



Chapter 1

INVENTORY



INVENTORY

The purpose of this chapter is to describe the baseline condition of the airport environs and present information necessary for the generation of new aircraft noise exposure contours. Information presented within this chapter includes the following.

- A detailed definition of the purpose and procedural process undertaken as part of a Title 14, Code of Federal Regulations (CFR), Part 150 Study.
- A description of the airport setting, key airport facilities, airspace, and air traffic control.
- A discussion of the jurisdictions impacted by aircraft activity at Scottsdale Airport (SDL) and their respective responsibilities to the public.

- A historical perspective of noise abatement at the airport.
- An overview of land use planning tools utilized within the study area.

WHAT IS A 14 CFR, PART 150 STUDY?

Before presenting background information relating to the airport and surrounding communities, the definition and purpose of a Part 150 Study needs to be provided. In addition to the materials provided in this section, the Technical Information Paper "Regulations Surrounding Aviation Noise" contains additional information regarding the responsibility of the airport operator



and federal, state, and local governments to reduce aircraft noise impacts.

A Part 150 study is a purely voluntary study which 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, Three, and Four of this Study. The NCP document, which will include Chapters Five, Six, and Seven, presents a plan for effectively dealing with adverse noise impacts.

Noise Exposure Maps

The NEM document contains the existing and future noise conditions at the airport. It can be thought of as a baseline analysis that defines the scope of the noise situation at the airport and 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.

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 Aviation Safety and Noise Abatement Act of 1979 (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 nighttime operations occurred after the date of acquisition of such property . . .

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

Acceptance of the noise exposure maps by the FAA is required before a noise compatibility program for the airport can be approved.

Noise Compatibility Program

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.

A noise compatibility program includes recommendations for the abatement of aircraft noise through aircraft operating procedures, air traffic control procedures, airport regulations, or airport facility modifications. It also includes recommendations for land use compatibility planning, and may include actions to mitigate the impact of noise on non-compatible land uses. Additionally, the program contains provisions for updating and periodic revision.

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

The Federal Aviation Administration (FAA) established a new policy in 1998 for Part 150 approval and funding of noise mitigation measures which increased the incentives for airport operators to discourage the development of new noncompatible land uses around airports. Under the new policy, the FAA will not approve measures in Noise Compatibility Programs proposing corrective noise mitigation actions for non-compatible development that was allowed to occur in the vicinity of airports after October 1, 1998, the effective date of the policy. Therefore, 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.

Why Conduct A Part 150 Study?

The impact of aircraft noise on airport area residents has been a major environmental issue in the United States for many years. A Noise Compatibility Program is intended to promote aircraft noise control and land use compatibility. Three things make such a study unique: (1) it is the only federal comprehensive approach to preventing and

reducing airport and community land use conflicts; (2) eligible items in the approved plan may be funded from a special account in the Federal Airport Improvement Program; and (3) it is the only kind of airport study by the FAA primarily for the benefit of airport neighbors.

The principal objectives of a Noise Compatibility Program are to:

- Identify the current and projected aircraft noise levels and their impact on the airport area.
- Propose ways to reduce the impacts of aircraft noise through changes in aircraft operations or airport facilities.
- In undeveloped areas where aircraft noise is projected to remain, encourage future land use zoning determined to be compatible with the noise and operation of an airport, such as agriculture, commercial, or industrial, etc.
- In existing residential areas, that are expected to remain impacted by noise, determine ways of reducing the adverse impacts of noise.
- Establish procedures for implementing, reviewing, and updating the plan.

Scottsdale Airport (SDL) has been proactively seeking ways to minimize aircraft noise impacts on the surrounding community for over 20 years. The process of updating the airport's Noise Compatibility Study is an important element in the City of Scottsdale's continuing effort to be a good neighbor while providing the needed general aviation services to the community.

JURISDICTION AND RESPONSIBILITIES

Reduction of aircraft noise impacts is a complex issue with several parties sharing the responsibility. The following sections describe the roles of each stakeholder.

FEDERAL GOVERNMENT

The Federal Government, primarily through the FAA, has the authority and responsibility to control aircraft noise sources through the following methods:

- **Implement and Enforce Aircraft Operational Procedures** – These include pilot responsibilities, compliance with Air Traffic Control instructions, flight restrictions, and careless and reckless operation of aircraft. Where and how aircraft are operated is under the complete jurisdiction of the FAA.
- **Manage the Air Traffic Control System** – The FAA is responsible for the control of navigable airspace and reviews any proposed alterations in flight procedures for noise abatement on the basis of safety of flight operations, safety and efficient use of navigable airspace, management and control of the national airspace and air traffic control systems, effects on security and national defense, and compliance with applicable laws and regulations.
- **Certification of Aircraft** – The FAA has required the reduction of aircraft noise through certification,

modification of engines, or aircraft replacement as defined in Part 36.

FAA noise reduction regulations do not apply to military aircraft or aircraft below 75,000 pounds.

- **Pilot Licensing** – Individuals licensed as pilots are trained under strict guidelines concentrating on safe and courteous aircraft operating procedures, many of which are designed to lessen the effects of aircraft noise.
- **Noise Compatibility Studies** – Part 150 establishes procedures and criteria for the evaluation of Noise Compatibility Studies.

STATE GOVERNMENT

Although the State of Arizona does not directly implement and administer general purpose land use regulations, it has vested counties, cities, and towns with that power through enabling legislation. *Arizona Revised Statutes* do not require 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 State of Arizona has also adopted legislation that 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 commer-

cial 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 in which the airport resides. The City of Scottsdale attempted to establish an AIA for Scottsdale Airport in the late 1990s. However, there was strong opposition to the establishment of such an area as current property owners felt they should not be required to disclose the existence of the airport to potential buyers since the existence of the airport was not disclosed to them when they purchased the property.

In 1999, the Arizona State Legislature adopted additional aviation-related legislation requiring the state real estate department to prepare and maintain a series of maps depicting the traffic pattern airspace of each public airport in the state [Arizona Revised Statutes on Public Airport Disclosure (A.R.S. 28-8486)]. In counties with a population of more than 500,000 persons, the maps must include a depiction of the 60 DNL contour when one has been identified within either the airport master plan or in a noise study prepared in accordance with airport noise compatibility planning. These maps are to be provided to the public on request. The purpose of the maps is similar to the purpose of the AIA maps in that they are intended to provide disclosure of the presence of the airport as well as the potential influence the airport will have on surrounding property. The boundaries of the Scottsdale Airport Traffic Pattern Airspace are depicted on **Exhibit 1A**. Copies of the boundaries depicted on the exhibit are available on the airport's website as well as on the Arizona Department of Real Estate's website. A

legal description of the boundaries and an unofficial version of the recorded map are available on the website of the Maricopa County Recorder.

LOCAL GOVERNMENT

Scottsdale Airport is located in the City of Scottsdale within Maricopa County. In the vicinity of Scottsdale Airport, land use regulation is shared by the cities of Scottsdale and Phoenix. No unincorporated areas that would be regulated by Maricopa County are within the study area boundaries.

The City of Scottsdale operates under a council/manager form of government. The Scottsdale City Council consists of six members plus an elected mayor. The City of Phoenix operates under the same form of government with an eight-member city council and an elected mayor.

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 the same purpose.

Maricopa County Association of Governments

The Maricopa County Association of Governments (MAG) is a Council of Governments that serves as the regional agency for the metropolitan Phoenix area. MAG is also the designated Metropolitan Planning Organization (MPO) for regional planning in the Maricopa region. MAG provides regional planning and policy decisions in

areas of transportation, air quality, water quality, regional development, and human services.

As the MPO, MAG is required by federal regulations to conduct regional aviation system planning in the metropolitan area with the objective of meeting the long term air transportation needs of the public in a safe and efficient manner. In order to accomplish this planning effort, MAG prepares and adopts the Regional Aviation Systems Plan (RASP). This plan is a long-range strategic plan that focuses upon the major airport improvements and aviation policies that are needed to meet future demand. It is used as a blueprint to guide investment decisions and policy actions for the development of the airport system.

Airport Proprietor

Scottsdale Airport is owned and operated by the City of Scottsdale. As airport proprietor, the city has limited power to control what types of civil aircraft use its airport, or to impose curfews or other use restrictions. This power is limited by the rules of Part 161, described in detail within the Technical Information Papers. 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, or (3) involve unilateral action in matters pre-empted by the federal government.

The City of Scottsdale 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.

To reduce the impact of aircraft overflights and aircraft noise, the City of Scottsdale has undertaken a number of projects with the goal of bridging the gap between airport users and residents. Some of the ongoing noise reduction efforts are as follows:

- Production of a Regional Pilot Guide to inform pilots about terrain elevations, noise rules, and voluntary procedures.
- Develop high-tech pilot education tools such as "Pilot-eye movies" to educate pilots of noise sensitive areas that can be avoided with some awareness and pre-planning.
- Engage the FAA in constructive dialog regarding airspace and air traffic issues.
- Participate in the Phoenix Airspace User Working Group (PAUWG) to cooperatively identify air traffic problems and solutions with airspace users, the FAA, communities and airport operators.
- Partner with aviation organizations (AOPA, NBAA, AzBAA) to further pilot awareness and noise abatement education.

- Partner with the FAA and valley flight schools to form a safety and education forum for flight training and noise issues.
- Partner with residents to identify noise issues and evaluate possible solutions.
- Monitor ongoing legal issues involving airports noise reduction efforts involving Part 161 and proposed federal legislation.

Additionally, the City is actively engaged in community dialog regarding aviation issues through homeowner association newsletters, presentations, and real estate seminars. Airport staff is also available to make presentations regarding the airport and aviation noise at the request of businesses or citizen groups.

For many years, the City has worked with property owners around the airport to provide disclosure to prospective buyers via a "Noise Disclosure" as well as aviation easements for new property development within the 55 DNL noise contour. Some residential communities in the vicinity of the airport have provided noise disclosure information to the original homebuyers, placed disclosure information in the Community Codes, Covenants, and Restrictions, or listed the airport under the "hazard or nuisance" section of the subdivision report on file with the County Recorder.

HISTORY OF NOISE COMPATIBILITY EFFORTS AT SCOTTSDALE AIRPORT

The City of Scottsdale has a long history of proactive noise abatement efforts which began in the mid-1970s. As described in the previous section, the city has implemented a number of tools to educate pilots and the public of the impact of airport noise on surrounding communities. **Exhibit 1B** depicts a timeline of significant components of the airport's noise abatement efforts since the airport was acquired by the city in 1966.

Exhibit 1B also depicts aerial photographs of the airport environs in 1967, 1985, 1998, and 2003 along with the available operational data and noise complaint history for the photo years. When the city acquired the airport, development was located primarily southwest of the airport and the airport's immediate surroundings consisted of undeveloped open space. The development was not concentrated around the airport and the national fleet mix at the time primarily consisted of propeller aircraft. The "jet age" did not begin until the late 1960s and early 1970s.

By 1985, dramatic changes had occurred within the airport environs. As depicted on the exhibit, residential development had occurred up to the southern boundary of airport property. The airport had also begun receiving noise complaints from the nearby residents. In 1987, the airport logged 834 noise complaints followed by 457 complaints in 1988 and 815 in 1989. In 1984, recognizing the impact the airport

had on its environs, the airport commissioned one of the first Part 150 Studies completed by a general aviation airport.

This study resulted in number of recommendations to improve the compatibility between Scottsdale Airport aircraft operations and noise-sensitive land uses within the airport environs, while allowing the airport to continue to serve its role in the community, region, and nation.

The FAA approved an update to the airport's Part 150 Study in 1997. As depicted on the exhibit, residential development had occurred to the east and west of the airport as well as in the northern region of the airport environs. By 2003, noise complaints had reached an all-time high at 3,279 local complaints and 8,719 regional complaints. (Local complaints are those which emanate from within the boundaries of the airport's grid map. The boundaries of this map are depicted on Exhibits 4C, 4D, and 4E in Chapter Four. Regional complaints emanate from outside this grid.) Development has surrounded the airport to the south, east, and west, and has begun to encroach to the north. The airport continues to undertake projects to improve compatibility between the airport and its surroundings as well as to educate the public regarding the presence of the airport and the noise produced by aircraft utilizing the facilities.

AIRPORT OPERATION AND OVERSIGHT

The day-to-day operation of Scottsdale Airport is overseen by the City of Scottsdale's Aviation Department. A

seven-member Airport Advisory Commission, with the assistance of the airport staff, advises the City Council on policy matters relating to the operation of the airport, proposals for development at the airport, airport area land use, fees, and safety concerns. The Commission meets on a monthly basis.

Additionally, the City Council has formed a Subcommittee on Regional Aviation Issues to oversee the development and implementation of strategic action plans for the City to become more involved in aviation, airspace, and airport planning in the region. This Subcommittee meets on a monthly basis.

Scottsdale Airport is classified in the National Plan of Integrated Airport Systems (NPIAS) as a reliever airport for Phoenix-Sky Harbor International Airport. Reliever airports provide an alternate landing site for general aviation pilots, thereby reducing congestion at metropolitan commercial service airports.

Noise Abatement Rules and Procedures

Scottsdale Airport has established a number of procedures for use at the airport, whenever safely possible, to help alleviate the potential noise impacts of airport operations on surrounding noise-sensitive development. A number of maps have been prepared to help educate pilots on the location of residential areas surrounding the airport. The recommended procedures are as follows:

- Intersection takeoffs, stop-and-go, formation, simulated single engine

departures, or go-arounds prohibited.

- Touch-and-go operations prohibited between 9:30 p.m. and 6:00 a.m.
- Engine maintenance runups prohibited between 10:00 p.m. and 7:00 a.m., except in emergencies.
- Runway weight restriction is 75,000 lbs. maximum certificated takeoff weight.
- Voluntary Curfew: 10 p.m. - 6 a.m.
- Runway 3 is the designated calm wind runway and preferred noise abatement runway.
- When departing Runway 21, make right turn to 300 degrees as soon as possible.
- Climb as high as possible before leaving airport boundaries.
- Request that all aircraft not meeting Part 36, Stage III requirements takeoff on Runway 3 and land on Runway 21, weather and traffic permitting.
- Please fly high and tight patterns, no low approaches, follow the PAPI (4 degrees).
- Left-hand traffic pattern on Runway 3; right-hand traffic pattern on Runway 21.
- On Runway 21, aircraft are requested to make short final approaches avoiding direct overflight of residential areas.
- Practice instrument arrivals without proceeding below pattern altitude to minimum decision altitude.
- Jets are requested to use N.B.A.A. Standard Noise Abatement Departure procedures or comparable procedure of aircraft manufacturer.
- Propeller aircraft are requested to use A.O.P.A. "Noise Awareness Steps."

AIRPORT SETTING

Scottsdale Airport is located on approximately 282 acres of land, seven miles north of the City of Scottsdale's downtown area. Local access to the airport is provided via Scottsdale Road. Regionally, the airport can be accessed using the recently completed Loop 101. The location of Scottsdale Airport in its local and regional setting is depicted on **Exhibit 1C**.

The airport and surrounding airpark are generally bordered by Frank Lloyd Wright Boulevard to the north, Thunderbird Road to the south, Scottsdale Road to the west, and Hayden Road to the west. Phoenix Sky Harbor International Airport is located approximately 16 miles southwest of the airport. Predominantly industrial and commercial land uses surround the airport in each direction.

CLIMATE

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.

Situated in what is commonly known as "The Valley of the Sun", the City of Scottsdale has over 300 days of sunshine every year. Average temperatures vary between approximately 40 to

70 degrees Fahrenheit in the winter, and 70 and 104 degrees Fahrenheit in the summer. Normally July is the hottest month with a mean temperature of 90 degrees Fahrenheit. December and January are the coolest months with a mean temperature of 54 degrees Fahrenheit. Precipitation at Scottsdale Airport averages approximately seven inches with most of this falling between the months of December and March, and the remainder during the thunderstorm season from July to September.

Ceilings and visibilities at the airport are generally excellent year-round. Visual flight rule (VFR) conditions, with ceilings equal to or greater than 1,500 feet and visibilities equal to or greater than three miles, exist 98 percent of the time. Winds are normally light at the airport where approximately 43 percent of the winds register below four miles per hour, although gusts have been recorded as high as 50 miles per hour during thunderstorms.

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. The current airport facilities are shown on **Exhibit 1D**.

RUNWAYS

Scottsdale Airport is served by one runway (**Table 1A**). Runway 3-21 is oriented northeast/southwest and is

8,249 feet long and 100 feet wide. Runway 3 is displaced 740 feet and Runway 21 is displaced 400 feet for arriving aircraft. The runway is constructed of asphalt and the weight bearing capacity is 45,000 pounds single-wheel loading (SWL) and 75,000 pounds dual-wheel loading (DWL). Single-wheel loading (SWL) refers to the design of certain aircraft landing gear which has a single wheel on each main landing gear strut. Dual wheel loading (DWL) refers to the design of certain

aircraft landing gear which have two wheels on each main landing gear strut. Scottsdale Revised Code Section 5-123 states that no aircraft with a certificated maximum take-off weight in excess of 45,000 pounds single-wheel loading or 75,000 pounds for dual-wheel loading shall be permitted to operate from the airport except in emergency situations or pursuant to city consent, specifying a specific airport on a specified date.

TABLE 1A Runway Data Scottsdale Airport		
	Runways	
	3	21
Length (ft.)	8,249 feet	
Width (ft.)	100 feet	
Surface Material	Asphalt	
Pavement Strength (lbs.)		
Single Wheel	45,000	
Dual Wheel	75,000	
Approach Aids		
ILS	No	No
PAPI	Yes	Yes
REIL	Yes	Yes
MALSR	No	No
Lighting	MIRL	MIRL
Marking	Basic	Basic
ILS-	Instrument Landing System	
PAPI-	Precision Approach Path Indicator Lights	
REIL-	Runway End Identifier Lights	
MALSR-	Medium Intensity Approach Light System with Runway Alignment Indicator Lights	
MIRL -	Medium Intensity Runway Lights	
Source: <i>Airport / Facility Directory</i> , U.S. Department of Transportation, December 2003.		

TAXIWAYS

Taxiway systems are provided to facilitate aircraft movement between the runway system and the landside facilities. **Exhibit 1D** shows the existing taxiway system at Scottsdale Airport. Runway 3-21 is served by two full length parallel taxiways, Taxiways Alpha and Bravo; and one partial parallel taxiway, Taxiway Charlie. Taxiway Alpha is located on the west side of the runway and serves the terminal, fixed base operators, and general aviation services in the western portions of airport property. Taxiway Bravo is situated on the east side of the runway and serves businesses and the fixed base operator in the eastern portions of airport property. Taxiway Charlie provides access to general aviation uses on the east side of airport property.

In addition to the parallel and partial-parallel taxiways, the airfield is served by many connecting and exit taxiways as depicted on **Exhibit 1D**.

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 on **Table 1A**.

Identification Lighting: The location of an airport at night is universally indicated by a rotating beacon. A rotating beacon projects two beams of light, one white and one green, 180 degrees apart.

The rotating beacon at Scottsdale Airport is located on the west side of the airport, near the terminal building and adjacent to the Aviation Business Center.

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 edge lighting is installed along Runway 3-21.

Visual Approach Lighting: A two-box precision approach path indicator (PAPI) is installed for each runway. PAPI systems assist the pilots when approaching the airport. PAPIs provide a four-degree approach angle.

TERMINAL AREAS

Aircraft activity on the ground is concentrated around various terminal areas. The key terminal areas at Scottsdale Airport include the terminal building, fixed base operators, and aircraft hangar and parking areas. **Exhibit 1D** depicts the location of these facilities.

The terminal building, three fixed base operators (FBO), and the primary hangar and apron areas are located on the west side of airport property. The terminal building is located near midfield between the two west side FBOs. The terminal building contains space for airport administrative offices, a restau-

rant, charter operations, two rental car agencies, and other airport-related services.

FBOs provide a wide variety of pilot and aircraft services. At Scottsdale Airport, two FBOs are located on the west side of the airport, Scottsdale FBO and Corporate Jets, and one FBO is located on the east side of the airport, Scottsdale Air Center.

OTHER FACILITIES

Other facilities at Scottsdale Airport include flight training schools, aircraft sales, aircraft maintenance, and scenic tour operators. These services are located in various locations around the airport.

COMMERCE AIRPARK

The Commerce Airpark area is headquarters to over 30 national/regional corporations and home to nearly 2,200 small and medium-sized businesses with over 42,000 jobs.

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 has administrative control of the airspace in Arizona.

The FAA has established the National Airspace System (NAS) to protect per-

sons 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; and 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. Airspace is still broadly classified as either “controlled” or “uncontrolled” in the United States. 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 in the United States. **Exhibit 1E** shows the airspace classifications and terminology. Controlled airspace is designated as Class A, B, C, D, or E. Uncontrolled airspace is referred to as Class G. Aircraft operating within controlled airspace are subject to varying requirements for positive air traffic control. Several types of controlled airspace exist in the Scottsdale area:

- Class A airspace governs operations above 18,000 feet mean sea level (MSL).

- Class B airspace is associated with Phoenix Sky Harbor International Airport.
- Class D airspace encompasses traffic areas for airports with airport traffic control towers (ATCT) (i.e., Scottsdale Airport).
- Class E airspace encompasses airports without ATCTs (e.g., Phoenix Regional Airport, Estrella Sailport, etc.).
- Class G airspace covers uncontrolled airspace.

Class C airspace is not present in the Scottsdale area. This airspace classification is reserved for towered airports served by radar approach control. The airspace for the study area is depicted on **Exhibit 1F**.

Class A Airspace

Class A airspace includes all airspace from 18,000 feet above mean sea level (MSL) to flight level (FL) 600 (approximately 60,000 feet MSL). This airspace is designated in Part 71.193 for positive control of aircraft. The Positive Control Area (PCA) allows flights governed only under instrument flight rule (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. Because of the closure rates and speeds of aircraft operating in Class A airspace, aircraft operating un-

der visual flight rules (VFR) are not allowed.

Class B Airspace

Class B airspace has been designated around some of the country's major airports, such as Phoenix-Sky Harbor International Airport, to separate arriving and departing aircraft. 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. This airspace is the most restrictive controlled airspace routinely encountered by pilots operating under VFR in an uncontrolled environment.

In order to fly within Class B airspace, an aircraft must be equipped with special radio and navigation equipment and must obtain clearance from air traffic control. To operate within the Class B airspace of Phoenix-Sky Harbor International Airport, a pilot must have at least a private pilot's certificate or be a student pilot who has met the requirements of Part 61.95, which requires 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. A Mode C transponder allows the ATCT to track the location of the aircraft.

The Class B airspace associated with the Phoenix area is depicted on **Exhibit 1F**. The airspace extends from the Phoenix VORTAC located at Phoenix-Sky Harbor International Airport. Phoenix has the only Class B airspace within the State of Arizona. The Phoenix Terminal Radar Approach Control Facility (TRACON) controls all aircraft operating within the Phoenix Class B airspace. The TRACON operates 24 hours per day.

The Phoenix Class B airspace consists of concentric rings at specific distances from the Phoenix VORTAC facility. Each of these rings contains airspace sectors defined by the upper and lower boundaries of the Class B airspace in that section. The upper boundaries are typically at 10,000 MSL with the lower boundaries varying from the surface around Phoenix-Sky Harbor International Airport to 8,000 feet MSL in the outer areas of the Class B airspace.

Scottsdale Airport is located under a sector of the Phoenix Class B airspace. The sector which contains the airport has a floor of 6,000 feet MSL and a ceiling of 10,000 feet MSL. Just south of Scottsdale Airport, near Cactus Road, another Phoenix Class B airspace sector has a floor of 4,000 feet MSL and a ceiling of 10,000 MSL.

Class D Airspace

Class D airspace is controlled airspace surrounding airports with an 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. The airports in the vicinity possessing Class D airspace include: Scottsdale Airport, Phoenix Deer Valley Airport, Luke Air Force Base, Phoenix Goodyear Airport, Chandler Airport, Williams Gateway Airport, Mesa Falcon Field, and Glendale Municipal Airport.

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.

Class G Airspace

Airspace not designated as Class A, B, C, D, or E is considered uncontrolled, or Class G 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 level [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. These areas are depicted on **Exhibit 1F** by yellow and purple-hatched lines as well as with the use of green shading.

While there are a number of Military Operations Areas (MOAs) within the Phoenix area, they are relatively distant from the Scottsdale Airport and have little effect on air traffic in the Scottsdale area.

As depicted on **Exhibit 1F**, there are a number of wilderness areas and bald eagle breeding areas west of the airport. Aircraft flying over these areas are requested to maintain a minimum altitude of 2,000 feet above the surface of designated National Park areas, which includes wilderness areas and designated breeding grounds. FAA *Advisory Circular 91-36C* defines the "surface" as the highest terrain within 2,000 feet

laterally of the route of flight or the uppermost rim of a canyon or valley.

Airspace Constraints

There are a number of airspace constraints in the area that limit the general traffic patterns around Scottsdale Airport.

The location of Scottsdale Airport under Phoenix Class B airspace limits the available area near the airport for unrestricted VFR flying. In addition, Phoenix TRACON does not have radar coverage below 4,000 feet MSL around Scottsdale Airport due to high terrain (Camelback Mountain), which blocks the signal. For safety purposes, the air traffic controllers at Scottsdale must call TRACON for approval prior to releasing aircraft on instrument departures from Scottsdale Airport. After permitting an instrument departure from Scottsdale Airport, TRACON can not permit another departure until positive radar contact can be established on the first aircraft.

Similarly, TRACON permits only one instrument arrival into Scottsdale at a time, until the Scottsdale ATCT confirms that the aircraft is in visual range of the airport. Because of the terrain situation and the proximity of Scottsdale to Deer Valley Airport, TRACON treats the two airports as one. IFR traffic is not permitted to operate simultaneously from both airports. The first aircraft must be picked up by radar before a second aircraft can enter the "non-radar" airspace. Under VFR conditions, aircraft operating under IFR

are permitted to “double-up” as long as the Scottsdale ATCT can keep both aircraft in sight.

Another constraint within the local airspace is the proximity of the McDowell Mountains to the north and east of Scottsdale Airport. Terrain begins to rise, forming the foot of the mountains, just north of the CAP Canal. The peaks of the nearest foothills are approximately 18,000 feet (3.4 miles) off the north end of the runway. Based on the United States Geological Survey (USGS) maps, the elevations of these hills range from 2,439 feet MSL to 2,554 MSL, whereas, the airport’s elevation is 1,508 feet MSL. The elevation continues to rise rapidly toward the mountain peaks.

Approximately 32,000 feet (6.1 miles) off the runway end, the extended centerline alignment crosses just north of an unnamed peak with an elevation of 3,755 feet MSL. McDowell Peak, the highest elevation of the mountain range, lies approximately 11,000 feet southeast of the extended runway centerline, at an elevation of 4,034 feet MSL. Thompson Peak, the second highest peak in the mountain range, lies approximately 5,000 feet south of McDowell Peak; it is equipped with a radio tower. Other peaks located east of the runway have elevations ranging from 3,585 feet MSL to 3,804 feet MSL.

AIR TRAFFIC CONTROL

Air Route Traffic Control Center (ARTCC)

The FAA has established 21 Air Route Traffic Control Centers (ARTCC) in the continental United States to control aircraft operating under instrument flight rules (IFR) within controlled airspace and while in the enroute phase of flight. An ARTCC assigns specific routes and altitudes along federal airways to maintain separation and orderly air traffic flow. ARTCCs use radio communication and long range radar with automatic tracking capability to provide enroute air traffic services. Typically, the ARTCC splits its airspace into sectors and assigns a controller (or a team of controllers) to each sector. As an aircraft travels through the ARTCC, one sector hands off control to another. Each sector guides the aircraft using discrete radio frequencies.

The Albuquerque ARTCC located in Albuquerque, New Mexico, controls IFR aircraft entering or leaving the Phoenix area. The area of jurisdiction for the Albuquerque center includes most of the states of New Mexico and Arizona, and portions of Texas, Colorado, and Oklahoma.

Terminal Radar Approach Control (TRACON)

The ARTCC delegates certain airspace to local terminal facilities which are responsible for the orderly flow of air traffic arriving and departing the major terminals. The Albuquerque ARTCC has delegated airspace to the Phoenix (TRACON) facility. The TRACON uses direct radio communications and the latest Automated Radar Terminal tracking system (ARTS) to control air traffic within its jurisdiction. Air traffic control services provided by Phoenix TRACON include radar vectoring, sequencing, and separation of IFR aircraft, and traffic advisories for all aircraft.

Luke Air Force Base Radar Approach Control (RAPCON)

A Radar Approach Control (RAPCON) is located at Luke Air Force Base (AFB) to provide services similar to the Phoenix TRACON for military aircraft operating at the base. The Luke RAPCON airspace is located approximately 23 NM west of Scottsdale Airport. Some areas of the RAPCON airspace to the south of Luke AFB overlap with the Phoenix Class B airspace. In these areas, the TRACON airspace and the RAPCON airspace are segregated vertically with a 1,000-foot buffer zone. The Luke RAPCON operates from 6:00 a.m. to 10:00 p.m. seven days a week.

Scottsdale Airport, Airport Traffic Control Tower (ATCT)

The Scottsdale Airport ATCT operates daily from 6:00 a.m. to 9:00 p.m., controlling aircraft movement within the airport's assigned Class D airspace and on the runway and taxiway system. The IFR arrivals and departures from Scottsdale Airport are coordinated with the Phoenix TRACON.

Customary ATC and Flight Procedures

Flights to and from Scottsdale Airport are conducted using both IFR and VFR. Instrument flight rules are those that govern the procedures for conducting instrument flight under all weather conditions. Visual flight rules govern the procedures for conducting flight under visual conditions (good weather). Most air carrier, military, and general aviation turbojet operations are conducted under IFR regardless of the weather conditions. At Scottsdale, the majority of the flight operations are conducted under VFR during good or fair weather conditions.

- **VFR OPERATING PROCEDURES**

VFR operations represent the majority of the air traffic operations at Scottsdale Airport. Under these conditions, the

pilot is responsible for collision avoidance and will typically contact the tower approximately ten miles from the airport for sequencing into the traffic pattern.

Airport operating VFR at Scottsdale Airport generally use common visual reporting points in the area to identify their location to the tower personnel. Some of these points include Pinnacle Peak, Rawhide, Fountain Hills, Squaw Peak, Camelback Mountain, Paradise Valley Mall, and Scottsdale Community College. Those aircraft that require a transition of the Class B airspace must contact Phoenix TRACON prior to penetrating that airspace. The generalized VFR routes and visual reporting points in the Scottsdale area are depicted on **Exhibit 1G**.

The traffic pattern at Scottsdale Airport is generally located on the west side of the runway. The published pattern altitudes are 2,000 feet MSL for helicopters; 2,500 feet for propeller aircraft; and 3,000 feet MSL for turbine-powered aircraft. A west traffic pattern has been in use at the airport since the City took over operations in the 1960s. When the pattern was first established, there were no residences to the west of the airport, but there were residences to the south and east; therefore, the use of a west traffic pattern reduced impacts to the then-existing noise-sensitive areas. In recent years, left traffic on approach to Runway 21 has increased on the east side of the airport. The pattern has remained in effect in large part due to the need to separate smaller piston aircraft from the larger and faster business jet aircraft which utilize the IFR procedures described in the following section.

- IFR OPERATING PROCEDURES

There are three instrument approach procedures and two instrument departure procedures associated with Scottsdale Airport. The instrument approach procedures include the VOR or GPS-A, the VOR or GPS-C, and the NDB or GPS-B. The VOR/GPS-A approach provides non-precision circling capabilities utilizing the Phoenix VORTAC as the primary navaid. This approach is available in weather conditions at or above 1,100-foot AGL cloud ceiling and visibility of two and one-half miles for Categories A and B aircraft and three miles for Category C aircraft. The VOR/GPS-C approach, based on the Willie VORTAC, also provides nonprecision circling capabilities; however, the cloud ceiling is 900 feet and visibility of two and one-half miles for Categories A and B aircraft and two and three-quarter miles for Category C aircraft. The NDB/GPS-B approach is provided from the Scottsdale NDB and allows for circling approaches in weather conditions at or above 700 foot cloud ceiling and visibility down to one mile for Category A and B aircraft and one and three-quarter mile for Category C aircraft.

Two standard instrument departure procedures (DPs) are provided at Scottsdale Airport: the BANYO FOUR Departure and the SCOTTSDALE FIVE Departure. The BANYO FOUR Departure is used by those aircraft generally departing to the north, northeast, or northwest and the SCOTTSDALE FIVE Departure is typically used by those aircraft generally departing to the south, east, or west. Any turboprop or jet aircraft IFR departure from Scotts-

dale Airport is assigned a specific DP in order to sequence the aircraft into the Phoenix Class B airspace. The initial departure procedure is the same under both DPs. Aircraft departing Runway 3 are assigned a left turn heading of 260 degrees to the Phoenix R-336 radial to the Banyo Intersection (approximately 13 NM northwest of the airport.) Generally, the aircraft are assigned an altitude of 5,000 feet until Phoenix TRACON can acquire radar contact. Aircraft departing Runway 21 are assigned a right turn heading of 300 degrees with the remaining information the same as the Runway 3 departure. Once these aircraft reach the Banyo Intersection, they will generally proceed on one of the several preferential departure routes out of the Phoenix area.

Enroute Navigational Aids

Enroute navigational aids (NAVAIDS) are established for the purpose of accurate enroute air navigation. They use ground-based transmission facilities and on-board aircraft receiving instruments. Enroute NAVAIDS often provide navigation to more than one area airport as well as to aircraft traversing the area.

The VOR (Very High Frequency Omnidirectional Range) provides course guidance to aircraft by means of a VHF radio frequency. TACAN (Tactical Air Navigation), primarily a military-oriented facility, is often co-located with a VOR station. This combined facility is called a VORTAC. TACAN provides both course guidance and line-of-sight distance measurement from a UHF transmitter. A properly equipped air-

craft translates the VORTAC signals into a visual display of both azimuth and distance. Distance measuring equipment (DME) is also sometimes co-located with VOR facilities. DME emits signals enabling pilots of properly equipped aircraft to determine their line-of-sight distance from the facility.

There are two enroute navaids generally associated with the Scottsdale Airport; both are used to provide circling approaches to the airport. The Phoenix VORTAC is located 11 NM south-southwest of Scottsdale Airport at Phoenix Sky Harbor International Airport. The Willie VORTAC is located 21 NM southeast of Scottsdale Airport, at Williams Gateway Airport.

VORs define low-altitude (Victor) and high altitude airways (Jet Routes) through the area. Most aircraft enter the Phoenix area via one of these 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.

There are six Victor airways in the immediate vicinity of the airport: V-105, V-257, V-327 562 567, V-95, V-528, and V-190. All of these airways originate from the Phoenix VORTAC.

Terminal Area Navaids

Terminal area navaids are those located at or in the proximity of the airport and serve to assist the pilot in flying an appropriate glide path to the runway end. Most navaids are owned and main-

tained by the FAA; however, the only terminal area NAVID at Scottsdale Airport, a nondirectional radio beacon (NDB), is owned and operated by the City of Scottsdale. A NDB is a low frequency radio beacon that pilots can use to determine their bearing. The Scottsdale NDB provides pilots circling approach capabilities to Scottsdale Airport. The NDB is located on the west side of the runway approximately 920 feet west and 1,900 feet south of the threshold of Runway 21.

Other Area Airports

There are 12 public-use airports and two military bases within the Scottsdale Airport vicinity. Following is a description of the available facilities at the 12 public-use airports and two military bases.

- **Phoenix Deer Valley Airport** (DVT), located 9.4 nautical miles west-northwest from Scottsdale Airport, is served by two asphalt runways. Runway 7R-25L is 8,208 feet long by 100 feet wide and Runway 7L-25R is 4,500 feet long by 75 feet wide. Phoenix Deer Valley Airport has an ATCT and is located in airport-specific Class D airspace. There are 923 aircraft based at the airport. There are a number of services available at the airport, including 100LL and Jet A fuel, flight training, aircraft rentals, sightseeing tours as well as aircraft maintenance.
- **Phoenix Sky Harbor International Airport** (PHX), located 12.3 nautical miles south-southwest from Scottsdale Airport, is served by three runways. Runway 8-26 is constructed of concrete and is 11,490 feet long by 150 feet wide. Runway 7L-25R is constructed of asphalt and is 10,300 feet long by 150 feet wide. Runway 7R-25L is constructed of asphalt and is 7,800 feet long by 150 feet wide. Phoenix Sky Harbor has an ATCT and has been assigned Class B airspace. There are 237 aircraft based at the airport. There are a number of services available at the airport including scheduled passenger service, flight training, aircraft charters, and aircraft maintenance.
- **Mesa Falcon Field Airport** (FFZ), located 13.3 nautical miles southeast from Scottsdale Airport, is served by two asphalt runways and two asphalt helipads. Runway 4R-22L is 5,102 feet long by 100 feet wide; Runway 4L-22R is 3,801 feet long by 75 feet wide. Helipad H1 and H2 are both 60 feet by 60 feet. There are 947 aircraft based at the airport. 100LL and Jet A fuel as well as aircraft maintenance are available at the airport.
- **Stellar Airpark** (P19), located 19.5 nautical miles south from Scottsdale Airport, is served by one asphalt runway. Runway 17-35 is 4,295 feet long by 60 feet wide. There are 152 aircraft based at the airport. 100LL and Jet A fuel are available as well as limited maintenance services. Stellar Airpark is a privately operated airpark open to the public.
- **Pleasant Valley Airport** (P48), located 20 nautical miles west-northwest from Scottsdale Airport,

is served by four dirt runways. Runways 5C-23C, 5L-23R, and 5R-23L are 4,200 feet long by 100 feet wide. Runway 14-32 is 2,400 feet long by 100 feet wide. There are 61 aircraft based at the airport and a limited range of services are available including 100LL fuel. Pleasant Valley Airport is a privately operated airport.

- **Glendale Municipal Airport** (GEU), located 20.1 nautical miles west-southwest from Scottsdale Airport, is served by one asphalt runway. Runway 1-19 is 7,150 feet long by 100 feet wide. Glendale Municipal Airport is served by an ATCT and is located in Class D airspace. There are 269 aircraft based at the airport. 100LL and Jet A fuel are available as well as aircraft maintenance.
- **Chandler Municipal Airport** (CHD), located 21.8 nautical miles south-southeast from Scottsdale Airport, is served by two asphalt runways and one concrete helipad. Runway 4R-22L is 4,850 feet long and 75 feet wide; Runway 4L-22R is 4,401 feet long and 75 feet wide; H1 is 100 feet by 100 feet. Chandler Municipal has an ATCT and is located in Class D airspace. There are 301 based aircraft at the airport. 100LL and Jet A fuel are available as well as aircraft maintenance.
- **Williams Gateway Airport** (WGA), located 22.8 nautical miles southeast from Scottsdale Airport, is served by three concrete runways. Runway 12R-30L is 10,401 feet long by 150 feet wide; Runway 12C-30C is 10,201 feet long by 150 feet wide;

and Runway 12L-30R is 9,301 feet long by 150 feet wide. Williams Gateway has an ATCT and is located in Class D airspace. There are 53 aircraft based at the airport. 100LL and Jet A fuel are available as well as limited maintenance services.

- **Phoenix Goodyear Airport** (GYR), located 26.2 nautical miles west-southwest from Scottsdale Airport, is served by one asphalt runway. Runway 3-21 is 8,500 feet long by 150 feet wide. Phoenix Goodyear Airport has an ATCT and is located in Class D airspace. There are 198 aircraft based at the airport. 100LL and Jet A fuel are available; no other services are available.
- **Estrella Sailport** (E68), located 34.6 nautical miles south-southwest from Scottsdale Airport, is served by one asphalt runway and three dirt runways. Runway 6R-24L is 2,520 feet long by 30 feet wide; Runway 7-25 is 3,740 feet long by 20 feet wide; Runway 6C-24C is 1,995 feet long by 25 feet wide; and Runway 6L-24R is 1,910 feet long by 25 feet wide. There are 23 aircraft based at the airport; however, there are no services available. Estrella Sailport is a privately operated airport.
- **Phoenix Regional Airport** (A39), located 37.9 nautical miles south from Scottsdale Airport, is served by one asphalt runway. Runway 3-21 is 4,000 feet long by 50 feet wide. There are 12 aircraft based at the airport. 100LL fuel is available; however, no other services are available.

- **Papago Army Airfield (P18)**, located 9.4 nautical miles south-southwest from Scottsdale Airport, is a private air base. The base is served by one asphalt runway. Runway 8-26 is 3,500 feet long and 80 feet wide. There are no services at this airfield.
- **Luke AFB (KLUF)**, located 24.2 nautical miles west-southwest from Scottsdale Airport, is a U.S. Air Force Base. This base is private and served by two asphalt runways. Runway 3L-21R is 10,012 feet long by 150 feet wide and Runway 3R-21L is 9,904 feet long by 150 feet wide. Luke AFB does have an ATCT and RAPCON, and operates under Class D airspace. 100LL and Jet A fuel are available as well as maintenance.
- **Sky Ranch at Carefree Airport (18A2)**, located 11.7 nautical miles north from Scottsdale Airport, is served by one asphalt runway. Runway 6-24 is 4,037 feet long by 50 feet wide. There are 115 based aircraft at the airport. 100LL fuel is available at the airport.

STUDY AREA

The study area, as depicted in **Exhibit 1H**, is generally centered on the airport and consists of approximately 64 square miles. This includes approximately 20 square miles of land under the jurisdiction of the City of Scottsdale and 44 square miles of land under the jurisdiction of the City of Phoenix. It should be emphasized that the purpose of determining a study area is to focus the pres-

entation of detailed background data; it is not a definition of the noise impact area. Boundaries of the study area are East Deer Valley Road to the north, East Shea Boulevard to the south, North 48th Street to the west, and approximately North 120th Street to the west.

The study area defines the area within which detailed existing land use information will be presented. It is intended to contain the area expected to be impacted by present and future aircraft noise of 60 DNL or greater. Modifications to the study areas can be made later in the study if deemed necessary, as the study area boundaries were established for statistical convenience. Areas adversely affected by aircraft noise will be defined in later analyses.

EXISTING LAND USE

Exhibit 1J shows the generalized existing land use in the study area as of October 2003. The map was developed with the use of geographical information system (GIS) data provided by the Maricopa County Assessor and verified by the Consultant through interpretation of aerial photographs taken on April 30, 2003. Other sources which were consulted included existing land use maps compiled by local jurisdictions, published street maps, and a consultant field survey conducted in October 2003. The land use categories shown 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.

TABLE 1B Land Use Categories Shown on Existing Land Use Map	
Category	Land Uses Included
Single-family Residential	Single-family homes
Multi-family Residential	Duplexes Triplexes Townhouses Apartment and condominium buildings
Mixed use	Commercial Offices Residential
Parks/Recreational/Common Areas	Parks Golf courses Cemeteries Ponds Nature preserves Neighborhood common areas
Public	Airports Government offices Government-owned land
Commercial/Office/Industrial	Businesses Offices Manufacturing Light Industry Heavy Industry Warehousing
Hotels/Resorts	Hotels, Motels, Resorts
Undeveloped/Agriculture	Vacant lots Open parcels of land Agriculture Areas
Noise-Sensitive Institutions	Places of worship Schools Nursing homes Hospitals Community centers Childcare centers

As depicted on the exhibit, the study area consists of mostly developed areas south of the CAP (Central Arizona Project) Canal and developing areas north of the CAP Canal. The airport is immediately surrounded by primarily compatible land uses consisting of commercial, office, and light industrial land uses and are considered compatible. Beyond these compatible land uses to the east, west, and south are primarily

single family homes intermixed with occasional multi-family developments. While these areas are highly developed, there are opportunities for infill development, especially to the west of the airport.

The areas north of the airport, beyond the CAP Canal, have experienced a great amount of growth over the past decade as previously discussed. Much

of the undeveloped land north of the airport is currently owned by various governmental agencies; however, a large amount of undeveloped private land currently exists under the approach path to Runway 21.

NOISE-SENSITIVE INSTITUTIONS

A number of noise-sensitive institutions consisting of schools, daycare facilities, libraries, places of worship, nursing homes, and other medical facilities are present within the study area. These institutions are primarily located in the southern portions of the study area and are denoted with the use of various symbols on **Exhibit 1J**.

HISTORIC RESOURCES

A records search was conducted for known archaeological sites and historic properties within the study area. The results of this study indicated that there are no known sites listed on the National Register of Historic Places within the study area. However, there are two sites which have been identified by the City of Scottsdale as significant historical or cultural resources. These sites are the “Old Verde Canal” which runs on the north side of the CAP Canal and a hangar located off Thunderbird Road south of the airport.

LAND USE PLANNING POLICIES AND REGULATIONS

In most cities and counties, land use planning occurs through both regula-

tory and non-regulatory means. Regulatory tools for directing land use include the zoning ordinance, which limits the type, size, and density of uses allowed in various locations; subdivision regulations, which regulate the platting and dividing of land; and building codes, which establish precise requirements for building. Non-regulatory means of land use planning include the comprehensive plan, which is also referred to as the master or general plan, and the local capital improvements program. The comprehensive plan provides the basis for the zoning ordinance and sets guidelines for future development. The capital improvements program is typically a short-term schedule for constructing and improving public facilities such as streets, sewer, and water lines.

The following paragraphs provide descriptions of the various land use planning tools currently in place within the study area. From these descriptions, one can begin to gain an understanding of the regulations impacting the study area.

REGULATORY FRAMEWORK

Within the Scottsdale Airport study area, land use planning and regulation is shared by the cities of Scottsdale and Phoenix. Each city administers its own adopted general plans, zoning ordinances, subdivision regulations, and building codes.

Arizona State Law allows municipalities to prepare a comprehensive, generalized land use plan for land both under their current jurisdiction and for unin-

corporated (extraterritorial) sections of the county which are likely to be annexed by the city or town. General land use plans include plans and policies outlining 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 ordinances and building codes. Zoning ordinances must be consistent with the general plan, where one has been prepared.

GENERAL PLANS

A community's general plan sets the standards and guidelines for future development and provides the legal basis for the zoning ordinance. The plan represents a generalized guideline, as opposed to a precise blueprint, for locating future development. During the preparation of a plan, existing land uses are evaluated, and based on the evaluation, future land uses and facilities are determined. By illustrating preferred land use patterns, 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 1K** depicts the generalized proposed land uses within the study area, as contemplated by the individual jurisdictions within their respective comprehensive land use plans.

Arizona State Law requires that a community with a population over 50,000 adopt a general plan that contains a number of basic elements in-

cluding land use, open space, growth area, environmental planning, cost of development, water resources, conservation, recreation, circulation, public services and facilities, public buildings, housing, safety, and bicycling.

City of Scottsdale General Plan

The *City of Scottsdale General Plan 2001* was adopted on October 30, 2001 and ratified by the citizens of Scottsdale on March 12, 2002. The plan contains all of the elements required by state law as well as three additional elements - character and design, economic vitality, and community involvement. Of the elements contained in the general plan, the Land Use Element is most pertinent to this study as it relates to conceptual growth within the study area.

The Land Use Element establishes the general location and types of development which will occur within the city. Twelve land use designations were developed as part of the General Plan to precisely define the existing and planned future land uses for the City of Scottsdale. For simplification purposes, these designations were generalized for consistency within this study. **Table 1C** provides a breakdown of the land use designations contained on **Exhibit 1K**.

As depicted on the exhibit, compatible land uses are planned for the currently undeveloped areas that immediately surround the airport. Between the airport and the Pima Freeway, mixed-use and commercial development is planned along with areas of multi-family residential development. Currently undeveloped areas north of the Pima Freeway are planned for primarily single-

family development with densities of up to eight dwelling units per acre. Inter-mixed with the residential development

are areas planned for commercial and public uses.

TABLE 1C Future Land Use Designations		
Land Use Designation on Exhibit 1J	City of Scottsdale Land Use Element	City of Phoenix General Plan Categories
Single-family Residential	Rural Neighborhoods, Suburban Neighborhoods	Large Lot, Traditional Lot
Multi-family Residential	Urban Neighborhoods	High Density
Mixed-Use	Mixed-Use Neighborhoods	Mixed-Use
Hotel/Resort	Resorts/Tourism	NA
Commercial/Office/Industrial	Commercial, Office, Employment	Commercial, Industrial, Commerce/Business Park, Transportation
Parks/Recreational/Open Space	Natural Open Space, Developed Open Space, McDowell Sonoran Preserve	Parks/Open Space, Conservation Community
Public	Cultural/Institutional/Public Use	Public/Quasi-public

City of Phoenix General Plan

The updated *City of Phoenix General Plan* and *General Plan Land Use Map* were officially adopted in December 2001. The plan contains all of the previously defined state-mandated elements. Of these elements, the Land Use Element is the most pertinent to this study as it defines not only the planned future land uses for the city, but also development recommendations within the noise contours for Scottsdale Airport.

Contained within the *City of Phoenix's General Plan Land Use Map* are 20 land use categories. To allow for analysis within this study, these categories have been generalized as described within **Table 1C** and depicted on **Exhibit 1K**. The undeveloped areas within Phoenix that fall within the study area are primarily located north of the aquaduct. As depicted on the exhibit, planned land uses in this area consist primarily of single-family residential and commercial/office/industrial land uses.

Residential land use densities range from one to 15 dwelling units per acre.

Also contained within the Land Use Element of the general plan are recommendations relating to land uses contained within the 2001 noise contours for Scottsdale Airport. It is recommended that noise-sensitive land uses not be permitted within the 65 DNL noise contour. A small portion of the 65 DNL contour for Scottsdale Airport extends over Thunderbird Road in Phoenix. According to the land use map, this area has been appropriately planned for commercial land uses.

ZONING

While general land use plans are intended to establish policies to guide development and land use, cities and counties actually control land use through zoning ordinances. Within the study area, the cities of Phoenix and

Scottsdale have established zoning ordinances.

This section summarizes the zoning ordinances in each area's jurisdiction within the airport study area. 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 Scottsdale

The most recent version of the City of Scottsdale's Zoning Ordinance became effective in September 1992. The ordi-

nance provides for 39 zoning districts categorized into five groups: residential, commercial, industrial, mixed-use, and supplementary. Overlay districts for the protection of historical and environmental resources are included within the supplementary zoning districts. Noise-sensitive uses allowed in each zone are presented in **Table 1D**. Uses allowed in the various districts include "permitted" uses, which require design review and approval by administrative officials, and "conditional" uses, which require review and approval by the Planning Commission. The City of Scottsdale also enforces an Airport Zone Height Ordinance, separate from its zoning ordinance. This ordinance regulates the height of buildings, other structures, and natural features such as trees utilizing Part 77 criteria for approach, transitional, horizontal, and conical surfaces.

TABLE 1D Summary of Zoning Ordinance City of Scottsdale			
Zoning Districts	Noise-Sensitive Uses		Minimum Lot Size or Dwelling Units (du)/Acre
	Allowed	Permitted Conditional/ Special Uses	
RESIDENTIAL DISTRICTS			
R1-190, Single-family residential district	Single-family dwellings, adult care homes, day care home(group), guest houses, municipal uses, public schools, churches and places of worship (subject to approval)	Cemetery, farms and ranches, private schools (including colleges)	190,000 s.f.
R1-130, single-family residential district	Same as R1-190	Same as R1-190	130,000 s.f.
R1-70, single-family residential district	Same as R1-190	Same as R1-190	70,000 s.f.
R1-43, single-family residential district	Same as R1-190	Same as R1-190	43,000 s.f.
R1-35, Single-family residential district	Same as R1-43	Same as R1-43	35,000 s.f.
R1-18, Single-family residential district	Same as R1-43	Same as R1-43	18,000 s.f.
R1-10, Single-family residential district	Same as R1-43	Same as R1-43	10,000 s.f.
R1-7, Single-family residential district	Same as R1-43	Same as R1-43	7,000 s.f.
R1-5, Single-family residential district	Same as R1-43	Same as R1-43	5,000 s.f.
R-2, Two-family residential district	Same as R1-43, Two-family Dwellings	Same as R1-43	8,000 s.f.
R-3, Medium density residential district	Day care homes, Dwelling unit(s), model dwelling units, municipal uses,	None	3,370 s.f.
R-4, Townhouse residential district	Single-family dwellings, municipal uses, churches and places of worship, day care home.	None	5,240 s.f.
R-4R, Resort, town house residential district	Resorts, Hotels, Motels, Guest ranches, Dwelling units having walls or walled courtyards available for rent, lease, or sale, municipal uses, Time -shares, churches and places of worship, day care home	Recreation uses (specific criteria).	4,100 s.f./guest room 5,770 s.f./dwelling unit

TABLE 1D (Continued)			
Summary of Zoning Ordinance			
City of Scottsdale			
	Noise-Sensitive Uses		
Zoning Districts	Allowed	Permitted Conditional/ Special Uses	Minimum Lot Size or Dwelling Units (du)/Acre
RESIDENTIAL DISTRICTS (Continued)			
R-5, Multiple-family residential district	Boardinghouse or lodging house, day care home, dwelling-single family detached, dwelling multiple family, municipal uses, Public schools, churches and places of worship	Public and non-public community or recreational buildings, Convent, Day care center, Hotel, motel, and timeshare (subject to criteria), Orphanage, Private or charter school (subject to criteria) Residential health care facility	35,000 s.f. minimum parcel size
COMMERCIAL DISTRICTS			
S-R, Service residential	Residential, Churches and places of worship(subject to development criteria), Day care center, municipal uses, private and charter school	Day care center, Vocational schools,	3,500 s.f.
C-S, Regional shopping center	Municipal uses, private and charter school	Day care center, Live entertainment	N/A
C-1, Neighborhood commercial district	Residential, Municipal uses, private and charter school	Non-public community and/or recreational buildings, Day care center, Live entertainment,	No requirements
C-2, Central business district	Residential, Municipal uses, private and charter school	Day care center, Live entertainment, Residential health care facility	1,000 s.f./guest room 500 s.f./guest room
C-3, Highway commercial district	Municipal uses, private and charter school	Non-public community and/or recreational facilities, Day care center, Live entertainment, Residential health care facility	1,000 s.f./guest room
C-4, General commercial district	Private and charter school, Municipal uses	None	N/A
SS, Support services district	Municipal uses	None	N/A
C-0, Commercial office district	Business college, Museum and Libraries, Private and Charter schools, Churches and places of worship, Day care center	Day care center, Hospital, Municipal uses	N/A

TABLE 1D (Continued) Summary of Zoning Ordinance City of Scottsdale			
Zoning Districts	Noise-Sensitive Uses		Minimum Lot Size or Dwelling Units (du)/Acre
	Allowed	Permitted Conditional/ Special Uses	
COMMERCIAL DISTRICTS (Continued)			
PNC, Planned neighborhood center	Municipal uses, Private and charter school, Day care center, Residential	Non-public community and recreations facilities, Day care center, Live entertainment, Movie theater	4 du/acre
PCC., Planned community center	Municipal uses, Private and charter school, Residential, Day care center, Movie Theater	Non-public community and recreational facilities, Day care center, Live entertainment	4 du/acre
PRC, Planned Regional Center	Private and charter school, Cultural, Residential (hotel, motel)	Business school, Live entertainment, Outdoor recreational facilities	2,000s.f./guest room 2,000 s.f./ dwelling unit
PcoC, Planned convenience center	Residential, Municipal uses, Day care center (subject to criteria)	Day care center	4 du/acre
D, Downtown District	Multi-family dwellings, Single-family dwellings, Hotels, Motels, Resorts, Municipal uses	Day nursery, Group residential, Specialized health care facility, Minimal health care facility, Hospitals and clinics, Colleges and universities, Cultural institutions (including libraries and museums), Religious assembly, Schools	Site Dependant
INDUSTRIAL DISTRICTS			
I-1, Industrial park district	Churches and place of Worship, Day care center, Municipal uses	Day care center	N/A
I-G, Light employment district	Municipal uses	None	N/A
M-H, Manufactured home district	Installation of residential trailers and manufactured homes, municipal uses, single-family dwelling units, Public schools, Churches and places of worship, Day care group home, Day care home,	Community and recreational buildings (non-public), Recreational uses	10 acres/ manufactured home park 7,000 s.f./ manufactured home

TABLE 1D (Continued)			
Summary of Zoning Ordinance			
City of Scottsdale			
Zoning Districts	Noise-Sensitive Uses		Minimum Lot Size or Dwelling Units (du)/Acre
	Allowed	Permitted Conditional/ Special Uses	
PLANNING DISTRICTS			
P-C, Planned community development	Per underlying zone	Per underlying zone	N/A
PBD, Planned block development overlay district	None	None	N/A
PCP, Planned commerce park district	Residential (subject to criteria), Hotels and motels, Business or trade school, Religious assembly, Municipal uses	None	25 du/acre
SUPPLEMENTARY DISTRICTS			
WP, Western theme park district	None	None	N/A
P, Pedestrian overlay district	None	None	N/A
Source: City of Scottsdale Zoning Ordinance			

City of Phoenix

The City of Phoenix’s Zoning Ordinance provides for 37 fixed zoning districts, including 16 residential districts and 21 non-residential districts. Noise-sensitive land uses allowed within each district are presented in **Table 1E**.

Additionally, the City has incorporated into its zoning ordinance, a detailed development review process that provides a framework for satisfaction of all requirements for issuance of building permits. The process begins with assessing the zoning status of the parcel or parcels proposed for development, and concludes with the final project inspection.

TABLE 1E Summary of Zoning Ordinance City of Phoenix			
Zoning Districts	Noise-Sensitive Uses		Minimum Lot Size or Dwelling Units (du)/Acre
	Allowed	Permitted Conditional/ Special Uses	
S-1, Suburban ranch Or farm	Low density farm or residential, Schools, Churches or similar places of worship	Parish houses, parson-ages, rectories, convents and dormitories	Max. 1du/acre
S-2, Suburban ranch or farm commercial	Same as S-1	Same as S-1	3 acres
RE-43, Residential estate	Single-family, Churches or similar place of worship	Parish houses, parson-ages, rectories, convents and dormitories	43,563 s.f.
RE-24, Residential Estate	Same as RE-43	Same as RE-43	24,000 s.f.
R1-14, Single-family residence	Same as RE-43	Same as RE-43	14,000 s.f.
RE-35, Single-family residence	Single-family, Residential uses	None	Determined by area of site
R1-18, Single-family residence	Same as RE-35	None	Determined by area of site
R1-10, Single-family residence	Same as RE-35	Group homes for the handicapped	Determined by area Of site
R1-8, Single-family residence	Same as RE-35	same as R1-10	Determined by area of site
R1-6, Single-family residence	Same as RE-35	same as R1-10	Determined by area of site
R-2, Multiple-family residence	Single-family, Multi-family	Recovery home, Group home for the handicapped	6.5 du/acre single- family detached 10.5 du/acre single- family attached and multi-family
R-3, Multiple-family residence	Same as R-2	Recovery home, Group home, Group foster care home, Group home for the handicapped, Dor- mitories and convents	6.5 du/acre single-family 15.23 du/acre single- family attached and multi-family
R-3A, Multiple-family residence	Same as R-2	Same as R-3	6.5 du/acre 23.1 du/acre
R-4, Multiple-family residence	Same as R-2	Recovery home, Group home, Group foster care home, Group home for the handicapped	6.5 du/acre 30.45 du/acre
R-5, Multiple-family residence	Same as R-2	Group home, Recovery home, Personal care and nursing home	6.5 du/acre 45.68 du/acre

TABLE 1E (Continued)
Summary of Zoning Ordinance
City of Phoenix

Zoning Districts	Noise-Sensitive Uses		Minimum Lot Size or Dwelling Units (du)/Acre
	Allowed	Permitted Conditional/Special Uses	
R-4A, Multi-family residence - General	Same as RE-24, R-3 and R-4, Group foster home, Group home	Nursing home and personal care home, Group homes for the handicapped, Dormitories and convents,	1,000 s.f./du 500 s.f./rooming unit 250 s.f./guestroom
R-O, Residential office Restricted commercial	Residential	None	Site dependant
C-O, Commercial Office - Restricted commercial	None	Schools	N/A
C-1, Commercial neighborhood retail	Multi-family residential, Uses permitted in R-2	None	Same as R-2
C-2, Commercial intermediate	Same as C-1 and R1-6	Same as R1-6	Same as C-1 and R1-6
C-3, Commercial general	Same as C-2	Same as C-2	Same as C-2
CP/SU, Special commercial	Churches or similar places of warship	None	N/A
CP/RP, Commerce park	Churches or similar places of warship	None	N/A
CP/BP, Light industrial	Same as RE-24, R-3, R-4, R-5, C-1, and C-3	Residential	N/A
CP/GCP, Commercial park/Business park	None	None	N/A
IP, Industrial park	None	None	N/A
A-1, Light industrial	None	Residential	N/A
A-2, Industrial	None	None	N/A
RH, Resort	Resorts	None	N/A
RI, Residential infill	Residential, Same as underlying zone	None	Site specific
HR, High rise and high density	Residential, Same as underlying zone	None	Site specific
HR1, High rise and high density	Same as HR	Same as HR	Same as HR
HRI, High rise and Mixed use	Single-family and multi-family when combined with R-4 and R-4A	None	Same as R-4 and R-4A
PSC, Planned shopping Center	None	None	N/A
RSC, Regional shopping Center	Same as C-2	None	Same as C-2

TABLE 1E (Continued)			
Summary of Zoning Ordinance			
City of Phoenix			
Zoning Districts	Noise-Sensitive Uses		Minimum Lot Size or Dwelling Units (du)/Acre
	Allowed	Permitted Conditional/Special Uses	
P-1, Passenger Automobile parking	None	None	N/A
P-2, Parking	None	None	N/A
GC, Golf course	None	None	N/A
UR, Urban residential	multi-family residential	None	50 du/acre
Source: City of Phoenix Zoning Ordinance			

Summary of Zoning Classifications

The various zoning districts of each jurisdiction have been combined into generalized zoning categories. The generalized zoning patterns within the study area are shown in **Exhibit 1L** and summarized in **Table 1F**.

Residential Categories

The “Rural Residential” category applies to districts with densities of 1.0 dwelling units or less per acre. The “Low Density Residential” category applies to districts with densities of 1.1 to 4.0 dwelling units per acre. The “Medium Density Residential” category applies to single-family and multi-family zones with densities of 4.1 to 12 dwelling units per acre. The “High Density

Residential” category applies to multi-family zones with densities in excess of 12 dwelling units per acre. The density of units allowed in the “Planned Development” and “Mixed-Use” categories is determined during the plan approval and/or permitting process.

Non-residential Categories

The “Hotel, Motel, Resort” category applies to districts permitting vacation resorts, hotels, and motels. The “Commercial” and “Industrial” categories include office, manufacturing, and service districts. The “Parks and Open Space” category includes districts which permit only open space uses or very non-intensive development. It has also been used to indicate where golf courses or parks have been developed or are planned.

TABLE 1F Classification of Zoning Districts		
Generalized Zoning Category	City of Scottsdale	City of Phoenix
Rural Residential (0-1 du/ac)	R1-190, R1-130, R1-70, R1-43	S-1, S-2, RE-43
Low Density Residential (1.1-4.0 du/ac)	R1-35, R1-18	RE-24, R1-14, RE-35, R1-18
Medium Density Residential (4.1-12 du/ac.)	R1-10, R1-7, R1-5, R-2, R-4	R1-10, R1-8, R1-6, R-2
High Density Residential (12.1+ du/ac.)	R-3, R-5	R-3, R-3A, R-4, R-4A, R-5, UR
Mixed-Use	PDC, PCP, PRD	R-O, PAD, PCD
Hotel, Motel, Resort	R-4R	RH
Commercial, Office, Industrial	S-R, C-S, C-1, C-2, C-3, C-4, SS, C-0, PNC, PRC, D, PCoC, PBD, P-1, I-G, I-1	C-0, C-1, C-2, C-3, CP/SU, CP/RP, CP/BP, CP/GCP, PSC, RSC, P-1, IP, A-1, A-2
Parks and Open Space	OS, WP, P	GC
Note: du=dwelling unit Ac=acre		

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

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 sensi-

tivity 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 Airport proprietor by the land developer as a condition of development approval. The easement authorizes overflights of the property. It also requires the developer to provide noise insulation in the construction of buildings.

While the cities of Scottsdale and Phoenix regulate the subdivision of land, none have established special development considerations in the vicinity of Scottsdale Airport within their subdivision regulations.

BUILDING CODES

Building codes regulate the construction of buildings, ensuring that they are constructed to safe 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. The cities of Scottsdale and Phoenix have both adopted building codes. No additional regulations related to noise in the vicinity of Scottsdale Airport have been adopted.

CAPITAL IMPROVEMENT PROGRAM

Capital improvement programs (CIPs) are multi-year plans, typically covering five or six years, which outline major capital improvements planned to be undertaken by a particular jurisdiction. 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 as few municipal developments 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 that utilizes septic tanks.

Both Scottsdale and Phoenix prepare capital improvement programs. Neither city advances sewer and water lines without financial commitments from developers. The City of Scottsdale will supplement developers contributions where a larger pipe size is required to serve other existing or anticipated developments.

Maricopa County Association of Governments Transportation Improvement Program

As previously discussed, the Maricopa County Association of Governments (MAG) is a Council of Governments that serves as the regional planning agency for the metropolitan Phoenix area. MAG provides regional planning and policy decisions in areas of transportation, air quality, water quality, regional development, and human services.

As the designated Metropolitan Planning Organization (MPO) for the Maricopa region, MAG plans and finances the regional transportation system. To guide the development of regional transportation needs, the MAG prepares a series of regional transportation plans which provide an overview of the regional transportation needs over the long term. The regional transportation plans are implemented with the use of the Transportation Improvement Pro-

gram (TIP) which is a five-year schedule of specific projects to be constructed across the region. The current *Fiscal Year 2004-2007 MAG Special Transportation Improvement Program (TIP)* was approved by the Regional Council on November 25, 2003.

Contained within the TIP are a number of transportation projects that are to be completed within the project study area in the short term. These projects are described in **Table 1G** and depicted on **Exhibit 1M**.

Project Name	Description	Year
PHX04-212	Add four new lanes to Tatum Boulevard from Pinnacle Peak Road to Happy Valley Road	2004
PHX04-209	Construct a new freeway interchange on 64 th Street at Pima Freeway	2004
PHX04-208	Construct a new bridge on 40 th Street over Indian Bend Wash	2004
SCT04-403	Construct four new thru-lanes for Union Hills Drive from Scottsdale Road to 74 th Street	2004
SCT99-604	Construct a new four lane roadway (Union Hills Drive) from 94 th Street to Thompson Peak Parkway	2004
SCT97-606	Reconstruct Scottsdale Road from Frank Lloyd Wright Boulevard to Thompson Peak Parkway and add two new thru-lanes	2005
SCT98-604	Reconstruct Hayden Road from Cactus Road to Redfield and add a center turn lane	2005
SCT04-009	Reconstruct Pima Road from Pima Freeway to Thompson Peak Parkway and add two new thru-lanes	2005
SCT04-117	Reconstruct the intersection of Shea Boulevard at 92 nd Street	2005
SCT03-103	Reconstruct the intersection of Hayden Road at Shea Boulevard	2005
SCT03-109	Reconstruct the intersections of Shea Boulevard at 90 th and 96 th Streets	2005
SCT03-008R	Reconstruct Scottsdale Road from Thompson Peak to Pinnacle Peak Road and add two new thru-lanes	2006
SCT06-404	Reconstruct Bell Road from 94 th Street to Thompson Peak Parkway and add two new thru-lanes	2006
SCT03-007	Reconstruct Pinnacle Peak Road from Scottsdale Road to Pima Road and add two new thru-lanes	2007
SCT00-603	Construct new four lane roadway (Thompson Peak Parkway) from Bell Road to Union Hills Drive	2007
SCT04-118	Widen the Thunderbird Road/Redfield Road alignments from Scottsdale Road to Hayden Road	2007
PHX07-318	Add four new lanes to Pinnacle Peak Road from 64 th Street to Scottsdale Road	2007

Source: MAG Fiscal Year 2004-2007 MAG Special Transportation Improvement Program (TIP)

SUMMARY

The information presented in this chapter provides a foundation upon which the remaining elements of the planning process will be constructed. Information on current airport facilities and utilization serve as a basis for the development of the aircraft noise analyses

during the next phase of the study. This information will, in turn, provide guidance to the assessment of potential changes to aviation facilities or procedures necessary to meet the goals of the planning process. The inventory of the airport environs will allow the assessment of airport noise impacts.