including air navigation facilities; airports and landing areas; aeronautical charts; associated rules, regulations, and procedures; technical information; personnel and material. The system also includes components shared jointly with the military.

AIRSPACE STRUCTURE

Since the inception of aviation, nations have set up procedures within their territorial boundaries to regulate the use of airspace. Prior to 1993, airspace classifications in the United States were inconsistent with those in other countries. Since then, the FAA has reclassified all airspace within the United States to provide consistency with international standards. Although airspace classifications have changed, the basic premise of the use of airspace in the United States remains the same, and airspace is still broadly classified as either “controlled” or “uncontrolled.”

The difference between controlled and uncontrolled airspace relates primarily to requirements for pilot qualifications, ground to air communications, navigation and air traffic services, and weather conditions. Six classes of airspace have been designated. **Exhibit 1D**

shows the airspace classifications and terminology. Airspace designated as Class A, B, C, D, or E is considered controlled airspace. Aircraft operating within controlled airspace are subject to varying requirements for positive air traffic control. Several types of controlled airspace exist in the Williams Gateway area:

- Class A, formerly known as the Positive Control Area.
- Class B airspace, formerly known as the Terminal Control Area (TCA), associated with Phoenix Sky Harbor International Airport.
- Class D airspace, formerly known as control zones and airport traffic areas for airports with air traffic control towers.
- Class E airspace, formerly known as transition areas and control zones for airports without air traffic control towers.
- Class G airspace under the new system covers uncontrolled airspace.

The airspace for the study area is depicted on **Exhibit 1E**.

Class A Airspace

Class A airspace includes all airspace from 18,000 feet above mean sea level (MSL) to Flight Level 600 (approximately 60,000 feet MSL). This airspace is designated in FAR Part 71.193 for positive control of aircraft. The Positive Control Area allows flights governed only under Instrument Flight Rules (IFR) operations. The aircraft must have special radio and navigation equipment and the pilot must obtain clearance from an Air Traffic Control (ATC) facility to enter Class A airspace. In addition, the pilot must possess an instrument rating.

Class B Airspace

Class B airspace has been established at 29 high density airports in the United States as a means of regulating air traffic activity in those areas. They are established on the basis of a combination of enplaned passengers and volume of operations.

Class B airspace is designed to regulate the flow of uncontrolled traffic above, around and below the arrival and departure airspace required for high performance, passenger-carrying aircraft at major airports. Class B airspace is the most restrictive controlled airspace routinely encountered by pilots operating under Visual Flight Rules (VFR) in an uncontrolled environment.

In order to fly through Class B airspace, the aircraft must have special radio and navigation equipment and must obtain an air traffic control clearance. In

addition, to operate within Class B Airspace, a pilot must have at least a private pilot's certificate or be a student pilot who has met the requirements of FAR 61.95, requiring special ground and flight training for the Class B airspace. Helicopters do not need special navigation equipment or a transponder if they operate at or below 1,000 feet and have made prior arrangements in the form of a Letter of Agreement with the FAA controlling agency. Aircraft are also required to have and utilize a Mode C transponder within a 30 nautical mile (NM) range of the center of the Class B airspace.

Williams Gateway Airport is situated beneath the Phoenix Sky Harbor International Airport Class B Airspace. The base of this airspace begins at 5,000 feet MSL southeast of the airport, steps down to 4,000 feet MSL northwest of the airport, and has a ceiling of 10,000 feet MSL. This configuration allows aircraft to utilize Williams Gateway without entering Class B Airspace.

Class D Airspace

Class D airspace is controlled airspace surrounding airports with an Air Traffic Control Tower (ATCT). The Class D airspace typically constitutes a cylinder with a horizontal radius of four or five nautical miles from the airport, extending from the surface up to a designated vertical limit, typically set at approximately 2,500 feet above the airport elevation. If an airport has an instrument approach or departure, the Class D airspace extends along the approach or departure path.

Williams Gateway is located under Class D airspace. The Class D airspace extends outward from the airport to a radius of five nautical miles, and from the surface to 3,900 feet MSL. Aircraft operating in this airspace are required to contact the Williams Gateway ATCT prior to entering. When the ATCT is closed, this airspace reverts to Class E Airspace.

Class E Airspace

The Class E airspace consists of controlled airspace designed to contain IFR operations during portions of the terminal operation and while transitioning between the terminal and enroute environments. The airspace extends upward from 700 feet above the surface when established in conjunction with an airport which has an instrument approach procedure, or from 1,200 feet above the surface when established in conjunction with airway route structures or segments. Unless otherwise specified, Class E Airspace terminates at the base of the overlying airspace. Only aircraft operating under IFR are required to be in contact with air traffic control when operating in Class E airspace. At Williams Gateway Airport, Class E airspace (from the surface to Class A and/or Class B Airspace) extends outward from the designated Class D Airspace radius.

Class G Airspace

Airspace not designated as Class A, B, C, D, or E is considered uncontrolled, or Class G. In addition, there are several restricted areas related to wildlife around the Williams Gateway area. These areas include the Salt River Bald Eagle Breeding Area located 11 miles north of the airport, the Superstition Wilderness Area located 12 miles northeast, the Fort McDowell Bald Eagle Breeding Area located 15 miles north,

airspace. Air traffic control does not have the authority or responsibility to exercise control over air traffic within this airspace. Class G airspace lies between the surface and the overlying Class E Airspace (700 to 1,200 feet Above Ground Line (AGL)). Additional FAA rules regulate flight altitudes over congested residential areas, National Parks, and outdoor recreational areas, which are often located under Class G airspace. The overall amount of Class G Airspace is continuing to decline due to the need for more coordinated air traffic activity.

Special Use Airspace

Special Use Airspace is defined as airspace where activities must be confined because of their nature or where limitations are imposed on aircraft not taking part in those activities. There are several Military Operations Areas (MOA's) in the Williams Gateway Airport area. These areas are reserved for military use and are designed to separate nonparticipating aircraft from military training operations. The closest MOA to Williams Gateway is the Outlaw MOA located 13 miles east of the airport.

There is a multi-level restricted area designated as R-2310A/B/C located 16 miles south east of Gateway Airport. Restrictions in this area are intermittent and are broadcast as a Notice to Airmen (NOTAM) when active. Restrictions can be in effect at varying altitudes from the surface to Flight Level (FL) 350 (approximately 35,000 feet MSL).

the Four Peaks Wilderness Area located 18 miles to the northeast, and the Verde River Bald Eagle Breeding Area located 26 miles north. All aircraft are requested to maintain a minimum altitude of 2,000 Above Ground Level (AGL) over these restricted areas. FAA Advisory Circular 91-36C defines the "surface" as the

highest terrain within 2,000 feet laterally of the route of flight or the upper-most rim of a canyon or valley. Areas of special use airspace in the vicinity of Williams Gateway Airport are depicted on **Exhibit 1E**.

ENROUTE NAVIGATIONAL AIDS

Enroute navigational aids (NAVAIDS) are established for the purposes of accurate enroute air navigation. Various devices use ground-based transmission facilities and on-board receiving instruments. Enroute NAVAIDS often provide navigation to more than one airport as well as to aircraft traversing the area. Enroute NAVAIDS that operate in the study area are discussed below and depicted on **Exhibit 1E**.

The VOR (Very High Frequency Omnidirectional Range) provides course guidance to aircraft by means of a Very High Frequency (VHF) radio frequency. TACAN (Tactical Air Navigation), primarily a military-oriented facility, is often collocated with a VOR station. TACAN provides both course guidance and line-of-sight distance measurement from a Ultra High Frequency (UHF) transmitter. A properly equipped aircraft translates the VORTAC signals into a visual display of both azimuth and distance.

Distance measuring equipment (DME) is also sometimes collocated with VOR facilities. DME emits signals enabling pilots of properly equipped aircraft to determine their line-of-sight distance from the facility. There are four VORTAC facilities offering navigational assistance in the vicinity of Williams Gateway Airport. These include Phoenix, Willie, Stanfield, and Tucson.

VORs define low-altitude (Victor) and high altitude airways (Jet Routes) through the area. Most aircraft enter the Williams Gateway area via one of these numerous federal airways. Aircraft assigned to altitudes above 18,000 feet MSL use

the Jet Route system. Other aircraft use the low altitude airways. Radials off VORs define the centerline of these flight corridors.

As illustrated on **Exhibit 1E**, there are seven Victor Airways in the immediate vicinity of the airport; V105-257, V327-562-567, V528, V190, V16, V105, and V95 all originate from the Phoenix VORTAC.

The non-directional beacon (NDB) transmits non-directional signals whereby the pilot of an aircraft equipped with direction-finding instrument can determine a bearing to or from the radio beacon. There are four NDB facilities in the area: Scottsdale to the northeast, Falcon Field to the east, Chandler to the south east, and Glendale to the northwest. Each NDB transmits a continuous two-letter identifier code in International Morse Code.

AREA AIRPORTS

There are ten public use airports, ten private, one active and one closed military airport within 30 nautical miles (NM) of Williams Gateway Airport. The following ten airports are open to the public: **Scottsdale Airport** (SDL) located 21 NM northwest, is served by Runway 3-21, which is 8,251 feet long, and an airport traffic control tower; **Chandler Municipal Airport** (CHD) seven NM west which is served by parallel runways with 4L-22R providing the greatest runway length (4,850 feet long by 75 feet wide); **Mesa Falcon Field** (FFZ), eight NM northwest, with a 5,100-foot paved runway and a 3,800-foot paved runway; **Stellar Airpark** (P19), 12 NM west, with a 4,000-foot paved runway; **Superior Municipal** (E81), 25 NM east provides a 3,500-foot dirt runway; **Estrella Sailport** is a privately owned public use airport situated 28 NM southwest of Williams Gateway Airport provides four unpaved runways (three of which are parallel runways); **Eloy Municipal** (E60), is 29 NM southeast and served by a 3,900-foot paved runway; **Casa Grande Municipal**, located 20 NM south with a 5,200 foot paved runway; **Coolidge Municipal**, which provides a 5,500 foot paved runway is located 24 NM southeast; and **Phoenix Sky Harbor International**, the largest airport in the state, is located 18 NM northwest and is served by two parallel runways, the longest of which is 11,001 feet long. An additional runway is currently under construction. **Exhibit 1E**, illustrates the location of these and other area airports.

INSTRUMENT APPROACHES

Instrument approaches are defined using electronic and visual navigational aids to assist pilots in landing when visibility is reduced below specified minimums. While these are especially helpful during poor weather, they often are used by commercial pilots when visibility is good. Instrument approaches are classified as precision and nonprecision. Both provide runway alignment and course guidance, while precision approaches also provide glide slope information for the descent to the runway.

Precision Instrument Approaches

Most precision approaches in use in the United States today are instrument landing systems (ILS). An ILS provides an approach path for exact alignment and descent of an aircraft on final approach to a runway. The system provides three functions: *guidance*, provided vertically by a glide slope (GS) antenna and horizontally by a localizer (LOC); *range*, furnished by marker beacons or distance measuring equipment (DME); and *visual alignment*, supplied by approach light systems and runway edge lights.

Williams Gateway Airport has one published precision approach. Runway 30C is equipped with an ILS consisting of a localizer and glide slope antenna. This is depicted on **Exhibit 1F**.

The Runway 30C ILS utilizes a nonstandard 2.5 degree glide slope. (A

standard glide slope is 3 degrees). The glide slope is expected to be adjusted to 3 degrees in November 1999. The approach to Runway 30C can be flown down to Category I standards, when cloud ceilings are 1,880 feet MSL or greater and visibility is three-quarters of a mile or greater.

Nonprecision Approaches

The localizer antenna used for the Runway 30C ILS approach can also be used for a nonprecision approach to Runway 30C without the aid of the glideslope. This can be flown when cloud ceilings are 1,880 feet MSL or greater and visibility is one mile for aircraft with approach speeds of up to 121 knots, 1-1/4 miles for aircraft with approach speeds up to 141 knots, 1-1/2 miles for aircraft with approach speeds up to 166 knots, and 1-3/4 miles for aircraft with approach speeds of 166 knots or greater.

The VOR/TACAN approach to Runway 30C is the second published nonprecision approach at Williams Gateway. VOR signals from the Williams Gateway VORTAC (Willie) define the approach and are used with signals from other area VORs and/or DME fixes to ensure adequate terrain and obstruction clearance during final approach to the runway. The VOR/TACAN approach to Runway 30C can be flown when cloud ceilings are 1,880 feet MSL or greater and visibility is one mile for aircraft with approach speeds of up to 121 knots, 1-1/4 miles for aircraft with approach speeds up to 141 knots, 1-1/2 miles for aircraft with approach speeds up to 166 knots, and 1-3/4 miles for aircraft approaching with speeds of 166 knots or greater.

Aircraft utilizing DME on the VOR/TACAN 30C approach are given slightly improved approach minimums. These aircraft are allowed to fly this approach when cloud ceilings are 1,700 feet

M.S.L. or greater and visibility is one mile or greater with approach speeds up to 166 knots, and 1-1/4 miles with approach speeds above 166 knots.

A Global Position System (GPS) nonprecision approach is also available for Runway 30C at Williams Gateway Airport. GPS approaches are defined by a series of waypoints established by satellite signals. The Runway 30C GPS approach consist of three waypoints at varying distances apart ending at the end of Runway 30C. This GPS approach can be flown when cloud ceilings are 1,800 feet MSL or greater and visibility is one mile for aircraft with approach speeds of up to 121 knots, 1-1/2 miles for aircraft with approach speeds up to 166 knots, and 1-3/4 miles for aircraft with approach speeds in excess of 166 knots.

CUSTOMARY ATC AND FLIGHT PROCEDURES

Flights to and from Williams Gateway Airport are conducted using both IFR and VFR. Instrument Flight Rules are those that govern the procedures for conducting instrument flight. VFR govern the procedures for conducting flight under visual conditions (good weather). Most air carrier, military, and general aviation jet operations are conducted under IFR regardless of the weather conditions.

Visual Flight Rule Procedures

Under VFR conditions, the pilot is responsible for collision avoidance and will typically contact the tower when approximately 10 miles from the airport for sequencing into the traffic pattern. While VFR aircraft arriving and departing Williams Gateway Airport are not required to contact the Phoenix TRACON, they may do so to expedite their progress through the area.

Typically, VFR general aviation traffic stays clear of the more congested airspace and follows recommended VFR flyways in the area. **Exhibit 1G** illustrates a view of Williams Gateway vicinity airspace with the recommended VFR routes. Typically, VFR aircraft departing the airport are directed to intercept the nearest VFR route.

Instrument Flight Rule Procedures

The Phoenix Terminal Radar Approach Control (TRACON) handles all IFR traffic to and from Williams Gateway Airport. IFR arrival traffic is transferred to the TRACON by the Air Route Traffic Control Center (ARTCC) as traffic enters TRACON airspace.

Five published Standard Terminal Arrival Routes (STAR) can be used to direct pilots to the Williams Gateway area. A STAR is a planned IFR arrival procedure which provides transition from the enroute structure to an outer fix or an instrument approach fix in the terminal area. ARILIN ONE, FERER FOUR, FOSSIL FOUR, KARLO SEVEN and SUNSS TWO, are STARs which may be used for arrival to Pilots operating at Williams Gateway Airport are encouraged to avoid overflights of nearby residential areas whenever possible. To aid these efforts, a number of recommended procedures have been developed as part of the airport's adopted "Fly Friendly" program:

Williams Gateway Airport. ARLIN ONE directs pilots arriving from the west over the AMBER, ALEYS, and TUKKEE intersections then direct to the Willie VORTAC followed by an published approach procedure.

The FERER FOUR is reserved for non-turbine powered aircraft when being used for approach to Williams Gateway. This arrival procedure directs pilots arriving from the north over the FERER, and RADOM intersections then direct to the Phoenix VORTAC followed by a published approach procedure to Williams Gateway Airport.

The FOSSIL FOUR arrival requires pilots arriving from the northeast to fly over the FOSSIL, PIINE, MAZAT, and TONTO intersections followed by vectors to Williams Gateway.

KARLO SEVEN is utilized by aircraft arriving from the northwest. This arrival requires pilots to fly over the KARLO, COOPR, and PLSNT intersections followed by vectors via Williams Gateway.

The SUNSS TWO arrival is used by aircraft arriving from the south and southwest. This arrival directs pilots over the SUNSS, and HOOPS intersections then direct to the Phoenix VORTAC followed by a chosen published approach into Williams Gateway Airport.

NOISE ABATEMENT PROCEDURES

- As a means to reduce low approaches over residential areas northwest of the airfield, Runway 30 has been designated as the calm wind runway for up to a 5 knot tailwind.

- Aircraft departing the airport are encouraged to use the best rate of climb, consistent with safety.
- Light aircraft are requested to use Runway 12R/30L for pattern operations.
- Heavy aircraft are to utilize Runways 12C/30C and 12L/30R for operations to keep noise away from residential areas north of the airfield. When departing Runways 30C and 30R, aircraft should start their crosswind as soon as practicable, preferably before the power lines 1/2 mile north of Elliot Road.
- Jet aircraft are requested to use NBAA Standard Noise Departure Procedures or those recommended by the aircraft manufacturer.
- Propeller aircraft are requested to use AOPA Noise Awareness Steps.
- Arriving/departing rotor wing aircraft are requested to use a southwest corridor to avoid overflights of the Williams Campus and residential areas.

In addition to those proposed in the “Fly Friendly” Program, airline training flights are requested to remain east of the airfield. This will keep the noise associated with these, mostly nighttime, training operations over agricultural land east of the airport.

STUDY AREA

Exhibit 1H depicts the selected study area, encompassing approximately 176 square miles including portions of the Cities of Mesa and Apache Junction, Towns of Gilbert and Queen Creek, and the unincorporated areas of Maricopa and Pinal Counties. The study area is bounded by Val Vista Drive on the west; Riggs Road on the south; Schnepf and Tomahawk Roads on the east; and by Broadway Road on the north. This is the area where most of the detailed noise and land use analysis is expected to occur.

The study area defines the area within which detailed existing land use information is presented. It is intended to contain the area expected to be impacted by present and future aircraft noise of 65 DNL or greater.

It should be emphasized that this area is for the presentation of detailed background data -- it is not a definition of the noise impact area. The study area is primarily for statistical convenience and can be modified later in the study if necessary. Areas adversely affected by aircraft noise will be defined in later analyses.

EXISTING LAND USE

Exhibit 1J shows existing land use in the study area. This map was developed through the interpretation of aerial photography taken on March and April, 1999. Other sources were consulted including existing land use maps developed by local jurisdictions, U.S. Geological Survey maps, published street maps, and consultant field studies conducted in April 1999. The land uses depicted on the map were selected to conveniently fit the requirements of noise and land use compatibility planning. **Table 1B** lists the land use categories shown on the existing land use map.

Virtually the entire northern portion of the study area is developed. This area is dominated by small-lot residential (2-15 du/ac.), with intermixed islands of rural residential (0-2 du/ac.) mall areas of commercial and industrial uses are situated along the Superstition Freeway corridor. The vast majority of noise sensitive institutions such as schools and places of worship are located in the northern portion of the study area.

General Motors Proving Grounds, TRW, and several other industries dominate the land use east of the airfield. Small islands of rural and small lot residential uses are also present. The remaining portion of the study area east of the airport resides in Pinal County. To date, this area of Pinal County is dominated by undeveloped desert.

The south and west section of the study area is traversed by the Union Pacific Railroad and Roosevelt Conservation District Canal. This area is currently dominated by agricultural uses consisting primarily of dairy operations and irrigated crops. An increasing number of large upscale subdivisions are under development in this area. The Williams Campus, containing both

residential and noise sensitive institutions, is located immediately west of the airfield.

SCHOOL DISTRICTS

There are six school districts with jurisdiction in the Williams Gateway Airport Study Area: Apache Junction Unified School District #43, Chandler Unified School District #80, Higley School District #60, Gilbert Unified School District #41, Mesa Unified School District #4, and Queen Creek Unified School District #95. These districts administer a total of 29 schools within the study area with a number of additional schools currently being planned.

In addition, the Arizona Boys Ranch is located approximately 2 miles south of the airport. This is a nonprofit juvenile rehabilitation facility housing approximately 550 boys ages 8 to 18.

Williams Campus

The Williams Air Force Base Economic Reuse Plan (1992) initiated the prospect for the establishment of a consortium based campus, encompassing a variety of educational institutions. In 1994, the Williams ERT (Education, Research and Training) Campus Master Plan, defined a 753-acre multi-institutional campus. The primary objective of this proposal was the utilization of existing facilities remaining from the closed Williams Air Force Base.

TABLE 1B
Land Use Categories Shown on Existing Land Use Map

Category	Land Uses Included
Agriculture	Cultivated fields Orchards
Rural Residential	Single-Family < 1 and ≤ 2 dwelling / acre
Low Density Residential	Single-Family > 2 and ≤ 5 dwelling / acre
Medium Density Residential	Single-Family > 5 and ≤ 15 dwelling / acre Duplexes, Townhouses, Apartment and Condominium buildings
High Density Residential	Single-Family ≥ 15 dwelling / acre, Duplexes, Townhouses, Apartment and Condominium buildings
Mobile and Trailer Homes	Manufactured/Mobile homes Trailer homes
Mixed Use	Apartments, Condominiums, and Town homes Local commercial Local retail
Hotels, Motels, Resorts	Hotels, Motels, Resorts
Commercial and Office	Businesses Parks Offices Neighborhood retail Community retail Regional retail
Industrial, Transportation and Utilities	Warehouses Distribution centers Industrial uses
Parks and Open Space	Parks Golf courses Cemeteries Ponds Nature preserves
Public Facilities	Airports
Public/Quasi-Public Facilities	Recreational facilities Government buildings/Complexes
Undeveloped	Vacant lots Open parcels of land
Noise-Sensitive Institutions	Places of worship Schools Nursing homes Residential group quarters Hospitals Community centers

As a result of this plan, several educational institutions have established themselves at the Williams Campus. These include:

Arizona State University (ASU) - East Campus - This institution provides baccalaureate educational programs in the University's School of Technology and Applied Science and the Morrison School of Agribusiness. Additional degrees in Education and Business Administration will be offered beginning Fall 1999.

Maricopa Community College at Williams - Maricopa Community College offers a number of occupational programs resulting in associate degrees or certificates. Programs offered focus mostly on aviation related studies such as aircraft maintenance and flight technology. Additional programs are expected to be offered which will benefit local, regional, and international development in eastern Maricopa County.

University of North Dakota (UND) Aerospace - UND has campuses established at 6 flight training centers around the country. The UND Aerospace Flight Training Center located at Williams Gateway Airport offers bachelor degree programs in Aviation Science, preparing students for careers in various facets of the aviation industry.

Maricopa Regional Schools - East Valley School - This institution offers students in grades K-12 "alternative" primary and secondary education.

FTZ #221, like all FTZ's, is considered to be outside U.S. Customs territory for product entry procedures. This offers tremendous advantages to companies operating within this zone. Foreign goods entering the United States via an FTZ are exempt from duty or excise taxes while the

The Williams Campus Master Plan established a long-term plan for a thriving campus consisting of:

- Campus Community Park and Recreation Area
- Campus Commercial Center
- Campus Conferencing Center
- Campus Dormitory Expansion
- Campus Remote Parking Areas

FOREIGN TRADE ZONE

Foreign Trade Zone (FTZ) #221, granted to the City of Mesa, is a General Purpose FTZ located on 800 acres at Williams Gateway Airport. FTZ are established to promote international trade and foster economic development.

product remains within the boundary of the FTZ. Since the goods are still considered foreign commerce while remaining in the FTZ, they may be manipulated to make them more marketable. The final product, if exported from the United States, will be exempt from duty or excise taxes.

If the final product is imported into the United States, duty and excise taxes are levied at a reduced rate. Only the material leaving the FTZ is taxed, leaving scrap, defective merchandise and goods consumed within the zone free from duty. The location of Foreign Trade Zone #221 at Williams Gateway Airport is depicted on **Exhibit 1 K**.

Goods entering an FTZ are generally subject to only minimal Customs procedures. This allows goods to be moved to a factory or warehouse with no clearance delay as well as reducing paperwork. Companies are therefore given the opportunity to improve cash flow and profitability by expediting goods to market.

Goods being held in a Foreign Trade Zone have not been granted entrance into the United States market. U.S. Customs provides security measures to prevent illegal distribution, thereby reducing the risk of theft.

In addition, the State of Arizona offers an 80 percent reduction in real and personal property taxes for companies located within an FTZ.

HISTORIC AND ARCHEOLOGICAL RESOURCES

According to the Arizona State Historic Preservation Office (SHPO), there are 14 historic properties within the Williams Gateway study area. These sites include five historic buildings and nine archeological sites. The buildings are located on the airfield. One building has been listed and four buildings have been nominated for inclusion in the National Register of Historic Places due to their significance as hangers during World War II.

The nine archeological sites are described as “prehistoric” and have all been listed in the National Register. In order to avoid disruption of these sites by future airport development, additional field work and testing is expected. Due to the sensitive nature of these sites, they are not depicted on an exhibit.

LAND USE PLANNING POLICIES AND REGULATIONS

The primary non-regulatory policy document which influences development is the General Plan.

The General Plan provides the basis for the zoning ordinance and sets forth guidelines for future development.

In most cities and counties, the chief land use regulatory document is the zoning ordinance which regulates the types of uses, building height, bulk, and density permitted in various locations. Subdivision regulations are another important land use tool, regulating the platting of land. Local communities also regulate development through building codes. An additional document is the capital improvements program. This is typically a short-term schedule for constructing and improving public facilities, such as streets, sewers and water lines.

The following paragraphs describe each of the above areas as a means towards understanding the land use planning policies and regulations impacting the study area.

REGULATORY FRAMEWORK

In the Williams Gateway Airport Study Area, the cities of Mesa and Apache Junction, the towns of Queen Creek and Gilbert, and the counties of Pinal and Maricopa share the responsibility for land use regulation. Each jurisdiction administers zoning ordinances, subdivision regulations, and building codes.

Arizona state law requires counties to prepare a comprehensive, generalized land use plan for development of their area of jurisdiction. The county also provides for zoning and the delineation of zoning districts. The county is also responsible for regulating the subdivision of all lands within its jurisdiction, except subdivisions which are regulated by municipalities. Both Maricopa and Pinal Counties regulate unincorporated areas within the Study Area.

Arizona state law permits cities and towns to prepare, adopt and implement comprehensive, long-range, generalized land use plans for land both under their current jurisdiction and for unincorporated (extraterritorial) sections of the county which are likely to be annexed by the city/town. General land use plans include plans and policies explaining the community's goals, objectives, principles, and standards for overall growth and development.

Local governments are required to regulate the subdivision of all lands within their corporate limits and may also prepare and adopt zoning. Like many municipalities in the Phoenix metropolitan area, Apache Junction began to experience tremendous growth pressures by the mid 1980's. As a means to direct growth and maintain a desired urban environment the City Council adopted the Apache Junction General Plan in 1987.

ordinances and building codes. Zoning must be consistent with the General Plan, where one has been prepared.

Within the Williams Gateway Airport Study Area, all the municipalities have prepared and adopted general plans, zoning ordinances, subdivision regulations and building codes. These planning and development tools are described below.

GENERAL PLANS

Comprehensive, long-range plans serve as a guide to individual communities and jurisdictions to provide quality growth and development. The plans represent a generalized guideline, as opposed to a precise blueprint, for locating future development. The plan generally consists of elements which examine existing land uses and designates proposed future land uses and facilities. By illustrating preferred land use patterns, including extraterritorial areas, a general plan can be used by community decision-makers and staff, developers, investors, and citizens to assist them in evaluating future development opportunities. **Exhibit 1L**, depicts the proposed future land uses for the study area, as contemplated by the individual jurisdictions in their general plans.

Apache Junction General Plan

The Land Use Element of this plan designates eight land use districts: Five residential districts, one commercial district, one Industrial district, and one open space district. This plan does not make reference to Williams Gateway Airport, Williams Air Force Base or aviation related noise

within the planning environment. The City of Apache Junction, however, is in the process of preparing a new General Plan which is expected to be adopted by September 1999.

Mesa General Plan

The Mesa General Plan (1996) is designed to define the direction of growth and the type of development that is desired and expected to occur in Mesa over the next 20 years. The Mesa General Plan establishes land use, circulation, and economic development plans, as well as specific strategies for the community to implement those plans.

Future land use designation in the General Plan within the study area are a mixture of residential, commercial, industrial, and open space. Development immediately surrounding the airport has been designated for future commercial and industrial uses. These uses would create a buffer between the airport and existing and future noise sensitive land uses. Land use compatibility policies such as overflight overlay zoning, the prohibition of residential development within the 65 DNL, and fair disclosure statements are discussed in reference to Williams Gateway Airport.

Although the Gilbert General Plan does not make specific reference to noise produced by aircraft operations at Williams Gateway Airport, the town does adhere to planning recommendations presented in the Williams Regional Planning Study.

Queen Creek General Plan

As a means to maintain its rural characteristics, the Town of Queen Creek, adopted its first

Gilbert General Plan

The Gilbert *General Plan Policy Guide* was last updated in 1994 (Town of Gilbert, 1994). The Plan provides for eight land use classifications: four are varying densities of residential development; the other four are commercial and “employment” land uses. Employment land uses include “quality planned office and industrial uses.” These uses are encouraged in designated areas to “provide employment opportunities and to help raise the Town’s tax base.” The Gilbert General Plan encourages multi-use development areas in the vicinity of the Santan Freeway corridor and Williams Gateway Airport.

Exhibit 1L shows that the Gilbert portion of the study area on either side of the San Tan Freeway Corridor is designated for “multi-use employment.” North of Pecos Road, the future land use is designated as low-density residential. A multi-use commercial area is designated at the corner of Williams Field and Gilbert Roads. The General Plan also proposes a system of open space and trails along the Eastern Canal.

General Plan in 1991. This plan was subsequently updated in 1996 and in 1999. The General Plan is comprised of nine elements: Land Use, Circulation, Economic, Public Facilities and Services, Town Center, Open Space and Trails, and Growth Areas.

The Land Use element of the General Plan (Section D.5) focuses on the adoption of implementation strategies proposed in the Williams Regional Planning Study. These strategies establish methods for the mitigation of

incompatible land uses in the vicinity of Williams Gateway Airport. The Plan recommends the implementation of 3 Airport Overflight Districts containing the following provisions:

- Prohibition of residential development within the 65 DNL contour associated with Williams Gateway Airport.
- Property located within the 60-65 DNL should require notification to potential property buyers of the existence of the airport.
- Encourage the use of noise attenuating construction methods.

The General Plan also establishes areas of future compatible land uses within the vicinity of the airport. Areas found to be within 1/4 mile of the 65 DNL contour, established in the Williams Regional Planning Study, are reserved for proposed industrial uses. Additional compatible uses are to be established as a buffer between the airport and current and proposed residential areas.

Pinal County Comprehensive Plan

For planning purposes, Pinal County is divided into four sub-areas. Part of the Williams Gateway Airport study area is situated in Planning Area One. This region includes Apache Junction, Queen Creek, Santan, Gold Canyon, Florence, and Queen Valley. The Pinal County Comprehensive Plan for Area 1 was adopted by the Pinal County Board of Supervisors in 1988.

The Comprehensive Plan makes several references to the potential for high levels of aircraft noise emanating from the airports located west of Planning Area, including the former Williams Air Force Base. Residential development is discouraged in airport approach zones due to adverse levels of noise. In addition, coordination with local, state and federal noise nuisance control programs and standards are encouraged.

Maricopa County Land Use Plan

The Maricopa County Land Use Plan is divided into 15 separate Area Plans.

The Queen Creek Land Use Plan, adopted in 1992, covers the unincorporated portions of the Williams Gateway study area. This plan is segregated into four elements: Inventory and Analysis, Residential Issue Identification, Goals and Policies, and Queen Creek Land Use Plan. Three of these element specifically address the issue of noise emanating from Williams AFB.

The Inventory element identifies existing conditions in the planning area and evaluates how these conditions may affect planning future policies. A portion of the inventory section concentrates on existing noise generated by Williams AFB. In addition, this section identifies the Air Installation Compatible Use Zone (AICUZ) Study (1984 Williams AFB) and the Eastside Joint Land Use Study (1988 Maricopa Association of Governments) as the foundational guiding studies identifying areas of noise exposure and compatible land uses around Williams AFB.

The Goals and Policies element establishes the objectives on which the land use plan is based. One such goal is to: *‘permit developments which are compatible with natural environmental features and do not lead to its destruction’*. Two of the policy objectives associated with this goal focus on the mitigating land uses which would be adversely affected by excessive noise levels:

The Maricopa County Board of Supervisors, on October 20 1997, adopted the Maricopa County Comprehensive Plan entitled “Eye to the Future 2020”. This plan provides guidance for development in the unincorporated areas of Maricopa County. This plan is separated into four elements: Land Use, Transportation, Environmental, and Economic Development. Two of these elements, Land Use and Environ-

Policy A-1 - *“Encourage compatible land use relationships with sources of excessive noise”*.
Policy A-1.1 - *“Encourage land development which will not be adversely impacted by noise generated by Williams Air Force Base relative to Military Airport Zoning”*.

The Land Use Plan Element provides for ten land use classifications: four encompass various densities of residential development, three are reserved for commercial areas, two for employment centers containing mixed and industrials uses, and one open space classification. This element specifically discourages residential development in the vicinity of Williams AFB.

Although the plan was adopted before the establishment of Williams Gateway Airport, it does acknowledge the expected closing of Williams A.F.B. in 1993. The reuse of the airbase after closing is expressed in the plan as possessing potential positive economic benefits for the area. The plan does not however, address the potential need for land use compatibility after the airbase closing.

Maricopa County Comprehensive Plan

mental, address the minimization of noise impacts within the county.

The “Goal” of the Land Use Element is to *“Promote efficient land development that is compatible with adjacent land uses, is well integrated with the transportation system, and is sensitive to the natural environment”*. One objective and subsequent policies under this goal

specifically address and provide guidance for compatible land use in the vicinity of airports:

- Objective L4 - “Provide for the coexistence of urban and rural land uses.”
- Policy L4.1 - “Encourage appropriate buffers to mitigate conflicting land uses.”
- Policy L4.3 - “Encourage development pattern and standards compatible with the continuing operation of military and civilian airports and other major noise generating employment centers.”

The “Environment Element” addresses four environmental resource issues including the mitigation of “noise pollution” under a section entitled “Air Resources”. This section acknowledges increased concerns pertaining to a number of noise sources, including aircraft. “Goal Two” of the Environment Element, “Improve air quality and reduce noise impacts”,

- Policy L1.6 - “Use the adopted general plan and standards of municipalities as a guideline for development in the General Plan Development Area contingent upon such plans having been updated or reviewed within five years and with evidence that the effected residents, property owners and improvement districts have been involved in the process to update the general plan.”

Although the municipal plans provide development guidelines for these unincorporated areas of the county, zoning entitlements are required by state statute to be granted through the County Board of Supervisors.

addresses the topic of noise. The “Objective” and subsequent “Policy” pertaining to aircraft noise under this goal are as follows:

- Objective 2E2 - “Minimize vehicle traffic noise on sensitive land uses.”
- Policy 2E2.2 - “Encourage the consideration of noise impacts on site planning.”

In the Williams Gateway Airport region, the unincorporated areas of the county fall under the General Plan Development Area (GPDA) land use designation, set forth by the Maricopa County Comprehensive Plan . Areas under the GPDA are expected to be annexed by an adjacent city or town in the future. These areas have been included within the adjacent municipality’s general plan. “Policy L1.6” of the Maricopa County Comprehensive Plan provides the guidelines for the use of a municipality’s general plan for land use decisions within these areas.

WILLIAMS REGIONAL PLANNING STUDY

In March of 1996, the Williams Gateway Airport Authority completed the Williams Regional Planning Study (WRPS) with the aid of a professional consultant. This study focuses on three objectives:

- Maximizing the economic development potential of Williams Gateway Airport and the surrounding area;

- Minimize potential land use conflicts around the airport including the encroachment of incompatible uses;
- Create guiding principles for consistent regional land use across jurisdictions within the vicinity of the airport.

The WGAA appointed an eight member steering committee of professionals representing the jurisdictions of Apache Junction, Chandler, Mesa, Gilbert, Queens Creek, Maricopa, Pinal and the Maricopa Association of Governments (MAG). Through research and the incorporation of numerous public workshops, two fundamental recommendations were incorporated into the Williams Regional Planning Study: The establishment of an Airport Overflight Zoning District, and General Plan and Zoning Amendments. These two recommendations are discussed below.

Airport Overflight Zoning District

- **Public Disclosure of Potential Noise Impacts.** - *“No person shall sell, nor offer for sale, or rent/lease any residential property within Airport Overflight Area 2 unless the prospective buyer or renter has been notified of the fact that the property is within the Airport Overflight Area 2 and that the property therein is subject to potential noise impacts from Williams Gateway Airport (WGA)”*
- **Notification of Plat or Title** - All residential plats recorded within Airport Overflight Area 2 shall be inscribed with the following: *“These properties, due to their proximity to Williams Gateway Airport, are likely to*

The airport Overflight Zoning District, depicted in **Exhibit 1M**, is separated into three subdistricts containing the following recommended guidelines:

AIRPORT OVERFLIGHT AREA 1

The area at or within the 65 DNL contour.

- **Prohibition of new residential development.** - All types of residential development are to be prohibited in Airport Overflight Zoning District One. This area is defined by the 65 DNL contour as presented in the Williams Gateway Regional Planning Study and is deemed as having a significant impact on residential land uses.

AIRPORT OVERFLIGHT AREA 2

The area established between the 60 and 65 DNL contours. This area is slightly expanded by adding an additional ½ mile “squared-off” boundary for ease of enforcement.

experience aircraft overflights, which could generate noise levels which may be of concern to some individuals.”

- **Noise Attenuation** - *“The construction, alteration, moving, partial demolition, repair and use of any building or structure within the Airport Overflight Area 2 shall comply with the Sound Attenuation Standards in order to achieve an exterior to interior Noise Level Reduction (NLR) of 20 decibels.”*
- **Avigation Easements** - An avigation easement is an agreement signed by the property owner that acknowledges that an

airport is located nearby and aircraft to/from that airport have the right to fly over the property. In addition, through the recording of this easement, future property owners will be made aware of the easements existence, and hence aircraft overflights, prior to purchase of the property.

following statements into their respective zoning ordinances: *“Land uses that produce visual hazards, such as smoke and glare, or produce*

AIRPORT OVERFLIGHT AREA 3

This area is designated as the region outside the 60 DNL contour area as defined by Airport Overflight Area 2. This area extends to an area which is considered to be influenced by aircraft operations. This area is also “squared-off” for ease of enforcement.

- **Public Disclosure of Potential Noise Impacts.** - Residential plats recorded within Airport Overflight Area 3 shall note the following: *“These properties, due to their proximity to Williams Gateway Airport, are likely to experience aircraft overflights, which could generate noise levels which may be of concern to some individuals”*
- **Notification of Plat or Title-** Knowledge of potential aircraft noise impacts should be made to users of residential properties through a Aircraft Noise Disclosure Statement. This statement is similar to that presented for Overflight Area 2.

General Plan And Zoning Amendments

As a means to protect the airport environment, this plan recommends that area jurisdictions adopt or amend their General Land Use Plans to be consistent with the WRPS. In addition, these jurisdictions are recommended to incorporate the

electronic interference shall be prohibited within Airport Overflight Areas”, “Sanitary landfills, which can encourage birds to concentrate, should be prohibited within the Airport Overflight Areas.”

The Williams Regional Planning Study has been adopted as a planning guideline by the City of Mesa, the towns of Gilbert and Queen Creek, and the County of Maricopa.

ZONING

While general land use plans are land use policy guidelines, cities and counties actually control land use through zoning ordinances. In the study area, all jurisdictions have established zoning ordinances.

This section summarizes the zoning ordinances in each jurisdiction in the airport vicinity. This information will be used in subsequent chapters to identify zoning districts which provide a compatible land use buffer and those that allow encroachment by noise-sensitive land uses. For zoning districts which permit noise-sensitive land uses, this information will provide insights into how the district regulations may be amended to promote noise-compatible development.

City of Mesa

In 1988, the city of Mesa established an Airfield Overlay District (AOD). The objective of this ordinance is to minimize public exposure to crash hazards and high noise levels associated with public, private and military airfields through the promotion of future development which is compatible with airfield operations. The AOD is

The Mesa Zoning Ordinance was revised in 1998 and contains 25 basic zoning districts: One agricultural district, ten residential districts, four commercial districts, three industrial districts, six town center districts, one public facilities district. In addition, the ordinance establishes seven overlay districts including one pertaining to Williams AFB, which is divided into eight sub-districts.

The Bonus Intensity (BIZ), Planned Area Development (PAD), and Development Master Plan (DMP) Overlay Districts provide for flexibility in development conditions such as building height, setbacks and other amenities. Although these districts must conform to the uses established in the underlying district, they offer the ability to increase development density including that associated with residential uses.

The Age Specific District (AS) overlay zone is keyed to developments for the retired. This district is intended to be designed and provide for the physical and social needs of older individuals.

The Historic Landmarks (HL) and Historic Preservation (HP) Overlay Districts are intended to preserve the historic and cultural character of the city. Development within these districts are required to conform to specific architectural design standards which reflect the character of the neighborhood. In addition, structures found to meet certain criteria for historical significance cannot undergo demolition.

separated into eight “sub-districts” which are delineated by specific parameters established in the 1988 MAG Eastside Joint Land Use Study for Williams AFB.

A listing of the various zoning districts in Mesa is shown in **Table 1C**, along with the noise-sensitive uses permitted in those zones and the permissible maximum residential development densities.

TABLE 1C
Summary of Zoning Provisions:
City of Mesa

Zoning Districts	Noise-Sensitive Uses		Minimum Lot Size or Density Units/Acre
	Permitted	Conditional, Subject to Special or Council Use Permit	
AGRICULTURE DISTRICT			
AG, Agriculture	Single-family dwelling Foster homes Group homes for the disabled Day care group home Schools Places of worship	Animal hospitals & clinics Day care centers in conjunction with place of worship Accessory living quarters	0.1 DU/Acre
SINGLE RESIDENCE DISTRICTS			
R1-90, Single Residence	Single dwelling Foster homes Residential facilities for the developmentally disabled Schools Places of worship Group homes for the handicapped Adult care home Day care group homes	Day care centers in conjunction with places of worship Accessory living quarters	0.48 DU/Acre
R1-43, Single Residence	Same as R1-90	Same as R1-90	1 DU/Acre
R1-35, Single Residence	Same as R1-90	Same as R1-90	1.25 DU/Acre
R1-15, Single Residence	Same as R1-90	Same as R1-90	2.90 DU/Acre
R1-9, Single Residence	Same as R1-90	Same as R1-90	4.84 DU/Acre
R1-7, Single Residence	Same as R1-90	Same as R1-90	6.22 DU/Acre
R1-6, Single Residence	Same as R1-90 to include: Manufactured Home Subdivisions	Same as R1-90	7.26 DU/Acre
MULTIPLE RESIDENCE DISTRICTS			
R-2, Restricted Multiple Residence	Single and Multiple residence Boarding homes Group homes for handicapped Group foster homes Residential facilities for the developmentally disabled Bed and breakfast Schools Places of worship Day care centers Day group homes	Day care center in conjunction with places of worship Boarding homes Group homes for the handicapped Assisted living facilities Recovery homes	7.26 DU/Acre

TABLE 1C (Continued)
Summary of Zoning Provisions:
City of Mesa

Noise-Sensitive Uses			
Zoning Districts	Permitted	Conditional, Subject to Special or Council Use Permit	Minimum Lot Size or Density Units/Acre
MULTIPLE RESIDENCE DISTRICTS (Continued)			
R-3, Limited Multiple Residence	Same as R-2	Same as R-2	7.26 DU/Acre
R-4, General Multiple Residence	Same as R-2 to include Fraternities, sororities, service and social clubs, and lodges Manufactured home and recreational vehicle parks	Same as R-2 to include Hospitals (with accessory group medical centers, nursing and convalescent homes, and hospice) Social service facilities	7.26 DU/Acre
COMMERCIAL DISTRICTS			
O-S, Office-Service	Medical offices and clinics Studios for fine arts Nursing and convalescent homes, residential and out-patient care and rehabilitation centers, and hospice Schools Places of worship Day care centers (with outdoor play area) Reception centers	Accessory dwelling units Wedding or reception centers Assisted living facilities	7.26 DU/Acre
C-1, Neighborhood Commercial	Same as O-S to include Fraternities, sororities, service and social clubs, and lodges Hospitals (with accessory medical centers)	Same as O-S to include Social service facilities	N/A
C-2, Limited Commercial	Same as C-1 to include Movie theaters Performing art centers Hotels and motels Vocational schools	Accessory dwelling units Wedding or reception center Social service facilities	N/A
C-3, General Commercial	Same as C-2	Same as C-2	N/A
INDUSTRIAL, MANUFACTURING AND EMPLOYMENT DISTRICTS			
M-1, Limited Industrial	Same as C-3 to include: Hotels and motels Accessory dwelling units Industrial trade schools	None	N/A
M-2, General Industrial	Same as M-1	None	N/A

TABLE 1C (Continued)
Summary of Zoning Provisions:
City of Mesa

Noise-Sensitive Uses			
Zoning Districts	Permitted	Conditional, Subject to Special or Council Use Permit	Minimum Lot Size or Density Units/Acre
INDUSTRIAL, MANUFACTURING AND EMPLOYMENT DISTRICTS (Continued)			
PEP, Planned Employment Park	Same as C-3 to include: Hotels and motels	None	N/A

	Reception centers		
TOWN CENTER DISTRICTS			
TAR-1, Town Center Residence	Single residence Foster homes Schools Places of worship Group homes for the handicapped Adult care homes Day care group homes	None	7.26 DU/Acre
TAR-2, Town Center Residence	Same as TAR-1 to include Multiple residence Boarding homes Assisted living facilities Bed and Breakfast Group foster homes	Day care centers Day group homes	7.26 DU/Acre
TAR-3, Town Center Residence	Same as TAR-2	Same as TAR-2	7.26 DU/Acre
T.B.-1, Town Center Business	Movie theaters Medical offices and clinics Day care centers (with outdoor play area) Day care group homes General education Vocational schools Hotels, motels, and resorts Studios for fine arts Residential uses allowed in TAR-3 Nursing and convalescent homes, and hospice Fraternities, sororities, service and social clubs, and lodges Schools Places of worship Wedding and reception centers	Social service facilities	N/A

TABLE 1C (Continued)
Summary of Zoning Provisions:
City of Mesa

Zoning Districts	Noise-Sensitive Uses		Minimum Lot Size or Density Units/Acre
	Permitted	Conditional, Subject to Special or Council Use Permit	
TOWN CENTER DISTRICTS (Continued)			
TAC-2, Town Center Business	Movie theaters Medical offices and clinics Studios for fine arts Day care centers (with outdoor play area) Vocational schools Hospitals (with accessory group medical centers, nursing and convalescent homes, and hospice) Small animal hospitals Fraternities, sororities, service and social clubs, and lodges Schools	Social service facilities Accessory dwelling units Industrial trade schools	N/A

	Places of worship Wedding and reception centers		
TAC, Town Center Core	Cultural and civic halls Galleries Auditoriums and arenas Studios for fine arts Medical offices Hotels, motels, and resorts Day care centers Vocational schools Multiple residence (minimum 20 unit/acres) Fraternities, sororities, service and social clubs, and lodges Schools Places of worship Wedding or reception centers	Social service facilities Accessory dwelling unit	N/A

PUBLIC FACILITIES DISTRICT

PF, Public Facilities	Facilities owned, leased or operated by City, County, State, or Federal Governments, or agencies thereof, or school districts	None	10 Acres
-----------------------	---	------	----------

OVERLAY ZONING DISTRICT

BIZ, Bonus Intensity Zone	Same as those specified in the underlying zoning district	Same as those specified in the underlying zoning district	N/A
---------------------------	---	---	-----

**TABLE 1C (Continued)
Summary of Zoning Provisions:
City of Mesa**

Zoning Districts	Noise-Sensitive Uses		Minimum Lot Size or Density Units/Acre
	Permitted	Conditional, Subject to Special or Council Use Permit	
OVERLAY ZONING DISTRICT (Continued)			
PAD, Planned Area Development	Same as those specified in the underlying zoning district	Same as those specified in the underlying zoning district	5 acres
D.P., Development Master Plan	Same as those specified in the underlying zoning district	Same as those specified in the underlying zoning district	40 Acres
AIR FIELD OVERLAY DISTRICT			
ADD-I, Airfield Sub-district one	None	Same as those specified in the underlying zoning district	N/A
ADD-II, Airfield Sub-district two	None	Same as those specified in the underlying zoning district	N/A

ADD-III, Airfield Sub-district three	None	Same as those specified in the underlying zoning district	N/A
ADD-IV, Airfield Sub-district four	None	Same as those specified in the underlying zoning district	N/A
ADD-V, Airfield Sub-district five	Single or multiple residential uses, subdivisions, hotels, or motels (established prior to 1/19/89 with 30 db NCR) Educational service, cultural centers, places of worship, and medical and health services (with 30 db NCR)	Same as those specified in the underlying zoning district	N/A
ADD-VI, Airfield Sub-district six	Single or multiple residential uses, hotels, and motels (established prior to 1/19/89 with 25 db NCR) Educational service, cultural centers, places of worship, and medical health services (with 25 db NCR) All other uses permitted within base zoning district except for residential use (with 0 db NCR)	Same as those specified in the underlying zoning district	N/A

TABLE 1C (Continued)
Summary of Zoning Provisions:
City of Mesa

Zoning Districts	Noise-Sensitive Uses		Minimum Lot Size or Density Units/Acre
	Permitted	Conditional, Subject to Special or Council Use Permit	
AIR FIELD OVERLAY DISTRICT (Continued)			
ADD-VII, Airfield Sub-district seven	Single or multiple residential uses (with 20 db NCR) All other uses permitted within base zoning district (with 0db NCR)	Same as those specified in the underlying zoning district	N/A
ADD-VIII, Airfield Sub-district eight	Same as ADD-VII	Same as those specified in the underlying zoning district	N/A
AGE SPECIFIC OVERLAY ZONING DISTRICT			
AS, Age Specific Overlay Zoning	Same as those specified in the underlying zoning district	Special use permit to allow anyone under the age of 18 to reside in the area over a 90 day period	N/A
HISTORIC PRESERVATION OVERLAY DISTRICTS			

HP, Historic Preservation	Must meet State Historic Preservation or National Register of Historic Places criteria	None	40+ contiguous Acres
HL, Historic Landmark	Must meet State Historic Preservation or National Register of Historic Places criteria	None	N/A

City of Apache Junction

City Ordinance No. 71 adopts and established the City of Apache Junction zoning. Enforcement and interpretation is the responsibility of the Department of Development Services. Conditional Use Permits are granted by the Planning and Zoning Commission.

The Apache Junction Zoning Ordinance contains 19 basic districts and one overlay district. Eleven districts are residential zones, six are commercial zones, and two are industrial zones. The overlay zone is for areas requiring a greater degree of flexibility which would not be available in conventional zoning districts. This district, therefore, encourages the application of creative design and planning techniques.

Within the basic districts, some noise-sensitive uses are permitted as a matter of right while others are permitted only with a Conditional Use Permit. **Table 1D** outlines the City of Apache Junction zoning districts and their important characteristics for this study.

TABLE 1D
Summary of Zoning Provisions:
City of Apache Junction

Zoning Districts	Noise-Sensitive Uses		Minimum Lot Size or Density Units/Acre
	Permitted	Conditional, Subject to Special or Council Use Permit	
RESIDENTIAL DISTRICTS			
GR, General Rural Zone	Single-family dwellings Places of worship Museums Libraries Community service agencies Schools & Colleges Public parks Playgrounds Athletic fields Recreation clubs Hospitals/Sanatoriums Riding stables	None	1.25 Acres
R1-43, Single-family Residence	Single-family dwellings Mobile homes (<i>R1-43(MH) district only</i>) Public parks/ recreation areas Public schools	Places of worship Private educational institutions Private recreation areas	1 Acre
CR-1, Single-family Residence	Same as R1-43 Mobile home (<i>CR-1(MH) district only</i>)	Same as R1-43 Same as R1-43(MH)	20,000 sq.ft.
CR-2, Single-family Residence	Single-family dwellings Mobile homes (<i>CR-2(MH) district only</i>) Public parks Public recreation areas Public Schools	Same as R1-43 Same as R1-43(MH)	11,000 sq.ft.
R1-8, Single-family Residence	Same as CR-2 Mobile homes (<i>R1-8(MH) district only</i>)	Same as R1-43 Same as R1-43(MH)	8,000 sq.ft.
CR-3, Single-family Residence	Same as R1-8 Mobile homes (<i>CR-3(MH) district only</i>)	Same as R1-43 Same as R1-43(MH)	7,000 sq.ft.
R-1, Duplex Residence	Single-family dwellings Duplex dwellings	Same as R1-43 Same as R1-43(MH)	4,000 sq.ft.

TABLE 1D (Continued)
Summary of Zoning Provisions:
City of Apache Junction

Noise-Sensitive Uses			
Zoning Districts	Permitted	Conditional, Subject to Special or Council Use Permit	Minimum Lot Size or Density Units/Acre
RESIDENTIAL DISTRICTS			
CR-4, Single-family Residence	Single-family dwellings Duplex dwellings Multi-family dwellings Public parks Public recreation areas Public schools	Places of worship Private educational institutions Private recreation facilities Day care centers Private clubs, fraternities, sororities, lodges. Residential health care facilities Boarding houses Condominiums Townhouses	3,500 sq.ft.
CR-5, Multi-family Residential	Duplex dwellings Multi-family dwellings Public parks Public recreation areas Public schools Victim shelters	Same as CR-4 to include: Single-family dwellings Preschools	2,000 sq.ft.
TH, Trailer Homesite	Same as CR-3 to include: Mobile home parks Recreational vehicle parks Mobile home subdivisions	None	3,000 sq.ft. 1,000 sq.ft (In recreational vehicle parks)
TR, Transitional	Same as CR-3, CR-4, CR-5 to include: Hotels Trailer Courts Clubs Colleges Community service agencies Libraries Museums Playgrounds Private Schools Guest Ranches Hospitals, clinics, dispensaries, sanitariums	None	10,000 sq.ft.

TABLE 1D (Continued)
Summary of Zoning Provisions:
City of Apache Junction

Noise-Sensitive Uses			
Zoning Districts	Permitted	Conditional, Subject to Special or Council Use Permit	Minimum Lot Size or Density Units/Acre
COMMERCIAL DISTRICTS			
CB-1, Local Business	Same as TR to include: Places of Worship Clubs and lodges Clinics and hospitals Day nursery or child care center Hotels Libraries Museums Religious rescue missions Trade schools Indoor Theaters Mobile homes	None	1,000 sq.ft.
CB-2, General Business	Same as TR and CB-1 to include: Auditorium or assembly hall Clubs School or college Drive-in-theater Veterinary hospital or kennel	None	1,000 sq.ft.
C-1, Neighborhood Commercial/Convenience	Single family dwellings Clinic services Libraries and cultural exhibits Day care/schools Places of worship Medical services	Mobile homes for caretakers Group care facilities Lodges, fraternities and civic assemblages	6,000 sq.ft.
C-2, Local Commercial	Residential as permitted in C-1 Civic uses as permitted in C-1 Group care facilities Schools Veterinary clinics (small animals)	Veterinary clinics (Large animals)	15,000 sq.ft.

TABLE 1D (Continued)
Summary of Zoning Provisions:
City of Apache Junction

Noise-Sensitive Uses			
Zoning Districts	Permitted	Conditional, Subject to Special or Council Use Permit	Minimum Lot Size or Density Units/Acre
C-3, General Commercial	Residential Planned development Civic and Commercial uses as permitted in C-2 Day cares Vocational and trade schools Lodges, fraternities and civic assemblages Veterinary clinics(Large animals) Indoor sports Hotels	Caretakers residence Outdoor sport complexes	20.000 sq.ft.
C-4, Heavy Commercial	Residential Planned development Civic uses as permitted in C-3 Commercial uses as permitted in C-3	Caretakers residence Drive-in-theaters	20,000 sq.ft.
INDUSTRIAL DISTRICTS			
CI-1, Light Industrial and Warehouse	Places of Worship Clubs and lodges Clinics and hospitals Day nursery or child care center Hotels Libraries Museums Religious rescue missions Trade schools Indoor Theaters Trailer courts Veterinary dog or cat hospital or kennel Motion picture studio	None	N/A
CI-2, Heavy Industrial	Same as CI-1	None	N/A
PLANNED DEVELOPMENT DISTRICTS			
PD, Planned Development	All use shall comply with the base zoning district/s	All use shall comply with the base zoning district/s	All development must comply with the base zoning districts

Town of Queen Creek

The Town of Queen Creek Zoning Ordinance was established by Town Ordinance No. 142-98. The ordinance is periodically amended through the powers of the Town Council. The Zoning Administrator (Planning Director) interprets and enforces the zoning ordinance. Appeals are made to the Board of Adjustment, as are requests for variances. The Planning Commission provides review and approves or denies site plans and use permits.

The Queen Creek Zoning Ordinance provides for 24 fixed districts and five

overlay districts. Overlay districts are offered as a means for increased planning and design options, and for the special protection of property and/or environmental resources. “Permitted” and “conditional” noise sensitive uses allowed in the various districts are depicted in **Table 1E**.

TABLE 1E
Summary of Zoning Provisions
Town of Queen Creek

Noise-Sensitive Uses			
District	Permitted	Conditional, Subject to Special or Council Use Permit	Minimum Lot Size or Density Units/Acre
AGRICULTURAL DISTRICTS			
A-1, Agricultural	Single-family dwellings Assisted Living Facilities Group Care Homes for the Handicapped Museums Libraries Places of Worship Public/private schools	College/university Day care centers Boarding schools Public/private schools Bed & Breakfast Camps Resorts, Cabins & Lodges Guest ranches Auditoriums	10 Acres
RURAL DEVELOPMENT DISTRICTS			
R1-190, Rural Development	Same as A-1	Same as A-1	5 Acres
R1-145, Rural Development	Same as A-1	Same as A-1	3.33 Acres
R1-108, Rural Development	Same as A-1	Same as A-1	2.5 Acres
R1-54, General Rural	Same as A-1	Same as A-1	1.25 Acres
R1-43, Rural Estate	Same as A-1	Same as A-1	1 Acre
SUBURBAN RESIDENTIAL DISTRICTS			
R1-35, Suburban Residential Type A	Same as A-1	College/university Day care centers Boarding schools Public/private schools Camps Resorts, Cabins & Lodges Guest ranches	35,000 sq.ft.
R1-18, Suburban Residential Type B	Single-family dwellings Assisted Living Facilities Group Care Homes for the Handicapped Places of Worship Public/private schools	Day care centers Boarding schools Public/private schools Museums Libraries	18,000 sq.ft.
R1-15, Suburban Residential Type B	Same as R1-18	Day care centers Boarding schools Public/private schools	15,000 sq.ft.
R1-12, Suburban Residential Type B	Same as R1-18	Same as R1-15	12,000 sq.ft.

TABLE 1E (Continued)
Summary of Zoning Provisions
Town of Queen Creek

Noise-Sensitive Uses			
District	Permitted	Conditional, Subject to Special or Council Use Permit	Minimum Lot Size or Density Units/Acre
URBAN RESIDENTIAL DISTRICTS			
R1-9, Urban Residential Type A	Same as R1-18	Same as R1-15 to include Medical Clinics	9,000 sq.ft.
R1-8, Urban Development Type A	Same as R1-18	Same as R1-9	8,000 sq.ft.
R1-7, Urban Development Type A	Same as R1-18	Same as R1-9	7,000 sq.ft.
R1-6, Urban Development Type A	Same as R1-18	Same as R1-9	6,000 sq.ft.
COMMERCIAL DISTRICTS			
B-1, Neighborhood Commercial/Office	Boarding/rooming houses Multi-family dwellings Assisted living facilities Group care homes for the handicapped Day care centers Medical clinics Adult day care centers Dance/art/music schools Elementary schools Charter/private/parochial schools Hotels Bed & Breakfasts	Single-family dwellings Other household living Treatment facilities Museums Libraries Day care centers Nursery schools Counseling centers Places of worship Boarding schools Riding academies Secondary schools	6,000 sq.ft.

TABLE 1E (Continued)
Summary of Zoning Provisions
Town of Queen Creek

District	Noise-Sensitive Uses		Minimum Lot Size or Density Units/Acre
	Permitted	Conditional, Subject to Special or Council Use Permit	
TC, Town Center	Single-family dwellings Multi-family dwellings Group care homes for the handicapped Colleges/Universities Vocational schools Museums Libraries Day care centers Nursery schools Counseling centers Secondary schools Medical clinics Adult day care centers Dance/art/music schools Elementary schools Charter/private/parochial schools Hotels Bed & Breakfasts Auditoriums Clubs/lodges	Boarding/rooming houses Other household living Assisted living facility Treatment facility Hospitals Places of worship Boarding schools Veterinary hospitals	N/A
C-1, Light Commercial	Group care homes for the handicapped Colleges/universities Vocational schools Day care centers Medical clinics Adult day care centers Dance/art/music schools Elementary schools Charter/private/parochial Hotels Bed & Breakfasts	Boarding/rooming houses Multi-family dwellings Other household living Assisted living facility Treatment facility Museums Libraries Nursery schools Honor camps Counseling centers Hospitals Places of worship Boarding schools Riding academies Secondary schools Auditoriums	1 Acre

TABLE 1E (Continued)
Summary of Zoning Provisions
Town of Queen Creek

Noise-Sensitive Uses			
District	Permitted	Conditional, Subject to Special or Council Use Permit	Minimum Lot Size or Density Units/Acre
C-2, General Commercial	Group care homes for the handicapped Vocational schools Museums Libraries Day care centers Nursery schools Medical clinics Adult day care centers Counseling centers Places of worship Dance/art/music schools Elementary schools Charter/private/parochial Riding academies Secondary schools Hotels Bed & Breakfasts Clubs/lodges	Multi-family dwellings Other household living Assisted living facility Treatment facility Honor camps Counseling centers Hospitals Physical and mental rehabilitation centers Boarding schools Auditoriums Veterinary hospitals	1 Acre
INDUSTRIAL DISTRICTS			
I-1, Office/Industrial Park	Group care homes for the handicapped Vocational schools	Other household living Medical clinics Adult day care centers Counseling centers Hospitals Physical and mental rehabilitation centers Resorts/cabins/lodges Veterinary hospitals	1 Acre
I-2, General Industrial	Same as I-1	Other household living Counseling centers Physical and mental rehabilitation centers Resorts/cabins/lodges Veterinary hospitals	1 Acre
RECREATION AND CONSERVATION DISTRICTS			
RC, Recreation and Conservation	Group care homes for the handicapped	Other household living Resorts/cabins/lodges	5 Acres

TABLE 1E (Continued)
Summary of Zoning Provisions
Town of Queen Creek

District	Noise-Sensitive Uses		Minimum Lot Size or Density Units/Acre
	Permitted	Conditional, Subject to Special or Council Use Permit	
OVERLAY DISTRICTS			
PAD, Planned Area Development Overlay	Dependent upon the underlying zoning district	Dependent upon the underlying zoning district	Density dependent upon underlying district
HP, Hillside Preservation Overlay	Same as those specified in the underlying zoning district	Same as those specified in the underlying zoning district	Density dependent upon underlying district
CR, Critical Area Overlays	Same as those specified in the underlying zoning district	Same as those specified in the underlying zoning district	Density dependent upon underlying district

Town of Gilbert

The Gilbert *Unified Land Development Code* includes zoning provisions, subdivision regulations, and design standards for new development. The Code provides for 25 zoning districts, including 12 residential use districts, seven commercial districts, and four industrial districts. The Unified Land Development Code also includes a Planned Area Development (PAD) Overlay district. Within this district, a wide variety of land uses are permitted subject to an approved development plan.

The key provisions of the ordinance relating to noise compatibility planning are summarized in **Table 1F**. Noise-sensitive land uses are permitted in all but one zoning district (the I-3 General Industry district). In most of the other commercial and industrial districts, various noise-sensitive institutions are permitted. For the most part, housing is permitted only in the residential districts. Exceptions are provided for residential facilities and residential hotels which are permitted in commercial districts.

TABLE 1F
Zoning Provisions for Noise-Sensitive Uses
Town of Gilbert

Zoning District	Noise-Sensitive Uses		
	Permitted	Conditional, Subject to Special or Council Use Permit	Minimum Lot Size or Density Units/Acre
SINGLE FAMILY RESIDENTIAL DISTRICTS			
AG, Agriculture	Single-family, Churches, Group homes, Temporary Outdoor Events	None	10 Acres
R-43, Rural Residential	Single-Family, Schools, Group homes, Bed and Breakfast, Temporary Outdoor Events	None	1 Acre
R-35, Single Family Residential	Single-Family, Schools, Group homes, Bed and Breakfast	None	35,000 sq.ft.
R1-20, Single Family Residential	Same as R1-35	None	20,000 sq.ft.
R1-15 Single-family Residential	Same as R1-35	None	18,000 sq.ft.
R1-10 Single-family Residential	Same as R1-35	None	10,000 sq.ft.
R1-8 Single-family Residential	Same as R1-35	None	8,000 sq.ft.
R1-7 Single-family Residential	Same as R1-35	None	7,000 sq.ft.
R1-5 Single-family Residential	Single-Family, Schools, Group homes	None	5,000 sq.ft.
MULTI-FAMILY RESIDENTIAL DISTRICTS			
¹ R-2 Two Family Duplex Residential	Same as R1-35, Two family dwellings	None	3,000 sq.ft.
R-3 Multiple-family Residential	Same as R1-35, Two family dwellings, Multi-family dwellings	Boarding Houses, Hospitals, Nursery Schools, Day Care Centers	18 DU/Acre
R-4 Multiple-family Residential	Same as R-3	Hotels, medical clinics	22 DU/Acre
² R-TH Townhouse Residential	Same as, R1-35, Buildings or Dwelling Groups of Individual Ownership	None	3,600 sq.ft.
COMMERCIAL DISTRICTS			
N-S Neighborhood Service	Libraries, Museums, Places of Worship, Schools, Residential Facility	None	N/A
³ NCC, Neighborhood Convenience	Day Care Centers, Libraries, Museums, Places of Worship, Schools, Residential Facility	Nursing Home	N/A
C-1, Light Commercial	Accessory Apartment, Day Care Center, Libraries, Museums, Nursing Homes, Places of Worship, Schools, Residential Development, Residential Facility	None	N/A
C-2 General Commercial	Same as C-1, Hospital, Indoor Places of Public Assembly, Residential Hotels	Outdoor Places of Public Assembly	N/A

TABLE 1F (Continued)
Zoning Provisions for Noise-Sensitive Uses
Town of Gilbert

Noise-Sensitive Uses			
Zoning District	Permitted	Conditional, Subject to Special or Council Use Permit	Minimum Lot Size or Density Units/Acre
PSC-1, Planned Neighborhood Shopping Center	Same as C-1	None	N/A
PSC-2, Planned Shopping Center	Same as C-1, Hospitals, Indoor Places of Assembly, Residential Development, Residential Hotel	None	N/A
ER, Entertainment/ Recreation	Libraries, Museums, Indoor/Outdoor Places of Assembly, Schools, Residential Hotel	None	N/A
INDUSTRIAL DISTRICTS			
I-B, Industrial Buffer	Indoor Places of Assembly	Places of Worship	N/A
I-1, Garden Industry	Trade Schools, Colleges, Day Care Centers, Libraries, Museums, Indoor Places of Assembly	Nursing Home, Places of Worship	N/A

¹ May be referenced as R-5 on the official zoning map.
² May be referenced as RCC on the official zoning map.
³ May be referenced as R1PH on the official zoning map.
N/A -- not applicable.
du -- dwelling unit

Pinal County

The Zoning Ordinance of the County of Pinal controls development in the unincorporated areas of the County. The Zoning Ordinance was last amended and adopted on September 29, 1994. Enforcement of the Ordinance is provided by the County Zoning Inspector under the direction of the Planning Commission. Requests for variances are granted by the County Board of Adjustment.

The Pinal County Zoning Ordinance provides for 22 districts comprised of four rural districts, 11 residential districts, two business districts, three industrial districts, and two overlay districts. The code allows uses in specific districts by a permitted use status only; no conditional uses are offered. **Table 1G** summarizes the provisions of the Pinal County Zoning Ordinance as they apply to airport compatibility planning.

TABLE 1G
Zoning Provisions for Noise-Sensitive Uses
Pinal County

Zoning District	Noise Sensitive Uses		Minimum Lot Size or Density Units/Acre
	Permitted	Conditional, Subject to Special or Council Use Permit	
RURAL DISTRICTS			
CAR, Commercial Agricultural Zone	Single Family dwellings Manufactured or mobile homes	None	4 Acres
SR, Suburban Ranch	Single-family dwellings Manufactured or mobile homes Guest ranches Public or parochial schools Places of worship Colleges Libraries Museums Hospitals or sanatoriums Clinics Resort hotels	None	144,000 sq.ft.
SH, Suburban Homestead	Same as SR to include: Duplexes	None	2 Acres
GR, General Rural	Single family dwellings Manufacture or mobile homes Places of worship Clubs Museums Libraries Schools Colleges Hospitals, clinics or sanitariums Housing for farm labor	None	1.25 Acres
RESIDENTIAL DISTRICTS			
CR-1A, Single Family Residence	Single family dwelling Public or parochial schools Place of worship	None	1 Acre
CR-1, Single Family Residence	Single Family dwellings Public or parochial schools Places of worship	None	20,000 sq.ft.
CR-2, Single Family Residence	Same as CR-1	None	12,000 sq.ft.

TABLE 1G
Zoning Provisions for Noise-Sensitive Uses
Pinal County

CR-3, Single Family Residence	Same as CR-1	None	7,000 sq.ft.
CR-4, Multiple Residence	Same as CR-3 to include: Duplexes Multiple family dwelling units	None	7,000 sq.ft.
CR-5, Multiple Residence	Same as CR-4 to include: Private clubs or lodges Colleges Libraries Museums Private schools Guest ranches Hospitals, dispensaries, clinics, and sanitariums	None	7,000 sq.ft.
MH, Manufactured/Mobile Home	Manufactured or mobile homes Places of worship	None	8,000 sq.ft.
RV, Recreational Vehicle Homesite	Travel trailers Places of worship	None	6,000 sq.ft.
MHP, Manufactured/Mobile Home Park	Manufactured or mobile homes Recreational vehicles	None	4,000 sq.ft.
PM/RVP, Park Model/ Recreational Vehicle Park	Park Models Recreational vehicles	None	1,500 sq.ft.
TR, Transitional	Same as CR-5	None	10,000 sq.ft.
BUSINESS DISTRICTS			
CB-1, Local Business	Same as TR to include: Places of worship Clinics Clubs or lodges Day care or child care centers Hotels Libraries Religious rescue missions Trade schools Theaters	None	7,500 sq.ft.
CB-2, General Business	Same as CB-1 to include: Assembly halls Instructional and trade schools Drive-in theaters	None	3,500 sq.ft.
INDUSTRIAL DISTRICTS			

TABLE 1G
Zoning Provisions for Noise-Sensitive Uses
Pinal County

CI-B, Industrial Buffer	Commercial trade schools or business colleges		10,000 sq.ft.
CI-1, Light Industrial and Warehouse	Same as CB-2 to include: Mobile or manufactured home in conjunction with permitted use.	None	N/A
CI-2, Industrial	Same as CI-1	None	N/A
OVERLAY DISTRICTS			
PAD, Planned Area Development	Same as those specified in the underlying zoning district	Same as those specified in the underlying zoning district	Density dependent upon underlying district
DRO, Design Review Overlay	Same as those specified in the underlying zoning district	Same as those specified in the underlying zoning district	Density dependent upon underlying district

Maricopa County

Portions of the unincorporated study area are zoned by Maricopa County. The Zoning Ordinance for the unincorporated area of Maricopa County is administered by the Maricopa County Department of Planning and Development and enforced by the County Zoning Inspector. Appeals, variances and use permits are handled by the Board of Adjustment. Special Use permits may be granted in any zone, after public hearing, by the Board of Supervisors for certain noise-sensitive uses which are otherwise prohibited. Those uses include: drive-in theaters, group care facilities, guest ranches, mobile home parks and subdivisions, resort hotels, travel trailer and RV parks, residential health care facilities, and single and multi-family homes (in C-1, C-2, and C-3 zones).

The Maricopa County Zoning Ordinance contains 21 basic districts, including three rural residential, ten residential, five commercial, and three industrial districts. Additionally, there are four overlay zones, including a senior citizen development zone, a manufactured house zone, a

hillside zone, and a planned development zone. The noise-sensitive use aspects of these districts are summarized in **Table 1H**.

The 1978 Military Airport Zoning Ordinance for the Unincorporated Area of Maricopa County

The 1978 Military Airport Zoning Ordinance for the Unincorporated Area of Maricopa County was established to encourage land uses in the vicinity of military airfields which would reduce exposure to crash potential and high noise levels.

Although Williams AFB no longer exists, this ordinance is still enforced around Williams Gateway Airport, as depicted on **Exhibit 1N**. The allowable land use standards around a military airfield are set forth in six airport zoning districts. In the vicinity of Williams Gateway Airport, three of these districts are enforced:

Airport District One (AD-I)

Airport District One is situated immediately adjacent to runway ends of the airfield. This district extends as a rectangular area one-thousand feet wide to a point three-thousand feet beyond the end of each runway.

Airport District One is the most restrictive district contained within the ordinance. The only allowable land use is agriculture. Industrial, Commercial, Residential, and Recreational uses are all prohibited within this district.

Airport District Two (AD-II)

Airport District Two extends from the terminus of Airport District One for a distance of five thousand feet and a width of one thousand five hundred feet from the extended centerline of each runway.

This district allows for industrial and commercial uses which utilize a non-intensive labor force. Permitted uses include storage facilities, raw manufacturing, and wholesale activities. The overall exposure of individuals to noise and aviation accident risks are designed to be minimal.

A limited number of outdoor recreation and resource production uses are also permitted. These uses include golf courses, feedlots, and mining.

Airport District Three (AD-III)

Airport District Three extends an additional seven thousand feet beyond AD-II. Allowable land uses in this district include industrial, commercial, business, outdoor recreational, and resource production uses.

Identical industrial uses are permitted as those in AD-II. These uses benefit from the permission of a higher labor

force concentration. Commercial uses allowed in AD-II are also permitted to include specific types of retail establishments. Uses such as grocery and clothing retailers are prohibited.

A limited number of business service activities are permitted. These include

professional offices, financial institutions, and repair establishments.

Additional land uses relating to outdoor recreation and resource production mimic those permitted in AD-II.

TABLE 1H
Summary of Zoning Provisions:
Maricopa County

Zoning Districts	Noise-Sensitive Uses		Minimum Lot Size or Density Units/Acre
	Permitted	Conditional, Subject to Special or Council Use Permit	
RESIDENTIAL DISTRICTS			
Rural-190	Single-family dwellings Churches Schools Libraries Museums	Group Homes	0.23 DU/Acre
Rural-70	Same as Rural-190	Same as Rural-190	0.62 Du/Acre
Rural-43	Same as Rural-190	Same as Rural-190	1 DU/Acre
R1-35, Single-family Residential	Same as Rural-190	Same as Rural-190	1.25 DU/Acre
R1-18 Single-family Residential	Same as Rural-190	Same as Rural-190	2.42 DU/Acre
R1-10, Single-family Residential	Same as Rural-190	Same as Rural-190	4.36 DU/Acre
R-1-8, Single-family Residential	Same as Rural-190	Same as Rural-190	5.45 DU/Acre
R1-7, Single Family Residential	Same as Rural-190	Same as Rural-190	6.22 DU/Acre
R1-6, Single-family Residential	Same as Rural-190	Same as Rural-190	7.26 DU/Acre
R-2, Limited Multiple-family Residential	Same as Rural-190 Duplexes Multi-family	Same as Rural-190	10.89 DU/Acre
R-3, Multiple-family Residential	Same as R-2	Same as Rural-190	14.52 DU/Acre
R-4, Multiple-family Residential	Same as R-2	Same as Rural-190	21.78 DU/Acre
R-5, Multiple-family Residential	Same as R-2	Same as Rural-190	43.56 DU/Acre

SC, Senior Citizen Overlay	Single-family Duplex Multi-family	-	5 Acres
----------------------------	---	---	---------

TABLE 1H (Continued)
Summary of Zoning Provisions:
Maricopa County

Zoning Districts	Noise-Sensitive Uses		Minimum Lot Size or Density Units/Acre
	Permitted	Conditional, Subject to Special or Council Use Permit	
RESIDENTIAL DISTRICTS (Continued)			
MHR, Manufactured House Residential Overlay	Manufactured Housing	None	Same as the primary zoning district
COMMERCIAL DISTRICTS			
C-S, Planned Shopping Center	Uses permitted in original Rural or Residential underlying zone	None	5 Acres
C-O, Commercial Office	None	None	3.63 DU/Acre
C-1 Neighborhood Commercial	Schools Day nurseries Nursery schools Churches	None	7.26 DU/Acre
C-2, Intermediate Commercial	Same as C-1 Theaters	None	7.26 DU/Acre
C-3, General Commercial	Same as C-2	None	7.26 DU/Acre
INDUSTRIAL DISTRICTS			
IND-1, Planned Industrial	None	None	1.25 DU/Acre
IND-2, Light Industrial	Caretakers residence	None	7.26 DU/Acre
IND-3, Heavy Industrial	None	None	7.26 DU/Acre
PLANNING DISTRICTS			
PD, Planned Development Overlay	Same as underlying zoning district	None	Same as underlying zoning district

**Summary of
Zoning Classifications**

Exhibit 1N shows the generalized zoning pattern in the area. The various zoning districts of each jurisdiction have been combined into generalized zoning categories. **Table 1J** summarizes the grouping of actual zoning districts within the Study Area for purposes of the exhibit. The "Residential" category applies to districts with varying

densities of single and multifamily dwelling units. The "Commercial" and "Industrial" categories include commercial and industrial districts, respectively. The "Resort" category applies to districts permitting resort facilities. The "Open Space" category includes districts which permit only open space uses or very non-intensive development and has been used here to indicate where golf courses or parks have been built or planned.

TABLE 1J
Classification of Zoning Districts

Generalized Zoning Category	City of Mesa	City of Apache Junction	Town of Queen Creek	Town of Gilbert	Pinal County	Maricopa County
Rural Residential (0-1 du/ac)	R1-90, R1-43	GR, R1-43	A-1, R1-190, R1-145, R1-108, R1-54, R1-43	AG, R-43	CAR, SR, SH, GR, CR-1A	Rural-190, Rural-70, Rural-43
Large Lot Residential (1.1-2 du/ac)	R1-35		R1-35	R-35		R1-35
Small Lot Residential (2.1-5 du/ac.)	R1-15, R1-9	CR-1, CR-2,	R1-18, R1-15, R1-12, R1-9	R1-20, R1-15, R1-10	CR-1A, CR-1, CR-2,	R1-18, R1-10
Medium Density Residential (5.1-15 du/ac.)	R1-6, R1-7, R-2, R-3, R-4	R1-8, CR-3, R-1, CR-4	R1-8, R1-7, R1-6, R-2, R-3, R-4	R1-8, R1-7, R1-5, R-2, R-TH	CR-3, CR-4, MH, RV, MHP	R1-8, R1-7, R1-6, R-2, R-3
High Density Residential (15+ du/ac.)		CR-5, TH		R-3, R-4	CR-5, PM/RVP	R-4, R-5
Hotel, Motel, & Resort		TR		ER		
Commercial	O-S, C-1, C-2, C-3	CB-1, CB-2, C-1, C-2, C-3, C-4	B-1, TC, C-1, C-2	NCC, C-1, C-2, PSC-1, PSC-2	CB-1, CB-2	C-S, C-O, C-1, C-2, C-3
Industrial and	M-1, M-2	CI-1, CI-2	I-1, I-2	I-B, I-1, I-2,	CI-B, CI-1,	IND-1, IND-2,

Transportation				I-3	CI-2	IND-3
Open Space	N/A	N/A	RC	N/A	N/A	N/A
Source: Coffman Associates Analysis						

SUBDIVISION REGULATIONS

Subdivision regulations apply in cases where a parcel of land is proposed to be divided into lots or tracts. They are established to ensure the proper arrangement of streets, adequate and Subdivision regulations can be used to enhance noise-compatible land development by requiring developers to plat and develop land so as to minimize noise impacts or reduce the noise sensitivity of new development. The regulations can also be used to protect the airport proprietor from litigation for noise impacts at a later date. The most common requirement is the dedication of a noise or aviation easement to the local government by the land subdivider as a condition of development approval. The easement releases the city, public, and airfield from damage or annoyance caused by noise, dust, fuel or other effects caused by aircraft operations from an airport. It also acts as a notification to prospective buyers of potential effects from aviation related activities in the area. The City of Mesa is the only jurisdiction in the study area which has adopted subdivision regulations which specifically address aviation-related noise.

BUILDING CODES

Building codes regulate the construction of buildings, ensuring that they are built to safe

convenient open space, efficient movement of traffic, adequate and properly-located utilities, access for fire-fighting apparatus, avoidance of congestion, and the orderly and efficient layout and use of land.

standards. Building codes may be used to require sound insulation in new residential, office, and institutional buildings when warranted by existing or potential high aircraft noise levels. Mesa, Apache Junction, Gilbert, and Queen Creek have adopted versions of the Unified Building Code (UBC). In the study area, the City of Mesa requires noise attenuation construction practices enabling a 25 dBA reduction pertaining to the interior noise level for areas under the city’s Airfield Overlay zone. None of the other jurisdictions have adopted additional regulations related to noise in the vicinity of Williams Gateway.

CAPITAL IMPROVEMENT PROGRAMS

Capital improvements programs (CIP) are multi-year plans, typically covering five or six years, which list major capital improvements planned to be undertaken by a particular jurisdiction during each year. The CIP does not include facility improvements that are proposed to be funded entirely by developers.

Most capital improvements have no direct bearing on noise compatibility;

few municipal capital improvements are noise-sensitive. The obvious exceptions to this are schools and, in certain circumstances, libraries, medical facilities and cultural/recreational facilities. The noise compatibility planning process includes a review of planned facilities of these types as a matter of course.

Some capital improvements, however, may have an indirect, but more profound, relationship to noise compatibility. For instance, sewer and water facilities may open up large vacant areas for private development of noise-sensitive residential uses. In contrast, the same types of facilities, sized for industrial users, could permit industrial development in the same noise-impacted area that might otherwise be attractive for residential development on septic tanks.

The following is a brief description of the capital improvement projects planned within the study area:

Santan Freeway

The Arizona Department of Transportation is preparing to construct the Santan Corridor portion of Arizona Highway 202 connecting Superstition Highway (U.S. Highway 60) and Arizona Highway 101. This multi-year project is expected to begin in 2003 and be completed by 2007. The Williams Gateway portion of this project, by-passing the airport to the north and west from Power Road to Williams Field Road, is expected to be completed by 2007.

Wastewater Pumping Station

A new wastewater pumping station has been installed near the intersection of Ocotillo and Greenfield Roads. This is part of an effort by Maricopa County to reduce the number of residences utilizing in ground septic systems. This facility will pump effluent from northern Queen Creek to the Mesa waste water treatment plant via the Town of Gilbert. All new development north of the Queen Creek will be required to be connected to this system.

Road Projects

The Maricopa County Department of Transportation (MCDOT) Capital Improvements Program has slated Ellsworth, Ray, and Sossaman Roads for construction projects within the five-year planning horizon.

Ellsworth Road - Ellsworth Road is expected to be reconstructed and widened from two to four lanes between Baseline and Germann Roads. This project is scheduled to begin in 2001 and is anticipated to be completed in 2002.

Ray Road - Ray Road is to traverse the northern property boundary of Williams Gateway Airport.

Currently, Ray Road terminates at Sossaman Road north of the airport. This project is expected to begin and be completed in 2002 and is being performed as part of an Inter-Governmental Agreement (IGA) between the City of Mesa and Maricopa County.

Sossaman Road - During a three phase roadway extension project, Sossaman Road is ultimately being extended from Ray Road to Pecos Road. During Phase One, a four lane section of Sossaman Road was extended from Ray Road to the intersection of Sossaman and Tahoe Avenue

on the airport. This phase has been completed with the exception of landscaping and signage.

Phase two will continue Sossaman Road past the new terminal parking lot. Construction on this phase is expected to begin in Winter 1999.

Phase three is expected to continue Sossaman Road to Pecos Road, south of the airport.

Funding for the Sossaman Road project includes a \$4 million grant from the U.S. Economic Development Administration and \$5.8 million in infrastructure funding from the State of Arizona.

Pecos Road - Pecos Road is expected to be extended and realigned in order to provide access to the southern portion of the airport. A Special Improvement District is under discussion with the City of Mesa as a potential funding mechanism. This project is expected to be completed within the airports five year (short term) planning horizon.

Exhibit 1P shows the location of these projects in the study area.

ADDITIONAL PROGRAMS

Williams Gateway Community Outreach and Public Relations Program

Beginning in 1995, Williams Gateway Airport has been involved in a Community Outreach and Community Relations Program. This program is aimed at increasing community awareness of the airport through the installation of various projects described below:

Distribution of Public Information - A public information packet is distributed through various mediums to community leaders and the general public. This packet outlines past, present, and future activities at the airport.

Newsletter - A quarterly newsletter pertaining to Williams Gateway activities is distributed to community leaders, business leaders, and homeowner associations.

Public Speaking Engagements - Airport staff conduct informational speeches for various organizations such as realty groups and civic organizations.

Airport Tours - Tours are conducted on a continuing basis as a means to introduce various interested parties to the inner workings of Williams Gateway Airport.

Air Shows - The airport has held two air shows a year for the past five years. Participants in such air shows include the U.S. Navy Blue Angels and the U.S. Air Force Thunderbirds. Such shows have attracted between 50,000 and 75,000 spectators annually.

Media Relations - Williams Gateway has made a concerted effort to publicize airport activities through both broadcast media and newspapers.

Website - Since 1997, Williams Gateway Airport has sponsored a website (www.flywga.org). The site includes various types of information about

the airport including employment opportunities, news releases, and general information.

Community Meetings - Airport staff and a consultant has meet with groups of area residents to address community concerns pertaining to the airport.

Community Response - Airport staff is made available to respond to various inquiries and information requests. Between 3 and 5 inquiries are responded to daily.

Noise Call Response - Williams Gateway Airport has established an automated telephone noise response line (929-7902) capturing noise complaint information including; time, date, aircraft type, location, and the nature of the complaint. Noise complaints are responded to with follow-up calls, upon request, in order to gather additional complaint information.

SUMMARY

The information discussed in this chapter provides a foundation upon which the remaining elements of the study planning process will be constructed. Information on current airport facilities and utilization serve as a basis for the development of aircraft noise analyses during the next phase of the study. The land use information in the airport environs will allow the assessment of the of airport noise on local residents. This information will,

in turn, provide guidance for the assessment of potential noise abatement and land use management procedures necessary to reduce the

impact of aircraft noise on existing and potential future residents of the study area.

REFERENCES

- AOPA 1999. *AOPA Airport Directory, 1999 Edition*. Aircraft Owners and Pilots Association, 1998.
- BRW, Inc. 1987. *Apache Junction General Plan*. Prepared for the City of Apache Junction, AZ., Adopted June 16, 1987, City Council.
- BRW, Inc. 1994. *Williams Campus Master Plan, Summary*. Williams Education, Research and Training Consortium.
- BRW, Inc. 1996. *Williams Regional Planning Study*. Prepared for Williams Gateway Airport Authority, Adopted March 1996.
- City of Apache Junction 1982. *Apache Junction Subdivision Ordinance*. City of Apache Junction, AZ, Adopted February 16, 1982, Revised March 27, 1991.
- City of Apache Junction 1995. *Apache Junction, Arizona, Zoning Ordinance*. City of Apache Junction Development Services Department, Adopted March 7, 1985, Revised November 6, 1995, City Council.
- City of Mesa 1998. *Mesa Arizona Zoning Ordinance*. City of Mesa Community Development and Planning, Adopted November 16, 1992, Revised January 20, 1998, Ordinance No. 2736.
- Coffman Associates 1999. *Williams Gateway Airport Master Plan, Draft Final*. Prepared for Williams Gateway Airport Authority, 1999.
- Contract Planning Services 1997. *Town of Queen Creek Subdivision Ordinance*. Prepared for the City of Queen Creek, AZ, Adopted July 16, 1997.
- Cornoyer-Hedrick, Inc. 1996. *City of Mesa General Plan*. Prepared for the City of Mesa, AZ, Adopted May 6, 1996.
- Cornoyer-Hedrick, Inc. et al 1996. *Town of Queen Creek General Plan*. Prepared for the Town of Queen Creek, AZ, Adopted October 2, 1996, Mayor and Town Council.
- County of Maricopa 1979. *The 1978 Military Airport Zoning Ordinance for the Unincorporated Area of Maricopa County*. Maricopa County Planning Department, Effective December 11, 1978.
- County of Maricopa 1990. *Subdivision Regulations Administrative Guidelines for the Unincorporated Area of Maricopa County*. Department of Planning and Development, Adopted August 6, 1990, Maricopa County Board of Supervisors.
- County of Maricopa 1990. *Subdivision Regulations for the Unincorporated Area of Maricopa County*. Department of Planning and Development, Adopted August 6, 1990, Update through January 3, 1998, Maricopa County Board of Supervisors.

County of Maricopa 1992. *Maricopa County Land Use Plan, Queen Creek Planning Area*. Maricopa County Department of Planning and Development, Adopted April 6, 1992, Maricopa County Board of Supervisors.

County of Maricopa 1998. *Zoning Ordinance for the Unincorporated Area of Maricopa County*. Maricopa County Department of Planning and Development, Revised July, 1998.

County of Pinal 1991. *Pinal County Comprehensive Plan*. Pinal County Department of Planning and Development Services. Adopted September 18, 1991, County Board of Supervisors.

County of Pinal 1994. *Pinal County Zoning Ordinance*. Pinal County Department of Planning and Development Services, Adopted June 18, 1962, Amended September 29, 1994.

Design Workshop 1999. Gilbert Gateway Plan, Draft. Prepared for the Town of Gilbert, AZ, April 1, 1999.

Freilich, Leinter & Carlisle 1999. *Town of Queen Creek Zoning Ordinance 1999*. Prepared for the Town of Queen Creek, AZ, Adopted January 6, 1999, Mayor and Town Council.

Municipal Code Corporation 1998. *Town of Gilbert, Arizona, Unified Development Code*. Prepared for the Town of Gilbert, AZ, Adopted December 19, 1995, Amended February 2, 1999, Town Council.

Spence, Charles F. *Aeronautical Information Manual/Federal Aviation Regulations, 1998 Edition*. McGraw-Hill, 1997.

Town of Gilbert 1994. *General Plan and Policy Guide, Town of Gilbert General Plan Update, Gilbert, AZ*. Town of Gilbert Planning and Zoning Commission, Adopted May 24, 1994, Town Council.

United States Department of Commerce 1999. *Airport Facility Directory, Southwest U.S.*. Effective March 25, 1999.

United States Department of Commerce 1999. *Phoenix Sectional Chart. 61st Edition*, May 20, 1999.

United States Department of Commerce 1999. *Phoenix VFR Terminal Area Chart. 20th Edition*, May 20, 1999.

United States Department of Commerce 1999. *U.S. Terminal Procedures Southwest (SW) vol. 1 of 2*. Effective July 15, 1999.

Williams Gateway Airport Authority 1999. *Annual Report, Historic Properties at Williams Gateway Airport, For the Reporting Period 1 May 1998 to 30 April 1999*. WGAA, July, 1999.

www.ajnet.ci.apache-jct.az.us

www.airnav.com

www.aopa.org

www.ereo.und.edu

www.avweb.com

www.ci.gilbert.az.us

www.ci.mesa.az.us

www.co.pima.az

www.cr.nps.gov

www.dot.state.az.us

www.faa.gov

www.flywga.org

www.ita.doc.gov

www.mag.maricopa.gov

www.maricopa.gov

www.nbaa.org

www.queencreek.org