Table of Contents

Chapter One: Background Conditions
Introduction 1-1
Study Process Overview 1-1
Airport Location and Setting 1-3
History of Airport Development 1-6
Aviation Facilities 1-7
Runways/Taxiways 1-7
Terminal Areas 1-8
Future Projected Development 1-10
Airspace/Air Traffic Control 1-11
Regional Airspace Considerations 1-11
Air Traffic Control Facilities and Procedures 1-15
Albuquerque Air Route Traffic Control Center (ARTCC) 1-15
Phoenix Terminal Radar Approach Control (TRACON) 1-15
Instrument Approaches and Equipment 1-16
Chandler Airfield Procedures 1-17
Noise Abatement 1-17
Preferential Procedures 1-18
Noise Awareness 1-18
Noise Complaints 1-18
Complaint Database 1-18

Chapter Two: Aviation Activity Levels
Time of Day Operations 2-3
Aircraft Stage Lengths 2-4

Chapter Three: Noise Fundamentals
Characteristics of Sound 3-1
Amplitude and Frequency 3-1
Loudness Level 3-2
Frequency-Weighted Contours (dBA, dBB, and dBC) 3-2
Perceived Noise Level 3-2
Propagation of Noise 3-5
Duration of Sound 3-5
Change in Noise 3-6
Masking Effect 3-6
Sound Rating Scales 3-6
Single Event Metrics 3-7
Supplemental Metrics 3-7
Cumulative Metrics 3-8
Noise Measurements 3-10

Chapter Four: Noise Modeling
Integrated Noise Model 4-1
Methodology 4-1
INM Input Data 4-1
Noise Power Distance Curve Data 4-2
Noise Contour Mapping 4-2

Chapter Five: Airport Operational Data

Existing Operational Activity and Fleet Mix 5-1
Future Operational Activity and Fleet Mix (2013) 5-3
Runway Utilization 5-4
Existing Conditions 5-4
Future Conditions 5-7
Flight Tracks 5-7
Existing Condition 5-7
Future Condition 5-10

Chapter Six: Noise Exposure

Existing Noise Conditions (2009) 6-1
Future Noise Conditions (2014) 6-3
Existing Land Use and Development Patterns 6-3
Existing Land Use Patterns 6-3
Pending Land Development 6-5
Land Use Planning Policies and Regulations 6-8
Regulatory Framework 6-8
Chandler General Plan 6-8
Parks and Recreation Planning 6-9
Area Plans 6-10
Chandler Air Park Area Plan 6-10
Gilbert General Plan 6-11
Zoning 6-11
City of Chandler 6-12
Town of Gilbert 6-13
Maricopa County 6-13
Subdivision Regulations 6-15
Building Codes 6-15
Capital Improvement Programs 6-15
Area Socioeconomic Profile 6-16
Population 6-16
Employment 6-17
Aircraft Noise Related Land Use Impacts 6-19
Existing Land Use 6-21
DNL Contour Relationships to Existing Land Use Maps 6-21
DNL Contour Relationships to Future Land Use Maps 6-21
Existing Population within DNL Contour Areas 6-24
Noise Sensitive Sites 6-24

Chapter Seven: Coordination

Meetings 7-1
Study Advisory Committee 7-1
Public Open House Meetings 7-1
Meeting Schedules 7-2
Web Access 7-2
Noise Hotline 7-2

Chapter Eight: Noise Certification

Certification 8-1

Chapter Nine: Aircraft and Airport Operations Noise Abatement and Mitigation Alternatives

Helicopter Training Activity.......... 9-2
Increase Training Pattern Altitude.......... 9-2
Climb to Pattern Altitude Before Turning.......... 9-6
Change Training Pattern Location.......... 9-9
Alternate Training Patterns.......... 9-10
Request Training Fleet at Chandler Municipal Use Another Airport.......... 9-13
Helicopter Itinerant Operations.......... 9-13
Increase Arrival/Departure Corridor Altitude.......... 9-14
Keep Helicopter in Designated Corridors.......... 9-14
Keep Helicopters at Designated Altitudes.......... 9-15
Remain at, or Climb to, Pattern Altitude Before Turning.......... 9-16
Fixed Wing Training Activity.......... 9-16
Increase Arrival/Departure Corridor Altitude.......... 9-16
Increase Training Pattern Altitude.......... 9-17
Climb to Pattern Altitude Before Turning.......... 9-18
Change the Fixed Wing Training Pattern Location.......... 9-27
Request Training Fleet at Chandler Municipal Use Another Airport.......... 9-28
Options Required for Review Under FAR Part 150.......... 9-31
Implement Curfews.......... 9-31
Implement Noise Related Landing Fees.......... 9-32
Limit the Number or Type of Operations or Type of Aircraft.......... 9-32
Develop Noise Barriers.......... 9-33
2014 Noise Contours.......... 9-34

Chapter Ten: Off-Airport Land Use Compatibility Planning

FAA Initiatives and Limitations in Off-Airport Land Use Planning.......... 10-1
Land Use Changes (Corrective Changes).......... 10-2
Property Acquisition.......... 10-2
Sound Insulation.......... 10-3
Avigation Easement.......... 10-3
Planning/Regulatory Changes (Preventative Changes).......... 10-4
Overlay Zones and Related Zoning Enforcement.......... 10-4
Building Codes.......... 10-9

Chapter Eleven: Noise Program Management

Noise Compatibility Program Management.......... 11-1
Public Involvement.......... 11-1
Flight Track Monitoring System.......... 11-2
Noise Program Update.......... 11-3

Chapter Twelve: Implementation of Noise Compatibility Program

Overall Roles and Responsibilities.......... 12-1
Existing Noise Abatement Measures to Continue.......... 12-2
Implementation Measures for NCP Recommendations.......... 12-2
Aircraft and Airport Operations Noise Abatement and Mitigation Alternatives.......... 12-3
Off-Airport Land Use Compatibility Planning.......... 12-5
Noise Program Management.......... 12-6

Chapter Thirteen: Program Benefits, Costs, Reviews, and Updates

Benefits 13-1
Aircraft Operational Programs Proposed for the Benefit of Existing Residents 13-1
Land Use Programs Proposed for the Benefit of Future Residents 13-1
Programs Recommended for Continuing Communication with Communities and Airport Users 13-2
Programs for the Benefit of Long Term Airport Investment 13-2
Estimated Program Costs and Timing for Implementation 13-3
Reviews and Updates 13-6

List of Figures

Chapter One: Background Conditions
Figure 1.1 FAR Part 150 Process 1-2
Figure 1.2 National and Regional Location 1-4
Figure 1.3 Political Jurisdictions 1-5
Figure 1.4 Existing Facilities 1-9
Figure 1.5 Recommended Landside Development 1-12
Figure 1.5 Recommended Airside Development 1-13
Figure 1.7 Regional Airspace Structure 1-14

Chapter Three: Noise Fundamentals
Figure 3.1 Frequency Weighted Curves 3-3
Figure 3.2 Examples of Various Sound Environments 3-4
Figure 3.3 SEL, LEQ, and DNL Illustrations 3-9
Figure 3.4 Noise Measurement Locations 3-11
Figure 3.5 Noise Measurement Locations - West 3-13
Figure 3.6 Noise Measurement Locations - East 3-14
Figure 3.7 Common Sound Comparison 3-15

Chapter Five: Airport Operational Data
Figure 5.1 Existing Single Engine Flight Tracks – West Flow 5-8
Figure 5.2 Existing Single Engine Flight Tracks – East Flow 5-9
Figure 5.3 Existing Training Pattern Flight Tracks 5-11
Figure 5.4 Existing Itinerant Helicopter Flight Tracks 5-12

Chapter Six: Noise Exposure
Figure 6.1 2009 DNL Contours 6-2
Figure 6.2 2014 DNL Contours 6-4
Figure 6.3 Planned and Pending Land Uses 6-6
Figure 6.4 Potential Annexations 6-14
Figure 6.5 Projected Change in Population per Square Mile 6-18
Figure 6.6 FAR Part 150 Study Guidelines 6-20
Figure 6.7 2009 DNL Contours Over Existing Land Use 6-22
Figure 6.8 2014 DNL Contours Over Future Land Use 6-23
Figure 6.9 Noise Sensitive Uses and the Existing (2009) DNL Contours 6-25
Figure 6.10 Noise Sensitive Uses and the Future (2014) DNL Contours 6-26

Chapter Nine: Aircraft and Airport Operations Noise Abatement and Mitigation Alternatives
Figure 9.1 Increase Altitude for Helicopter Training – East Flow 9-4
Figure 9.2 Increase Altitude for Helicopter Training – West Flow 9-5
Figure 9.3 Helicopter Climb to Training Pattern Altitude Before Turning – East Flow ... 9-7
Figure 9.4 Helicopter Climb to Training Pattern Altitude Before Turning – West Flow .. 9-8
Figure 9.5 Change Helicopter Training Pattern Location to Runway 22L 9-11
Figure 9.6 Change Helicopter Training Pattern Location to Runway 4R 9-12
Figure 9.7 Increase Altitude for Fixed Wing Training – Runway 4L 9-19
Figure 9.8 Increase Altitude for Fixed Wing Training – Runway 4R 9-20
Figure 9.9 Increase Altitude for Fixed Wing Training – Runway 22L 9-21
Figure 9.10 Increase Altitude for Fixed Wing Training – Runway 22R 9-22

Figure 9.11 Fixed Wing Training Aircraft Climb to Pattern Altitude Before Turning – Runway 4L 9-23
Figure 9.12 Fixed Wing Training Aircraft Climb to Pattern Altitude Before Turning – Runway 4R 9-24
Figure 9.13 Fixed Wing Training Aircraft Climb to Pattern Altitude Before Turning – Runway 22L 9-25
Figure 9.14 Fixed Wing Training Aircraft Climb to Pattern Altitude Before Turning – Runway 22R 9-26
Figure 9.15 Fixed Wing Training Pattern Location – Runway 4R Versus 4L 9-29
Figure 9.16 Fixed Wing Training Pattern Location – Runway 22L Versus 22R 9-30
Figure 9.17 Revised 2014 Training Flight Tracks 9-35
Figure 9.18 Revised 2014 Noise Contour 9-36
Figure 9.19 Noise Sensitive Uses and the Revised 2014 Noise Contours 9-37

Chapter Ten: Off-Airport Land Use Compatibility Planning

Figure 10.1 Existing Airport Noise Overlays 10-5
Figure 10.2 Existing Airport Noise Overlay Zones Compared to 2014 DNL Contours. 10-7
Figure 10.3 Proposed Airport Noise Overlay Zones 10-8

List of Tables

Chapter One: Background Conditions
Table 1.1 Existing Facilities........ 1-8
Table 1.2 Complaints by City........ 1-19
Table 1.3 Complaints by Type........ 1-20
Table 1.4 Complaints by Aircraft Type........ 1-21

Chapter Two: Aviation Activity Levels
Table 2.1 Historical Operations at Chandler Municipal........ 2-2
Table 2.2 Actual and Projected Operations........ 2-2
Table 2.3 Current and Projected Operational Fleet Mix........ 2-3

Chapter Five: Airport Operational Data
Table 5.1 2008 Annual Operations........ 5-1
Table 5.2 2008 Annual-Average Day Fleet Mix (Itinerant Operations)........ 5-2
Table 5.3 2008 Annual-Average Day Fleet Mix (Local Operations)........ 5-3
Table 5.4 2013 Annual Operations........ 5-4
Table 5.5 2013 Annual-Average Day Fleet Mix (Itinerant Operations)........ 5-5
Table 5.6 2013 Annual-Average Day Fleet Mix (Local Operations)........ 5-6
Table 5.7 Existing Percentage Runway Utilization........ 5-6
Table 5.8 Future 2013 Percentage Runway Utilization........ 5-7

Chapter Six: Noise Exposure
Table 6.1 Pending Development by Land Use........ 6-7
Table 6.2 Pending Residential Development with Study Area Boundary........ 6-7
Table 6.3 Historic Regional Population Data........ 6-17
Table 6.4 Historic Civilian Labor Force and Unemployment Rate........ 6-19

Chapter Thirteen: Program Benefits, Costs, Reviews, and Updates
Table 13.1 Estimated Cost of Noise Compatibility Program........ 13-3
Table 13.2 Timing for Implementation of the Noise Compatibility Program........ 13-5

Appendices

A. Noise Measurement Observations A-1
B. Aircraft Modeling Substitution B-1
C. Noise Exposure Maps (11x17 Format) C-1
D. Operations Verification D-1
E. Advisory Committee Members E-1
F. Meeting Summaries F-1
G. Meeting Announcements G-1
H. Open House Summaries H-1
I. Public Comments I-1
J. Open House Handouts J-1
K. Aviation Acronyms K-1
L. Aviation Glossary L-1
M. Helicopter Only Contours M-1
N. Contour Comparison/Runway Extension N-1
O. Part 150 Studies Contour Comparison O-1
P. Track Altitude Analysis P-1
Q. Chandler Tower and Quantum Helicopters Letter of Agreement Q-1
R. 2028 Operations R-1
S. Contours Beyond 65 DNL for 2009 and 2014 ....S-1
T. Contours Beyond 65 DNL for 2014 With Operational Recommendations T-1
U. Chandler Municipal Airport's Existing Noise Abatement Procedures U-1
V. Revised 2014 Noise Exposure Map (11 x 17 Format) V-1

CHAPTER ONE: BACKGROUND CONDITIONS

The City of Chandler, the operator of Chandler Municipal Airport, is preparing a Federal Aviation Regulation (FAR) Part 150 Study Update (14 CFR Part 150 Study) for Chandler Municipal. This Study provides the opportunity for aviation interests, state and local government officials, and the public to address noise and land use compatibility issues related to the Airport. There are two primary objectives of the Study: first, the identification of Chandler Municipal's existing operational procedures and evaluation of future operational noise mitigation measures; and second, the evaluation of existing and future land use compatibility opportunities in the vicinity of the Airport.

INTRODUCTION

Aviation related noise remains a controversial issue. While airport noise undeniably impacts people in the vicinity of airports, most airports, including Chandler Municipal, were originally constructed in rural locations and predate residential development in the vicinity. While the Federal Aviation Administration (FAA) has regulatory oversight over airspace and airport operations, its ability to mitigate the effects of aviation or airport related noise is limited. The FAA's primary method of mitigating or limiting airport noise impacts is through the purchase of land or easements necessary to meet safety standards or for development to meet future demand.

Because of the FAA's limited ability to prevent or mitigate incompatible development, airports must turn to local governments for assistance in maintaining compatibility with surrounding land uses. Noting the effects of previous non-compatible encroachment on other airports, many airports have taken pre-emptive action to prevent it, working with local government to develop land use codes to ensure the compatibility of future development with the continued and projected future operations of the airport.

STUDY PROCESS OVERVIEW

In 1998, the City of Chandler completed its first Federal Aviation Regulation (FAR) Part 150 Noise Compatibility Study, and received a Record of Approval from the FAA on July 10, 2000. FAR Part 150 is the administrative rule promulgated to implement the *Aviation Safety and Noise Abatement Act of 1979*, which was enacted "…to provide and carry out noise compatibility programs, to provide assistance to assure continued safety in aviation, and for other purposes." FAR Part 150 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 (NEM) and a noise compatibility program (NCP).

The NEM document shows existing and future noise conditions at the airport. It sets a baseline analysis that defines the scope of the noise environment at the airport. The NEM includes maps of noise exposure for the current year and a forecast year. Maps are used to depict the airport's environment and noise impact and a document is prepared to provide supporting information to describe the maps.

The second document is the NCP. The NCP 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 incompatible land uses. The entire FAR Part 150 process is depicted in **Figure 1.1**.

FAR Part 150 establishes procedures and criteria for FAA evaluation of noise compatibility programs. Among these, two criteria are of most importance: the airport sponsor may take no action that imposes an undue burden on interstate or foreign commerce, and the airport sponsor may not unjustly discriminate between different categories of airport users.

In 2008, the City of Chandler initiated an update of its previous FAR Part 150 Noise Compatibility Study for Chandler Municipal Airport. This update evaluates changes at the Airport since the previous study, updates the NEMs, and provides for an updated NCP.

The remainder of this chapter presents the following:

- Airport Location and Setting
- History of Airport Development
- Aviation Facilities
- Airspace/Air Traffic Control
- Noise Abatement

AIRPORT LOCATION AND SETTING

The City of Chandler is located on the southeastern side of the Phoenix Metropolitan area. **Figure 1.2** presents the general location of the Airport within the State of Arizona. The Chandler Municipal Airport is located approximately 20 miles southeast of downtown Phoenix in Maricopa County and two and one-half miles southeast of Downtown Chandler. The Airport is located in the southeast portion of the city. **Figure 1.3** depicts the location of the Airport in relationship to other political jurisdictions in the area including the Town of Gilbert, Maricopa County, Pinal County, and the Gila River Indian Community.

While historically a rural area, the Airport is now surrounded by commercial, light industrial and residential development. The Airport is generally bordered on the north by Germann Road, on the east by Gilbert Road, on the west by Airport Boulevard, and on the south by Queen Creek Road. The completion of Loop 202 on the north side of the Airport has provided excellent regional access to the Airport.

Figure 1.1
FAR PART 150 PROCESS

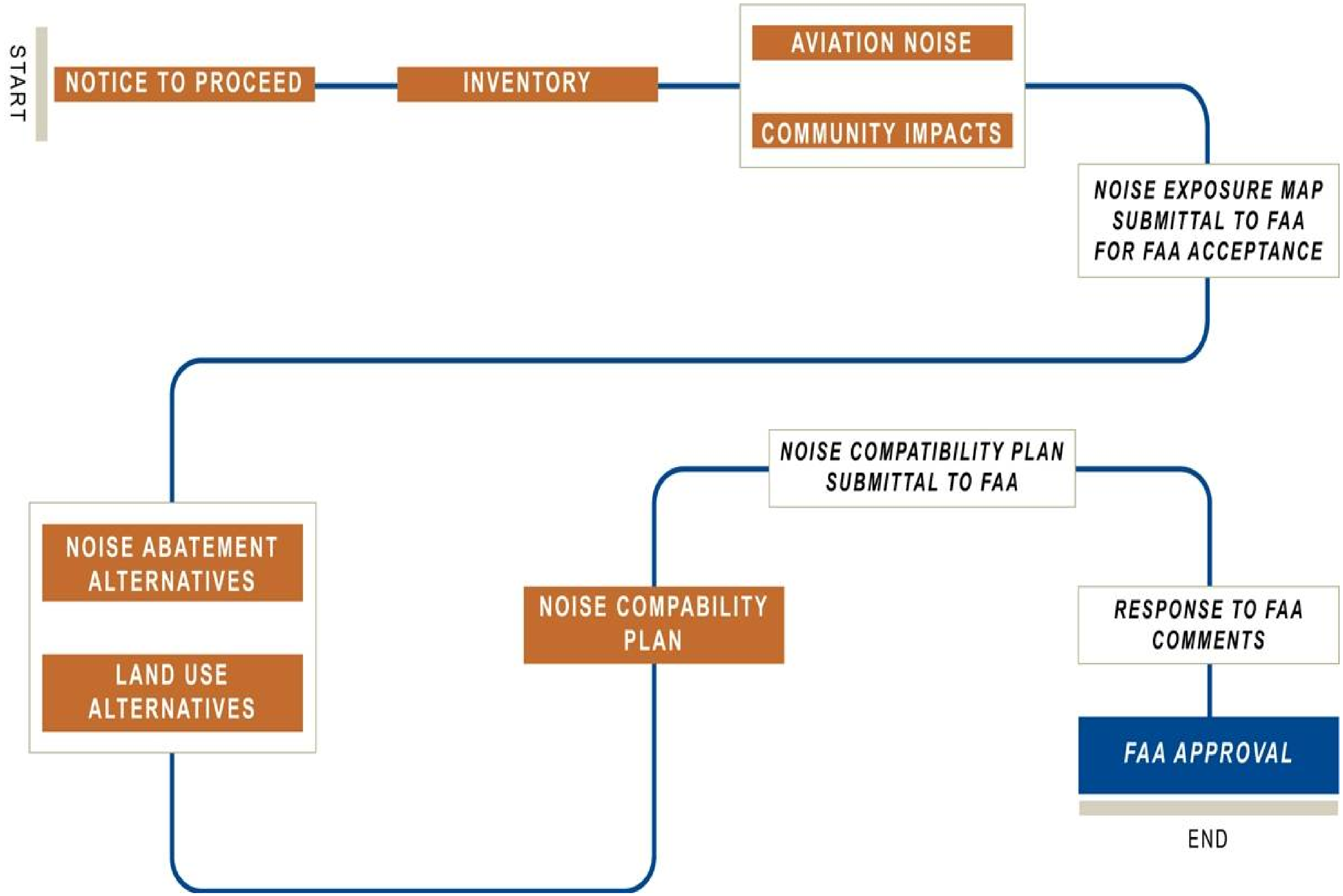
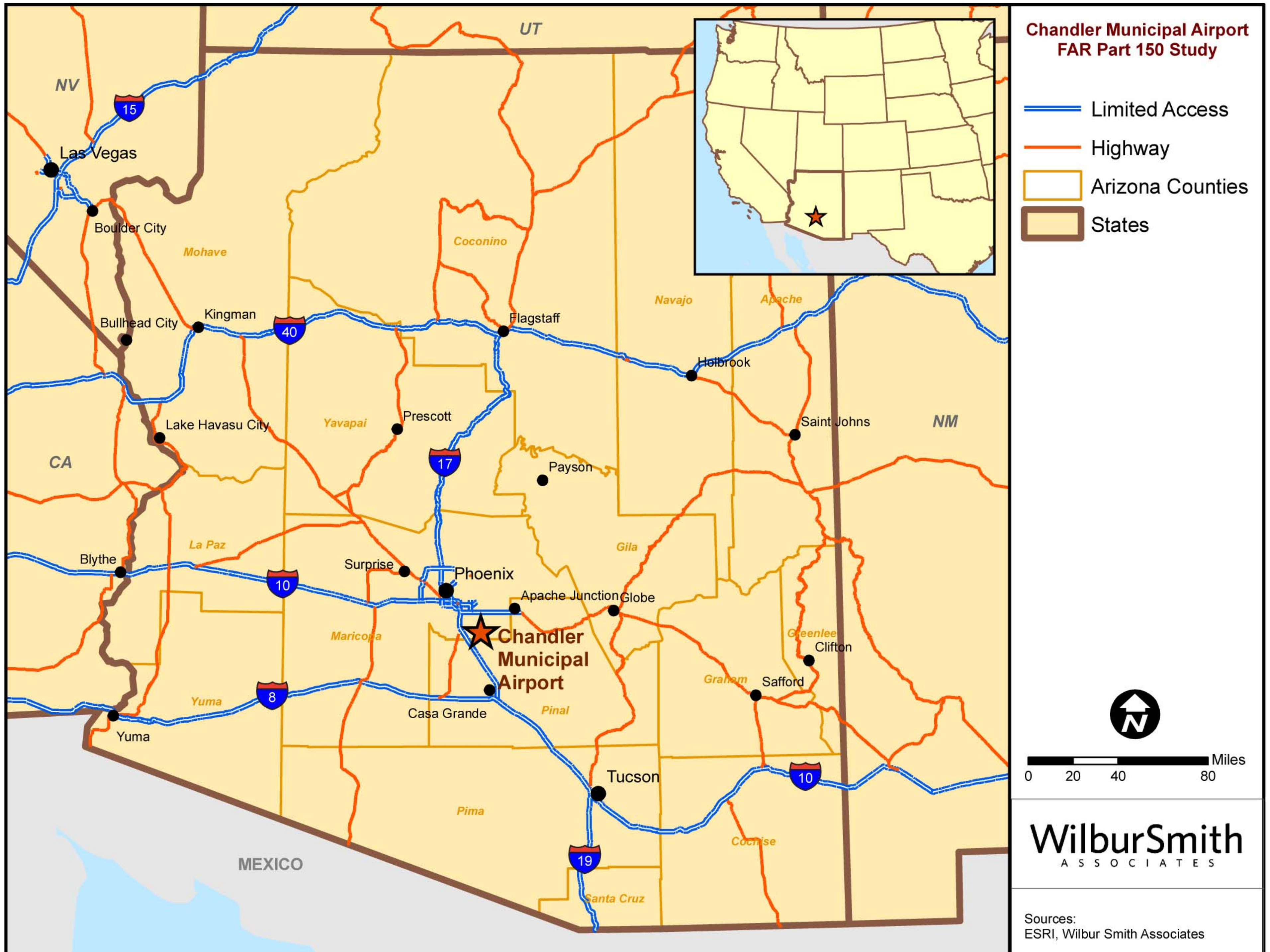
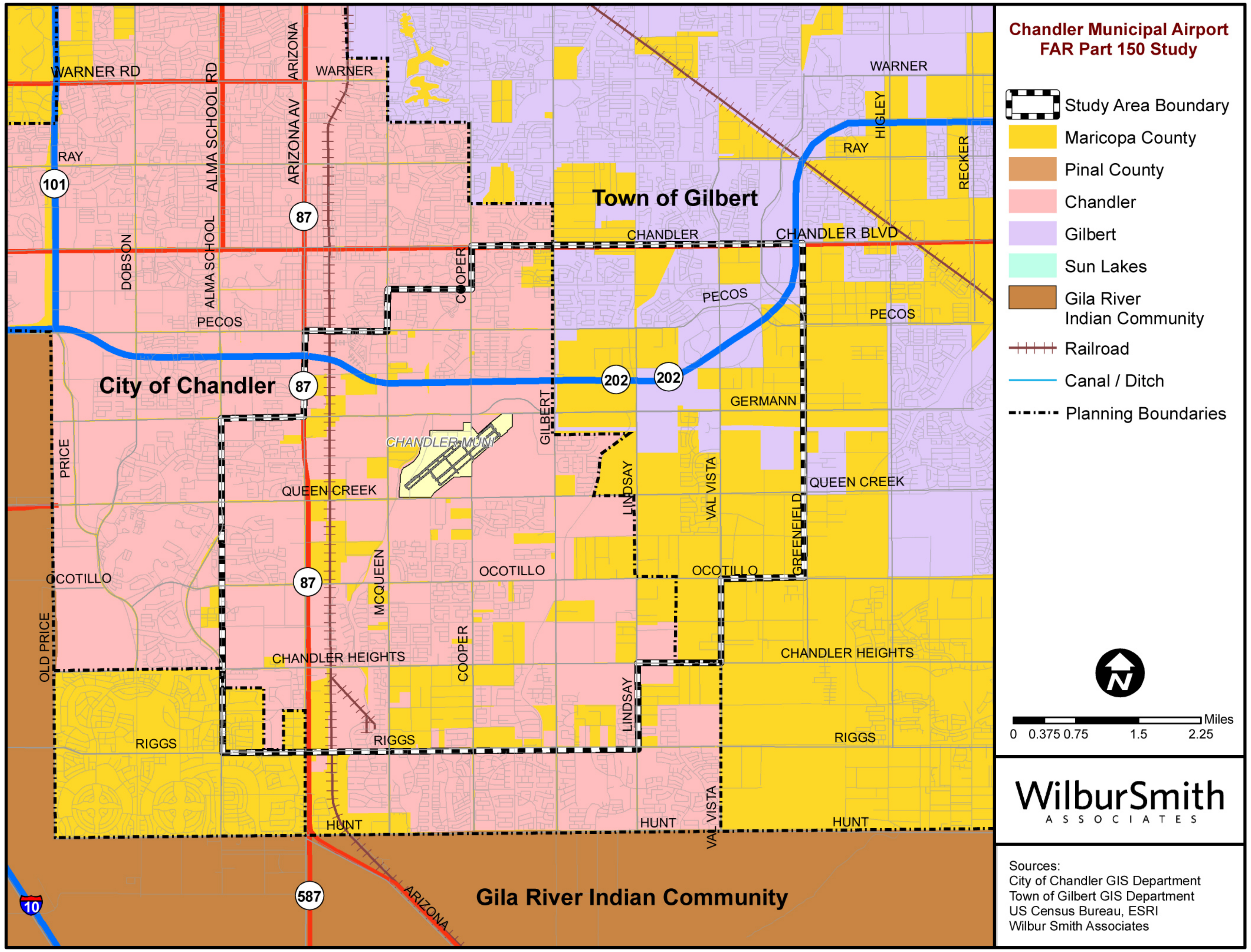


Figure 1.2
NATIONAL AND REGIONAL LOCATION



SOURCE: ESRI, Wilbur Smith Associates
PREPARED: June 2008

Figure 1.3
POLITICAL JURISDICTIONS



SOURCE: Maricopa Association of Governments, Wilbur Smith Associates
PREPARED: June 2008

Chandler Municipal Airport is owned and operated by the City of Chandler. Through the Public Works Department, the Airport is managed by the Airport Manager. The Chandler City Council established a seven-member Airport Commission to serve in an advisory role to the City. The City Code calls for one member to be a resident of Sun Lakes and one must also be a non-voting, ex-officio Councilmember. The City Council member serves as a liaison between the Commission and the Council.

HISTORY OF AIRPORT DEVELOPMENT

Chandler Municipal Airport was sited at two locations prior to opening in 1948 at the current location through the use of federal aid. The first site was opened in 1928 near the southeast corner of Willis and Alma School Roads. The second site opened a year later and was located south of Germann Road between what is now Arizona Avenue and McQueen Road. The current site was originally 160 acres with dirt runways that consisted of an "X" pattern running from the four corners. In 1950 a single runway (Runway 18-36) was established. In 1960 the City constructed a new runway with a northeast-southwest orientation (existing Runway 4L-22R). The entire development at the Airport has been constructed and funded under the auspices of the City of Chandler.

Key dates in the Airport's ongoing development include the following:

- In **1928**, the first Airport site was opened.
- In **1929**, the second Airport site was opened.
- In **1948**, the current Airport site was purchased from Roosevelt Water Conservation District for $8,000.
- In **1950**, the City completed its first Airport improvement project (Runway 18/36 and the drilling of a well).
- In **1960**, a new runway (existing Runway 4L/22R) and full parallel taxiway measuring 2,610 feet in length were constructed. In addition to the new runway and taxiway system, an apron area was constructed.
- In **1961**, Runway 4L/22R was equipped with lighting.
- During the **1970s** Runway 4L/22R and its parallel taxiway were extended 1,200 feet to the south. Additional runway lighting was installed on the runway extension, visual approach slope indicators (VASI) were installed on both runway ends, perimeter fencing was installed, and a new apron area was constructed.
- During the mid **1980s**, 116 T-hangars were constructed.
- In **1982**, a new Airport Master Plan was completed for the Airport.
- In **1983**, Runway 4L/22R and its taxiway were extended 600 feet to the northeast and a new apron was constructed.
- In **1984**, an Environmental Impact Statement (EIS) was conducted for the future development of a new runway system.
- In **1985**, the City purchased 55 acres of property for future expansion at the Airport for $1.8 million. The expansion would be for a four-lane access road, internal service roads on Airport property, the relocation of the terminal building

and fuel farm, the realignment of the apron, vehicle parking lot, relocation of shade hangars, the design of a drainage system, and the design of an apron and taxiways to the new hangar area.

- Between **1986** and **1988**, the Airport acquired 175 acres of land for the new runway system for over $9 million.
- During the **1990s**, an additional 137 acres of land were acquired for development.
- In **1994**, the new runway (Runway 4R/22L) was constructed to 4,850 feet in length. A new heliport was also opened for use.
- In **1996**, a new 5,500-square foot terminal building completed construction and was opened.
- In **1998**, an air traffic control tower completed construction and was opened. Additionally, the Airport's master plan was updated.
- In **2000**, 86 privately developed T-hangars and 7 acres of new apron completed construction and were opened.
- In **2001**, an additional 28 acres of land was purchased for hangar and apron development.

Source: *A History of the Chandler Municipal Airport*, Renee Menard; *Chandler Municipal Airport – Property Acquisition* Summary; and Airport Management Records.

Since the late 1980s, the City of Chandler has received in excess of $5 million from ADOT-Aeronautics Division to improve the Airport. Over that same period, FAA airport improvement program (AIP) monies account for over $18 million for airport improvement projects at the Airport. Development projects funded within the past few years include the construction of over 90 privately developed T-hangars, a new apron area, an update to the Airport's master plan, relocation of the heliport, and the first phase of new executive hangars.

AVIATION FACILITIES

The size and type of facilities at an airport have a significant impact on the types of operations and level of activity that occur. The airside facilities include the runways, taxiways, and navigational aids (NAVAIDs) available. Landside facilities include apron, hangars, and terminal areas. The following section identifies the existing and projected facilities for Chandler Municipal Airport.

Runways/Taxiways

Chandler Municipal is currently served by two parallel runways, Runway 4R-22L and Runway 4L-22R. The dimensions, weight bearing capacity, and other specifics regarding the two runways are summarized in **Table 1.1**.

Table 1.1
EXISTING FACILITIES

	Runway 4R-22L	Runway 4L-22R
Length	4,870'	4,395'
Width	75'	75'
Weight Limitations	30,000 SWL*	30,000 SWL*
Surface	Asphalt	Asphalt
Lighting	MIRL[1]	MIRL
Airport Reference Code (ARC)[2]	B-II	B-II
Visual Aids	PAPI-4[3], REIL[4] (Both ends)	PAPI-4, REIL (Both ends)

*Single Wheel Loading
[1]Medium Intensity Runway Lighting
[2] Airport Reference Codes reference aircraft approach category (designated by a letter) and design group or size of aircraft (designated by a roman numeral). Category "B" references approach speeds of 91 knots or more but less than 121 knots. Design Group "II" references aircraft with wingspans of up, to but not including, 79 feet or a tail height from 20 up to, but not including, 30 feet.
[3] Precision Approach Path Indicator
[4] Runway end Indicator Light
SOURCE: Chandler Municipal Airport Master Plan, 2006
PREPARED: June 2008

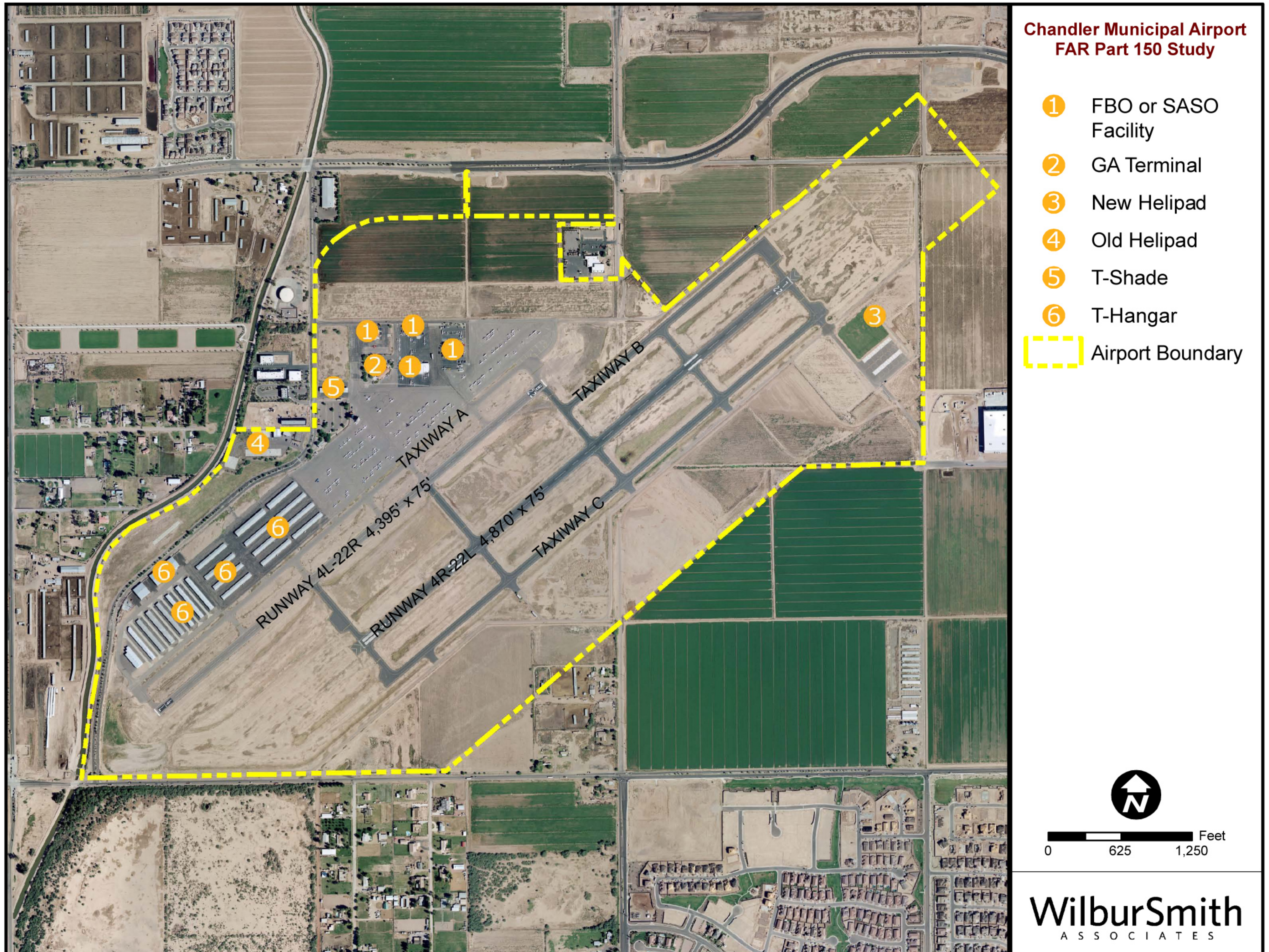
The runway system is supported by a network of taxiways. Both runways are served by full-length parallel taxiways. Taxiway A serves Runway 4L-22R and is located 240 feet northwest of the runway. Taxiway C serves Runway 4R-22L and is located 400 feet southeast of the runway. In addition to the two full length parallel taxiways, Taxiway B provides access to the end of Runway 22L and is located 400 feet southwest of Runway 4R-22L. A number of connector taxiways provide access to and from the runway from the apron areas. A heliport is also located on the northeast side of the airfield. The helipad facility's 'Final Approach and Takeoff Area' (FATO) is 120 feet long by 100 feet wide. Additionally, it is supported by a taxiway and a helicopter parking apron. The location of these facilities is identified on **Figure 1.4.**

Terminal Areas

The terminal areas serve as the concentration points for aircraft activity on the ground. The key terminal areas include the terminal building, fixed base operators (FBOs), and aircraft hangar/parking areas.

Chandler Municipal provides a large general aviation terminal that comprises over 5,500 square feet. The general aviation terminal is located on the northwest side of the airfield adjacent to the apron. The terminal building consists of a pilot's lounge, flight planning area, restrooms, lobby, conference room, office space, and Airport administration offices.

Figure 1.4
EXISTING FACILITIES



SOURCE: Chandler Municipal Airport Master Plan, 2006 and Wilbur Smith Assoc.

FBOs support a variety of aviation activity and are the primary providers of services and facilities for general aviation operators at an airport. There is currently only one full-service FBO operating on the Airport, Chandler Air Service. Among other services, Chandler Air Service provides fuel, flight training, aircraft rental, aircraft maintenance, catering, and flight planning facilities. Chandler Air Service leases ground from the City and owns and operates two hangar buildings, an apron area, and other various facilities.

In addition to Chandler Air Service, Quantum Helicopters provides helicopter training and charter service. As a specialized aviation service operator (SASO), Quantum's current leasehold on the northeast side of the Airport includes a new large hangar that was constructed when the heliport facility was relocated in 2006.

The Airport's primary aircraft parking apron is located on the northwest side of the airfield and includes the terminal area apron and FBO area apron. The apron area is approximately 90,000 square feet and is used by based aircraft, transient aircraft, and aircraft utilizing FBO facilities.

Hangar facilities at Chandler Municipal consist of conventional hangars, T-hangars, T-shades, and private condominium hangars. These facilities provide for covered storage spaces for over 240 aircraft. All of the conventional hangars are occupied by either the FBO or other SASOs.

Future Projected Development

Planned future development projects at the Airport have the potential to affect the level and type of operations at the Airport in the future. Projects currently planned at the Airport with the potential to influence future activity include additional hangar construction and taxiway extensions.

The current Airport master plan identifies an extension of Runway 4R-22L from the current length of 4,870' to a length of 5,700'. This project will occur only upon a successful bond vote by the Citizens of Chandler to authorize funding expenditures for the project. The proposed extension would be accomplished by extending the runway primarily to the northeast and to a lesser extent to the southwest. The extended runway would enable the Airport to better accommodate corporate class general aviation aircraft currently utilizing the Airport, as well as additional corporate class aircraft projected to utilize the Airport in the future.

The current master plan also identifies the development of additional hangar facilities. The southeast side of the Airport is planned to accommodate over 300 new hangars of various types, and additional FBO and potential aviation-related operations such as an aviation industrial park.

Taxiway B is a partial parallel taxiway serving runway 4R-22L. Extension of taxiway B southwest to the end of Runway 4R is planned. This extension will provide two-way taxi circulation for both runways. Taxiway C is also planned for extension to end of the extended runway.

The future airside and landside development projects described above are depicted on **Figures 1.5** and **1.6**.

AIRSPACE/AIR TRAFFIC CONTROL

The following sections summarize existing airspace characteristics on and around Chandler Municipal as well as the instrument approach procedures at the Airport. Various aspects of the Airport's navigable airspace are summarized in the following sections:

- Regional Airspace Considerations
- Air Traffic Control Facilities and Procedures
- Instrument Approaches and Equipment
- Chandler Traffic Pattern and Procedures

Regional Airspace Considerations

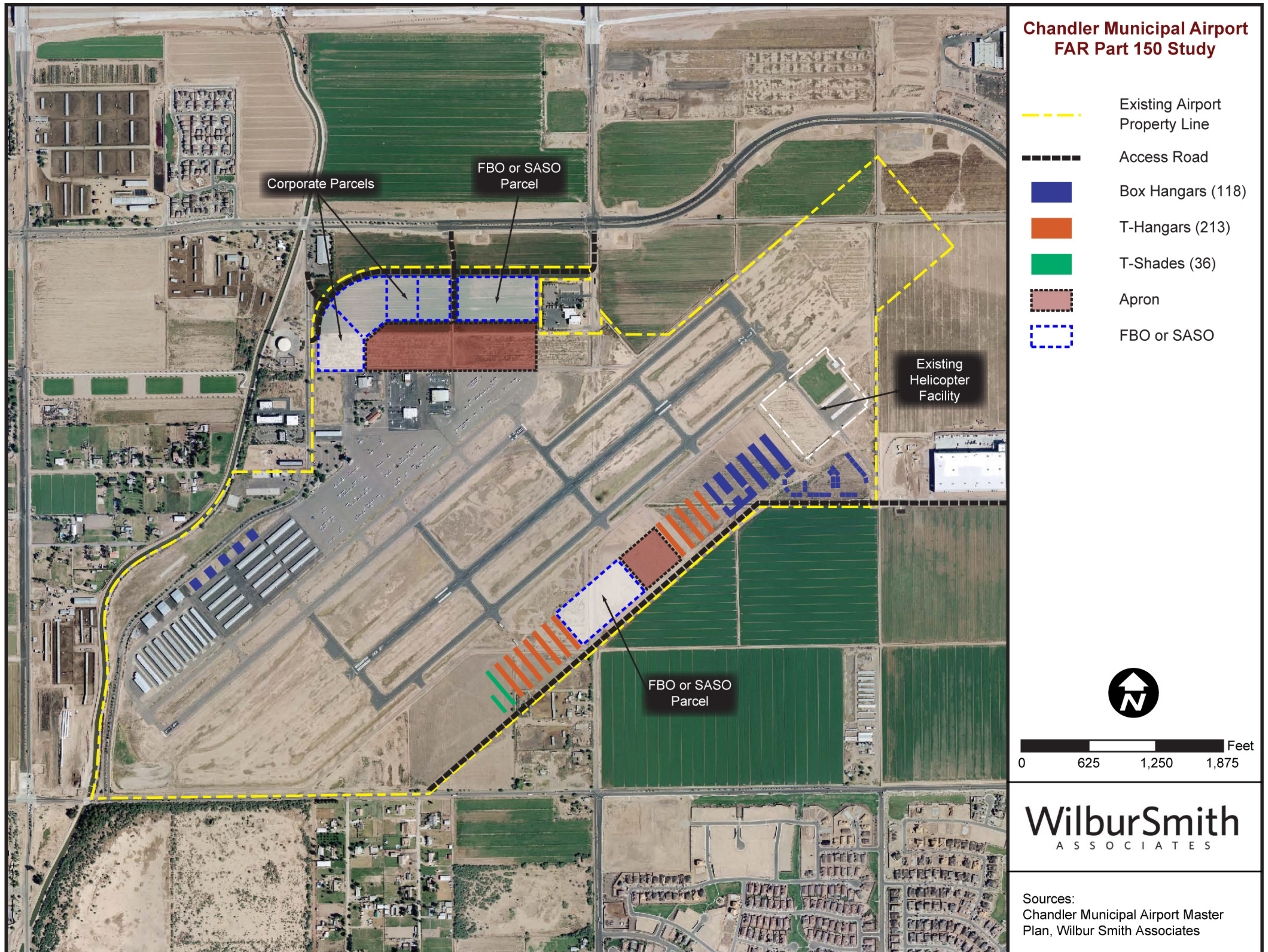
Chandler Municipal Airport is located between several of the busiest airports in the country in terms of aircraft operations. The high concentration of aircraft operations in the Phoenix area has necessitated the development of a complex airspace structure, numerous procedures, and specific equipment designed to separate aircraft from each other. Chandler Municipal is located under a "shelf" of the Phoenix-Sky Harbor International (PHX) Class B airspace, and adjacent to the Phoenix-Mesa Gateway (IWA) Class D airspace. The regional airspace is depicted in **Figure 1.7**.

The Class D airspace surrounding Chandler Municipal is a 4-nautical mile circle centered on the Airport. Due to the Airport's close proximity to Phoenix-Mesa Gateway Airport, the IWA Class D airspace supersedes a portion of the Chandler Municipal Airport Class D airspace.

The Phoenix Class B airspace was redesigned, with implementation of the revised airspace effective October 25, 2007. The most significant changes that impact aviation activity at Chandler Municipal include the following:

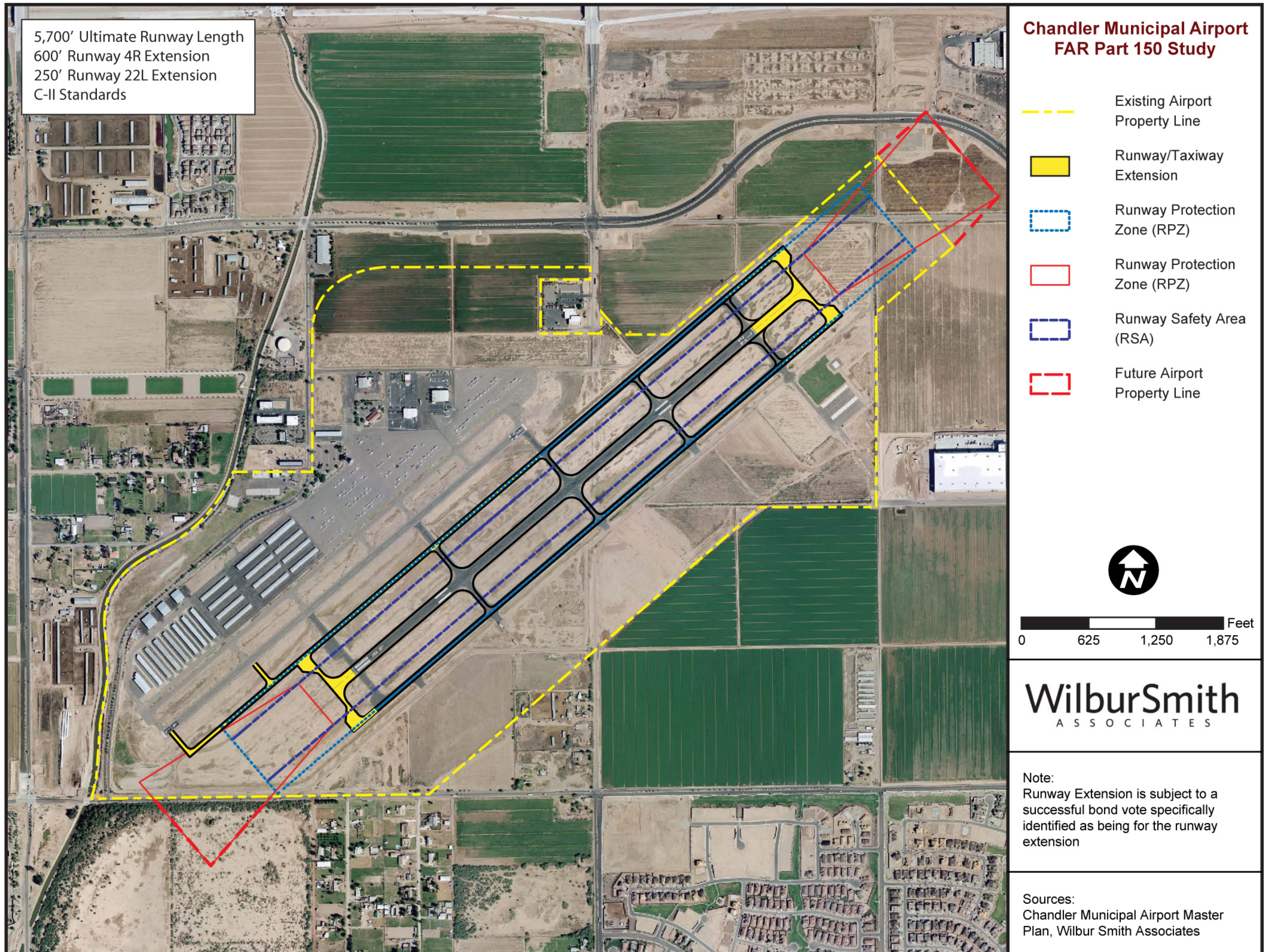
- Lowers the top of the Class B airspace from 10,000 feet MSL to 9,000 MSL
- Expands the arrival extension boundaries to 30 nautical miles
- Lowers the floor of the Class B airspace directly east of Phoenix Sky Harbor International Airport from 3,000 feet MSL to 2,700 feet MSL
- Lowers the floor of the far eastern shelf of the Class B airspace from 8,000 feet MSL to 5,000 feet MSL

Figure1.5
RECOMMENDED LANDSIDE DEVELOPMENT



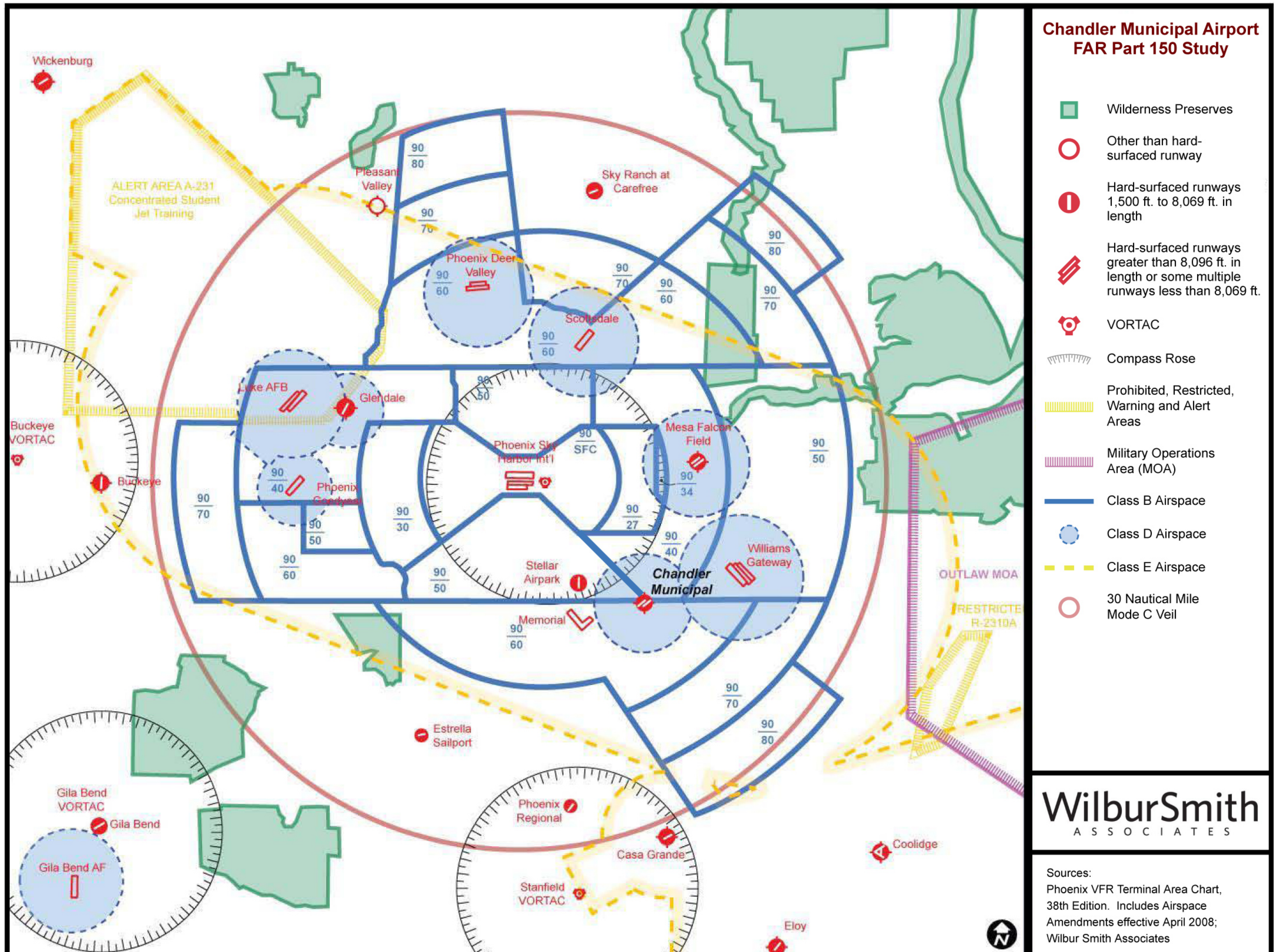
SOURCE: Chandler Municipal Airport Master Plan, 2006 and Wilbur Smith Assoc.

Figure 1.6
RECOMMENDED AIRSIDE DEVELOPMENT



SOURCE: Chandler Municipal Airport Master Plan, 2006 and Wilbur Smith Assoc.

Figure 1.7
REGIONAL AIRSPACE STRUCTURE



SOURCE: Phoenix VFR Terminal Area Chart 38th Edition Includes Airspace Amendments Effective April 10, 2008, Wilbur Smith Associates.

- Raises the floor of the airspace directly south of Chandler Municipal from 4,000 feet MSL to 6,000 feet MSL
- Raises the floor of the Class B airspace directly northwest of Chandler Municipal Airport from 4,000 feet MSL to 5,000 feet MSL
- Raises the floor of the Class B airspace above the northern limits of Chandler Municipal airspace from 3,000 feet MSL to 4,000 feet MSL

Air Traffic Control Facilities and Procedures

The Air Traffic Control Tower (ATCT) at Chandler Municipal is in operation 15 hours a day and is charged with controlling the movements of all aircraft within a four nautical mile radius of the Airport up to an altitude of 3,000 feet Mean Sea Level (MSL). In addition to the Chandler Municipal ATCT, there are other entities that share responsibility in managing the movement of aircraft during flight to and from the Airport as well as during approach and departure procedures. The specific roles that each of the following has in managing aviation traffic at Chandler Municipal are summarized below.

Albuquerque Air Route Traffic Control Center (ARTCC)

The Albuquerque ARTCC controls all instrument flight rule (IFR) aircraft and some visual flight rule (VFR) operations within controlled airspace across a multi-state area, including the Phoenix metropolitan area. The Albuquerque ARTCC controls aircraft movements at altitudes greater than 9,000 feet above mean sea level (MSL) and is responsible for establishing the initial approach sequencing of aircraft and providing adequate separation from all other known traffic. As en route aircraft approach Chandler Municipal Airport and get within approximately 25 to 40 mile radius of the Phoenix VORTAC (very-high-frequency omni-directional radio range (VOR) with tactical air navigation (TACAN) facility), they become the responsibility of the Phoenix Terminal Radar Approach Control (TRACON). Typically, once an aircraft departing from Chandler Municipal reaches 9,000 feet MSL they become the responsibility of the Albuquerque ARTCC.

Phoenix Terminal Radar Approach Control (TRACON)

The Phoenix TRACON controls aircraft below 9,000 feet MSL during their approach to and departures from Chandler Municipal. It is the responsibility of the Phoenix TRACON to provide separation for participating aircraft in the vicinity of the TRACON boundary area and direct them to the Airport by instructing pilots to fly specific altitudes and headings called radar vectors. As an aircraft approaches the Chandler Municipal airspace area, the TRACON performs a “hand-off”, and transfers control responsibility to the Chandler ATCT. This process is reversed for aircraft departing Chandler Municipal Airport.

Instrument Approaches and Equipment

An instrument approach procedure is defined as a series of predetermined maneuvers for guiding an aircraft under instrument flight conditions from the beginning of the initial approach to a landing, or a point from which a landing may be made visually. Instrument approaches rely on navigational aid (NAVAID) equipment to provide the necessary guidance to pilots in flight. Instrument approach equipment and available non-precision approaches at Chandler Municipal include the following:

Global Positioning System (GPS) – The GPS is a network of orbiting satellites that broadcast a signal to ground based receivers. GPS receivers can process the signals to determine a user's three-dimensional position (i.e., latitude, longitude, and altitude), velocity (if applicable), and the precise time of day. Due to inherent limits in transmissions, there are limits to the precision of the location that can be provided.

VHF Omni-directional Radio/Tactical Air Navigation (VORTAC) – The VORTAC is a two-part ground-based radio navigation aid consisting of a VOR co-located with a TACAN. The civilian VOR broadcasts signals that makes it possible to determine the compass bearing of an aircraft's location relative to the VOR station. Each of the 360 compass bearings is known as a radial. The military TACAN makes it possible for an aircraft equipped with Distance Measuring Equipment (DME) to determine the slant distance between the aircraft and the VORTAC. The Phoenix-Mesa Gateway Airport (IWA) VORTAC located east of Chandler Municipal is utilized for the VOR instrument approach at Chandler Municipal.

Non-Directional Beacon (NDB) – The NDB is a low or medium frequency ground-based radio navigation aid that broadcasts a continuous wave signal with a Morse Code identifier on an assigned frequency signal. NDBs are used by pilots to determine the aircraft's bearing to the ground station. Some state and locally owned NDB frequencies are also used to provide weather information to pilots. The NDB for Chandler is 'Chandler Municipal'.

The 2001 Federal Radio Navigation Plan outlines the FAA's intention to phase out ground-based NAVAIDS such as NDB's in favor of the Global Positioning System (GPS). It is anticipated that the NDB approach to Runway 4R will be phased out by the FAA.

Precision Approach Path Indicator (PAPI) – A PAPI is system of angled lights that provide pilots with visual glide slope information about the angle between their current position and the touchdown zone of the runway. The PAPI glide slopes for each runway-end at Chandler Municipal are:

- Runway 4R – 3 degree glide path angle
- Runway 22L – 3 degree glide path angle

- Runway 4L – 3.5 degree glide path angle
- Runway 22R – 3 degree glide path angle

Chandler Airfield Procedures

The approach, departure, and taxiing of aircraft on the parallel runway system and taxiways at Chandler Municipal is managed by the Airport's ATCT. When conditions and activity levels allow, Airport users with fixed wing aircraft are directed to use the closest runway environment to minimize taxiing requirements which during calm winds is typically Runway 4L-22R.

Prevailing winds and atmospheric conditions at the Airport, on an average annual basis, indicated that a majority of aircraft operations would occur to the northeast, with approaches to and departures from Runway 4R and Runway 4L. However, due to the designation of Runways 22L and 22R as "calm wind runways", fixed wing aircraft operations are evenly split between Runways 4L, 4R, and 22L, 22R.

The centerlines of the parallel runways at Chandler Municipal Airport are separated by approximately 700 feet. This distance is sufficient to ensure that here are no adverse effects on the Airport's ability to simultaneously use both Runways 4R-22L and 4L-22R during visual flight rules (VFR).

In VFR conditions, general aviation traffic is typically assigned to Runway 4L-22R. Runway 4R-22L is also used to accommodate general aviation activity during peak periods of activity. When aircraft are operating under instrument flight rules (IFR), arriving aircraft use NDB, VOR or GPS approaches to Runway 4R.

NOISE ABATEMENT

To address the noise concerns of the local citizens, the City of Chandler has established several noise abatement elements for Chandler Municipal. These programs include preferential departure procedures for fixed wing aircraft and promoting noise awareness. It is important to know that the primary goal of the City of Chandler is to maintain airport safety standards and uphold the Federal Aviation Regulation (FAR) Rules and Regulations for a safe environment for aviation activities. The responsibility for noise management rests with the City of Chandler; however, the City has no regulatory authority or enforcement powers for aviation regulations. It is also important to note that aircraft in use for emergency services, such as police, ambulance, and military functions are excluded from the noise abatement elements.

Preferential Procedures

The purpose of preferential arrival and departure procedures is to avoid, as much as possible, residential areas around an airport. Preferential procedures are promoted by airports; however it is important to note that they are preferred procedures which mean they are voluntary.

For Chandler Municipal, fixed-wing aircraft are encouraged to follow several procedures for departures. Aircraft departing on Runway 22L are encouraged to fly to the Airport boundary/road before making any left turns, and aircraft departing Runway 22R are encouraged to fly to the Airport boundary/canal before making any right turns. These procedures are meant to keep low flying aircraft away from communities adjacent to the Airport as much as possible.

For helicopters, a Letter of Agreement (LOA) has been established between ATCT and Quantum Helicopters for VFR helicopter arrival and departure procedures. The primary purpose of the LOA is to establish safe guidelines for helicopter operations on the airfield and only applies to operations authorized by Quantum Helicopters and only when Chandler Tower is in operation.

Noise Awareness

The Airport promotes the use of Aircraft Owners and Pilots Association (AOPA) Noise Awareness steps for single and twin-engine aircraft. These steps encourage pilots to be aware of local community noise concerns and to use quiet and neighborly flying techniques whenever possible. The Airport also has published voluntary noise measures for helicopter operations that include: avoiding overflight of the residential area immediately west of the Airport; and using the Helicopter Association International (H.A.I.) “Fly Neighborly” program.

NOISE COMPLAINTS

In recent years, community concerns related to Chandler Municipal aircraft operations have increased. The Airport began logging those complaints related to these aircraft operations in a database in 2005. Noise complaints are then researched and any information available regarding the noise concern is then provided to the complainant.

Complaint Database

All complaints received by the Airport are logged into a complaint database. If the complaint time is specific enough, Airport staff can attempt to correlate that complaint to the aircraft that caused the noise event. Complaints are received by Airport staff in various ways including both phone and email.

Using data provided through these complaints, Airport staff researches the type of aircraft associated with the complaint, including gathering pertinent weather and air traffic control information relating to complaints. The goal is to provide as much information to the complainant as possible regarding their noise concern.

All complaints within the Airport's database, June 2005 through February 2008, were analyzed to provide details on where complaints are located, the primary complaint type, and finally the type of aircraft correlated to complaints.

Complaints as provided by Chandler Municipal are shown in **Table 1.2**.

Table 1.2
COMPLAINTS BY CITY

Complaints by City	**Total**	**Percentage by City**
Chandler	98	49%
Unknown	93	46%
Sun Lakes	7	3%
Gilbert	4	2%
Grand Total	**202**	**100%**

SOURCE: Chandler Municipal Airport, ESA Airports

The type of complaint is also very important in understanding why aircraft overflights create community concerns. As shown in **Table 1.3**, Low Flying Helo in traffic pattern airspace (TPA) was the greatest complaint accounting for 39 percent of total complaints.

Table 1.3
COMPLAINTS BY TYPE

Nature of Complaint	Total	Percentage of Complaint
Low Flying Helo in TPA	78	39%
Unknown	22	11%
Low Flying in TPA	20	10%
Noise & Low Flying	10	5%
Aerobatic	9	4%
Low flying aircraft	9	4%
Low Flying Helo	8	4%
Aerobatic plane in TPA	7	3%
Noisy Acft in TPA	6	3%
Noisy Planes	6	3%
Low flying Acft in TPA	3	1%
Low flying planes	3	1%
Noise from Acft	3	1%
Noisy low flying Acft	3	1%
TPA Traffic	2	1%
Acft	1	<1%
Acft Noise (not TPA)	1	<1%
Aircraft Traffic in TPA	1	<1%
Airplane Noise	1	<1%
Constant Helos Noisy	1	<1%
Idling Acft	1	<1%
Jet noise	1	<1%
Low flying Turbine < 500 ft	1	<1%
Low level Noisy Acft	1	<1%
Multi. Helo Low	1	<1%
Noise from Jet	1	<1%
Stellar traffic	1	<1%
Two F-16's Low north of Chd Blvd	1	<1%
Grand Total	**202**	**100%**

SOURCE: Chandler Municipal Airport, ESA Airports.

In some instances, Airport staff can correlate complaints with actual aircraft operations. Often times, the complainer can also identify the type of aircraft causing the concern. As shown in **Table 1.4**, helicopters proved to be the greatest concern with 52 percent of total complaints.

Table 1.4
COMPLAINTS BY AIRCRAFT TYPE

Type of Aircraft	Total	Percentage by Aircraft
Helicopter	105	52%
Unknown	56	28%
Aerobatic	17	8%
Jet	9	4%
Propeller	9	4%
Aircraft	4	2%
Balloon	1	0%
Fixed wing	1	0%
Grand Total	**202**	**100%**

SOURCE: Chandler Municipal Airport, ESA Airports.

As can be seen from the complaint data, the noise concerns of residents around Chandler Municipal Airport vary a great deal. Noise, by nature, is subjective and therefore not possible to expressly identify what type of operation is most annoying to a community as a whole. What one person considers being loud, another person may not. What airports can gather from noise complaints are trends in the types of operations that are of concern to some people.

CHAPTER TWO: AVIATION ACTIVITY LEVELS

Aviation activity levels at Chandler Municipal are recorded by the air traffic control tower (ATCT) and supplied to Airport management. The ATCT collects and report aircraft operations (takeoffs and landings). Aircraft operations are reported as either local or itinerant. Local operations are typically associated with touch-and-go or training operations. Itinerant operations are those performed by an aircraft with a specific origin or destination away from the airport.

Operational levels for the period 1996 through 2007, with an estimate for 2008[1], are presented in **Table 2.1**, including the number of operations that were itinerant and local. Total operations at Chandler Municipal have increased dramatically since 1996, with an additional 100,000 operations at the Airport over that time period. Since 2003, the average annual increase in operations is 4.0 percent. It is important to note that the estimate for 2008 was provided by FAA as part of its 2007 Terminal Area Forecast (TAF) and considers the monthly trends in activity and projected national trends.

In terms of itinerant and local, the character of the Airport's operations has changed with a decrease in itinerant activity in terms of the percentage, but an increase in the overall numbers. In 1996, itinerant activity accounted for 40 percent of total operations and only 34 percent in 2008.

For purposes of the FAR Part 150 Study, operational forecasts are needed to examine the future demand for aviation and the impact on noise exposure at the Airport. **Table 2.2** identifies estimated operations at Chandler Municipal for the year 2008 and forecast operations for the year 2013. To develop the forecast, the FAA's TAF was consulted. As of May 2008, the TAF projected 309,423 total operations in 2013. These forecasts are in line with those contained in Chandler Municipal Airport's Draft 2007 Airport Master Plan. While the total operations estimates from the TAF were used in the FAR Part 150, the breakout between air carrier, air taxi, general aviation (local and itinerant) and military (local and itinerant) were developed based on trends in these categories. The TAF breakouts were reviewed and considered, with slight revisions to reflect the anticipated changes in the types of activity at Chandler Municipal.

[1] Actual 2008 operations were not available when the forecast information was developed. A discussion of estimated versus actual operations is provided in Appendix D.

Table 2.1
HISTORICAL OPERATIONS AT CHANDLER MUNICIPAL

Year	Itinerant Operations	Local Operations	Total Operations
1996	61,041	93,384	154,425
1997	66,150	109,776	175,926
1998	68,285	127,601	195,886
1999	71,149	142,064	213,213
2000	78,104	166,883	244,987
2001	70,364	169,393	239,757
2002	67,420	158,066	225,486
2003	67,095	153,577	220,672
2004	65,396	167,823	233,219
2005	64,314	162,836	227,150
2006	80,189	187,904	268,093
2007	88,797	171,839	260,636
2008 (estimate)	91,541	176,644	268,185

SOURCE: FAA Air Traffic Activity System (ATADS)
PREPARED: June 2008

Table 2.2
ACTUAL AND PROJECTED OPERATIONS

	Year	Itinerant Operations	Local Operations	Total Operations
Estimated	2008	91,551	176,634	**268,185**
Projected	2013	97,855	211,567	**309,423**

SOURCE: FAA Air Traffic Activity System, May 2008; FAA Terminal Area Forecast, Wilbur Smith Associates
PREPARED: June 2008

Aircraft Fleet Mix

The fleet mix of aircraft operating at Chandler Municipal was developed through the analysis of completed instrument flight rule (IFR) flight plan data from the FAA, discussions with airport and ATCT personnel and interviews with Airport tenants. An Airport tenant listing of all aircraft by make and model based at Chandler Municipal was also analyzed for this task.

During calendar year 2007, 2,060 IFR aircraft arrivals or departures to or from Chandler Municipal were identified from FAA records. The records contained the aircraft make and model and also identified the time the arrival or departure occurred. This information was used to develop the 2008 mix of aircraft operating at Chandler Municipal. Operations by military aircraft comprised less than 1 percent of the operations at Chandler Municipal, and were projected to remain constant. The 2008 aircraft fleet mix percentages were adjusted based on the projections of General Aviation and Air Taxi hours flown contained in the *FAA Aerospace Forecasts FY2008-2025*. The projected fleet mix percentages were then applied to the 2013 forecast of operations presented above. The estimated 2008 and projected 2013 aircraft operation fleet mixes at Chandler Municipal are presented in **Table 2.3**.

Table 2.3
CURRENT AND PROJECTED OPERATIONAL FLEET MIX

Year	2008	Percent of Total	2013	Percent of Total
Jet Local	-		-	
Jet Itinerant	950		1,384	
Jet Total	*950*	*0.35%*	*1,384*	*0.45%*
Multi \Turbine Local	400		468	
Multi \Turbine Itinerant	7,600		8,391	
Multi \Turbine Total	*8,000*	*2.98%*	*8,859*	*2.86%*
Single Engine Local	101,354		114,115	
Single Engine Itinerant	74,069		78,504	
Single Engine Total	*175,423*	*65.41%*	*192,619*	*62.25%*
Helicopter Local	74,880		96,941	
Helicopter Itinerant	8,320		9,007	
Helicopter Total	*83,200*	*31.02%*	*105,948*	*34.24%*
Military Itinerant	569		569	
Military Local	43		43	
Military Total	*612*	*0.23%*	*612*	*0.20%*
Total Local	***176,634***	***65.86%***	***211,567***	***68.37%***
Total Itinerant	***91,508***	***34.12%***	***97,856***	***31.63%***
Total Operations	**268,185**		**309,423**	

SOURCE: FAA Air Traffic Activity System, May 2008 and Wilbur Smith Assoc.
PREPARED: May 2008

Time of Day Operations

The separation of aircraft activity into daytime and nighttime periods is important because the Integrated Noise Model (INM), which is used to develop the noise exposure contours and is discussed in a subsequent chapter, includes a noise penalty for aircraft operations during nighttime hours. FAR Part 150 defines nighttime as 10 p.m. to 7 a.m. Based on analysis of completed IFR flight plans and discussion with airport personnel, it was estimated that 97 percent of all aircraft operations occur during the daytime and 3 percent at night. This represents a typical day/night split for this type of airport. Military aircraft operations were modeled during the daytime only.

Aircraft Stage Lengths

An aircraft's "stage length" (or trip length) refers to the distance an aircraft flies to its next destination after departing an airport. The stage length is important in noise modeling, since the longer the distance an aircraft will travel to its destination the greater its fuel load and overall weight will be and, as a result, the louder its departure profile will be. Stage lengths in the INM include the following ranges:

- Stage length 1 – 0 to 500 miles
- Stage length 2 – 500 to 1000 miles
- Stage length 3 – 1000 to 1500 miles
- Stage length 4 – 1500 to 2500 miles
- Stage length 5 – 2500 to 3500 miles
- Stage length 6 – 3500 to 4500 miles

Although a small percentage of general aviation aircraft travel to destinations greater than 500 miles from Chandler Municipal, all aircraft in this study were assumed to be Stage length 1 as all general aviation aircraft in the INM database are stage length 1. Only large air carrier aircraft in the INM have stage lengths greater than 1.

CHAPTER THREE: NOISE FUNDAMENTALS

While a great deal is known about aircraft noise, the methods used to calculate noise exposure can be difficult to understand. Determining aircraft noise exposure involves logarithmic averages and the noise energy from single events. In 14CFR150, (Part 150), the primary FAA-required metric for assessing aircraft noise impacts is the Day-Night Average Sound Level (DNL). The DNL combines the noise energy from all aircraft operations occurring from the events in one day into an average noise exposure for that day. DNL applies a penalty to nighttime events, between the hours of 10:00 pm and 7:00 am, when people find aircraft noise events to be more intrusive. This section of the report provides details on what noise is, what metrics exist (including DNL) to measure noise exposure, and how certain metrics relate to one another.

CHARACTERISTICS OF SOUND

Amplitude and Frequency

Sound can be technically described in terms of its sound pressure (amplitude) and frequency (similar to pitch).

Amplitude is a direct measure of the magnitude, or loudness, of a sound without consideration for other factors that may influence its perception. The ranges of sound pressures that occur in the environment are so large that they are expressed on a logarithmic scale. The standard unit of measurement of sound is the decibel (dB). A sound pressure level in dB describes the pressure of a sound relative to a reference pressure. By using a logarithmic scale, the wide range in sound pressures is compressed to a more usable range of numbers.

For example, a sound level of 70 dB has 10 times as much acoustic energy as a level of 60 dB; while a sound level of 80 dB has 100 times as much acoustic energy as a level of 60 dB. In terms of human response to noise, the perception is very different. A sound 10 dB higher than another sound is usually judged to be twice as loud; 20 dB higher four times as loud; and so forth.

The frequency of sound is expressed as Hertz (Hz) or cycles per second. The normal audible frequency range for young adults is 20 Hz to 20,000 Hz. The prominent frequency range for community noise, including aircraft and motor vehicles, is between 50 Hz and 5,000 Hz. The human ear is not equally sensitive to all frequencies, with some frequencies judged to be louder for a given signal than others. As a result, research studies have analyzed how individuals make relative judgments as to the “loudness” or “annoyance” to a sound. The most prominent of these scales include Loudness Level, Frequency-Weighted Contours (such as the A-weighted scale), and Perceived Noise Level. Noise metrics used in aircraft noise assessments are based upon these frequency weighting scales, which are discussed in the following paragraphs.

Loudness Level

This scale has been devised to approximate the human subjective assessment to the “loudness” of a sound. Loudness is the subjective judgment of an individual as to how loud or quiet a particular sound is perceived. This sensitivity difference varies for different sound pressure levels.

Frequency-Weighted Contours (dBA, dBB, and dBC)

In order to simplify the measurement and computation of sound loudness levels, frequency-weighted networks have obtained wide acceptance. The equal loudness level contours for 40 dB, 70 dB, and 100 dB have been selected to represent human frequency response to low, medium, and loud sound levels. By inverting these equal loudness level contours, the A-weighted, B-weighted, and C-weighted frequency weightings were developed. **Figure 3.1** presents these frequency-weighted contours.

The most common weighting scale is the A-weighted noise curve. The A-weighted decibel scale (dBA) filters frequencies in a manner approximating the sensitivity of the human ear. In the A-weighted decibel, everyday sounds normally range from 30 dBA (very quiet) to 100 dBA (very loud). Most community noise analyses are based upon the A-weighted decibel scale. **Figure 3.2** presents examples of various sound environments expressed in dBA.

Some interest has developed by communities very close to some airports (e.g., San Francisco International Airport) in utilizing a scale other than A-weighting for low frequency noise generated by large air carrier aircraft with high bypass turbofan engines. For evaluation of general aviation aircraft noise, however, A-weighting is used because the majority of noise associated with general aviation aircraft operations is better suited to A-weighting. In addition, FAR Part 150 requires the use of the A-weighted decibel for FAR Part 150 studies.

Perceived Noise Level

Perceived noisiness is another method of rating sound. It was originally developed for the assessment of aircraft noise. Perceived noisiness is defined as “the subjective impression of the unwantedness of a not-unexpected, non-pain, or fear-provoking sound as part of one’s environment,” (Kryter, 1970). “Noisiness” curves differ from “loudness curves” in that they have been developed to rate the noisiness or annoyance of a sound as opposed to the loudness of a sound.

As with loudness curves, noisiness curves have been developed from laboratory psychoacoustic surveys of individuals. However, in noisiness surveys, individuals are

Figure 3.1
FREQUENCY WEIGHTED CURVES

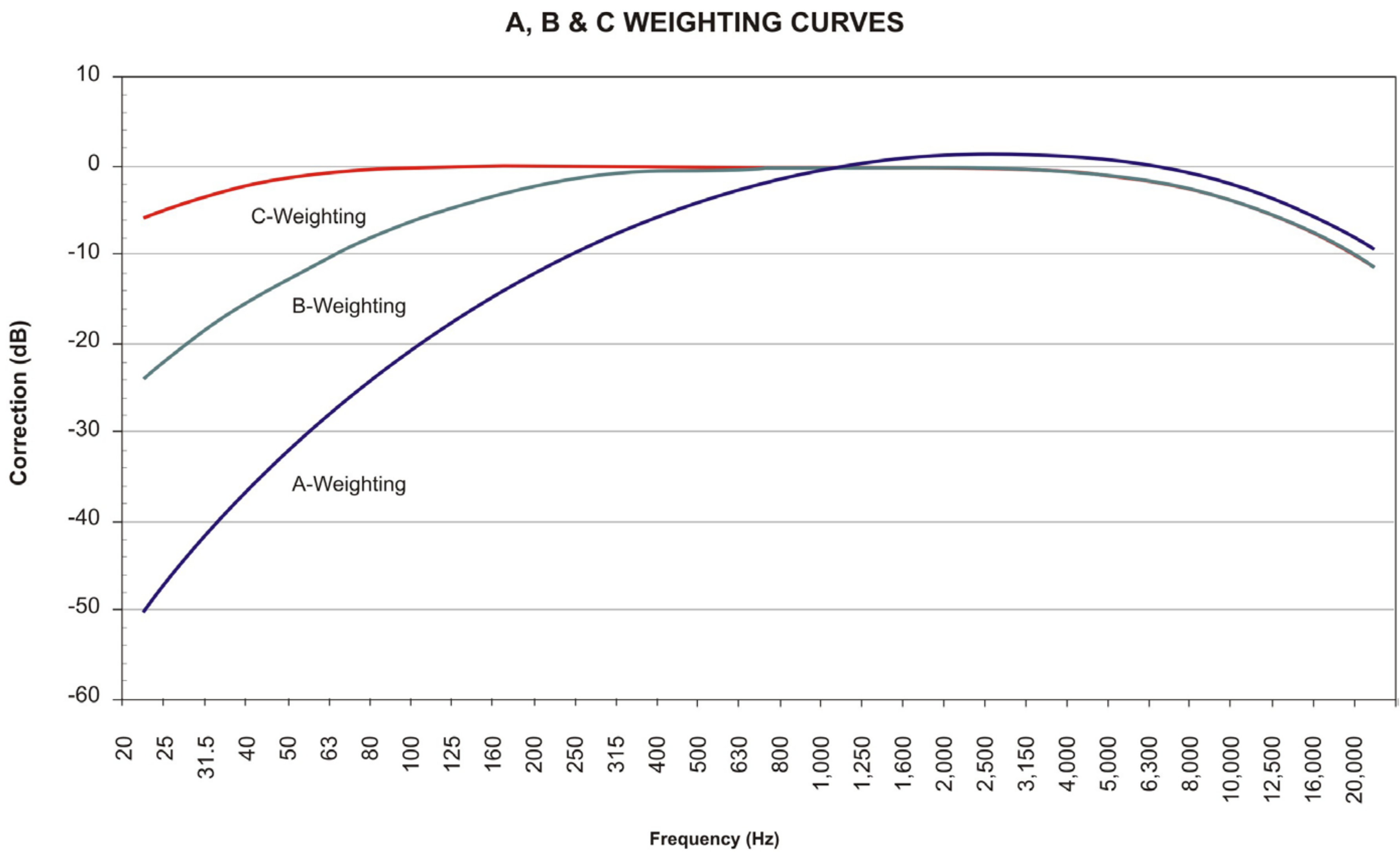
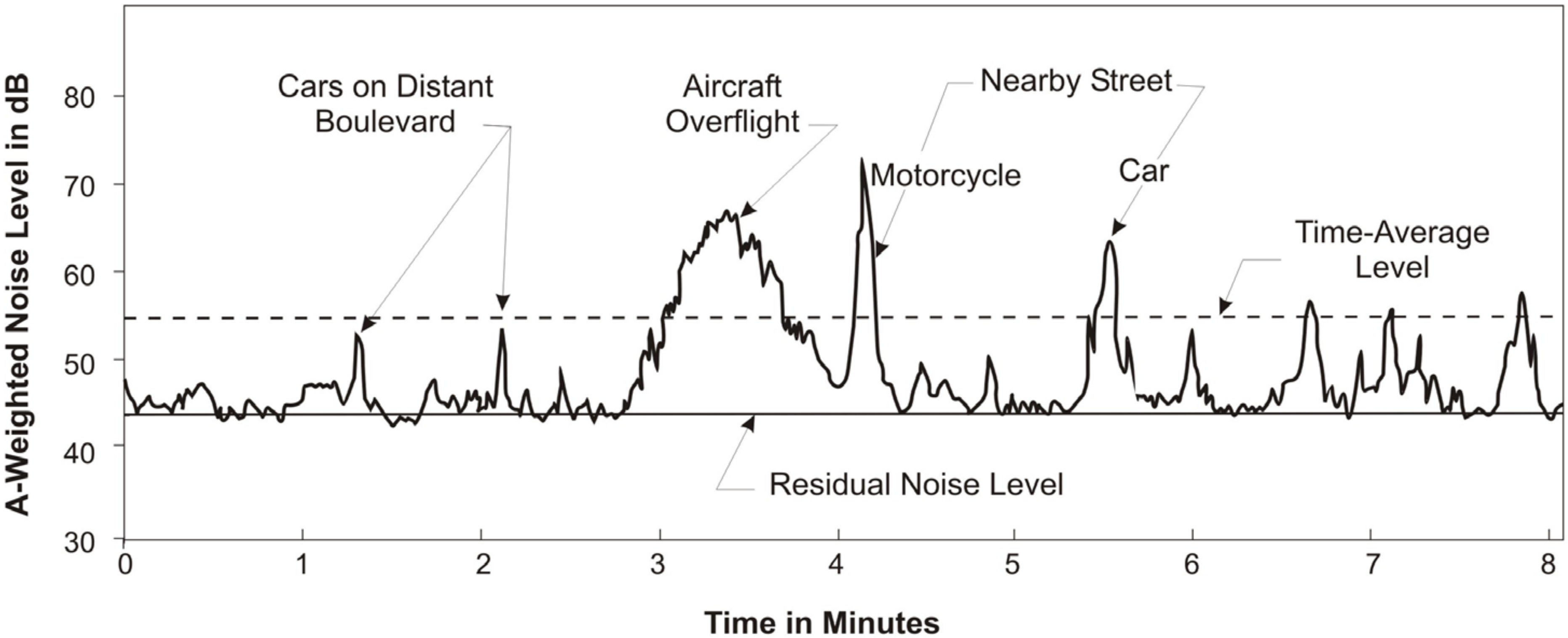


Figure 3.2
EXAMPLES OF VARIOUS SOUND ENVIRONMENTS



asked to judge in a laboratory setting when two sounds are equally noisy or disturbing if heard regularly in their own environment. These surveys are more complex and are therefore subject to greater variability.

Propagation of Noise

Outdoor sound levels decrease as a function of distance from the source, and as a result of wave divergence, atmospheric absorption, and ground attenuation. If sound is radiated from a source in a homogenous and undisturbed manner, the sound travels as spherical waves. As the sound wave travels away from the source, the sound energy is distributed over a greater area, dispersing the sound power of the wave. Spherical spreading of the sound wave reduces the noise level, for most sound sources, at a rate of 6 dB per doubling of the distance.

Atmospheric absorption also influences the levels that are received by the observer. The greater the distance a sound travels, the greater the influence of the atmosphere and the resultant fluctuations in sound levels at the receiver. Atmospheric absorption becomes important at distances of greater than 1,000 feet. The degree of absorption is a function of the sound frequency, of the sound as well as the humidity and temperature of the air. For example, atmospheric absorption is lowest at high humidity and higher temperatures. Turbulence and wind gradients, temperature, and humidity also play a significant role in determining the degree of sound level attenuation. Certain conditions, such as inversions, can also result in higher noise levels than would result from spherical spreading as a result of channeling or focusing the sound waves.

Absorption effects in the atmosphere vary with frequency. The higher frequencies are more readily absorbed than the lower frequencies. Over large distances, the lower frequencies become the dominant sound as the higher frequencies are attenuated.

The effects of ground attenuation on noise propagation are a function of the height of the source and/or receiver and the characteristics of the terrain. The closer the source of the noise is to the ground, the greater the ground absorption. Terrain consisting of soft surfaces, such as vegetation, provide for more ground absorption than hard surfaces such as a body of water. Ground attenuation is important for the study of noise from airfield operations (such as thrust reversals) and in the design of noise berms and engine run-up facilities.

These factors are an important consideration for assessing in-flight and ground noise in the Chandler region. Atmospheric conditions will play a role in affecting the sound levels on a daily basis and how these sounds are perceived by the people near the Airport.

Duration of Sound

Research has shown that the annoyance from a noise event increases as the duration of the event increases. The “effective duration” of a sound is the time between when a sound rises above the background sound level until it drops back below the background level. Psychoacoustic studies have determined there is a relationship between noise level duration and human annoyance. These studies determined the amount a sound must be reduced to be judged equally annoying for increased duration (longer durations at low sound levels are equally annoying as shorter durations at higher levels). Duration is an important factor in describing sound in a community setting.

The relationship between duration and noise level is the basis of the equivalent energy principal of sound exposure. Reducing the acoustic energy of a sound by one half results in a 3 dB reduction. Doubling the duration of the sound increases the total energy of the event by 3 dB. This equivalent energy principal is based upon the premise that the potential for a noise event to impact a person is dependent on the total acoustical energy content of the noise.

Change in Noise

The concept of change in ambient sound levels can be understood with an explanation of the hearing mechanism's reaction to sound. Under controlled laboratory conditions, listening to a steady unwavering pure tone sound that can be changed to slightly different sound levels, a person can just barely detect a sound-level change of approximately 1 dB for sounds in the mid-frequency range. When ordinary noises are heard, a young healthy ear can detect changes of 2 to 3 dB. A 5 dB change is readily noticeable, while a 10 dB change is judged by most people as a doubling or halving of the loudness of sound.

Masking Effect

Another characteristic of sound is its ability to interfere with the ability of the listener to hear another sound. This interference is defined as the masking effect. The presence of one sound effectively raises the threshold of audibility for the hearing of a second sound. For a signal to be heard, it must exceed the threshold of hearing for that particular individual and exceed the masking threshold for the background noise.

The masking characteristics of sound depend upon many factors, including the spectral (frequency) characteristics of the two sounds, the sound pressure levels, and the relative start time of the sounds. The masking effect is greatest when the masking frequency is closest to the frequency of the signal. Low frequency sounds can mask higher frequency sounds; however, the reverse is not true.

SOUND RATING SCALES

The description, analysis, and reporting of community sound levels is made difficult by the complexity of human response to sound and the myriad of sound-rating scales and metrics that have been developed for describing acoustic effects. Various rating scales have been devised to approximate the human subjective assessment to the "loudness" or “noisiness” of a sound. Noise metrics have been developed to account for additional parameters, such as duration and cumulative effect of multiple events.

Noise metrics can be categorized as single-event metrics and cumulative metrics. Single-event metrics describe the noise from individual events, such as an aircraft flyover. Cumulative metrics describe the noise in terms of the total noise exposure throughout the day.

Single Event Metrics

- *Frequency-Weighted Metrics (dBA)* – In order to simplify the measurement and computation of sound loudness levels, frequency-weighted networks have obtained wide acceptance. The A-weighting (dBA) scale has become the most prominent of these scales and is widely used in community noise analysis. Its advantages are that it has shown good correlation with community response and is easily measured.

- *Maximum Noise Level* – The highest noise level reached during a noise event is called the “Maximum Noise Level,” or Lmax. For example, as an aircraft approaches, the sound of the aircraft begins to rise above ambient noise levels. The closer the aircraft gets, the louder the sound until the aircraft is at its closest point. As the aircraft passes, the noise level decreases until the sound settles to ambient levels. It is this metric to which people generally respond to when an aircraft flyover occurs. An aircraft flyover is graphically illustrated at the top of Figure 3.3.

Supplemental Metrics

- *Time Above (TA)* – The FAA has developed the Time Above metric as a second metric for assessing the impacts of aircraft noise around airports. The TA index refers to the total time in seconds or minutes that aircraft noise levels exceed certain dBA noise levels in a 24-hour period. It is typically expressed as Time Above 75 and 85 dBA sound levels. While this metric is not widely used, it may be used by the FAA in environmental assessments of airport projects that show a significant increase in noise levels (a 1.5 DNL increase within the 65 DNL contour due to a project). There are no noise/land use standards in terms of the TA index.

- *Percent Noise Level (Ln)* – To account for intermittent or fluctuating noise, another method to characterize noise is the Percent Noise Level (Ln). The Percent Noise Level is the level exceeded n% of the time during the measurement period. It is usually measured in dBA, but can be expression of any noise rating scale. For example, L90 is the noise level exceeded 90 percent of the time, L50 is the level exceeded 50 percent of the time, and L10 is the level exceeded 10 percent of the time. L90 is generally regarded as the background sound level, L50 represents the median level, and L10 represents the peak or intrusive noise levels. Percent noise level is commonly used in community noise ordinances that regulate noise from mechanical equipment, entertainment noise sources, etc. It is not normally used for transportation noise regulation. This noise metric is also referred to as Time Above (TA) in certain publications.

- *Sound Exposure Level (SEL)* – Another metric that is reported for aircraft flyovers is the Sound Exposure Level (SEL) metric. It is computed from dBA sound levels. Referring again to the top of **Figure 3.3**, the shaded area, or the area within 10 dB of the maximum noise level, is the area from which the SEL is computed. The SEL value is the integration of all the acoustic energy contained within the event into a time period of 1 second. Speech and sleep interference research can be assessed relative to Single-Event Noise Exposure Level data.

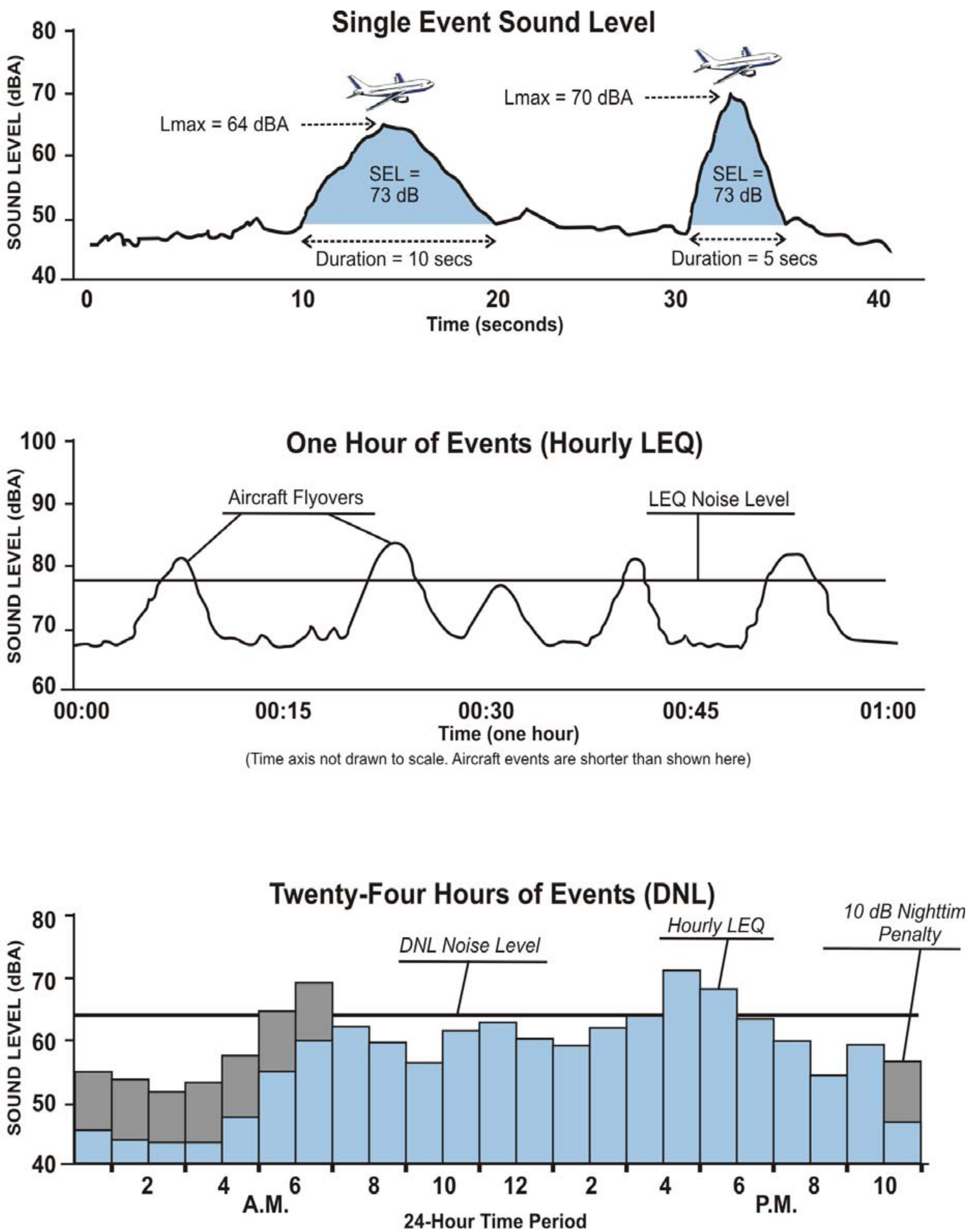
  This metric takes into account the maximum noise level of the event and the duration of the event. For aircraft flyovers, the SEL value is typically about 10 dBA higher than the maximum noise level. Single event metrics are a convenient method for describing noise from individual aircraft events. This metric is useful in that airport noise models contain aircraft noise curve data based upon the SEL metric. In addition, cumulative noise metrics such as Equivalent Noise Levels (Leq) and DNL can be computed from SEL data.

Cumulative Metrics

Cumulative noise metrics have been developed to assess community response to noise. They are useful because these scales attempt to include the loudness of the noise, the duration of the noise, the total number of noise events, and the time of day these events occur into one single number rating scale.

- *Equivalent Noise Level (Leq)* – Leq is the sound level corresponding to a steady-state, A-weighted sound level containing the same total energy as a time-varying signal over a given sample period. Leq is the “energy” average noise level during the time period of the sample. It is based on the observation that the potential for a noise to impact people is

Figure 3.3
SEL, LEQ, AND DNL ILLUSTRATIONS



dependent on the total acoustical energy content of the noise. It is the energy sum of all the sound that occurs during that time period. This is graphically illustrated in the middle graph of Figure 3.3. Leq can be measured for any time period, but is typically measured for 15 minutes, 1 hour, or 24 hours.

- *Day-Night Average Sound Level (DNL)* – The DNL index is a 24-hour, time-weighted energy average noise level based on the A-weighted decibel. It is a measure of the overall noise experienced during an entire day. The time-weighting refers to the fact that noise occurring during certain sensitive time periods is penalized for occurring at these times. In the DNL scale, noise occurring between the hours of 10 p.m. to 7 a.m. is penalized by 10 dB. This penalty was selected to attempt to account for the higher sensitivity to noise in the nighttime and the expected further decrease in background noise levels that typically occur in the nighttime. CFR Part 150 regulations require that DNL be used for FAR Part 150 studies. In addition, EPA specifies the use of DNL for community noise and for airport noise assessments. DNL is graphically illustrated in the bottom of Figure 3.3.

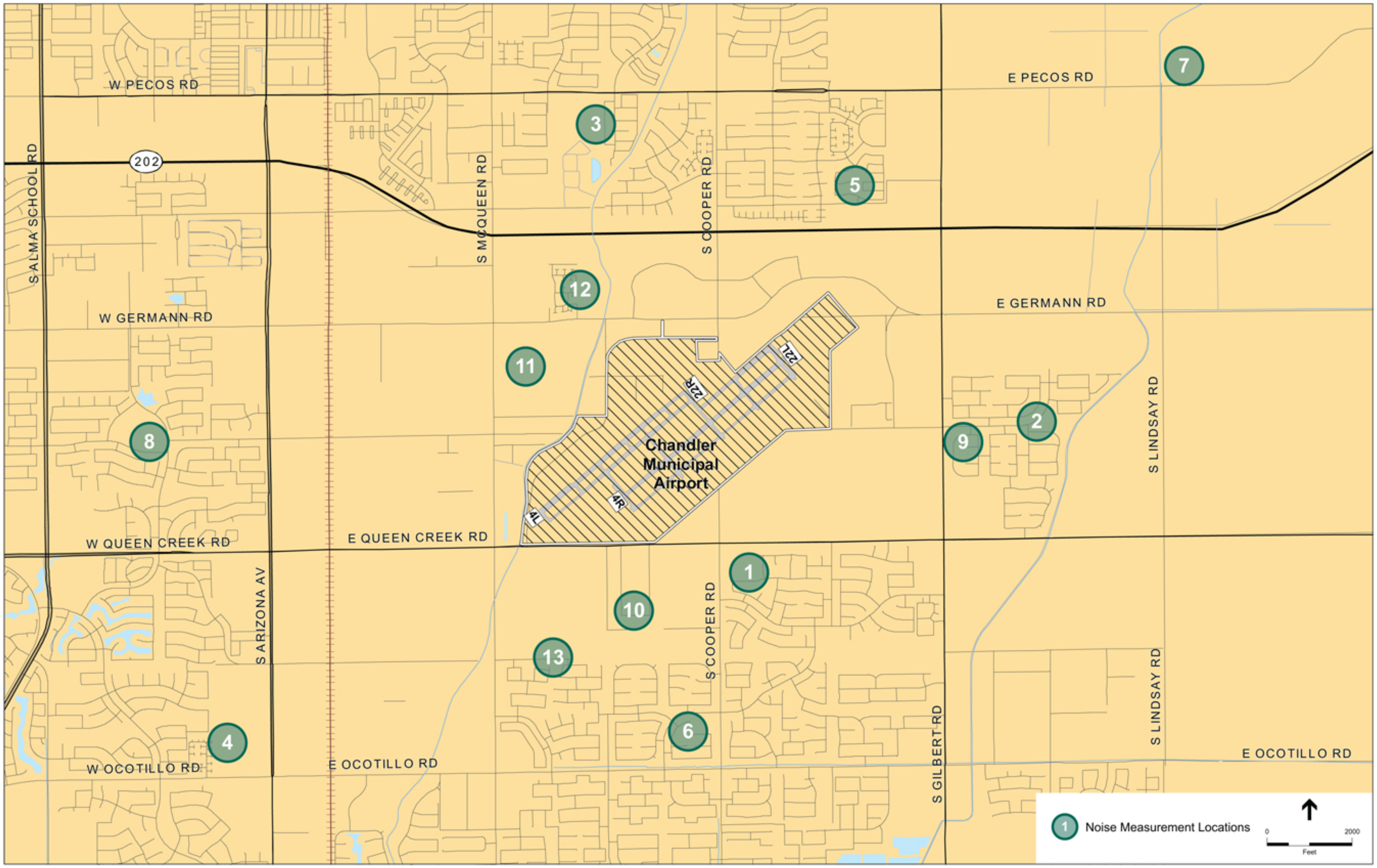
NOISE MEASUREMENTS

For the purposes of developing a full understanding of community and aircraft noise levels, aircraft noise measurements were made at 13 locations around Chandler Municipal. Both short-term and long-term measurements were made and the data collected were used to identify and compare relative levels of common community noise sources as well as specific aircraft types operating at Chandler Municipal. It is important to note that under CFR Part 150 regulations, the measured levels of aircraft noise may not be used to alter the noise data contained in the INM.

As described above and shown in **Figure 3.4**,13 locations were chosen for the noise measurements. A significant amount of effort went into choosing the 13 locations for the noise measurements. Fixed wing and helicopter flight training patterns at the Airport were reviewed to determine areas located under or near the flight patterns. In addition to the training flight patterns, records from the noise complaint system at the Airport were also reviewed to identify areas where residents had voiced concerns regarding aircraft noise in the past.

The noise measurements, using the noise measurement procedures and guidelines from FAR Part 150, were made during two time periods the period of May 20-22, 2008 and March 24-26, 2009. Measurements were conducted for long- and short-term durations. Six of the 13 locations had a noise monitor present for three consecutive days, representing the long-term durations. These sites are represented as Sites 1, 2, 3, 4, 9, and 10 on Figure 3.4.

Figure 3.4
NOISE MEASUREMENT LOCATIONS



SOURCE: ESA Airports

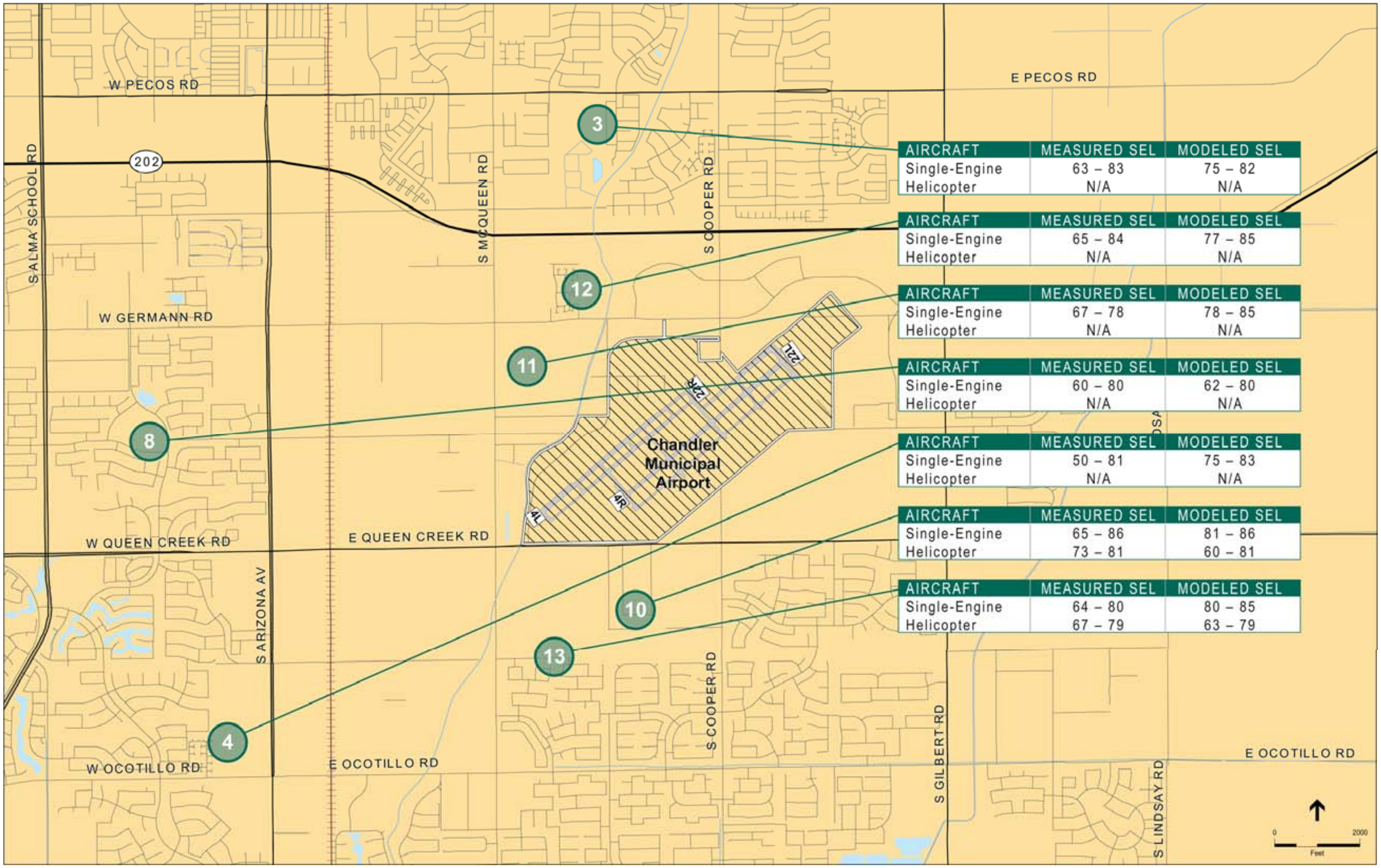
At the remaining six sites, noise measurements were made for several hours at a time, representing the short term durations.

For each measurement site, a noise monitor was used to record the noise levels at that location. The noise monitors recorded the sound levels of aircraft overflights as well as the ambient (non-aircraft) background levels. Staff was also at each location for extended periods of time during the measurements to record observations related to aircraft activities as well as local noise sources such as roadways. Observations recorded during the measurement exercise are included in **Appendix A.**

The amount of noise measurement data collected is quite voluminous. To provide meaningful interpretation of the data, a comparison was made between the measured aircraft noise levels and the modeled aircraft noise levels for each location. For all sites, both helicopter and single-engine fixed wing aircraft operating at the Airport were chosen to show typical noise levels measured versus modeled. **Figure 3.5** presents the noise measurement analysis for those measurement sites located west of the Airport, and **Figure 3.6** presents the noise measurement analysis for those measurement sites located east of the Airport.

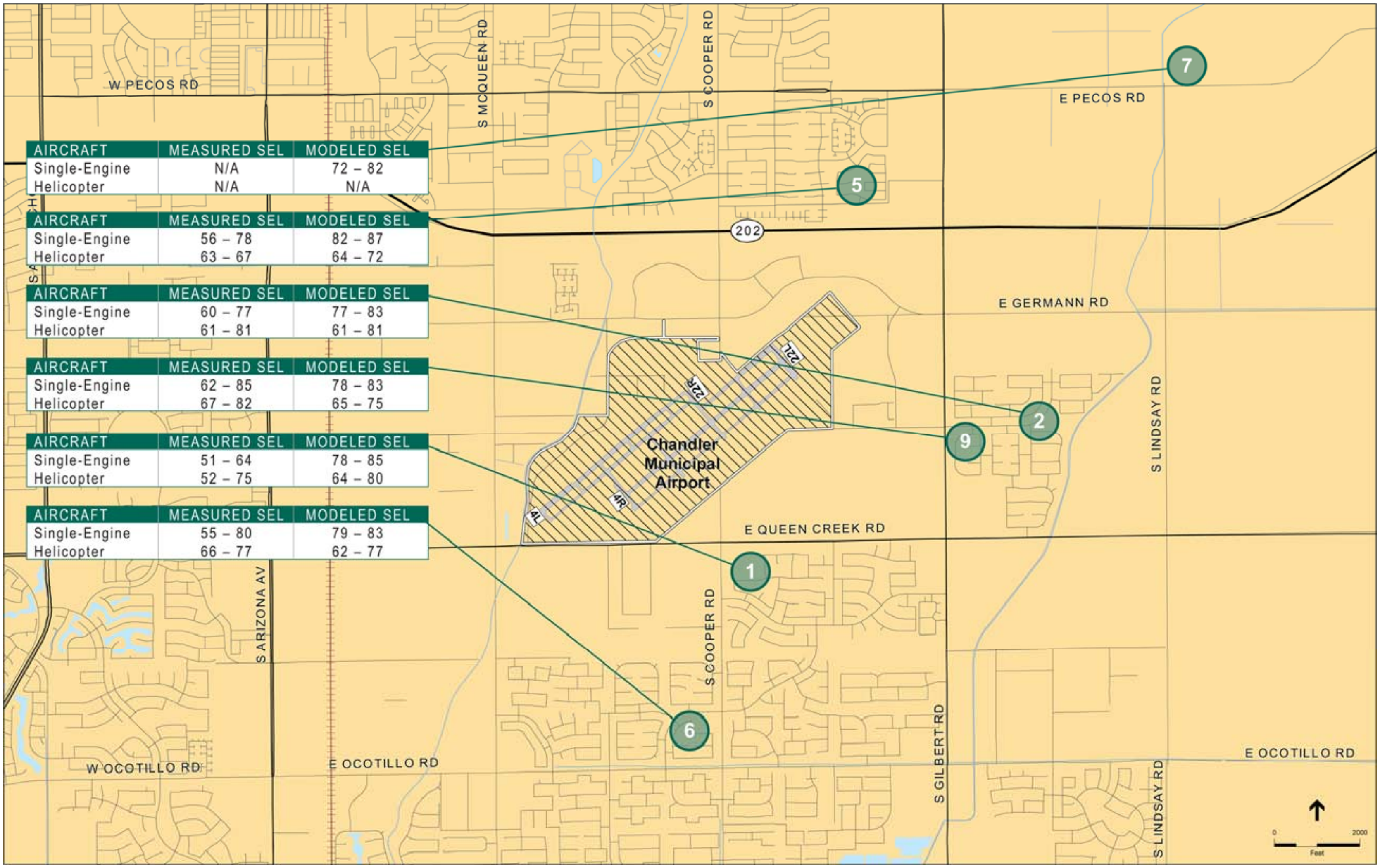
Many people have a difficult time understanding the noise levels measured and what that means. To assist with this, it is often beneficial to associate the noise level measured for an aircraft overflight to everyday common sounds. Everyday common sounds are reported using Lmax, or rather the peak sound level reached. The information presented in Figures 3.5 and 3.6 shows the SEL metric which accounts for the total noise energy of the event, taking into account the length of time the event occurred and the varying noise levels present. To accurately compare the data from Figures 3.5 and 3.6 to everyday common sounds, the noise levels in Figures 3.5 and 3.6 must be converted to Lmax to represent the general peak noise level present. To accomplish this, 10 dBA is subtracted from the SEL value to achieve the general Lmax value. It is important to understand the Lmax of a noise event is always less than the SEL value. **Figure 3.7** presents the general Lmax aircraft noise levels for each measurement location and provides a reference to equivalent everyday common sounds.

Figure 3.5
NOISE MEASUREMENT LOCATIONS - WEST



SOURCE: ESA Airports

Figure 3.6
NOISE MEASUREMENT LOCATIONS - EAST



AIRCRAFT	MEASURED SEL	MODELED SEL
Single-Engine	N/A	72 – 82
Helicopter	N/A	N/A

AIRCRAFT	MEASURED SEL	MODELED SEL
Single-Engine	56 – 78	82 – 87
Helicopter	63 – 67	64 – 72

AIRCRAFT	MEASURED SEL	MODELED SEL
Single-Engine	60 – 77	77 – 83
Helicopter	61 – 81	61 – 81

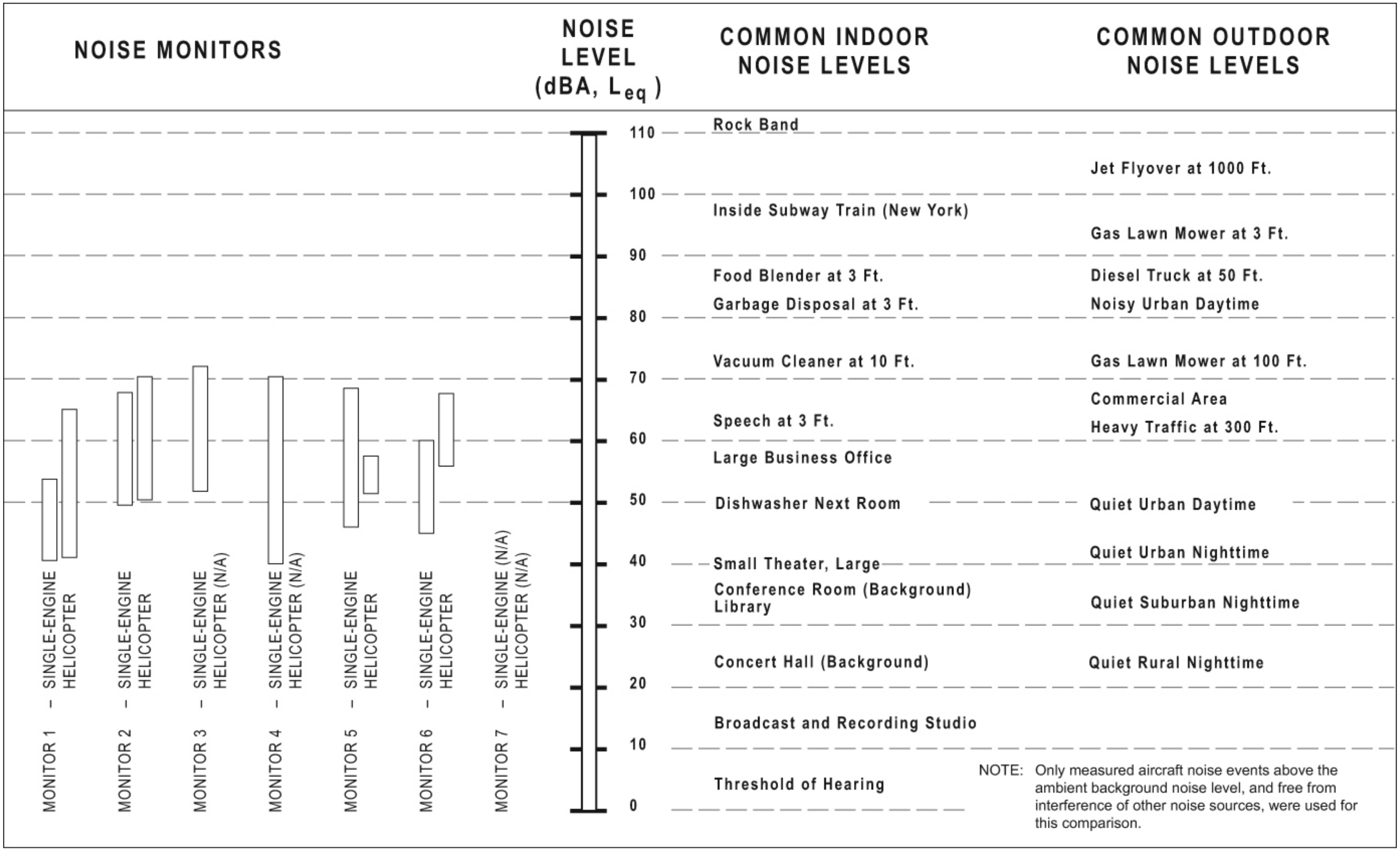
AIRCRAFT	MEASURED SEL	MODELED SEL
Single-Engine	62 – 85	78 – 83
Helicopter	67 – 82	65 – 75

AIRCRAFT	MEASURED SEL	MODELED SEL
Single-Engine	51 – 64	78 – 85
Helicopter	52 – 75	64 – 80

AIRCRAFT	MEASURED SEL	MODELED SEL
Single-Engine	55 – 80	79 – 83
Helicopter	66 – 77	62 – 77

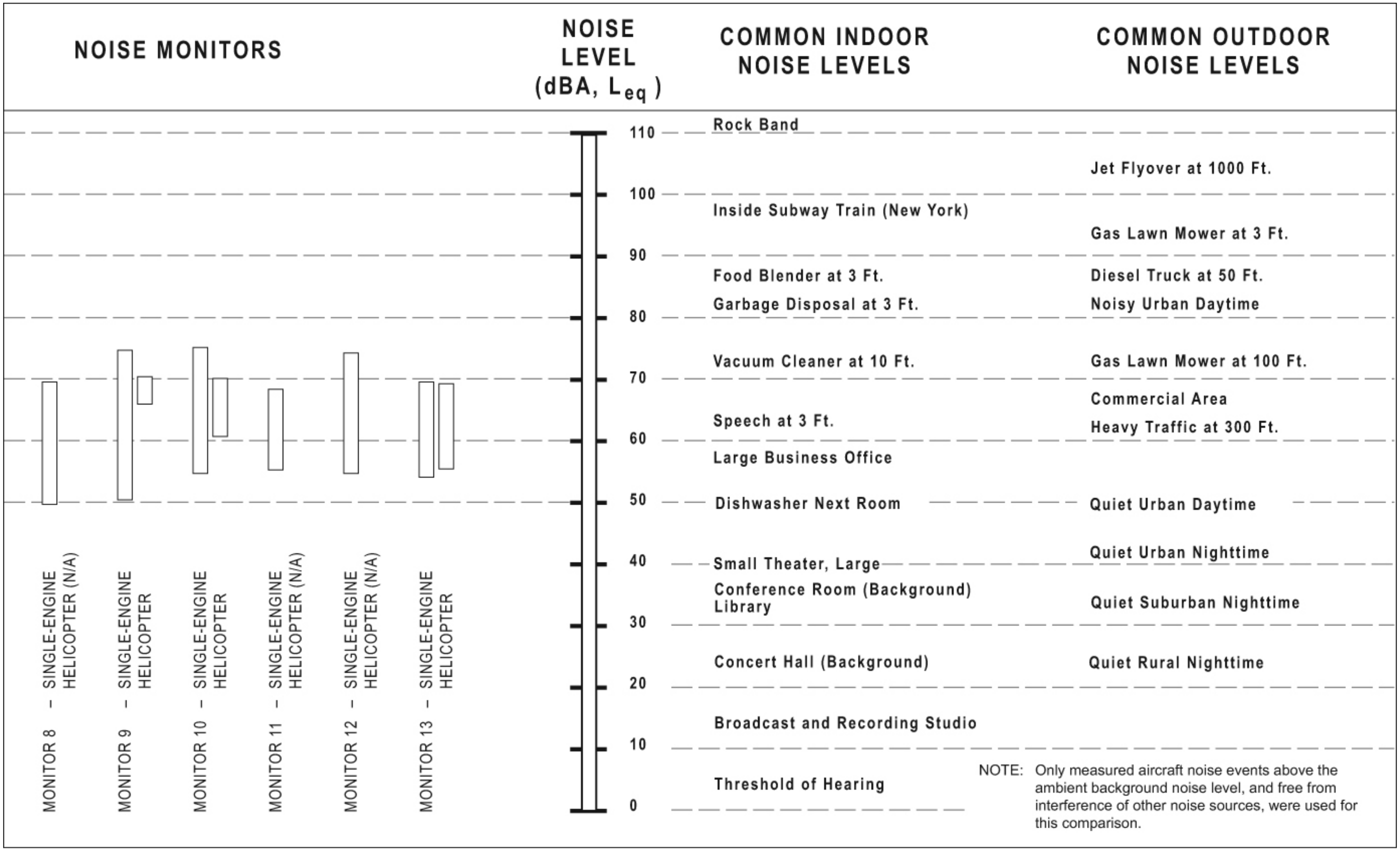
SOURCE: ESA Airports

Figure 3.7
COMMON SOUND COMPARISON (PAGE 1 OF 2)



SOURCE: ESA Airports

Figure 3.7
COMMON SOUND COMPARISON (PAGE 2 OF 2)



SOURCE: ESA Airports

CHAPTER FOUR: NOISE MODELING

Integrated Noise Model

The standard methodology for analyzing the noise exposure at airports involves the use of an aircraft noise model. The FAA has approved the Integrated Noise Model (INM) for use in FAR Part 150 Noise and Land Use Compatibility Studies. The INM was developed by the Transportation Systems Center of the United States Department of Transportation (USDOT) and is continuously being refined as new aircraft noise data and computation algorithms are added. Version 7.0 of the INM, the most current version of the model at the beginning of the Study, was used for the noise analysis described in this report.

Methodology

The INM works by defining a network of grid points at ground level around an airport. It then selects the shortest distance from each grid point to each flight track and computes the noise exposure generated by each aircraft operation, by aircraft type and engine thrust level along each flight track. Corrections are applied for atmospheric acoustical attenuation, acoustical shielding of the aircraft engines by the aircraft itself, and aircraft speed variations. The noise exposure levels for each aircraft are then summed at each grid location. The cumulative noise exposure levels at all grid points are then used to develop noise exposure contours for selected values (e.g., 65, 70, and 75 DNL). Using the results of the grid point analysis, noise contours of equal noise exposure can then be plotted.

INM Input Data

In order to develop DNL contours, the INM uses a series of input factors. Some of these factors are included in the database for the model (such as engine noise levels, thrust settings, aircraft profiles and aircraft speeds) and others are airport specific and need to be determined for each condition analyzed. These airport-specific data include the airport elevation, average-annual temperature, runway layout, the mathematical description of ground tracks above which aircraft fly, and the assignment of specific aircraft with specific engine types at specific takeoff weights to individual flight tracks. Other INM input factors specific to Chandler Municipal include:

- Runway orientation and use
- Existing 2008 aircraft operations[2] and fleet mix
- Future 2013 aircraft operations and fleet mix

[2] Estimated 2008 operations were used because analysis was started prior to the end of 2008.

- o Time of day/night operations

These factors were developed for all activity at Chandler Municipal including general aviation aircraft, training aircraft, helicopters, and military aircraft. The specific operational input data for Chandler Municipal is included in the next chapter of this report.

Noise Power Distance Curve Data

In addition to the mathematical procedures defined in the model, the INM has another very important element. This is a database containing tables correlating noise level, thrust settings, and distance for most of the civilian aircraft, and many common military aircraft, operating in the United States. This database, often referred to as the noise power distance curve data, has been developed under FAA guidance based on thousands of actual noise measurements in controlled settings for each aircraft type.

The database also includes performance data for each aircraft type. This data allows the model to compute airport-specific flight profiles (rates of climb and descent) for each aircraft type, providing an accurate representation of actual procedures.

It should be noted that guidelines under FAR Part 150 require that the annual-average DNL contours be computed. Consequently, the data presented in this document reflects annual-average conditions.

Noise Contour Mapping

DNL values are indicated by a series of contour lines superimposed on a map of the airport and off-airport environs. These levels are calculated for designated grid points on the ground from the weighted summation of the effects of all aircraft operations occurring on the average 24-hour day. Some operations are far enough away from a grid point location that their effect is minimal, while other operations may dominate noise exposure at that location.

The summation of noise levels was discussed in Chapter 3 of this report. One can think of the accumulation of noise energy throughout a 24-hour day from passing aircraft in the DNL computation like a series of passing rain squall lines. The important aspect to remember here is that at the end of a 24-hour period, a rain gauge would indicate the total rainfall received during that day although, the rain only fell during brief periods. During the course of this Study, DNL contour mapping is used as a tool to assist in the consideration of land use planning around Chandler Municipal. DNL contours were used to:

- o Highlight an existing or potential aircraft noise problem area that requires attenuation,

- Assess relative exposure levels of various operational conditions and noise abatement considerations,

- Assist in the preparation of airport environs land use plans, and,

- Provide guidance in the development of land use control measures in high noise areas.

CHAPTER FIVE: AIRPORT OPERATIONAL DATA

EXISTING OPERATIONAL ACTIVITY AND FLEET MIX

The existing (2008) operational activity and fleet mix were presented in Chapter 2. The activity is reported in the following categories: air taxi, itinerant general aviation, local general aviation, helicopter, and local helicopter. This data was then divided by 365, to obtain the number of operations by category for the annual-average day. A summary of these operations is listed in **Table 5.1.**

TABLE 5.1
2008 ANNUAL OPERATIONS
CHANDLER MUNICPAL AIRPORT
14 CFR PART 150 STUDY

	Air Carrier	Air Taxi	Itinerant General Aviation	Local General Aviation	Helo	Local Helo	Total
Yearly Totals	0	4,101	78,556	101,718	8,884	74,926	*268,185*
Average 24-Hour Day	0	11.24	215.22	278.68	24.34	205.27	*734.75*

Source: Wilbur Smith Assoc., ESA Airports

As presented in Table 5.1, the total number of operations that occurred for 2008 was 268,185; or an average of 735 operations per day. The breakdown of operations by aircraft type and fleet mix for 2008 is presented in **Table 5.2**; local (touch-and-go) operations are presented in **Table 5.3**.

The aircraft identifiers in Table 5.2 are codes for the representative aircraft types used in the INM. Several aircraft that operate at the Airport are not in the INM nor do they have an official substitution in the INM. The FAA was contacted to provide aircraft substitutions for these aircraft in the modeling effort. The FAA determines substitute aircraft based on the noise signature of the aircraft in question taking into account the operating parameters of the aircraft and number and type of engines used. The appropriate substitutions, as determined by the FAA, were used in the modeling effort. The approved substitution aircraft provided by the FAA can be found in **Appendix B**.

TABLE 5.2
2008 ANNUAL-AVERAGE DAY FLEET MIX (ITINERANT OPERATIONS)
CHANDLER MUNICIPAL AIRPORT
14 CFR PART 150 STUDY

			Arrivals			Departures		
Category	***Sub-Category***	***INM Aircraft***	***Day***	***Night***	***Total***	***Day***	***Night***	***Total***
Itinerant General Aviation	Jets	CL600	0.02	--	*0.02*	0.02	--	*0.02*
		CNA500	0.58	0.06	*0.64*	0.61	0.03	*0.64*
		CNA55B	0.01	--	*0.01*	0.01	--	*0.01*
		IA1125	0.01	--	*0.01*	0.01	--	*0.01*
		LEAR35	0.07	--	*0.07*	0.05	0.02	*0.07*
		MU3001	0.50	0.05	*0.55*	0.52	0.03	*0.55*
		Subtotal	***1.19***	***0.11***	***1.30***	***1.22***	***0.08***	***1.30***
	Multi Engine/ Turboprop	BEC58P	2.93	0.12	*3.05*	2.99	0.06	*3.05*
		CNA441	1.93	0.02	*1.95*	1.84	0.11	*1.95*
		DHC6	3.50	0.37	*3.87*	3.69	0.18	*3.87*
		GASEPV	1.01	--	*1.01*	0.99	0.02	*1.01*
		PA31	0.52	--	*0.52*	0.52	--	*0.52*
		SD330	0.02	--	*0.02*	0.02	--	*0.02*
		Subtotal	***9.91***	***0.51***	***10.42***	***10.05***	***0.37***	***10.42***
	Single Engine	CNA172	14.56	0.45	*15.01*	14.57	0.44	*15.01*
		CNA206	20.16	0.74	*20.90*	20.17	0.73	*20.90*
		GASEPF	19.33	0.69	*20.02*	19.36	0.64	*20.02*
		GASEPV	45.36	1.41	*46.77*	45.36	1.41	*46.77*
		Subtotal	***99.41***	***3.29***	***102.70***	***99.48***	***3.22***	***102.70***
Helo	Non-Military	R22	9.97	0.28	*10.25*	9.97	0.26	*10.25*
		H500D	1.89	0.03	*1.92*	1.89	0.03	*1.92*
		Subtotal	***11.86***	***0.31***	***12.17***	***11.86***	***0.31***	***12.17***
Total			***122.37***	***4.22***	***126.59***	***122.37***	***3.98***	***126.35***

Source: Wilbur Smith Assoc., ESA Airports

TABLE 5.3
2008 ANNUAL-AVERAGE DAY FLEET MIX (LOCAL OPERATIONS)
CHANDLER MUNICIPAL AIRPORT
14 CFR PART 150 STUDY

			Touch and Go		
Category	***Sub Category***	***INM Aircraft***	***Day***	***Night***	***Total***
General Aviation	Multi Engine	BEC58P	1.05	0.05	*1.10*
		Subtotal	***1.05***	***0.05***	***1.10***
	Single Engine	CNA172	49.06	1.54	*50.60*
		CNA206	38.73	1.20	*39.93*
		GASEPF	78.64	2.48	*81.12*
		GASEPV	*102.86*	*3.17*	*106.03*
		Subtotal	***269.29***	***8.39***	***277.68***
	Helo	R22	179.29	5.47	*184.77*
		H500D	*19.90*	*0.61*	*20.51*
		Subtotal	***199.19***	***6.08***	***205.27***
Total			***469.53***	***14.52***	***484.05***

Source: Wilbur Smith Assoc., ESA Airports

As indicated in Table 5.1, the greatest level of aircraft activity at the Airport during 2008 was the Local General Aviation category of aircraft, amounting for approximately 38 percent of the overall activity with Itinerant General Aviation and Local Helicopter operations accounting for an additional 29 percent and 28 percent respectively. Helicopters (itinerant) traffic accounted for approximately three percent of operations at the Airport and the Air Taxi operations contributed approximately two percent of the total operations.

FUTURE OPERATIONAL ACTIVITY AND FLEET MIX (2013)

Projections for future aircraft operations in 2013, shown in **Table 5.4**, were presented previously in Chapter 2. The requirements for the FAR Part 150 program state that the future condition to be analyzed is five years from the year of submittal. Future condition for this Study will be the year 2013. A 20 year forecast was also completed, along with projected operational activity. Operational activity for the year 2028 can be seen in **Appendix R**.

TABLE 5.4
2013 ANNUAL OPERATIONS
CHANDLER MUNICIPAL AIRPORT
14 CFR PART 150 STUDY

	Air Carrier	Air Taxi	Itinerant General Aviation	Local General Aviation	Helo	Local Helo	Total
Yearly Totals	0	5,580	82,698	114,581	9,577	96,987	*309,423*
Average 24-Hour Day	0	15.29	226.57	313.92	26.24	265.72	*847.73*

Source: Wilbur Smith Assoc., ESA Airports

As shown in Table 5.4, total operations at the Airport for the future year 2013 are projected to be 309,423 per year, or 848 per average annual day. A breakdown of 2013 itinerant operational activity and fleet mix that is used as the basis for the preparation of 2013 noise contours is presented in **Table 5.5** with a breakout of local operations in **Table 5.6**.

RUNWAY UTILIZATION

Existing Conditions

Runway utilization at Chandler Municipal depends primarily on wind conditions and secondarily on aircraft destination or arrival location into the local airspace. Based on ATCT estimates, the Airport currently operates to the west (arrivals from the east and departures to the west) approximately 50 percent of the time and to the east (arrivals from the west and departures to the east) approximately 50 percent. While the Airport currently has two runways, the majority of itinerant operations occur on runway 4R-22L while the local operations (touch-and-go) occur equally on both parallel runways. A comprehensive breakdown of runway use, by aircraft category, is shown in **Table 5.7**.

TABLE 5.5
2013 ANNUAL-AVERAGE DAY FLEET MIX (ITINERANT OPERATIONS)
CHANDLER MUNICIPAL AIRPORT
14 CFR PART 150 STUDY

			Arrivals			Departures		
Category	***Sub-Category***	***INM Aircraft***	***Day***	***Night***	***Total***	***Day***	***Night***	***Total***
Itinerant General Aviation	Jets	CL600	0.03	--	*0.03*	0.03	--	*0.03*
		CNA500	0.76	0.07	*0.83*	0.79	0.04	*0.83*
		CNA55B	0.11	0.01	*0.12*	0.12	--	*0.12*
		IA1125	0.01	--	*0.01*	0.01	--	*0.01*
		LEAR35	0.08	0.01	*0.09*	0.07	0.02	*0.09*
		MU3001	0.74	0.07	*0.81*	0.78	0.03	*0.81*
		Subtotal	***1.73***	***0.16***	***1.89***	***1.80***	***0.09***	***1.89***
	Multi Engine/ Turboprop	BEC58P	3.03	0.12	*3.15*	3.08	0.07	*3.15*
		CNA441	2.00	0.02	*2.02*	1.91	0.11	*2.02*
		DHC6	3.64	0.37	*4.01*	3.82	0.19	*4.01*
		GASEPV	1.06	--	*1.06*	1.04	0.02	*1.06*
		PA31	0.55	--	*0.55*	0.55	--	*0.55*
		SD330	0.04	0.01	*0.05*	0.05	--	*0.05*
		Subtotal	***10.32***	***0.52***	***10.84***	***10.45***	***0.39***	***10.84***
	Single Engine	CNA172	14.84	0.48	*15.32*	14.84	0.48	*15.32*
		CNA206	20.82	0.78	*21.60*	20.95	0.65	*21.60*
		GASEPF	20.91	0.74	*21.65*	20.98	0.67	*21.65*
		GASEPV	47.48	1.49	*48.97*	47.48	1.49	*48.97*
		Subtotal	***104.05***	***3.49***	***107.54***	***104.25***	***3.29***	***107.54***
Helo	Non-Military	R22	10.80	0.31	*11.10*	10.80	0.31	*11.10*
		H500D	1.98	0.03	*1.23*	1.98	0.03	*1.23*
		Subtotal	***12.78***	***0.34***	***13.12***	***12.78***	***0.34***	***13.12***
Total			***128.88***	***4.51***	***133.39***	***129.28***	***4.11***	***133.39***

Source: Wilbur Smith Assoc., ESA Airports

TABLE 5.6
2013 ANNUAL-AVERAGE DAY FLEET MIX (LOCAL OPERATIONS)
CHANDLER MUNICIPAL AIRPORT
14 CFR PART 150 STUDY

			Touch and Go		
Category	***Sub Category***	***INM Aircraft***	***Day***	***Night***	***Total***
General Aviation	Multi Engine	BEC58P	1.24	0.05	*1.29*
		Subtotal	***1.24***	***0.05***	***1.29***
	Single Engine	CNA172	55.23	1.74	*56.97*
		CNA206	44.77	1.39	*46.16*
		GASEPF	88.54	2.78	*91.32*
		GASEPV	114.66	3.53	118.19
		Subtotal	***303.20***	***9.44***	***312.64***
	Helo	R22	232.09	7.08	*239.17*
		H500D	25.76	0.79	*26.55*
		Subtotal	***257.85***	***7.87***	***265.72***
Total			***562.29***	***17.36***	***579.65***

Source: Wilbur Smith Assoc., ESA Airports

TABLE 5.7
EXISTING PERCENTAGE RUNWAY UTILIZATION
CHANDLER MUNICIPAL AIRPORT
14 CFR PART 150 STUDY

		Runway				
Operation Type	**Aircraft Category**	**04L**	**04R**	**22L**	**22R**	**Total**
Arrivals	Jets	5.0	45.0	45.0	5.0	100.00
	Multi Engine/Turboprop	30.0	20.0	20.0	30.0	100.00
	Single Engine Prop	20.0	30.0	30.0	20.0	100.00
Departures	Jets	5.0	45.0	45.0	5.0	100.00
	Multi Engine/Turboprop	30.0	20.0	20.0	30.0	100.00
	Single Engine Prop	20.0	30.0	30.0	20.0	100.00
Local Pattern	Multi Engine/Turboprop	30.0	20.0	20.0	30.0	100.00
	Single Engine Prop	20.0	30.0	30.0	20.0	100.00

Source: CHD ATCT; ESA Airports

Future Conditions

The future condition (2013) at the Airport does not include any changes to the airfield and therefore the runway use percentages, shown in **Table 5.8**, are expected to remain the same as existing conditions.

TABLE 5.8
FUTURE 2013 PERCENTAGE RUNWAY UTILIZATION
CHANDLER MUNICIPAL AIRPORT
14 CFR PART 150 STUDY

Operation Type	Aircraft Category	Runway 04L	04R	22L	22R	Total
Arrivals	Jets	5.0	45.0	45.0	5.0	100.00
	Multi Engine/Turboprop	30.0	20.0	20.0	30.0	100.00
	Single Engine Prop	20.0	30.0	30.0	20.0	100.00
Departures	Jets	5.0	45.0	45.0	5.0	100.00
	Multi Engine/Turboprop	30.0	20.0	20.0	30.0	100.00
	Single Engine Prop	20.0	30.0	30.0	20.0	100.00
Local Pattern	Multi Engine/Turboprop	30.0	20.0	20.0	30.0	100.00
	Single Engine Prop	20.0	30.0	30.0	20.0	100.00

Source: CHD ATCT; ESA Airports

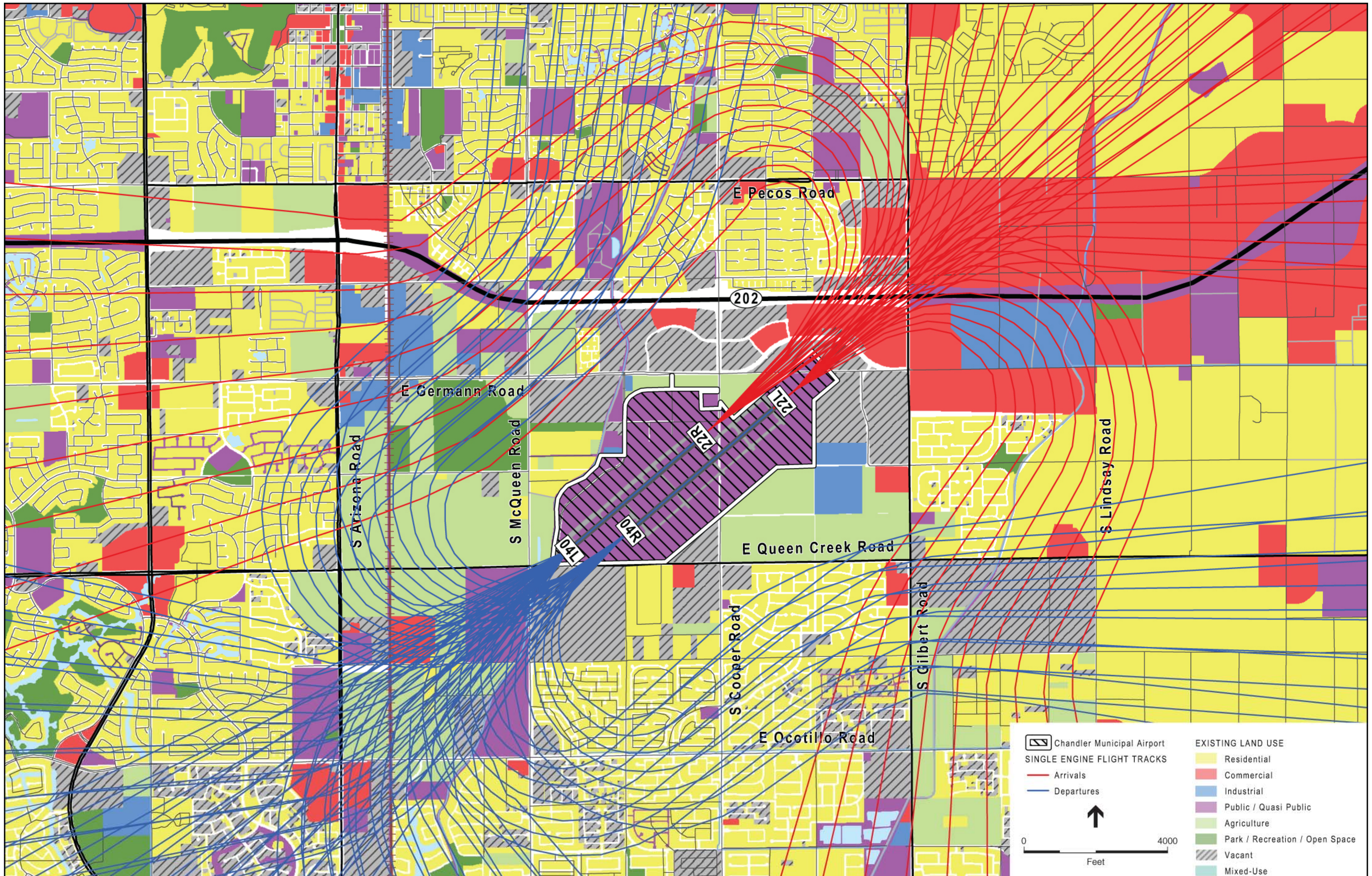
FLIGHT TRACKS

Existing Condition

The location of flight tracks (flight corridor centerlines) is an important factor in determining the geographic distribution of noise contours on the ground. The locations of the current arrival and departure tracks into and out of Chandler Municipal were developed through discussions with ATCT and verified using data obtained from the Phoenix Terminal Radar Approach Control and from the flight tracking system located at Phoenix Sky Harbor International Airport. Flight tracks utilized by arriving and departing aircraft, in both east and west flow conditions, were reviewed and a series of centerlines of flight corridors were established. Since aircraft do not follow a single track in the sky, flight corridors are developed to closely replicate the actual splay of aircraft as per the dispersion indicated in the data obtained and sub-track use percentages were assigned accordingly.

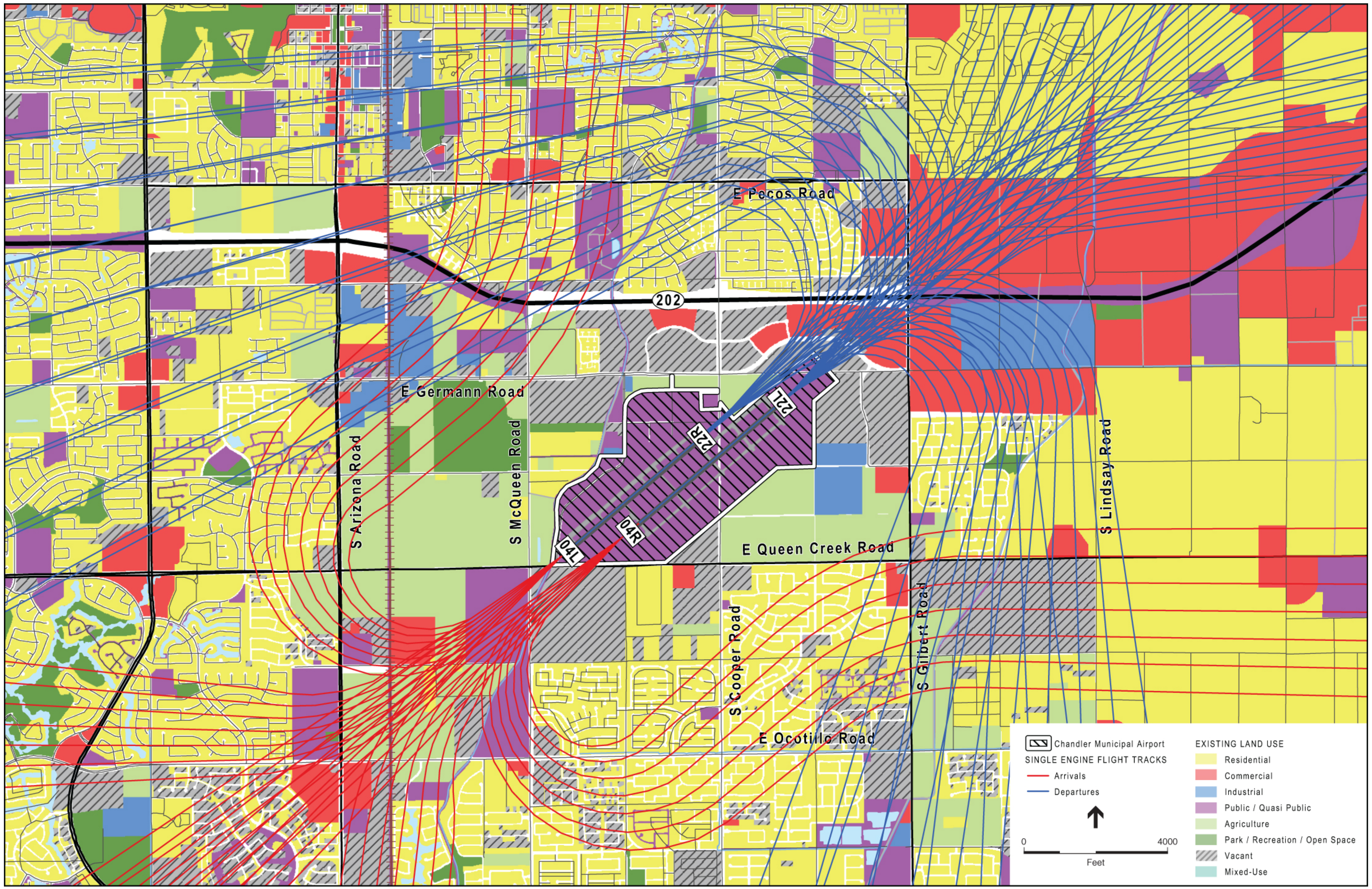
Primary single engine aircraft arrival and departure flight corridors for a west-flow condition are shown on **Figure 5.1** and for east-flow on **Figure 5.2**. The flight tracks shown on these figures, extending both east and west of the Airport, are itinerant operations of single engine aircraft and represent the approximate centerline of flight corridors for arriving and departing aircraft and the natural splay of the aircraft corridors. It should be noted that no two aircraft would fly exactly the same path due to such

Figure 5.1
EXISTING SINGLE ENGINE FLIGHT TRACKS – WEST FLOW



SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA Airports, 2009

Figure 5.2
EXISTING SINGLE ENGINE FLIGHT TRACKS – EAST FLOW



SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA Airports, 2009

factors as aircraft type, differences in equipment, pilot technique, instrumentation, location in relation to other aircraft, and weather conditions.

The training pattern flight corridors used at Chandler Municipal are shown on **Figure 5.3.** These training patterns include local touch-and-go patterns for both fixed wing and helicopter activity. The fixed wing training patterns occur both north and south of the Airport depending on which runway is being used. The helicopter training pattern occurs almost exclusively to the south of the Airport.

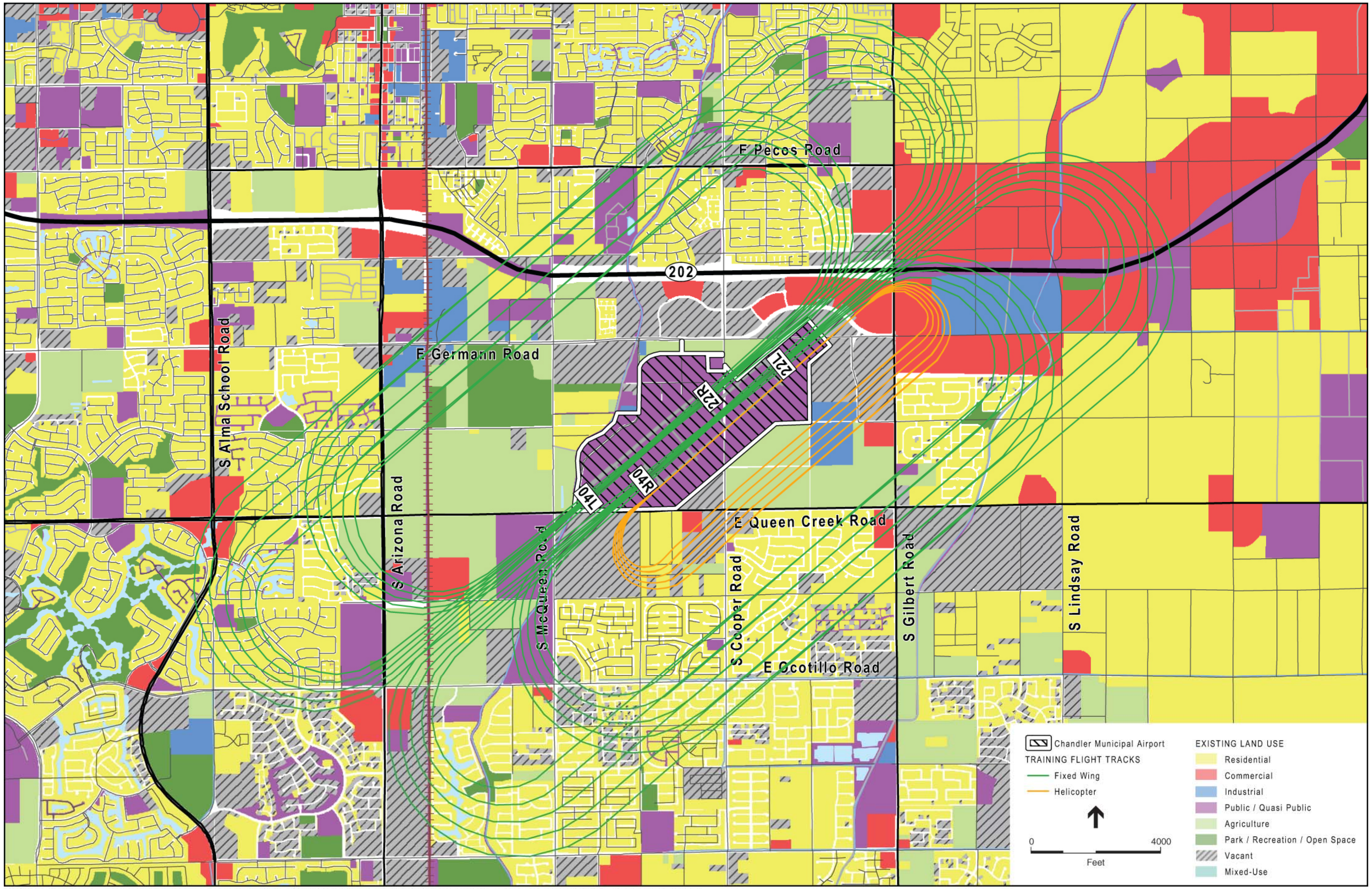
The itinerant helicopter arrival and departure corridors are show in **Figure 5.4**. The flight tracks shown on these figures, extending both north and south of the Airport, are itinerant operations of helicopters and represent the approximate centerline of flight corridors for arriving and departing aircraft and the natural splay of the aircraft corridors. It should be noted that no two helicopters would fly exactly the same path due to such factors as helicopter type, differences in equipment, pilot technique, instrumentation, location in relation to other helicopters, and weather conditions.

The flight corridor maps presented in this section represent only a small fraction of the flight tracks used in the development of the existing noise contours. All flight tracks used in the development of the existing noise contours, extending out to 30,000 feet from the ends of the runways, can be seen in **Appendix C**, where they are presented with the noise exposure maps.

Future Condition

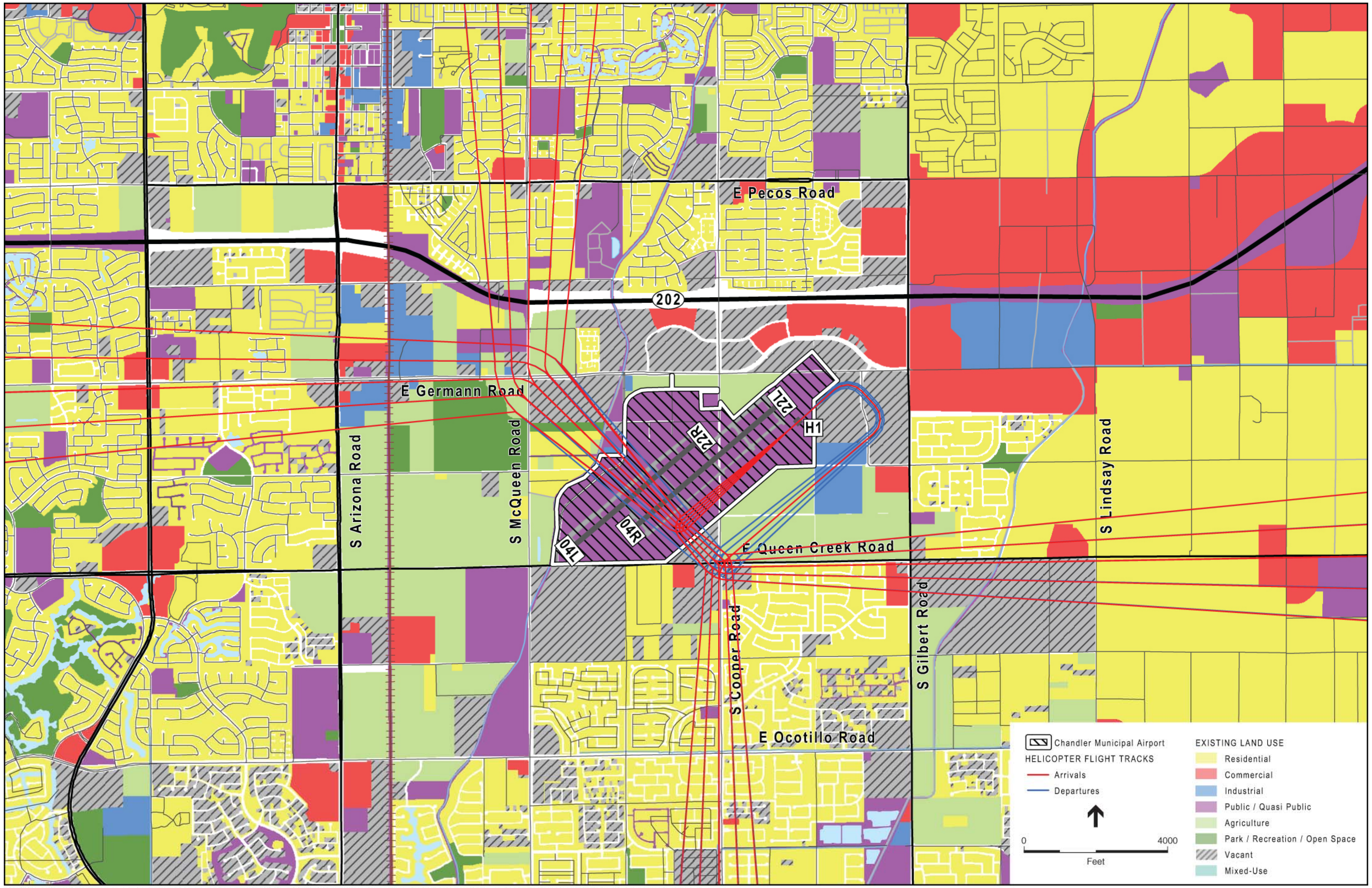
As mentioned previously, no airfield changes are anticipated for the future year 2013 condition. Because no airfield changes are anticipated for 2013, the flight tracks are not expected to change and will remain the same as the existing flight tracks.

Figure 5.3
EXISTING TRAINING PATTERN FLIGHT TRACKS



SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA Airports, 2009

Figure 5.4
EXISTING ITINERANT HELICOPTER FLIGHT TRACKS



SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA Airports, 2009

CHAPTER SIX: NOISE EXPOSURE

FAA requires that the noise exposure map (NEM) submitted for review represent the aircraft noise exposure for the year of submittal (in this case 2009) and for a future year (2014 for CHD). However, since the analysis conducted for the Chandler Municipal 14 CFR Part 150 Study used estimated data for 2008 year (because the Study began prior to the year of submittal), a review was made of recent operational activity at the Airport. This review was made to determine if the initial year and future year noise contours analyzed in this Study (2008 and 2013) were not significantly different from those that occur in the year of submittal (2009) and would be expected to occur in the future year (2014).

As indicated in **Appendix D**, a review of the operational activity for the previous 12 months of operations (May 2008 – April 2009), the last 12 months of operational activity, indicated the operational activity changed by 16 percent from the predicted 2008 operational data. The 16 percent is slightly greater than the 15 percent change suggested by the FAA. However, since the change is a decrease, the 2009 NEM contour as modeled represents a conservative approach from a noise standpoint. Since the difference in operations will not cause a noticeable change in the 2009 DNL contour, and the contours are considered to be conservative, the 2008 DNL contours are representative of 2009 conditions.

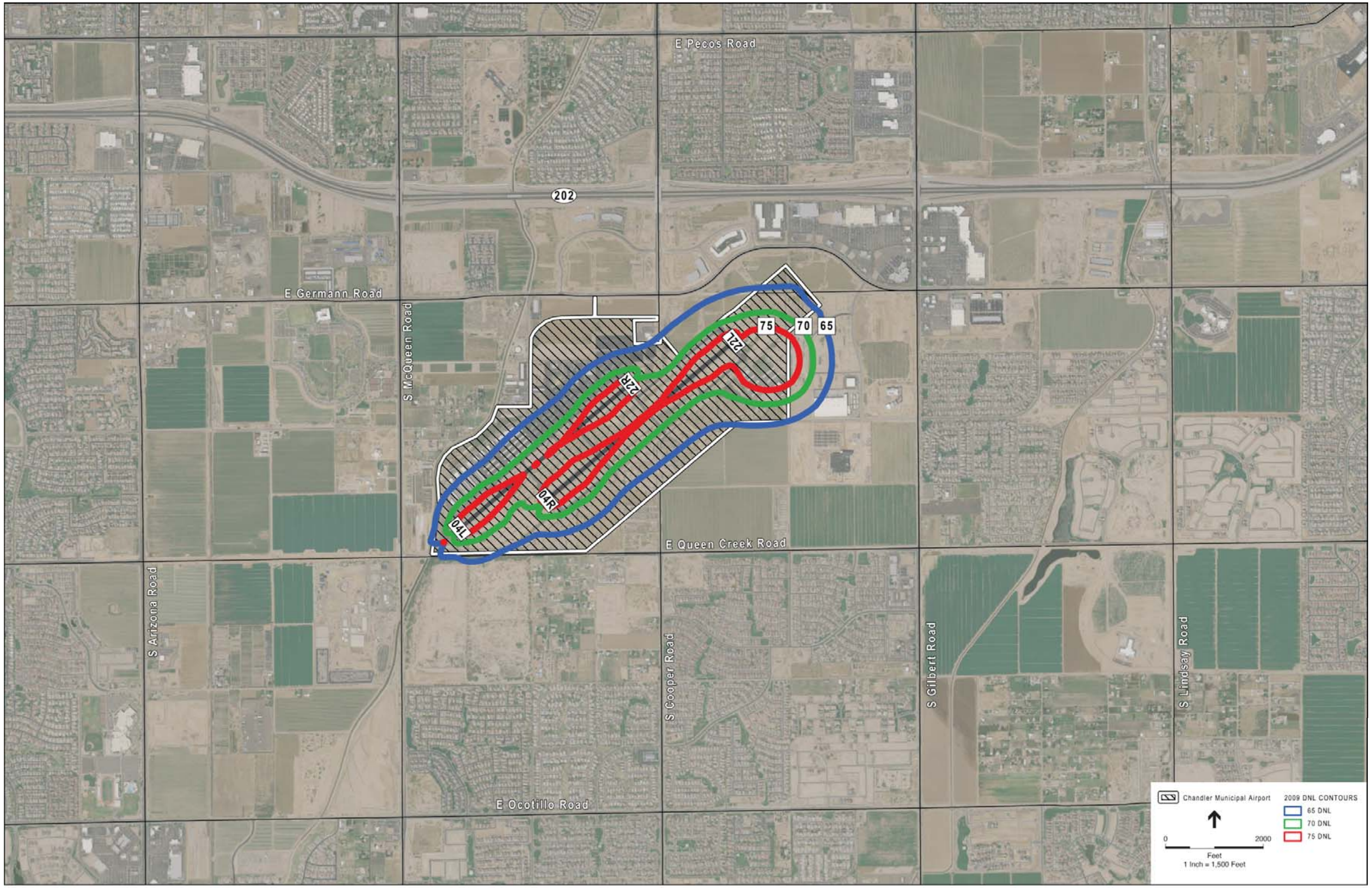
In addition, the 2008 FAA Terminal Area Forecast (TAF) of aircraft activity for 2014 indicates a decrease in operations of 7 percent from the operational numbers for 2013 from the 2007 FAA TAF. This scenario is within the +/-15 percent change in operations allowance permitted by the FAA to still be considered representative of modeled conditions. Therefore, to be consistent with FAA guidelines, the two CHD NEMs represent the years 2009 and 2014.

It should also be noted that the 65, 70, and 75 DNL contours are the only contours required by the FAA for inclusion in the 14 CFR Part 150 Study and for acceptance by them for the two Noise Exposure Maps. The 2014 future NEM contours reflect a condition that would occur without the implementation of the Noise Compatibility Program.

EXISTING NOISE CONDITIONS (2009)

The 2009 DNL contours for CHD are provided in **Figure 6.1**. As shown on the Figure, the 65, 70, and 75 DNL contours are mostly contained on Airport property; small portions of the 65 DNL go off Airport property to the southwest, northeast, and east. The overall shape of the contour reflects the approximate 50/50 split between operations to the northeast and southwest. The contours are also wider in the vicinity of the Airport due to the training activity that takes place near the Airport. To the south and east of the airfield is a circular portion of the DNL contours that represents the area where helicopters operate to and from. The circular shape of the DNL contour in this area is typical of contours related to helicopter operations

Figure 6.1
2009 DNL CONTOURS



SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA Airports, 2009

The 60 and 55 DNL contours were also developed for 2009. These contours can be seen in **Appendix S**.

FUTURE NOISE CONDITIONS (2014)

The FAR Part 150 guidelines require two years of analysis - the existing condition (2009 at CHD) and a condition projected for a future year of at least five years from the date of submittal. As mentioned previously, the future year for CHD is 2014. The 2014 contour reflects a change in fleet mix and number of operations. The 2014 noise exposure contours are shown on **Figure 6.2**.

A review of the 2014 condition indicates that there is a slight increase in the size of the contours compared to 2009, however the overall shape remains the same. The slight increase in the size of the contours is attributed to the forecast increase in the number of aircraft operations.

The 60 and 55 DNL contours were also developed for 2014. These contours can be seen in **Appendix S.** In addition, contours were developed for the future year 2028 for use in local land use planning efforts. These contours can be seen in **Appendix R.**

EXISTING LAND USE AND DEVELOPMENT PATTERNS

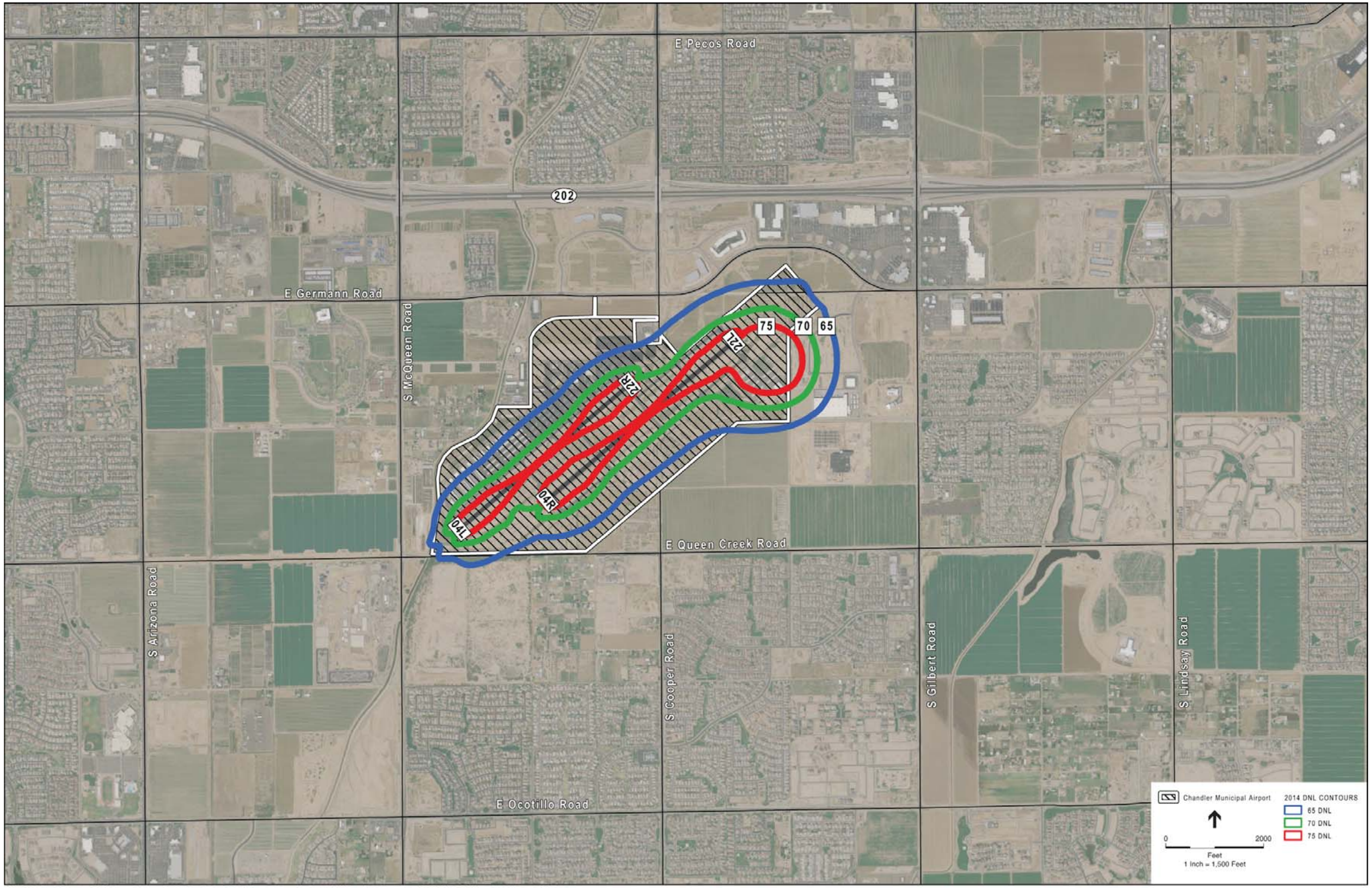
As the City of Chandler grows and expands, activity at Chandler Municipal is projected to increase as well. As the number of aircraft operations increase, the size of the Airport's DNL contours are likely to increase, potentially affecting a larger area of land surrounding the Airport. The highest level of noise generated by aircraft occurs near the runways ends immediately prior to take-off or landing. Because Chandler Municipal accommodates a large number of flight training operations, including aircraft performing 'Touch-and-Go' operations or repeated take-offs and landings, the airport is especially subject to this type of noise. As a result, it is very important that only airport-compatible uses be allowed on parcels located near runway ends. Preferably these uses would be industrial and aviation related, to act as a buffer between the airport and noise sensitive land uses (e.g., residences, schools, and churches).

Existing Land Use Patterns

Currently much of the land bordering Chandler Municipal is either in the process of being developed, agricultural, or vacant. The vacant land is likely a result of agricultural land falling out of production use due to encroaching urban development.

The commercial and industrial development in the flight path to the northeast is compatible with the Airport. The area southwest of the Airport has been developed as

Figure 6.2
2014 DNL CONTOURS



SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA Airports, 2009

compatible public facilities, but the area still contains large tracts of agricultural areas, which although are planned for future industrial development, could potentially be developed residentially. The 1999 NEM contours from the previous FAR part 150 Study contained incompatible (residential) uses to the west and south of the airport, and noted the potential for additional residential development on numerous surrounding parcels.

Pending Land Development

According to the 1998 'Chandler Airpark Area Plan', the City of Chandler intends to use the Airport as an economic development tool to entice aerospace-related and aviation-dependent industries to locate in Chandler.

Historically, Chandler has been full of parcels of land suitable for large scale development. Combined with the extensive use of Planned Area Development (PAD) zones, has provided the City considerable discretion in negotiating land use. However, keeping the airpark area free of incompatible development in the future will require the continued exercise of political will and legal due diligence.

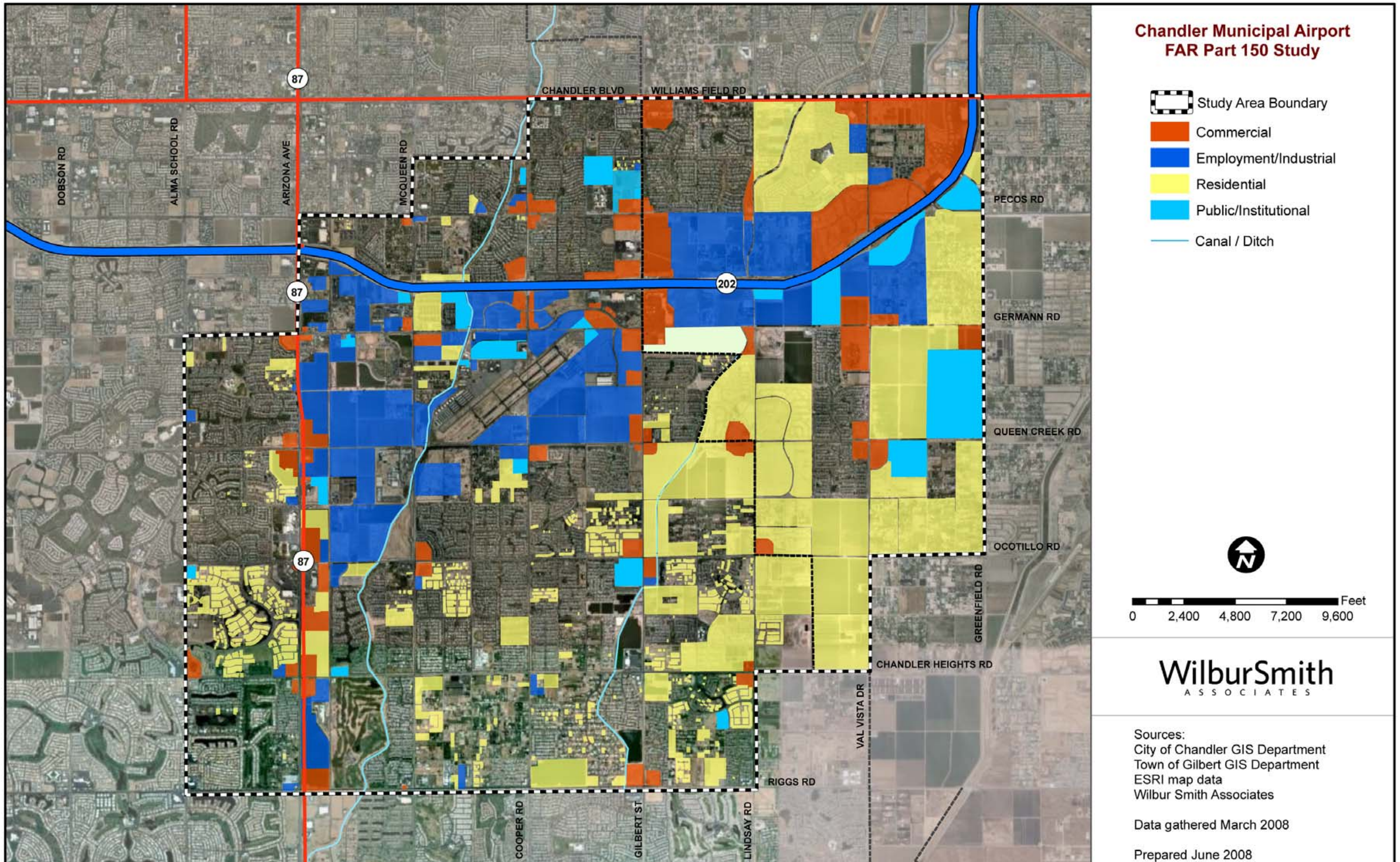
Figure 6.3 identifies planned or pending land uses by type in the area surrounding the Airport. The types of land uses have been consolidated into four main categories and include: Commercial, Employment\Industrial, Residential, and Public\Institutional. The planned land uses identified parcels and planned land use types in the City of Chandler, the Town of Gilbert, Sun Lakes, and unincorporated Maricopa and Pima Counties. The map is based upon the most recent land use and zoning data from the City of Chandler, the Town of Gilbert, and other general planning documents.

The 2008 Chandler General Plan identifies the nine square mile area surrounding Chandler Municipal Airport as a key economic development area for the City that should be reserved for non-residential development. The General Plan provides direction to protect the flight corridor approaching and departing the Airport from high intensity development. The broad policies in the General Plan for this area are further refined in the Chandler Airpark Area Plan, which designates most of the remaining undeveloped land around the Airport for non-residential development.

Table 6.1 quantifies planned or pending non-residential land uses within the study area boundaries both as gross acres of 'raw land' and as acres that can actually be developed into saleable parcels. The 'Efficiency Factor" quantifies the ratio between raw land and developable parcels.

In areas where residential development has been planned or is pending, an estimate of the future number of homes that potentially could be constructed has been provided. For this purpose, it was assumed that residential development will occur at the current maximum allowed by the planned density. In the case where no upper limit was provided, a limit of 25 dwelling units per acre was assumed. Within the study area an

Figure 6.3
PLANNED AND PENDING LAND USES



additional 14,865 residential units could potentially be constructed. Of those 6,288 units would be constructed in Chandler and 8,568 units would be constructed in Gilbert. This estimate is detailed in **Table 6.2**.

Table 6.1
PENDING DEVELOPMENT BY LAND USE

Land Use Category	Gross Acres	Efficiency Factor	Acres for Development*
Chandler	**3,026**	-	**2,237**
Commercial	632	0.80	505
Industrial/Employment	1,551	0.85	1,318
Office	208	0.85	177
Public/Institutional	278	0.85	237
Open Space	357	-	-
Gilbert	**2,581**	-	**2,193**
Commercial	997	0.85	847
Industrial/Employment	1,072	0.85	911
Public/Institutional	512	0.85	435
Study Area	**5,607**	-	**4,431**

*After removing right of way and easements.
SOURCE: City of Chandler, Town of Gilbert, Wilbur Smith Associates
PREPARED: June 2008

Table 6.2
PENDING RESIDENTIAL DEVELOPMENT WITH STUDY AREA BOUNDARY

Land Use Category	Gross Acres	Efficiency Factor	Acres for Development*	Density*	Total Dwelling Units
Chandler	**2,026**	**-**	**1,892**	**-**	**6,288**
Rural Residential	257	0.95	244	1	244
Low Density Residential	1,519	0.95	1,443	3	3,606
Medium Density Residential	159	0.80	128	10	1,276
High Density Residential	91	0.85	77	15	1,161
Gilbert	**2,679**	**-**	**2,429**	**-**	**8,568**
Residential 0 - 1	661	0.95	628	1	628
Residential 1 - 2	164	0.90	148	2	296
Residential 2 - 3.5	1,610	0.90	1,449	4	5,073
Residential 3.5 - 5	50	0.85	42	5	211
Residential 5 - 8	76	0.80	61	8	485
Residential 8 - 14	68	0.85	58	14	807
Residential 14 - 25	50	0.85	43	25	1,069
Study Area	**4,706**	**-**	**4,320**	**-**	**14,856**

*Dwelling Units per Acre
SOURCE: City of Chandler, Town of Gilbert, Wilbur Smith Associates
PREPARED: June 2008

Land Use Planning Policies and Regulations

In most cities and counties, the chief land use regulatory document is the zoning ordinance which regulates the types of uses, building height, 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. Non-regulatory policy documents which influence development include the general plan, area plans, and the local capital improvements program. The general plan provides the basis for the zoning ordinance and sets forth guidelines for future development 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. The capital improvements program is typically a short-term schedule for constructing and improving public facilities, such as streets, sewers and water lines.

Regulatory Framework

In the Chandler Municipal Airport Study Area, the City of Chandler, the Town of Gilbert, and Maricopa County 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 areas of jurisdiction. The county plan shall also provide zoning and the delineation of zoning districts. The county is also responsible for regulating the subdivision of all lands, except in areas under the jurisdiction of municipalities. Adoption of building codes is optional in counties which have adopted zoning.

Arizona state law requires 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 sections of the county which are likely to be annexed by the city or town. Local governments are required to regulate the subdivision of all lands within their corporate limits and also prepare and adopt zoning ordinances and building codes. Zoning must be consistent with the General Plan, where one has been prepared. General land use plans include plans and policies explaining the community's goals, objectives, principles, and standards for overall growth and development. Within the Chandler Municipal Airport Study Area, both Chandler and Gilbert have prepared and adopted general plans, zoning ordinances, subdivision regulations and building codes. These planning and development tools are described below.

Chandler General Plan

The City of Chandler adopted its most recent General Plan in 2008. The plan is broken down into a series of subject specific elements, some of which are updated independently of the General Plan. Information from the relevant elements has been summarized in the following sections.

As previously discussed, the General Plan land use map calls for developing the majority of land near the Airport for employment uses. The map notes the continued existence of residential parcels alongside the Consolidated Canal to the west of the airport. The two sections to south and south east of the airport parcel are designated residential with the exception of the northwest corner of the southern section, which is designated as a combination of employment and recreation/open space.

A Circulation element goal is to "*Utilize aviation facilities to attract business and accommodate local aircraft owners",* suggests that Chandler will continue to support both corporate and local aircraft owners. This is in part because the Airport plays into Chandler's efforts to "*Facilitate residents' accessibility to regional and interstate transportation with links to bus, rail, air passenger services, and freeway connections"* and partially because it is expected that "*General aviation facilities will attract industry to the Airpark Area."*

As a result, Chandler is striving to "*Protect the flight corridor approaching and departing the Chandler Municipal Airport from high intensity development."* Protecting the flight corridors from incompatible development will make the Chandler Municipal Airport a viable center for growth, which is recognized within the 'Growth Areas" element, part of which reads:

> *The area surrounding the Chandler Municipal Airport is one of Chandler's last frontiers for new development. While most of the area has been reserved for economic development by the Chandler Airpark Area Plan some developers have sought entitlements for new residential in the immediate vicinity. Being a key economic development area for the City, it is essential that the City maintain its build-out strategy as described in the Cost of Development Element to reserve these properties for non-residential uses. This strategy also protects the airport from residential encroachment and insures compatibility with surrounding land uses.*

The Chandler Municipal airport is sited in the center of what is designed as a 'Large Tract Growth Area', containing parcels that are sufficiently large to be developed as industrial campuses containing accessory uses suitable for workers in knowledge intense industries.

Parks and Recreation Planning

While not directly mentioned in the context of the Airport, the surrounding area contains a considerable number of parks and open-space projects. The City of Chandler is currently improving the areas alongside the Consolidated Canal into the Paseo trail system. The Paseo trail system consists of two ten-foot wide trails on each side of the canal. One side will be a paved biking and walking trail and the other side is an equestrian trail.

The Paseo trail system will link into another park, currently in development. Located at the northwest corner of McQueen road and Ocotillo road, it lies directly under the flight path to runways 4R and 4L. Formerly a city landfill, it is being redeveloped into the Paseo Vista Park. Currently in the conceptual design phase, the Paseo Vista park is expected to contain an extensive equestrian element, a three-acre ‘dog area’, and an archery range.

Also along the Paseo trail system will be the planned Queen Creek/McQueen Park development, located on the southeast corner of East Queen Creek and Airport Boulevard, which includes part of the Runway Protection Zone for the Airport.

Located directly to the west of the airport and across the Consolidated Canal is existing “Los Arboles” park. A linear park, it is envisioned to connect the Paseo trail system to the park and recreation complex of Tumbleweed Park. Los Arboles will also be the location of a bridge across the canal.

Area Plans

Planning in Chandler takes place at a variety of scales. In general, the smaller the plan, the more detail specific it must be. After the General Plan, more specific land use policies are identified by ‘Area Plans’.

> *Chandler's adopted Area Plans begin to implement the General Plan's goals by providing more detailed goals, objectives and policies pertaining to each identified sub-sector. The more specific planning layer addresses distinguishing physical or location characteristics that support targeted land use implementation strategies. Area Plans are not expected to cover the entire City. They range in size from under a square mile in some areas to more than fourteen square miles in Southeast Chandler. – Chandler General Plan Update, 2008*

The area plans with the potential to substantially impact or be impacted by Chandler Municipal Airport include the Chandler Airpark Area Plan.

Chandler Airpark Area Plan

> *The Chandler Airpark Area Plan includes nine square miles surrounding the City's Municipal Airport. Located about three miles southeast of downtown Chandler, the Airpark area is an important employment growth area for the City as build-out nears. The Area Plan is a strategic guide focused on land use compatibility and reserving appropriate areas for employment in the City. The Plan emphasizes the strategically important economic development opportunity surrounding the Chandler Municipal Airport.* – Chandler General Plan Update, 2008

The goals of the Airpark Area Plan are to promote the development of land uses that are compatible with the Airport, to establish an efficient circulation system around and through the airpark, and "to establish a high quality image and identity for the airpark as a major center of commerce and employment."

Gilbert General Plan

About 1/3 of the area contained by the Chandler Municipal Airport FAR Part 150 Study Area Boundary is within Gilbert's Municipal Planning Area. As a result, an analysis of the land uses identified in Gilbert’s General Plan was necessary. The Town of Gilbert General Plan was written in 2001 with an update completed in 2006.

The latest Gilbert General Plan provides for four general land use classifications, broken down into further sub-classifications. The four general land uses are: Residential, Commercial, Employment, and Municipal/Institutional. There are eight residential zones of varying density, covering from 0-50 dwelling units per acre. The closest residential development to Chandler Municipal within Gilbert is a one square mile section directly east of the airport that contains an area of residential developed at 2.0 to 3.5 units per acre. Another residential section of land is located to the north of Pecos road and the east of Gilbert road. This land is designated for future low-density residential. The designated land uses nearest Chandler Municipal are ‘Business Park’ and ‘Regional Commercial’, both of which are compatible with the Airport. It also notes the growing integration of it’s own park and trail system with a regional system that includes Chandler’s.

> *The City of Chandler is constructing a trail system on the Consolidated Canal, called the Paseo. Within Chandler, the Consolidated Canal provides connections to the Chandler Tumbleweed Regional Park, the Chandler Municipal Airport and the Bear Creek Municipal Golf Course. The Consolidated Canal also provides connections within Mesa to Fitch Park and Harmony Park. Within Gilbert, the Consolidated Canal is part of the Heritage Trail located in the downtown area, and also connects to Freestone Park, the Gilbert Municipal Center, and the Western Canal.*

The Consolidated Canal forms the western border of Chandler Municipal Airport. The pedestrian access generated by a trail network may have effects on airport uses and may necessitate additional fencing and/or landscaping.

ZONING

While general plans establish a framework of use policy guidelines, cities, towns, and counties actually control land use through zoning ordinances. Chandler, Gilbert, and Maricopa County have all established zoning ordinances. This section summarizes the zoning ordinances in each area jurisdiction. This information will be used in subsequent chapters to identify zoning districts that provide a compatible land use buffer and those that allow encroachment of noise-sensitive land uses.

City of Chandler

The Chandler Zoning Code provides for 17 conventional zoning districts including eight residential districts, four commercial districts, two industrial districts, one agricultural district, an airport district, and a downtown district. The Code also provides for two special zoning districts -- PAD, Planned Area Development and AIO, Airport Impact Overlay.

The PAD zoning is intended to accommodate a variety of land uses, individual and mixed use developments. For development in the PAD district, a detailed master plan for the project must be prepared and approved by the City Council. The plan must show how the development standards of the PAD District and the Chandler General Plan will be observed. The PAD zoning district allows greater flexibility in the design of a large development project than the standards of the conventional zoning districts. Most of the new development in Chandler is using the PAD approach.

The Airport Impact Overlay (AIO) zoning district is intended to ensure that development in the vicinity of Stellar Airpark and Chandler Municipal Airport are compatible with the airports. There are four overlays within the AIO zoning district: The Clear Zone Overlay (CZO) and three Airport Noise Overlays. The CZO is trapezoid-shaped area immediately off the ends of the runways. The three different types of Airport Noise Overlays are based on the projected 2025 noise contours, as depicted in the Noise Exposure Map from the previous FAR Part 150 Study.

- The ANO-I area lies between the 55 and 60 DNL contours.
- The ANO-2 area lies between the 60 and 70 DNL contours.
- The ANO-3 area is within the 70 DNL contour.

Land use restrictions are established for each overlay area to promote noise and safety compatibility with the Airport. For example, no structures are permitted within the CZO, and noise-sensitive land uses within the ANO-I, ANO-2, and ANO-3 areas are required to be sound insulated. In addition, prior to the issuance of any development permit within the AIO District, the owner must provide the City of Chandler with an avigation easement releasing the City from liability for claims for damages related to Airport use.

The following uses are permitted with restrictions within ANO-1, if the developer includes a noise reduction level of 15 decibels, to reduce the interior noise level to less than 45 decibels: Single-family, duplex, multi-family, manufactured housing, recreational vehicle parks, educational facilities, religious facilities, libraries, museums, galleries, clubs and lodges, outdoor sport events, entertainment and public assembly, except amphitheaters, hotels/motels, hospitals and other health care services, finance, real estate, insurance, professional and government offices. All other uses are non-restricted.

The following uses continue to be permitted on the ANO-2, if they are provided with 25 decibels of noise reduction through the use of insulation: Religious facilities, libraries, museums, galleries, clubs and lodges, outdoor sport events, entertainment and public assembly, except amphitheaters, hotels/motels, hospitals and other health care facilities, finance, real estate, insurance, professional and government offices. In addition, the following uses now require sound reduction through the use of insulation: Retail sales: building materials, farm equipment, automotive, marine, mobile homes, recreational vehicles and accessories, restaurants, eating and drinking establishments, retail sales: general merchandise, food, drugs, apparel, etc., Personal services: barber and beauty shops, laundry and dry cleaning, etc.

Within the ANO-3, even industrial uses are subject to noise insulation requirements, and noise sensitive uses are no longer permitted. Signs, vehicle parking, and non-livestock farming are the only uses permitted in the CZO.

An interior noise level of 45 decibels is not the same as a DNL of 45 decibels. The former is based upon the loudest sound and the latter is based upon an average noise level. Dwelling units outside the 55 DNL noise level cannot be assumed to automatically comply with this regulation.

Chandler also has zone AP-1, a special airport district, where a variety of land uses suitable to the operation and development of the airport can be permitted, at the discretion of the airport manager, provided that these uses are accredited as aviation related in nature. Chandler also has a ‘Through the Fence’ ordinance regulating business that locate adjacent to, but not on Airport property.

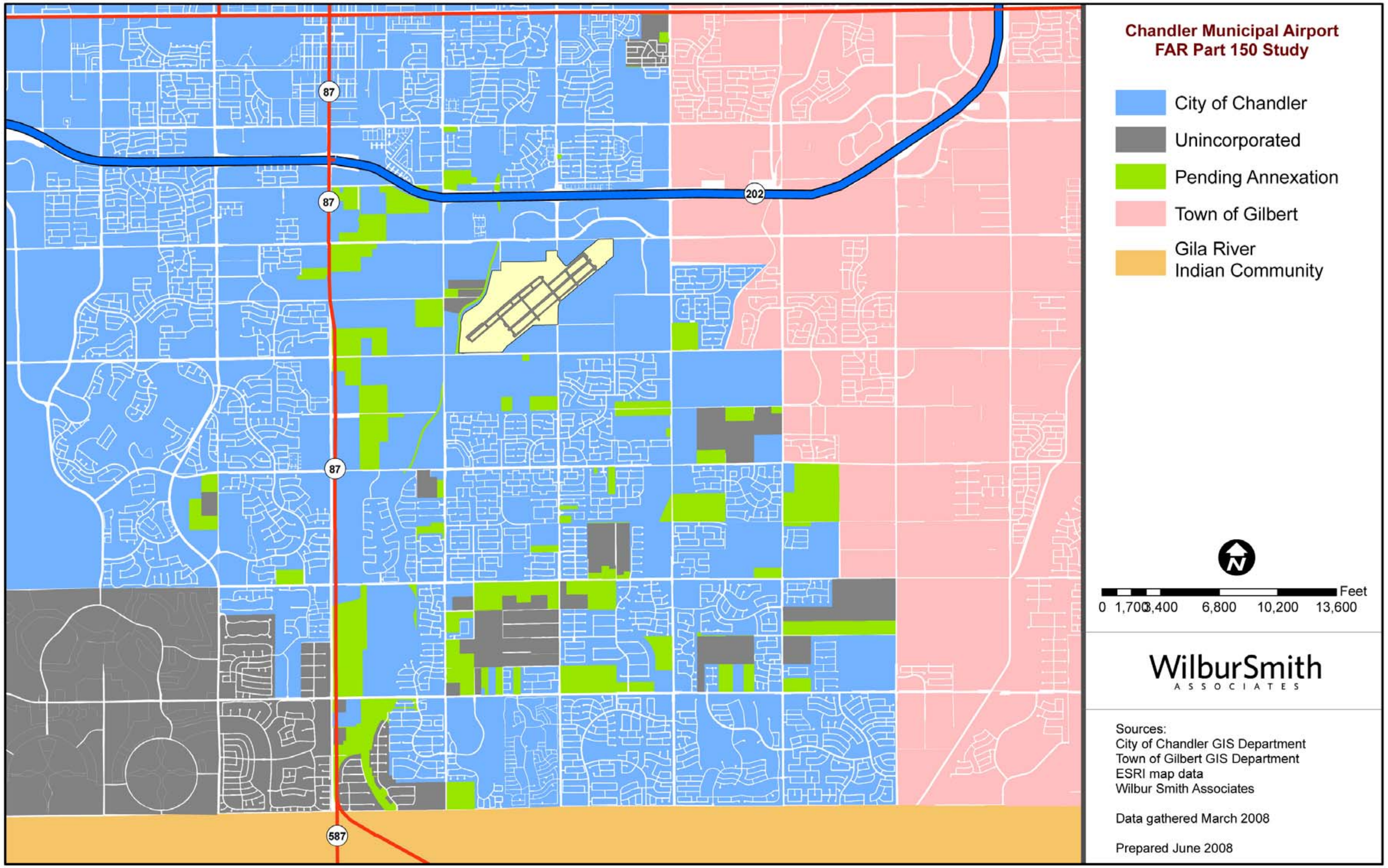
Town of Gilbert

Gilbert has extensive development and notification requirements for the Williams-Gateway airport and nearby development but none for Chandler Municipal Airport. The land area nearest Chandler Municipal has been zoned for employment and commercial activities, and is in the process of developing accordingly. The nearest existing residential zone is more then a quarter of a mile from the 55 DNL contour developed in 1999. The nearest land zoned for noise sensitive use are for a public high school and a future church facility, both of which are outside the1999 55 DNL contour from the previous FAR Part 150 Study.

Maricopa County

Very little land in Chandler is still subject to Maricopa County zoning ordinances. It is important to note that Chandler’s annexation policy is to respond to annexation requests. **Figure 6.4** depicts the annexation status of land in Chandler. The Sun Lakes community is never likely to be annexed. Chandler expects that many of the remaining county ‘islands’ and parcels may request annexation as they develop. These parcels are sufficiently distant from the Airport to have no significant affect on it. The notable

Figure 6.4
POTENTIAL ANNEXATIONS



exception is the parcel directly west of the Airport, currently occupied by low-density residential uses.

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 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 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 avigation easement to the airport proprietor by the land sub-divider as a condition of development approval. The easement authorizes over flights of the property, with the noise levels generated by such operations. It might also require the developer to provide sound insulation in the construction of the buildings.

Chandler’s subdivision ordinance contains no mention of airports or avigation easements. This is in part because Arizona state law mandates that the Department of Real Estate distribute maps disclosing the FAA traffic pattern airspace around airports, and requires that the purchasers of new homes sign a waiver stating that they were aware of their homes location relative to the traffic pattern airspace. Further, Chandler uses it’s zoning code to control the construction of new dwelling units within the Airport noise contours.

Building Codes

Building codes regulate the construction of buildings, ensuring that they are built 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. Each jurisdiction in the study area have adopted versions of the Unified Building Code (UBC). None have adopted special standards for sound insulation of buildings in the vicinity of airports.

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.

AREA SOCIOECONOMIC PROFILE

The relationship between socioeconomic factors and an airport's activity and noise levels is an important consideration in the study process. In addition to providing a general understanding of the existing conditions in an airport area, socioeconomic data is instrumental in developing future projections of aviation activity. This analysis examines the historical trends and future projections of the region's population and employment. Where applicable, this demographic data is used in the study process to relate future aviation activity and noise levels at Chandler Municipal Airport to local demographic trends.

Population

The most recent estimate provided by the U.S. Census Bureau indicates that Arizona had a population of 6,500,194 in 2007. Arizona has had continuous steady population growth since 1970. Population projections show that this population growth will continue into the future with the total population of Arizona approaching 10 million in the year 2030.

Table 6.3 presents historic population data for the City of Chandler, Town of Gilbert and Maricopa County and provides a comparison to comparable data for the State of Arizona. Since 1990 both Chandler and Gilbert have experienced record population growth rates. More recently the Town of Gilbert has grown at a faster rate than Chandler. As a result the Town of Gilbert will likely reach or exceed the population of Chandler in the near future.

Table 6.3
HISTORIC REGIONAL POPULATION DATA

Year	City of Chandler	Town of Gilbert	Maricopa County	Arizona
1990*	89,862	29,122	2,122,101	3,665,339
2000*	176,581	109,697	3,072,149	5,130,632
2005**	229,460	171,015	3,681,300	6,077,740
2006**	235,450	185,030	3,792,675	6,305,210
2007**	241,205	203,656	3,907,492	6,500,194
% Change 1990-2000	97.4%	276.7%	44.8%	40.0%
% Change 2000-2005	29.9%	55.9%	19.8%	18.5%
% Change 2005-2007	5.1%	19.1%	6.1%	7.0%
*US Census Bureau **AZ Department of Economic Security estimates, March 2008				

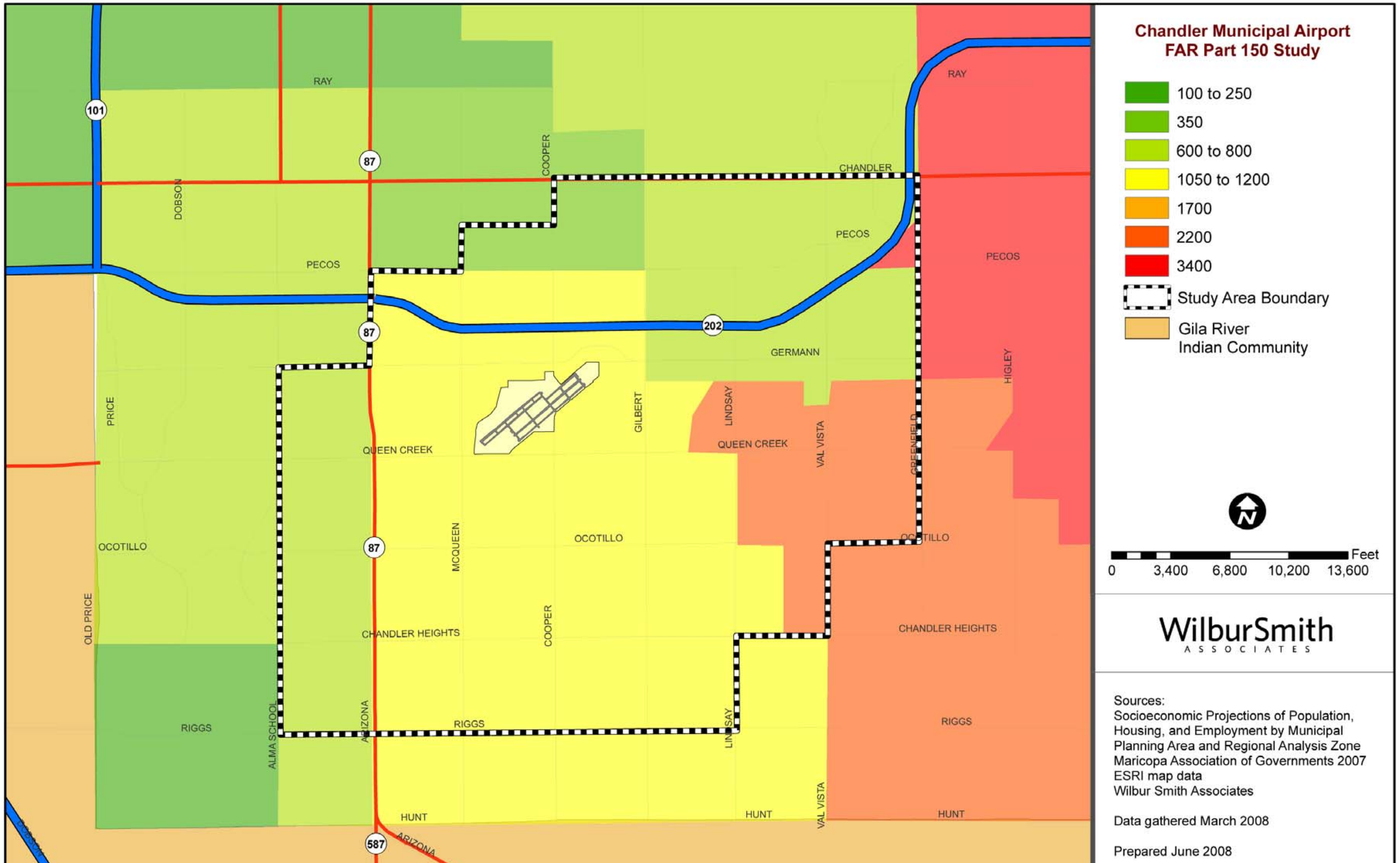
SOURCE: US Census Bureau, AZ Department of Economic Security, Wilbur Smith Associates
PREPARED: June 2008

Projections of population, employment, and earnings developed for Chandler and Maricopa County indicate that the City and County are expected to experience continued growth in all categories over the forecast period. The population of the City of Chandler is expected continue to grow rapidly over the next several years, and then begin to level off as the amount of developable land within the City of Chandler becomes limited. Growth in Maricopa County and the State of Arizona are not limited by the supply of land and are projected to continue growing at their current rate. **Figure 6.5** identifies the projected change in population per square mile by Regional Analysis Zones, as developed by the Maricopa Association of Governments (MAG). These projections indicate that the areas east of the airport are projected to experience the greatest increase in population.

Employment

As the communities around the Airport grow in population, the labor force is anticipated to grow as well. Employment growth in Chandler is projected to outpace population growth in the future. As existing firms continue to grow and additional firms locate in Chandler, more people are projected to commute to the City of Chandler from surrounding communities. Chandler is home to many fast growing high technology manufacturing companies with Intel being by far the largest employer in the City of Chandler. **Table 6.4** presents the historic labor force and unemployment rates for Chandler and Gilbert. Figures for Maricopa County and the State of Arizona are also presented for comparison purposes.

Figure 6.5
PROJECTED CHANGE IN POPULATION PER SQUARE MILE



Source: City of Chandler, Town of Gilbert GIS Data, ESRI map data, Wilbur Smith Assoc.

Table 6.4
HISTORIC CIVILIAN LABOR FORCE AND UNEMPLOYMENT RATE

Year	City of Chandler	Town of Gilbert	Maricopa County	Arizona
Labor Force				
2000	102,998	62,567	1,595,203	2,505,306
2005	118,616	71,945	1,840,264	2,859,490
2006	123,052	106,360	1,906,543	2,969,051
2007	125,775	108,769	1,947,563	3,029,090
Unemployment Rate				
2000	2.5%	1.9%	3.3%	4.0%
2005	3.1%	2.3%	4.0%	4.6%
2006	2.6%	1.9%	3.5%	4.1%
2007	2.5%	1.8%	3.2%	3.8%

SOURCE: Arizona Department of Economic Security
PREPARED: June 2008

AIRCRAFT NOISE-RELATED LAND USE IMPACTS

The FAA has developed land use guidelines that relate the compatibility of aircraft activity to areas surrounding an Airport. Table 1 in 14 CFR Part 150, and provided in **Figure 6.6**, identifies land use activities that are acceptable within the 65, 70 and 75 DNL contours. FAA guidance indicates that virtually all land uses below the 65 DNL are considered to be compatible with the effects of aircraft noise and therefore will not fund mitigation programs below 65 DNL. It is important to note that the FAA does allow local land use planning agencies to adopt a lower compatibility level that may be more stringent than FAA guidelines.

Attention is focused on areas within the 65 DNL because the FAA considers aircraft noise exposure levels of 65 DNL and greater to be incompatible with noise sensitive uses. The 65 DNL contour also identifies the limits the FAA considers the most crucial for eligibility of funding of noise abatement measures. The 65 DNL contour was chosen by the FAA to represent the point of compatibility versus non-compatibility based on two factors: the Schultz Curve and being able to fund noise mitigation programs within a reasonable level. When developing FAR Part 150 regulations, the FAA had to strike a balance between aircraft noise levels where annoyance was minimal and the ability of the federal government to provide funding for noise mitigation programs within a defined area around each airport in the country. The Schultz Curve is based on scientific analysis of noise levels and people's associated annoyance level. The funding factor related to the thousands of homes and noise sensitive sites across the country that would potentially be mitigated using federal funds. The balance was reached by selecting the 65 DNL.

Figure 6.6
FAR PART 150 STUDY GUIDELINES

Table 1 – Land Use Compatibility with Yearly Day-Night Average Sound Levels

Land Use	Yearly Day-Night Noise Level (DNL) in decibels					
	Below 65	65-70	70-75	75-80	80-85	Over 85
Residential						
Residential, other than mobile homes and transient lodgings	Y	N(1)	N(1)	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings	Y	N(1)	N(1)	N(1)	N	N
Public Use						
Schools	Y	N(1)1	N(1)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
Commercial Use						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail-building materials, hardware and farm equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail trade-general	Y	Y	25	30	N	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
Manufacturing and Production						
Manufacturing, general	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock farming and breeding	Y	Y(6)	Y(7)	N	N	N
Mining and fishing resource production and extraction	Y	Y	Y	Y	Y	Y
Recreational						
Outdoor sports arenas and spectator sports	Y	Y(5)	Y(5)	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts and camps	Y	Y	Y	N	N	N
Golf courses, riding stables and water recreation	Y	Y	25	30	N	N

Numbers in parentheses refer to notes.

* The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable or unacceptable under Federal, State or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

Key to Table 1

SLUCM	Standard Land Use Coding Manual.
Y(Yes)	Land Use and related structures compatible without restrictions.
N(No)	Land Use and related structures are not compatible and should be prohibited.
NLR	Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
25, 30 or 35	Land Use and related structures generally compatible; measures to achieve NLR of 25, 30 or 35 dB must be incorporated into design and construction of structure.

Notes

(1) Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB to 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10 or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.

(2) Measures to achieve NLR of 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.

(3) Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.

(4) Measures to achieve NLR of 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.

(5) Land use compatible provided that special sound reinforcement systems are installed.

(6) Residential buildings require an NLR of 25.

(7) Residential buildings require an NLR of 30.

(8) Residential buildings not permitted.

Source: 14 CFR PART 150

Based on the Schultz Curve, approximately 14 percent of people are "highly annoyed" at 65 DNL. The 65 DNL contour provided a boundary where the annoyance level was reasonably low and the potential noise sensitive locations located within that contour level across the country was at a manageable level from a federal funding viewpoint.

The FAA recognizes, however, that noise does not stop at 65 DNL and is heard by people located in close proximity to approach, departure, and training corridors. The Airport sponsor can address noise concerns with possible modifications to flight procedures that are beyond the limits of the 65 DNL. These programs are evaluated in the noise compatibility portions of this Study.

EXISTING LAND USE

Figures 6.1 and 6.2, presented previously in this section, show the DNL contours for the 2009 and 2014 conditions respectively. The base map, for both Figures 6.1 and 6.2, uses recent aerial photography that depicts the existing land uses in the vicinity of CHD. As can be seen, the immediate areas around the Airport are commercial and vacant land use, with single-family residential land use located beyond those. Densely developed residential land use occurs to the south, north, east, and west of the Airport and consists primarily of single family residences. There are many vacant areas in the vicinity of the Airport that could potentially be developed in the future into more residential land uses.

DNL CONTOUR RELATIONSHIPS TO EXISTING LAND USE MAPS

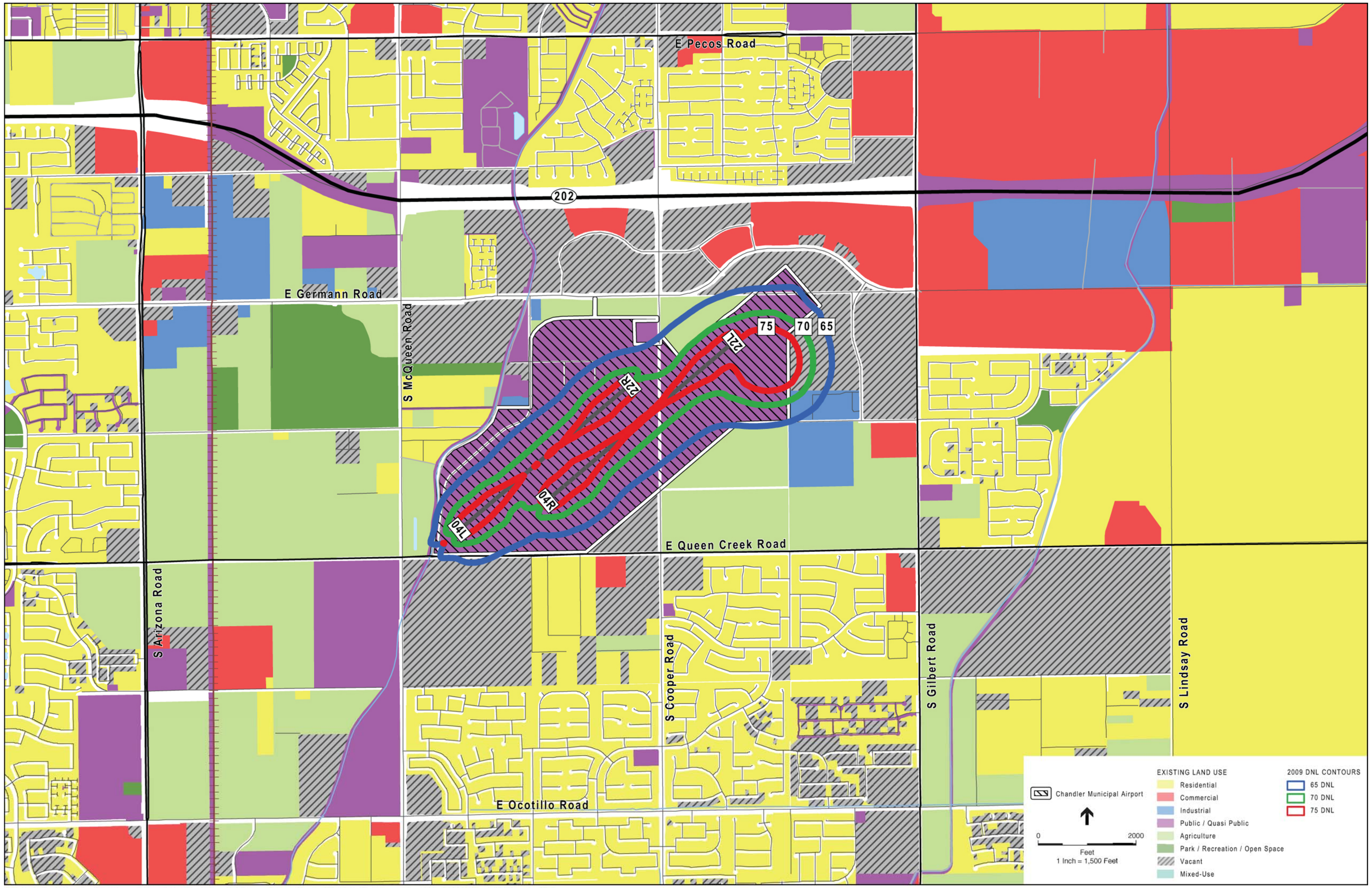
Figure 6.7 shows the 2009 DNL contours over an existing land use base. The land use base was compiled from mapping provided by the local jurisdictions. It should be noted that Figure 6.7 is a generalized map showing the predominant land uses within the study area and is not intended to represent land uses at the parcel level of detail.

With the exception of a small area of the 65, 70, and 75 DNL contours near the approach ends of Runways 22L, 22R, and 4L, the contours are contained almost entirely on Airport property. The approach end of Runways 22L and 22R are located near the helicopter operating area of the Airport and it is that portion of the contour that extends beyond the Airport property boundaries. The areas where the contours extend beyond the property boundaries consist of vacant, industrial, and agriculture land uses.

DNL CONTOUR RELATIONSHIPS TO FUTURE LAND USE MAPS

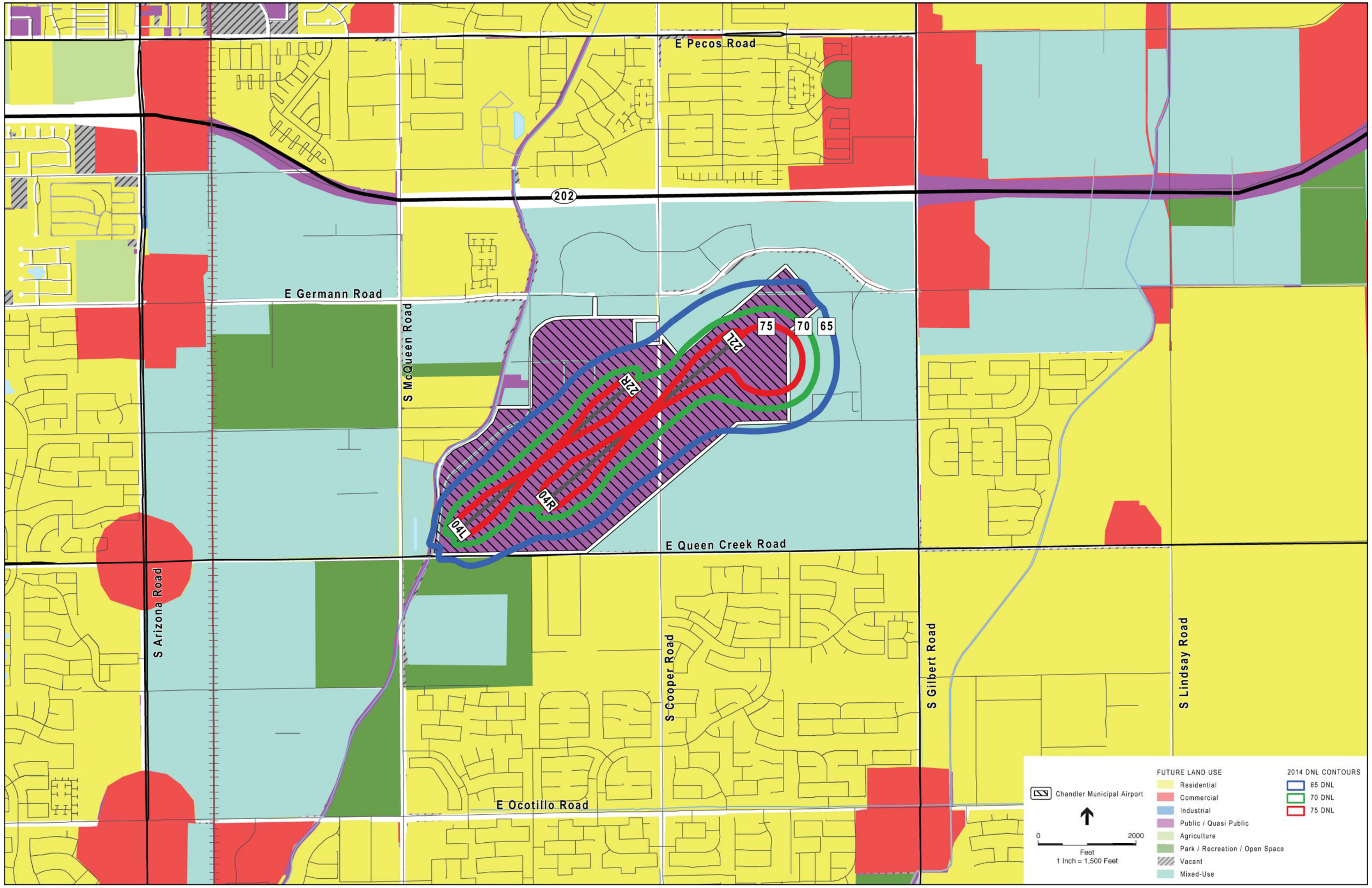
Figure 6.8 shows the 2014 DNL contours over a future land use base. The land use base was compiled from mapping provided by local jurisdictions. It should be noted that Figure 6.8 is a generalized map showing the predominant land uses within the study area and is not intended to represent land uses at the parcel level of detail.

Figure 6.7
2009 DNL CONTOURS OVER EXISTING LAND USE



SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA Airports, 2009

Figure 6.8
2014 DNL CONTOURS OVER FUTURE LAND USE



SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA Airports, 2009

Figure 6.9 indicates that the 65, 70, and 75 DNL contours are primarily on Airport property; however portions do extend beyond the Airport property boundary in the same areas as the existing DNL contour discussed above.

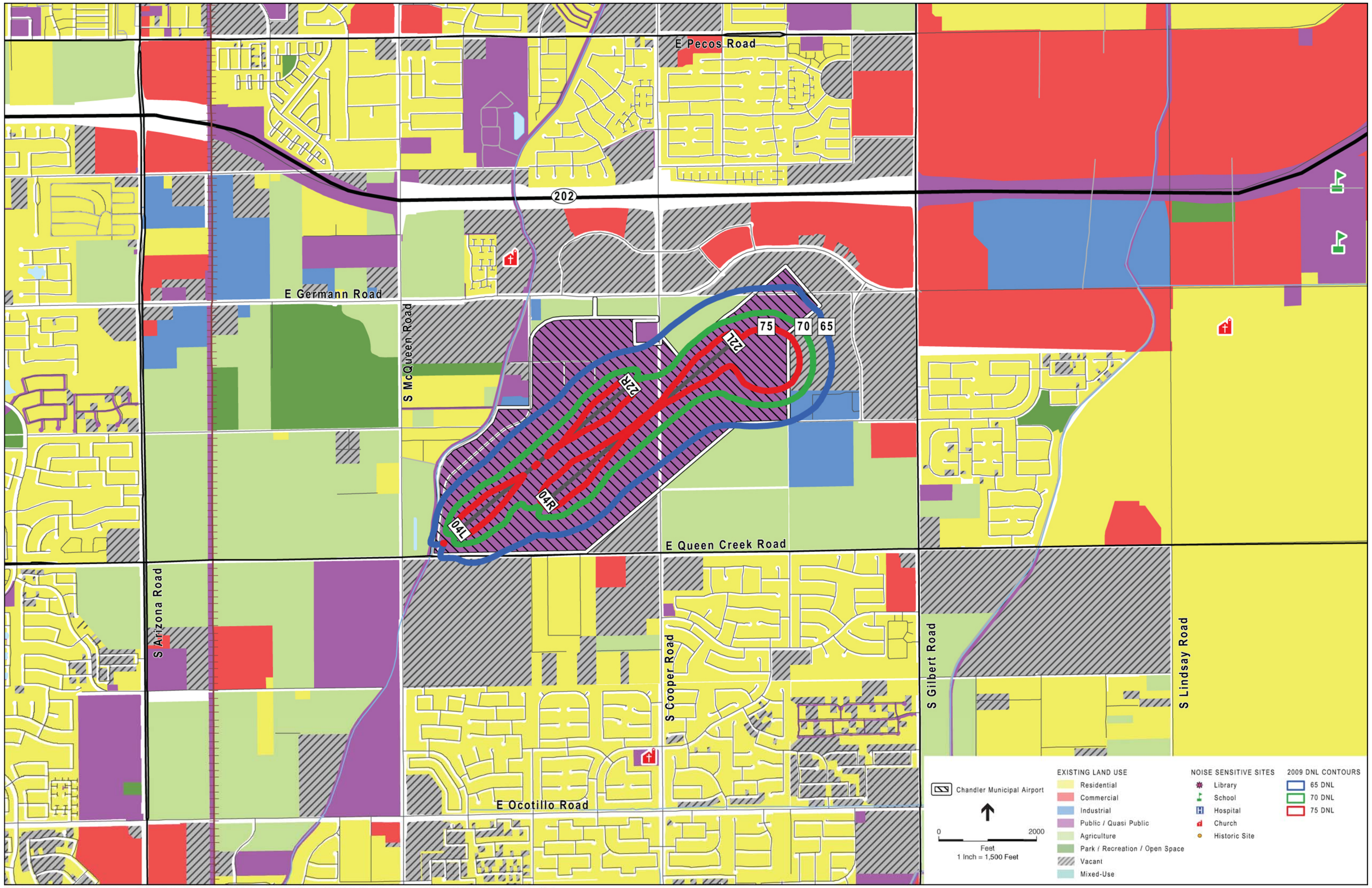
EXISTING POPULATION WITHIN DNL CONTOUR AREAS

A review of Figure 6.1 indicates that there are no housing units within the 65 DNL and higher contours for 2009. A review of Figure 6.2, presented previously in this section, indicates there are no housing units within the 65 DNL and higher contours for 2014.

While no housing units exist within the 2009 and 2014 65 DNL and higher contours, a review of each figure shows homes located in the general vicinity of the 2009 and 2014 DNL contours. A housing and population estimate for the 60 and 55 DNL contours, for 2009 and 2014, was completed and is discussed in **Appendix R**.**NOISE SENSITIVE SITES**

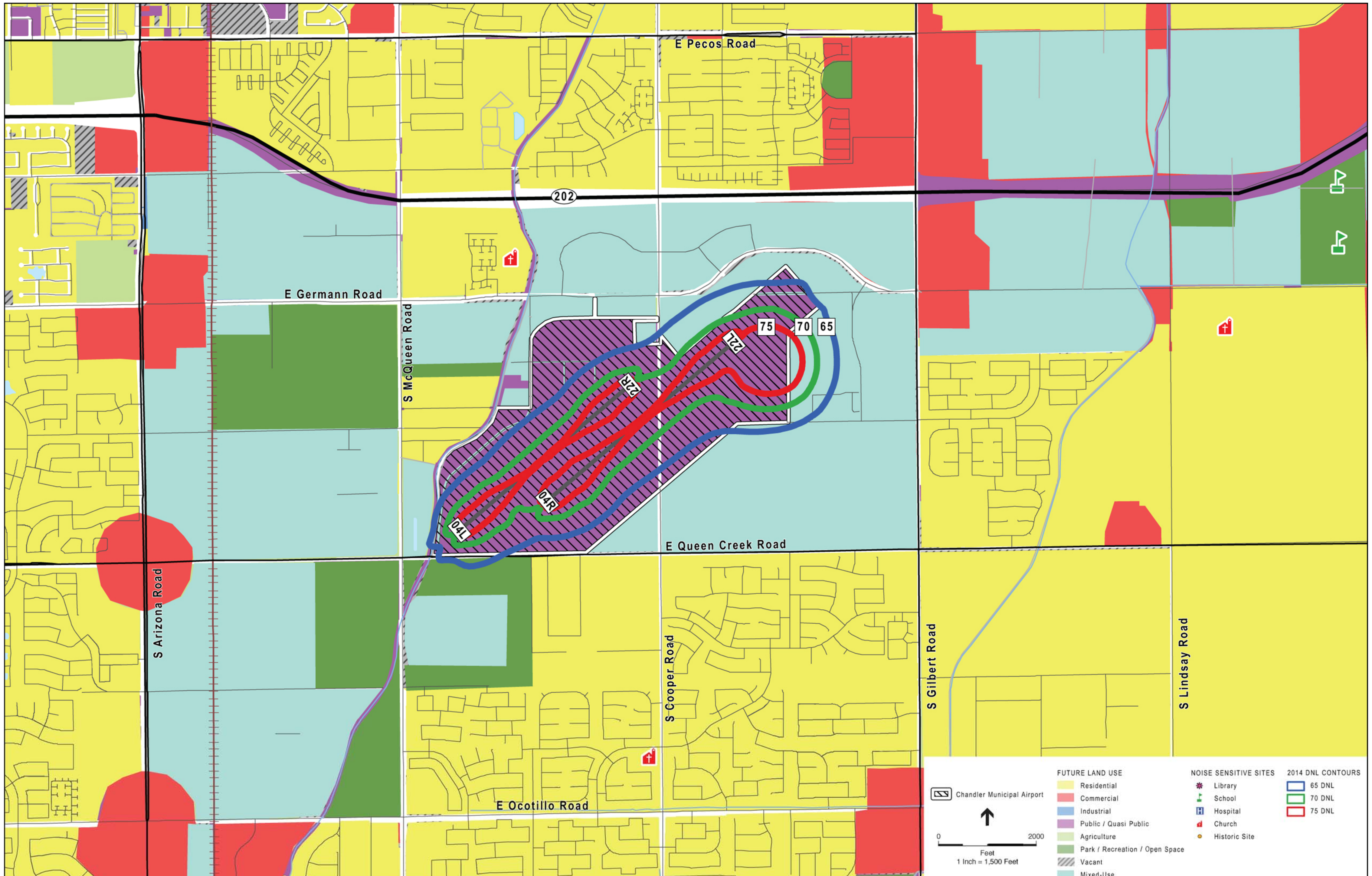
The FAA defines noise sensitive sites as uses within the 65 DNL contour that would be incompatible with aircraft noise. In addition to residential, such uses would include schools, places of worship, hospitals, passive parks and other uses that could be adversely affected by aircraft noise. **Figures 6.9** and **6.10** depict the noise sensitive uses, other than residential, on a map showing the 65 DNL and higher contours for 2009 and 2014, respectively. Both figures indicate that there are no noise sensitive land uses within the 65 DNL and higher contours.

Figure 6.9
NOISE SENSITIVE USES AND THE EXISTING (2009) DNL CONTOURS



SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA Airports, 2009

Figure 6.10
NOISE SENSITIVE USES AND THE FUTURE (2014) DNL CONTOURS



SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA Airports, 2009

CHAPTER SEVEN: COORDINATION

The Chandler Municipal 14 CFR Part 150 Study involved coordination with a wide variety of interested parties. Input was received from elected and appointed officials; local planning and zoning departments; citizens and community interest groups; airport tenants and users of the Airport; Federal and State agencies and, the overall business community. This input was received through representatives on an Advisory Committee (AC) established for coordination on the preparation of the 14 CFR Part 150 Study. Additional input was received from the general public through a variety of public forums including public open house meetings.

MEETINGS

The City of Chandler initiated the 14 CFR Part 150 Study Update on June 18, 2008 with the kick-off meeting for the AC and a public open house meeting for interested residents. To assist in the Study, the City of Chandler contacted 45 stakeholders to request a representative to assist the City in the development of this Study Update. The list of stakeholders contacted is listed in **Appendix E**.

Advisory Committee

The AC was responsible for providing guidance and direction to the consultants throughout the noise study process, representing the concerns of their organizations, and to serve as another conduit for the exchange of information on the progress of the Study with their respective organizations. A total of three AC meetings were held during the NEM portion of the Study. Meeting minutes were sent to those members of the AC that were not able to attend each meeting. A summary of each of these meetings can be found in **Appendix F**.

Public Open House Meetings

The public open house meetings were generally held close to the date of the AC meetings and were designed to keep the public informed and to receive public input. Two public open houses were held for the NEM portion of the Study, and one Open House for the NCP portion of the Study. The second NEM public open house also presented material regarding the items to be reviewed in the NCP portion of the Study.

Material from the open house meetings was provided on the Airport's Website following the meetings for those members of the public that could not be in attendance. These materials along with advertisements for the public meetings, letters received following the public meetings, sign-in sheets, a summary of the comments received can be found in the Public Involvement portion of the Appendices (**Appendices G** through **J**).

Meeting Schedules

Several meetings were held during the progress of the Study. Committee members were notified of AC meetings via invitation letters. Information was also posted on the website regarding the meeting dates and times. The general public was informed of the public open houses through post-card mailings to approximately 5,500 households in the vicinity of the Airport and public meeting notices posted on City's website. Notices for public meetings were also placed on the website for the Study hosted by the consultant. The following presents the dates of these meetings and a summary of key meetings is provided in Appendix F.

- *May 2008* –Advisory Committee members appointed.
- *June 18, 2008* – Kick-off meeting for AC held to discuss the purpose of the Study, the Study process, and to gather comments and input from the AC members on the study process to be followed.
- *August 12, 2008* – Kick-off Public Open House held to introduce the 14 CFR Part 150 Study process, present draft operational data and flight tracks, as well as draft existing and future noise contours. Community concerns to be addressed in the Study were also gathered.
- *August 13, 2008* – Second AC meeting was held to discuss the Integrated Noise Model inputs for existing and future noise contours. Concerns expressed by the community to be addressed in the Study were also discussed.
- *June 4, 2009* – Second Public Open House held to present the Noise Exposure Maps for review and comment and to discuss the NCP element of the Study.
- *June 5, 2009* – Third AC meeting was held to present the Noise Exposure Maps for review and comment and to discuss the NCP element of the Study.
- *December 8, 2009* – Third Public Open House held to present the analysis completed on alternatives, as well as the draft recommendations, for the NCP portion of the Study.
- *December 9, 2009* – Fourth AC meeting was held to present the analysis completed on alternatives as well as the draft recommendations for the NCP portion of the Study.
- *March 9, 2010* – Fifth AC meeting was held to present the final recommendations for the NCP portion of the Study.

WEB ACCESS

The City of Chandler hosted a link to information regarding the 14 CFR Part 150 Study on the Airport's website. Information regarding meetings, minutes, and presentations were placed on the website for the public to view. The website address was: http://www.wilbursmith.com/chandlerpart150/.

NOISE HOTLINE

The City of Chandler also supports an Aircraft Noise Hotline through the Airport. Concerns regarding aircraft noise and the Noise Study can be submitted by citizens through this hotline.

CHAPTER EIGHT: NOISE CERTIFICATION

CERTIFICATION

The Noise Exposure Maps and accompanying documents for Chandler Municipal Airport are submitted in accordance with 14 CFR Part 150. They were prepared with the best available information and are hereby certified as true and complete to the best of our knowledge and belief. The Noise Exposure Maps represent the aircraft noise exposure from aircraft operations at Chandler Municipal Airport for 2009 and 2014. Interested persons have had the opportunity to submit their views concerning the correctness and adequacy of the Noise Exposure Maps and forecasted operations. The Study has been conducted in consultation with state and local agencies whose area of jurisdiction is within the noise contours provided on the maps.

June 26, 2009

Robert J. Zeder, Jr.
Public Works Director
City of Chandler

Date

CHAPTER NINE: AIRCRAFT AND AIRPORT OPERATIONS NOISE ABATEMENT AND MITIGATION ALTERNATIVES

The purpose of this chapter is to document various aircraft and airport operational noise abatement and mitigation actions that are currently in place at Chandler Municipal Airport (CHD), as well as those that were considered during this 14 CFR Part 150 Study, to reduce land use incompatibility with aircraft noise around the Airport. A full range of alternatives was examined based on the requirements of the Federal Aviation Regulation (FAR) Part 150, as well as input from the Advisory Committee, Airport staff, the City of Chandler staff, and the general public.

As mentioned previously, a goal of the 14 CFR Part 150 Study is to reduce or eliminate noise-sensitive land uses within the 65 dB DNL contour. As shown in Chapter Six of this document, there are no noise sensitive land uses within the existing and future (2014) 65 dB DNL contours. Traditionally, 14 CFR Part 150 Studies use the DNL metric for evaluating alternatives in the Noise Compatibility Program (NCP) portion of the Study. Because there are no noise-sensitive land uses within the existing or future 65 dB DNL contours for CHD, the NCP portion of the Study used supplemental metrics to analyze whether the population exposed to single-event aircraft noise levels could be reduced.

The following airport and aircraft operational issues were identified for consideration during the 14 CFR Part 150 Study:

Helicopter Training Activity

- Increase training pattern altitude
- Climb to pattern altitude before turning
- Change training pattern location
- Alternate Training Patterns
- Request training fleet at CHD to use other airports

Aircraft/Helicopter Itinerant Operations

- Increase aircraft arrival/departure corridor altitude
- Increase helicopter arrival/departure corridor altitude
- Keep helicopters in designated corridor
- Keep helicopters at established altitude for corridors
- Helicopters to remain at, or climb to, pattern altitude before turning

Fixed Wing Training Activity

- Increase training pattern altitude
- Climb to pattern altitude before turning
- Change training pattern location

- Request training fleet at CHD to use other airports

Options Required for Review Under FAR Part 150

- Implement Curfews
- Implement Noise Related Landing Fees
- Limit the Number or Type of Operations or Type of Aircraft
- Develop Noise Barriers

The evaluation of each aircraft and airport operational noise abatement and mitigation alternative, and any associated recommendation, is presented below.

HELICOPTER TRAINING ACTIVITY

Training activity at an airport refers to the operations conducted by student pilots, or pilots practicing their flying skills, that are conducted in a closed pattern near the airport. These operations, typically called touch-and-go operations, consist of the helicopter/aircraft arriving and departing the airport without coming to a full stop. The touch-and-go pattern is a rounded rectangle-shaped flight track consisting of a departure leg, a crosswind leg, a downwind leg, a base leg, and final approach.

For CHD, several residents expressed their concerns related to helicopter training activity. The concerns referred primarily to the location of the training pattern, the altitude of the training pattern, and the repetitive nature of the helicopter operations. Several alternatives were suggested for review to address these concerns. Each of these alternatives is discussed below.

Increase Training Pattern Altitude

The current helicopter training pattern altitude is approximately 1,800 feet above Mean Sea Level (MSL), resulting in a pattern altitude of approximately 557 feet Above Ground Level (AGL); the airfield elevation is approximately 1,243 feet MSL. To achieve a noticeable reduction[1] in noise levels on the ground, the pattern altitude would need to be increased to approximately 2,357 feet MSL, or 1,114 feet AGL, which would result in approximately a six-decibel reduction in noise on the ground. In addition to helicopter training, there is also a large amount of fixed-wing aircraft training that occurs at CHD. Increasing the training pattern altitude for the helicopters would also mean the fixed-wing aircraft training pattern altitude would also need to be increased. Due to operational safety reasons, the fixed-wing aircraft training pattern altitude must be higher than the helicopter training pattern altitude. The current fixed-wing training pattern altitude is 2,200 feet MSL. If the helicopter training altitude was increased to

[1] FAA requires a five-decibel reduction for certain noise mitigation measures in recognition that a five-decibel reduction is needed to be noticeable to most people.

2,357 feet MSL, the fixed wing training pattern would need to be increased to 2,757 feet MSL or 1,514 AGL.

The need to increase both training pattern altitudes would push the fixed-wing training pattern close to the limits of the Class B airspace for CHD. In addition, the increase in the pattern altitudes would interfere with the set altitudes for aircraft practice approaches (2,500 feet MSL) and aircraft transitioning the CHD airspace (2,700 feet MSL). The altitude needed to achieve a noticeable noise reduction on the ground would approach the airspace limits on the Class B airspace for CHD and would create many airspace conflicts and, therefore, is not recommended.

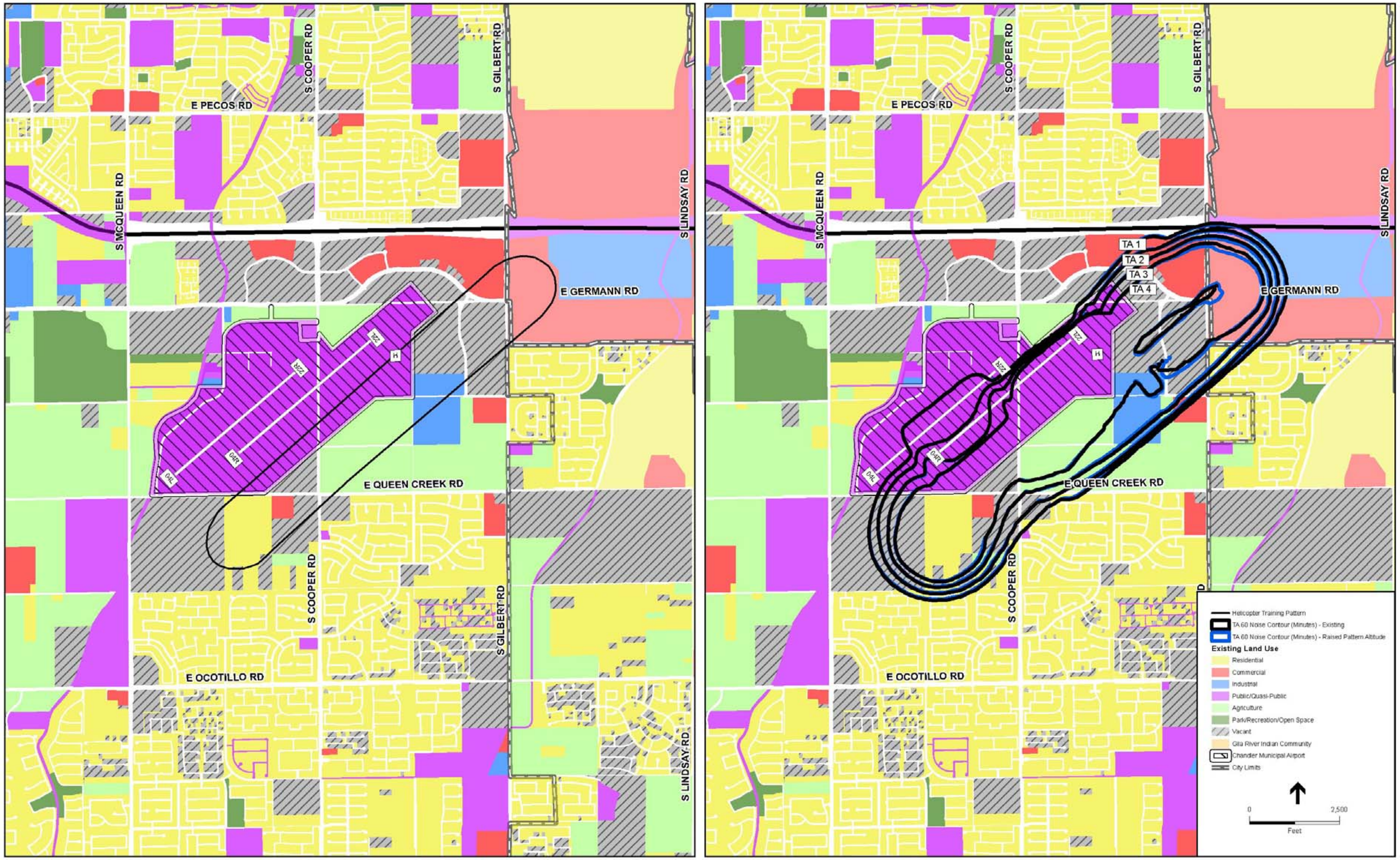
As an alternative, an incremental increase in the helicopter training altitude was proposed by the operators at CHD and reviewed as part of this Study. The operators with training activity at CHD discussed the concerns of the residents regarding the training activity and agreed they could increase the altitude of the helicopter pattern by 100 feet to 657 feet AGL, or 1,900 feet MSL.

To perform the analysis of the incremental training altitude increase, a Time-Above (TA) analysis was completed to determine the potential change in the amount of time nearby residents would be exposed to aircraft noise. The TA analysis determines the amount of time, in minutes, above a certain noise level, that a location experiences for the annual-average day. A noise level of 60 dBA was chosen for this analysis and is comparable to an indoor noise level one may find in a large business office or a conversation at three feet.

Figures 9.1 and **9.2** present the TA analysis completed for this alternative. Figure 9.1 presents the analysis for helicopter training in east flow and Figure 9.2 presents the analysis for helicopter training in west flow. As can be seen from the analysis, there is very little change in the TA contours and associated noise exposure on the ground. While the analysis does not show a significant change in noise exposure, it is still recommended the training pattern for helicopters be raised to 1,900 feet MSL. While the increase in the training pattern altitude may not make a noticeable difference in noise level on the ground, residents living under the downwind leg of the helicopter training pattern are likely to appreciate the fact that helicopters will be training at a higher altitude. It is important to note, further review by Air Traffic Control (ATC) will be needed to determine any potential safety implications.

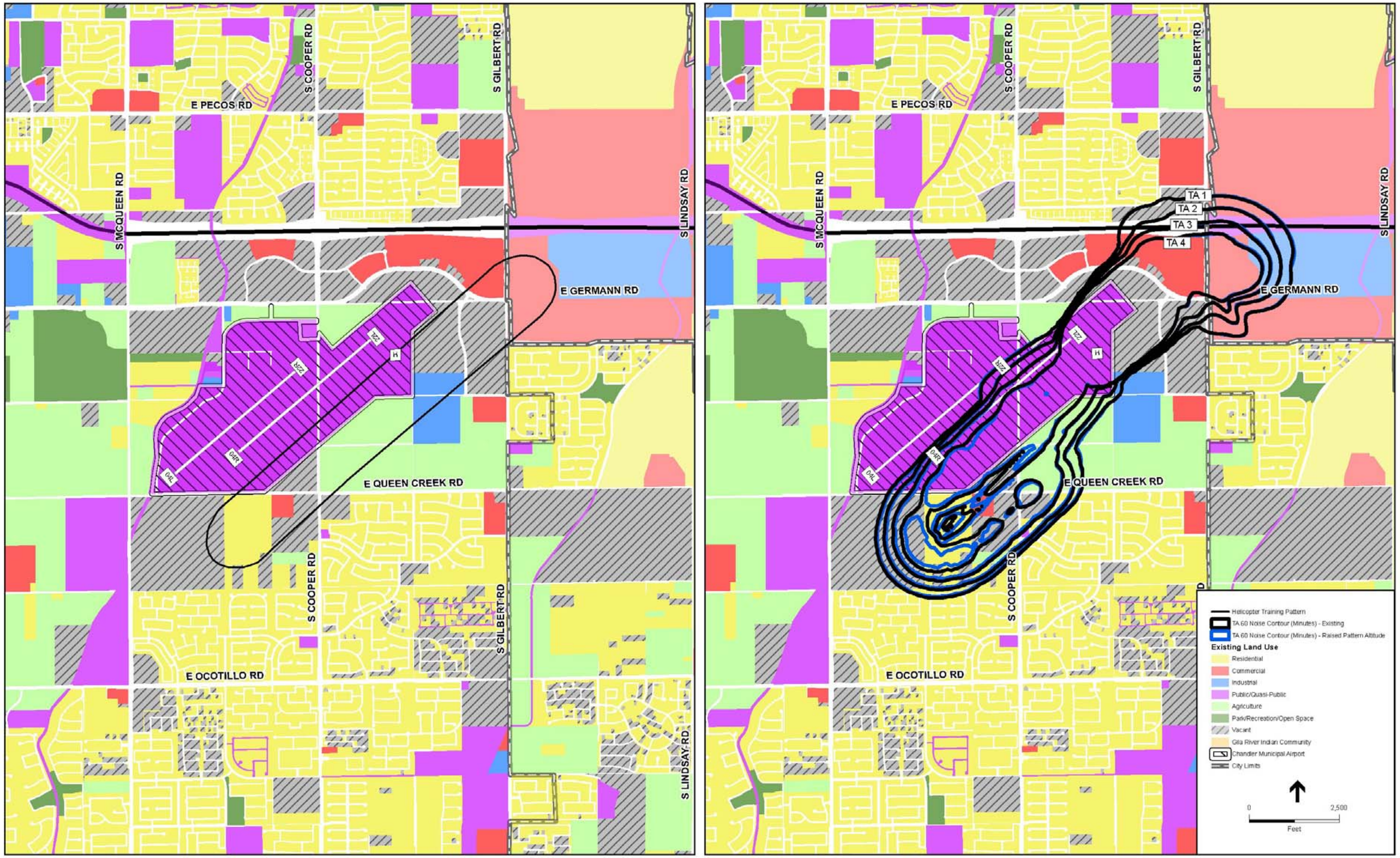
Recommendation: This Study recommends the helicopter training altitude be raised by 100 feet to 1,900 feet MSL, or 657 feet AGL, to provide an incremental decrease in the noise exposure which may be perceived by the residents living under the downwind leg of the helicopter training pattern as a benefit.

Figure 9.1
INCREASE ALTITUDE FOR HELICOPTER TRAINING – EAST FLOW



SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

Figure 9.2
INCREASE ALTITUDE FOR HELICOPTER TRAINING – WEST FLOW



SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

Climb to Pattern Altitude Before Turning

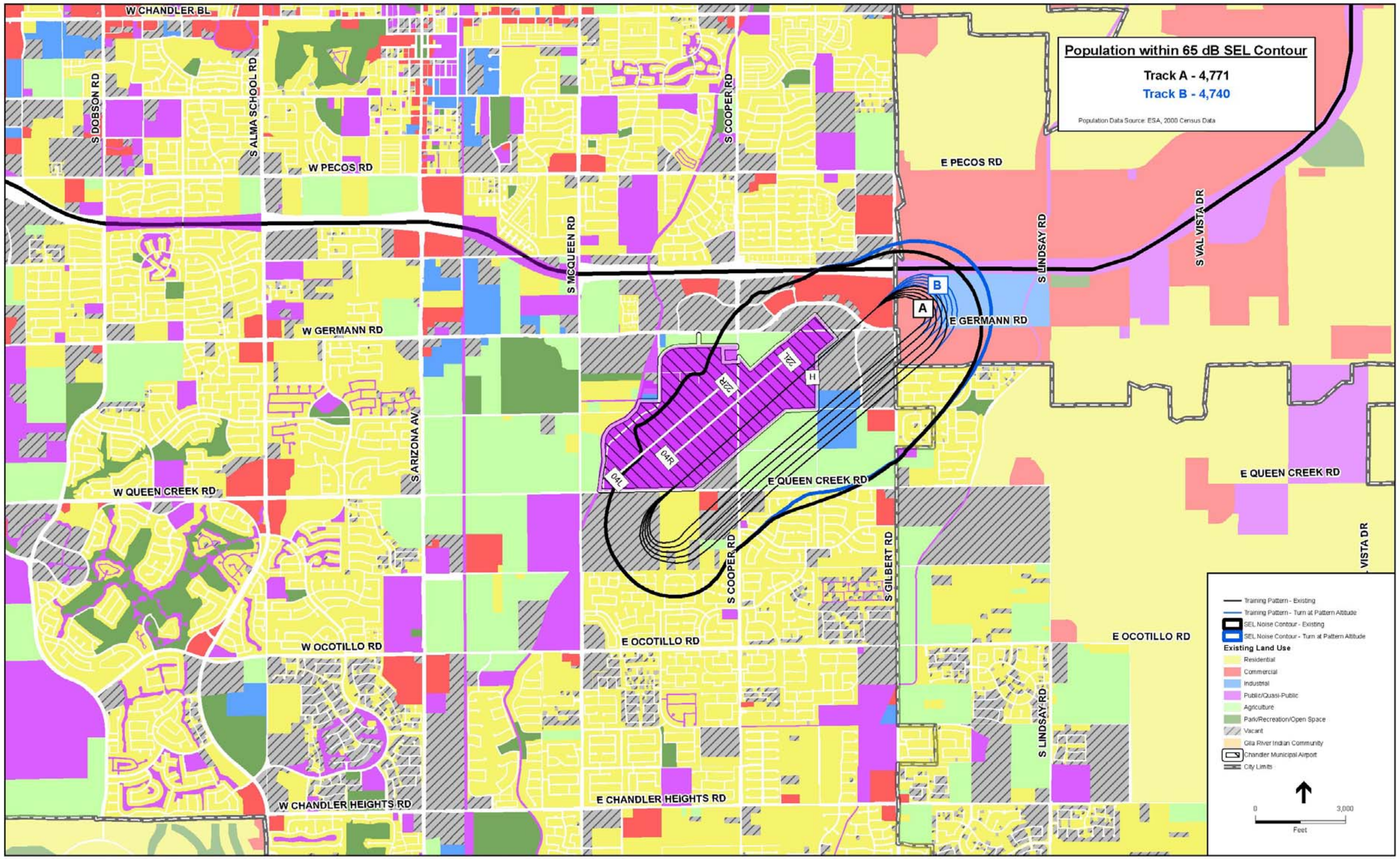
A common concern expressed by residents, relates to noise training helicopters make on departure as they turn and continue to climb from the departure leg to the crosswind leg. One way to address this concern is to have the helicopter climb to pattern altitude prior to making any turns. Currently the pattern altitude is typically reached when helicopters are on the downwind portion of the pattern (flying parallel to the airfield). While climbing to pattern altitude before turning would not raise the pattern altitude, it would prevent helicopters from continuing their climb through a turn potentially decreasing noise exposure on the ground.

To perform this analysis, Sound Exposure Level (SEL) contours were used to depict the noise levels generated by a single helicopter operation. The 65 dB SEL contour was chosen to ensure the contour encompassed the entire training pattern. **Figures 9.3** and **9.4** depict the existing training pattern for both east and west flow. Track A on Figures 9.3 and 9.4 represents the current training pattern. Track B represents the training pattern that would result if the helicopters were to climb to pattern altitude (547 feet AGL) before commencing any turns. The relocation of the crosswind leg was based on the operating performance of the R22 helicopter. As can be seen in Figures 9.3 and 9.4, having the helicopter climb to pattern altitude prior to commencing any turns extends the length of the overall training pattern. This extension in turn creates a larger contour, which decreases the overall number of people in the 65 SEL contour.

In east flow, the increase in contour occurs over an industrial area, while a slight decrease in the contour occurs over residences located under the current downwind portion of the helicopter training pattern. Having the helicopter climb to pattern altitude in east flow, prior to initiating any turns, encompasses approximately 4,740 people within the 65 dB SEL contour compared to the existing training pattern which encompasses approximately 4,771 people, which is a decrease of 31 people. In west flow, the increase in contour occurs over a residential area that does not currently have training helicopter overflights. The decrease in the contour occurs over a residential area that is under the current downwind portion of the training pattern. Having the helicopter climb to pattern altitude in east flow, prior to initiating any turns, encompasses approximately 4,501 people within the 65 dB SEL contour compared to the existing training pattern which encompasses approximately 4,701 people, which is a decrease of 200 people.

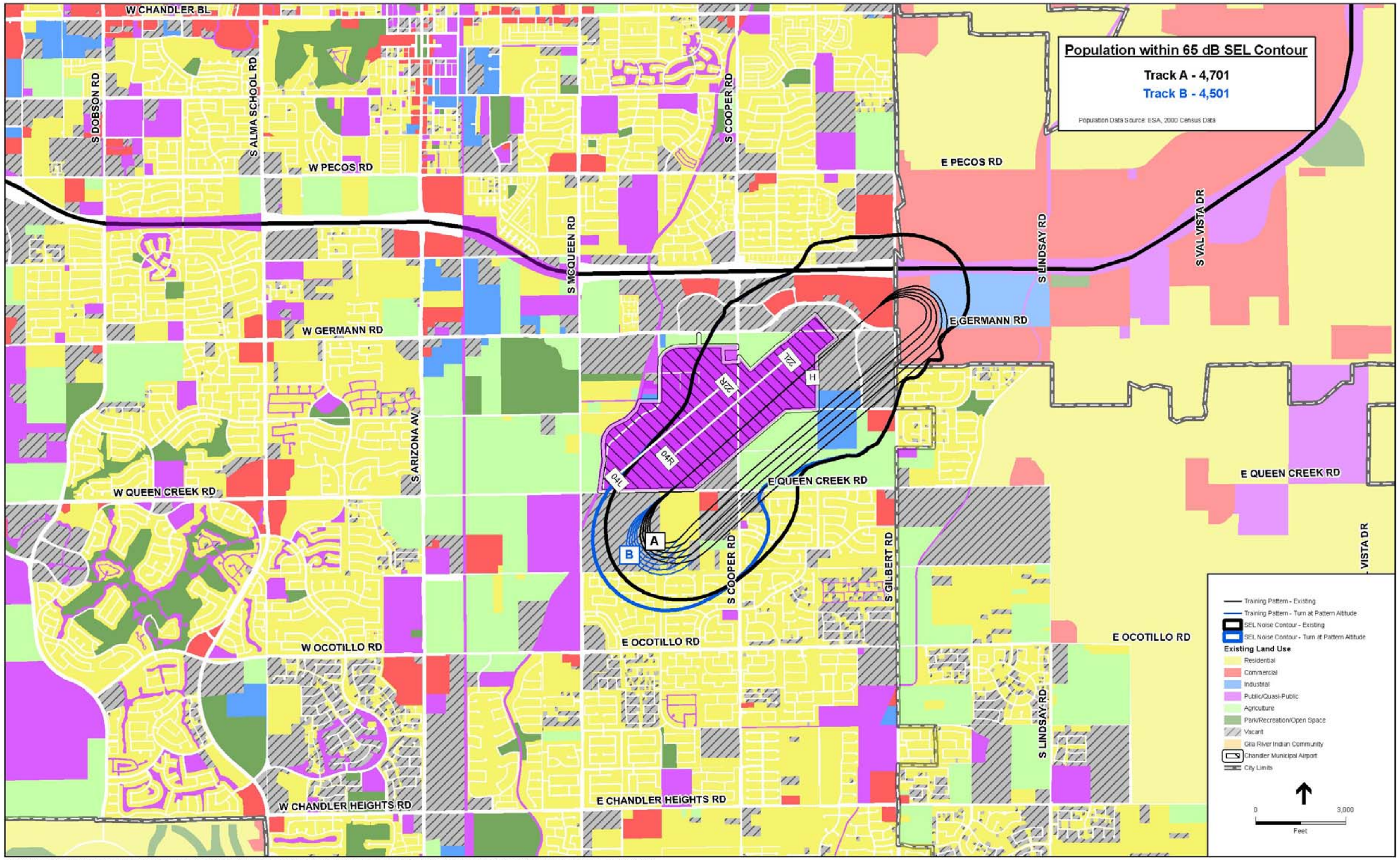
While the east flow contour increases over an industrial area, the west flow contour increases over a residential area. The west flow contour increase would simply move noise from one residential area to another. Moving noise from one noise sensitive area to another is not desirable and simply moves the problem to a new set of residents. Therefore, implementing this measure in west flow is not recommended. While the east flow contour represents a slight decrease in population without adversely affecting a new set of residents, implementing this measure for east flow would require different

Figure 9.3
HELICOPTER CLIMB TO TRAINING PATTERN ALTITUDE BEFORE TURNING – EAST FLOW



SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

Figure 9.4
HELICOPTER CLIMB TO TRAINING PATTERN ALTITUDE BEFORE TURNING – WEST FLOW



SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

training procedures between east flow and west flow. Having different training procedures for different runway ends, increases the safety concerns for both air traffic controllers and pilots. Because of this increase in safety concerns, this measure is not recommended for implementing in east flow.

As an alternative, training helicopters that make a departure turn at mid-field avoid flying over some of the noise sensitive areas around the Airport. This procedure is currently used by the locally-based helicopter operator when conditions permit. For safety, the helicopter must reach a specified altitude and speed prior to making any turns. Depending on the weight of the helicopter, the first turn can sometime occur at mid-field.

Recommendations: **(1)** This Study does not recommend helicopters climb to training pattern altitude before making a turn onto the crosswind leg because it moves noise from one set of residences to another in west flow, and safety concerns in east flow. **(2)** This Study recommends training helicopters continue to voluntarily make departure turns at mid-field when operating conditions permit.

Change Training Pattern Location

The existing helicopter training activity originates on Taxiway C, which is located closest to the landside location of Quantum Helicopters; the helicopter training operator at CHD. In addition to its close proximity to Quantum Helicopters, Taxiway C is also used for safety reasons. Rotary wing aircraft operations are generally kept separate from fixed wing operations due to the different operating characteristics of the two aircraft types. Where fixed wing propeller aircraft create prop wash that spreads behind the aircraft in flight, rotary wing aircraft create rotor wash that spreads below the aircraft in flight. If a fixed wing aircraft were to fly under and within close proximity to a helicopter, the downward rotor wash from the helicopter may cause the fixed wing aircraft to lose control. It is because of these different operating characteristics that fixed and rotary-wing aircraft are kept separated by ATC to the greatest extent possible.

Even though fixed wing propeller aircraft and rotary wing aircraft operations need to be separated, they can operate in the same environment as long as safety margins are followed. While the mixing of the two different aircraft types on a runway is possible, it would carry potentially significant capacity constraints for that runway given the operating safety requirements that would need to be followed. During the course of developing the CHD NCP, Airport staff indicated that the south side of the airport may be developed within the five-year planning timeframe for the Part 150 Study. The anticipated development would consist of new apron and various types of hangars for fixed wing aircraft in an area located south of Taxiway C. When this development occurs, the training helicopter operations would not be able to continue the use of Taxiway C due to use of the taxiway by fixed wing aircraft operating to and from the new hangars. To account for the discontinued use of Taxiway C by training helicopters when the new apron and hangars are constructed, an alternative was developed that consisted of moving the helicopter training activities from Taxiway C to Runway 4R/22L.

To perform this analysis, SEL contours were used to depict the change in noise exposure by shifting the helicopter training pattern to Runway 4R/22L. **Figures 9.5** and **9.6** depict the revised training helicopter touch-and-go pattern location and associated noise exposure. Figure 9.5 depicts the revised pattern for east flow operations. There is a large decrease in the population within the contour as a result of this alternative. With the existing training pattern, there are approximately 4,771 people within the 65 dBA SEL contour. With the helicopter training operations moved to Runway 4R/22L, the number of people within the 65 dBA SEL contour reduces to approximately 1,709.

Figure 9.6 depicts the revised pattern for west flow operations. As with the east flow alternative, there is a drop in the population within the contour. With the existing helicopter training pattern in west flow, there are approximately 4,701 people within the 65 dBA SEL contour. With the helicopter training operations moved to Runway 4R/22L, the number of people within the 65 dBA SEL contour is reduced to approximately 3,037.

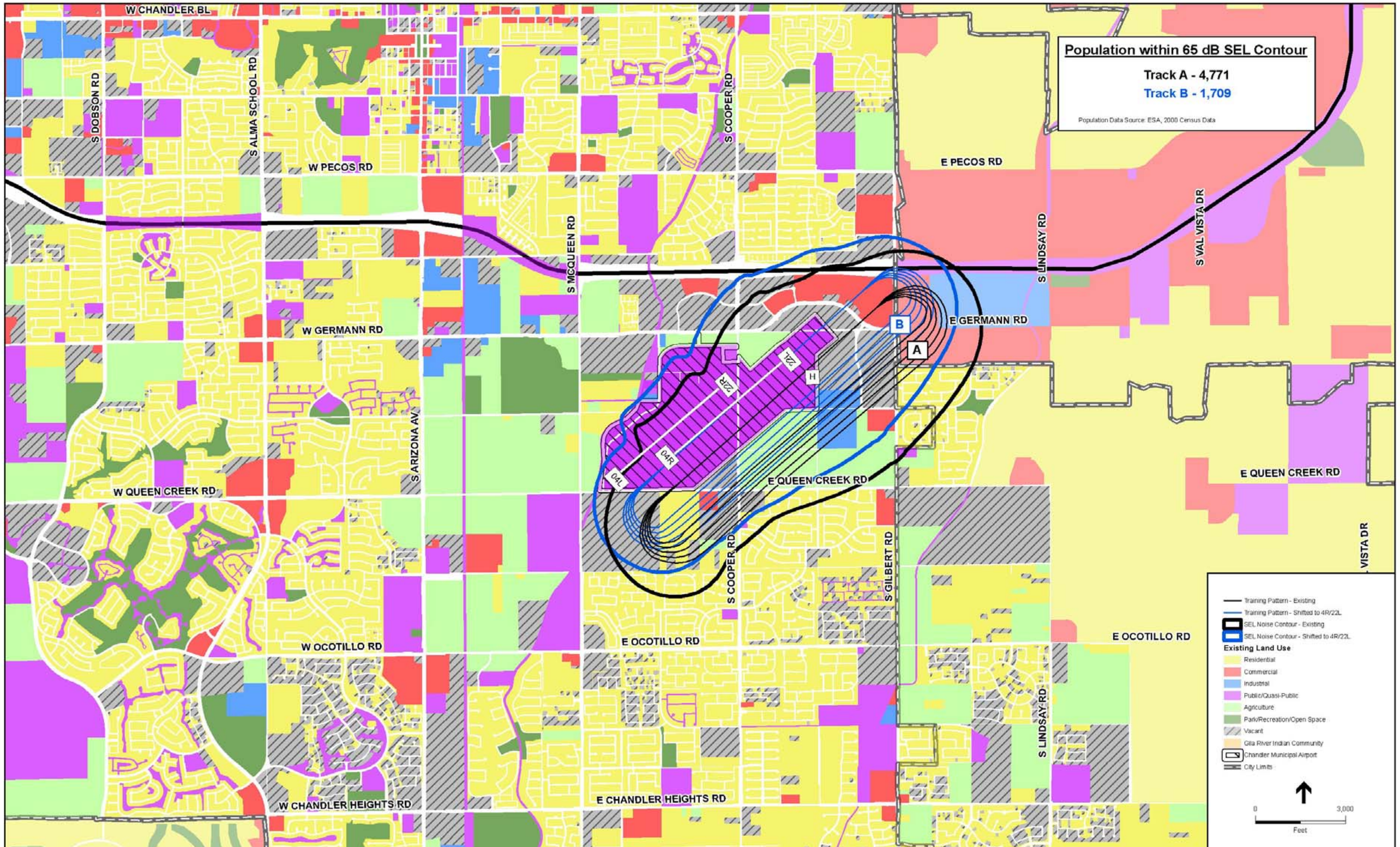
While there are decreases in population contained within the 65 dBA SEL contours for both east and west flow operations, it is important to note that the contours will encompass new residents north of the Airport that are not presently exposed to the helicopter training activity noise on a regular basis. Moving noise from one community to another is not desirable as it merely shifts the noise exposure versus identifying programs that reduce the overall noise exposure. To continue to reduce the noise exposure to local residents, helicopter operators should continue to avoid making turns over noise sensitive areas when operating conditions permit. In addition, helicopters in the touch-and-go pattern should continue to remain west of Gilbert Road when operating conditions permit. Both of these are practices the based operators on the airfield currently follow and have indicated they will continue to follow in the future.

Recommendations: **(1)** This Study does not recommend the helicopter training activity at CHD use Runway 4R/22L because it would shift helicopter training noise to new communities. **(2)** This Study recommends helicopters continue to avoid making turns over noise sensitive areas when operating conditions permit. **(3)** This Study recommends helicopters in the touch-and-go pattern continue to remain west of Gilbert Road when operating conditions permit.

Alternate Training Patterns

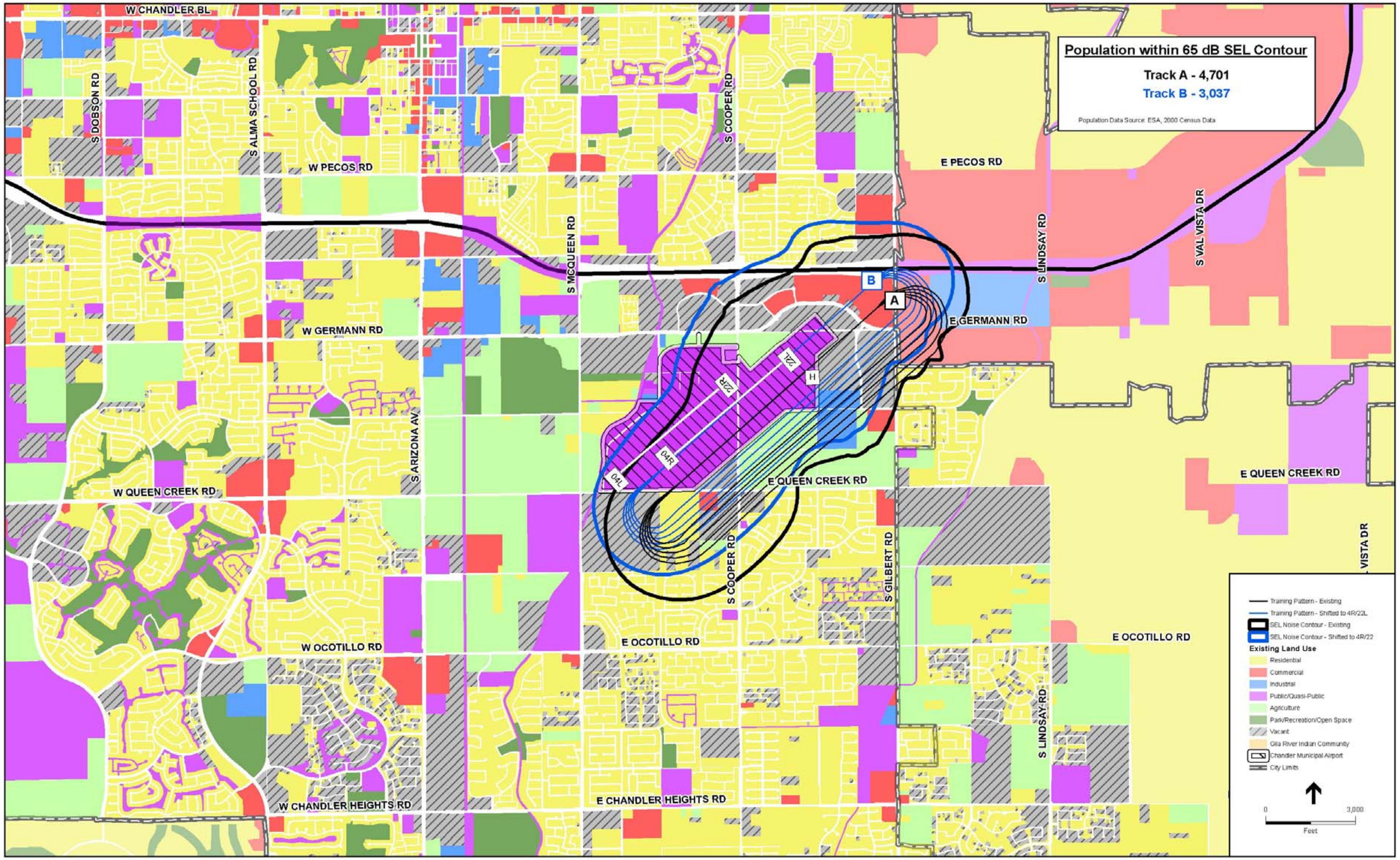
As mentioned previously, the helicopter training pattern begins and ends on Taxiway C, which is located on the south side of the airfield. Comments were received during the Study process requesting helicopters alternate training patterns by using the north side of the airfield a portion of the time. To get to the north side of the airfield, the training

Figure 9.5
CHANGE HELICOPTER TRAINING PATTERN LOCATION TO RUNWAY 22L



SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

Figure 9.6
CHANGE HELICOPTER TRAINING PATTERN LOCATION TO RUNWAY 4R



SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

helicopters would need to cross active flight corridors or cross the active airfield. This would present safety concerns and capacity implications depending on the activity level at the Airport There are very few times when activity on the airfield or in the local airspace is such that helicopters crossing the airfield on a consistent basis would not cause safety or capacity implications. Therefore, the alternative of alternating training patterns is not recommended.

Recommendation: This Study does not recommend alternating helicopter training patterns between the south and north side of the airfield due to safety and operating efficiency concerns related to crossing active flight corridors or an active airfield.

Request Training Fleet at Chandler Municipal Use Other Airports

Currently, training helicopters leave CHD to train at other airports, as a student's training program dictates. It should also be noted that students from other airports will, as needed, train at CHD. Training at other airports is necessary for student pilot curriculums due to cross-country flight requirements and to become familiar with the different airspace classifications and activity levels. When training elsewhere is not required or possible, training helicopters remain in the training pattern at CHD.

Requesting training helicopters use another airport would be seen as a discriminatory action by the FAA because the Airport would be limiting access to the Airport. Any potential discriminatory action by the Airport would require an additional study, known as a Part 161 Study, to implement. In addition to being discriminatory, requesting training helicopters use another airport simply moves noise exposure from one airport to another and does not address the concern. The citizens surrounding CHD would not be happy if another airport requested training helicopters leave their airport and use CHD; so would be the case for other communities around local airports if CHD were to request training helicopters use other airports.

Recommendation: This Study does not recommend changes to require training helicopters at CHD to use other airports because it would be seen as discriminatory by the FAA because the Airport would be limiting access and because it would simply be shifting noise from one community to another.

HELICOPTER ITINERANT OPERATIONS

Itinerant operations at an airport refer to the operations coming to or leaving the airport and operating outside an airport's local airspace. The local airspace for CHD consists of a volume of airspace with a four nautical mile radius and extending up, but not including, 3,000 feet MSL. This airspace is controlled by the air traffic control tower (ATCT) located at CHD.

During the course of the Study, several residents expressed their concerns related to itinerant helicopter operations. The concerns referred primarily to the location of the itinerant helicopter arrival and departure paths, the altitude of the helicopters using those arrival and departure paths, and helicopters adhering to the assigned arrival or departure path. Several alternatives were suggested for review to address these concerns. Each of these alternatives is discussed below.

Increase Arrival/Departure Corridor Altitude

The altitudes for itinerant helicopter arrivals and departures for CHD are designed to ensure the helicopter operations and fixed wing aircraft operations would not interfere with each other. Currently the itinerant helicopter arrivals and departures use an altitude of 1,800 feet MSL, or 557 feet AGL, within two miles of the airfield. This altitude allows a 400 foot vertical separation from the itinerant fixed wing aircraft entering the CHD airspace at 2,200 feet MSL or 957 feet AGL.

As with the training patterns, to achieve a noticeable reduction[2] in noise levels on the ground, the altitude for itinerant helicopters would need to be increased to approximately 2,357 feet MSL, or 1,114 feet AGL, which would result in approximately a six-decibel reduction in noise on the ground. This altitude increase would make it necessary to increase the altitudes for all itinerant fixed wing aircraft flight paths, as well as the altitude of the flight paths for transitional aircraft. These increases would push near, or exceed, the altitude limits for the airspace around CHD.

Discussions were held with CHD ATC regarding the potential for an incremental increase in the arrival/departure corridors for helicopters entering or leaving the local airspace. It was suggested an increase of 200 feet to the altitude of the arrival/departure corridors for itinerant helicopters may be possible; moving the altitudes for the corridor to 2,000 feet MSL or 757 feet AGL. While the increase in the arrival/departure corridor altitude may not make a noticeable difference in the noise level, the resident on the ground may perceive a benefit. Based on this fact, the Study recommends the altitudes of the itinerant helicopters be increased to 757 feet AGL. It is important to note, further review by ATC will be needed to determine any potential safety implications.

Recommendation: This Study recommends the altitude for the itinerant helicopter arrival/departure corridors be raised by 200 feet to 2,000 feet MSL, or 757 feet AGL. This will provide an incremental decrease in the noise exposure, which may provide a benefit to the residents near CHD.

Keep Helicopters in Designated Corridors

Corridors for itinerant helicopter arrivals and departures are established to ensure the fixed wing aircraft and the rotary wing aircraft remain separated for safety and operational efficiency. The corridors follow several roads around the Airport and residents believe the helicopters should remain completely over the roads. Helicopters

[2] FAA requires a five-decibel reduction for certain noise mitigation measures in recognition that a five-decibel reduction is needed to be noticeable to most people.

within designated corridors do not follow the exact same flight path. Helicopters fly Visual Flight Rules (VFR) the vast majority of the time, meaning they rely less on instruments to guide them and use visual cues based on the procedure they are flying. To fly a more precise arrival and departure corridors, GPS technology would likely need to be used. Traditional navigation equipment relies on corridors versus a narrow flight path for departures, and the same for arrivals until within a very close proximity to the airport; then certain navigational aids can provide both lateral and vertical guidance to an aircraft. Because most of the helicopters using CHD fly during VFR conditions, many do not have GPS capabilities.

For CHD, the most realistic solution for addressing the concerns of the residents regarding itinerant helicopter corridors is for Airport management to work with ATC to develop an education plan for air traffic controllers and the helicopter operators to remind them of the noise concerns associated with itinerant helicopter operations and the importance of adhering to established helicopter flight corridors. Airport management should also develop informational material, such as a brochure, related to itinerant helicopter operations to remind pilots of the desired itinerant helicopter corridors. The helicopter flight corridor brochure should be made available on the CHD website and should be distributed to the helicopter operators at CHD and nearby airports. The itinerant helicopter flight corridor brochure will ensure that helicopters operators are aware of the concerns of the nearby residents.

Recommendations: **(1)** This Study recommends Airport management work with ATC to develop and distribute an education plan for air traffic controllers and helicopter operators to remind them of the noise concerns related to itinerant helicopter operations and the importance of adhering to established flight corridors. **(2)** This Study also recommends Airport management develop and distribute informational material depicting the desired itinerant helicopter flight corridors and ensure they are made available to the necessary parties.

Keep Helicopters at Established Corridor Altitudes

Currently, itinerant helicopter arrivals and departures are at 1,800 feet MSL, or 557 feet, within two miles of CHD. Air traffic controllers must make sure they remain at that altitude to avoid conflicts with other air traffic in the area based on the existing airspace configuration. Any deviation from that altitude is likely due to the need to avoid conflicting air traffic. Currently, there is no technology that exists to ensure helicopters remain at their assigned altitude beyond human control. Because safety is of utmost importance, ATC personnel remain vigilant of the altitudes and correct any deviations not deemed necessary for safety. Airport management should document the corridor parameters, including desired altitude, in the previously mentioned informational materials related to helicopter operations.

Recommendation: This Study recommends Airport management document the desired altitude of the arrival and departure corridors for itinerant helicopter operations and disseminate that information to all necessary parties.

Remain at, or Climb to, Pattern Altitude Before Turning

As mentioned previously, itinerant helicopter arrivals and departures have a desired altitude of 1,800 feet MSL, or 557 feet AGL, two miles from Chandler Municipal. In the immediate vicinity of the Airport, helicopters will flow into an arrival or departure pattern that will dictate their climb or descent profile. The vast majority of itinerant helicopter operations remain at, or climb to, the desired corridor altitude before leaving the immediate vicinity of the Airport.

Because there are concerns in the community that helicopters are turning at low altitudes, Airport management should include desired departure procedures in the mentioned previously informational materials for helicopter operators. The desired departure and arrival procedures should state that, unless otherwise directed by ATC, the itinerant helicopter corridor altitudes should be observed before making any turns.

Recommendation: This Study recommends Airport management include guidance in the informational materials regarding maintaining, or attaining, the itinerant helicopter corridor altitude before initiating any turns.

FIXED WING TRAINING ACTIVITY

Fixed wing training activity at an airport is similar to that of helicopter training. It refers to the operations conducted by student pilots, or pilots practicing their flying skills, that are conducted in a closed pattern near the airport, known as touch-and-go operations. The touch-and-go pattern for fixed wing aircraft is similar in shape as the previously mentioned helicopter training pattern and is a rounded rectangle shaped flight track consisting of a departure leg, a crosswind leg, a downwind leg, a base leg, and final approach.

For CHD, several residents expressed their concerns related to fixed wing training activity. The concerns referred primarily to the location of the training pattern, the altitude of the training pattern, and the repetitive nature of the operations. Several alternatives were suggested for review to address these concerns. Each of these alternatives is discussed below.

Increase Arrival/Departure Corridor Altitude

The altitudes for itinerant fixed wing arrivals and departures for CHD are designed to ensure the helicopter operations and fixed wing aircraft operations would not interfere with each other. Currently the itinerant fixed wing arrivals and departures use an altitude of 2,200 feet MSL, or 957 feet AGL, within two miles of the airfield. This altitude provides a 400-foot vertical separation from the itinerant helicopter operations entering the CHD airspace at 1,800 feet MSL or 557 feet AGL.

As with the training patterns, to achieve a noticeable reduction[3] in noise levels on the ground, the altitude for itinerant fixed wing aircraft would need to be increased to approximately 3,314 feet MSL, or 1,914 feet AGL, which would result in approximately a six-decibel reduction in noise on the ground. This altitude increase would make it necessary to increase the altitude of the flight paths for transitional aircraft as well. These increases would exceed the altitude limits for the airspace around CHD.

Discussions were held with ATC and fixed wing aircraft operators regarding the potential for an incremental increase in the arrival/departure corridors for fixed wing aircraft entering or leaving the local airspace. Operators suggested an increase of 300 feet to the altitude of the arrival/departure corridors for itinerant fixed wing aircraft may be possible; moving the altitudes for the corridor to 2,500 feet MSL or 1,257 feet AGL. In addition, the operators suggested that it may be possible for them to descend into the traffic pattern beginning two to three miles before entering the pattern. While the increase in the arrival/departure corridor altitude may not make a noticeable difference in the noise level, the resident on the ground may perceive a benefit. Based on this fact, the Study recommends the altitudes of the itinerant fixed wing aircraft be increased to 1,257 feet AGL. It is important to note, further review by ATC will be needed to determine any potential safety implications to the increase in altitude in the corridors or the decrease in altitude in the extended approach.

Recommendation: This Study recommends the altitude for the itinerant fixed wing arrival/departure corridors be raised by 300 feet to 2,500 feet MSL, or 1,257 feet AGL. This will provide an incremental decrease in the noise exposure, which may provide a benefit to the residents near CHD.

Increase Training Pattern Altitude

In addition to helicopter training, there is also a large amount of fixed wing training that occurs at CHD. The current fixed wing training altitude is approximately 2,200 feet MSL, resulting in a pattern altitude of approximately 957 feet AGL; the airfield elevation is approximately 1,243 feet MSL. To achieve a noticeable reduction[4] in noise levels on the ground, the pattern altitude would need to be increased to approximately 3,157 feet MSL, or 1,914 feet AGL, which would result in approximately a six-decibel reduction in noise on the ground. The Class B airspace for Chandler Municipal extends up to, but not including, 3,000 feet MSL. The proposed increase in the fixed wing training pattern altitude to 3,157 feet MSL would exceed the limits of the local airspace, and therefore is not possible.

[3] FAA requires a five-decibel reduction for certain noise mitigation measures in recognition that a five-decibel reduction is needed to be noticeable to most people.
[4] FAA requires a five-decibel reduction for certain noise mitigation measures in recognition that a five-decibel reduction is needed to be noticeable to most people.

As an alternative, an incremental increase in the fixed wing aircraft training altitude was proposed by the fixed base operators at CHD and reviewed as part of this Study. The fixed based operators at CHD discussed the concerns of the residents regarding the fixed wing aircraft training activity and agreed they could increase the altitude of the fixed wing aircraft training pattern by 50 feet to 2,250 feet MSL, or 1,007 feet AGL.

To perform the analysis of the incremental training altitude increase, a TA analysis was completed to determine the potential change in time local residents are exposed to noise from fixed wing training aircraft. The TA analysis determines the amount of time, in minutes, above a certain noise level that a location experiences for the annual-average day. A noise level of 60 dBA was chosen for this analysis and is comparable to an indoor noise level one may find in a large business office or a conversation at three feet. **Figures 9.7** through **9.10** present the TA analysis completed for this alternative. Figure 9.7 and Figure 9.8 present the analysis for fixed wing training in east flow for Runways 04L and 04R. Figure 9.9 and Figure 9.10 present the analysis for fixed wing training in west flow for Runways 22L and 22R. As can be seen from the analysis there would be very little, if any, change in the TA contours and associated noise exposure on the ground. While the analysis does not show a significant change in noise exposure, it is still recommended the training pattern for fixed wing aircraft be raised by 50 feet. While the increase in the training pattern altitude may not make a noticeable difference in noise level, residents on the ground may perceive a benefit.

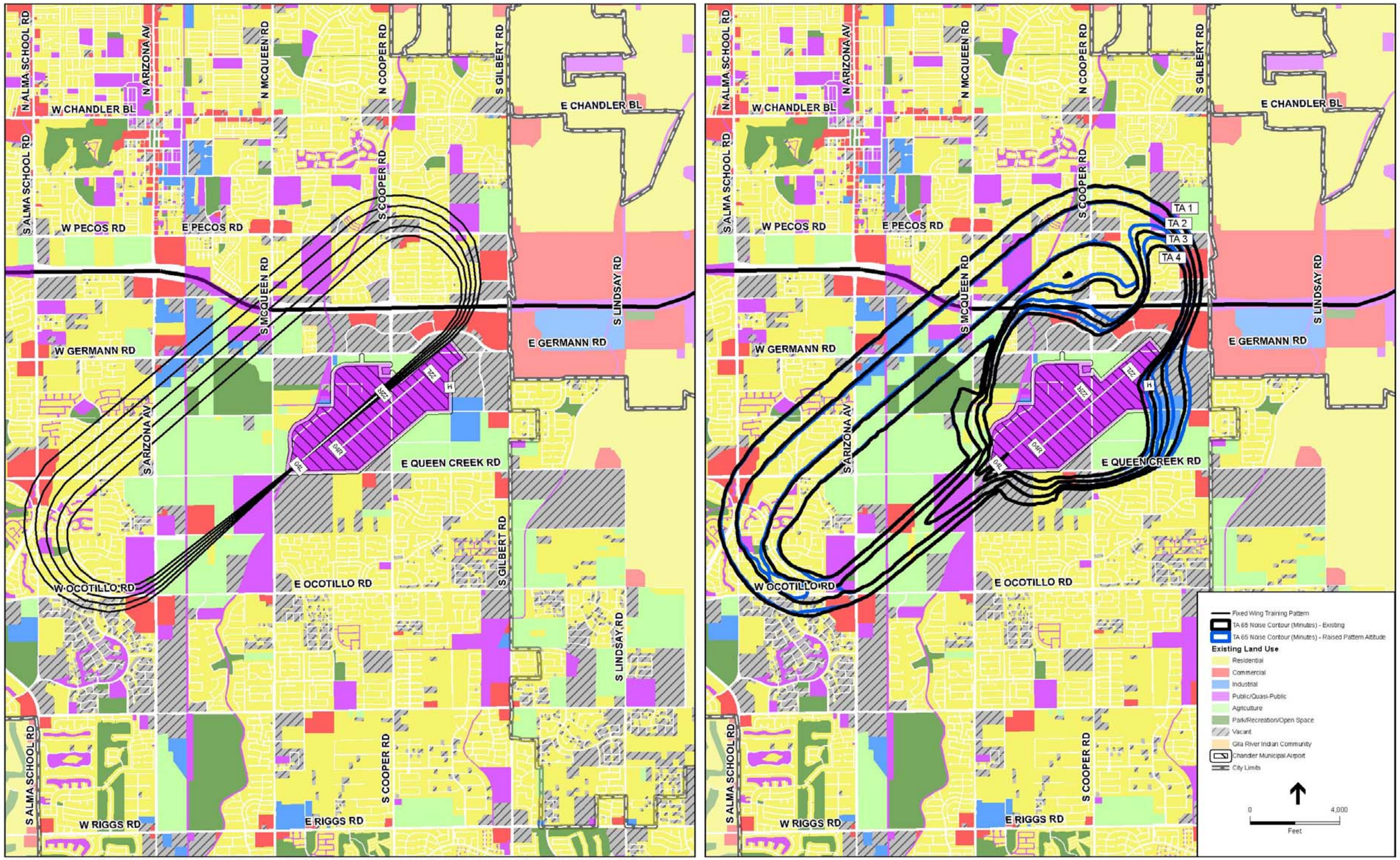
Recommendation: This Study recommends the fixed wing training altitude be raised by 50 feet to 2,250 feet MSL, or 1,007 feet AGL, to provide an incremental decrease in the noise exposure which may provide a benefit to the local residents around the Airport.

Climb to Pattern Altitude Before Turning

As with training helicopters, a common concern expressed by residents relates to noise fixed wing aircraft make on departure as they turn and continue to climb from the departure leg to the crosswind leg. One way to address this concern is to have the fixed wing aircraft climb to pattern altitude prior to making any turns. Currently the pattern altitude is typically reached when aircraft are on the downwind portion of the training pattern (flying parallel to the airfield). While this would not raise the pattern altitude, it would prevent the aircraft from continuing their climb through a turn potentially decreasing noise exposure on the ground.

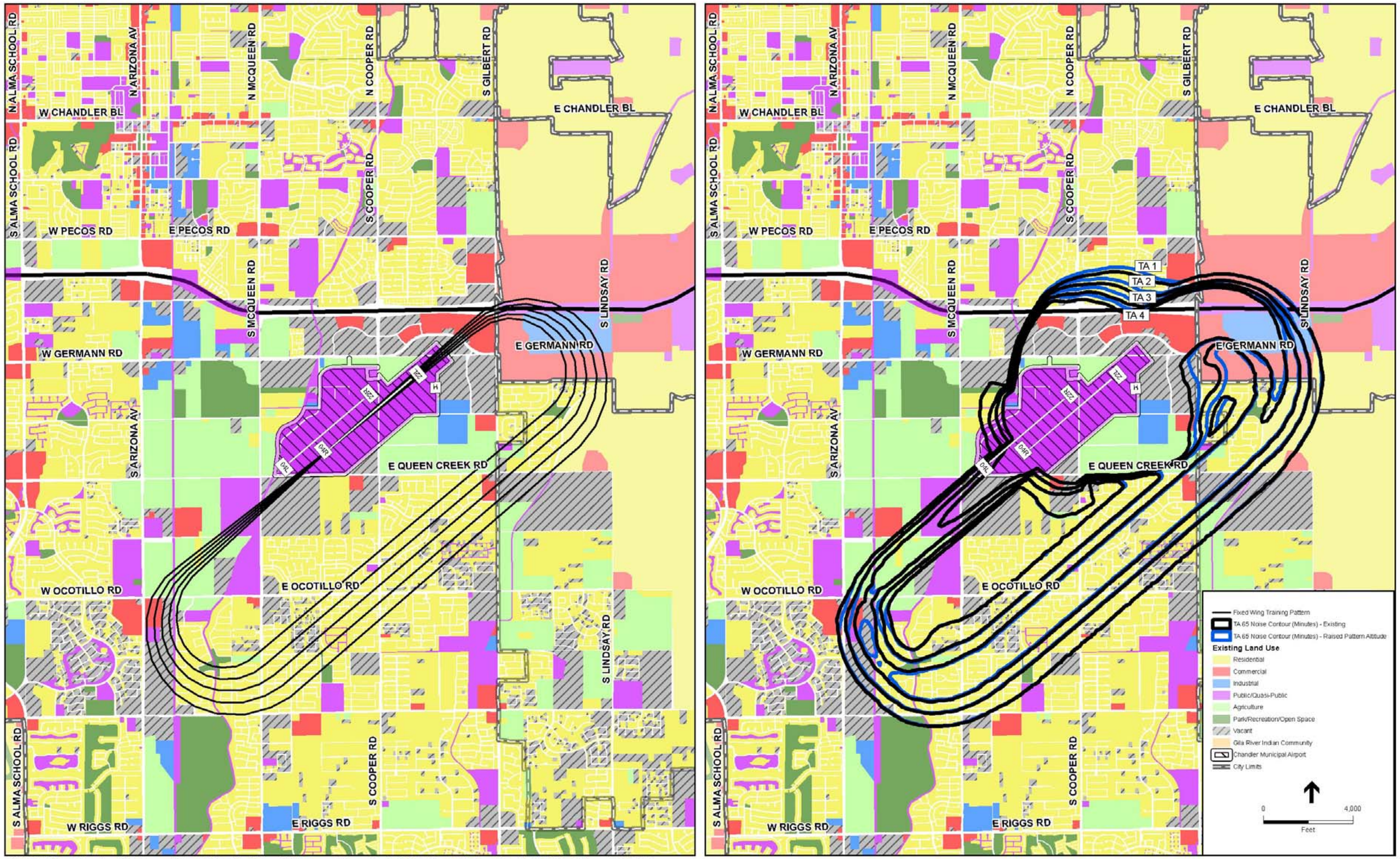
To perform this analysis, SEL contours were used to depict the noise levels generated by a single fixed wing aircraft operation. The 65 dB SEL contour was chosen to ensure the contour encompassed the entire fixed wing training pattern. **Figures 9.11** through **9.14** depict the alternatives analysis for both east flow from Runways 04L and 04R and west flow from Runways 22L and 22R. Track A on the figures represents the current fixed wing aircraft training pattern. Track B represents the alternative training pattern that would result if the fixed wing aircraft were to climb to pattern altitude before

Figure 9.7
INCREASE ALTITUDE FOR FIXED WING TRAINING– RUNWAY 4L



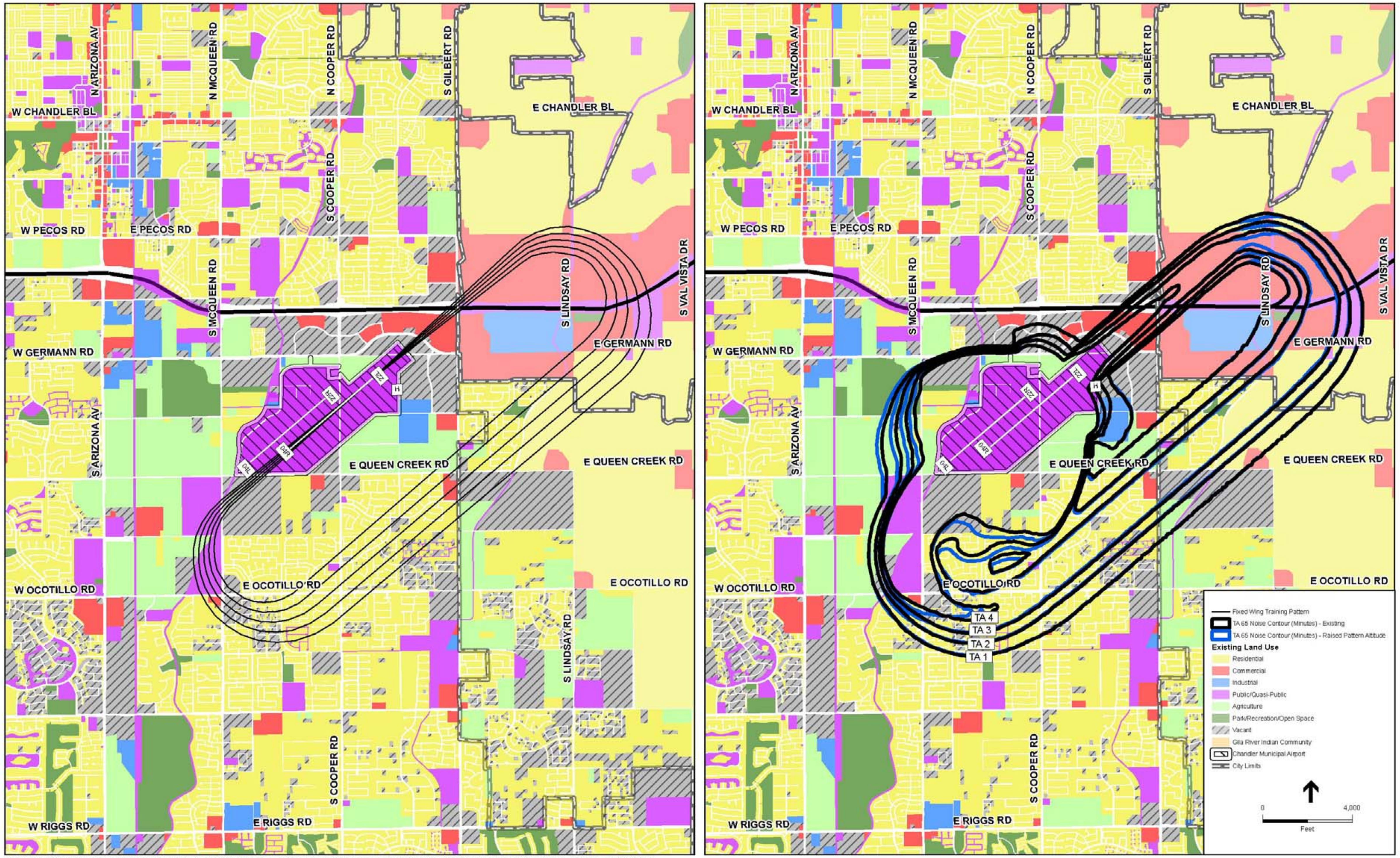
SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

Figure 9.8
INCREASE ALTITUDE FOR FIXED WING TRAINING – RUNWAY 4R



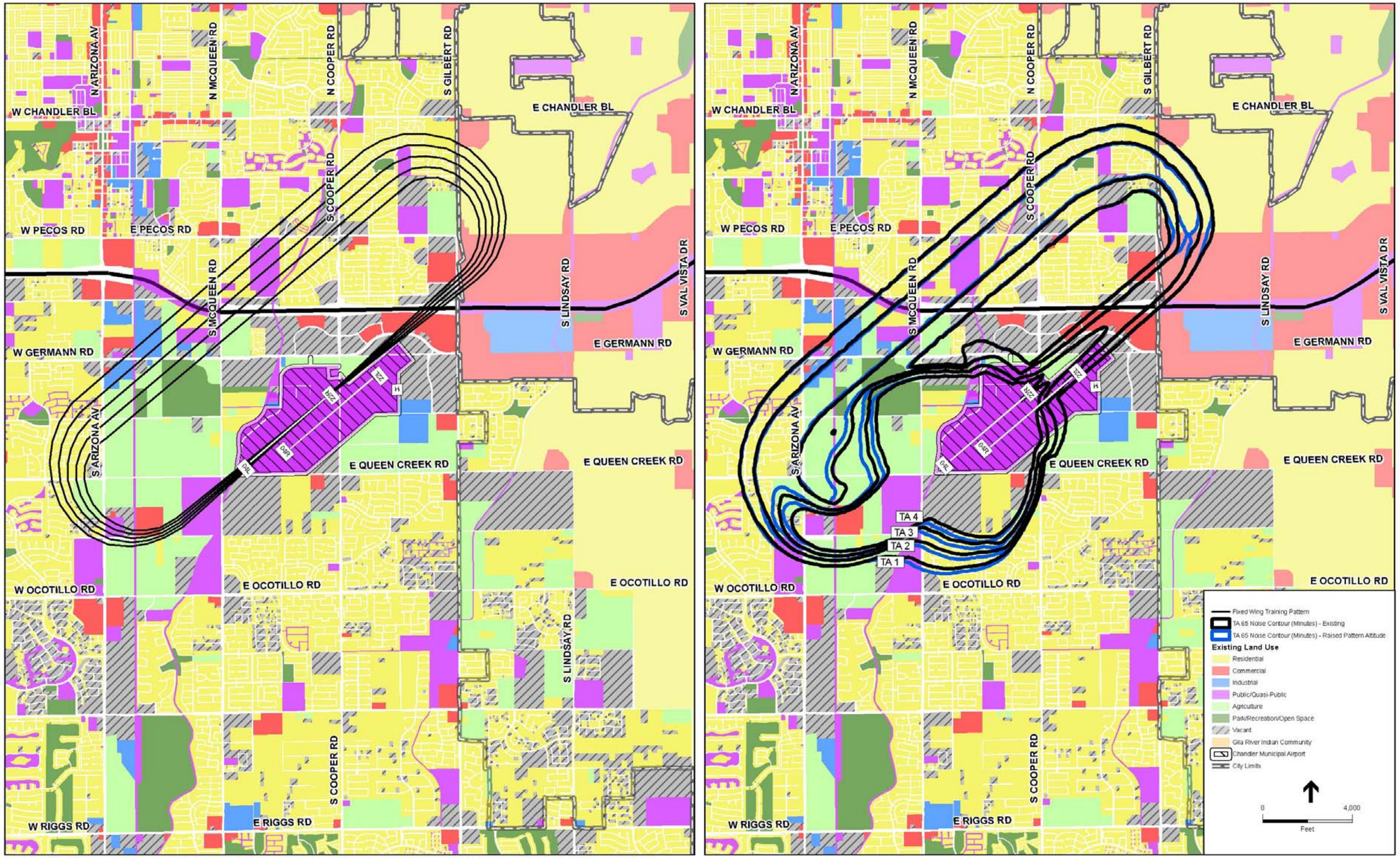
SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

Figure 9.9
INCREASE ALTITUDE FOR FIXED WING TRAINING – RUNWAY 22L



SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

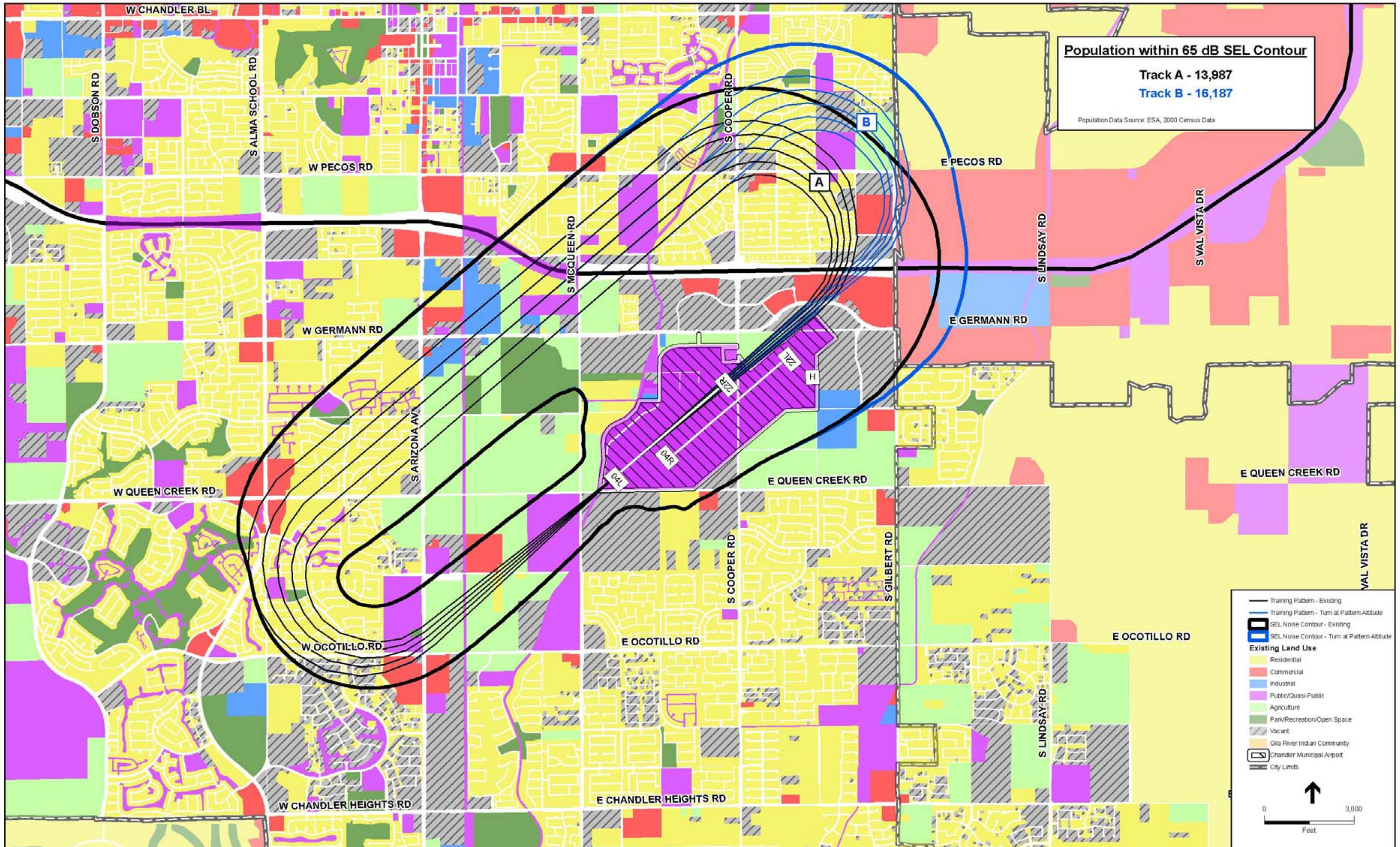
Figure 9.10
INCREASE ALITUDE FOR FIXED WING TRAINING – RUNWAY 22R



SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

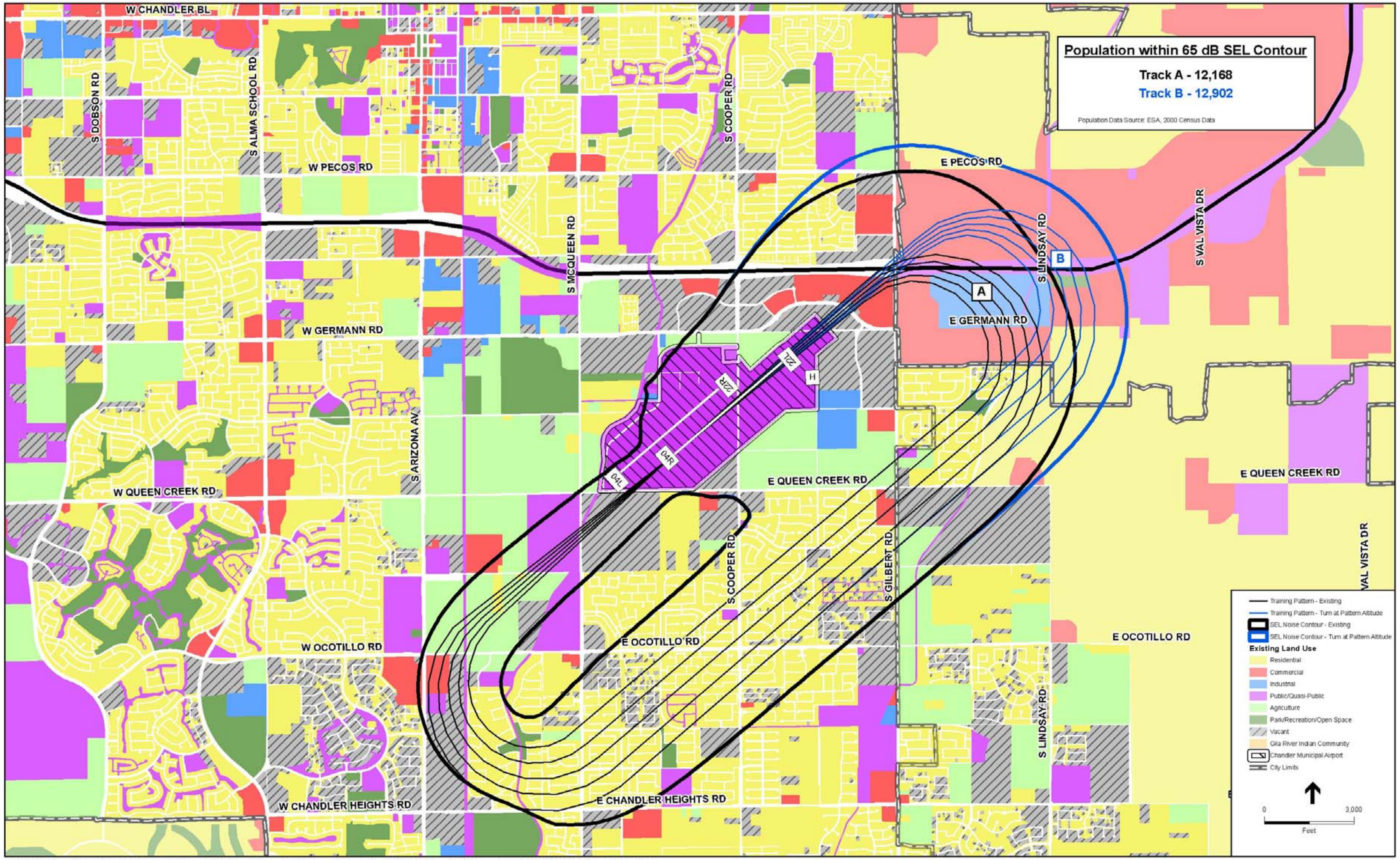
Fixed Wing Training Operation - Runway 22R

Figure 9.11
FIXED WING CLIMB TO TRAINING PATTERN ALTITUDE BEFORE TURNING – RUNWAY 4L



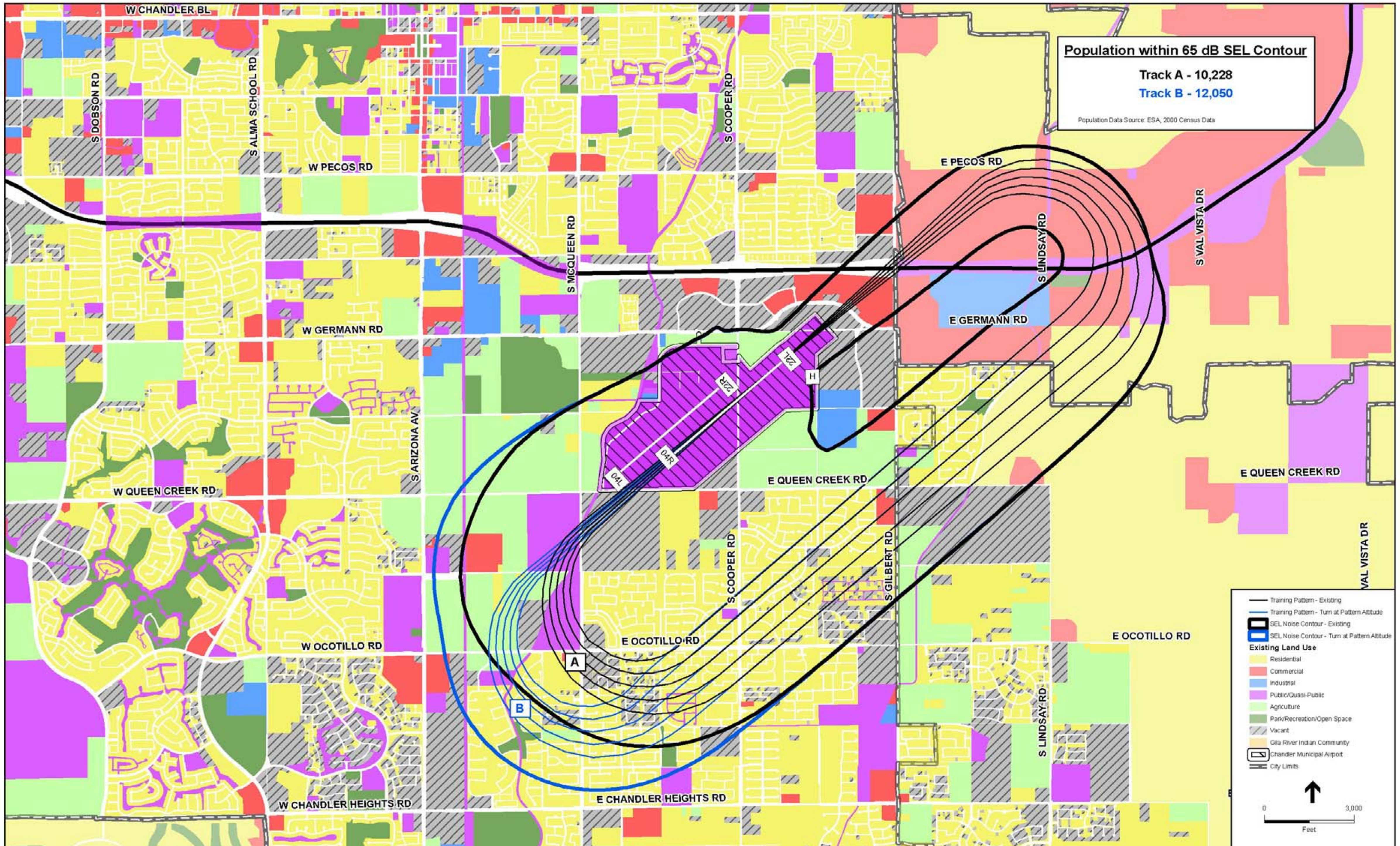
SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

Figure 9.12
FIXED WING CLIMB TO TRAINING PATTERN ALTITUDE BEFORE TURNING – RUNWAY 4R



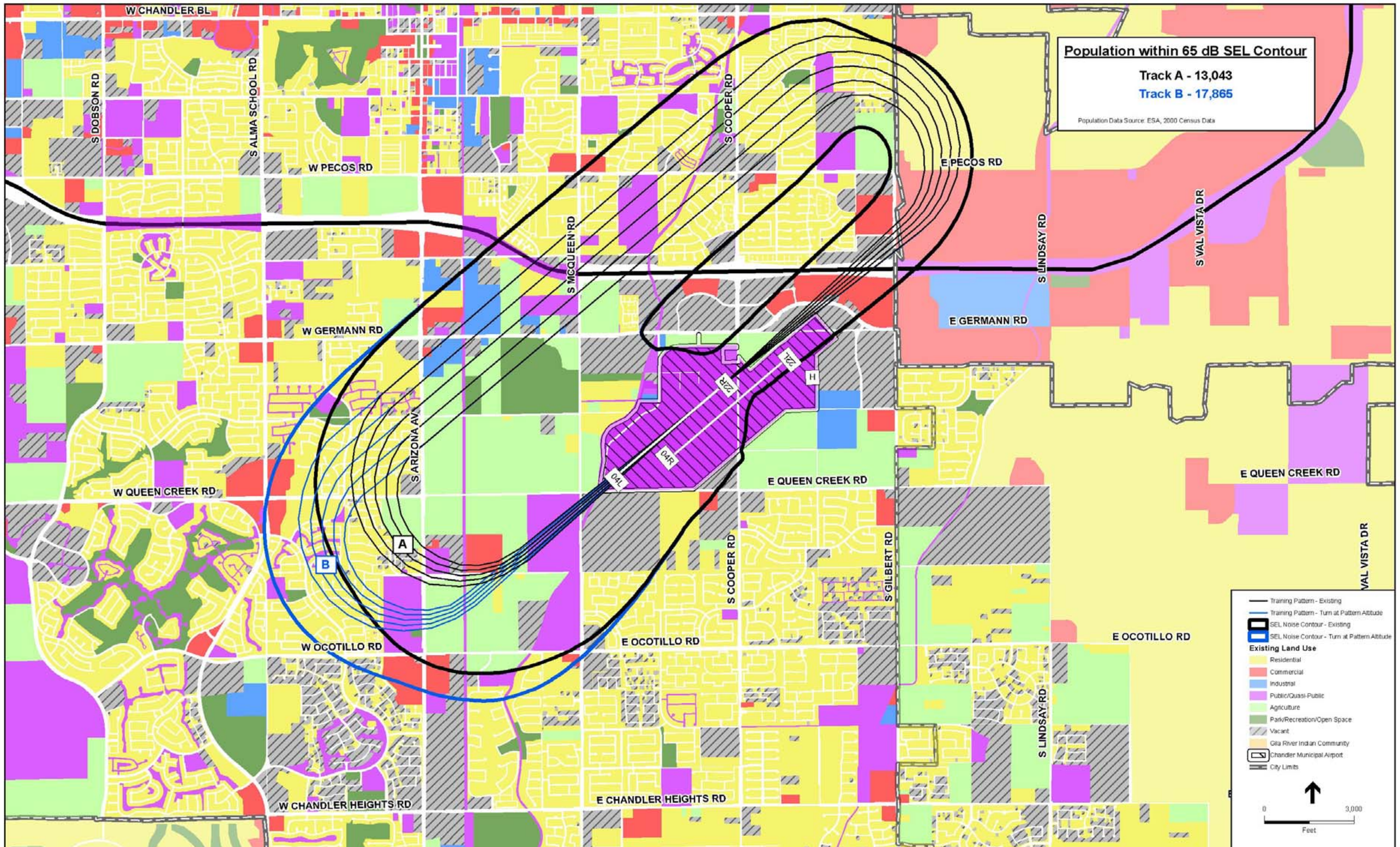
SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

Figure 9.13
FIXED WING CLIMB TO TRAINING PATTERN ALTITUDE BEFORE TURNING – RUNWAY 22L



SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

Figure 9.14
FIXED WING CLIMB TO TRAINING PATTERN ALTITUDE BEFORE TURNING – RUNWAY 22R



SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

commencing any turns. The location of the alternative training pattern was based on the operating characteristics of a Cessna 172, given the distance that would be required to reach pattern altitude. As can be seen, having the aircraft climb to pattern altitude prior to commencing any turns lengthens the overall training pattern, which increases the population within the SEL contours.

In east flow from Runway 04L, the increase in the SEL contour area occurs over residential and commercial land uses. Having the fixed wing aircraft climb to pattern altitude from Runway 04L prior to initiating any turns, encompasses approximately 16,187 people within the 65 dB SEL contour compared to the existing training pattern which encompasses approximately 13,987 people. This represents an increase of 2,200 people. In east flow from Runway 04R, the increase in the SEL contour occurs over residential and commercial areas. Having the fixed wing aircraft climb to pattern altitude from Runway 04R prior to initiating any turns, encompasses approximately 12,902 people within the 65 dB SEL contour compared to the existing training pattern which encompasses approximately 12,168 people, which is an increase of 734 people. In west flow from Runway 22L, the increase in SEL contour occurs over residential and agricultural areas and encompasses approximately 12,050 people compared to the existing training pattern which encompasses approximately 10,228 people, which is an increase of 1,822 people. In west flow from Runway 22R, the increase in SEL contour occurs over mainly residential uses and encompasses approximately 17,865 people compared to the existing training pattern which encompasses approximately 13,043 people, which is an increase of 4,822 people. In each of these scenarios, having the aircraft climb to pattern altitude before turning increases the number of people within the SEL contours. Therefore, the Study does not recommend that fixed wing aircraft be required to climb to pattern altitude before turning.

Recommendation: This Study does not recommend fixed wing aircraft be required to climb to pattern altitude before turning because it would substantially increase the number of people within the SEL contours.

Change the Fixed Wing Training Pattern Location

To change the fixed wing training pattern location presents two distinct possibilities at any airport. The first possibility is to utilize a different runway than the one(s) currently used for training. The second possibility is to identify an area of compatible land use near the current runway(s) used for training over which the pattern could be flown. Training operations by fixed wing aircraft at CHD occur on both runways in equal amounts on an annual basis. Since both runways at CHD are already used for fixed wing aircraft training, using a different runway for relocating the fixed wing training patterns is not an option at CHD.

The development around CHD has exploded over the last decade with a significant portion being residential. Because of the amount of residential development, the vast majority of compatible land use occurs adjacent to Airport property, much too close for a fixed wing aircraft training pattern. Training patterns for fixed wing aircraft are standard across the country and are of a necessary size to allow for the adequate training of student pilots and to provide for the safe operation of the airport. Due to the housing development that has occurred around the Airport, fixed wing training patterns will be over noise sensitive uses for all runways. Since there is not a way to change the training pattern location for fixed wing aircraft, it is possible to determine which of the current runways used for training would expose the fewest people to fixed wing aircraft noise when operating conditions permit. To perform this analysis, SEL contours were used to depict the noise levels generated by a single fixed wing aircraft operation for each runway end. The 65 dB SEL contour was chosen to ensure the contour encompassed the entire fixed wing training pattern. Population estimates were then determined for each resulting SEL contour. **Figures 9.15** and **9.16** present the results of this analysis. Figure 9.15 compares the noise exposure, and associated population estimate, for the training pattern in east flow. When runway 4L is used for the training pattern, approximately 13,987 people are within the SEL contour. When runway 4R is used for the training pattern, approximately 12,168 people are within the SEL contour. Based on this analysis, when in east flow and operating conditions permit, Runway 4R would be the preferred runway for fixed wing training activity because it exposes the fewest number of people to fixed wing aircraft training noise.

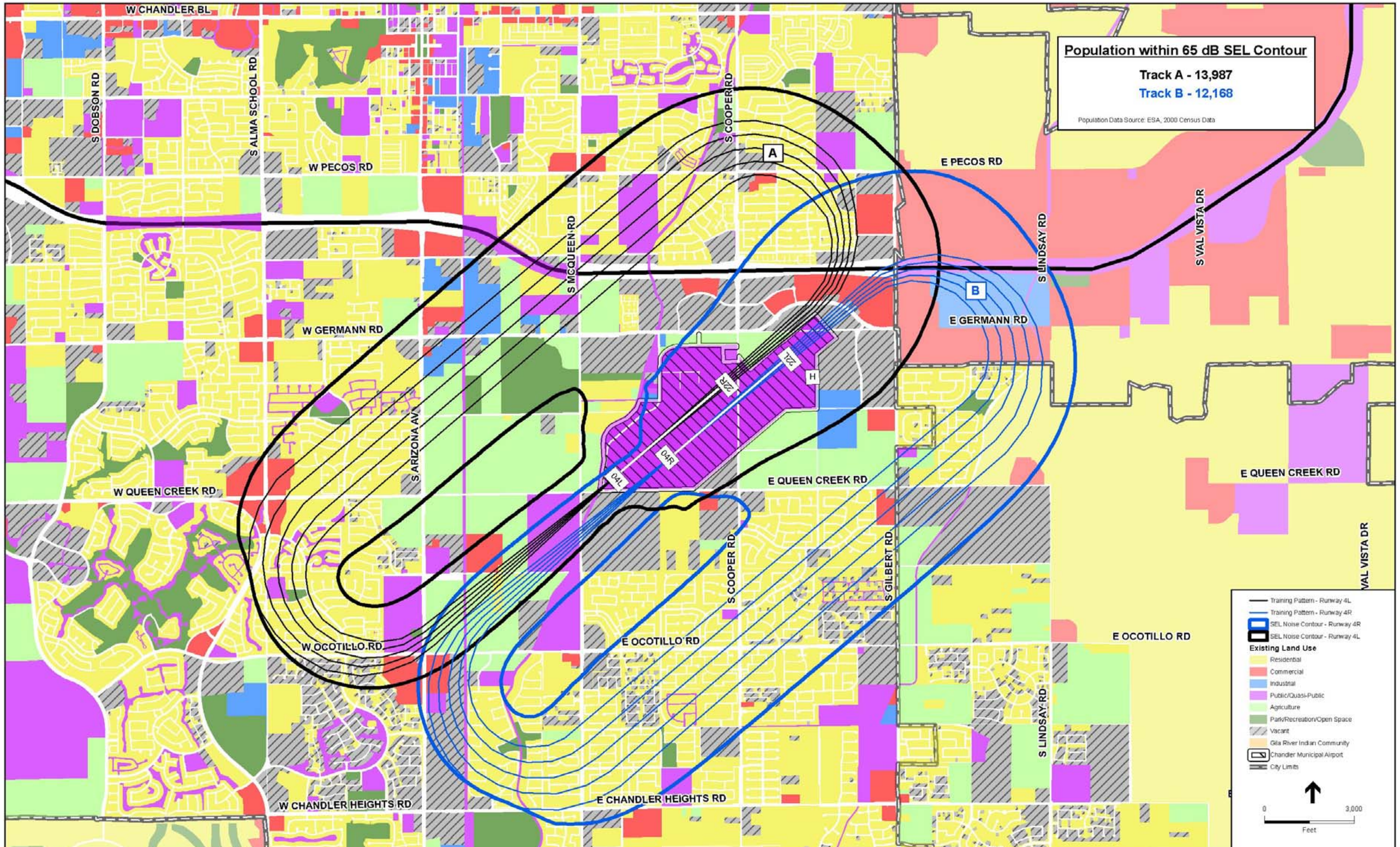
Figure 9.16 compares the noise exposure, and associated population estimate, for the training pattern in west flow. When runway 22R is used for the training pattern, approximately 13,043 people are within the SEL contour. When runway 22L is used for the training pattern, approximately 10,228 people are within the SEL contour. Based on this analysis, when in west flow and operating conditions permit, Runway 22L would be the preferred runway for training activity because it exposes the fewest number of people to fixed wing aircraft training noise. For all runways, fixed wing training aircraft should avoid making turns over noise sensitive areas when operating conditions permit.

Recommendations**:** **(1)** This Study recommends Runway 4R continue to be the preferred runway for fixed wing training activity in east flow, and Runway 22L continue to be the preferred runway in west flow. Preferential runway use for training activity would be subject to operating conditions. **(2)** This Study recommends fixed wing aircraft continue to avoid making turns over noise sensitive areas when operating conditions permit.

Request Training Fleet at Chandler Municipal Use Other Airports

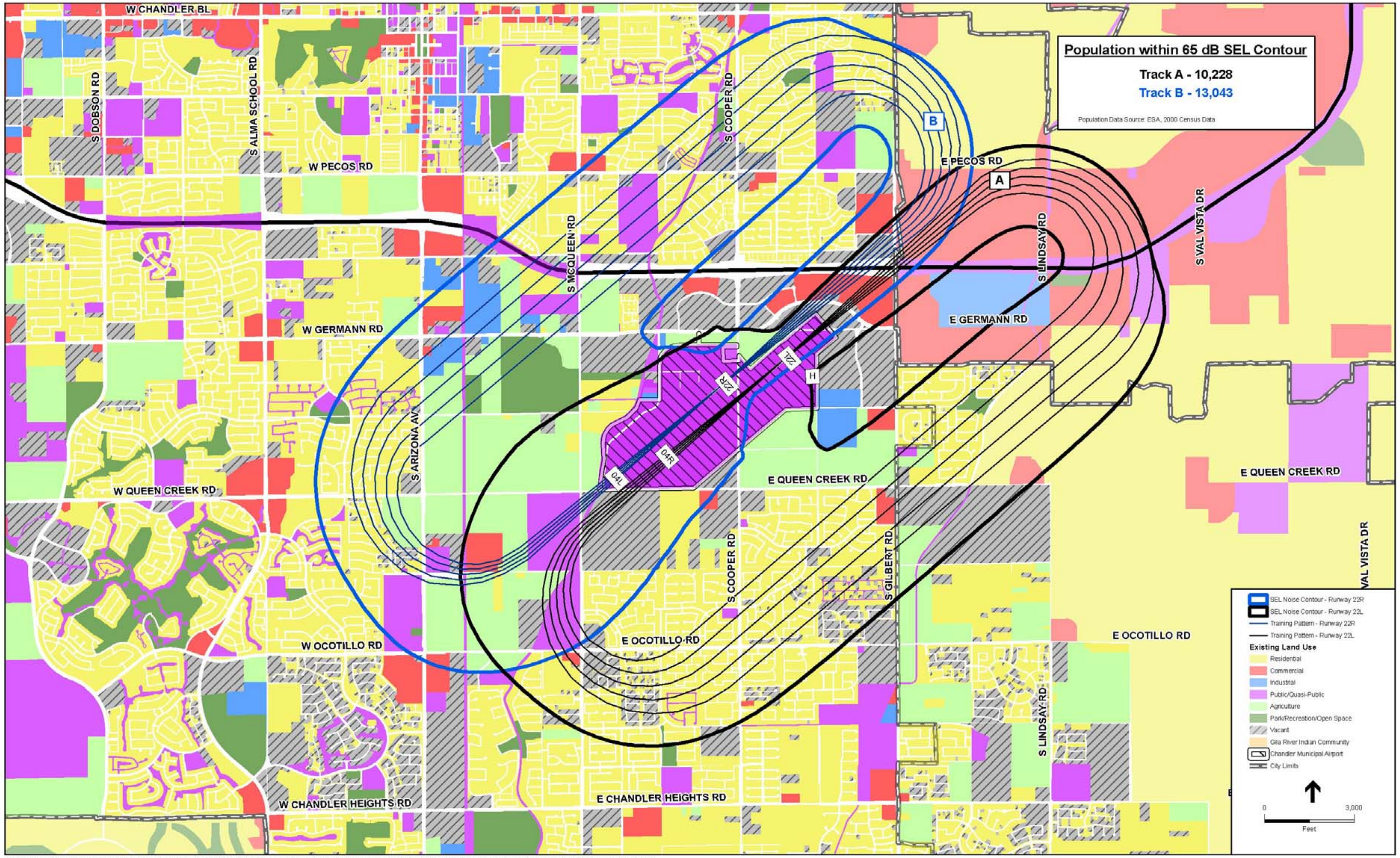
Currently, fixed wing training aircraft leave CHD to train at other airports, as a student's training program dictates. It should also be noted that students from other airports will, as needed, train at CHD. Training at other airports is necessary for student pilot curriculums due to cross-country flight requirements and becoming familiar with the different airspace classifications and activity levels. When training elsewhere is not required or possible, fixed wing training aircraft remain in the training pattern at CHD.

Figure 9.15
FIXED WING TRAINING PATTERN LOCATION – RUNWAY 4R VERSUS 4L



SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

Figure 9.16
FIXED WING TRAINING PATTERN LOCATION – RUNWAY 22R VERSUS 22L



SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

Requesting training aircraft use another airport would be seen as a discriminatory action by the FAA because the Airport would be limiting access to the Airport. Any potential discriminatory action by the Airport would require an additional study, known as a Part 161 Study, to implement. In addition to being discriminatory, requesting training aircraft use another airport simply moves noise exposure from one airport to another and does not address the concern. The citizens surrounding CHD would not be happy if another airport requested aircraft leave their airport and use CHD; so would be the case for other communities around local airports if CHD were to request training aircraft use other airports.

Recommendation: This Study does not recommend changes to require training aircraft at CHD to use other airports for training because it would be seen as discriminatory by the FAA because the Airport would be limiting access and because it would simply be shifting noise from one community to another.

OPTIONS REQUIRED FOR REVIEW UNDER FAR PART 150

The Federal Aviation Regulation Part 150 lists several options that must be reviewed in every FAR Part 150 Study. The options presented in this section represent those options required by the FAA not covered in other sections of this chapter.

Implement Curfews

The purpose of this action would be to reduce aircraft noise levels associated with aircraft operations during the nighttime hours. Noise from nighttime flights can be disruptive to airport neighbors. If these flights can be reduced or eliminated, nighttime disruptions can be minimized.

Some airports have instituted curfews in the past; however, with the exception of one airport that fought a very long and costly legal battle, no new curfews (or other use restrictions) have been approved at any airport within the United States since the passage of the Airport Noise and Capacity Act in 1990. That Act prohibits the implementation of restrictions at an airport until a Federal Aviation Regulation Part 161 (FAR Part 161) Study has been developed and reviewed by the FAA to determine the costs and benefits of implementing the use restriction.

A mandatory restriction on nighttime operations at CHD would be considered an access restriction and would require compliance with FAR Part 161. A FAR Part 161 Study includes a rigorous cost/benefit analysis and noise/land use study. The ability of an airport operator to implement any form of use restrictions is very limited and is predicated on the reduction of impacts on noise sensitive land uses within the 65 DNL contour. In addition, such restrictions are subject to vigorous legal analysis to ensure compliance with interstate commerce interests and discrimination concerns. Since CHD has no noise sensitive uses with the 65 DNL contour, there would be no basis for undertaking a FAR Part 161 Study.

Recommendation: This Study does not recommend the establishment of a mandatory curfew because it would be considered a noise and access restriction under FAR Part 161. Since there are no noise sensitive uses with the 65 DNL contour, there is no basis for undertaking a FAR Part 161 Study.

Implement Noise Related Landing Fees

Aircraft weight is typically used to determine the fee for landing at an individual airport. As a means of encouraging quieter operations or discouraging noisier operations, differential-landing fees might be levied based on the noise levels of particular aircraft types. That is, the noisiest aircraft would pay more than the quietest; either always, or during particularly noise-sensitive periods, such as nighttime.

A noise-based landing fee would involve an extensive justification, evaluation, and review process. At a minimum, this may include an FAR Part 161 Study of noise benefits versus economic costs; and most likely, a separate review under the federal aviation rates and charges regulations.

Recommendation: This Study does not recommend the establishment of a noise related landing fee because it may be considered a noise and access restriction under FAR Part 161. Since there are no noise sensitive uses with the 65 DNL contour, there is no basis for undertaking a FAR Part 161 Study.

Limit the Number or Type of Operations or Type of Aircraft

This action would set limits on the number of aircraft operations, aircraft types, hours of operation, or other similar measures intended to reduce overall noise at the Airport. Throughout the Study, many residents requested repetitive training activities be limited at the Airport, either by restricting the number of operations or the hours those repetitive training activities occur. The goal of these requests is to provide the local communities with a time period where repetitive training activity does not occur. Most residents understand the training activity at the Airport must take place, but would like to have a balance with community needs. A mandatory operations-limit would be subject to an FAR Part 161 Study, which includes a rigorous cost/benefit and noise/land use study. The ability of an airport operator to implement such restrictions is limited. In addition, such restrictions are subject to vigorous legal analysis to ensure compliance with interstate commerce interests and discrimination concerns.

While a mandatory operations-limit would be subject to an FAR Part 161 Study, aspects of such a rule could be implemented on a voluntary basis that would be subject to operator cooperation when conditions permit. Aspects of an operations-limit noise rule that could be voluntary include voluntarily limiting hours for touch-and-go operations (Training operators based at the Airport currently follow such a plan they developed). This could be discussed with the operators to occur during the evening and early morning hours. This voluntary measure would potentially provide the break in operations residents desire and still allow the aircraft operators the flexibility to run a successful business. During the summer months, helicopters and fixed wing aircraft need to operate in the early morning/late evening hours due to the high temperatures and the impact those temperatures have on the performance of the aircraft/helicopter. Because of this, any voluntary curfew must conditioned on when operating conditions permit.

Recommendations: **(1)** This Study does not recommend mandatory limits on numbers or types of aircraft operations because it would be considered a noise and access restriction under FAR Part 161. **(2)** This Study recommends voluntarily limiting all touch-and-go activity between the hours of 8:00 p.m. and 7:00 a.m. when operating conditions permit.

Develop Noise Barriers

Communities located close-in to airports often experience noise from aircraft operating on the airfield. This noise exposure can consist of taxiing aircraft, aircraft located on the ramp running auxiliary power units, or aircraft landing at the airport and using thrust reversers to slow down. Depending on the noise source and receiver locations, noise barriers may provide some relief for the noise exposure caused by ground operations.

A noise barrier is an obstruction to the path of sound transmission. Barriers can include walls, earth mounds (or berms), buildings, or extremely dense vegetation. In the case of barriers, neighbors are shielded from the noise source (aircraft) as long as the barrier is close to the source or receiver (noise sensitive site), is solid, and sufficiently breaks the line-of-sight from the noise source to the receiver. Barriers can potentially provide noise reduction benefits for residences immediately adjacent to an airport from aircraft ground operations. Once an aircraft becomes airborne and there is a direct line of sight from the aircraft to the receiver, barriers have no further effect on reducing sound levels.

To be effective, a barrier needs to be very close to the source of noise and/or very close to the receiver. Examples of effective barriers are those used along interstate highways. That is, the barriers are close to the source and the receivers. With respect to aircraft, due to aircraft operational safety requirements, barriers usually cannot be constructed very close to the source (aircraft). In addition, by placing barriers close to the receiver, the distance from the source of noise at CHD is so far that a barrier would be ineffective at reducing ground-based noise related to taxiing aircraft, aircraft located on the ramp running auxiliary power units, aircraft using reverse thrust on landing, and start-of-takeoff roll from aircraft departures.

Recommendation: This Study does not recommend establishing noise barriers at Chandler Municipal because the receivers are too far from the airfield to receive a benefit if barriers were constructed.

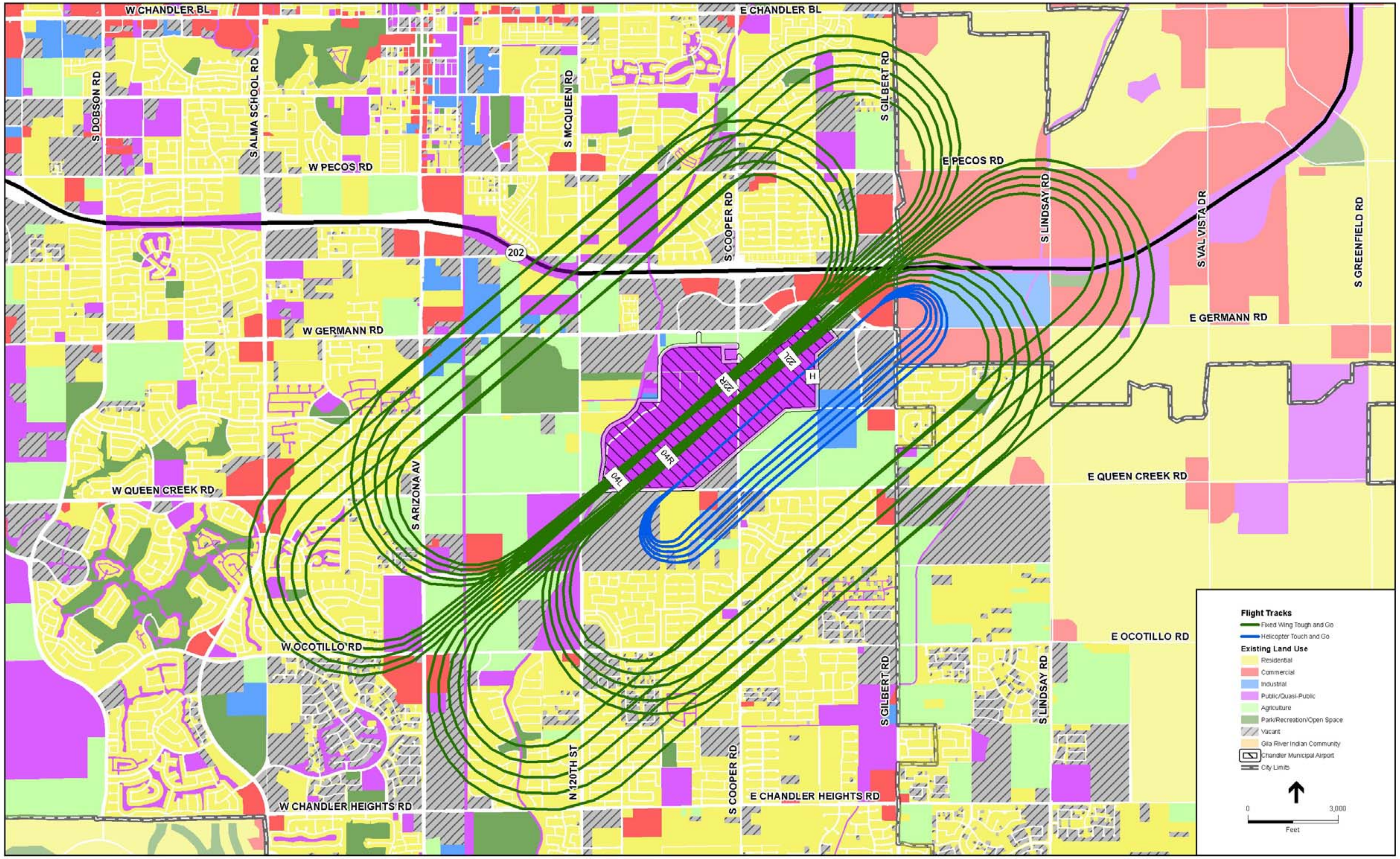
2014 NOISE CONTOUR

The recommended alternatives of this chapter, that are not voluntary, were used to revise the 2014 DNL contour for this Study. The revised 2014 noise contour included the same number of operations discussed in Chapter Five, as well as the fleet mix breakdown. The revised flight tracks, for training operations in 2014 are presented in **Figure 9.17**. The revised 2014 contour is presented in **Figure 9.18**. Both the revised flight tracks and contour for 2014 have been incorporated into a new 2014 Noise Exposure Map. **Figure 9.19** shows the revised 2014 DNL contours over a future land use base map, which was compiled from mapping provided by local jurisdictions. Figure 9.19 is a generalized map showing the predominant land uses within the study area and is not intended to represent land uses at the parcel level of detail.

A review of Figure 9.18 indicates that there are no housing units within the 65 DNL and higher contours for 2014 using the revised contour that incorporates the recommended measures. While no housing units exist within 2014 65 DNL and higher contours, a review of the figure shows homes located in the general vicinity of the 2014 DNL contours. A housing and population estimate for the 60 and 55 DNL contours for 2014 was completed and is discussed in **Appendix T: Contours Beyond 65 DNL for 2014 With Operational Recommendations**.

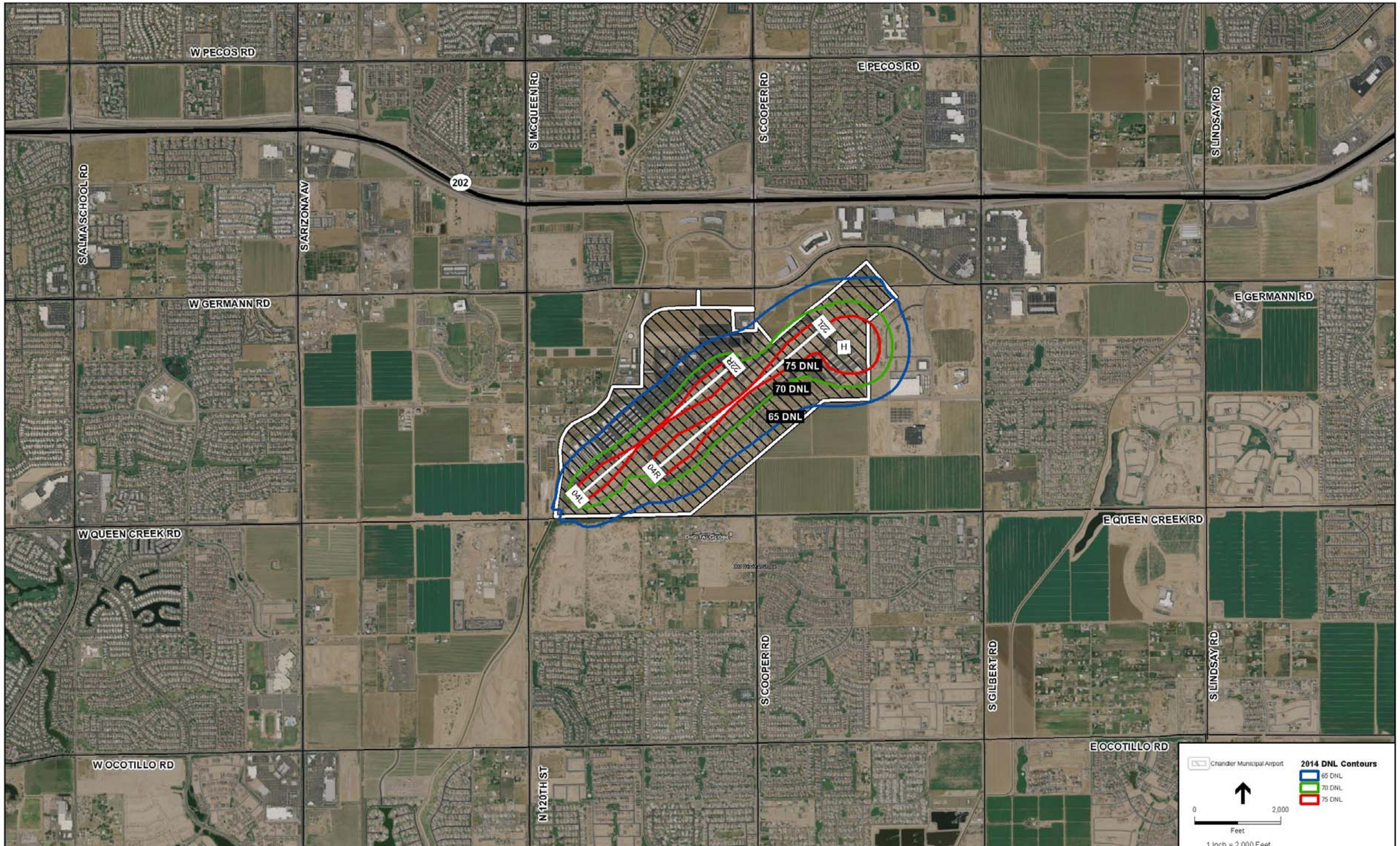
The FAA defines noise sensitive uses within the 65 DNL contour that would be incompatible with aircraft noise. In addition to residential, such uses would include schools, places of worship, hospitals, passive parks and other uses that could be adversely affected by aircraft noise. Figure 9.19 depicts the noise sensitive uses, other than residential, on a map showing the 65 DNL and higher contours for 2014, respectively. The figure indicates there are no noise sensitive land uses within the 65 DNL and higher contours.

Figure 9.17
REVISED 2014 TRAINING FLIGHT TRACKS



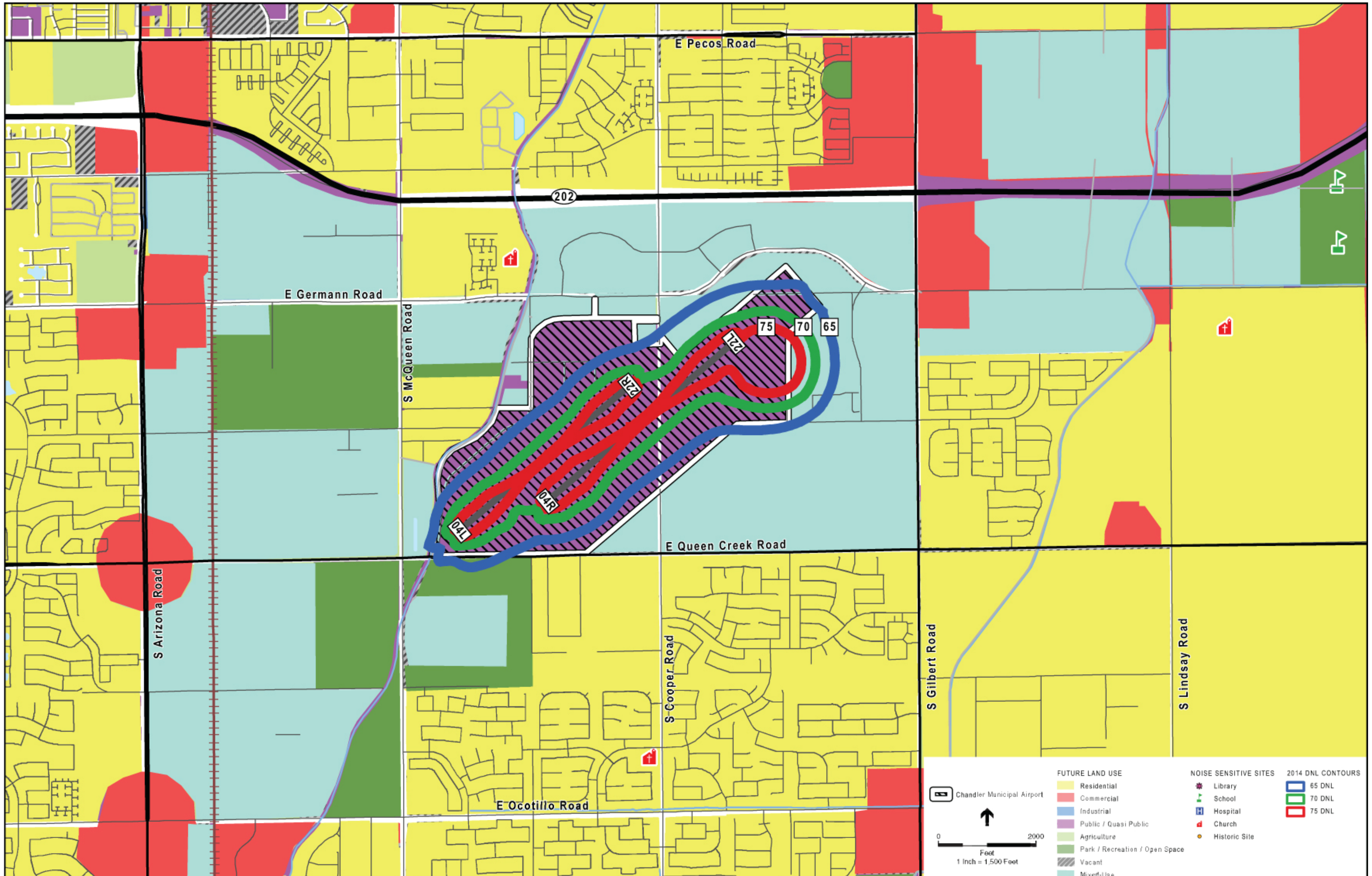
SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

Figure 9.18
REVISED 2014 NOISE CONTOUR



SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

Figure 9.19
NOISE SENSITIVE USES AND THE REVISED 2014 NOISE CONTOURS



SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA Airports, 2009

CHAPTER TEN: OFF-AIRPORT LAND USE COMPATIBILITY PLANNING

Airports exist in communities to support air transportation needs. While these important needs are served, land uses that have been developed or are planned near an airport may be in conflict with an airport's operations. Airports throughout the U.S. have been adversely affected by the encroachment of land uses that are not compatible with the levels of sound generally associated with ground and flight operations of aircraft. In response to the increasing encroachment of these incompatible land uses, airports, working through local units of government, have initiated land use management actions to facilitate the compatibility of development occurring in the airport environs.

This section presents the Federal initiatives and limitations related to land use control, addresses the relationships of the 2014 noise contours and the future land use plans developed by local governments, and recommends additional land use related measures to enhance the long term land use compatibility in the environs of Chandler Municipal Airport.

FAA INITIATIVES AND LIMITATIONS IN OFF-AIRPORT LAND USE PLANNING

The following, taken primarily from September, 1999 report Land Use Compatibility and Airports prepared by the FAA, presents the FAA actions related to land use planning.

> *"While the FAA can provide assistance and funding to encourage compatible land development around airports, it has no regulatory authority for controlling land uses that would protect airport capacity. The FAA recognizes that state and local governments are responsible for land use planning, zoning and regulation, including that necessary to provide land use compatibility with airport operations.*
>
> *However, pursuant to the Federal Airport and Airway Development Act, as a condition precedent to approval of an FAA-funded airport development project, the airport sponsor must provide the FAA with written assurances that "…appropriate action, including the adoption of zoning laws have been or will be taken, to the extent of reasonable, to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations including the landing and takeoff or aircraft…"*
>
> *FAA has required the phasing out of noisy Stage 1 and Stage 2 aircraft, consequently, the aviation industry has spent substantial monies to meet this requirement. To assist in the compatible land use efforts, the FAA, local airport sponsors, and state aviation agencies have expended significant funds related to airport planning and off-airport noise and land use compatibility planning throughout the United States.*

Airport master plans have been prepared to identify the near-term and long-range projections for airport activity and development necessary to meet these activity demands. In addition, noise and land use studies (FAR Part 150 Studies) have been conducted to evaluate ways to minimize impacts of aircraft noise, and the FAA and airport sponsors have financed land acquisitions and other noise compatibility measures throughout the United States."

The FAA has developed land use guidelines that relate the compatibility of aircraft activity to areas surrounding an airport. These guidelines identify land use activities that are acceptable within the 65, 70, and 75 DNL contours. FAA guidance indicates that virtually all land uses below the 65 DNL are considered by FAA to be compatible with the effects of aircraft noise.

Attention is focused on areas within the 65 DNL because the FAA considers these to be the areas significantly exposed to noise and is the FAA's funding eligibility limit for noise abatement measures. However, it is recognized that noise does not stop at the 65 DNL contour and is heard by those residents located in close proximity to approach, departure, and training corridors. Thus, the FAA encourages airports sponsors and local governments to work together to establish land use controls within flight corridors and noise exposure areas beyond the 65 DNL contour.

LAND USE CHANGES (CORRECTIVE CHANGES)

Land use changes involve potential changes to existing land uses within the 65 DNL and higher noise contours. The existing land uses to be addressed represent those land uses considered to be incompatible with noise levels based on FAA guidelines. These guidelines state that residential land uses and other noise sensitive land uses (i.e., churches and schools) may not be compatible within the noise levels of 65 DNL and higher. Property acquisition, sound insulation of incompatible noise sensitive structures, and avigation easements are types of corrective land use changes.

Property Acquisition

Acquiring land for noise compatibility is the most definitive way to ensure compatibility with aircraft noise levels. With the acquisition of property, the airport operator is given sole authority of converting the incompatible land uses. Once purchased, the airport operator has the option of demolishing incompatible land uses and leaving the property empty, or offering the property for resale with covenants in place to ensure future uses are compatible with existing and projected aircraft noise levels.

The current Chandler Municipal Airport FAR Part 150 Study Update uses the 2014 (future) noise contours, 2014 Noise Exposure Map, as the basis for determining non-compatible land uses within the 65 DNL contour. The FAA identifies that residences and other noise sensitive uses located within the 65 DNL contour are considered to be subjected to significant noise exposure. A review of the 2104 Noise Exposure Map indicates no non-compatible land uses exist within the 65 DNL contour.

Recommendation: No non-compatible land uses exist within the 2014 65 DNL contour at Chandler Municipal Airport; therefore, there are no parcels of property that would warrant acquisition for noise mitigation purposes.

Sound Insulation

The objective of a sound insulation program is to reduce the interior noise level of a residential dwelling (or other noise sensitive building) by improving the noise reduction capabilities of the structure. Soundproofing a residence so that no aircraft operations are heard is usually not practical or cost effective. The goal of providing sound insulation is to reduce the interior noise levels from aircraft operations to an acceptable level, so that noise no longer interferes with the resident's indoor activities. Since noise travels through air, sound insulation is accomplished primarily by reducing the unwanted infiltration of air into a home. Since the highest level of air infiltration in a typical home occurs through existing windows, doors, and attic/roof vents, an effective acoustical treatment program typically includes windows, doors, and venting modifications. As established by FAA, the goal of noise reduction is to achieve a maximum interior noise measurement of 45 decibels (dB) after a modification and an overall minimum 5-dB reduction from pre-insulation conditions as a result of the modifications for residences located within the 65 DNL contour. A review of the 2014 Noise Exposure Map indicates no non-compatible land uses exist within the 65 DNL contour.

Recommendation: Non non-compatible land uses, such as residences, churches or schools, exist within the 2014 65 DNL contour for Chandler Municipal Airport, therefore no properties are recommended for sound insulation for noise mitigation purposes.

Avigation Easement

Avigation easements are rights sought by airports that allow operation of aircraft over specific property with a guarantee the homeowner will not pursue legal remedies in the future related to noise impacts. In exchange for the avigation easement, the property owner may or may not be compensated, depending on the circumstances of the avigation easement.

Obtaining avigation easements for homes that have received sound insulation is a standard practice. In this situation, the homeowner receives the sound insulation package from the airport in exchange for signing the avigation easement. In this case, the airport paying for the sound insulation package serves as the monetary compensation. If no sound insulation package is offered, the owner of the affected property may receive monetary compensation in exchange for the easement. If this is the case, the value of the monetary compensation is typically based on a percentage of the value of the affected property. If no sound insulation package is offered in exchange for the avigation easement, the FAA no longer will participate in the funding of an avigation easement

Recommendation: The purchase of avigation easements is not recommended for inclusion in the noise compatibility program because there are no non-compatible land uses within the 2014 65 DNL contour at Chandler Municipal Airport.

PLANNING/REGULATORY CHANGES (PREVENTATIVE CHANGES)

Planning and regulatory changes under this category involve preventative changes for land uses beyond the 65 DNL contours. Measures can be implemented that prevent future development that may be incompatible with, or sensitive to, aircraft operations. These preventative measures are typically beyond the control of the airport and rely on surrounding jurisdictions with land use authority to adopt and/or implement. Overlay zones and building codes are types of planning and regulatory measures that are used to prevent future incompatible land use.

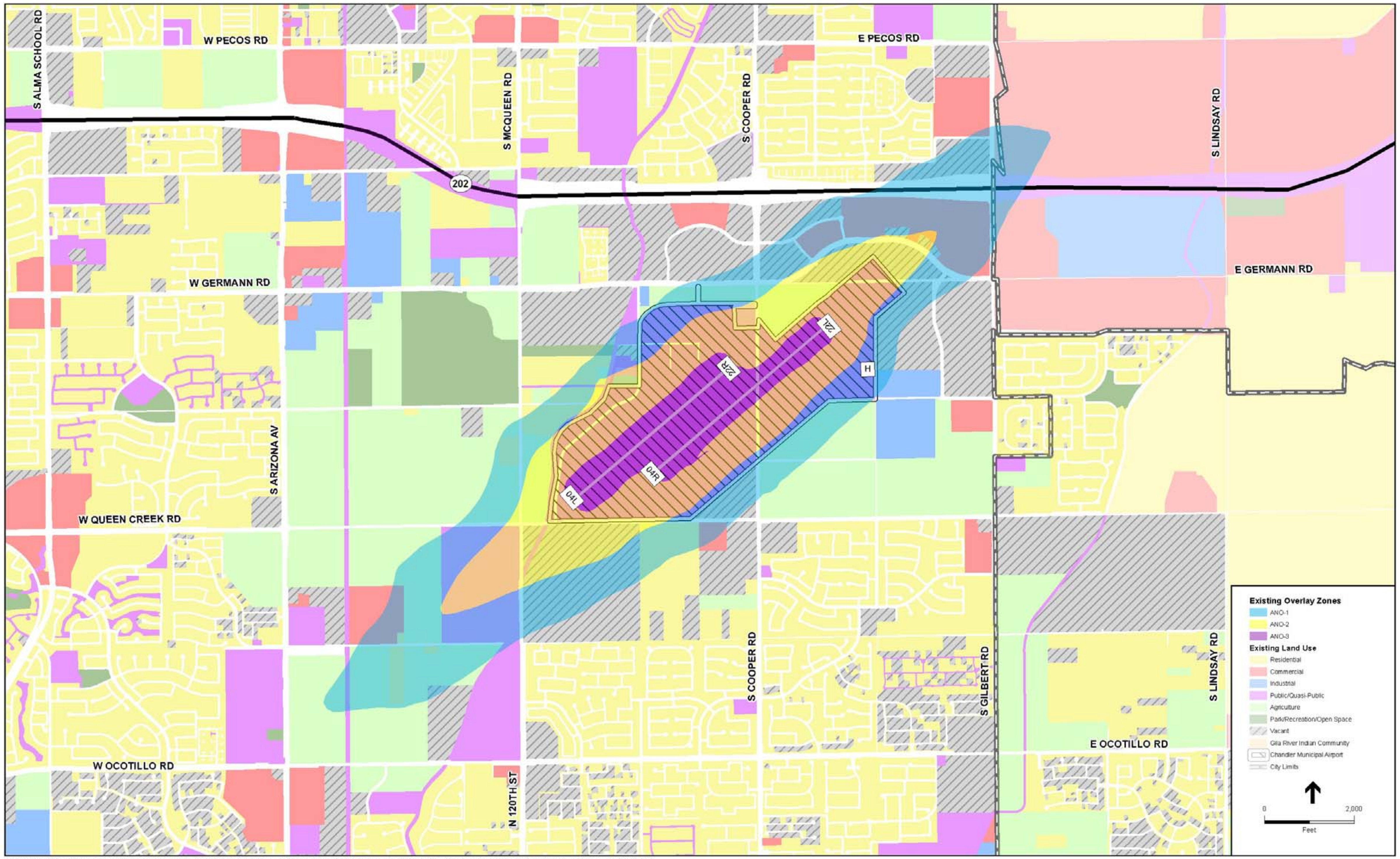
Overlay Zones and Related Zoning Enforcement

One of the more effective tools for maintaining the compatibility of future development in the airport environs is the establishment of an overlay zone. An overlay zone creates one or more specialized zoning districts that are intended to supplement the underlying jurisdictional zoning regulations. Regulations associated with overlay zones could limit the development of noise sensitive uses, could require new development incorporate sound insulation into the design of buildings, and could require some form of publication (through avigation easement or notification). One example of a publication is the written advisement of future buyers as to the existence of aircraft overflights and noise and/or other measures. The determination as to which type of control should apply for any given situation is based on the extent of the noise exposure at the proposed development site.

As discussed in Chapter Six of the NEM document, the City of Chandler established the Airport Impact Overlay (AIO) zoning district to ensure that developments within the vicinity of Stellar Airpark and Chandler Municipal Airport are compatible with both airports. The AIO district is divided into four overlays: the Clear Zone Overlay (CZO) and three airport noise overlays (ANO). While the CZO is the trapezoidal shape area immediately off the ends of both runways, the other three overlays or ANOs are contour shapes based off a combination of the projected 2003 and 2020 noise exposure contours from the previous FAR Part 150 Study. The three existing Airport Noise Overlays are as follows and shown in **Figure 10.1**:

- The ANO-1 area lies between the 55 and 60 DNL contours.
- The ANO-2 area lies between the 60 and 70 DNL contours.
- The ANO-3 area is within the 70 DNL and greater contour.

Figure 10.1
Existing Airport Noise Overlay Zones



SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

Land use restrictions are established for each overlay area to promote noise and safety compatibility with the Airport. For example, no structures are permitted within the CZO, and noise-sensitive land uses within the ANO-I, ANO-2, and ANO-3 areas are required to be sound insulated. In addition, prior to the issuance of any development permit within the AIO District, the owner must provide the City of Chandler with an avigation easement releasing the City from liability for claims for damages related to Airport use.

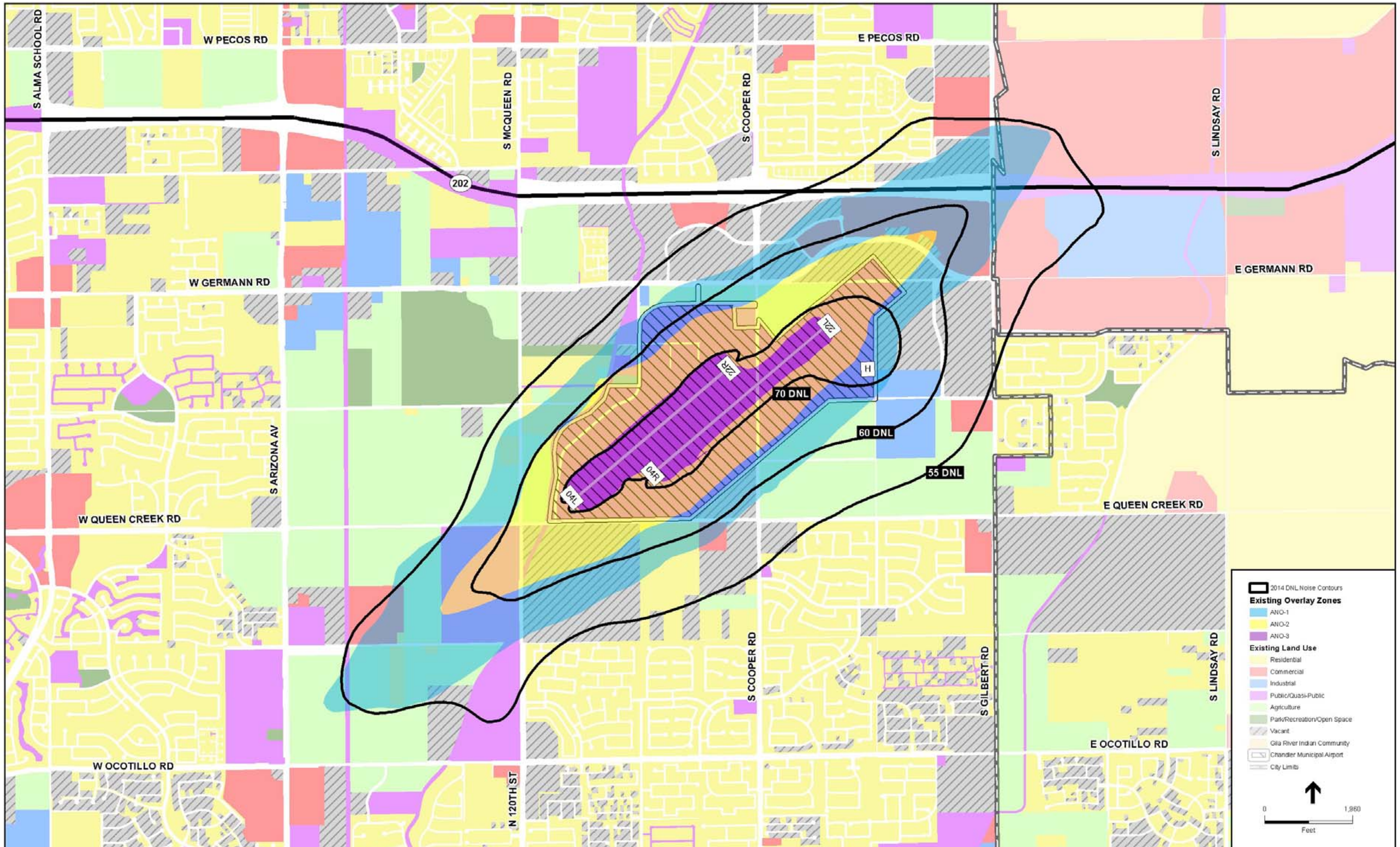
The following uses are permitted with restrictions within ANO-1, if the developer includes a noise reduction level of 15 decibels, to reduce the interior noise level to less than 45 decibels: Single-family, duplex, multi-family, manufactured housing, recreational vehicle parks, educational facilities, religious facilities, libraries, museums, galleries, clubs and lodges, outdoor sport events, entertainment and public assembly, except amphitheaters, hotels/motels, hospitals and other health care services, finance, real estate, insurance, professional and government offices. All other uses are non-restricted.

The following uses continue to be permitted on the ANO-2, if they are provided with 25 decibels of noise reduction through the use of insulation: Religious facilities, libraries, museums, galleries, clubs and lodges, outdoor sport events, entertainment and public assembly, except amphitheaters, hotels/motels, hospitals and other health care facilities, finance, real estate, insurance, professional and government offices. In addition, the following uses now require sound reduction through the use of insulation: Retail sales: building materials, farm equipment, automotive, marine, mobile homes, recreational vehicles and accessories, restaurants, eating and drinking establishments, retail sales: general merchandise, food, drugs, apparel, etc., Personal services: barber and beauty shops, laundry and dry cleaning, etc.

Within the ANO-3, even industrial uses are subject to noise insulation requirements, and noise sensitive uses are no longer permitted. Signs, vehicle parking, and non-livestock farming are the only uses permitted in the CZO.

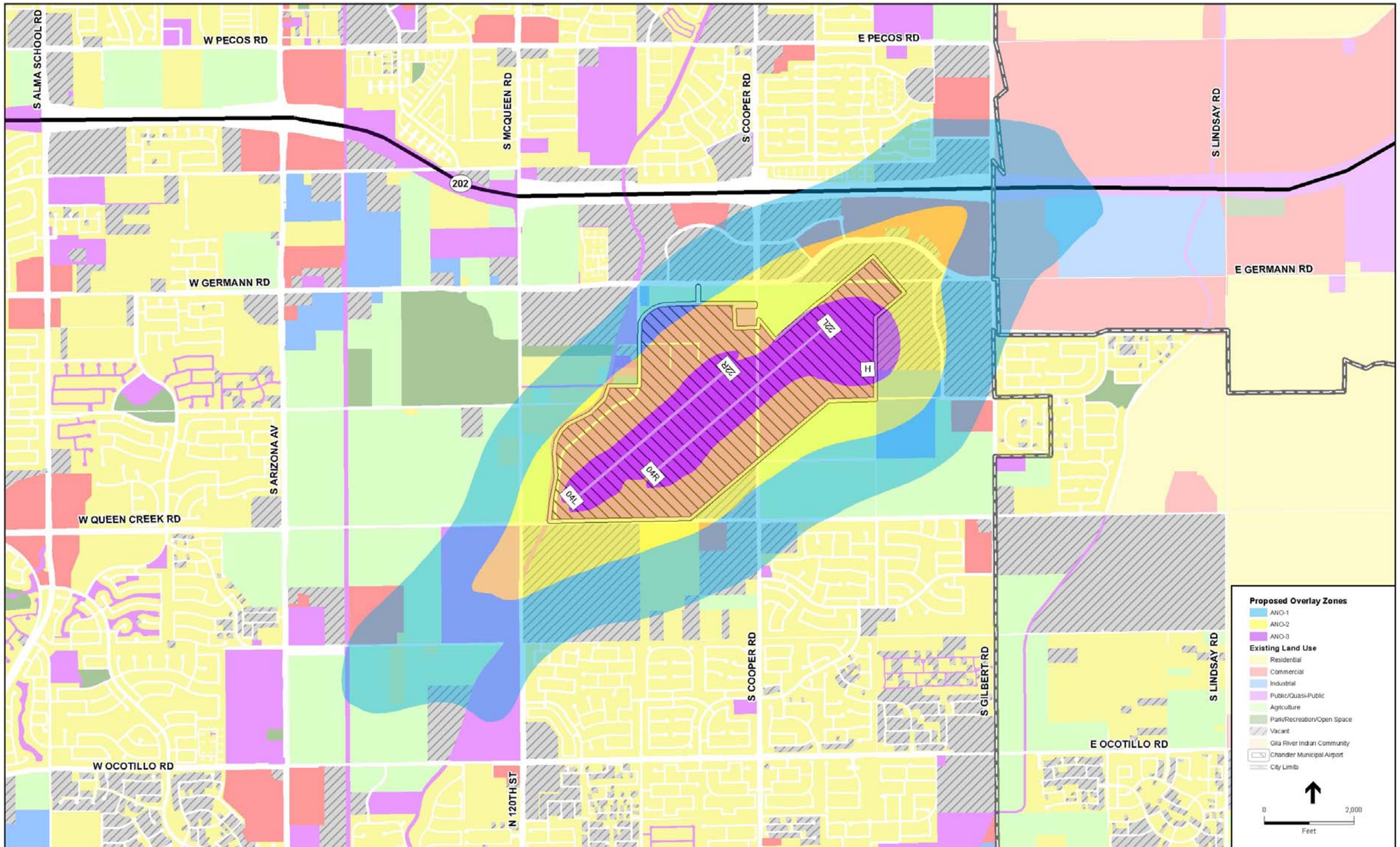
As mentioned previously, the existing overlay zones were established following the completion of the last FAR Part 150 Study which received a Record of Approval in July 2000. The establishment of the overlay zones was based on the contours generated within that study for the combined years of 2003 and 2020. For this FAR Part 150 Study, the City of Chandler intends to use the 2014 contour for any proposed changes to the Airport Overlay Zones. **Figure 10.2** depicts the 2014 noise contours overlaid on the existing Airport Overlay Zones. As can be seen, the 2014 contours are significantly larger than the existing Airport Overlay Zones. The increase in the size of the contour is due to an increase in the number of operations at Chandler Municipal since the last FAR Part 150 Study was completed. Because the 2014 contours are larger, the City of Chandler, owner and operator of Chandler Municipal, should update the Airport Overlay Zone boundaries using the 2014 contour from this Study, as depicted in **Figure 10.3**. The City of Chandler should also carefully consider recommendations from Airport staff and the Airport Commission regarding the Airport Conflict Evaluations.

Figure 10.2
Existing Airport Noise Overlay Zones Compared to 2014 DNL Contours



SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

Figure 10.3
Proposed Airport Noise Overlay Zones



SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

The AIO zoning district is specific to areas around the Airport, but other plans for Chandler are also relevant to development around the Airport. The Chandler Airpark Area Plan was adopted by Mayor and Council in November 1998 and is used to guide growth and zoning decisions within the nine square-mile area surrounding Chandler Municipal Airport. The Chandler General Plan was adopted by the Mayor and Council on June 26, 2008 and ratified by the voters on November 4, 2008. The Chandler Airpark Area Plan is an Area Plan as authorized by State Statues that can be adopted by local municipalities. The Chandler Airpark Area Plan provides policy guidance when considering zoning applications and is not a parcel-specific zoning map. The stated purpose of the Airpark Area Plan is “to guide growth and encourage compatible land uses”.

To ensure compatible development in the Chandler Municipal Airport environs, the City of Chandler should continue to follow the policy guidance provided by the voter-approved General Plan and the Council-adopted Airpark Area Plan when considering zoning and development requests within the nine square-mile area surrounding the Chandler Municipal Airport.

Recommendations: **(1)** Chandler Municipal Airport should work with the City of Chandler to update the existing ANO zone map using the 2014 DNL contour from this Study for noise compatibility planning purposes. The City of Chandler should also carefully consider recommendations from Airport staff and the Airport Commission regarding the Airport Conflict Evaluations. **(2)** Chandler Municipal should work with the City of Chandler and Maricopa County regarding the rural zoning in the unincorporated areas around Chandler Municipal Airport to limit residential development. **(3)** The City of Chandler should continue to follow the policy guidance provided by the voter-approved General Plan and the Council-adopted Airpark Area Plan when considering zoning and development requests within the nine square-mile area surrounding the Chandler Municipal Airport.

Building Codes

Building codes are established to regulate the construction of structures by setting the standards for materials and construction techniques to protect the health and safety of future occupants of those structures. Most buildings codes address items such as the structural requirements of the building as well as the ventilation and insulation requirements. All three requirements directly affect the sound attenuation performance of the structure. By establishing comprehensive building codes a municipality can ensure that any new construction, or alterations to existing structures, can have sound attenuation properties incorporated into the building to ensure the building is compatible with noise for aircraft operations.

Each jurisdiction in the study area has adopted versions of the Uniform Building Code (UBC). No special standards for sound insulation, beyond those established for the City of Chandler Airport Overlay Zones, have been established for buildings within the general vicinity of Chandler Municipal Airport. The City of Chandler should keep the existing building codes associated with the ANO zones.

Recommendation: This Study recommends the City of Chandler keep the existing building codes associated with the ANO zones to make sure new construction around the Airport incorporates sound attenuation properties which ensure the building is compatible with noise from aircraft operations.

CHAPTER ELEVEN: NOISE PROGRAM MANAGEMENT

A successful noise compatibility program requires dedication and effort on the part of Chandler Municipal to ensure the program elements are successfully implemented. Chandler Municipal currently has a noise management program that addresses citizens concerns related to aircraft noise and, when possible, attempts to reduce the effects and exposure of aircraft noise. This section presents programs considered by Chandler Municipal to ensure the successful implementation of the noise compatibility program.

NOISE COMPATIBILITY PROGRAM MANAGEMENT

Since the last 14 CFR Part 150 Study was completed, the Airport Manager, through the Public Works Department, has been responsible for ensuring the recommended programs from the NCP have been implemented. The Airport manager has been responsible for assigning staff to receive and address any noise concerns that may be expressed by the public along with working to implement the noise abatement recommendations from the previous 14 CFR Part 150 Study.

No changes are recommended to the management of the NCP for Chandler Municipal. The Airport Manager, through the Public Works Department, should continue to implement and manage the recommendations from this Study.

Recommendation: This Study recommends the Airport Manager, through the Public Works Department, continue to implement and manage the Noise Compatibility Program for Chandler Municipal.

PUBLIC INVOLVEMENT

Chandler Municipal has staff assigned to assisting the public with concerns about aircraft noise. To facilitate communication between the public and the Airport regarding aircraft noise concerns, the Airport has established a dedicated phone line referred to as the “Noise Hotline”. The Noise Hotline provides an avenue for residents to express their concerns about aircraft noise by speaking with the staff of the Airport directly or leaving a message when staff is unable to answer the phone. In response, the staff of the Airport provides the public with information regarding their expressed concerns by answering questions or providing information to educate the public on the various factors that make up aircraft noise.

The Airport should continue with this valuable public service of providing a Noise Hotline and investigate ways to incorporate a web-based complaint collection system as well. The continuation of this service will keep information flowing between the Airport and the public regarding their noise concerns, and will allow the Airport to gather information to be used for the development of future noise abatement programs.

Chandler Municipal has established a webpage on noise abatement for the Airport. This webpage is accessed from Chandler Municipal's main webpage and provides information for pilots on how to reduce noise over residential areas. In addition, a web page was established for this FAR Part 150 Study effort. The purpose of the web page was to place documents and meeting summaries that would allow the general public to keep up with the status of the Study and the products being produced. Following the completion of the Study, the FAR Part 150 web page should remain available, and the contents of the web page should be transferred to the Chandler Municipal's web page on Noise Abatement info to provide a single page of information on noise abatement the public can access.

Recommendations: **(1)** This Study recommends the Airport retain the noise Hotline and investigate a web-based noise complaint collection system. **(2)** This Study also recommends the Airport update the webpage on noise information to include the recommendations being implemented from this Study as well as the information contained on the Study's separate webpage. These two items will serve as an avenue for providing the public with information on the noise compatibility program at the Airport.

FLIGHT TRACK MONITORING SYSTEM

To assist in the management of noise compatibility programs, many airports purchase flight track monitoring systems. Flight track monitoring systems obtain information on local aircraft operations from either the FAA radar used by Air Traffic Control or from a passive radar system that collects data from the aircraft's transponder. The information contained in these systems allows the user to see the location of the aircraft, the altitude of the aircraft, the type of aircraft, the operator (airline or tail number), and the speed of the aircraft. This information in turn can assist the user in answering questions from the public regarding their aircraft noise concerns. It is important to note that flight track monitoring systems do not have detailed information on all aircraft. Many smaller general aviation aircraft do not transmit a discrete beacon code when flying in uncontrolled airspace or when conducting flight training. The flight track monitoring systems will see these aircraft, but will not be able to identify the type of aircraft or operator.

Some airports also have a public version of the flight tracking system that is accessed through the airport's web page and allows the general public to research their own noise concerns and to also file noise complaints electronically. These systems are generally considered to be very useful by the local citizens and many times allows them to find the answers they seek about a noise concern without having to contact the local airport. Based on the noise concerns expressed by the local communities around Chandler Municipal, a flight track monitoring system that includes a way for noise complaints to be filed electronically, would be beneficial in researching those noise concerns. It would also be beneficial to have a flight track monitoring system that has a public flight track viewing component to allow the local residents to research their own noise concerns.

Recommendation: This Study recommends Chandler Municipal purchase a flight track monitoring system, including public flight track viewing and web based noise complaint collection components, to aid in the research of noise concerns for both airport personnel and citizens.

NOISE PROGRAM UPDATE

The FAA, through Part 150 regulations, requires airport sponsors to prepare and submit revised noise exposure maps if changes in the operations of the airport would result in a substantial amount of new incompatible uses beyond what has been forecasted in the most recent approved NEM. The FAA defines a substantial new incompatible land use as a 1.5 dB or greater increase in DNL for noise sensitive land uses exposed to 65 DNL and above or when any land use that was formerly compatible would become incompatible with the increase in noise levels.

To understand the noise environment, Chandler Municipal staff should continue to routinely examine the number of operations as well as the operational characteristics, such as runway use and fleet mix, to determine if any major changes in aircraft noise exposure have occurred. Major changes in operations would constitute an increase or decrease by more than 15% from what was modeled in this Study for 2014 or a significant change in the aircraft fleet mix at Chandler Municipal from what was modeled for 2014. A major change in operational characteristics of Chandler Municipal would involve items such as changes in runway use or a significant shift in the number of operations from daytime to nighttime hours. A routine analysis of these characteristics should be performed on an annual basis by Chandler Municipal staff to determine if the existing noise compatibility program is still responsive to the noise environs around the Airport.

If no updates appear to be needed based on the annual review, the noise program should be updated approximately every five years to remain current and take into account improvements in airport and aircraft technological advancements, and improvements in the technology used for aircraft noise modeling.

Recommendation: Chandler Municipal staff should continue to routinely examine operating characteristics of Chandler Municipal Airport to determine if significant changes have occurred that would require an update to the Noise Exposure Maps.

CHAPTER TWELVE: IMPLEMENTATION OF NOISE COMPATIBILITY PROGRAM

The overall objective of the Noise Compatibility Program (NCP) at Chandler Municipal Airport is to achieve and maintain aircraft noise/off-Airport land use compatibility through the efforts of noise abatement procedures and implementation of noise mitigation programs. As presented in Chapters 9, 10, and 11 of this Study, through the analysis of existing and future noise conditions, and direct input from the wide variety of interests involved during the development of the Study, a series of recommended operational, land use control, and administrative measures have been identified for Chandler Municipal.

The recommended NCP for Chandler Municipal consists of both existing programs and new programs where FAA approval is sought. The existing programs have been in place for several years and have continued to work towards reducing the aircraft noise exposure on local communities and to reduce the amount of non-compatible land uses around Chandler Municipal. The new programs, where FAA approval is requested, will partner with the existing programs to continue progress towards these goals. Both the existing and recommended programs are listed below.

OVERALL ROLES AND RESPONSIBILITIES

Chandler Municipal Airport Management

The City of Chandler, as owners and operators of Chandler Municipal, and Airport management are responsible for the development of information to support the compatibility effort. This support includes the preparation of master plans, noise compatibility studies, the 14 CFR Part 150 Study, community involvement programs, coordination with Airport users related to operational procedures, and the interaction with local planners and elected officials related to land use compatibility. In addition, the City and Airport management are also responsible for assisting with the implementation of approved NCP elements and applying for funds (grants) from the Federal Aviation Administration (FAA) associated with eligible items included in the NCP.

Federal Aviation Administration

The FAA Airports Division is responsible for developing guidance for preparing noise abatement studies, providing technical support, approving 14 CFR Part 150 Study recommendations, establishing eligibility requirements for the use of noise related funding, and distributing federal funds in support of approved noise-related recommendations.

The FAA Air Traffic Control (ATC) division in conjunction with Serco Inc. serving as its ATC contractor at the Chandler Municipal Airport, are responsible for the movement of aircraft both on the airfield and in the air and has the sole authority to implement noise abatement operational procedures for aircraft in flight.

Local Governments and Elected Officials

Local land use planners and elected officials are responsible for local land use planning. These entities and individuals are responsible for the establishment and implementation of zoning and land use regulations and the application of these actions by taking into consideration the compatibility of land uses in aircraft noise exposure areas.

Aircraft Operators

When safe to do so, pilots of all aircraft types are responsible for operating their aircraft according to the noise abatement procedures established at an airport and within local airspace.

Residents and Prospective Residents

The residents in areas surrounding an airport should provide input regarding their concerns associated with aircraft noise exposure, especially when non-standard flight conditions occur that adversely affects them. This is often accomplished through the noise hotline or other means of contact. Residents should also strive to understand the actions that can and cannot legally be taken to minimize the effect of aircraft noise. Future residents should acquaint themselves with noise and flight corridor information prior to buying a home.

EXISTING NOISE ABATEMENT MEASURES TO CONTINUE

A number of noise abatement guidelines have been established in the past at Chandler Municipal that will continue. These guidelines consist of voluntary departure procedures for fixed-wing aircraft, a Letter of Agreement between ATC and the local helicopter operator, and recommendations for fly quiet techniques to reduce the noise exposure in the area surrounding Chandler Municipal. These noise abatement guidelines can be found in **Appendix U**.

IMPLEMENTATION MEASURES FOR NCP RECOMMENDATIONS

Based on the overall responsibilities discussed above, the following identifies the method of implementing each of the Chandler Municipal NCP recommendations and those entities responsible for the implementation.

Aircraft and Airport Operations Noise Abatement and Mitigation Alternatives

A. Increase Altitude of the Helicopter Training Pattern Altitude by 100 feet to 1,900 feet MSL: This recommendation will raise the helicopter training pattern altitude to provide an incremental noise reduction to communities in close proximity to Chandler Municipal. This recommendation is subject to review by Air Traffic Control (ATC). Chandler Municipal staff will work with ATC, and the helicopter operators, regarding the review of this recommendation. Implementation of this recommendation will be the responsibility of FAA with assistance from Chandler Municipal staff.

B: Request Training Helicopters Continue to Voluntarily Make Turns at Midfield When Operating Conditions Permit: This recommendation will request training helicopters continue to make turns over more compatible land uses, when operating conditions permit, to reduce noise exposure on the surrounding communities. This recommendation is voluntary and at the discretion of the pilot-in-command. Implementation of this recommendation will be the responsibility of Chandler Municipal staff and helicopter operators.

C. Request Helicopters Continue to Voluntarily Avoid Making Turns Over Noise Sensitive Areas When Operating Conditions Permit: This recommendation will request helicopters continue to avoid turns over noise sensitive areas, when operating conditions permit, to reduce noise exposure on the surrounding communities. This recommendation is voluntary and at the discretion of the pilot-in-command. Implementation of this recommendation will be the responsibility of Chandler Municipal Staff and helicopter operators.

D. Request Helicopters in the Training Pattern Continue to Remain West of Gilbert Road When Operating Conditions Permit: This recommendation will request training helicopters continue to keep the training pattern west of Gilbert Road, when operating conditions permit, to reduce noise exposure on the surrounding communities. This recommendation is voluntary and at the discretion of the pilot-in-command. Implementation of this recommendation will be the responsibility of Chandler Municipal staff.

E. Increase Altitude of Arrival/Departure Corridors for Itinerant Helicopter Operations by 200 feet to 2,000 feet MSL: This recommendation will raise the altitude of the arrival/departure corridors for itinerant helicopters to provide an incremental noise reduction to communities near Chandler Municipal. This recommendation is subject to review by ATC. Chandler Municipal staff will work with ATC regarding the review of this recommendation. Implementation of this recommendation will be the responsibility of FAA with assistance from Chandler Municipal staff.

F. Develop and Distribute an Education Plan Identifying Established Arrival/Departure Corridors, Associated Altitudes, and Associated Noise Concerns for ATC Controllers and Helicopter Operators: This recommendation will assist air traffic controllers and helicopter operators in understanding the corridors for itinerant helicopter operators. This should result in better use of the corridors and avoid residential land uses as much as possible. Chandler Municipal staff will work with ATC and the Operators to develop the education plan. Implementation will be the responsibility of Chandler Municipal staff.

G. Develop and Distribute Informational Materials Regarding Itinerant Helicopter Procedures and Make Available to Necessary Parties: This recommendation will establish noise abatement materials regarding the itinerant helicopter procedures including established arrival/departure corridors, altitudes, maps identifying noise sensitive areas. The materials will be made available to all necessary parties through publications, the Airport noise abatement webpage, and flight planning materials. Implementation of this recommendation will be the responsibility of Chandler Municipal staff.

H. Increase Altitude of Arrival/Departure Corridors for Itinerant Fixed Wing Operations by 300 feet to 2,500 feet MSL: This recommendation will raise the altitude of the arrival/departure corridors for itinerant fixed wing aircraft to provide an incremental noise reduction to communities near Chandler Municipal. This recommendation is subject to review by ATC. Chandler Municipal staff will work with ATC regarding the review of this recommendation. Implementation of this recommendation will be the responsibility of FAA with assistance from Chandler Municipal staff.

I. Increase Altitude of the Fixed Wing Training Pattern Altitude by 50 feet to 2,250 feet MSL: This recommendation will raise the fixed wing training pattern altitude to provide an incremental noise reduction to communities in close proximity to Chandler Municipal. This recommendation is subject to review by FAA ATC. Chandler Municipal staff will work with FAA ATC, and the fixed wing operators, regarding the review of this recommendation. Implementation of this recommendation will be the responsibility of FAA ATC with assistance from Chandler Municipal staff.

J. Continue to use Runway 4R/22L as the Preferred Runways for Fixed Wing Training Activity When Operating Conditions Permit: This recommendation identifies existing runways used for fixed wing training activity as the preferred runways to use when conditions permit to reduce noise exposure for as many people as possible. Implementation of this recommendation will be the responsibility of the FAA ATC and Chandler Municipal staff. Use of the preferred runways for training would be voluntary and when conditions permit.

K. Request Aircraft Continue to Voluntarily Avoid Making Turns Over Noise Sensitive Areas When Operating Conditions Permit: This recommendation will request aircraft avoid turns over noise sensitive areas, when operating conditions permit, to reduce noise exposure on the surrounding communities. This recommendation is voluntary and at the discretion of the pilot-in-command. Implementation of this recommendation will be the responsibility of Chandler Municipal Staff and aircraft operators.

L. Request Training Aircraft and Helicopters Voluntarily Limit Their Repetitive Training Activity Between the Hours of 8:00 p.m. to 7:00 a.m. when operating conditions permit.: This recommendation requests operators voluntarily limit their repetitive training activities during the evening and early morning hours to reduce noise exposure on the local communities. This recommendation is voluntary and at the discretion of the operators. Implementation of this recommendation will be the responsibility of Chandler Municipal staff.

Off-Airport Land Use Compatibility Planning

M. Update ANO Zone Map: Chandler Municipal staff should work with City of Chandler to update the existing ANO zone map, using the 2014 DNL contour from this Study. Implementation of this recommendation will be the responsibility of City of Chandler staff.

N. Update Rural Zoning in Unincorporated Areas: Chandler Municipal staff should work with the City of Chandler and Maricopa County to update the rural zoning in unincorporated areas around Chandler Municipal to limit residential development. Implementation of this recommendation will be the responsibility of City of Chandler staff.

O. Request the City of Chandler continue to follow the policy guidance provided by the voter-approved General Plan and the Council-adopted Airpark Area Plan when considering zoning and development requests within the nine square-mile area surrounding the Chandler Municipal Airport: The City of Chandler should continue to follow the guidance provided by the General Plan and the Airpark Area Plan to reduce/limit non-compatible land uses around the Airport. Implementation of this recommendation will be the responsibility of City of Chandler staff.

P. Keep Existing Building Codes Associated with the ANO Zones: Chandler Municipal staff should work with the City of Chandler to make sure the existing building codes associated with the ANO zones are kept to ensure new construction around the Airport incorporates sound attenuation properties which ensure the building is compatible with noise from aircraft operations.

Noise Program Management

Q. Manage Noise Compatibility Program: Managing the Noise Compatibility Program at Chandler Municipal will continue to be the responsibility of the Airport Manager, through the Public Works Department.

R. Retain Noise Line: Chandler Municipal should retain the noise line, and investigate a web-based noise complaint collection system, to provide an avenue for sharing information on noise abatement programs to the public. Implementation of this measure will be the responsibility of Chandler Municipal staff.

S. Update Airport Webpage with Noise Information: Chandler Municipal should update the Airport's webpage to include recommendations being implemented from this Study as well as the information provided throughout this Study. Implementation of this measure will be the responsibility of Chandler Municipal staff.

T. Purchase Flight Track Monitoring System: Chandler Municipal should purchase a flight track monitoring system, including public flight track viewing and web-based noise complaint collection components, to help with answering noise related questions from the public and to assist in the management of the noise abatement program at the Airport. The implementation of this measure will be the responsibility of Chandler Municipal staff.

U. Noise Program Update: Chandler Municipal staff should routinely examine the operating characteristics of the Airport to determine if a significant change has occurred that would require an update to the NEMs. The implementation of this measure will be the responsibility of Chandler Municipal staff.

CHAPTER THIRTEEN: PROGRAM BENEFITS, COSTS, REVIEWS, AND UPDATES

BENEFITS

The Noise Compatibility Program (NCP) is designed to provide noise reduction benefits to the overall community. The NCP gains compatibility through the use of noise abatement operational procedures, land use planning and control mechanisms, and through various means of notification and publications.

Aircraft Operational Programs Proposed for the Benefit of Existing Residents

Under the recommended NCP, a primary goal is to decrease the amount of noise exposure around Chandler Municipal. Several programs are recommended to help achieve this goal. Existing residents will benefit from the implementation of these measures, while the future residents will benefit from the preventive land use programs.

- Continuation of the established Chandler Municipal Airport noise abatement procedures for fixed-wing aircraft and helicopters will continue to help reduce noise exposure on communities around Chandler Municipal.
- Increasing the altitude of the helicopter training pattern will provide noise reduction for communities around Chandler Municipal.
- Increasing the altitude of arrival/departure corridors for itinerant helicopter operations will provide noise reduction for communities around Chandler Municipal.
- Developing an education plan regarding itinerant helicopter corridors will help raise the awareness of the noise sensitive areas surrounding Chandler Municipal.
- Increasing the altitude of arrival/departure corridors for itinerant fixed wing aircraft operations will provide noise reduction for communities around Chandler Municipal.
- Increasing the altitude of the fixed-wing aircraft training pattern will provide noise reduction for communities around Chandler Municipal.
- Establishing preferred runways for fixed-wing aircraft training will help reduce the number of people exposed to aircraft noise.

Land Use Programs Proposed for the Benefit of Future Residents

Under the recommended NCP, a primary goal is to ensure compatible land uses around Chandler Municipal. Several programs are recommended to help achieve this goal. While no corrective land use programs are recommended for existing residents, because there are no incompatible land uses within the existing and future 65 DNL contour, future residents will benefit from the preventive land use programs.

- Working with the City of Chandler on updating the, ANO zones will benefit future residents by restricting land uses close-in to Chandler Municipal to only those considered compatible with aircraft operations.
- Working with City of Chandler and Maricopa County to update the rural zoning in unincorporated areas will benefit future residents by limiting residential development in areas where aircraft overflights may take place.
- Working with the City of Chandler to follow the policy guidance provided by the General plan and the Airpark Area Plan when considering zoning and development requests will benefit future residents by limiting residential development in areas where aircraft overflights occur.

Programs Recommended for Continuing Communication with Communities and Airport Users

Communication with local communities and airport users regarding the programs being implemented to reduce incompatible land uses is critical to the success of any NCP.

- Continuing with, and updating, the existing program to provide avenues for sharing information regarding noise abatement programs, and listening to the public's concerns regarding aircraft noise, will benefit those impacted by aircraft noise in the communities that surround Chandler Municipal.
- Developing and distributing information regarding helicopter operating procedures will help to reduce noise exposure on the communities around Chandler Municipal.
- Purchasing a flight track monitoring system, with public flight track viewing and web-based noise complaint collection components, will provide Chandler Municipal with an effective tool for monitoring the noise abatement programs and disseminating information to the local residents regarding aircraft noise concerns.

Programs for the Benefit of Long-Term Airport Investment

The implementation of the proposed land use and operational recommendations in the NCP would help protect the investment in Chandler Municipal by minimizing current aircraft noise exposure on noise-sensitive land uses and reducing the potential for development of future noise-sensitive land uses in high aircraft noise exposure areas.

- Having the Chandler Municipal Manager continue to manage the implementation of the NCP will ensure the continued implementation of the recommended programs.
- Monitoring the need to update the noise exposure maps, based on operations and operational characteristics of Chandler Municipal, will benefit Chandler Municipal by ensuring land uses around the Airport remain compatible with aircraft operations.

ESTIMATED PROGRAM COSTS AND TIMING FOR IMPLEMENTATION

Table 13.1 provides the estimated costs for the implementation of the NCP. The cost of some measures may be quantifiable and, for others, both the costs and the benefits are more qualitative and, in most instances, minor. For those cases where the costs are

TABLE 13.1
ESTIMATED COST OF NOISE COMPATIBILITY PROGRAM

	NOISE COMPATIBILITY PROGRAM MEASURE	ESTIMATED COST	IMPLEMENTING AUTHORITY
A.	Increase Altitude of the Helicopter Training Pattern Altitude by 100 feet to 1,900 feet MSL	No cost associated with implementing this action.	FAA ATC Airport Management
B.	Request Training Helicopters Continue to Voluntarily Make Turns at Midfield When Operating Conditions Permit	No cost associated with implementing this action.	Airport Management
C.	Request Helicopters Continue to Voluntarily Avoid Making Turns Over Noise Sensitive Areas When Operating Conditions Permit	No cost associated with implementing this action.	Airport Management
D.	Request Helicopters in the Training Pattern Continue to Remain West of Gilbert Road When Operating Conditions Permit	No cost associated with implementing this action.	Airport Management
E.	Increase Altitude of Arrival/Departure Corridors for Itinerant Helicopter Operations by 200 feet to 2,000 feet MSL	No cost associated with implementing this action.	FAA ATC Airport Management
F.	Develop and distribute an Education Plan Identifying Established Arrival and Departure Corridors and Associated Noise Concerns for ATC Controllers and Helicopter Operators	Working with the FAA ATC to develop an education plan for helicopter operations will cost approximately $25,000.	Airport Management
G.	Develop and distribute Informational Materials Regarding Itinerant Helicopter Procedures	Developing the informational materials for itinerant helicopter operations will cost approximately $15,000.	Airport Management
H.	Increase Altitude of Arrival/Departure Corridors for Itinerant Fixed Wing Operations by 300 feet to 2,500 feet MSL	No cost associated with implementing this action.	FAA ATC Airport Management
I.	Increase Altitude of the Fixed Wing Training Pattern Altitude by 50 feet to 2,250 feet MSL	No cost associated with implementing this action.	FAA ATC Airport Management
J.	Continue to Use Runway 4R/22L as the Preferred Runway for Fixed Wing Training Activity When Conditions Permit	No cost associated with implementing this action.	FAA ATC Airport Management
K.	Request Aircraft Continue to Voluntarily Avoid Making Turns Over Noise Sensitive Areas When Operating Conditions Permit	No cost associated with implementing this action.	Airport Management
L.	Request Training Aircraft and Helicopters Voluntarily Limit the Repetitive Training Activity Between the Hours of 8:00 p.m. to 7:00 a.m. When Operating Conditions Permit	No cost associated with implementing this action.	Airport Management

TABLE 13.1
ESTIMATED COST OF NOISE COMPATIBILITY PROGRAM (CONT.)

	NOISE COMPATIBILITY PROGRAM MEASURE	ESTIMATED COST	IMPLEMENTING AUTHORITY
M.	Update ANO Zones	Working with the City of Chandler regarding the ANO Zone update will have a negligible cost for Chandler Municipal. This task should be incorporated into existing work plans.	Airport Management
N.	Update Rural Zoning in Unincorporated Areas	Working with the City of Chandler and Maricopa County regarding the update to rural zoning will have a negligible cost for Chandler Municipal. This task should be incorporated into existing work plans.	Airport Management
O.	Request the City of Chandler Continue to Follow the Policy Guidance Provided by the Voter-Approved General Plan and the Council-Adopted Airpark Area Plan When Considering Zoning and Development Requests Within the Nine Square-Mile Area Surrounding the Chandler Municipal Airport	Working with the City of Chandler regarding the request to continue to follow the stated guidance will have a negligible cost for Chandler Municipal. This task should be incorporated into existing work plans.	Airport Management
P.	Keep Existing Building Codes Associated with the ANO Zones	Working with the City of Chandler regarding the ANO Zone update will have a negligible cost for Chandler Municipal. This task should be incorporated into existing work plans.	Airport Management
Q.	Manage Noise Compatibility Program	No change from current program.	Airport Management
R.	Retain Noise Line	No change from current program.	Airport Management
S.	Update Airport Webpage with Noise Information	No cost associated with implementing this action	Airport Management
T.	Purchase Flight Track Monitoring System	Purchasing a flight track monitoring system will cost approximately $100,000 to 300,000.	Airport Management
U.	Noise Program Update	Monitoring the number of operations and operational characteristics at the Airport will have a negligible cost to Chandler Municipal. These tasks can be incorporated into existing work plans	Airport Management

quantifiable, the cost estimate represents a preliminary indication of the noise-related funding that may be requested from the FAA following the approval of the NCP.

The preliminary timing for implementation of each of the elements of the program is presented in **Table 13.2**. The timing assumes that the NCP would be approved by the end of 2010. Many of the recommendations are the responsibility of Chandler Municipal staff and can continue without waiting for NCP approval.

TABLE 13.2
TIMING FOR IMPLEMENTATION OF THE NOISE COMPATIBILITY PROGRAM

	NOISE COMPATIBILITY PLAN MEASURE	ESTIMATED TIME FOR IMPLEMENTATION
A.	Increase Altitude of the Helicopter Training Pattern Altitude by 100 feet to 1,900 feet MSL	One year after approval of NCP recommendations.
B.	Request Training Helicopters Continue to Voluntarily Make Turns at Midfield When Operating Conditions Permit	One month after completion of Study.
C.	Request Helicopters Continue to Voluntarily Avoid Making Turns Over Noise Sensitive Areas When Operating Conditions Permit	One month after completion of Study.
D.	Request Helicopters in the Training Pattern Continue to Remain West of Gilbert Road When Operating Conditions Permit	One month after completion of Study.
E.	Increase Altitude of Arrival and Departure Corridors for Itinerant Helicopter Operations by 200 feet to 2,000 feet MSL	One year after approval of NCP recommendations.
F.	Develop and Distribute an Education Plan Identifying Established Arrival and Departure Corridors and Associated Noise Concerns for ATC Controllers and Helicopter Operators	One year after completion of Study.
G.	Develop and Distribute Informational Materials Regarding Itinerant Helicopter Procedures	One year after completion of Study.
H.	Increase Altitude of Arrival and Departure Corridors for Itinerant Fixed Wing Operations by 300 feet to 2,500 feet MSL	One year after approval of NCP recommendations.
I.	Increase Altitude of the Fixed Wing Training Pattern Altitude by 50 feet to 2,250 feet MSL	One year after approval of NCP recommendations.
J.	Continue to Use Runway 4R/22L as the Preferred Runway for Fixed Wing Training Activity When Conditions Permit	One month after approval of NCP recommendations.
K.	Request Aircraft Continue to Voluntarily Avoid Making Turns Over Noise Sensitive Areas When Operating Conditions Permit	One month after completion of Study.
L.	Request Training Aircraft and Helicopters Voluntarily Limit Repetitive Training Activity Between the Hours of 8:00 p.m. to 7:00 a.m. When Operating Conditions Permit	One month after completion of Study.
M.	Update ANO Zones	One year after completion of Study.
N.	Update Rural Zoning in Unincorporated Areas	One year after completion of Study.
O.	Request the City of Chandler Continue to Follow the Policy Guidance Provided by the Voter-Approved General Plan and the Council-Adopted Airpark Area Plan When Considering Zoning and Development Requests Within the Nine Square-Mile Area Surrounding the Chandler Municipal Airport	Ongoing process

TABLE 13.2
TIMING FOR IMPLEMENTATION OF THE NOISE COMPATIBILITY PROGRAM (CONT.)

P.	Keep Existing Building Codes Associated with the ANO Zones	Ongoing process
Q.	Manage Noise Compatibility Program	Ongoing process.
R.	Retain Noise Line	Ongoing process.
S.	Update Airport Webpage with Noise Information	One month after completion of Study.
T.	Purchase Flight Tracking System	One year after completion of Study.
U.	Noise Program Update	Annual process to begin in late 2010.

REVIEW AND UPDATES

With the implementation of the actions proposed in this 14 CFR Part 150 Study, the noise-related land use controls around Chandler Municipal to reduce the potential for future incompatible development, as well as to address the existing noise exposure, would be maintained.

The primary review associated with the NCP would be to monitor all elements that make up the NCP and to make sure they are all implemented. This means that the existing noise abatement programs continue to be used and new programs proposed are developed and implemented. The 14 CFR Part 150 Study should be updated on a regular basis. Usually the reason for an update is to ensure that the assumptions used remain valid (particularly the operational activity) and to document the success of the implemented NCP. Sometimes these updates occur when Chandler Municipal is completing a planning study and new aviation forecasts are prepared that differs significantly from the one used for this Study, or the number of and types of operations at Chandler Municipal change significantly. However, since a 14 CFR Part 150 Study is voluntary on behalf of Chandler Municipal management and not required by the FAA, the need and timing for preparing an update would be at the option of Chandler Municipal management.

APPENDIX A: NOISE MEASUREMENT OBSERVATIONS

(1)

SOUND LEVEL MEASUREMENT DATA SHEET

Date: 5/22/08 Measurement Taken By: SBJ

Project: **Chandler Airport FAR Part 150 Study**

Site Identification/Notes: Temp Site #3 greenway (near trapeze)

Weather Conditions: Sky: Clear Partly Cloudy Cloudy Other: ____________

Temperature: Wind Speed: 10-20 with gusts

Wind Direction: from S Humidity: Typical Background Levels (range): traffic + dogs barking Kildeer very vocal in area (sharp loud calls)

Equipment:

Sound Level Meter

Type: Serial Number:

Date of Last Traceable Meter Calibration:

Field Calibration Reading: Battery Check:

Response Settings: Weighting Scale:

Calibrator

Type:

Started at 8:15 aprox.

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
8:26:48	Dogs barking			near monitor
duration * 8:27:34 - 8:47:00	weedwacker			closest to monitor at 8:41:18 (30 ft)
8:30:44	Dogs barking			near monitor
8:31:02	helicopter			SW of site turning from NE to SW (pretty far away)
8:35:00	helicopter			" same pattern "
8:39:30	helicopter			" "
8:46:08	lawn equipment + dogs			passing by + barking dogs
8:47:08	helicopter			same pattern
8:50:21	dogs barking			
8:56:14	helicopter			same pattern - but could not hear it over traffic noise
9:03:14	garbage truck			emptying trash (loud bang)
9:04:25	helicopter			same pattern
9:09:03	helicopter			same patter (but heard this one)
9:13:15	helicopter			same pattern - traffic noise high
9:17:19	large truck			very loud

2

Site Identification: Temp site #3 5/22/08 SBJ

duration *

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
9:17:20	lawn equip. Blower backpack			closest to monitor @ 9:20:20 9:17:20 → 9:22:10
9:21:43	dogs barking			
9:23:13	lawn equip ridding by			
9:23:20	dogs barking			at lawn equip.
9:35-9:55	(pause in observations)			
* Started 9:55:00				
9:55:00	dogs barking			at me
10:11:04	dog bark			
10:11:52	single piston			West of site headed S turned SW - did not hear due to traffic
X	X			X
10:23:00	helicopter			S of site headed West
10:~~..~~25:01	sing piston			right over site headed S
10:26:49	dog barking			
10:30:07 — stopped observations				

SOUND LEVEL MEASUREMENT DATA SHEET

Date: 5/21/08 Measurement Taken By: SBZ

Project: **Chandler Airport FAR Part 150 Study**

Site Identification/Notes: greenbelt Temporary Site #2

Weather Conditions: Sky: Clear Partly Cloudy Cloudy Other: ____________

Temperature: 85 Wind Speed: 10-15 gusts higher

Wind Direction: Humidity: Typical Background Levels (range):

Equipment:

Sound Level Meter

Type: Serial Number:

Date of Last Traceable Meter Calibration:

Field Calibration Reading: Battery Check:

Response Settings: Weighting Scale:

Calibrator Type:

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
8:01:41	helicopter			S/E turn over site
8:04:53	com. overflight			headed NE
8:06:29	helicopter			S/E turn over site
8:07:11	sing prop.			headed E/NE
8:09:50	sing prop			west of site
8:10:33	helicopter			S/E turn over site
8:11:27	sing prop			SE/E turn over site
8:13:27	bi-plane			maneuvering SW + S of site
8:14:24	sing prop			headed S over site } turned + came back over
8:15:37	sing prop			heade N over site
8:17:00	biplane			east of site
8:18:00	helicopter			S/E turn over site
8:21:57	sing prop			SE/E turn over site
8:26:21	sing prop			departed, turned and came over site headed E
8:27:48	sing prop			departed headed SW

Site Identification: Temp #2 5/21/08 SB2

②

wind gusts picking up! from S/SW

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
8:30:46	sing prop		yellow white	turned (SE) to (E) over site
8:32:28	sing prop			departed S (west of site)
8:35:02	sing prop		yellow + wh	departs (SW) turned (E) over site
8:36:30	sing prop			depart (SW)
8:39:32	sing prop		yellow + wh	departed (SW) turned (E) over site
8:41:23	sing prop			departed (SW) went (S) of site → (SE)
8:43:25	sing prop			depart SW
8:43:52	sing prop			over site headed (NE)
8:47:47	sing prop		same plane yellow white	depart (SW) — same plane
8:48:23	sing prop			over site headed (E)/(NE)
8:50:03	sing prop			depart (SW)
9:00:43	sing prop			overflight (E) direction
9:02:27	sing prop			overflight high alt headed (W)
mower/blower equipment - constant noise				
9:14:48	com. overflight			headed (NE) high alt.
9:43:59	helicopter		overlap of noise	turned (SE)/(E) oversight
9:44:03	sing prop			depart (SW)
9:47:04	helicopter			turned (SE)/(E) over site
9:47:24	sing prop			depart (SW)
9:48:34	helicopter			turned (SE)/(E) over site
9:50:23	helicopter			head (S) then turned (E)
9:50:44	sing prop			depart (SW)/(S)
9:52:00	helicopter			turned (SE)/(E) over site
9:53:44	helicopter			turned (SE)/(E) over site
9:55:30	sing prop			depart (SW)
9:57:22	helicopter			turned (SE)/(E) over site
9:59:08	helicopter			turned (E) - prior to getting to site ((N) of site)
10:10:30	sing prop			depart (SW) turned (E) (S) of site

Page ____

Site Identification: Temp #2 5/21/08 SBJ

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
10:15:20	sing prop			departed (SW) turned (E)

(1)

SOUND LEVEL MEASUREMENT DATA SHEET

Date: 5/20/08 Measurement Taken By: SBJ

Project: **Chandler Airport FAR Part 150 Study**

Site Identification/Notes: School sports fields
#4 speaker w/announcements ~9:24 → ended 9:27:14

Weather Conditions: Sky: Clear Partly Cloudy Cloudy Other: ____________

Temperature: Wind Speed: <5 mph

Wind Direction: Ø Humidity: 0 Typical Background Levels (range):

Equipment:

Sound Level Meter
Type: Serial Number:

Date of Last Traceable Meter Calibration:

Field Calibration Reading: Battery Check:

Response Settings: Weighting Scale:

Calibrator
Type:

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
9:26:25	comm overflight			announcements from school (S)
9:30:41	helicopter			traffic noise (loud trucks) / hel. east of site
9:31:15	flight to north headed (W)			could barely see it but could hear it.
9:33:47	com. flight			overflight headed (NW) looked like Southwest plane
9:35:38	com. flight			overflight headed (NW) looked like Southwest plane
9:38:00	com. flight			" " not SWest plane
9:40:12	overflight			high altitude
9:41:49	overflight			high altitude
9:42:58	com. flight			west of site headed (SW)
9:45:25	com (?) overflight			headed (SW) near site
9:48:25	helicopter			9:47:10-25 (large dump truck) + 9:47:48
9:49:17	small plane overflight			(dump truck noise still present) over airfield
9:49:54	com. overflight			headed (S)
9:52:17	2 com. overflights			headed (W) + headed (SW)
9:53:19	com. overflight			headed (SW)

Site Identification: ______________________

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
10:28:25	sing prop			head SW
10:28:54	sing prop			landing
10:29:58	com. overflight			head NW looked like a south west plane
10:31:50	sing prop			from the NW headed E SE landing?
10:32:44	sing prop			from SW ~~landing~~ headed NE then N
10:33:30	com. overflight			headed NW
10:34:29	sing. prop			headed SE landing turned E
10:37:06	jet overflight			high alt. heade NW
10:39:38	sing prop			departing Chand? headed SW turned S
10:40:12	sing prop			headed E
10:40:37	dual prop (com?)			headed SW (west of south
10:42:12	com. overflight			
10:44:09	sing prop			headed W > sounds overlapped
10:44:47	sing prop			headed SW
10:46:10	sing prop			headed E/NE
10:50:07	sing prop			depart heading S
Stopped →	* wind 5-10 picked up			
Started + Ron downloading data → 11:10:53	com. overflight			headed NW
11:11:27	sing prop			headed W/NW
11:12:13	sing prop			headed SW
11:13:01	sing prop - 2			one headed N one head S (Ron working on microphone)
11:13:44	sing prop			headed W
11:16:45	sing prop			headed SW
11:23:37	sing. prop			headed SW > overlapped
11:23:54	sing prop			headed NE
11:25:48	sing prop			headed SW
11:28:05	helicopter			headed W / SW
11:37:26	sing. prop			headed SW + turned S

Site Identification: Site #4 (school sports fields) 5/20/08 SBJ

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
9:54:54	biplane			circling airfield & dep. SW turned N then turned NE
9:56:43	comm. overflight			head NW
9:58:25	biplane			circling
9:58:58	arrival small plane 1 center nose prop			
9:59:14	arrival (yellow) small plane 1 center nose prop			lg truck
10:00:38	sm. plane overflight			headed S
10:01:45	sm jet over → landing			two jets eng on each side of tail
10:02:24	sm planes 2 single prop			1 circling / 1 overflight > very close together
10:03:57	biplane			headed SW + circled to N
10:04:10	sing prop landing			
10:04:51	sing. prop (yellow)			
landed — 10:06:10	sing prop landing			
10:08:15	dual prop			W of site head S
10:09:43	sing. prop landing			
10:10:13	sing (yellow) prop low (circling or landing)			Kids voices in football area/track
10:11:59	sing prop circling			
10:12:56	jet head W			pretty far N+NW of site location (not from Chandler)
10:14:59	com. overflight			headed W / loud cars / voices on track
10:15:46	sing. prop			circling to land ?
10:16:57	sing. prop			" "
10:17:56	sing prop			" " / loud truck
10:19:50	sing prop			" "
10:20:18	sing prop			landing from NW
10:21:01	sing. prop.			circling
10:21:54	sing prop			landing
10:23:04	com. overflight			headed SW
10:24:25	sing prop		truck noise	circling / landing from south → headed north + turned east
10:25:47	sing prop			landing headed east
10:26:46	comm. overflight			

4

Site Identification: Site #4 School sports field SBJ 5/20/08

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
11:41:02	helicopter			head S (just west of site)

1

SOUND LEVEL MEASUREMENT DATA SHEET

Date: 5/20/08 Measurement Taken By:

Project: **Chandler Airport FAR Part 150 Study**

Site Identification/Notes: #1 in Sienna Neighborhood off of Cooper

Weather Conditions: Sky: Clear Partly Cloudy Cloudy Other: ____________

Temperature: 108 Wind Speed: <5mph

Wind Direction: Humidity: 10% Typical Background Levels (range):

Equipment:

Sound Level Meter

Type: Serial Number:

Date of Last Traceable Meter Calibration:

Field Calibration Reading: Battery Check:

Response Settings: Weighting Scale:

Calibrator

Type:

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
1:11:10	sing piston			departing to SW
1:25:21	helicopter		training circling	headed S turned east before site
1:27:50	helicopter			" " "
1:28:52	sing. piston			departing SW
1:30:32	helicopter			flew oversite headed NE
1:34:12	helicopter			oversite headed South
1:35:00	single			depart SW
1:35:36	helicopter			over site-s turned E
1:37:53	helicopter			Over site headed S
1:39:45	helicopter			west of site headed SW
1:40:45	helicopter			over site: head E/NE
1:41:12	helicopter			oversite headed S
1:41:36	helicopter			west of side headed SW
1:46:03	helicopter			depart SW
1:47:56	helicopter			oversite headed NE

Site Identification: #1 5/20/08 Sienna 8B2

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
1:50:17	helicopter		same helic circling	headed SW turned E
1:51:22	helicopter			oversite headed NE
1:54:45	helicopter		same/circling	depart headed SW turned E
1:55:40	helicopter			over site headed NE
1:59:43	helicopter		circle	depart headed SW turned E
2:00:05	helicopter			oversite headed
2:03:09	*/g helicoper			headed N over site
2:03:45	helicopter		circle	depart headed SW turned E
2:04:44	helicopter			oversit. headed
2:05:48	sing piston			depart turned N/NE (departed S)
2:16:21	sing piston			west of site head NE
2:19:28	helicopter			depart headed SW turned E
2:19:50	sm. jet			depart SW from chander
2:20:04	helicopter		circle	oversite headed NE
2:22:34	helicopter		circle	depart SW turned E
2:23:22	helicopter			oversite headed NE
2:27:23	helicopter		circle	depart SW turned E
2:28:14	helicopter			oversite headed NE
2:29:20	single pist. overflight			headed SW (directly over)
2:31:33	helicopter			depart SW turned E
2:31:54	helicopter			straight overhead → NE
2:32:29	helicopter		circle	oversite headed NE
2:36:11	helicopter			depart SW turned E
2:36:54	helicopter			straight overhead → NE
2:37:16	helicopter		circle	over site headed NE
2:53:33	sing? piston			oversite headed SW
2:59:10	sing piston			depart SW turned N
3:01:48	sing piston			depart SW turned N → NE

3

Site Identification: #1 Sienna 5/20/08 SBJ

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
3:05:03	single piston			depart SW turned N → NE
3:06:35	biplane			depart SW turned S → SE NE
3:07:00	biplane			overhead of site 1 → NE
3:09:29	biplane		(circling)	overhead NE
3:11:14	biplane			depart SW turned S/SE
3:11:51	biplane			overhead of site
3:13:31	biplane		tighter loop than others	depart SW turned S/E
3:13:57	biplane			overhead
3:15:02	sing piston			depart headed SW
3:15:31	biplane		tight	depart headed SW turned E
3:15:53	biplane			overhead E → NE
3:17:41	biplane		not as tight	depart headed SW turned E
3:18:17	biplane			overhead headed NE
3:19:09	sing pist			depart SW turned N → NE
3:20:14	biplane		not as tight	depart SW → S → NE
3:20:51	biplane			overhead → NE
3:21:48	sing pist.			depart SW
3:22:33	biplane		" "	depart SW → S → E → NE
3:23:15	biplane			overhead
3:23:31	sing pist.			depart SW
3:24:50	sm. jet overflight			east of site head N
3:25:38	biplane			overhead NE
3:26:29	sing. pist			depart SW
*3:26:59	loud truck next to			
3:27:14	helicopter overflight			headed SE turned NE over site
3:27:17	biplane		" "	depart SW
3:28:03	biplane			overflight NE

stop

SOUND LEVEL MEASUREMENT DATA SHEET

Date: 5-22-08 Measurement Taken By: RFS

west flow departures

Project: **Chandler Airport FAR Part 150 Study**

Site Identification/Notes: Vacant Park

Weather Conditions: Sky: Clear Partly Cloudy Cloudy Other: ____

Temperature: Wind Speed: Windy

Wind Direction: Humidity: Typical Background Levels (range):

Equipment:

Sound Level Meter

Type: Serial Number:

Date of Last Traceable Meter Calibration:

Field Calibration Reading: Battery Check:

Response Settings: Weighting Scale:

Calibrator

Type:

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
7:36:04	Helicopter		N	off to side Pattern
7:37:00	Lawn equipment			
to	Leaf Blower type of equip			
7:42:00	Approx. 30 yds. away			
7:40:46	Helicopter		N	off to side of Airport Pattern
7:30:00	Kids by meter			
to				
7:44:00	waiting for bus			
7:44:12	School			
to				
7:44:40	Bus			
7:46:29	Helicopter		Y	off to side Pattern
7:47:50	Blowers			
to				
8:16:50				
7:48:16	Helicopter		N	off to side of Airport Pattern
7:52:09	Helicopter		N	" Pattern

Site Identification: 5-22-08 Vacary Park

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
7:52:48	Helicopter		Y	Overhead Pattern
7:56:50	Helicopter		N	Off to side Pattern
8:01:11	Helicopter		Y	off to side Pattern
8:05:20	Helicopter		Y	off to side Pattern
8:09:39	"		"	over head Pattern
8:14:04	Helicopter		"	off to side "
8:16:35	"		"	"
8:18:25	"		"	"
8:22:31	"		"	"
8:26:40	"		"	"
8:30:49	"		"	" / overhead
8:34:15	Single Engine		Y	Overhead
8:34:50	Helo		Y	overhead pattern
8:35:27	Helo		Y	off to side pattern
8:39:19	Helo		Y	" " " "
8:43:25	"		Y	Overhead Pattern
8:45:42	"		Y	off to side Pattern
8:47:49	"		"	"
8:52:03	"		"	Overhead Pattern
8:54:12	"		"	off to side Pattern
8:56:03	"		"	Overhead Pattern
8:59:59	"		"	" "
9:04:08	"		"	" "
9:08:49	"		"	" "
9:12:57	"		"	" "
9:32:06	"		"	Off to side Pattern
9:37:35	"		"	" "
9:37:57	"		"	" "

Site Identification: ______________________

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
9:40:13	Helo		Y	off to side Pattern
9:42:40	"		Y	" " "
9:45:06	"		Y	" " "
9:45:46	"		Y	" " "
9:47:45	"		Y	" " "
9:49:40	Helo + Single engine		N	
9:50:53	Helo		Y	off to side Pattern
9:52:30	Helo		Y	" " "
9:54:14	Helo		Y	" " "
9:55:46	"		Y	" " "
9:57:15	"		Y	" " "
9:59:18	"		Y	" " "
10:01:45	"		Y	" " "
10:04:35	"		Y	" " "
10:06:58	"		Y	" " "
10:09:40	"		Y	" " "
10:11:27	"		Y	" " "
10:12:22	"		Y	" " "
10:14:25	"		"	" " "
10:17:04	"		"	" " "
10:19:35	"		"	" " "
10:21:50	"		"	" " "
10:23:50	"		"	" " "
10:24:38	Single Engine		Y	overhead Very Quiet pattern
10:26:45	Helo		Y	off to side pattern
10:29:06	Helo		N	off to side truck passing
10:34:09	"		Y	off to side pattern

SOUND LEVEL MEASUREMENT DATA SHEET

Date: 5-21-08 Measurement Taken By: RES

Project: **Chandler Airport FAR Part 150 Study**

Site Identification/Notes: Water Treatment plant
Some background Highway noise; likely impacts ambient
West Flow Departure

Weather Conditions: Sky: Clear Partly Cloudy Cloudy Other: ______

Temperature: 84 Wind Speed: Windy

Wind Direction: Humidity: Typical Background Levels (range):

Equipment:

Sound Level Meter

Type: Serial Number:

Date of Last Traceable Meter Calibration:

Field Calibration Reading: Battery Check:

Response Settings: Weighting Scale:

Calibrator
Type:

location at point where engine power is cut back in training pattern

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
8:27:40	Single Engine		Y	
8:28:20	Single Engine		Y	T-tail
8:36:30	Semi truck			10 seconds
8:37:54	Single Engine		Y	T-tail
8:39:13	" "		Y	
8:43:06	" "		Y	T-tail
8:44:15	" "		Y	
8:48:56	" "		Y	T-tail / off to side near Highway
8:51:39	" "		Y	" " "
8:54:20	" "		Y	off to side of Hwy quiet "
8:59:38	" "		Y	overhead Quiet
9:05:27	" "		Y	off to side Hwy quiet
9:14:23	" "		Y	Probably did not register
9:14:49	Car Starting			
9:17:25	Truck driving by			

Site Identification: 5-21-08 Water treatment

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
9:20:43	Truck Driveby			
9:22:44	Single Engine		Y	Quiet
~~[illegible]~~				
9:56:10	Single Engine		Y	off to side Hwy quiet
10:17:15	" " TP		Y	overhead
10:18:30	Construction Equip			drive by

SOUND LEVEL MEASUREMENT DATA SHEET

Date: 5/20/08 Measurement Taken By: MRN

Project: **Chandler Airport FAR Part 150 Study**

Site Identification/Notes: Site 2 → Future Park Site on Lyon Rd

Weather Conditions: Sky: Clear Partly Cloudy Cloudy Other: ____________

Temperature: 94° Wind Speed: Nill

Wind Direction: Humidity: Very Low Typical Background Levels (range): Very Low

Equipment:

Sound Level Meter

Type: Serial Number:

Date of Last Traceable Meter Calibration:

Field Calibration Reading: Battery Check:

Response Settings: Weighting Scale:

Calibrator

Type:

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
9:05:20	Twin Dep		Y	Turning South (Poss Training)
9:06:01	Single Dep		Y	Turning South "
9:07	" "		Y	Turning South "
9:08:53	Twin Dep		Y	"
9:10:20	Single		Y	Training Pattern
9:14:12	Twin (training)		~~Y~~ N	Combined event
9:14:59	Single (training)		~~Y~~ N	
9:18:22	Departure		N	(Cars) to North
9:20:10	Helicopter		Y	(white)
9:23:20	Single		Y	Overflight
9:24:10	Helicopter		Y	(Blder)
9:25:40	Jet Overflight		Y	(PHX
9:27:19	Jet Overflight Prop Dep.			
9:27:53	Single Engine		N	(Multiple Helo Overflight)
9:29:00	Single "		Y	Training

Site Identification: Site 2 - Future Pair Site

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
9:30:20	Training		Y	Could not tell if Single or Multi
9:32:20	Single Training		Y	
9:33:32	Helo Training		Y	Black Helo
9:34:20	Helo Training		Y	White Helo
9:35:42	Helo Training		Y	Black Helo
9:36:14	Single Training		Y	
9:37:11	Single Training		Y	Nearly Direct Overflight
~~[illegible]~~	Helo Training		Multi Event	Helo
9:38:33	Helo Training		Y	Black & Turq.
9:40:02	PHX Jet Overflight		Y	
9:40:38	Helo Training		Y	Black
9:41:52	Single Training		Multi	
[illegible]	Single "		Multi	
9:43:28	Helo Training		Y	Turq & Black
9:45:04	PHX Jet Overflight		-	
9:47:22	Helo Training		Y	white
9:49:03	Helo Training		Y	Black
9:51:17	Single		Y	Overflight (Biplane?)
↓	Helo Training		Multi	white
9:53:26	Helo Training		Multi	Black
↓	Single			Biplane
9:56:59	Single Training		Y	Biplane → White
9:57:40	Single Training		Y	Direct Overflight
10:00:08	Single Training		Y	Biplane
10:00:47	Helo Training		Y	white
10:02:26	Single Training		Y	Biplane
↓10:03	Helo Training		Multi	Black
10:11:13	Single Training			

→ Downloading

Site Identification: Site 2 - Future Park Site

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
10:42:16	Single Training		Y	West Flow
11:03:54	PHX Overflight		—	
11:09:36	Single Prop Dep.		Y	West Flow
11:25:40	Prop	Over Dep	Y	(Single)
11:31:40	Helo		Y	Direct Overflight
11:37:00	Biplane		Y	
11:45:10	Single Eng Prop		Y	
15:07:40	Single Training		Y	
15:08:50	" "		Y	
15:10:10	" "		Y	
Biplane Overflying but not creating events				
15:17 —	School Bus → Cars			
15:25:02	???			

SOUND LEVEL MEASUREMENT DATA SHEET

Date: 5/20/08 Measurement Taken By: MRV

Project: **Chandler Airport FAR Part 150 Study**

Site Identification/Notes: Temp #3 → Greenbelt off Pecos/Lindsay

Weather Conditions: Sky: Clear Partly Cloudy Cloudy Other: __________

Temperature: 110° Wind Speed: Low

Wind Direction: Humidity: Low Typical Background Levels (range): 50 → Some Roadway Noise off Pecos

Equipment:

Sound Level Meter

Type: LD820 Serial Number:

Date of Last Traceable Meter Calibration:

Field Calibration Reading: Battery Check: 188%

Response Settings: Weighting Scale:

Calibrator Type:

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
2:01:25	PHX Overflight		Y	

SOUND LEVEL MEASUREMENT DATA SHEET

Date: 5/21/08 Measurement Taken By: MRN

Remember: File has Two Locations on it.

Project: **Chandler Airport FAR Part 150 Study**

Site Identification/Notes:
Site #3 (originally 24Hr Site) in residential Park N of 202 & W of Gilbert

Weather Conditions: Sky: Clear Partly Cloudy Cloudy Other:

Temperature: 80s Wind Speed: Light Winds

Wind Direction: Humidity: Low Typical Background Levels (range): 52-54
Some Highway 202 noise

Equipment:

Sound Level Meter
Type: LD820 Serial Number:

Date of Last Traceable Meter Calibration:

Field Calibration Reading: Battery Check: 187%

Response Settings: Weighting Scale:

Calibrator
Type:

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations West Flow
7:50:51	PHX Overflight	60+	Multi	Included Prop @ CHD
Birds	Chirping	54	—	—
7:54:08	Single Training	55+	Y	White Single Prop (Dir Overflight)
7:55	Child Yelling	—		
8:00	Sneeze	—	—	—
8:01:28	Single Training	55+	Y	Possibly Cessna 152
8:02:15	Helo Training	56+	Y	
8:03:11	Helo Training	56-57	Y	
8:04:50	PHX Overflight	58+	Y	
8:06:52	Single Training	64+	Y	Orange plane
8:08:26	Helo Training	57	Y	
8:09:11	Single Training	57	Y	
8:11:38	Single Train	64	Y	Baron?
12:28	Helo	57	Multi	
	Single Overflight	—	"	Higher than other train

Site Identification: 24HR #3 Ches Park N of 202 & W of Silbery

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
				West Flow
8:13:38	Train Arrival	-	Y	(poss S Train Patt)
8:15:40	Single Training	65	Y	
8:16:28	Single Overflight	60	Y	
8:18: —	Single Air	—	Y	(poss S Train Patt)
8:19:32	Single Air	-	Y	
8:20:19	Single Training	71	Y	
8:21:52	Single Air	54	Y	Poss CNA172 (S Train Patt?)
8:25:41	Helo Train	-	Y	
8:28:40	Overflight		Y	
8:29:41	Single Train		Y	
8:30:45	Single Train		Y	
8:32:50	Single Train		Y	
8:38:41	Single Train		Y	
8:39:39	Single Air		Y	(S Patt?) Lots of Wind
8:40:10	Single Train		Y	
8:43:44	Single Train		Y	
8:57:35	Single Air		Y	(Yellow)
9:47:32	Helo Train		Y	
9:48:57	Helo Train		Y	
9:52:02	Helo Train		Y	
9:56:27	Single Prop Dep		Y	
10:09:37	Single Train		Y	South Pattern
10:17:53	Single Train		Y	
10:19:38	Helo		Y	
10:35:19	Single Train		Y	
10:36:22	Single Train		Y	
10:44:29	Single Train (Air)		Y	
10:45:05	Single Air		Y	

SOUND LEVEL MEASUREMENT DATA SHEET

Date: 5/21/08 Measurement Taken By:

Project: **Chandler Airport FAR Part 150 Study**

Site Identification/Notes: Temp Site 4 / Park near Elem School (near Ryan & Queen)

Weather Conditions: Sky: Clear Partly Cloudy Cloudy Other: Overcast / Clear

Temperature: Wind Speed:

Wind Direction: Humidity: Typical Background Levels (range): 55+

Very Windy Gusts into 70s (dB)

Equipment:

Sound Level Meter

Type: Serial Number:

Date of Last Traceable Meter Calibration:

Field Calibration Reading: Battery Check:

Response Settings: Weighting Scale:

Calibrator

Type:

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
11:20	Twin		N	Wind → up to 70dB
2:07:10	Jet D ?		Y	
				Wind too strong
				for Meas.
				75+ dB

SOUND LEVEL MEASUREMENT DATA SHEET

Date: 5/22/08 Measurement Taken By: MLN

Project: **Chandler Airport FAR Part 150 Study**

Site Identification/Notes:
Temp Site 4 Park Near Elem School (near Ryan and Arizona)

Weather Conditions: Sky: Clear Partly Cloudy Cloudy Other: ______

Temperature: 70 Wind Speed: Light

Wind Direction: Humidity: Typical Background Levels (range): 50s
Some roadway noise

Equipment:

Sound Level Meter
Type: LD820 Serial Number:

Date of Last Traceable Meter Calibration:

Field Calibration Reading: Battery Check:

Response Settings: Weighting Scale:

Calibrator
Type:

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
8:06:09	Prop		N	(Cars) Plane not visible @ site
8:09:07	School Announcements			
8:15:	Single Prop Dep(?)		Y	Poss Training
8:18:05	Single Prop Train		Y	
8:19:09	Helo		N	Cars passing
8:22:40	Prop		N	Cars
8:26:31	Single Prop Train		Y	
8:32:28	Single Prop		Y	Dir Overflight
8:33:22	Prop Train		Y	Distant
8:37:16	Single Prop Train		N	Cars & Radio
8:37:56	Single Prop Train		Y	
8:39:48	Single Prop Train		N	Cars
8:41:23	Single Prop Train		Y	
8:42:22	Single Prop Train		Y	
8:51:50	Single Prop Train		Y	

5/22/08

Site Identification: Temp Site 4 in Park behind School

Near Ryan and Tryon

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
8:59:16	Single Prop		N	Cars
8:59:36	Single Prop Training		Y	
9:07:30	Single Prop		Y	
9:22:45	Single Prop Dep		Y	
9:28:47	Single Prop		Y	Dir Overflight.
10:34:02	Single Prop		Y	
	Man w/ Remote Control Car			
10:43	Maint crews digging post holes.			
10:52:20	PHX Overflight		N	Cars / Birds
10:55:06	Single Training		Y	

SOUND LEVEL MEASUREMENT DATA SHEET

Date: 3/24/09 Measurement Taken By: PMW

Project: **Chandler Airport FAR Part 150 Study**

Site Identification/Notes: Permanent Site 1 (2531 S Dragoon Dr.)
SP=Single Prop, DP=Dual Prop, Helo=Helicopter

Weather Conditions: Sky: **Clear** Partly Cloudy Cloudy Other: ____________________

Temperature: **low 80s** Wind Speed: **?**

Wind Direction: Humidity: Typical Background Levels (range):

Equipment:

Sound Level Meter

Type: Serial Number:

Date of Last Traceable Meter Calibration:

Field Calibration Reading: Battery Check:

Response Settings: Weighting Scale:

Calibrator

Type:

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
9:03	?	53	Y	?
9:05	SP (Cessna)	61	Y	Crosswind
9:16	SP	54	Y	Crosswind
9:19	SP (Cessna)	60	Y	Upwind
9:26	SP	59	Y	Crosswind
9:27	SP (Cessna)	55	Y	Crosswind
9:28	Helo	68	Y	Crosswind – Downwind
9:31	Helo	63	N	Crosswind / Passing SP
9:31	SP (Cessna)	60	N	Crosswind
9:33	Helo	67	N	Crosswind – Downwind
9:33	SP	60	N	Crosswind
9:35	SP	54	N	Crosswind
9:35	Helo	63	N	Crosswind – Downwind / Passing Plane
9:37	Helo	65	Y	Crosswind – Downwind
9:38	SP (Cessna)	66	Y	Crosswind / Overhead

Site Identification: ______________________________

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
9:40	SP	54	Y	Crosswind / Overhead
9:41	SP (Cessna)	59	Y	Crosswind / Higher Altitude
9:42	DP	57	N	Upwind – Crosswind / Overhead
9:42	SP	55	Y	Upwind
9:45	DP	56	Y	Upwind – Crosswind / Overhead
9:46	SP	55	N	Upwind
9:47	Helo	63	N	Crosswind – Downwind
9:50	SP (Cessna)	61	Y	Upwind – Crosswind
9:54	SP	70	Y	Overhead
10:12	SP	56	N	Crosswind
10:12	?	55	N	?
10:13	SP (Cessna)	50	Y	Crosswind
10:16	SP	62	N	Crosswind
10:18	SP (Cessna)	50	Y	Crosswind
10:22	SP	52	Y	Crosswind
10:26	?	51	N	?
10:26	SP	71	N	Crosswind / Other plane nearby
10:27	SP	57	Y	Crosswind
10:29	SP (Cessna)	60	N	Crosswind
10:29	SP	65	N	Upwind
10:31	SP	52	Y	Crosswind
10:33	SP (Cessna)	59	Y	Upwind
10:35	Helo	52	N	Overhead / High Altitude
10:36	SP	59	N	Crosswind
10:36	SP	55	N	Upwind
10:38	Air Carrier Jet	51	N	Overhead / High Altitude
10:40	SP	53	N	Crosswind
10:40	Helo	57	N	Crosswind – Downwind

Site Identification: ______________________________

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
10:44	?	53	N	Multiple Aircraft Sources
10:45	SP	55	Y	Crosswind
10:56	SP	56	N	Crosswind
10:56	SP	50	N	Crosswind
10:56	?	58	N	?
11:03	?	50	N	?
11:04	SP (Cessna)	58	Y	Upwind
11:05	SP (Cessna)	63	Y	Crosswind / Overhead
11:07	?	56	N	?
11:08	SP	60	N	Crosswind
11:10	SP	72	Y	Crosswind / Overhead
11:11	SP	65	Y	Crosswind
11:16	SP	73	Y	Crosswind / Overhead
11:17	SP (Cessna)	68	Y	Crosswind
11:20	SP	73	Y	Crosswind / Overhead
11:24	SP	72	Y	Crosswind / Overhead
11:25	Air Carrier Jet	51	Y	High Altitude
11:27	Helo	65	N	Crosswind – Downwind
11:28	SP	61	Y	Crosswind / Overhead
11:29	?	54	N	?
11:29	Helo	65	N	Crosswind – Downwind
11:32	Helo	69	N	Crosswind – Downwind
11:32	SP	72	N	Crosswind / Overhead
11:36	SP	73	Y	Crosswind / Overhead
11:40	Helo	73	Y	Crosswind – Downwind
11:43	SP	51	Y	Upwind
11:43	Helo	64	N	Crosswind – Downwind
11:44	Helo	65	Y	Crosswind – Downwind

Site Identification: ______________________________

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
11:47	Helo	59	N	Crosswind – Downwind
11:47	SP	75	N	Crosswind / Overhead
11:49	Helo	63	N	Crosswind – Downwind / Dogs Barking in background
11:52	SP	72	N	Crosswind / Overhead
11:52	Helo	63	N	Crosswind – Downwind
11:53	DP	60	N	Crosswind
11:54	DP	52	N	Crosswind
11:54	Helo	64	N	Crosswind – Downwind
11:56	SP	57	N	Baseleg
11:58	SP (Cessna)	50	Y	Baseleg
11:59	Helo	63	Y	Baseleg
12:00	Helo	68	Y	Baseleg
12:03	SP (Cessna)	54	Y	Baseleg
13:24	SP	63	Y	Baseleg
13:27	?	56	Y	?
13:31	Helo	67	Y	Baseleg – Final
13:38	Helo	64	Y	Baseleg – Final
13:40	Helo	69	Y	Baseleg – Final
13:41	SP	65	N	Baseleg
13:41	SP	68	N	Downwind
13:42	Helo	66	Y	Baseleg – Final
13:44	Helo	68	Y	Baseleg – Final
13:45	SP (Cessna)	54	Y	Downwind
13:47	Helo	64	Y	Baseleg – Final
13:49	Helo	69	Y	Baseleg – Final
13:52	Helo	67	Y	Baseleg – Final
13:54	Helo	68	Y	Baseleg – Final
13:55	SP	80	Y	Baseleg / Overhead

Site Identification: ______________________________

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
13:55	Helo	67	Y	Baseleg
13:58	Helo	65	Y	Baseleg – Final
14:01	SP	54	Y	Baseleg
14:01	Helo	64	Y	Baseleg – Final
14:03	Helo	67	Y	Baseleg – Final
14:07	Helo	62	Y	Baseleg – Final
14:12	Helo	62	Y	Baseleg – Final
14:14	SP (Cessna)	55	Y	Baseleg
14:16	Helo	63	Y	Baseleg – Final
14:21	Helo	65	Y	Baseleg – Final
14:23	3 Bi-planes	54	Y	Aerial Acrobatics North of Site
14:27	SP	63	Y	Baseleg
14:33	SP (Cessna)	63	Y	Baseleg
14:38	SP	54	Y	Baseleg
14:40	Helo	69	N	Baseleg – Final
14:40	Motorcycle	52	N	Surface Street Traffic
14:41	Helo	71	Y	Baseleg – Final
14:41	?	55	Y	?
14:48	Helo	58	Y	Baseleg – Final
14:52	Helo	58	Y	Baseleg – Final
15:04	SP	54	Y	Baseleg – Final
15:08	SP	59	Y	Baseleg – Final
15:15	Motor Vehicle	54	Y	Surface Street Traffic
15:17	SP	55	Y	Baseleg – Final
15:18	SP	58	N	Baseleg
15:18	SP (Cessna)	55	N	Baseleg
15:20	SP	54	N	Baseleg – Final
15:26	SP	58	N	Baseleg

Site Identification: ______________________________

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
15:31	Children Yelling	63	N	
15:33	Children Yelling	61	N	
15:35	Children Yelling	60	N	
15:41	SP	54	N	Baseleg – Final
15:45	SP	54	Y	Baseleg
15:48	Helo	69	Y	Baseleg – Final
15:49	SP	54	Y	Baseleg
15:53	Helo	62	Y	Baseleg – Final
15:59	Helo	65	Y	Baseleg – Final
16:01	?	54	Y	?
16:05	Helo	67	Y	Baseleg – Final
16:11	Helo	67	Y	Baseleg – Final
16:15	Helo	68	Y	Baseleg - Final

SOUND LEVEL MEASUREMENT DATA SHEET

Date: 3/25/09 Measurement Taken By: PMW

Project: **Chandler Airport FAR Part 150 Study**

Site Identification/Notes: Permanent Site 1 (2531 S Dragoon Drive)
SP=Single Prop, DP=Dual Prop, Helo=Helicopter

Weather Conditions: Sky: **Clear** Partly Cloudy Cloudy Other: ____________________

Temperature: **High 70s** Wind Speed: **?**

Wind Direction: Humidity: Typical Background Levels (range):

Equipment:

Sound Level Meter

Type: Serial Number:

Date of Last Traceable Meter Calibration:

Field Calibration Reading: Battery Check:

Response Settings: Weighting Scale:

Calibrator
Type:

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
8:30	Helo	57	Y	?
8:34	Dogs Barking	58	N	
8:36	SP	74	Y	Crosswind / Overhead
8:40	SP	55	Y	Upwind
8:43	SP	60	Y	Crosswind / Overhead
8:46	SP	69	N	Crosswind / Overhead
8:46	SP	68	N	Crosswind / Overhead
8:51	?	56	Y	?
8:52	SP	65	Y	Crosswind / Overhead
8:55	?	54	Y	?
8:56	SP	67	Y	Crosswind / Overhead
9:03	DP	62	Y	Crosswind
9:08	DP	64	Y	Crosswind
9:12	DP	69	Y	Crosswind / Overhead
9:17	SP (Cessna)	64	Y	Crosswind

Site Identification: ______________________________

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
9:18	Dogs Barking	58	N	
9:20	SP	54	Y	Crosswind
9:21	SP (Cessna)	69	Y	Crosswind / Overhead
9:22	?	61	N	Aircraft w/birds in background
9:25	?	56	N	Aircraft w/birds in background
9:26	SP (Cessna)	68	N	Overhead w/birds
9:27	Helo	67	N	Downwind / Overhead
9:32	Helo	67	N	Crosswind
9:32	SP (Cessna)	68	N	Crosswind / Overhead
9:33	Helo	65	N	Crosswind – Downwind
9:33	SP	72	N	Crosswind / Overhead
9:35	Helo	64	Y	Crosswind – Downwind
9:36	Helo	64	Y	Crosswind – Downwind
9:37	SP	58	Y	Crosswind
9:41	SP	57	Y	Crosswind
9:44	Air Carrier Jet	54	N	Overhead / High Altitude
9:47	?	56	Y	?
9:49	SP	55	Y	Upwind
9:55	SP	57	Y	Downwind
9:57	SP	58	Y	Crosswind
10:04	Helo	60	Y	Crosswind – Downwind
10:07	SP	60	Y	Crosswind
10:09	Helo	58	Y	Crosswind – Downwind
10:14	Helo	58	Y	Crosswind – Downwind
10:19	Helo	63	Y	Crosswind – Downwind
10:25	SP	73	Y	Crosswind / Overhead
10:38	SP	73	Y	Crosswind / Overhead
10:40	SP	58	N	Crosswind / High Altitude

Site Identification: ______________________________

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
10:41	DP	60	Y	Crosswind / Overhead
10:45	SP	61	Y	Downwind
10:55	SP	56	Y	Downwind
10:57	SP	56	N	Downwind
11:01	SP	55	Y	Crosswind / Overhead
11:03	?	55	N	?
11:03	SP (Cessna)	61	Y	Crosswind
11:05	Bi-Plane	73	N	Downwind / Overhead
11:07	SP	65	Y	Upwind
11:08	DP	65	Y	Crosswind
11:11	SP	74	Y	Crosswind / Overhead
11:16	SP	68	Y	Downwind
11:18	SP	66	Y	Upwind / Overhead
11:22	SP	72	Y	Crosswind / Overhead
11:27	Helo	62	Y	Crosswind – Downwind
11:30	Helo	65	Y	Crosswind – Downwind
11:33	Helo	63	Y	Crosswind – Downwind
11:34	Helo	66	Y	Crosswind – Downwind
11:36	Helo	66	Y	Crosswind – Downwind
11:37	Helo	65	Y	Crosswind – Downwind
13:11	SP (Cessna)	70	Y	Baseleg
13:13	SP	54	Y	Baseleg
13:16	SP (Cessna)	61	Y	Baseleg
13:22	?	57	Y	?
13:24	SP (Cessna)	58	Y	Baseleg
13:31	Helo	63	Y	Baseleg – Final
13:33	?	57	Y	?
13:37	Helo	57	Y	Baseleg

Site Identification: ______________________________

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
13:38	Helo	62	Y	Baseleg – Final
13:39	Helo	66	Y	Baseleg – Final
13:40	Air Carrier Jet	62	Y	Overhead
13:41	Helo	63	N	Baseleg – Final
13:44	Helo	62	N	Baseleg – Final
13:47	Helo	61	Y	Baseleg – Final
13:49	Helo	62	Y	Baseleg – Final
13:51	Helo	62	Y	Baseleg – Final
13:53	Helo	66	N	Baseleg – Final
13:53	Helo	62	N	Baseleg – Final
13:56	Helo	65	Y	Baseleg – Final
14:00	Motorcycle	54		Surface Street Traffic
14:01	SP	55	Y	Baseleg
14:02	Helo	59	Y	Baseleg – Final
14:03	Helo	67	Y	Baseleg – Final
14:05	SP	64	N	Baseleg
14:05	Helo	61	N	Baseleg – Final
14:07	Helo	68	Y	Baseleg – Final
14:10	Helo	62	Y	Baseleg – Final
14:11	SP (Cessna)	63	Y	Baseleg
14:12	Helo	64	Y	Baseleg – Final
14:14	Helo	62	Y	Baseleg – Final
14:16	Helo	63	N	Baseleg – Final
14:19	Helo	62	Y	Baseleg – Final
14:23	Helo	60	Y	Baseleg – Final
14:25	SP (Cessna)	57	N	Baseleg
14:27	Helo	66	Y	Baseleg – Final
14:28	Helo	66	Y	Baseleg - Final

Site Identification: ______________________________

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
14:29	SP (Cessna)	54	Y	Baseleg
14:31	Helo	61	N	Baseleg – Final
14:31	Helo	67	N	Baseleg – Final
14:37	SP	68	Y	Baseleg
14:40	SP	64	Y	Baseleg / Overhead
14:45	Air Carrier Jet	54	Y	Overhead / High Altitude
14:46	SP (Cessna)	58	Y	Baseleg
14:59	SP (Cessna)	69	Y	Baseleg / Overhead
15:05	SP	67	Y	Baseleg / Overhead
15:15	SP	63	Y	Baseleg / Overhead
15:22	SP	55	Y	Baseleg / Overhead
15:32	SP (Cessna)	55	N	Baseleg / Overhead
15:32	Helo	56	N	Baseleg – Final
15:36	Helo	67	Y	Baseleg – Final
15:40	Helo	71	Y	Baseleg – Final
15:40	SP	55	Y	Baseleg
15:44	Helo	70	Y	Baseleg – Final
15:45	SP	55	Y	Baseleg / Overhead
15:46	SP	70	N	Baseleg / Overhead
15:49	SP	54	Y	Baseleg / Overhead
15:50	Helo	68	Y	Baseleg – Final
15:50	Helo	63	Y	Baseleg – Final
15:54	Helo	72	Y	Baseleg – Final
15:57	Helo	59	Y	Baseleg – Final
15:59	Helo	66	Y	Baseleg – Final
16:01	Helo	68	Y	Baseleg – Final

SOUND LEVEL MEASUREMENT DATA SHEET

Date: 3/26/09 Measurement Taken By: PMW

Project: **Chandler Airport FAR Part 150 Study**

Site Identification/Notes: Permanent Site 1 (2531 S Dragoon Dr.)
SP=Single Prop, DP=Dual Prop, Helo=Helicopter

Weather Conditions: Sky: **Clear** Partly Cloudy Cloudy Other: ____________________

Temperature: **High 70s** Wind Speed: **?**

Wind Direction: Humidity: Typical Background Levels (range):

Equipment:

Sound Level Meter

Type: Serial Number:

Date of Last Traceable Meter Calibration:

Field Calibration Reading: Battery Check:

Response Settings: Weighting Scale:

Calibrator
Type:

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
8:20	?	60	N	Ambient noises in background
8:21	SP (Cessna)	60	Y	Crosswind / Overhead
8:23	Bi-plane	63	Y	Upwind
8:26	SP (Cessna)	71	Y	Crosswind / Overhead
8:30	SP (Cessna)	68	Y	Crosswind / Overhead
8:31	SP	61	Y	Crosswind / Overhead
8:34	SP (Cessna)	71	Y	Crosswind / Overhead
8:35	SP	70	N	Crosswind / Overhead
8:37	SP (Cessna)	62	Y	Upwind
8:37	Helo	55	Y	Overhead / High Altitude
8:39	SP (Cessna)	74	Y	Crosswind / Overhead
8:40	Bi-plane	59	Y	Downwind
8:42	SP	67	Y	Crosswind
8:43	SP (Cessna)	59	Y	Crosswind
8:47	SP	71	Y	Crosswind / Overhead

Site Identification: ______________________________

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
8:50	SP	61	Y	Baseleg
8:50	Helo	66	Y	Baseleg / Overhead
9:19	SP	66	Y	Baseleg / Overhead
9:24	SP	61	Y	Baseleg / Overhead
9:45	Helo	62	Y	Baseleg / Overhead
9:48	?	61	Y	?
9:50	Helo	62	Y	Baseleg / Final
9:52	SP	58	Y	Baseleg / Overhead
9:53	Helo	67	Y	Baseleg / Final
9:55	Helo	64	Y	Baseleg / Final
9:55	SP	55	N	Baseleg / Overhead
9:57	SP	60	N	Baseleg / Overhead
9:59	Helo/Plane	65	N	Both passing at the same time
10:00	Helo	73	Y	Baseleg / Final
10:09	Helo	64	Y	Baseleg / Final
10:14	Helo/Plane	67	N	Both passing at the same time
10:16	DP	64	N	Baseleg / Final
10:16	Helo	67	N	Baseleg / Final
10:17	Helo	70	Y	Baseleg / Final
10:20	Helo	66	N	Baseleg / Final
10:20	DP	59	N	Baseleg
10:21	Helo	69	N	Baseleg
10:21	Helo	63	N	Baseleg
10:24	Helo	60	Y	Baseleg
10:25	Helo	63	Y	Baseleg
10:28	Helo	71	Y	Baseleg
10:29	Helo	68	Y	Baseleg
10:30	Helo	67	Y	Baseleg

Site Identification: ______________________________

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
10:30	Helo	67	Y	Baseleg
10:44	Helo	72	Y	Baseleg
10:44	Street Noise	56	N	
10:46	Helo	68	Y	Baseleg
10:47	Helo	70	Y	Baseleg
10:49	SP	57	Y	Upwind – Crosswind
11:11	SP (Cessna)	61	Y	Upwind
11:25	Bi-plane	57	Y	Baseleg
11:27	Bi-plane	56	Y	Baseleg
11:35	Helo	76	Y	Baseleg
11:39	Helo	71	Y	Baseleg
11:44	Helo	69	Y	Baseleg / Overhead
11:51	Helo	69	Y	Baseleg / Overhead
11:55	Air Carrier Jet	60	Y	Overhead / High Altitude
11:56	Helo	66	Y	Baseleg
13:49	SP	54	N	Baseleg / Overhead / Wind in background
13:51	Street Noise	62	N	
13:54	SP	55	N	Baseleg / Overhead / Wind
13:57	SP	57	Y	Baseleg / Overhead / Wind
14:06	SP	61	N	Baseleg / Overhead / Wind
14:08	SP	56	N	Baseleg / Overhead / Wind
14:09	DP	62	Y	Baseleg / Overhead
14:11	SP	59	N	Baseleg / Overhead / Wind
14:13	SP	55	Y	Baseleg / Overhead
14:15	SP	59	N	Baseleg / Overhead / Wind
14:16	Leaf blower	68		
14:30	Leaf blower	65		
14:44	Leaf blower	64		

SOUND LEVEL MEASUREMENT DATA SHEET

Date: 10/24/2009 Measurement Taken By: Scott Sindel Day 1

Project: **Chandler Airport FAR Part 150 Study**

Site Identification/Notes: Site 2

Weather Conditions: Sky: Clear Partly Cloudy Cloudy Other: ______

Temperature: 75 Wind Speed: Calm

Wind Direction: – Humidity: 0% Typical Background Levels (range): Ambient - 53-54 with Birds

Equipment:

Sound Level Meter

Type: Serial Number:

Date of Last Traceable Meter Calibration:

Field Calibration Reading: Battery Check:

Response Settings: Weighting Scale:

Calibrator

Type:

East Flow

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
9:42:45	Bird	64.8	Y	Birds all over
9:44:52	overflight	59	N	DA-44 Diamond Twin Eng
9:49:30	Go-Around	59	N	PA-28 Warrior
9:50:25	Over-flight	62.3	N	PA-28 Warrior
9:54:00	Landing	60.9	N	Beech Single Engine
10:02:56	Birds	62.4	Y	Birds
10:07:55	Birds	62.3	N	Birds
10:09:00	Birds	63.7		Birds
10:09:15	Landing	61.8	N	PA28R-201 Arrow
10:12:52	Overflight	62.3	N	~~[illegible]~~ Mooney 20J
10:17:15	Overflight	59.5	N	PA-28 Warrior
10:21:48	Birds	64.2	Y	Birds
10:23:45	Birds	70.4	Y	Birds
10:24:20	Birds	65.7	Y	Birds
10:26:54	Departure	63.2	Y	Departure X-wind SE Prop

Site Identification: Site 2

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
10:28:50	Base leg (short)	56.5	Y	PA-28R-201 Arrow
10:31:35	Overflight	60.1	Y	DA-20 Diamond SE Prop
10:33:25	Base leg (short)	59.7	Y	PA-28R-201 Arrow
10:37:19	Base leg (short)	60.2	N	PA-28R-201 Arrow
10:39:31	Downwind	74.2	Y	R-22 Helicopter
10:52:55	Base leg (short)	62.5	N	PA-28R201 Arrow
11:03:04	Landing	60.3	N	Beech Single-Engine Prop
11:11:20	Downwind	60.2	N	PA-28 Warrior
11:19:00	Overflight	68.2	Y	Single Engine Turbo Prop Piper Malibu
11:23:00	Birds	64.5	Y	Birds
11:28:40	Landing	60.0	Y	Mooney
11:41:10	Base	66.0	Y	R22-Helicopter
11:45:30	Downwind	67.3	Y	R-22 Helicopter
13:34:25	Departure to downwind	60.5	Y	R-22 Helicopter
13:37:05	Departure to downwind	68.3	Y	R-22 Helicopter
13:38:10	Departure	71.0	Y	Single Engine Tail dragger High Performance
13:38:43	Departure to downwind	64.3	Y	R-22 Helicopter
13:40:40	Overflight	64.0	Y	PA28R-201
13:41:25	Departure to downwind	71.3	Y	R22 Helicopter
13:42:45	Departure	61.2	Y	C-172
13:43:24	X-wind to downwind	67.2	Y	R-22 Helicopter
13:45:00	overflight	59.4	Y	PA28R-201
13:46:00	X-wind to downwind	67.5	Y	R22 Helicopter
13:48:16	Xwind to downwind	66.6	Y	R22 Helicopter
13:50:35	X-wind to downwind	69.3	N	R22 Helicopter
13:53:00	X-wind to downwind	65.7	Y	R22 Helicopter
13:55:05	downwind	69.4	Y	Single Engine Tail dragger High Perf.
13:55:33	downwind	66.4	Y	R-22 Helicopter

lunch moved Change to west Flow

Site Identification: Site 2

West Flow

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
13:57:55	downwind	65.1	Y	R-22 Helicopter
14:00:15	downwind	71.0	Y	R-22 Helicopter
14:02:28	downwind	64.4	Y	R-22 Helicopter
14:05:25	downwind	62.4	Y	R-22 Helicopter
14:06:23	downwind	66.3	Y	R-22 Helicopter
14:08:35	downwind	64.3	Y	R-22 Helicopter
14:37:00	departure	66.6	Y	Beech Single Engine
14:39:22	departure	72.5	Y	Single Engine tail dragger
14:39:49	X-Wind	73.0	Y	X-wind Same Plane
14:40:48	departure	67.5	Y	Beech 36 - Single Engine Prop
14:43:30	departure	61.7	Y	PA-28 warrior
14:46:35	departure	66.0	Y	Beech 36 - Single Eng Prop
14:57:25	Dog Barking at Me	82.5	Y	Dog Bark Name "Suzie"
15:02:00	departure	62.3	Y	Piper Warrior PA28
15:03:06	downwind	65.5	Y	Piper Warrior PA28
15:06:25	departure	63.3	Y	Piper Warrior PA28
15:07:15	downwind	68.5	Y	PA28 Warrior
15:10:35	departure	64.0	Y	PA28 Warrior
15:11:30	downwind	57.1	Y	PA28 Warrior
15:14:45	departure	63.4	Y	PA 28 Warrior
15:15:46	downwind	67.8	Y	PA28 Warrior
15:17:10	departure	66.3	N	PA28 Warrior
15:19:45	downwind	69.2	Y	PA28 Warrior
15:23:58	departure	64.3	Y	PA28 Warrior
15:23:52	downwind	65.4	Y	PA 28 Warrior
15:27:18	departure	64.5	Y	PA 28 Warrior
15:28:01	downwind	68.9	Y	PA 28 Warrior
15:35:15	X-wind	78.5	Y	Bi-Plane

Site Identification: Site 2

West Flow

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
15:51:41	downwnd	68	Y	R22 - Helicopter

SOUND LEVEL MEASUREMENT DATA SHEET

Date: 3/25/2009 Measurement Taken By: Scott Sindel Day 2

Project: **Chandler Airport FAR Part 150 Study**

Site Identification/Notes: Site 2

Weather Conditions: Sky: Clear Partly Cloudy Cloudy Other: ________

Temperature: 80°F Wind Speed: calm

Wind Direction: — Humidity: 0% Typical Background Levels (range): 53 dBA with Birds

Equipment:

Sound Level Meter

Type: Serial Number:

Date of Last Traceable Meter Calibration:

Field Calibration Reading: Battery Check:

Response Settings: Weighting Scale:

Calibrator Type:

East Flow

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
8:21:28	downwind	66.1	Y	R-22 helicopter
8:32:25	downwind	56.1	N	PA28 warrior pulled Idle for ldg.
8:38:20	Dog	65.0	Y	Dog "Suzie"
9:06:15	Landing	60.0	Y	Seneca Piper twin-piston
9:08:06	Overflight	61.1	Y	"Cirrus"
9:11:00	Landing	60.0	Y	Piper Seneca
9:13:45	Downwind	63.3	N	Piper Seneca
9:17:10	Overflight	63.7	Y	DA-20 Diamond SE
9:17:45	downwind	54.3	N	Cessna 172
9:22:40	downwind	56.2	N	Cessna 172
9:26:55	downwind	59	N	Cessna 172
9:38:47	downwind	57.8	Y	PA28R Arrow
9:46:00	Overflight	60.1	Y	R-22 Helicopter
9:53:21	Overflight	64.1	Y	PA28R Arrow
10:00:15	Downwind	68.2	Y	R-22 helicopter

Site Identification: Site 2

East Flow

Lunch west Flow

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
10:05:35	Downwind	63.0	Y	R-22 helicopter
10:10:21	Downwind	64.8	Y	R-22 helicopter
10:15:45	Downwind	64.5	Y	R-22 helicopter
10:20:20	Downwind	64.6	Y	R-22 helicopter
	~~Downwind~~		~~Y~~	~~R-22 helicopter~~
10:26:57	Downwind	60.1	Y	Piper Aztec Twin Piston
10:28:06	Overflight	65.0	Y	DA-20 SE
10:33:00	Overflight	54.2	N	R-22 Helicopter
10:45:07	Approach	57.1	N	R-22 Helicopter
10:53:15	Overflight	62.3	Y	R-22 helicopter
11:07:44	downwind	56.0	Y	PA28R Arrow
11:12:20	downwind	64.6	Y	PA28R Arrow
13:20:55	X-wind	74.1	Y	Cessna SE Taildragger
13:23:15	" "	68.4	Y	" "
13:26:27	overflight	56.5	Y	R-22 helicopter
13:28:10	overflight	58.1	Y	R-22 helicopter
13:30:20	X-wind to downwind	66.4	Y	R-22 helicopter
13:31:20	departure	69.0	Y	BE36 SE Piston
13:35:55	X-wind	64.1	Y	R-22 helicopter
13:36:47	overflight	66.4	Y	R-22 helicopter
13:40:32	X-wind	65.5	Y	" "
13:43:23	X-wind	66.4	Y	" "
13:45:52	downwind	66.9	Y	" "
13:48:14	downwind	67.2	Y	" "
13:50:18	downwind	70.2	Y	" "
13:52:57	downwind	67.2	Y	" "
13:55:08	downwind	66.8	Y	" "
13:55:38	downwind	60.5	Y	PA28 Warrior

Site Identification: ~~Site~~ Site 2

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
13:57:55	x-wind	64.8	Y	R-22 helicopter
13:59:22	departure	62.0	Y	PA28 warrior
14:00:20	x-wind	63.5	Y	PA28
14:00:48	downwind	64.1	Y	R-22 helicopter
14:01:35	downwind	63.1	Y	" "
14:02:00	departure	64.8	Y	BE36 SE Prop
14:03:45	departure	67.5	Y	PA28 warrior
14:04:30	downwind	68.0	Y	PA28 warrior
14:04:50	downwind	60.4	Y	R-22 helicopter
14:06:42	x-wind to downwind	65.4	Y	R-22 helicopter
14:09:00	x-wind to downwind	66.7	Y	R-22 helicopter
14:11:05	x-wind	65.0	Y	" "
14:13:42	x-wind	67.1	Y	" "
14:15:40	x-wind to downwind	65.5	Y	" "
14:18:13	x-wind to downwind	65.8	Y	" "
14:21:28	overflight	65.4	Y	" "
14:22:25	downwind	63.8	Y	" "
14:25:15	x-wind to downwind	63.2	Y	" "
14:26:12	overflight	61.8	Y	Piper Malibu SE Turbo
14:26:20	down wind	66.4	Y	R-22 helicopter
14:28:50	departure	63.5	Y	C-172
14:29:00	x-wind	69.1	Y	C-172
14:29:55	downwind	65.1	Y	R-22 helicopter
14:30:58	downwind	65.6	Y	" "
14:33:18	downwind	59.3	Y	C-172
14:34:00	downwind	66.4	Y	R-22 helicopter
14:36:30	Overflight	69.0	N	~~R~~ PA28R ~~[illegible]~~ Arrow
14:37:25	downwind	60.1	Y	C-172

Site Identification: Site 2

West Flow

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
14:39:10	Overflight	63.4	Y	PA28R Arrow
15:27:23	Over Flight	58.4	Y	R-22 Helicopter
15:29:48	Departure	61.4	Y	Piper Warrior
15:31:08	x-wind	64.4	~~Y~~ N	R-22 Helicopter
15:32:00	downwind	56.3	Y	Cessna Taildragger SE Prop
15:33:00	departure	58.7	N	R-22 Helicopter
15:34:25	departure	63.0	Y	PA28
15:35:00	X-wind	64.5	Y	R-22 Helicopter
15:35:40	down wind	62.0	Y	PA28 warrior
15:36:04	x-wind to downwind	70.0	Y	Cessna Tail dragger SE Prop
15:39:03	x-wind to downwind	65.3	Y	R-22 Helicopter
15:40:11	x-wind to downwind	63.8	Y	PA28 warrior
15:43:30	X-wind	64.0	N	R-22 Helicopter / PA28 dep
15:44:54	downwind	58.4	Y	PA28 Warrior
15:49:50	X-wind	62.0	Y	R-22 Helicopter

SOUND LEVEL MEASUREMENT DATA SHEET

Date: 3/26/2009 Measurement Taken By: Scott Sindel Day 3

Project: **Chandler Airport FAR Part 150 Study**

Site Identification/Notes: Site 2

Weather Conditions: Sky: Clear Partly Cloudy Cloudy Other: ____________

Temperature: 80 Wind Speed: 10 Knots

Wind Direction: From NW Humidity: Typical Background Levels (range): Ambient = 51 dBA with Birds

Equipment:

Sound Level Meter

Type: Serial Number:

Date of Last Traceable Meter Calibration:

Field Calibration Reading: Battery Check:

Response Settings: Weighting Scale:

Calibrator
Type:

East Flow

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
8:35:00	Departure	60.1	Y	CJ1 Cessna Jet
8:40:00	Landing	58.4	N	Unknown
8:41:38	Base leg	58.1	Y	Bi-Plane
8:48:08	Over flight	60.8	Y	PA28R Arrow
8:49:26	overflight	59.2	Y	R-22 Helicopter
8:59:38	Departure	62.0	Y	C-182 RG
8:59:55	X-wind	61.4	Y	C-182 RG
9:01:52	downwind	56.4	N	C-172
9:06:22	X-wind	58.3	Y	C-172
9:11:40	downwind	58.4	Y	C-172
9:18:30	downwind	61.3	Y	PA28 warrior
9:21:58	OverFlight	57.4	Y	PA28 warrior
9:22:37	departure	58.9	Y	PA28 warrior
9:23:42	downwind	66.0	Y	PA28 warrior
9:30:45	overflight	56.4	Y	R-22 helicopter

Site Identification: Site 2

- West Flow -

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
9:31:50	overflight	59.4	~~Y~~ N	R-22 / PA28 warrior
9:33:20	overflight	59.2	N	R-22 Helicopter
9:37:20	departure	66.2	Y	Cirrus 22
9:39:10	x-wind to downwind	66.0	Y	R-22 Helicopter
9:44:38	x-wind to downwind	66.5	Y	R-22 Helicopter
9:45:31	overflight	64.5	Y	R-22 Helicopter
9:48:30	departure	58.0	N	tail dragger
9:49:40	departures	~~68.8~~ 67	~~Y~~ N	4 Planes
9:50:30	downwind	68.5	Y	PA28 warrior
9:51:20	downwind	67.0	Y	PA28 Warrior
10:25:10	x-wind to downwind	68.3	Y	R-22 Helicopter
10:28:10	" " "	70.0	Y	R-44 helicopter
10:43:00	Overflight	66.4	Y	R-22 helicopter
10:50:33	Overflight	59.2	Y	BE36 SE Prop
10:57:21	departure	61.8	Y	PA28 warrior
10:59:45	downwind	59.1	N	C-172
11:01:18	departure	62.4	Y	BE36 SE Prop
11:06:45	Overflight	62.0	Y	BE36 SE Prop
11:10:05	X-wind	62.6	Y	SE Tail dragger
11:10:28	departure	67.4	Y	High Perf. Bi-Plane (Pitts)
11:11:57	Overflight	63.0	Y	C-172
11:24:15	x-wind to downwind	77.4	Y	High Perf. Bi-Plane (Pitts)
11:26:30	" "	75.5	Y	" "
11:35:05	departure	61.1	Y	C-172 RG
11:38:15	xwind to downwind	66.3	Y	R-22 helicopter
lunch 11:39:01	departure	70.6	Y	SE Tail dragger
13:21:25	departure	64.3	Y	Trinidad SE Prop
13:29:50	X-wind	64.3	Y	PA28 Warrior

Site Identification: Site 2

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
13:31:05	departure	60.2	N	CJ2 Cessna Jet
13:32:30	departure	59.6	N	Civil Air Patrol C-172
13:37:15	departure	61.3	N	Piper Aztec ME Prop
13:52:15	departure	61.2	Y	PA28 Warrior
13:56:00	departure	61.8	Y	" "
13:56:38	xwind to downwind	64.4	Y	" "
13:58:55	departure	60.2	Y	" "
14:00:32	downwind	65.0	Y	" "
14:03:31	departure	61.0	Y	" "
14:04:21	downwind	60.6	Y	" "
14:05:33	x-wind	70.2	Y	" "
14:07:25	x-wind	64.4	Y	" "
14:14:20	x-wind	73.5	Y	" "
14:25:40	overflight	59.2	Y	PA28R-201 Arrow
14:53:05	x-wind	64.3	Y	PA44-180 Seminole
15:18:40	x-wind	62.2	N	PA28 warrior

SOUND LEVEL MEASUREMENT DATA SHEET

Date: 3-26-09 Measurement Taken By: RAS

Project: **Chandler Airport FAR Part 150 Study**

Site Identification/Notes: Temp 1

Weather Conditions: Sky: Clear Partly Cloudy Cloudy Other: ______

Temperature: Wind Speed: 15 KTS

Wind Direction: Humidity: Typical Background Levels (range): 50 dBA

Equipment:

Sound Level Meter

Type: Serial Number:

Date of Last Traceable Meter Calibration:

Field Calibration Reading: Battery Check:

Response Settings: Weighting Scale:

Calibrator

Type:

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
11:20:10	Departure	70.1	Y	Piper (away from 202)
11:23:55	Dep	66.1	Y	Piper
11:37:50	Downwind	55	Y	Piper
11:38:45	Dep	69.3	Y	Cessna
11:41:00	Over flight	62.7	Y	"
11:44:25	Downwind	60.3	Y	Piper
LUNCH - Wind Speed Picked Up -55dBA Background				
1:33:30	Downwind	59.1	Y	Cessna
1:46:15	Arrival/Downwind	63.5	Y	Twin
2:12:30	" "	67.3	Y	Twin

SOUND LEVEL MEASUREMENT DATA SHEET

Date: 3-24-09 Measurement Taken By: RES

Project: **Chandler Airport FAR Part 150 Study**

Site Identification/Notes: Temp 2 German Rd

Weather Conditions: Sky: Clear Partly Cloudy Cloudy Other: ____________

Temperature: Wind Speed: —

Wind Direction: Humidity: Typical Background Levels (range): 45-50 dBA

Equipment:

Sound Level Meter Type: Serial Number:

Date of Last Traceable Meter Calibration:

Field Calibration Reading: Battery Check:

Response Settings: Weighting Scale:

Calibrator Type:

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
10:05:50	Downwind	59	Y	
10:09:00	"	59.7	N	Truck going by
10:13:15	Downwind	68	Y	Cessna
10:13:45	"	61	Y	Piper
10:15:40	Departure →202	66.1	Y	Piper
10:17:20	"	66.4	Y	"
10:17:45	Downwind	70	Y	Piper
10:18:30	"	57.5	Y	"
10:25:15	Dep	62	Y	"
10:25:40	Downwind	75	Y	"
10:28:10	Overflight	63.4	Y	"
10:31:45	Car	54.7	—	—
10:32:45	SUV	58.6	—	—
10:35:20	Dep	57.1	Y	Piper
10:41:15	Overflight	72.8		Cessna

Site Identification: Temp 2 3-24-09

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
10:47:00	Downwind	72.8	Y	Piper
10:48:30	Dep Overflight	70.8	Y	Helo not training
10:54:40	Downwind	66.0	Y	Piper
10:57:45	Overflight	65.9	Y	Piper
11:02:00	Downwind	71.4	Y	Piper
11:08:20	Dep	62.7	Y	Twin
11:10:15	Downwind	72.1	Y	Piper
11:18:25	Departure	67.6	Y	Large Single - Loop departure
11:20:00	Downwind	63.5	Y	Piper
11:21:45	Truck Diesel	59.2	—	—
11:28:30	Departure-over	63.4	Y	Cessna
11:30:30	Downwind	58.4	Y	Piper
* LUNCH - Change in Flow				202 → Airport
1:34:30	~~Overflight~~ Downwind	71.4	Y	Piper
2:07:10	Downwind	67.8	Y	Piper
2:17:40	"	55.2	Y	Cessna
2:19:00	"	58.2	Y	Piper
2:21:20	"	60.0	N	Cessna (Car passing by)
2:24:45	"	60.4	Y	Cessna
2:28:35	"	59.4	Y	Cessna
2:32:40	"	59.1	Y	Cessna
2:45:10	"	61.3	Y	Piper
2:49:35	"	60.7	Y	Piper
2:51:30	"	69.1	Y	Cessna
2:53:15	"	71.6	Y	Cessna
2:54:35	"	56.1	Y	Piper
2:59:10	"	59.4	Y	Piper
3:03:00	"	62.3	N	Piper - Car passing

Site Identification: Temp 2 - 3-24-09

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
3:09:28	UPS Truck	70.6	—	—
3:13-20	Downwind	59.2	Y	Piper
3:21:05	"	59.2	Y	Piper
3:28:50	"	56.1	Y	"
3:35:20	Helo Dep	59.6	Y	[illegible]

SOUND LEVEL MEASUREMENT DATA SHEET

Date: 3-25-09 Measurement Taken By: RES

Project: **Chandler Airport FAR Part 150 Study**

Site Identification/Notes: Temp Site 3 C

Weather Conditions: Sky: Clear Partly Cloudy Cloudy Other: ______

Temperature: 70 Wind Speed: Low

Wind Direction: Humidity: Typical Background Levels (range): 44 dBA

Equipment:

Sound Level Meter

Type: Serial Number:

Date of Last Traceable Meter Calibration:

time off by 3 hours?

Field Calibration Reading: Battery Check:

Response Settings: Weighting Scale:

Calibrator

Type:

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
9:28:15	Arrival	55.7	Y	Piper
9:32:25	Car passing	63.0	—	—
9:34:30	Arrial	57.5	Y	Piper
9:36:00	"	54.1	Y	Cessna
9:36:30	Car passing	58.0	—	—
9:39:15	Arrival	62.4	Y	Piper
9:44:30	"	53.9	Y	Cessna
9:45:45	Overflight	54.6	Y	Helo
9:48:30	Arrival/overhead	66.1	Y	Cessna
9:53:15	Overflight	65.7	Y	Piper
9:54:45	Dog Barking	55	—	—
10:00:15	Base turn	67.0	Y	Helo (long event)
10:05:45	Base turn	65.6	Y	Helo (long event)
10:10:40	" "	67.3	Y	Helo (" ")
10:15:50	" "	65.0	Y	Helo (" ")

Site Identification: Temp 2 3-25-09

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
10:20:50	Base turn	68.2	Y	Helo (long event)
10:27:50	Overflight	64.7	Y	SEP
10:40:00	Arrival	55.5	Y	Helo
10:44:50	"	55.9	Y	Helo
10:53:20	Overflight	60.5	Y	Helo
11:12:20	Downwind	62.6	N	Piper (Dog Barking)
LUNCH	- Flow	Change	-	
12:52:20	Departure	57.4	Y	Cessna
12:57:25	"	60.7	Y	"
12:59:15	Overflight	68.0	Y	Piper
1:02:45	Departure	66.2	Y	Cessna
1:04:40	Departure	64.1	Y	Cessna
1:08:45	"	57.4	Y	"
1:10:15	"	69.4	Y	SEP
1:15:15	Arrival	55.6	Y	Helo
1:18:05	Dep	64.0	Y	Piper
1:18:45	Dep	60.0	Y	Piper
1:19:45	Dep	64.5	Y	Cessna
1:22:05	Dep	64.2	Y	Piper
1:23:05	Dep	63.2	Y	Cessna
1:29:30	Dep	55.2	Y	Cessna
1:30:15	Dep	62.7	Y	Helo
1:31:15	Dep	66.7	Y	Mooney (?)
1:35:20	Dep	58.2	Y	Cessna
1:35:40	Dep	61.4	Y	Helo
1:38:00	Dep	55.4	Y	Cessna
1:39:00	Dep	62.4	Y	Cessna

Site Identification: Temp Site J 3-25-09

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
1:40:15	Dep	64.9	Y	Helo
1:41:45	Dep	54.8	Y	Cessna
1:43:15	Dep	56.3	Y	Helo
1:45:30	Dep	65.4	Y	Helo
1:48:05	Dep	56.1	Y	Helo
1:49:30	Dep	56.0	Y	Cessna
1:50:18	Dep	60.9	Y	Helo
1:52:45	Dep	58.0	Y	Helo
1:57:45	Dep	62.9	Y	Helo
1:59:45	Dep	[illegible]	Y	Piper (Long event)
—	—	71.5	Y	—
2:00:30	Dep	61.7	Y	Helo
2:01:15	Dep	67.2	Y	Helo
2:01:45	Dep	68.0	Y	Mooney ?
2:04:00	Dep	76.7	Y	Piper
2:04:35	Dep	63.9	Y	Helo
2:06:40	Dep	63.1	Y	Helo
2:09:00	Dep	64.0	Y	Helo
2:11:00	Dep	62.7	Y	Helo
2:13:30	Dep	61.2	Y	Helo
2:15:20	Dep	63.2	Y	Helo
2:18:00	Dep	61.1	Y	Helo
2:20:00	Dep	65.4	Y	Helo
2:22:15	Dep	62.9	Y	Helo
2:25:00	Dep	60.9	Y	Helo
2:26:15	Dep	60.0	Y	Helo
2:28:45	Dep	78.0	Y	Cessna
2:29:30	Dep	65.4	Y	Helo

Site Identification: Tomp 3 3-25-09

Page 4

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
2:30:45	Dep	61.5	Y	Helo
2:32:00	Dep	62.2	Y	Cessna
2:33:45	Dep	63.5	Y	Helo
2:41:00	Dep	63.1	~~Y~~ N	Cessna / Car passing
2:53:00	Dep	66.3	Y	Cessna
2:57:15	Dep	63.8	Y	Cessna
3:08:50	Dep	68.0	Y	Piper
3:16:00	Dep	64.3	Y	Piper
3:21:25	Dep	73.9	Y	"
3:25:18	Dep	65.0	Y	"
3:30:00	Dep	62.8	Y	Piper
3:31:45	Rep	66.5	Y	Cessna
3:36:00	Dep	68.0	Y	Cessna
3:52:00	Dep	64.1	Y	Piper
3:53:45	Dep	58.0	Y	Helo
3:55:50	Dep	61.5	Y	Helo

APPENDIX B: AIRCRAFT MODELING SUBSTITUTION

Ron Seymour

From: Hua.He@faa.gov
Sent: Friday, September 05, 2008 10:31 AM
To: Ron Seymour
Cc: Lindsay Baumaister; jake.plante@faa.gov; Michelle.Simmons@faa.gov
Subject: RE: INM Substitutions Request

Ron,

AEE received your request for aircraft substitution in noise modeling for the Chandler Part 150 Study. We approve the aircraft as suggested in your
email, except for Socate TBM-700, for which we recommend the use of PA31, given the operation situation as provided.

A table is attached below to summarize the review/approval. Please note that approval is limited for the cited study only.

Let me know if you have further questions.

Best regards,

Bill

Aircraft	**Consultant Suggestions**	**AEE Review**
Bombardier Challenger 300	CL600	Approve
Hawker 850XP	LEAR35	Approve
Beechcraft Premier 1	CNA55B	Approve
Multi-Engine/Turboprop		
Kodiak 100	SD330	Approve
Piper Mirage	GASEPV	Approve
Socata TBM-700	GASEPV	**Recommend the use of PA31**
Single Engine		
Cirrus SR-20	GASEPV	Approve
Experimental	GASEPV	Approve
Helicopter		
AH-64 Apache	S70	Approve
Bell OH-58A Kiowa	B206L	Approve
R44	H500D	Approve

Hua (Bill) He, Ph.D.
Office of Environment and Energy (AEE)
Federal Aviation Administration
800 Independence Ave., SW, Room 900W
Washington, D.C. 20591 USA
(202) 267-3565 office
(202) 267-5594 fax
hua.he@faa.gov

"Ron Seymour" <RSeymour@esassoc.com>

09/03/2008 12:23 PM

To Hua He/AWA/FAA@FAA
cc "Lindsay Baumaister" <LBaumaister@esassoc.com>
Subject RE: INM Substitutions Request

Dr. He,

The number of operations by the TBM700 aircraft for the Chandler Part 150 Study is approximately 1.04 operations per average annual day in 2008 and projected to have approximately 1.10 operations per average annual day in 2013. This works out to be .004% of annual itinerant operations and .001% of total operations.
On another note, we will also need to model the R44 helicopter in the Study, which was not identified on our original list we provided to you. For past noise studies, you have indicated the H500D should be used as the INM substitute for the R44. Please let me know if that substitute is still valid and if we are approved to use it for this Study.

Ron Seymour
ESA | Airports
4060 Peachtree Road, Suite D-222
Atlanta, GA 30319
813.892-2602| 866.701-4338 fax
rseymour@esassoc.com

From: Hua.He@faa.gov [mailto:Hua.He@faa.gov]
Sent: Wednesday, September 03, 2008 11:05 AM
To: Ron Seymour
Cc: Lindsay Baumaister
Subject: RE: INM Substitutions Request

Ron, coming back from a week long training and I am now in an one week long offsite review. I have reviewed your request and am fine with your suggestion except for one aircraft - the Socata TBM-700. I asked for operation to determine if a PA31 would be a good choice. I remembered that you sent me an email, but my email folder malfunction seemed to have deleted that one. So I would like that you send me another email, and this time also let me know the percentage of TBM in the whole fleet. Thank you and I will respond once I receive your email. Thanks for your patience.

Bill

____
Hua (Bill) He, Ph.D.
Office of Environment and Energy (AEE)
Federal Aviation Administration
800 Independence Ave., SW, Room 900W
Washington, D.C. 20591 USA
(202) 267-3565 office
(202) 267-5594 fax
hua.he@faa.gov

-----"Ron Seymour" <RSeymour@esassoc.com> wrote: -----
To: Hua He/AWA/FAA@FAA
From: "Ron Seymour" <RSeymour@esassoc.com>
Date: 09/02/2008 03:26PM
cc: "Lindsay Baumaister" <LBaumaister@esassoc.com>
Subject: RE: INM Substitutions Request

Dr. He,

I wanted to follow-up with you regarding the substitution list discussed below for the Chandler Municipal Airport FAR Part 150 Study to see if you needed any additional information. I will be going on vacation at the end of this week so I have added my co-worker to this email. Please respond to both of us when you have made your determination.

Thank you,

Ron Seymour
ESA | Airports
4060 Peachtree Road , Suite D-222
Atlanta , GA30319
813.892-2602| 866.701-4338 fax
rseymour@esassoc.com

From: Ron Seymour :PersonName
Sent: Friday, August 15, 2008 4:12 PM
To: 'Hua.He@faa.gov'
Subject: RE: INM Substitutions Request

Dr. He,

In our phone conversation yesterday you had requested some information on the number of operations by the TBM700 aircraft for the Chandler Part 150 Study. The TBM700 has approximately 1.04 operations per average annual day in 2008 and projected to have approximately 1.10 operations per average annual day in 2013. Please let me know if you need additional information regarding this aircraft to help determine a suitable INM substitute.

On another note, we will also need to model the R44 helicopter in the Study, which was not identified on our original list we provided to you. For past noise studies, you have indicated the H500D should be used as the INM substitute for the R44. Please let me know if that substitute is still valid and if we are approved to use it for this Study.

Ron Seymour
ESA | Airports
4060 Peachtree Road , Suite D-222
Atlanta , GA30319
813.892-2602| 866.701-4338 fax
rseymour@esassoc.com

From: Hua.He@faa.gov [mailto:Hua.He@faa.gov]
Sent: Friday, August 08, 2008 8:20 AM
To: Ron Seymour
Subject: Re: INM Substitutions Request

Ron, I received your email, but was not able to respond yet due to business trips and vacation. I will get back to you next week.

Bill

____
Hua (Bill) He, Ph.D.
Office of Environment and Energy (AEE)
Federal Aviation Administration
800 Independence Ave., SW , Room 900W
Washington , D.C. 20591 :placeUSA
(202) 267-3565 office
(202) 267-5594 fax
hua.he@faa.gov

-----" Ron Seymour :PersonName" <RSeymour@esassoc.com> wrote: -----
To: Hua He/AWA/FAA@FAA
From: " Ron Seymour " <RSeymour@esassoc.com>
Date: 07/30/2008 03:47PM
cc: " Ron Seymour " <RSeymour@esassoc.com>
Subject: INM Substitutions Request

Dr. He,

I am requesting your recommendation/approval for several substitute aircraft to be

used in the INM modeling effort for the FAR Part 150 Study being conducted

for our client, the City of Chandler, at the :city Chandler :placename

Municipal :placename Airport :placetype .

The list of aircraft is as follows, including our suggested substitutions:

Jets	**Suggested Substitutions**
Bombardier Challenger 300	CL600
Hawker 850XP	LEAR35
Beechcraft Premier 1	CNA55B
Multi-Engine/Turboprop	
Kodiak 100	SD330
Piper Mirage	GASEPV
Socata TBM-700	GASEPV
Single Engine	
Cirrus SR-20	GASEPV
Experimental	GASEPV
Helicopter	
AH-64 Apache	S70
Bell OH-58A Kiowa	B206L

Thank you,

:personname Ron Seymour

ESA | Airports

:street :address 4060 Peachtree Road , Suite D-222

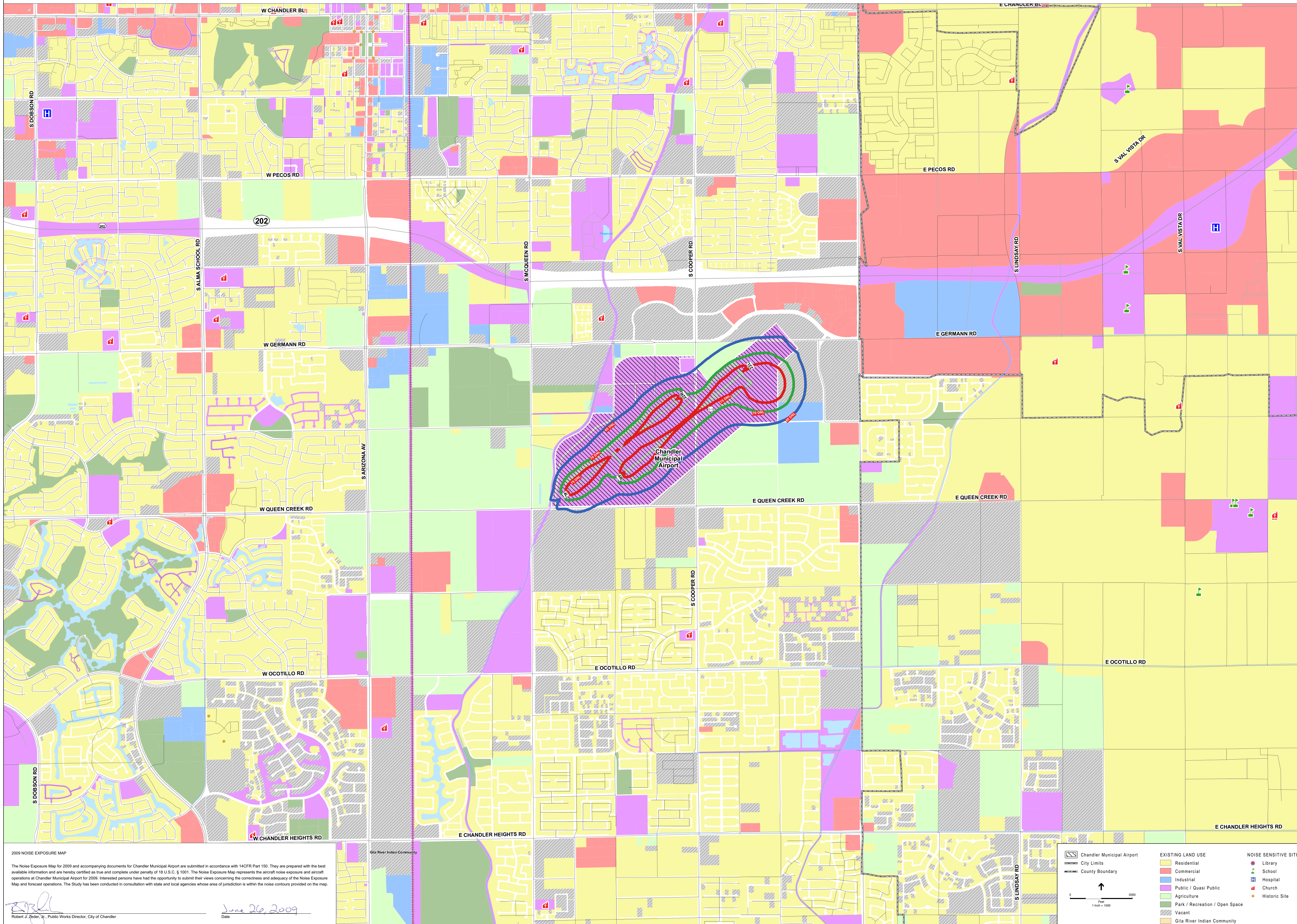
Atlanta :city , GA :state 30319 :postalcode

813.892-2602| 866.701-4338 fax

rseymour@esassoc.com

APPENDIX C: NOISE EXPOSURE MAPS (11X17 FORMAT)

2009 Noise Exposure Map



2009 NOISE EXPOSURE MAP

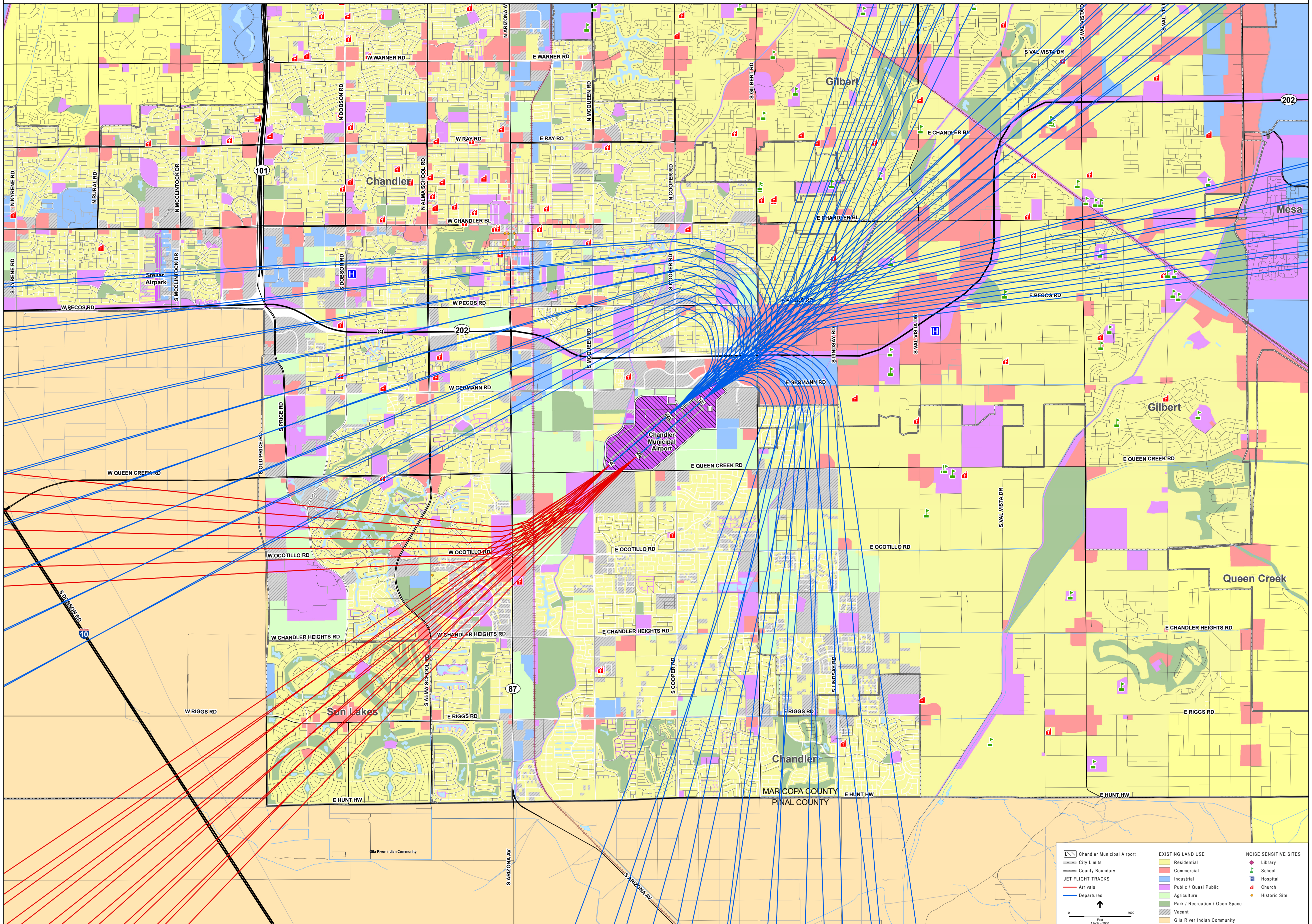
The Noise Exposure Map for 2009 and accompanying documents for Chandler Municipal Airport are submitted in accordance with 14CFR Part 150. They are prepared with the best available information and are hereby certified as true and complete under penalty of 18 U.S.C. § 1001. The Noise Exposure Map represents the aircraft noise exposure and aircraft operations at Chandler Municipal Airport for 2009. Interested persons have had the opportunity to submit their views concerning the correctness and adequacy of the Noise Exposure Map and forecast operations. The Study has been conducted in consultation with state and local agencies whose area of jurisdiction is within the noise contours provided on the map.

Robert J. Zeder, Jr., Public Works Director, City of Chandler

June 26, 2009
Date

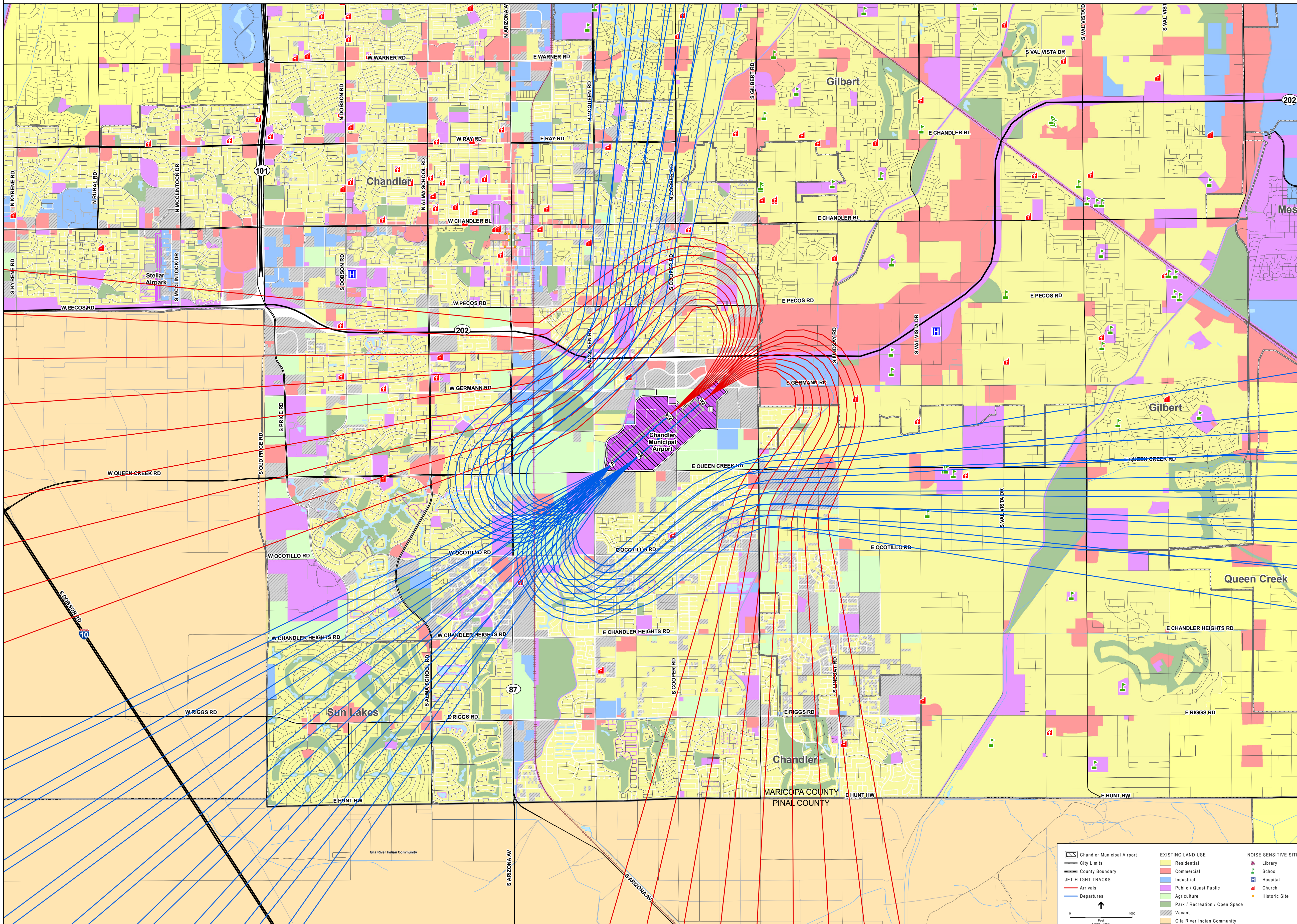
SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

2009 Jet Arrivals and Departures – East Flow



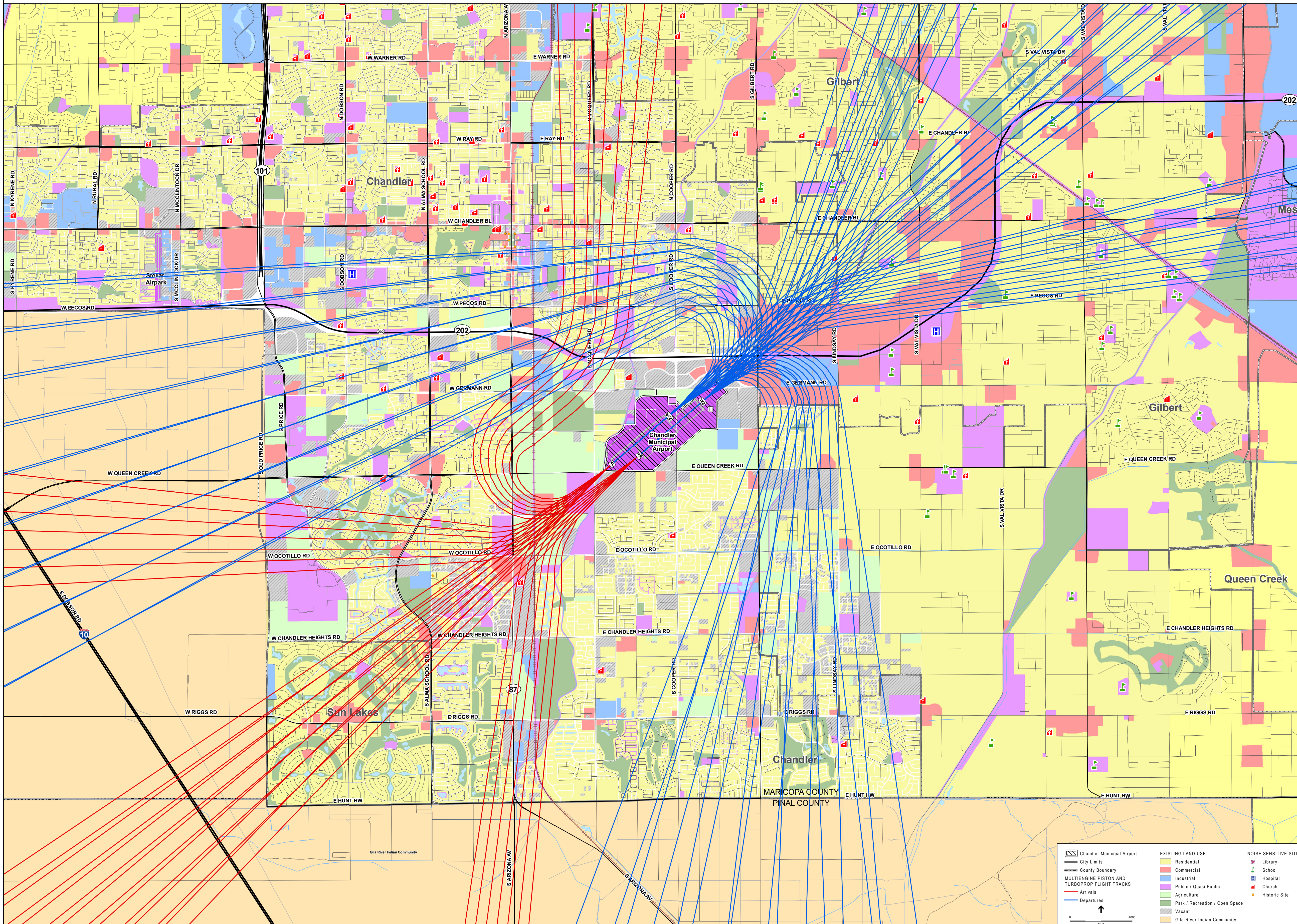
SOURCE: Town of Gilbert, 2006; City of Chandler, 2008; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

2009 Jet Arrivals and Departures – West Flow



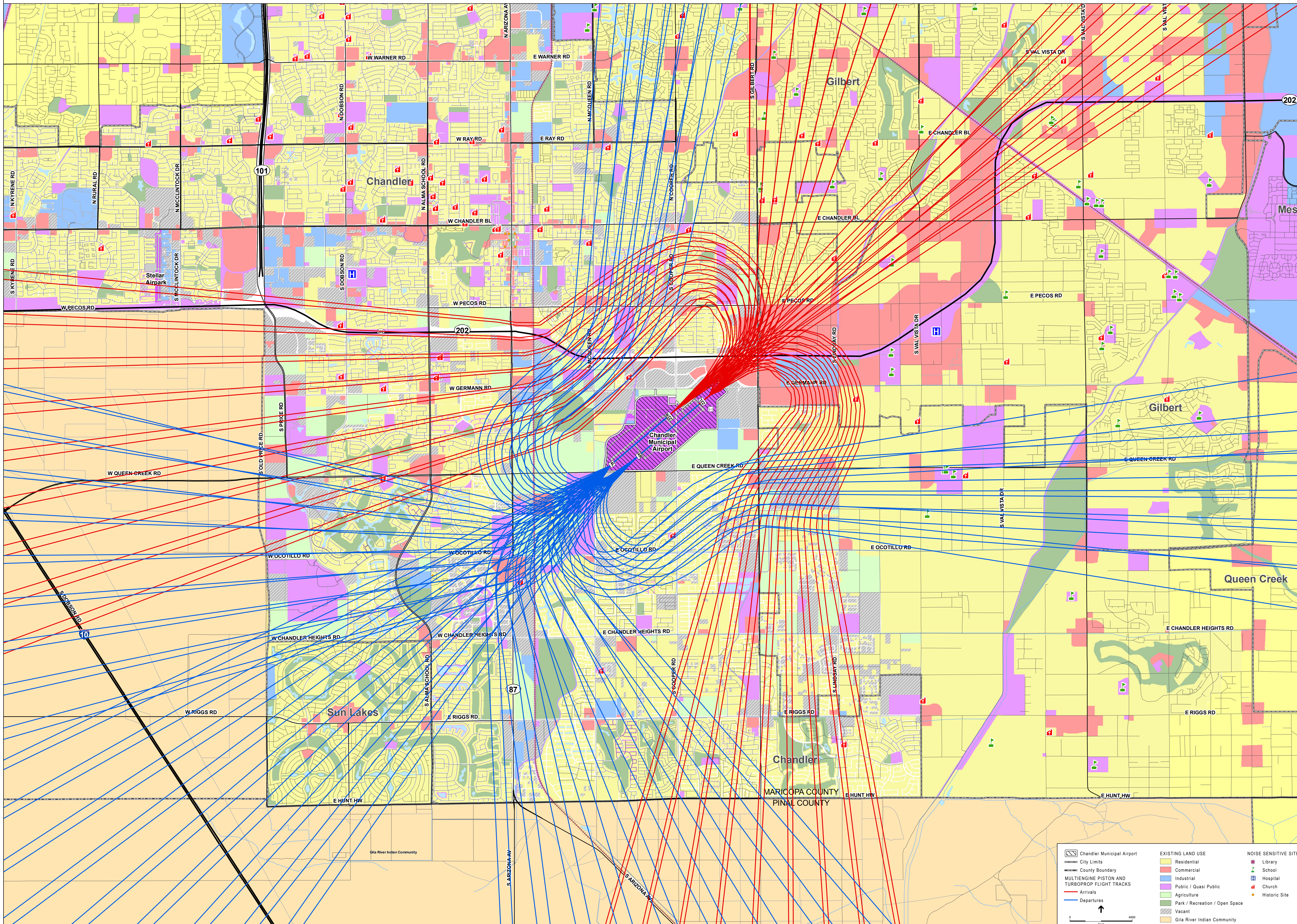
SOURCE: Town of Gilbert, 2006; City of Chandler, 2008; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

2009 Multi-Engine Piston and Turboprop Arrivals and Departures – East Flow



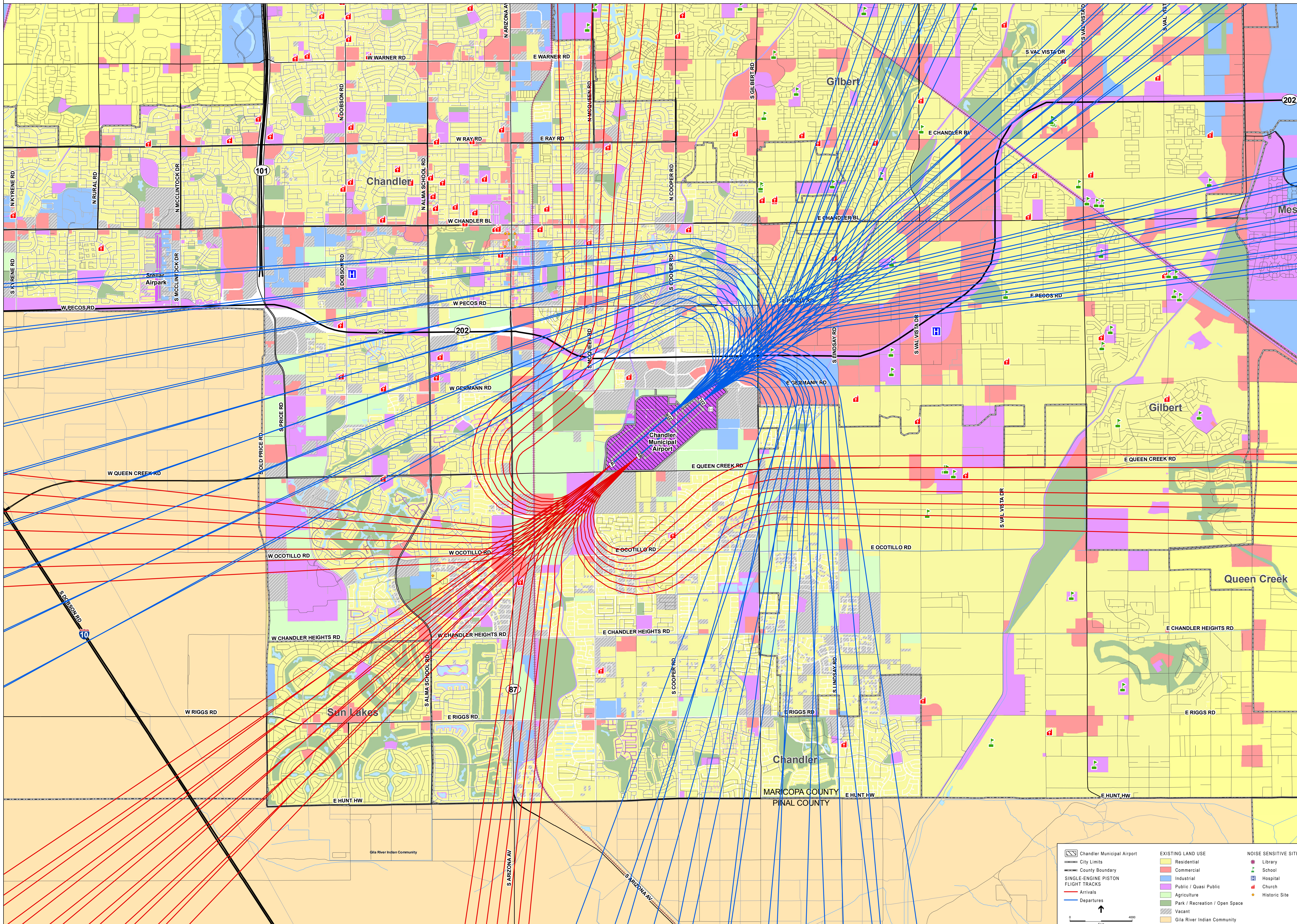
SOURCE: Town of Gilbert, 2006; City of Chandler, 2008; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

2009 Multi-Engine Piston and Turboprop Arrivals and Departures – West Flow



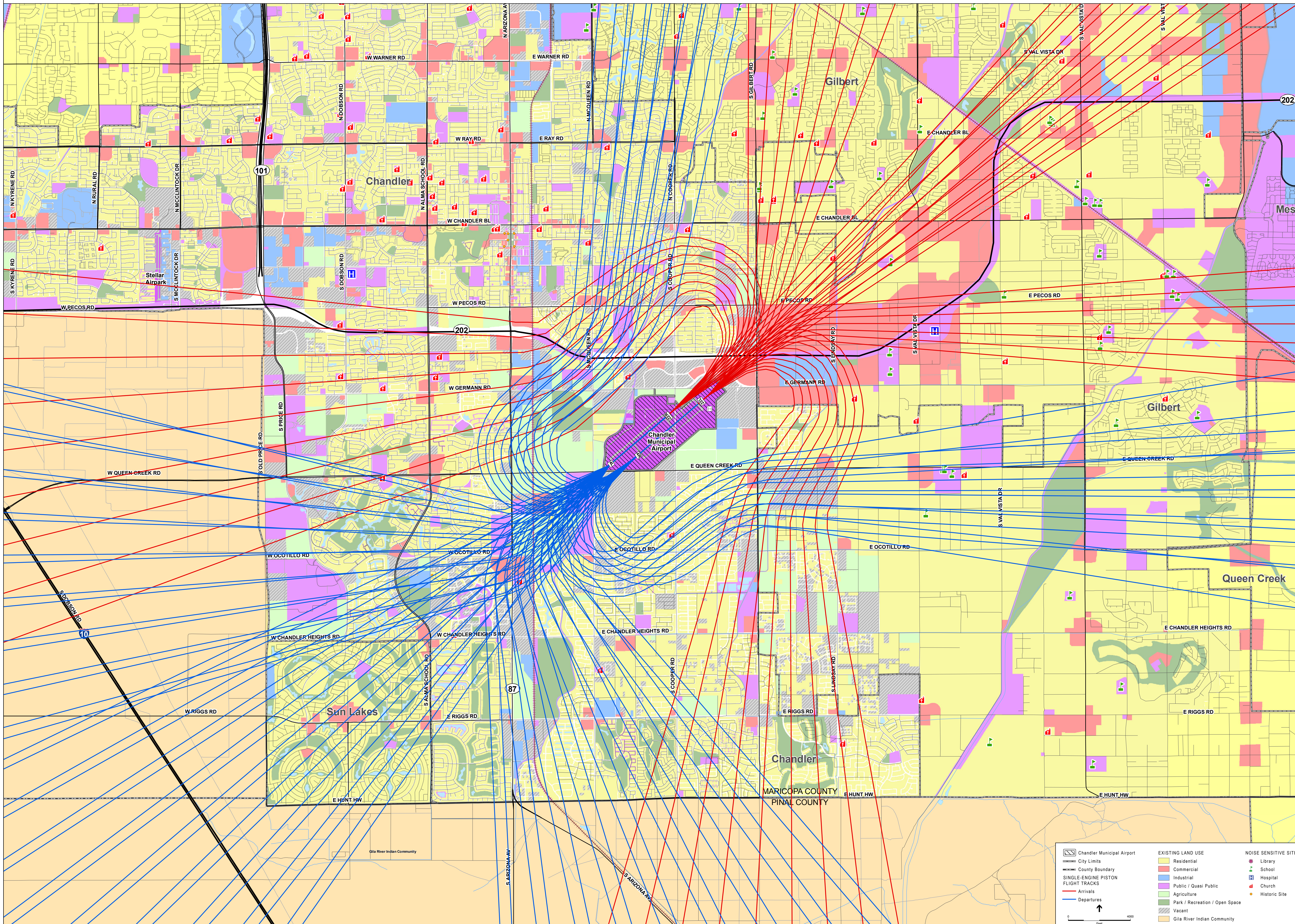
SOURCE: Town of Gilbert, 2006; City of Chandler, 2008; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

2009 Single-Engine Piston Arrivals and Departures – East Flow



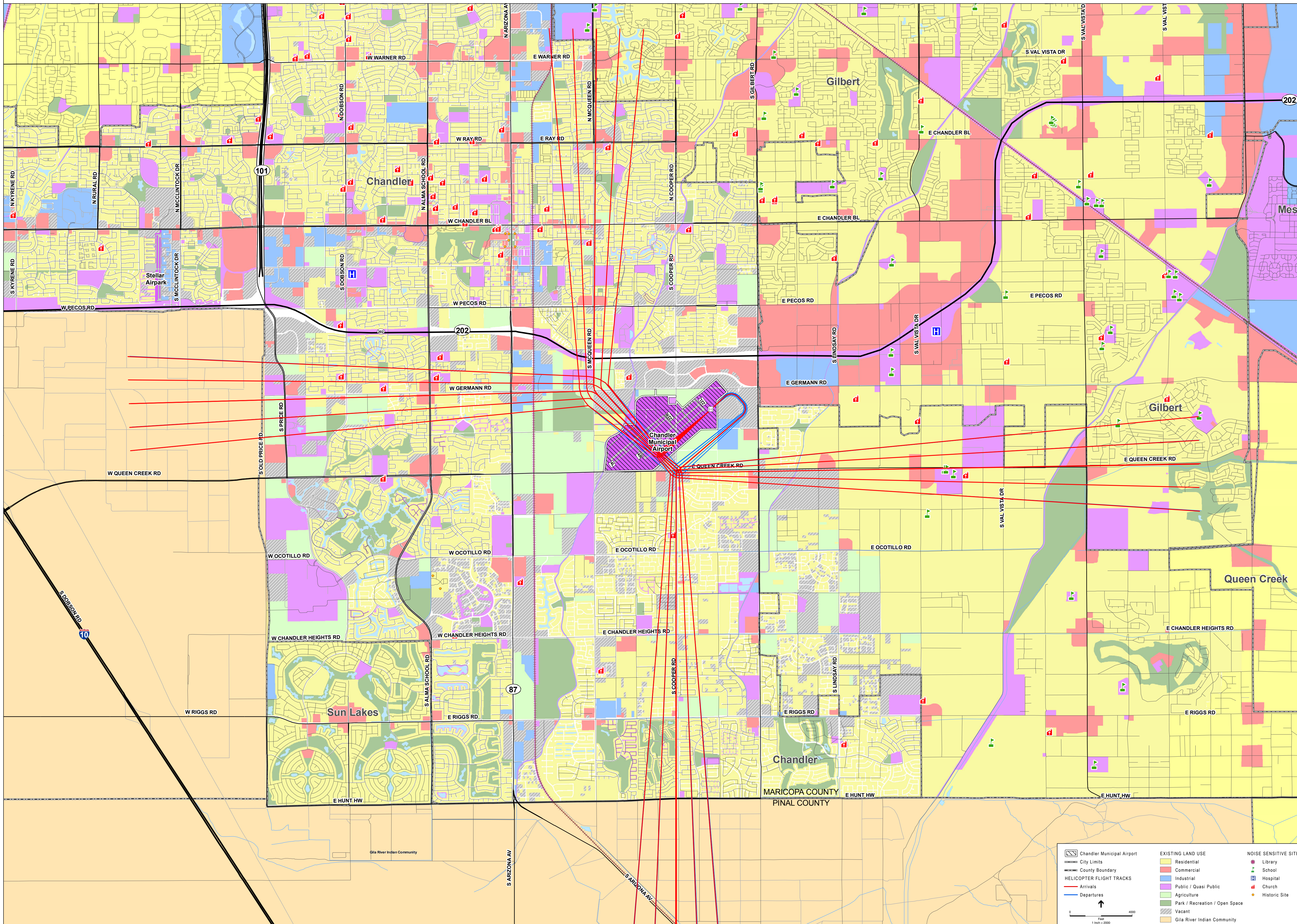
SOURCE: Town of Gilbert, 2006; City of Chandler, 2008; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

2009 Single-Engine Piston Arrivals and Departures – West Flow



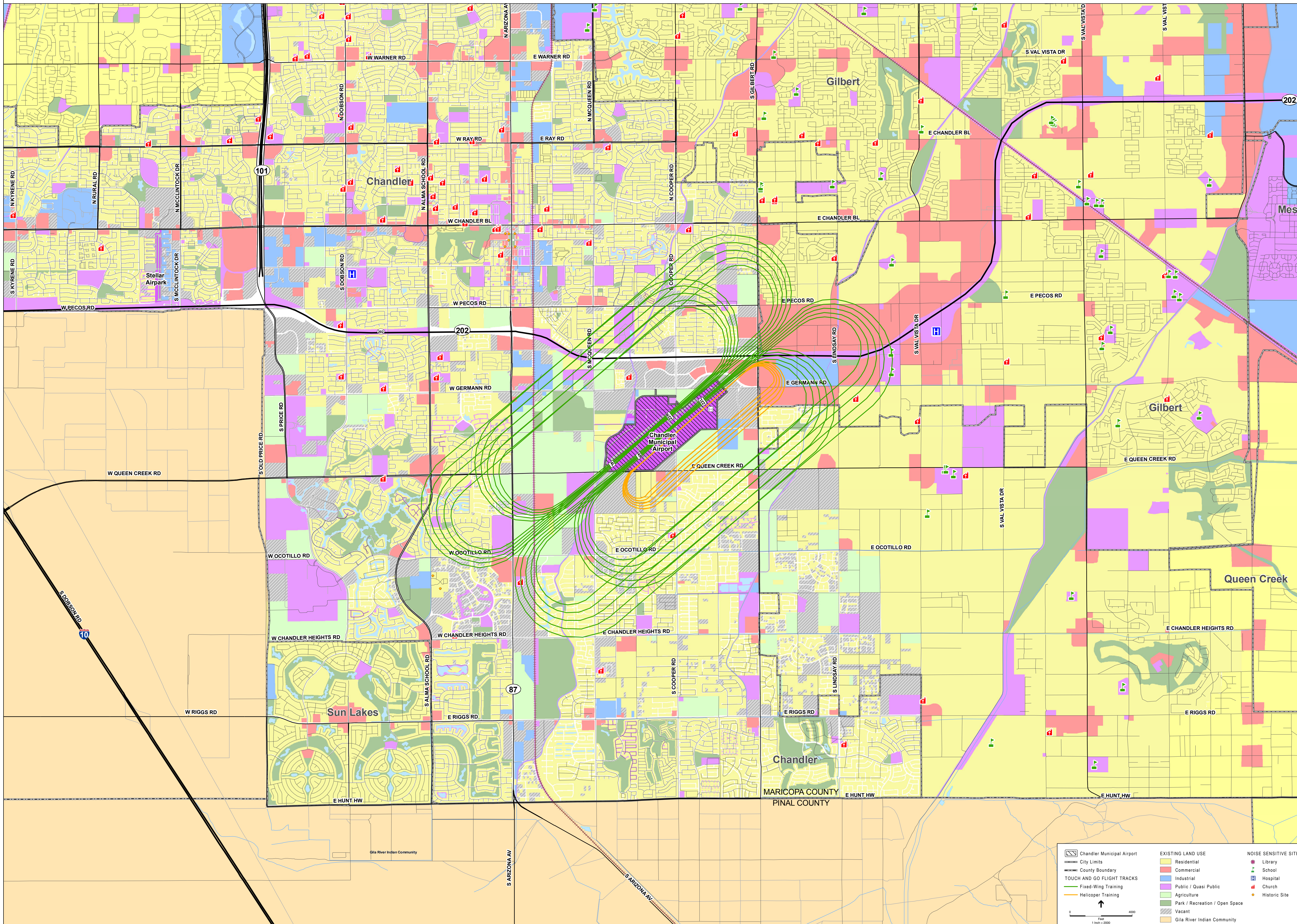
SOURCE: Town of Gilbert, 2006; City of Chandler, 2008; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

2009 Helicopter Arrivals and Departures



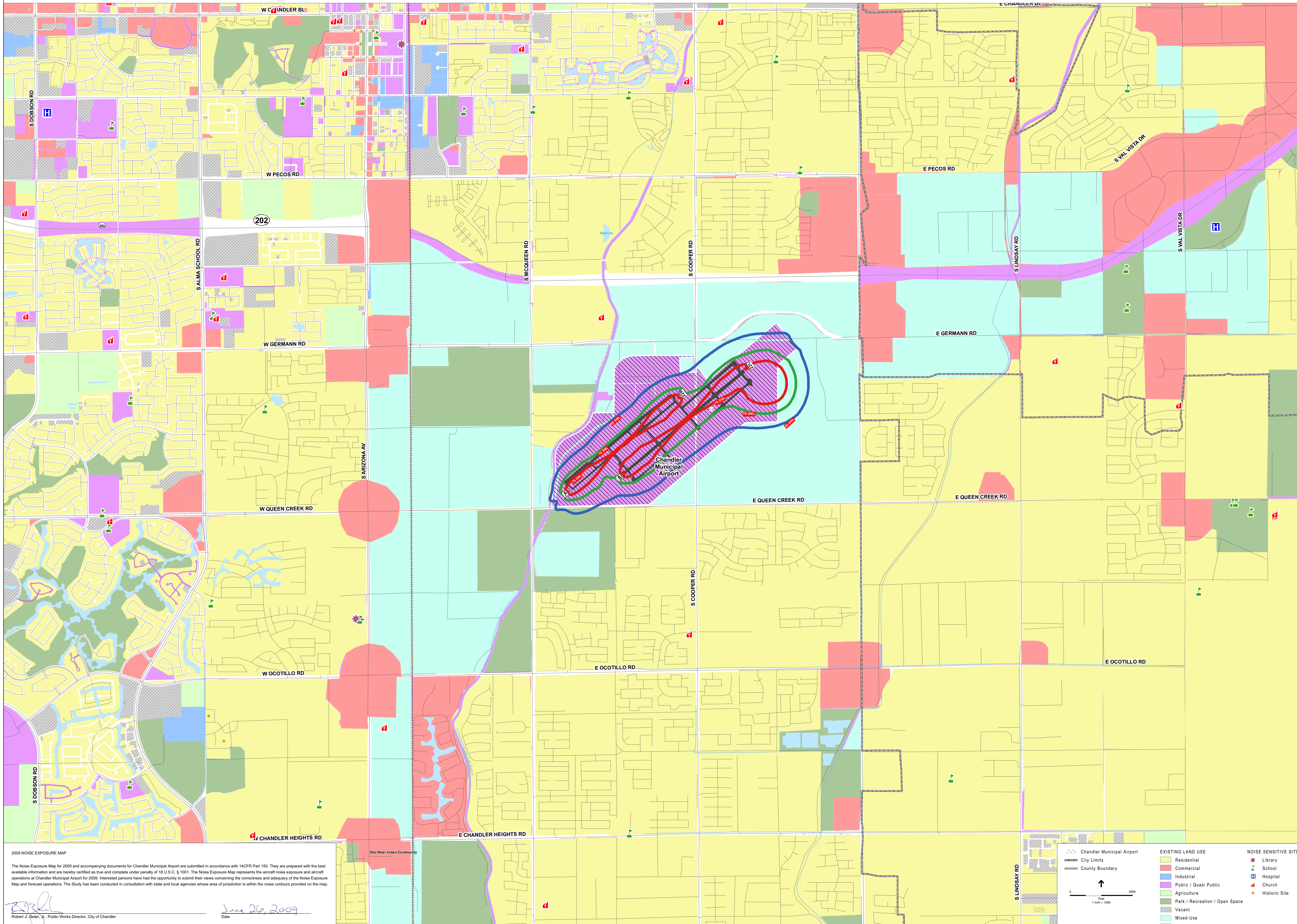
SOURCE: Town of Gilbert, 2006; City of Chandler, 2008; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

2009 Touch-N-Go Operations



SOURCE: Town of Gilbert, 2006; City of Chandler, 2008; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

2014 Noise Exposure Map



2009 NOISE EXPOSURE MAP

The Noise Exposure Map for 2009 and accompanying documents for Chandler Municipal Airport are submitted in accordance with 14CFR Part 150. They are prepared with the best available information and are hereby certified as true and complete under penalty of 18 U.S.C. § 1001. The Noise Exposure Map represents the aircraft noise exposure and aircraft operations at Chandler Municipal Airport for 2009. Interested persons have had the opportunity to submit their views concerning the correctness and adequacy of the Noise Exposure Map and forecast operations. The Study has been conducted in consultation with state and local agencies whose area of jurisdiction is within the noise contours provided on the map.

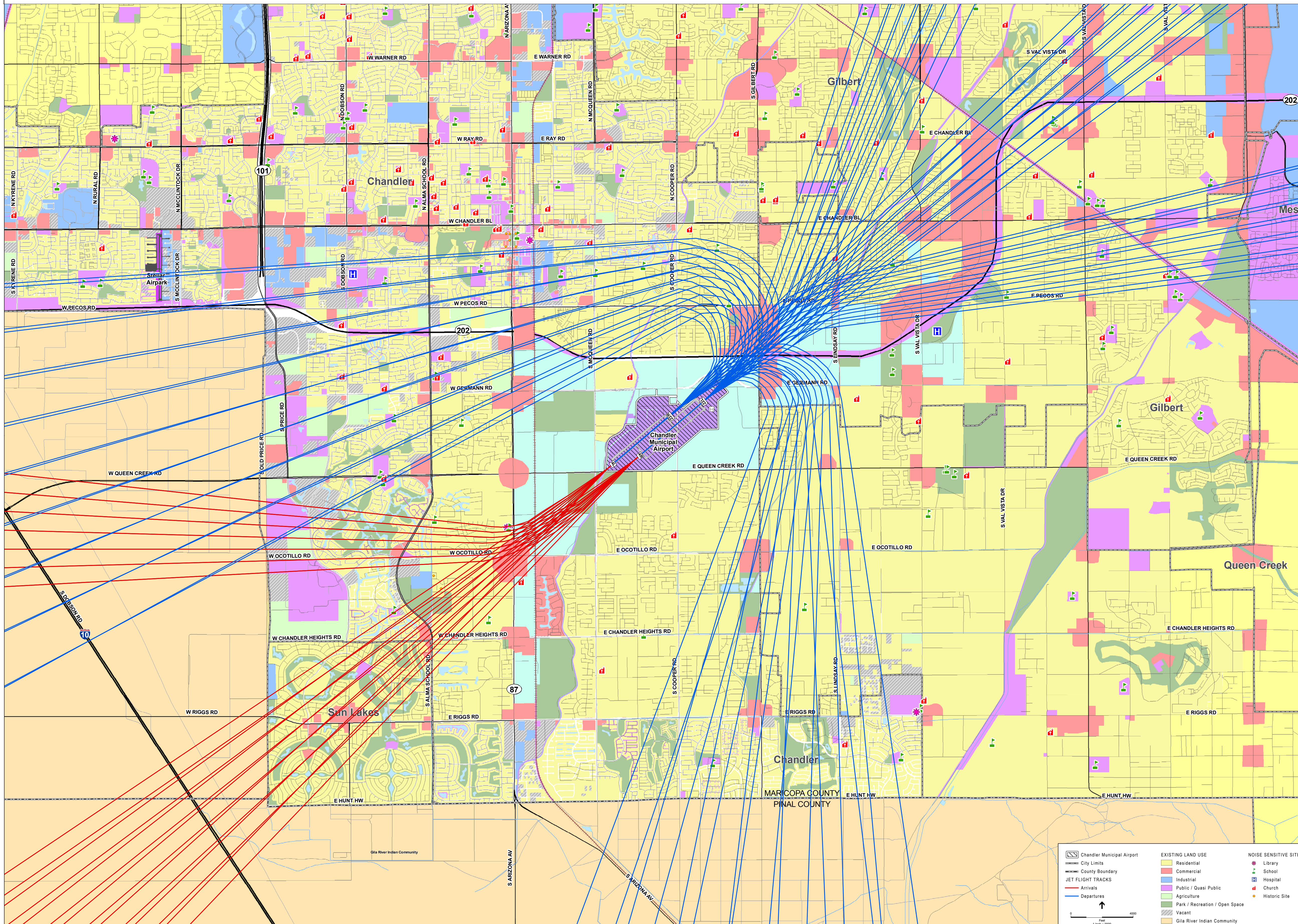
Robert J. Zeder, Jr., Public Works Director, City of Chandler

June 26, 2009

Date

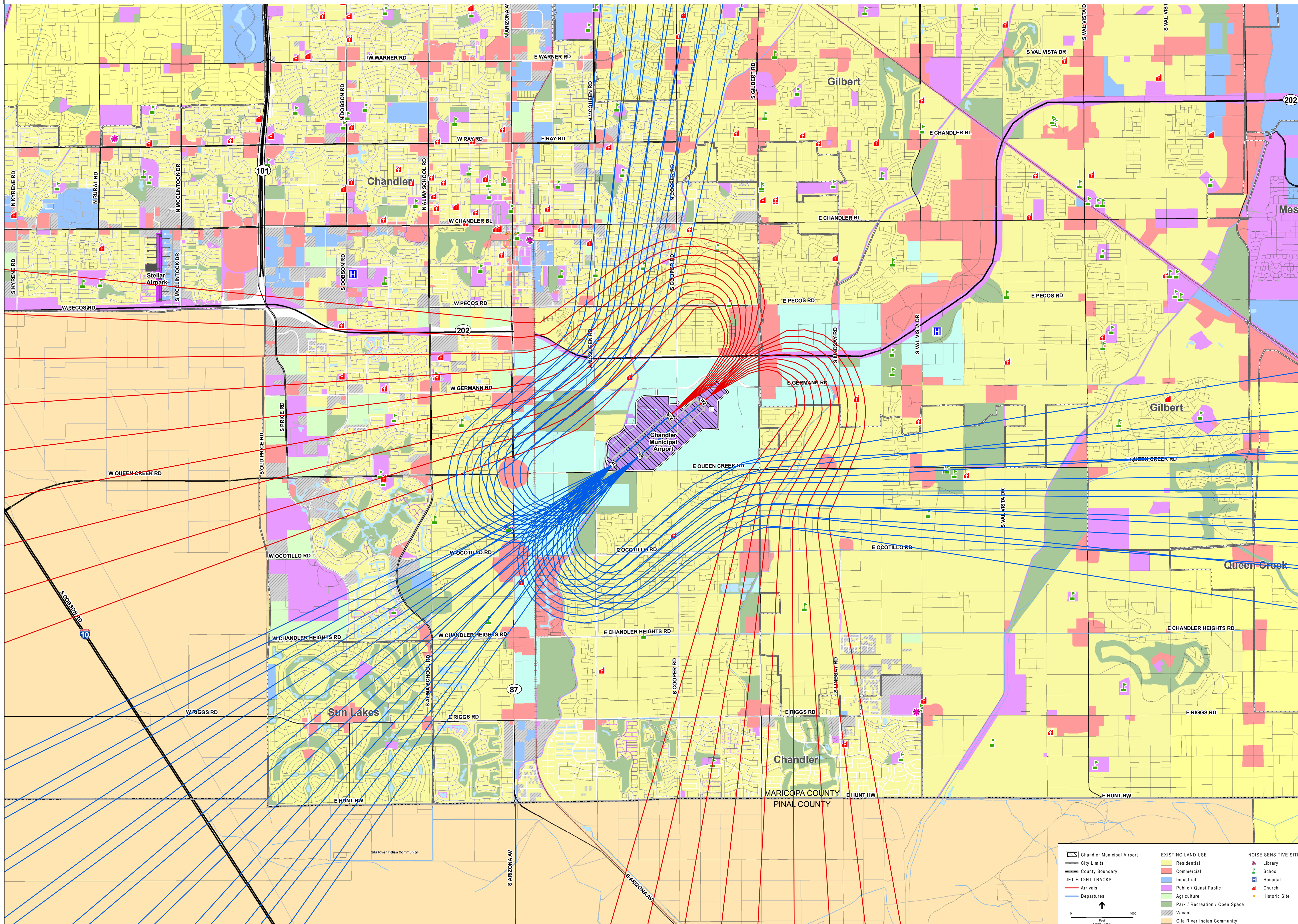
SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

2014 Jet Arrivals and Departures – East Flow



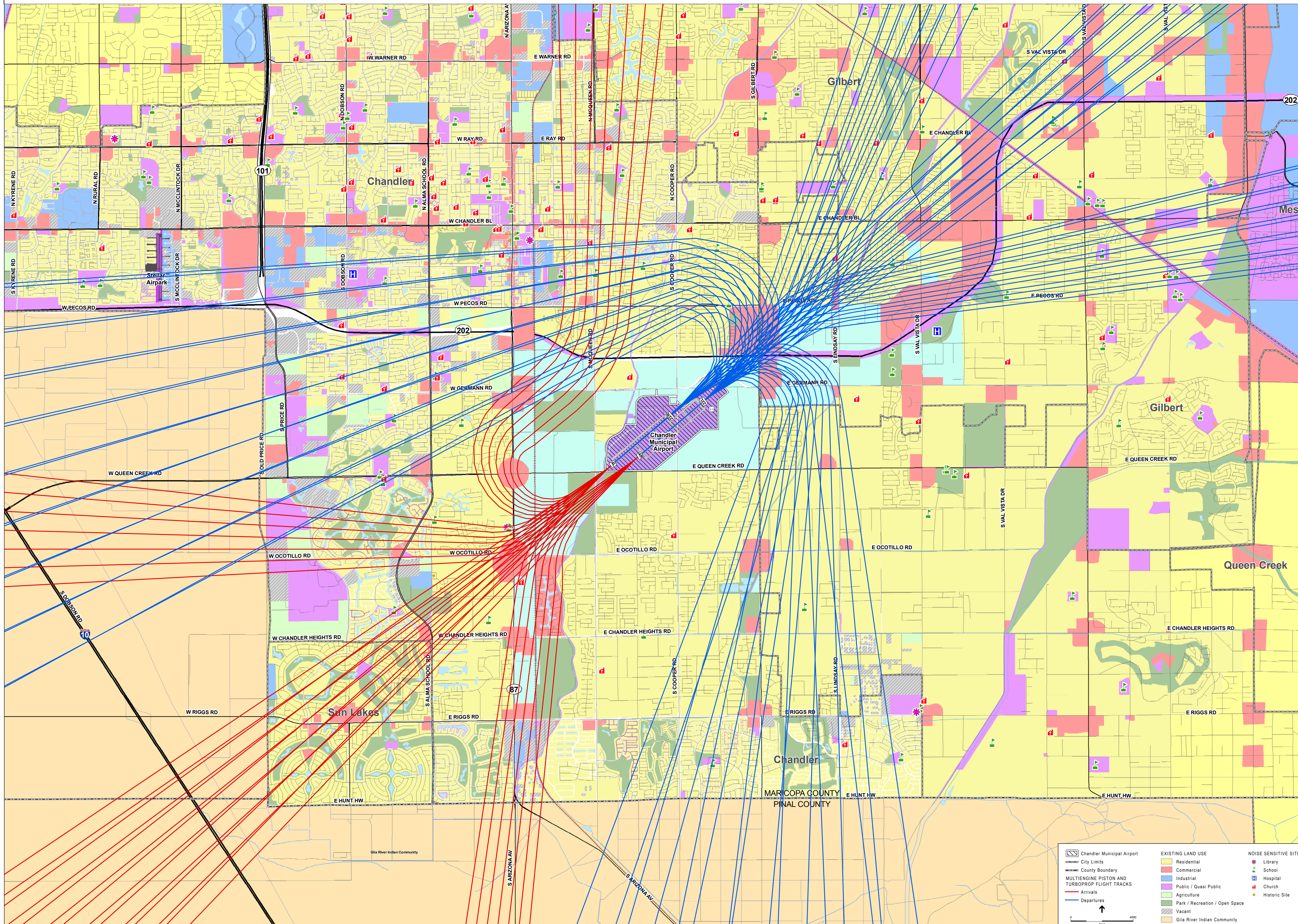
SOURCE: Town of Gilbert, 2006; City of Chandler, 2008; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

2014 Jet Arrivals and Departures – West Flow



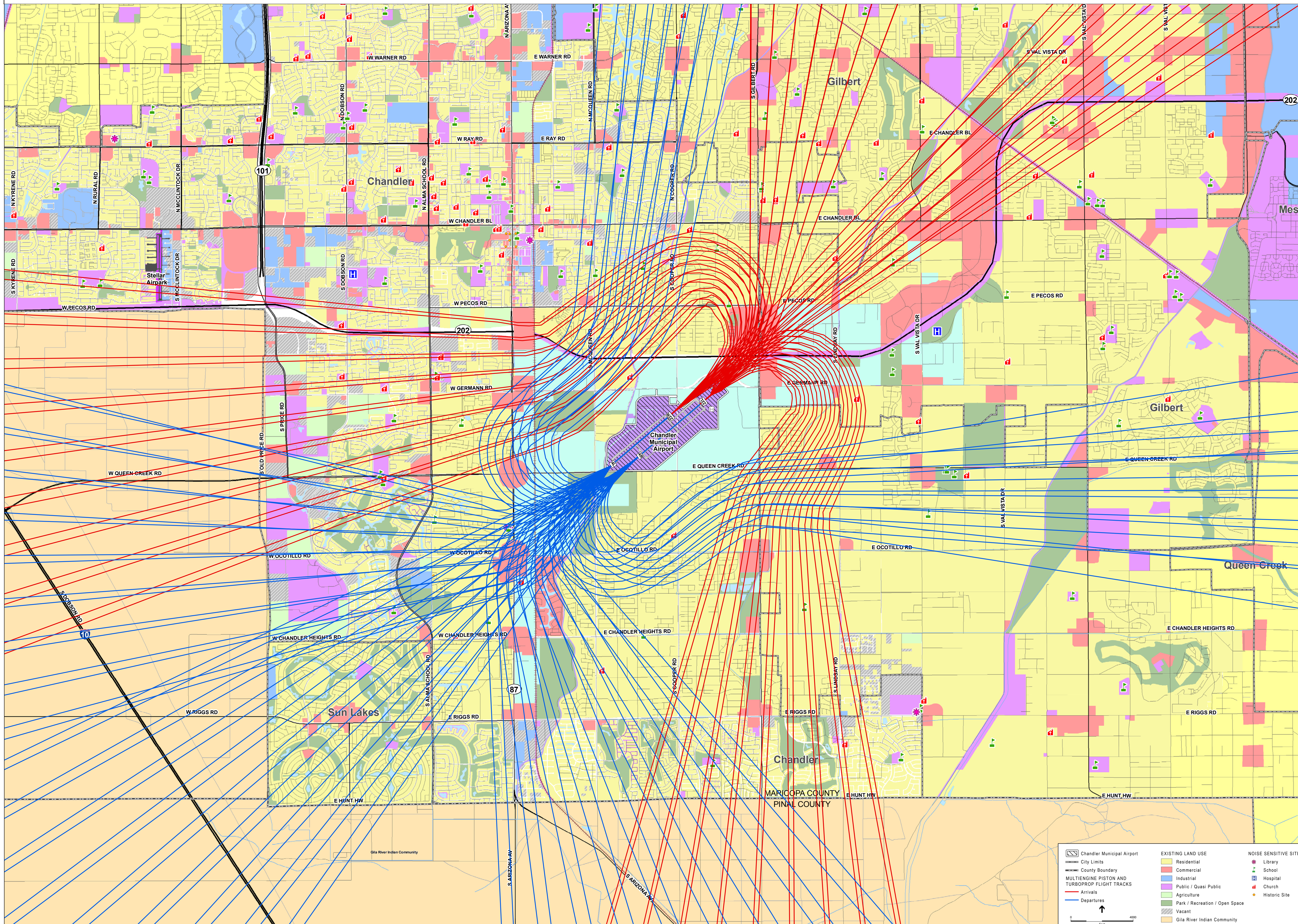
SOURCE: Town of Gilbert, 2006; City of Chandler, 2008; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

2014 Multi-Engine Piston and Turboprop Arrivals and Departures – East Flow



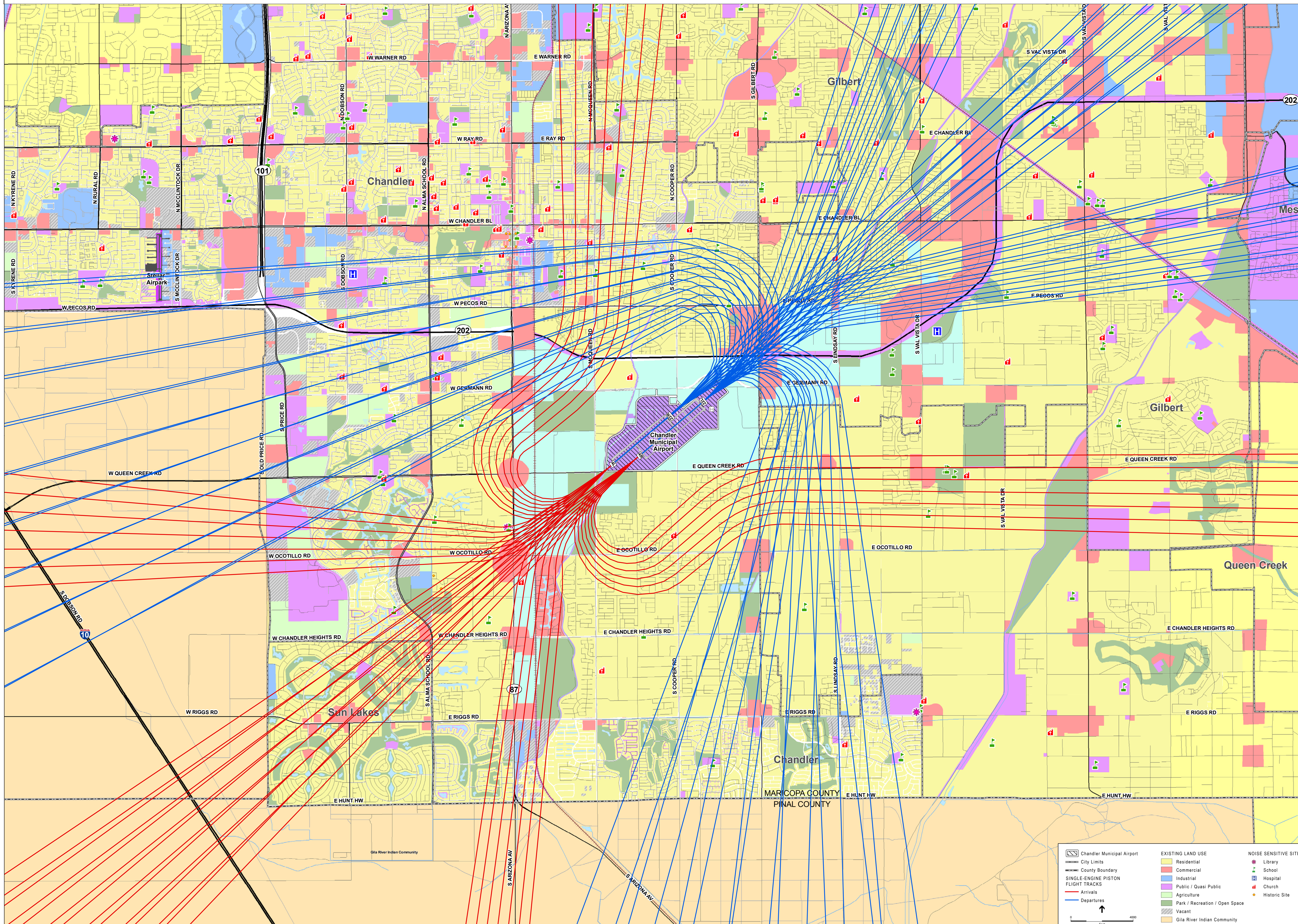
SOURCE: Town of Gilbert, 2006; City of Chandler, 2008; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

2014 Multi-Engine Piston and Turboprop Arrivals and Departures – West Flow



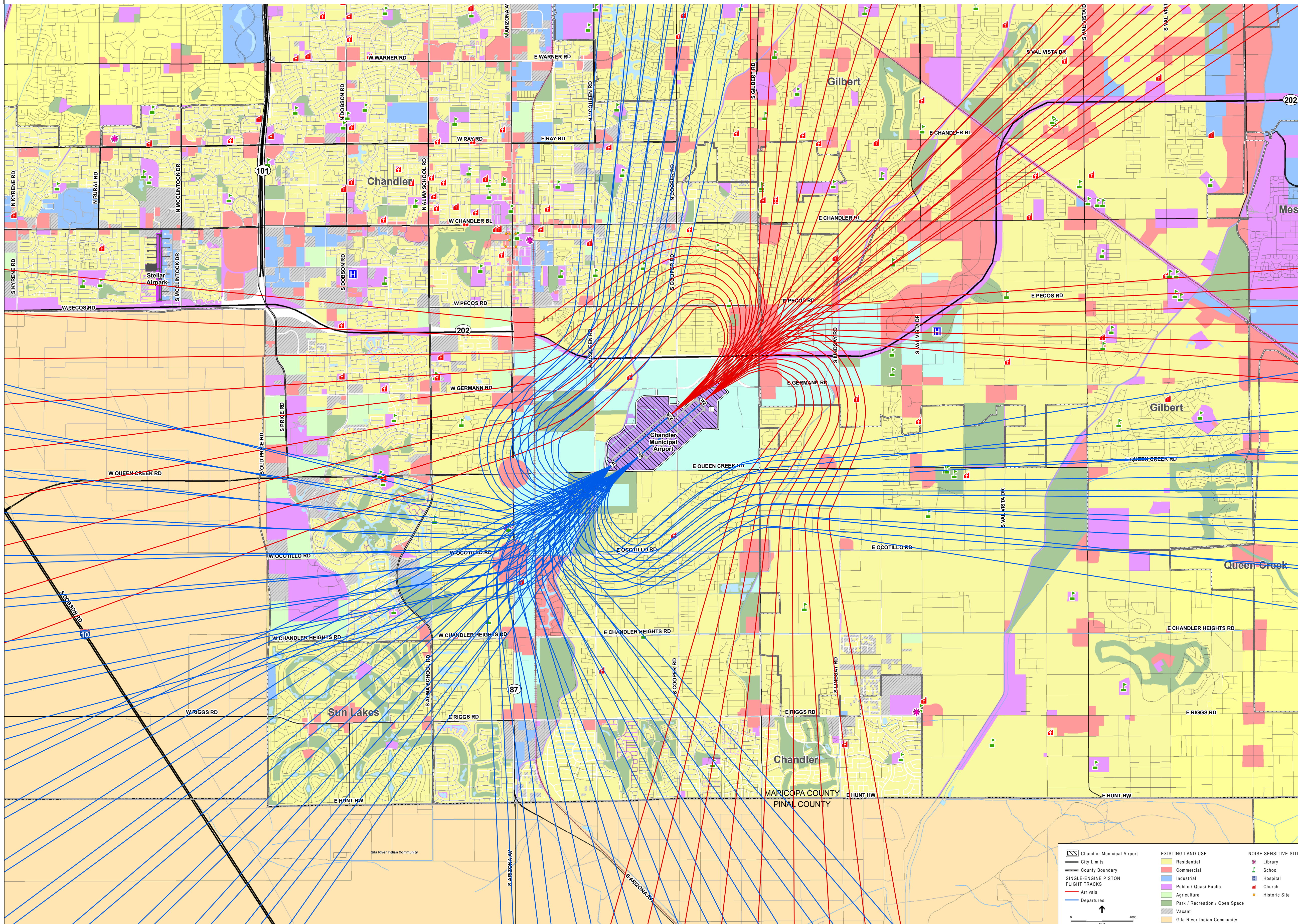
SOURCE: Town of Gilbert, 2006; City of Chandler, 2008; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

2014 Single Engine Piston and Turboprop Arrivals and Departures – East Flow



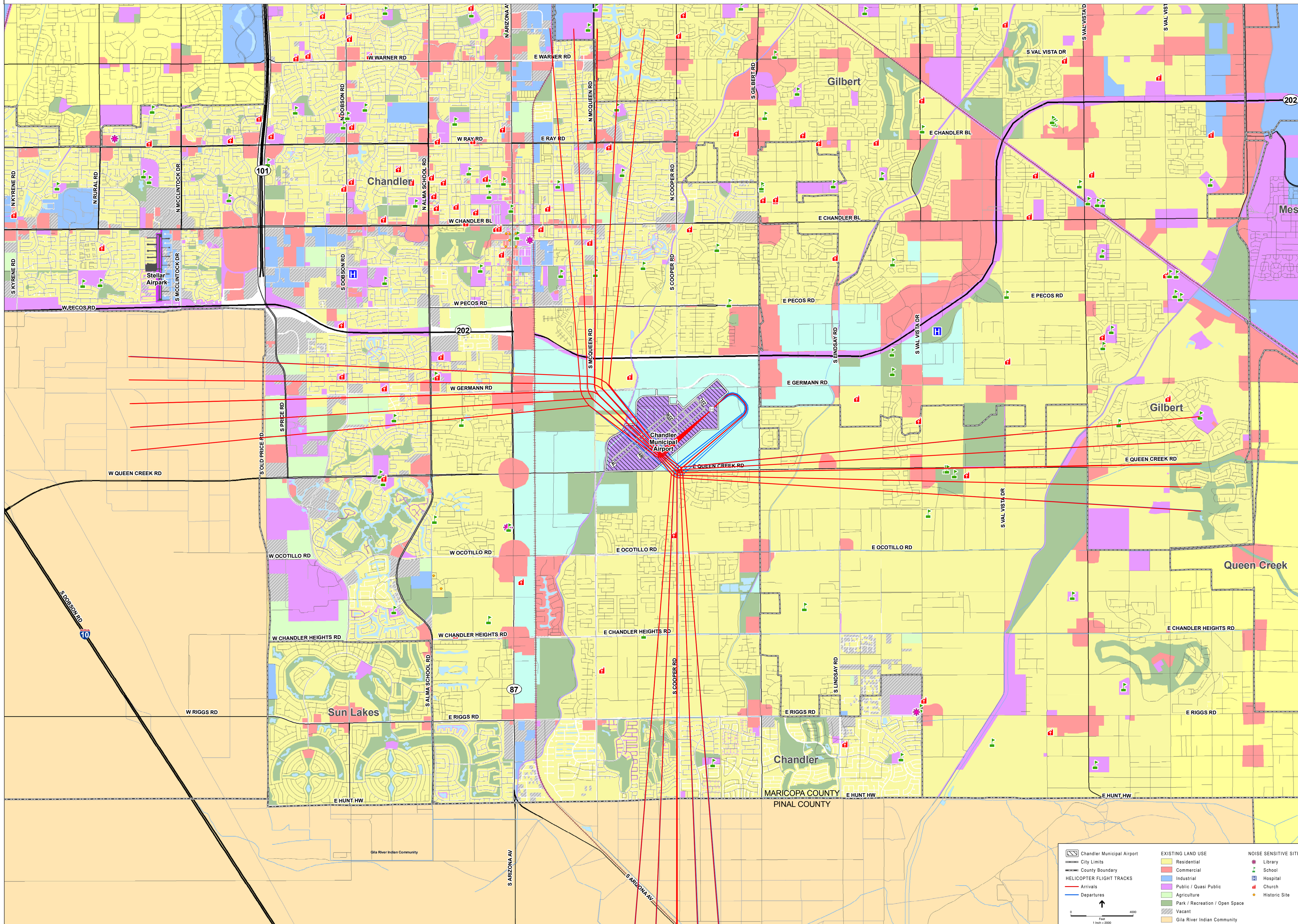
SOURCE: Town of Gilbert, 2006; City of Chandler, 2008; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

2014 Single-Engine Piston and Turboprop Arrivals and Departures – West Flow



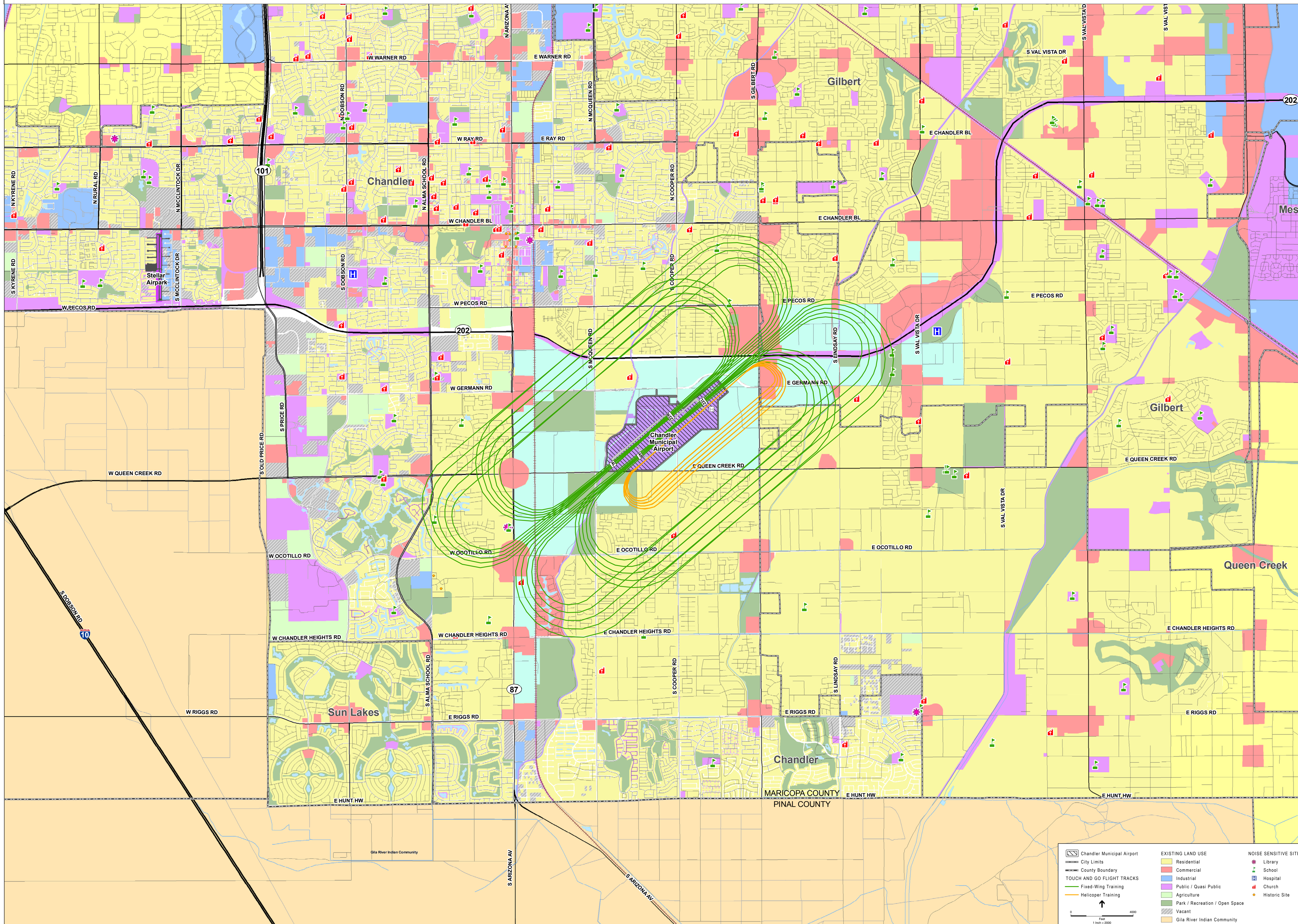
SOURCE: Town of Gilbert, 2006; City of Chandler, 2008; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

2014 Helicopter Arrivals and Departures – West Flow



SOURCE: Town of Gilbert, 2006; City of Chandler, 2008; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2009; ESRI, 2008; and ESA, 2009

2014 Touch-N-Go Operations



SOURCE: Town of Gilbert, 2006; City of Chandler, 2008; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

APPENDIX D: OPERATIONS VERIFICATION

APPENDIX D
OPERATIONS VERIFICATION

2009 Operations

The 2008 operations (268,185) for CHD were based on the 2007 FAA Terminal Area Forecast (TAF). Following the completion of the 2008 DNL contours, the 2008 FAA TAF was released which indicated there were 240,900 operations for CHD in 2008. This represents a 10 percent decrease in modeled operations.

Because the NEMS will be submitted in 2009, a comparison of the previous 12 months of operating data to what was modeled was conducted. The previous 12 months of operations data (May 2008 – April 2009) shows totals operations of 226,273. This represents a 16 percent decrease in modeled operations.

2014 Operations

The 2013 operations (309,403) for CHD were based on the 2007 FAA TAF. Following the completion of the 2013 contours, the 2008 FAA TAF was released which predicted that there would be 280,067 in 2013. This represents a 9 percent decrease in modeled operations.

Because the NEMS will be submitted in 2009, the future year contour will be 2014. The 2008 FAA TAF predicts 286,361 total operations for CHD in 2014. This represents a decrease in operations from what was modeled by 7%.

Conclusion

For 2009, the operations comparison reveals a decrease in 16% from the previous twelve months of data when compared to what was modeled. The 16% is slightly greater than the 15% change suggested by the FAA. However, since the change is a decrease, the 2009 NEM contour as modeled represents a conservative approach from a noise standpoint. Since, the 1% difference from 15% will not cause a noticeable change in the 2009 DNL contour and the contours are considered to be conservative, they are considered representative of the 2009 noise exposure conditions at CHD.

The 2014 NEM represents an increase of 7% in operations from the 2008 TAF prediction for 2014. This margin is well within the 15% suggested by the FAA to be considered as representative. Therefore, the 2014 DNL contours are considered representative of the future noise exposure at CHD.

ATADS : Tower Operations : Standard Report

From 05/2008 To 04/2009 | Facility=CHD

		IFR Itinerant					VFR Itinerant					Local				
Facility	Date	Air Carrier	Air Taxi	General Aviation	Military	Total	Air Carrier	Air Taxi	General Aviation	Military	Total	Civil	Military	Total	Airport Operations	Tower Operations
CHD	05/2008	0	13	202	0	215	0	322	6,169	32	6,523	13,698	0	13,698	20,436	20,436
CHD	06/2008	0	8	157	0	165	0	268	5,646	37	5,951	12,744	0	12,744	18,860	18,860
CHD	07/2008	0	1	138	0	139	0	193	5,175	3	5,371	12,488	0	12,488	17,998	18,577
CHD	08/2008	0	1	156	2	159	0	208	5,200	1	5,409	12,482	0	12,482	18,050	18,675
CHD	09/2008	0	3	163	0	166	0	186	5,673	2	5,861	12,619	0	12,619	18,646	19,242
CHD	10/2008	0	7	160	0	167	0	208	6,224	4	6,436	12,770	0	12,770	19,373	20,250
CHD	11/2008	0	1	124	0	125	0	174	5,652	3	5,829	12,621	2	12,623	18,577	19,321
CHD	12/2008	0	1	156	3	160	0	151	5,655	0	5,806	10,853	0	10,853	16,819	17,456
CHD	01/2009	0	3	152	0	155	0	165	5,979	1	6,145	13,093	0	13,093	19,393	20,090
CHD	02/2009	0	6	148	0	154	0	161	5,227	2	5,390	11,171	3	11,174	16,718	17,416
CHD	03/2009	0	1	136	3	140	0	178	5,877	2	6,057	11,422	2	11,424	17,621	18,219
CHD	04/2009	0	3	127	0	130	0	172	5,910	4	6,086	10,963	0	10,963	17,179	17,731
Sub-Total for CHD		0	48	1,819	8	1,875	0	2,386	68,387	91	70,864	146,924	7	146,931	219,670	226,273
Total:		**0**	**48**	**1,819**	**8**	**1,875**	**0**	**2,386**	**68,387**	**91**	**70,864**	**146,924**	**7**	**146,931**	**219,670**	**226,273**

Report created on Wed Jun 17 16:21:49 EDT 2009
Sources: Air Traffic Activity System (ATADS)

APO TERMINAL AREA FORECAST DETAIL REPORT
Forecast Issued December 2008

CHD

	Enplanements			AIRCRAFT OPERATIONS: Itinerant Operations					Local Operations					
Fiscal Year	Air Carrier	Commuter	Total	Air Carrier	Air Taxi & Commuter	GA	Military	Total	Civil	Military	Total	Total Ops	Total Tracon Ops	Based Aircraft

REGION:AWP **STATE:**AZ **LOCID:**CHD
CITY:CHANDLER **AIRPORT:**CHANDLER MUNI

Fiscal Year	Air Carrier	Commuter	Total	Air Carrier	Air Taxi & Commuter	GA	Military	Total	Civil	Military	Total	Total Ops	Total Tracon Ops	Based Aircraft
2006	1,302	0	1,302	13	3,294	76,716	166	80,189	187,858	46	187,904	268,093	-	449
2007	0	0	0	0	4,101	84,127	569	88,797	171,796	43	171,839	260,636	-	449
2008*	0	0	0	0	3,341	80,507	448	84,296	169,967	13	169,980	254,276	-	461
2009*	0	0	0	0	3,341	79,299	448	83,088	174,719	13	174,732	257,820	-	476
2010*	0	0	0	0	3,341	78,705	448	82,494	179,607	13	179,620	262,114	-	486
2011*	0	0	0	0	3,341	79,516	448	83,305	184,630	13	184,643	267,948	-	500
2012*	0	0	0	0	3,341	80,335	448	84,124	189,793	13	189,806	273,930	-	513
2013*	0	0	0	0	3,341	81,163	448	84,952	195,102	13	195,115	280,067	-	528
2014*	0	0	0	0	3,341	82,000	448	85,789	200,559	13	200,572	286,361	-	539
2015*	0	0	0	0	3,341	83,463	448	87,252	206,168	13	206,181	293,433	-	554
2016*	0	0	0	0	3,341	84,953	448	88,742	211,935	13	211,948	300,690	-	568
2017*	0	0	0	0	3,341	86,469	448	90,258	217,863	13	217,876	308,134	-	584
2018*	0	0	0	0	3,341	88,011	448	91,800	223,957	13	223,970	315,770	-	597
2019*	0	0	0	0	3,341	89,582	448	93,371	230,220	13	230,233	323,604	-	615
2020*	0	0	0	0	3,341	91,180	448	94,969	236,658	13	236,671	331,640	-	629
2021*	0	0	0	0	3,341	92,808	448	96,597	243,278	13	243,291	339,888	-	643
2022*	0	0	0	0	3,341	94,464	448	98,253	250,083	13	250,096	348,349	-	661
2023*	0	0	0	0	3,341	96,150	448	99,939	257,079	13	257,092	357,031	-	679
2024*	0	0	0	0	3,341	97,866	448	101,655	264,269	13	264,282	365,937	-	695
2025*	0	0	0	0	3,341	99,613	448	103,402	271,660	13	271,673	375,075	-	711

APPENDIX E: ADVISORY COMMITTEE MEMBERS

CHANDLER MUNICIPAL AIRPORT
F.A.R. Part 150 Noise Compatibility Study
Advisory Committee

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F.A.R. Part 150 Noise Compatibility Study
Advisory Committee

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CHANDLER MUNICIPAL AIRPORT
F.A.R. Part 150 Noise Compatibility Study
Advisory Committee

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APPENDIX F: MEETING SUMMARIES

Chandler Municipal Airport
FAR Part 150 Noise Compatibility Study
Advisory Committee
Meeting #1 – June 18, 2008

Chandler • Arizona
Where Values Make The Difference

Consultant Staff
Pam Keidel-Adams, Wilbur Smith Associates
Steven Alverson, ESA Airports
Ron Seymour, ESA Airports

The meeting was initiated at 6:00 p.m. in the Airport Conference Room. After brief introductory remarks by Greg Chenoweth, Airport Manager, Pam Keidel-Adams, the consultant from Wilbur Smith Associates, started the meeting asking each participant to introduce themselves. Following these introductions, a presentation was given to provide data on the Consultant Team conducting the study, the FAR Part 150 Noise Compatibility Study process, the framework of Advisory Committee, a summary of Noise Measurement Task, and a discussion of Upcoming Phases of the Study. At the conclusion of the presentation, the meeting was opened for public input.

The Consultant Team's experience with FAR Part 150 studies, including specific helicopter experience was described.

An overview of the FAR Part 150 purpose and process was described. A description of what a FAR Part 150 study is and is not was presented, including where funding for the study is generated. It was noted that this is an update to a previous FAR Part 150 study conducted by the City and that the entire FAR Part 150 process is a voluntary one that the City chooses to undertake.

A 12-month schedule is anticipated for the FAR Part 150 study, however, at the conclusion of the 12 months the FAA has 6 additional months to review and approve the study's recommendations. The FAA has the authority to "line item" review and approve each of the recommended mitigation measures.

The Advisory Committee (AC) for the FAR Part 150 Study was developed to comprise a wide range of perspectives to provide input into the study. It was noted that as AC members, individuals are asked to provide objective evaluation and input to the study process as they review study documentation and assist in the development of the study's recommendations. The AC will meet 5 times during the study. In addition, four public workshops and a public hearing will be conducted during the study. The first public workshop is planned for early August, with the next AC meeting following the workshop.

Discussion of the Noise Measurement Task focused on how the measurements were conducted. As discussed, this task is not mandated by FAR Part 150 and cannot be used in the actual computerized noise modeling that is required by the FAA. The noise measurement results will be used for comparative purposes but represent single events as opposed to an annual average of day/night sound levels. Eight locations were used for measurement purposes, with four sites having 3-day, 24-hour monitoring, and four sites with intermittent measurements over the three days.

The next steps in the FAR Part 150 Study include launching the project website, reviewing existing and future noise as part of the Noise Exposure Map. It is anticipated that this information will be the focus of the Public Information Workshop and second AC meeting.

Questions received during the meeting focused on how the noise measurements were conducted and how the results will be used. The AC members related their interest in the subsequent FAR Part 150 process, especially development of the Noise Compatibility Plan.

Chandler Municipal Airport

FAR Part 150 Noise Compatibility Study

Attendance Record

DATE: 18 JUNE 2008 TIME: 6:00 PM PLACE: CHANDLER AIRPORT

(PLEASE PRINT)

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Chandler Municipal Airport
FAR Part 150 Noise Compatibility Study
Advisory Committee
Meeting #2 – August 13, 2008
AMENDED ON September 19, 2008

Consultant Staff
Pam Keidel-Adams, Wilbur Smith Associates
Steven Alverson, ESA Airports
Ron Seymour, ESA Airports
Dave Olney, Olney & Associates

The second Advisory Committee meeting was initiated at 3:00 p.m. in the Tumbleweed Recreation Center in Chandler. After brief introductory remarks by Dave Olney, consultant and facilitator for the City of Chandler, Pam Keidel-Adams, the consultant from Wilbur Smith Associates, started the meeting asking each participant to introduce themselves. Following these introductions, a presentation was given to provide an introduction to aircraft noise modeling, a review of the noise model inputs, and a discussion of upcoming phases of the Study. At the conclusion of the presentation, the meeting was opened for additional input.

An overview of the FAR Part 150 purpose and process specific to the noise modeling was described. A description of the Integrated Noise Model (INM), focusing on the current version 7.0 was provided. The background of the INM and its development was discussed. This includes the number of aircraft in the model, how the model works, and the inputs required for the modeling process. Specific concepts regarding noise modeling were explained.

All of the inputs for the Chandler Municipal Airport noise modeling were detailed in the presentation. These include airport elevation, annual-average day temperature, annual-average relative humidity, annual-average barometric pressure, and runway locations, lengths and displaced thresholds. Following these items, a breakdown of activity inputs was provided. INM requires an average annual day's operations be used with specific detail on aircraft types, whether the operations were day or night, whether they are local or itinerant, and the number of arrivals or departures. Aircraft were classified into larger categories of turbofan, multiengine turboprop, single engine, helicopter, and military. Within each of these categories, specific aircraft were identified. Runway usage was also an important input into the model. PAC members noted changes to runway separation noted in text as well as airport elevation in the presentation.

Discussion of the noise monitoring process, locations, and how the data will be used was provided by the consultant. It was noted that the data from noise monitoring cannot be used for noise modeling purposes but does provide data for comparison to the model's results. PAC members noted that additional noise modeling, both in terms of days and locations, should be considered.

Significant details on the flight tracks utilized at the airport under different flows (northeast or southwest) by different types of aircraft and under different conditions were discussed. Questions were raised by PAC members regarding flight tracks and their accuracy based on perceptions of people on the ground. Mr. Faulk of the FAA offered to provide the consultants with additional flight track data from the FAA TRACON located at Phoenix Sky Harbor International Airport. PAC members also suggested providing a "vertical display" of some of the flight tracks for better visualization with the public and other non-technical persons, including analysis of aircraft altitudes.

The 2008 Draft Noise Contours were presented. Only inputs for 2013 and 2028 were discussed as the draft noise contours have not yet been modeled. There were several comments from the PAC regarding comparison of old contours from the previous Part 150 Study to new contours from this analysis, as well as development of a future contour without the runway extension for purposes of this study. In addition, a PAC member suggested conducting an analysis of how many residential and commercial developments have occurred after the City was aware of potential conflicts with the Airport in terms of noise issues. A suggestion was made to also examine the history of developments surrounding the airport, when they were voted on, and when they were developed.

The next steps discussed at the AC meeting included finalizing 2008 and future draft noise contours, finalizing the Noise Exposure Maps (NEM) report and submission to City of Chandler for approval/submit to FAA for acceptance, initiation of the Noise Compatibility Program (NCP), development of preliminary noise mitigation options (including operational and land use alternatives), and continued community outreach.

Questions were raised regarding other issues not specific to the FAR Part 150 Study including:

- What can the City do to change laws governing airport operations?
- Can the City modify existing leases, including closing businesses on the airport?
- How can the helicopter operators be forced to follow "rules"?
- What is the coordination process with the County Board of Supervisors in terms of land uses and noise issues? What is the County's approval and coordination process and how do they regulate land use?

The following potential action items were discussed at the meeting. For several of the items, the City will need to provide direction to the consultants due to the cost implications associated with the potential action items.

Proposed Action Item	City Decision Needed	Status of Action
Email slides in PDF to AC members	Yes	Complete
Post all items to website	No	Complete
Vertical display of flight track data and analysis of altitudes	Yes	In discussion with City
Coordinate with Curt Faulk of TRACON on flight tracks	No	Complete
Add discussion on grant assurances and ADOT land use regulations to text	No	In progress
Compare previous Part 150 contours to this study's contours	Yes	In discussion with City
Conduct additional noise monitoring locations and number of days	Yes	In discussion with City
Prepare noise contours without the runway extension	Yes	In discussion with City
Encourage AC members to attend public meetings	No	Will continue to be encouraged through notification
Email AC members public comments received through Part 150 process	Yes	In discussion with City
Review history of residential developments around airport, including approval dates and actions	Yes	In discussion with City
Provide residential disclosure statements to AC members	Yes	In discussion with City

Chandler Municipal Airport

FAR Part 150 Noise Compatibility Study

Attendance Record

AC MEETING

Chandler • Arizona
Where Values Make The Difference

DATE: 8-13-08 TIME: 3 PM PLACE: TUMBLEWEED REC CENTER

(PLEASE PRINT)

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Chandler Municipal Airport
FAR Part 150 Noise Compatibility Study
Advisory Committee
Meeting #3 – June 5, 2009

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Steven Alverson, ESA Airports
Ron Seymour, ESA Airports
Dave Olney, Olney & Associates

The third Advisory Committee meeting was initiated at 1:00 p.m. in the Tumbleweed Recreation Center in Chandler. After brief introductory remarks by Dave Olney, consultant and facilitator for the City of Chandler, Pam Keidel-Adams, the consultant from Wilbur Smith Associates, started the meeting. She discussed the results of the June 4, 2009, Public Open House held at Chandler City Council Chambers. She noted that approximately 100 public were in attendance and that comments received focused on some pilots that are thought by the public to not follow the traffic pattern altitude, operators from the Airport who indicate their long-term presence at the Airport and changes made to make the Airport as safe and efficient as possible, and that the noise issues are mostly with helicopter training activity, itinerant helicopter activity, and fixed wing training activity.

Following the review of the Public Open House results, Steve Alverson of ESA made a presentation using a PowerPoint slide show on the Part 150 Study process and schedule, draft 2009 and 2014 Noise Exposure Maps, review of additional tasks requested by the Advisory Committee at the August meeting, review of the noise measurements conducted for the Study, and potential options related to the Noise Compatibility Program. At the conclusion of the presentation, the meeting was opened for additional input.

In discussing the draft 2009 and 2014 noise contours, Steve noted that the solid lines represent the 65 and higher DNL contours that are considered by the FAA. The dashed 60 and 55 DNL contours can be used by the City for land use planning purposes. During the review of the two contours, it was identified that while activity has changed due to the economic downturn, that the 2008 estimates prepared for the Study and the actual 2008 results are anticipated to be within the +/- 15 percent increase or decrease allowance provided by the FAA to remain representative contours of the current operating environment. As the Study progresses and the full draft NEM document is completed, comparison of actual operational activity to data used to generate the noise contours will be provided to the FAA.

A draft 2028 noise contour with the runway extension and without the extension was presented, as requested during the August 2008 meeting of the AC. In addition, the request for an analysis of flight track altitudes was presented showing the various heights of a Cessna 172 and an R22 during touch and go procedures as modeled. The graphics showed that during takeoff and landing, aircraft are at lower altitudes than when the aircraft are at the traffic pattern altitude. For example, the Cessna 172 operates at approximately 900 feet above ground level (AGL) once it reaches traffic pattern altitude as compared to the R22 which operates at 500 feet AGL. Finally, a request had been made for a comparison of contours from the previous Part 150 Study to the draft contours for this Study. The contours for the current Study are generally the same length as those from the 1998 Study (2003 year contours), and they are wider for the most part than the previous contours. This is likely due to the use of more flight tracks and the higher levels of operations used to generate the current noise contours for 2009.

In terms of the noise measurements, slides were prepared to show the locations of where the 13 noise monitors were located. For each location, the single event noise level ranges as measured and as modeled using the INM were presented. For all but one site, the measured SEL were lower than the modeled SEL. It was again noted that data from the noise monitoring cannot be used to change the INM or for modeling purposes.

Finally, the presentation provided information on the upcoming various components of the Noise Compatibility Program. Discussion of various potential operational procedures (abatement), land use measures (mitigation), and administrative measures (policy) was initiated. Specific potential helicopter training activity options, itinerant helicopter operations options, and fixed wing training options were presented for discussion with the AC members in attendance.

Comments from the AC members included:

- Previous attempts have been made to comingle helicopter and fixed wing activity on both runways to see what the impact on the patterns would be. The operators at the Airport indicated they could discuss these attempts with the consultants if needed.
- A member commented that the intensity of the helicopter operations is the issue and is looking for pattern adjustments or traffic restrictions to address the intensity.
- A statement was made that the operational options presented were exactly what would have been expected given the types of operations that occur at the Airport and the noise concerns expressed by the local communities. It was noted that this member felt that there isn't anything that can be done operationally that would

be more effective and that the operators have been working on the issue since 1991. The member also noted frustration since many of the community residents who are complaining about noise signed real estate disclosure agreements indicating an understanding that they purchased a home near the airport.

- One member expressed that there is one potential option that could be modeled and that he would work with the consultant team in developing this option. No further details of the potential option were provided.
- It was expressed that the Study was putting "false hope" in people's minds related to the potential for restrictions to activity. As part of this discussion, it was noted that while the slide show and discussion together accurately portrays that these are options, if someone downloads the presentation without the benefit of the discussion, there could be confusion that these are only options being examined. This is especially true related to the "restrictions".
- Discussion that FAA requires that "restrictions" be included in the evaluation was also held. It was noted that FAA is revising Part 150 and since mandatory restrictions are not approved by the FAA as part of the recommendations, this requirement will be changed in the future but still exists as part of our Study due to timing.
- It was determined that changes would be made to the slide presentation for both the AC meeting and the Open House, as well as the boards, to clarify that the alternatives are only options being considered. These revised presentations and boards will be uploaded to the website on Monday, June 8, 2009.

Chandler Municipal Airport

FAR Part 150 Noise Compatibility Study

AC Meeting

Attendance Record

Chandler • Arizona
Where Values Make The Difference

DATE: JUNE 5, 2009 TIME: 1:30 PLACE: TUMBLEWEED REC CENTER

(PLEASE PRINT)

NAME	REPRESENTING	EMAIL ADDRESS	PHONE
Kenn Potts	ADOT Aero	KPOTTS@AZDOT.GOV	602-294-9144
Walt Fix	PHOenix-Mesa Gateway		
Dick Matthews	SELF	azbdmatt@hotmail.com	602616-7425
Stan Olivier	Airport Commission	stanoli@wbhsi.net	480-895-4880
Schuyler McCorkle	Airport Commission	csmccorkle@mac.com	480 250-3643
John Walkup	Chandler Air Services	fly@Aerobatics	480-963-6420
STACEY NICHOLS	TOWER	stacey.nichols@serco-na.com	480-917-8005
Kevin Kraayenbrink	Maricopa Co. Sheriff's Office	KRK834@aol.com	602-909-1178
Dan Cook	COC	dan.cook@chandleraz.gov	480-782-3403
DARREL DOWNING	DOWNING AVIATION	DARRELDOWNING@DOWNINGAVIATIONASSOCIATES.COM	480 570 1250
NEIL JONES	QUANTUM HELICOPTERS	neiljones@quantumhelicopters.com	480 814-8118
Lori Quan	City of Chandler	lori.quan@chandleraz.gov	480-782-3034
WALT FIX	PHX MESA GATEWAY Airport	wfix@phxmesagateway.org	480 988 7709
Jeff Kurtz	chandler planning	jeff.kurtz@chandleraz.gov	480 782 3054
DAVE OLNEY	CONSULTANT	DAVE@DAVEOLNEY.COM	480.963.4045
GREG CHENOWETH	CHANDLER AIRPORT	greg.chenoweth@chandleraz.gov	480-782-3540

Chandler Municipal Airport
FAR Part 150 Noise Compatibility Study
Advisory Committee
Meeting #4 – December 9, 2009

<u>Consultant Staff</u>
Pam Keidel-Adams, Wilbur Smith Associates
Steven Alverson, ESA Airports
Ron Seymour, ESA Airports
Dave Olney, Olney & Associates

The fourth Advisory Committee meeting was initiated at 10:30 p.m. in the Chandler Community Center. After brief introductory remarks by Dave Olney, consultant and facilitator for the City of Chandler, Pam Keidel-Adams, the consultant from Wilbur Smith Associates, started the meeting. She discussed the results of the December 8, 2009, Public Open House/Workshop held at Chandler City Council Chambers. She noted that approximately 70 public were in attendance and that comments received focused on the study's results that indicate there are no noise sensitive land uses within the 65 DNL (defined by several to mean airport is in "compliance" with FAA noise standards), that the noise complaint process could be improved, and that many were complimentary of the study's results to date. Seven written comments were received from the public during the workshop.

Prior to initiating the PowerPoint slide show, there was significant discussion of the study's review process. The following issues and questions were raised during this pre-presentation:

- Who decides what goes into the final report to FAA and how much direct input from the City goes into the final report?
- Issues are the recent home developments near airport that were approved by City even though the Airport Commission and airport operators strongly objected. City has approved residential developments near the airport but is not being held accountable. Need to do a better job of educating potential homebuyers.
- No mention of real estate disclosure documents in report.
- Current complaint process is flawed and needs to be addressed.
- City is still marketing airport but is discouraging flight operations at the same time. City has had discussions with a large flight school. If they come to Chandler, it's estimated the number of operations will quadruple.

- Chandler is general aviation airport and will always be this way but it will get busier.
- Airport operators expressed that they are ready to implement some of the recommendations now but want to ensure they receive credit for doing so. Quantum Helicopters indicated they have already implemented more stringent noise abatement procedures for past 10 years (than those proposed as part of FAR Part 150 alternatives) but is not getting credit from City or community for trying to minimize impacts. They also want to make sure the report reflects what they are already doing (some voluntary measures are already being followed by operators such as limiting helicopter operating hours).
- Another alternative was requested wherein the altitude for the arrival and departure corridors for fixed wing aircraft would stay at 2,500 feet for up to 1.5 to 2 miles from the runway end.
- A question was asked if an airspace analysis would be required for some of the operational alternatives (answer: Stacy Nichols, the ATCT Manager noted that the TRACON already approved increasing the pattern altitude).
- A question was asked if the implementation costs would be included in the report (answer: only those with a capital cost, not a cost to the operators).
- AC would like their meetings to be held before the public meetings/workshops. City noted, however, that they have been criticized for this in the past.
- Advisory Committee (AC) members would like opportunity to work with City in reviewing draft documents and providing input to final report.
- AC would like more notice for the timing of meetings and report review. Airport operators noted the notice of the meeting was too short and they didn't see the draft presentation materials until the day before the meeting. The draft presentation materials were thought by the airport operators to be very negative. AC would like 2 to 3 weeks advance notice of meetings. AC also expressed desire to have next meeting in advance of the public hearing and to review the document prior to the presentation to the public.
- The use of the word "required" in the presentation materials is an issue with the operators; they cannot be "required" to do some of the "voluntary" items. The local helicopter operator expressed their belief that the City is trying to shift attention for noise issues to the operators instead of taking responsibility for approving residential developments near the airport.
- Other Valley airports such as Falcon Field and Deer Valley have large flight schools and are experiencing neighborhood noise issues due to intensity of flight operations.
- AC members suggested defining term "itinerant" for the public.
- AC members asked about how freeway noise was accounted for in airport noise study (answer: it is not because FAA modeling does not allow for it; purpose is only to study airport noise).

- Airport operators noted they tried to comingle the helicopter and fixed wing training on the south runway (instead of helicopters using the taxiway) and it extended the pattern out up to one mile longer.

Following the review of the Public Open House results and the open discussion, Steve Alverson and Ron Seymour of ESA made a presentation using a PowerPoint slide show on the Part 150 Study process, review of alternatives analysis, and review of draft recommendations for the Noise Compatibility Program. At the conclusion of the presentation, the meeting was opened for additional input.

Each of the alternatives analyzed and the draft recommendations were reviewed. The following are the various alternatives that were analyzed as part of the study:

Helicopter training activity
- Training pattern altitude
- Pattern altitude turn points
- Training pattern location
- Alternate training patterns
- Continue training fleet use of other airports

Helicopter itinerant operations
- Arrival/departure corridor altitude
- Designated corridor and altitude for helicopters
- Keep helicopters at established altitude for corridors
- Pattern altitude turn points

Fixed wing training activity
- Training pattern altitude
- Pattern altitude turn points
- Training pattern location
- Continue training fleet use of other airports

Review pattern location
- Use Runway 4R/22L instead of Taxiway C
- Review pattern altitude
- Raise the pattern altitude
- Have helicopters climb to pattern altitude before turning

Review pattern location
- No alternative pattern location available
- Review preferred runways for fixed wing training activity

Review pattern altitude

- Raise the pattern altitude
- Have fixed wing aircraft climb to pattern altitude before turning

The following were presented as draft recommendations:

<u>Operational</u>

- Increase helicopter training pattern altitude by 100 feet to 1,900 feet Mean Sea Level
- Increase fixed wing training pattern altitude by 50 feet to 2,250 feet Mean Sea Level
- Increase altitude of arrival/departure corridors for itinerant helicopter operations by 200 feet to 2,000 feet MSL
- Voluntarily limit helicopter training activities between 8:00 p.m. and 7:30 a.m. on weekdays and 6:00 p.m. and 9:00 a.m. on weekends
- Voluntarily limit the number of helicopter operations on any runway to ten per hour
- When possible, helicopters should continue to make departures at mid-field
- When possible, aircraft/helicopters should avoid making turns over noise sensitive areas
- When possible, training helicopters should continue to remain west of Gilbert Road
- When possible, training aircraft/helicopters should exit Chandler Municipal's airspace to conduct training activity
- When conditions permit, Runway 4R/22L to be used as preferred runways for fixed wing training activity

<u>Land Use</u>

- Update City of Chandler Airport Impact Overlay zoning district, and associated Airport Noise Overlay zones, based on the 2014 55 DNL contour
- Update rural zoning in unincorporated areas near Chandler Municipal Airport to limit residential development

<u>Administrative</u>

- Develop education plan on helicopter operations that identifies arrival/departure corridors, training patterns, voluntary measures to reduce helicopter noise, and noise sensitive land uses around the Airport
- Keep management of Noise Compatibility Program with Airport Manager
- Keep existing noise complaint line
- Update Airport webpage with noise information, including information from the FAR Part 150 Study page
- Purchase a flight tracking system that includes a public access component
- Update Noise Compatibility Program as operating conditions warrant

The following comments were received from the AC members regarding the draft recommendations:

- Recommended to increase pattern altitudes immediately and not wait for study's completion. Both Chandler Air Service and Quantum Helicopters offered to implement the recommendations regarding increasing their training pattern altitudes immediately. If these actions are taken ahead of the report submission to FAA, note in report that actions taken and not put them in as "recommendations".
- Recognize that Quantum Helicopters has well-established noise abatement procedures for its pilots. These procedures should be noted in report.
- Publicize the voluntary actions by the operators to give them credit for taking all possible measures to reduce noise impacts on surrounding community.
- Recognize the public will translate "VOLUNTARY" into "MANDATORY" so, it is important to make the distinction clear in the report.
- Recommended that City involve operators in noise discussions and other discussions about the airport.
- Recommended that City implement a community outreach program to educate the public about the airport and noise. Consider modifying the real estate disclosure agreement to make it more visible and to ensure prospective home buyers actually read, understand and acknowledge the document in a meaningful way.
- Report should note that references to training activity should be specific to "touch and go's".
- Recommended that City change the word "district" to map in the first land use recommendation. Recommend City change the word "update" to "advise" in the second land use recommendation. Report should also note that there are limited areas of unincorporated county land near the airport.
- Recommended that the complaint reporting system be improved to include more mandatory fields in reporting a noise complaint. One AC member offered to "check out" complaints if notified on a time sensitive basis.

Chandler Municipal Airport

FAR Part 150 Noise Compatibility Study

Attendance Record

Chandler • Arizona
Where Values Make The Difference

DATE: DECEMBER 9, 2009 TIME: 10:30 AM PLACE: COMMUNITY CENTER

(PLEASE PRINT)

NAME	REPRESENTING	EMAIL ADDRESS	PHONE
NELSON GARRISON	PILOT/USER	AZNELSONG@GMAIL.COM	602-571-3297
DAVE OLNEY	DAVE OLNEY + ASSOC.	DOLNEY1944@AOL.COM	480-963-4041
DIRK MATHEWS	self	azbdmatt@hotmail.com	602-615-8424
WALT FIX	GATEWAY Airport	wfix@phxmesagateway.org	480 988 7709
PATRICK OAKLEY	" "	poakley@phxmesagateway.org	480-988-7637
Tim Strow	MAG	tstrow@mag.maricopa.gov	
Greg Chenoweth	Chandler Airport	greg.chenoweth@chandleraz.gov	480-782-3540
Jeff Kurtz	chandler	jeff.kurtz@chandleraz.gov	480 782 3054
Jim Timm	ARIZ PILOTS ASSOC'N	jtimm@azpa.org	
STACEY NICHOLS	CHANDLER TOWER	stacey.nichols@serco-na.com	480-917-8005
John Walkup	Chandler Air Service	fly@Aerobatics.com	480-963-6420
NEIL JONES	QUANTUM HELICOPTERS	neiljones@quantumhelicopters.com	480 814-8118
Don Carr	COC		
Jeff Farran	PILOT, TENANT	Jefff@fscweb.com	4802363489
C. Schuyler McCorkle	Airport Commissioner	csmccorkle@mac.com	480 250-3643

Chandler Municipal Airport
FAR Part 150 Noise Compatibility Study
Advisory Committee
Meeting #5 – March 9, 2010

Consultant Staff
Pam Keidel-Adams, Wilbur Smith Associates
Steven Alverson, ESA Airports
Ron Seymour, ESA Airports
Dave Olney, Olney & Associates

The fifth and final Advisory Committee meeting was initiated at 6:00 p.m. in the Chandler Municipal Airport terminal conference room. The meeting was initiated with brief introductory remarks by Pam Keidel-Adams, the consultant from Wilbur Smith Associates, and introductions of the AC members and the public in attendance. She discussed that this was the final meeting of the AC and that the input received from the meeting would be considered in the finalization of the draft Noise Compatibility Program (NCP) document that is made available to the public prior to the April 1 public hearing. She noted that much of the information in the presentation would be very similar to data presented in the last AC meeting (#4 held in December), with updates based on additional coordination with airport operators, FAA, and the City.

Ron Seymour of ESA then started through the PowerPoint slide show. The slides were organized by the following:

- Overview of NCP
- Operational recommendations
- Land use recommendations
- Administrative recommendations
- Next steps

Following the overview, each operational recommendation was noted. Discussion during the meting focused on several of the operational recommendations. First, the recommendation to "increase altitude of arrival/departure corridors for itinerant fixed wing operations by 100 feet to 2,300 feet MSL" was discussed. It was recommended that the corridor be raised to 2,500 feet MSL. There was discussion if the aircraft could reach that altitude, especially on hot days during the summer, but operators at the airport indicated this could be accomplished. The Air Traffic Control Tower representative noted that while the aircraft may be able to operate at that altitude that ATCT personnel could not regulate whether or not aircraft are at this altitude since they do not provide radar control. It was suggested that if this is recommended that an advisory be put on ATIS to this effect.

The recommendation to "request training aircraft/helicopters voluntarily limit their repetitive training activity between the hours of 8:00 p.m. and 7:00 a.m. on weekdays and 8:00 p.m. and 8:00 a.m. on weekends" was discussed. It was noted that with current demand, the existing operators are starting their activities earlier than this, especially on weekends and that the recommendation should be the same for the weekdays and the weekends. It was also noted that law enforcement officials conduct training at night and would not be able to always meet this request. It was suggested that the NCP document have additional text that explains the impact of high temperatures during the summer on aircraft activity.

For the recommendations on helicopters making turns at midfield when conditions permit, training helicopters remain on the west side of Gilbert Road when conditions permit, and using Runway 4R/22L as the preferred runway for fixed wing training when conditions permit should all be revised to "continue to" as many operators are already following these requests now as conditions permit.

Another recommendation to "request training helicopters/aircraft voluntarily exit Chandler Municipal's airspace to conduct repetitive training activities when operating conditions permit" was also highlighted during the discussion. There was concern that even though this (and several other recommendations) have the word "voluntary" that the general public will not recognize that these measures are voluntary and will be looking for enforcement. Some operators are already training at other airports when Chandler Municipal is congested and as part of overall training where students need to learn to fly at other airports but that it is not reasonable to ask existing based operators to conduct their business activities at another airport. Several of the AC members suggested that this should not be a recommendation of the study.

In terms of the recommendations regarding an education plan and informational materials, it was suggested that the materials address both airplanes and helicopters and that use of the web should be included in the distribution.

Three land use recommendations were presented. Discussion on the need to add a recommendation regarding not allowing zoning changes or amendments was significant. AC members suggested a recommendation related to adhering to the Airpark Area Plan be included as a fourth land use recommendation. For the recommendation related to Maricopa County, it was suggested that the recommendation be revised to reflect "recommend and advocate". Coordination with the City's Planning and Zoning representative was suggested in the review of this recommendation from the AC. Once the City makes a decision on this fourth recommendation, it will be emailed to the AC members for their reference.

In terms of the next steps, it was noted that the City Council date should say “tentative” as it is possible that the meeting date may need to change based on the results of the Airport Commission meeting.

The Chandler Air Service representative noted that if the City Council approves the recommendations, that his firm will implement the recommendations regarding operational measures very quickly.

Two members of the public provided input at the conclusion of the meeting. One noted that he was glad that the recommendation for the training activity to voluntarily move to another airport was being revisited and that the AC felt it should be removed. He also felt that the recommendation regarding the City purchasing a flight tracking system was not needed and should be considered relative to the impact on the budget as he is an airport tenant. He indicated that the data is currently available from the TRACON at Sky Harbor International.

Thanks from the AC members to the City for conducting the study was offered and the City also thanked the AC members for taking time to participate in the study. The City of Gilbert’s representative was specifically asked if there were any issues from the study related to Gilbert and the representative noted there were none and that they were coordinating with the airport regarding development northeast of the facility.

Chandler Municipal Airport

FAR Part 150 Noise Compatibility Study

Attendance Record

Chandler - Arizona
Where Values Make The Difference

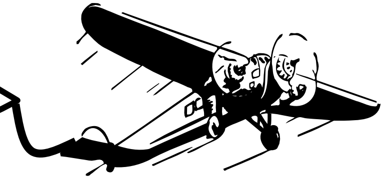
DATE: MARCH 9 2010 TIME: 6 pm PLACE: CHD Terminal

NAME	REPRESENTING	(PLEASE PRINT) EMAIL ADDRESS	PHONE
Frank [illegible]	Airport Commission	FLNAP@MSN.COM	480 883-9262
Dave [illegible]	Consultant	DOWNEY1944@AOL.COM	480 963-4045
STACEY NICHOLS	CHANDLER TOWER	STACEY.NICHOLS@SERCO-NA.COM	480-917-8005
Kyle Mieras	Town of Gilbert	Kyle.Mieras@GilbertAZ.GOV	480-503-6705
Dale Whiting	Self	dvwhiting@yahoo.com	480 219 7959
JERRY BROOKS	SELF	BROOKS[illegible]@AOL.COM	480 963 0150
Dan Cook	Chandler		480-782-3403
Lori Quan	City of Chandler EconDev	Lori.Quan@chandleraz.gov	480 782-3034
MIKE LEFEVER		roxianmike@MSN.COM	602 616 4444
[illegible]	PILOT	[illegible]@GMAIL.COM	602 571-3297
Terry Rice	PILOT	terry@circuitexpress.com	480-226-6642
DARREL DOWNING	DOWNING AVIATION	DARRELDOWNING@DOWNING AVIATION ASSOCIATES	480 570 1250
Kevin Kraayenbrink	Maricopa Co. Sheriff's Office	K_Kraayenbrink@mcso.maricopa.gov	602-909-1178
John Walkup	Chandler Air Service	fly@aerobatics.com	480-963-6420
Greg Chenoweth	Chandler Airport	greg.chenoweth@chandleraz.gov	480-782-3540
Schyler McCorkle	Chandler Airport Commission	csmccorkle@mac.com	480-250-3643
John Prescott	Chandler Chamber	JPRESCOTT@[illegible]rentals.com	4-751-5712

APPENDIX G: MEETING ANNOUNCEMENTS

PUBLIC INFORMATION MEETING

Airport Noise Compatibility Study

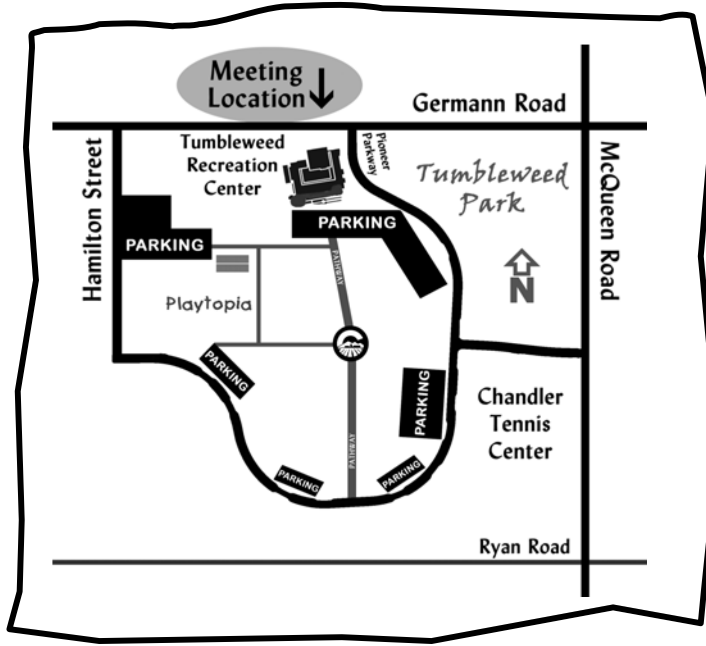


The City of Chandler is conducting an Airport Noise Compatibility Study and is asking citizens to take an active role.

AN INFORMATIONAL MEETING WILL BE HELD:

Tuesday August 12, 2008
Tumbleweed Recreation Center (Cotton Room)
745 E. Germann Road
6:00 p.m. - Open House format
7:15-8:00 p.m. - Presentation and Q & A

This 2008 study is an update of a similar study completed in 1999. The study is governed by Federal Aviation Regulation (FAR) Part 150 and is the primary federal regulation guiding and controlling planning for aviation noise compatibility on and around airports. Regulations in Part 150 are voluntary; airports can choose to undertake the analysis, and if the program is approved by the FAA, the airport is eligible to apply for federal grants for noise abatement projects identified in the Part 150 process. The meeting will include an "open house" with maps and exhibits. There also will be a presentation beginning at 7:15 p.m., followed by a question and answer session.

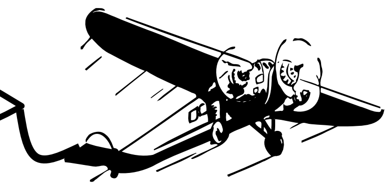


Information or accessibility requests, 480-782-2225

Visit www.wilbursmith.com/chandlerpart150/index.htm

PUBLIC INFORMATION MEETING

Airport Noise Compatibility Study



The City of Chandler is conducting an Airport Noise Compatibility Study and is asking citizens to take an active role.

AN INFORMATIONAL MEETING WILL BE HELD:

Thursday June 4, 2009
Chandler City Council Chambers
Chandler Main Library – 2nd Floor
22 South Delaware Street
5:30 – 7 p.m. : OPEN HOUSE
7– 8 p.m. : Presentation and Q & A

This study is an update of a similar study completed in 1999. The study is governed by Federal Aviation Regulation (FAR) Part 150, the primary federal regulation guiding and controlling planning for aviation noise compatibility on and around airports. FAR Part 150 is a voluntary process that airports choose to undertake. If the program is approved by the FAA, the airport is eligible to apply for federal grants for noise abatement projects identified in the process. The purpose of this Open House is to present the draft Noise Exposure Maps for the Study and to begin the Noise Compatibility Program phase of the project where alternative ways to address noise concerns will be identified.

For information or accessibility requests, call 480-782-3540 or visit www.wilbursmith.com/chandlerpart150/index.htm

Update on airport noise study

Chandler's Municipal Airport will hold an informational meeting and open house on Tuesday to update residents and receive comments on a noise study being conducted at the Airport.

The open house will be held from 6 to 7:30 p.m. in the council chambers in Chandler's Main Library, 22 S. Delaware St.

A formal presentation with question-and-answer period will follow the open house.

The study is an update to a previous study completed in 1999 and assessed aviation noise impact.

Potential noise abatement and other actions will be presented at the meeting for public review and comment.

Two earlier public meetings presented information on the study process, noise-monitoring efforts and development of noise contour maps.

The study is governed by Federal Aviation Regulation Part 150, the primary federal regulation guiding and controlling planning for aviation noise compatibility at and around airports

Obtain more information at 480-782-3540 or www.wilbursmith.com/chandlerpart150

Open house Dec. 8 on airport noise study

By Edythe Jensen
THE REPUBLIC | AZCENTRAL.COM

A Chandler Municipal Airport noise study that maps flight sounds above surrounding land has been under way for more than a year and will be the subject of another open house and public meeting Dec. 8.

The study is taking longer than expected because residents demanded additional monitoring, city spokesman Jim Phipps said.

At a similar session earlier this year several neighbors challenged the consultant's computer-modeled noise contours and said the city should monitor the live sounds of airplanes from the ground and in neighborhoods. That has since been done by the consultant at the city's request, Phipps said.

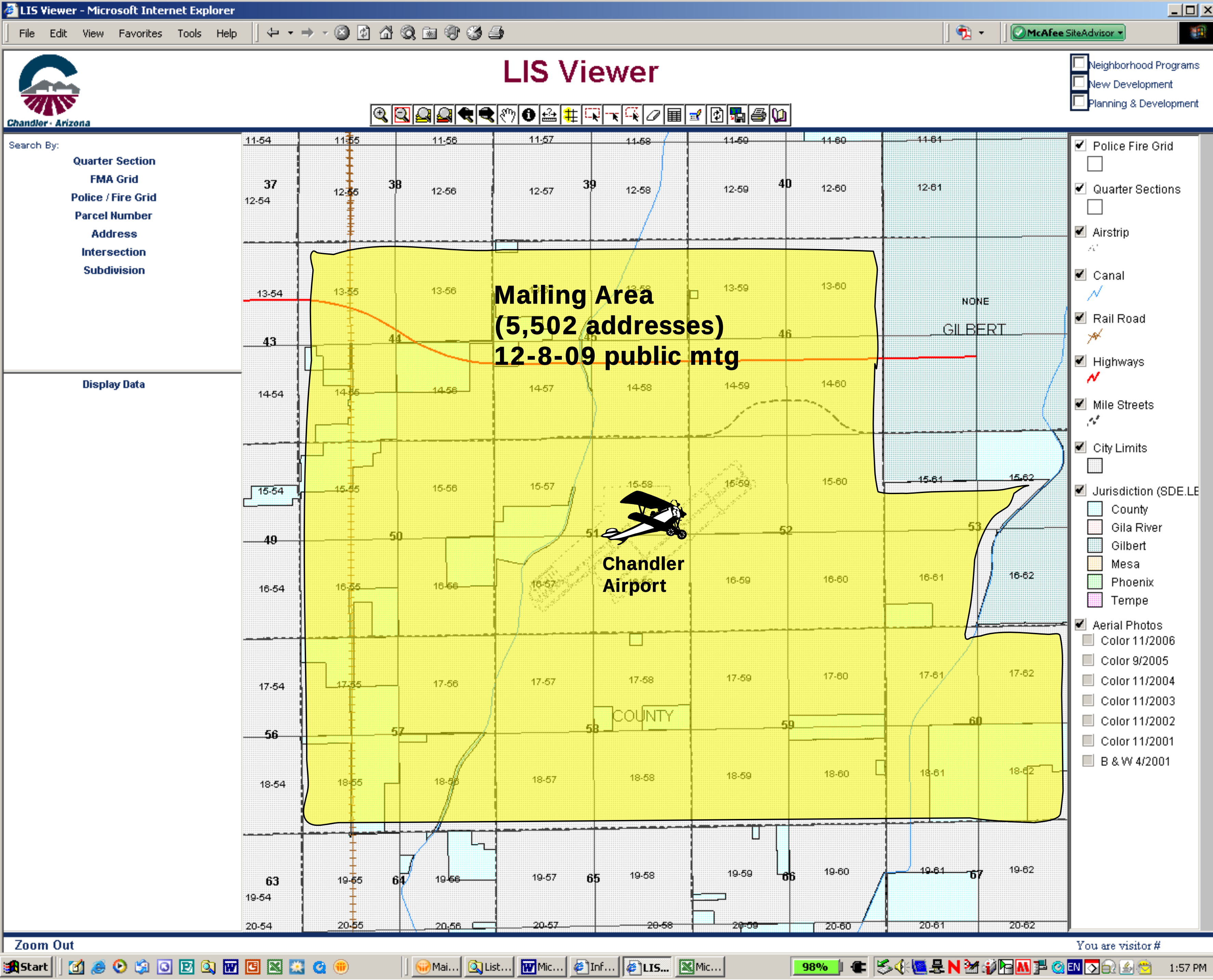
At the Dec. 8 meeting residents will get a new look a proposed noise contours and a chance to make suggestions about what the city can do to mitigate the impact.

Officials have said that could include flight pattern or altitude changes, training-hours restrictions, land-use changes and more thorough real estate disclosure rules.

Over the years several neighbors have complained about airport noise as the facility grew. Airport manager Greg Chenoweth has said the nature of airports — places for takeoffs and landings — brings noise. And deputy public works director Dan Cook said disclosure rules for homebuyers around the airport have been in place for years.

Local airports are required to conduct noise studies to qualify for federal noise abatement grants.

The open house will be from 6 to 7:30 p.m. in the Downtown Library, 22 S. Delaware St. Information: 480-782-3540 or eilbursmith.com/chandlerpart150.


LIS Viewer - Microsoft Internet Explorer
File Edit View Favorites Tools Help
LIS Viewer
Chandler · Arizona
Neighborhood Programs
New Development
Planning & Development
Search By:
Quarter Section
FMA Grid
Police / Fire Grid
Parcel Number
Address
Intersection
Subdivision
Display Data
Mailing Area
(5,502 addresses)
12-8-09 public mtg
Chandler
Airport
GILBERT
COUNTY
NONE
Police Fire Grid
Quarter Sections
Airstrip
Canal
Rail Road
Highways
Mile Streets
City Limits
County
Gila River
Gilbert
Mesa
Phoenix
Tempe
Aerial Photos
Color 11/2006
Color 9/2005
Color 11/2004
Color 11/2003
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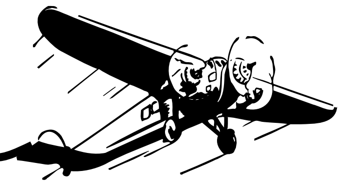
PUBLIC INFORMATION MEETING

Airport Noise Compatibility Study



The City of Chandler is conducting an Airport Noise Compatibility Study and is asking citizens to take an active role.

AN INFORMATIONAL MEETING WILL BE HELD:

Tuesday, December 8, 2009
Chandler City Council Chambers
Chandler Main Library – 2nd Floor
22 South Delaware Street
6:00 p.m. : OPEN HOUSE Format
7:30 p.m. : Presentation and Q & A

This study is an update of a similar study completed in 1999. The study is governed by Federal Aviation Regulation (FAR) Part 150, the primary federal regulation guiding and controlling planning for aviation noise compatibility on and around airports. FAR Part 150 is a voluntary process that airports choose to undertake. If the program is approved by the FAA, the airport is eligible to apply for federal grants for noise abatement projects identified in the process. **The purpose of this Open House is to present the draft Noise Compatibility Program. Potential noise abatement and other actions will be presented at the meeting for public review and comment.** For more information, call 480-782-3540 or visit www.wilbursmith.com/chandlerpart150/index.htm.

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Where Values Make The Difference

News Release
For Immediate Release

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55 North Arizona Place
Chandler, Arizona 85225

FOR IMMEDIATE RELEASE

Contact:

Jim Phipps
Public Information Officer
480-782-2225

November 24, 2009

Chandler Airport seeks public input on noise study

Chandler, Ariz. – Chandler's Municipal Airport will hold an informational meeting and open house on Tuesday, December 8, to update residents and receive comment on a noise study being conducted at the Airport.

The open house will be held from 6 to 7:30 p.m. in the City Council Chambers in Chandler's Main Library, 22 South Delaware Street. A formal presentation with question-and-answer period will follow the open house at 7:30 p.m.

The study is an update to a previous study completed in 1999 and assesses aviation noise impacts related to uses of the Airport. Potential noise abatement and other actions will be presented at the meeting for public review and comment.

Two earlier public meetings presented information on the study process, noise monitoring efforts and development of noise contour maps. The study is governed by Federal Aviation Regulation (FAR) Part 150, the primary federal regulation guiding and controlling planning for aviation noise compatibility on and around airports.

The public can obtain more information by calling 480-782-3540, or by visiting the Study Web site at www.wilbursmith.com/chandlerpart150.

# # #

SanTan Sun News

December 5 - 18, 2009 www.SanTanSun.com *Relentlessly local coverage of Southern Chandler and our neighboring communities*

SAN TAN SUN 12/5/09

Chandler Airport seeks input on noise

To update residents and receive comments on a noise study currently being conducted at the airport, Chandler's Municipal Airport holds an informational meeting and open house from 6 to 7:30 p.m. Tue., Dec. 8 in the City Council Chambers.

A formal presentation with a question-and-answer period follow the open house at 7:30 p.m.

The study is an update to a previous study conducted in 1999 and assesses aviation noise impacts related to uses of the airport. Potential noise abatement solutions and other actions will be presented at the meeting for public input.

The City Council Chambers are located in the Downtown Library at 22 S. Delaware St. in Chandler. For more information, call 480-782-3540 or visit www.wilbursmith.com/chandlerpart150.

APPENDIX H: OPEN HOUSE SUMMARIES

Chandler Municipal Airport
FAR Part 150 Noise Compatibility Study
Public Workshop #1
August 12, 2008
PUBLIC COMMENTS RECEIVED

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Speaker #1 – Interested in enforcement of patterns per rules by the helicopter operator; flight tracks presented don't show where they are truly flying.

Speaker #2 – Why was May selected for on-site noise monitoring? October is the busy season. The sites that were selected were not good as those that were long term are too far away and those that were closer to the airport were only conducted on a short term basis.

Speaker #3 – Why use different locations for noise measurements than the previous study? You can't compare the results. Can you make rules for how high the helicopters are flying?

Speaker #4 – What is the process for receiving and addressing public comments as part of the study? Will they be included in the study?

Speaker #5 – Aircraft typically depart quickly – is there an exception for helicopter training (lives in Twin Acres)? Every 7 minutes they are flying less than 250 feet. How will new through the fence activity affect operations? Why is there a "loop" in the existing 2008 noise contours?

Speaker #6 – Speaker lives 600 feet south of Queen Creek Road and suggests City learn from mistakes. The City didn't put sensors (noise monitors) near old heliport – now moved heliport and spent lots of money moving it. Please conduct a noise study in their area (monitor in Twin Acres).

Speaker #7 – How are the inputs for the noise model created?

Speaker #8 – For noise studies, what is height of helicopters that model assumes? The helicopters are so low that she can see the color of helicopter. They are still flying at 11pm every 7 minutes.

Speaker #9 (Same as #1) – If helicopters aren't following rules, what is enforcement?

Speaker #10 – There is no correlation to altitude that helicopters are actually flying instead of what they should be flying. The helicopters are very intense and monotonous and are not following good neighbor policy. They are hovering over houses at 6am, not picked up since altitude change.

Speaker #11 –Does FAA have rules on how high the helicopter must fly?

Speaker #12 – Why would helicopter fly at night without lights?

Speaker #13 – So there are no rules for helicopters. Can the City stop training at airport?

Speaker #14 (Same as #1) – Could we do a City ordinance? How do we make helicopters operate within some parameters? He has never seen so much abuse by helicopter operator? How do we change the rules and make them follow rules?

Speaker #15 – With the newer Loop 202 corridor, why can't helicopters use airspace above it? Airports are gone because they didn't address noise concerns.

Speaker #16 – If helicopter noise is issue, should adjust monitors to police noise? Would noise study be able to capture noise – take samples?

Speaker #17 – You have to live in area to understand the issues (related to comment on abuse). He lives near Ryan and Germann, where there are 200-250 flights/day over his house. He's been told lies – everything they say isn't true; Quantum has not changed pattern

Speaker # 18 – He lives at SE corridor of airport. He has no problem with fixed wing aircraft that are 1/8 mi east from Cooper and Queen Creek. If you draw line parallel with 4R – don't see helicopters close to 4R except when going to heliport. City gave permit to build homes. When bought house in 2005 had little noise, last fall at 10pm many more helicopters. City needs to hear how community feels. Knew there was a heliport but there is a difference between a Heliport versus a "robust training program". Nothing is concrete – operator might have lease but can't necessarily run operation any way they want.

Speaker #19 – If we send comments to FAA will they step in and do something?

Speaker #20 – The FAA is looking to the study to give them information. Also note that there are other helicopter operators, not just Quantum.

Speaker #21 – What time is ATCT open? How is data collected for model? At what altitude must an aircraft turn?

Speaker #22 – Is there really no altitude limit for helicopters?

Speaker #23 – Thank you for providing this forum.

Speaker #24 – Majority of helicopters land at Quantum. Is City asking businesses at airport to fly neighborly – maybe if Quantum flew this way others would too.

Speaker #25 – Volunteered his property to come and sit in his backyard for 1 hour to hear and see the activity. Offer was made to City and Quantum.

Speaker #26 – Lives in Lantana Ranch and doesn't think there were enough monitors and enough long term locations for noise monitoring.

Chandler Municipal Airport

FAR Part 150 Noise Compatibility Study

Attendance Record

Chandler - Arizona
Where Values Make The Difference

DATE: AUGUST 12, 2008 TIME: 6pm PLACE: TUMBLEWEED REC CENTER

(PLEASE PRINT)

NAME	REPRESENTING	EMAIL ADDRESS	PHONE
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STACEY NICHOLS	TOWER	stacey.nichols@serco-na.com	480-917-8005
Felicia Schlick	Homeowner	fschlick@mindspring.com	–
R. DAN DAVIS	HOMEOWNER	HOME ADRESS 3369 S. Nash Way	480 917-7523
Tim Vargo	Homeowner / Aircraft Gyro Specialists	3114 E Sparrow Pl	480-516-0393
STEVE DICKER	HOME OWNER	2568 S. WHETSTONE PL	602-418-6230
DARREL DOWNING	DOWNING AVIATION	~~1725 E RYAN RD~~ DOWNING AVIATION ASSOC	480-570-1250
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HEATHER NEAL	HOMEOWNER	HEATHERNEAL@HOTMAIL.COM	480-204-1369
Paul Olguin	Homeowner	pjolguin@msn.com	480-883-3248
Chris Sorensen	HOME OWNER	12539 E. QUEENCREEK RD CHANDLER	480-883-8287
Geesje Stevens	Home owner	3151 So. Eagle DR. chandler	480-895-9095
CAROLYN RHINEHART	NEIGHBORHOOD / HOMEOWNER	LV2SELLAZRE @ COX.NET	4-855-4040
JEFF GRAMMER	HOME OWNER / ASSOC.	1262 E. EBONY DR CHANDLER	480-413-3648
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CHRIS HIRCHERT	HOME OWNER	HIRCHERT@GMAIL.COM	480-390-6920
JAMES LALICATA	HOMEOWNER	jlalicata@cox.net	480-899-0039
Chelle Daly	home	chelle730 cox.net	
Jerald K. Lee	Home owner	jeraldlee@MAC.COM	480-248-2257
Dinic Matthews	" "	azbdmatt@ hotmail.com	602-616-7485
John Walkup	Chandler Air Service	fly@aerobatics.com	480-963-6420
Loretta Colson	Homeowner	lgcolson@lycos.com	480-963-4361
Donne DeVoe	OCA		
Fulton Brock	MARICOPA CO	fbrock@MARICOPA.GOV	602 506 1776

Chandler Municipal Airport

FAR Part 150 Noise Compatibility Study

Attendance Record

Chandler • Arizona
Where Values Make The Difference

DATE: ____ TIME: ____ PLACE: ____

(PLEASE PRINT)

NAME	REPRESENTING	EMAIL ADDRESS	PHONE
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Daisy & Forrest Oxley	Homeowner		480-895-2959
Sanjay Bhide	Self	sanjaxbhide@hotmail.com	4/812-9511
Jim Poland	RESIDENT	POLANDJR@COX.NET	480.629.8972
Ron Chamberlain	Resident	rchambe7@cox.net	480.507-7778
April & Chris Meyer	~~Reg~~ Homeowner	april.meyer@cox.net	480-633-3179
Rick Heumann	Resident	Rich1cmg@aol.com	480 961 5451
Alfred E. Pfahl	Self	janalpfahl@cox.net	480 961 7837
Esteban Morales	Self		
William Kanins	Self / Native Air	1813 E Wildhorse Pl	602-540-0620
David Wilcox	RESIDENT	2525 E. Hawken Way, Chandler, AZ	602-619-4464
Paul R Brown	Resident	AZNOCE@COX.NET	
Ivan & Mary Insua	Resident	ivanishere@gmail.com	
Charlie Davis	Resident	CDAVIS34@COX.NET	602-696-7484
R.J. Zeder	City of Chandler		480-782-3400
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Vicki Hewlett	Self	svurban@cox.net	480-~~[illegible]~~-857-0403

Chandler Municipal Airport

FAR Part 150 Noise Compatibility Study

Attendance Record

Chandler • Arizona
Where Values Make The Difference

DATE : ______ TIME: ______ PLACE: ______

(PLEASE PRINT)

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Schuyler McCorkle	Noise Study Committee	csmccorkle@mac.com	480 250-3643
Guy Pepoy	NEIGHBOR	SALES@FOILGRAPICS.COM	480-820-4666
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DON+VICKY WYATT	HOMEOWNER	ZACRES@WYDEBEAM.COM	480-895-8125
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SHERRY BROWN			
Bryan Cox	Resident	bryancox24@hotmail.com	480-775-7299
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Chandler Municipal Airport
FAR Part 150 Noise Compatibility Study
Public Workshop #2
June 11, 2009
PUBLIC COMMENTS RECEIVED

Chandler • Arizona
Where Values Make The Difference

Speaker #1 – Did aircraft operators know that the noise monitoring was being conducted? Wanted more information about measures that are punitive such as fines or restrictions.

Speaker #2 – She moved to Chandler one year ago and was told noise from the Airport was like a lawnmower. She lives in Peterson Farms. Some aircraft operate early in the morning and late at night (5:30 am is early and 10 pm is late).

Speaker #3 – Does the Airport monitor aircraft? Is there a regulation for how low aircraft can fly?

Speaker #4 – Someone should address the realtors who aren't telling people that the Airport is there. Nothing has changed since many people bought their houses.

Speaker #5 – Wants consultant to look at flight tracks. The NEMs would be okay if that is really where the aircraft flew (for both height and distance). He has jet aircraft flying over his house on short approach to the runway.

Speaker #6 – Speaker is a pilot for Angel Flight. On takeoff he does follow the noise abatement flight paths and uses reduced engine power. He also follows the traffic pattern altitude. He has two sons who also fly planes and who also follow the paths and altitudes.

Speaker #7 – Speaker lives off of Runway 4L. He commended the City on doing the Part 150 study. He owns a fixed wing plane and he doesn't try to save money by flying his aircraft lower. He thinks there are a lot of good options. For helicopters, there are things that can be done. He thinks the altitude is lower than for fixed wing.

Speaker #8 – Speaker noted that some pilots are good. The issue is at 6 am on weekends and holidays when there is training. It is loud and low. There are 15-20 flights in a row.

The helicopters are abusive. Helicopters flew different during the noise monitoring. About a year and a half ago, the helicopters flew a different pattern that worked well that was higher. When airplanes are landing, there are no problems. WWII biplane training at 6 am on weekends should be more considerate of where and when they are flying. He thinks that this is the minority of operators who are inconsiderate.

Speaker #9 (Same as #1) – Speaker's son is a pilot. She has lived at her home 34 years. The helicopters are the issue. Her son said the helicopters were flying too low and called the ATCT. The ATCT staff person said her son was abusive and threatened police action if the calls continued.

Speaker #10 – Speaker lives in Twin Acres. He attended March Airport Commission meeting. He's glad the City did additional noise monitoring but that during the March Commission meeting the Airport did note when the noise monitoring was going to be conducted. Thinks this influenced when and where flights took place.

Speaker #11 – Speaker is a pilot. He asked if we got data from TRACON and did it cover 24 hours of data.

Speaker #12 – Speaker indicated that there is assumption that pilots regularly violate FAA rules. Asked if FAA implements rules and what the FAA rules were.

Speaker #13 – Speaker complimented the City on doing the Study. Thinks the Study will bring beneficial results. He is buying office condo close to the Airport.

Speaker #14 (Same as #1) – Speaker thanked the City for conducting the Study. Asked if those pilots not flying at altitude could be fined by FAA.

Speaker #15 – Helicopter flight school operator spoke about flying at CHD for 31 years, owning the school for 17 years. He indicated there is a lack of credibility to comments received during the meeting. He did not change activity during the noise monitoring period. When his operation moved from the old to new site, they still operate the same way they have from taxiway C for the last 17 years or since taxiway C was built. The pilots at CHD are not rogue pilots. He noted the only change in the area has been the development of houses. The operators have compressed their patterns due to the building of homes around the Airport. As a business, he is protecting his investment made at the Airport. He indicated the patterns are repetitive and do fly over residential because residential land uses are across the street from the Airport. He went to the meetings before the homes were built and tried to get the City not to build the homes, but they did. He has copies of the disclosure forms which people have signed indicating they have avigation easements and knew the Airport was there before they purchased their homes.

Speaker #16 – Speaker lives in Peterson Farms. He indicated that the noise increased after the heliport moved. There are rogue flyers-helicopters that operate at night seems larger than usual and operates at 11:30 pm doing training. What could be done to reduce aircraft noise such that an aircraft generates noise similar to a car (are there noise certification standards)?

Speaker #17 – Fixed wing flight school and FBO operator spoke about his piston powered aircraft that are creating noise from the propeller hitting the air, not the engine. The noise at CHD is not from engines but from the propellers and rotor wings on the helicopters.

Speaker #18 – Speaker indicated there seems to be no limits on altitude for training aircraft. They have so much repetitive activity. His issue is with fixed wing training pattern. He suggested it be kept over commercial area.

Speaker #19 – Speaker indicated that with growth in community there is a need for change. Need to look at the future, not the past. Need to coexist (homes and airport).

Speaker #20 - Helicopter flight school operator spoke about adjustments that have been made to activity. He has attended many meetings and made changes based on developments that have occurred in the community. He indicated that homeowners have the opportunity to change but his building is built and he has made investments but didn't get the chance to change his investment. He indicated that homeowners should read their disclosure statements.

Speaker #21 - Fixed wing flight school and FBO operator spoke that he has been at CHD over 30 years. He is required to stay close to the Airport for touch and go operations so he can land safely if there is an issue during flight training. He formed the Alliance to get people involved and talk to people as part of the Alliance. He offered to meet with groups of people. If there is a problem, call him and they will try to resolve what they can. He won't move the traffic pattern because it is not safe. Mesa raised their traffic pattern to the same as what CHD has now due to change in Phoenix traffic pattern.

Speaker #22 – Speaker is a pilot that rents from FBO. He indicated that the noise measurement modeling results are higher than the actual measurements.

Speaker #23 – Speaker was a pilot. Asked if an economic study has been done for the Airport.

Speaker #24 – Speaker is on Airport Commission. She spoke about Airport's economic impact of 220 employees. The airpark is expected to be largest employment sector in Chandler when fully developed. When developed, it will help the property values. She indicated that nowhere in all of Phoenix is there not aircraft activity.

Speaker #25 – Speaker is a pilot of Cessna 182 since 1982. Thinks there is a lot of confusion about the traffic patterns. Patterns at CHD are similar to other patterns around the US. Traffic pattern is about 1,000 feet above ground level (AGL).

Speaker #26 – Speaker is a flight instructor at CHD. He thinks there is a lot of misunderstanding. People ask why they train at certain times; they train because that's when it's available and they can make it.

Speaker #27 – Speaker is a pilot who has flown at CHD since 1995. He indicated there are not many airports and we should protect the ones that are there. He is amazed at the residential development over the last 10 years. He thinks we are constrained by what can be done.

Speaker #28 – Speaker asked why the City would put all commercial development so close to the Airport – "greed overtook common sense". He has safety concerns with what he perceives as incompatible land use, such as movie theater.

Speaker #29 – Speaker indicated that Via Escondida is a new development just west of Airport that will have 16 new homes that are expensive and close to Airport.

Speaker #30 – Speaker indicated he did sign disclosure form but didn't really know what it meant.

Chandler Municipal Airport

FAR Part 150 Noise Compatibility Study

Public Meeting

Attendance Record

Chandler • Arizona
Where Values Make The Difference

DATE: JUNE 4, 2009 TIME: 5:30 PLACE: CHANDLER CITY COUNCIL

(PLEASE PRINT)

NAME	REPRESENTING	EMAIL ADDRESS	PHONE
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John Grinevich	Self & Aviation	J.GRINEVICH@yahoo.com	818 406-1965
NORM KNOX	Self & aviation	KNOXFARM@COX.NET	480 963-3802
STACEY NICHOLS	TOWER	Stacey.nichols@serco-na	480-917-8005
DARREL DOWNING	DOWNING AVIATION	DARRELDOWNING@DOWNINGAVIATIONASSOCIATES	480 570-1250
Larry + Kathy Stafford	Self	Kathy@S5electronics.com	480-895-7316
JARROD HERNS	CSDA ARCHITECTS	JHERNS@CSDAARCHITECTS.com	602-258-3515
John Walkup	Chandler Airport Al	fly@aerobatics.com	480-963-6420
GUY PEPOY	SERE	SALES@FOILGRAPHICS.COM	602-276-6650
Terry Bicle	Self	terry@circuitexpress.com	480-226-6642
BARRY SMITH	SELF	MOONEY9711M@COX.NET	480-857-8780
Keith Cahill	SELF	KEITHCAHILL@MSN.COM	602-791-1442
Schuyler McCorkle	Airport Commission	csmccorkle@mac.com	480 250-3643
SUSAN STILL	Self + on behalf of AVIATION	You have my husb's e/m	480-654-5335
RICHARD & MARILYN BENNETT	SELF	BENNMK@COX.NET	480-659-2908
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WAYNE WARREN	SELF	Wayne69@cox.net	480-598-3178
Richard Shoemaker	Self	richard.f.shoemaker@intel.com	480-634-6284
JING ZHOU	Self	strongate-m99@yahoo.com	480-227-4508
Scott + Missy McComb	Quantum Hel.		480-814-8118
AL + VIRGINIA YOUNG	Self		480-917-9883

33

Chandler Municipal Airport

FAR Part 150 Noise Compatibility Study

Attendance Record

DATE: JUNE 4, 2009 TIME: 5:30 PLACE: CHANDLER CITY COUNCIL

(PLEASE PRINT)

NAME	REPRESENTING	EMAIL ADDRESS	PHONE
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Larry Sebben	Chandler Air Service	LSEBBEN@COX.NET	840-1512
Paul W. Green	Airport User/Tenant	VP4142@COX.NET	
Richard Parker	Airport Commission	RPARKE27@COX.NET	480 231 6197
Brian Taraci	Home Owner	B.TARACI@COX.NET	480 782 6825
Jeff Farran	CHD Tennent/User	Jeff@fscwes.com	480 236 3489
Kelly Wallmueller	ChD Tennent-user	BigRedStearman@cox.net	480-628-2452
Jerry Eppers	CGWMS,	2297 S. Jay Pl Chandler	963-0754
Shawn Coleman	Airport User + Homeowner	scoleman@sun1031.com	480 824 3272
Dave Olney	Dave Olney & Assoc	DAVE@DAVEOLNEY.COM	480 963-4045
Joe Goetz	Airport User	customer21	480 415 5087
Marv Wessel	CHD Tennant	rfsolutions@cox.net	480-814-1393
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Phil Becker	Self	pbecker@tynangroup.com	714 746 6757
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Walt Wright	Self	WSWright@cox.net	480-883-1328

Chandler Municipal Airport

FAR Part 150 Noise Compatibility Study

Attendance Record

Chandler · Arizona
Where Values Make The Difference

DATE: JUNE 4, 2009 TIME: 5:30 PLACE: CHANDLER CITY COUNCIL

NAME	REPRESENTING	(PLEASE PRINT) EMAIL ADDRESS	PHONE
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Jim Hoyle			480.507.9350
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James Burr	PILOT		
DAVID LARSEN	SELF	david_larsen@mitel.com	480-206-4095
TOM WOODS	SELF	gtme@juno.com	480-229-0704
Dirk Mathews	Self	ezbdmatt@hotmail.com	602-616-7425
Lisa Logston	Self	cjlog@yahoo.com	480 786-3664
Robert Andrasik	Self	Andrasiktm@gmail.com	440 785-6213
[illegible]	"		
Joshua Berard	Pilot	JoshBerard@mac.com	520 834 3812
KEN PICHELMANN	Self	SARA PICHELMANN	480-621-8931
Steve Watson		steve_watson@oaisys.com	"
Jennifer Smith	Self	jennifsmith@gmail.com	480-621-7486
Sanjay Bhide	Self	sanjaybhide@hotmail.com	480 812 9511
PAUL MANSFIELD	QUANTUM HELICOPTER	PAULMANSFIELD@QUANTUMHELICOPTERS.COM	480 814 8118
Michael Gorski	Quantum Helicopters	mcgorski@asu.edu	908 279 3426
KURT HEINRICH	QUANTUM HELICOPTERS	Heinrich.Kurt@yahoo.com	734 578 7497
MATT LEHTI	Chandler Air Service	smoodog@yahoo.com	602 882 8209
Jim Poland	SELF	polandjr@cox.net	480.629.8972

Chandler Municipal Airport

FAR Part 150 Noise Compatibility Study

Attendance Record

Chandler • Arizona
Where Values Make The Difference

DATE : JUNE 4, 2009 TIME: 5:30 PLACE: CHANDLER CITY COUNCIL

NAME	REPRESENTING	(PLEASE PRINT) EMAIL ADDRESS	PHONE
Forrest & Daisy Daley	Self		480-895-2957
Edythe Jensen	The Arizona Republic	edythe.jensen@arizonarepublic.com	602-444-7939
Al Raleigh	Self	AJRaleigh@wbhsi-net	480 883 8533
Dan Zahlmann	Self		480-203-8322
Steve Smith	Chandler Airport All.	scssmith@att.net	480-963-6420
Kevin Hartke		khartke@aol.com	

Chandler Municipal Airport

FAR Part 150 Noise Compatibility Study

Attendance Record

Chandler • Arizona
Where Values Make The Difference

DATE: DECEMBER 8, 2009 TIME: 6pm PLACE: CHANDLER CITY HALL

(PLEASE PRINT)

NAME	REPRESENTING	EMAIL ADDRESS	PHONE
Jim Phipps	CITY OF CHANDLER	jim.phipps@chandleraz.gov	480-782-2225
MATT MATSOU	LOCHARD	MATT.MATSOU@LOCHARD.COM	310.265.3067
Kevin Houser	Self	KevinRHouser@Gmail.com	480-459-0115
Robert W Lane	"	boblanew3st@Cox.net	480 8994068
KEVIN WALL	SELF	KWALL0313@JUNO.COM	480 580-3178
Kevin Sandler	Self	KSandler@Yahoo.com	602 920 5400
LISA Spencer	self.	llbspence@yahoo.com	480-802-5939
Tanner Juhl	Hamilton	doctorfeelgd121@yahoo.com	
Marcel Atwood	Hamilton	macram12@yahoo.com	602-326-1477
Nik Geinos	Hamilton	ngeinos7@gmail.com	602-216-3774
CURT LANGENHORST	CHANDLER AIR SERVICE	CURT@AEROBATICS.COM	480-963-6420
JOSEPH GUADAGNO	Self	JGUADAGNO@HOTMAIL.COM	602 293 6767
John Walkup	Chandler Air Service	flx@aerobatics.com	~~602~~ 480-963-6420
DIRK MATHEWS	self	azbdmatt@hotmail.com	602-615-8424
Guy C. Pipkey	SELF	1635 E DIAMOND DRIVE 85286	602 ~~(illegible)~~ 614-7806
Kenneth Conteen	Self	Rdracer A1@gmail.com	
Chelle Daly	Airport Commission	Chelle73@cox.net	
Scott Bazzell	Self	sbazzell@cox.net	480-703-7107
ROBERT SHARMAN	Self	ROBERTSHAR@AOL.com	480-839-1210
Kathy Olney	self	3	
WAYNE WARREN	"	3510 S. Velero St	480-598-3178
Rita Smith	The Jones Payne Group	rsmith@jonespayne.com	480.240.2227
GEORGE & CLAUDIA VARGA	VARGA ENTERPRISES	george@VARGAAIR.COM	480-963-6936
Dave Jeffers	Self	d.jeffers@cox.net	
Michael Brown	- Quantum Helicopters	mbrown98@cox.net	
NEIL JONES	QUANTUM HELICOPTERS	neiljones@quantumhelicopters.com	480 814-8118
PAUL MANSFIELD	QUANTUM HELICOPTERS	PAULMANSFIELD@QUANTUMHELICOPTERS.COM	480 814 8118
Kelly Yates	SELF	KYATES9094@msn.com	480 292-0997
Doug Terry	Self	Dougterry@quantumhelicopters.com	480-814-5115

Chandler Municipal Airport

FAR Part 150 Noise Compatibility Study

Attendance Record

Chandler - Arizona
Where Values Make The Difference

DATE: DECEMBER 8, 2009 TIME: 6pm PLACE: CHANDLER CITY HALL

NAME	REPRESENTING	(PLEASE PRINT) EMAIL ADDRESS	PHONE
DAVE OLNEY	DAVE OLNEY + ASSOC	DOLNEY1944@AOL.COM	480-963-4045
~~MARK TANNER~~	~~SELF~~		
KEN TANNER	SELF		
MARK PETERS	PILOT	boxyandude@msn.com	602 370 7590
David Howser	me	David.1.howser@cox.net	
RICHARD J FULTON	SELF	rfulton555@YAHOO.Com	480-560-5141
John D Clark	self	jdclarkjr@get.net	480 497-1177
Jim Worsham	Self	timothy.e.worsham@intel.com	480 294 9655
CRAIG ALBRIGHT	SELF	fcalbright@qwest.net	(480) 776-9358
Kelly McMullen	SELF	kellym@aviating.com	480 460-0639
Derek Miller	SELF	dmiller@indatacorp.com	480-497-8595
Larry + Kathy Stafford	neighbor	Kathy@S5electronics.com	480-895-7316
STEVE CORNELIUS	SELF	SEC@POBOX.COM	(480) 545-4515
B.G. JONES	Self	BgJONES2@COX.Net	480-216-8990
Terry Bice	Self	terry@circuitexpress.com	480-226-6642
Chris Tell	Self	chrstell@hotmail.com	602 741 0221
Lara Bruner	self	larabruner@gmail.com	480 246-5343
Rick Heumann	City		
Dale Whiting	Self	dvwhiting@yahoo.com	480 219 7959
MARTHA GOLDSFARB	DESERT ISLANDS AIR CHARTER	2000@DESERTISLANDSAIR.COM	203 641 0750
C. Schuyler McCorkle	Airport Commissioner	csmccorkle@mac.com	480 250-3643
Jim Ormsby	self	jormsby@qwest.net	480-203-2532
NELSON GARRISON	PILOT / TENANT	AZNELSONG@GMAIL.COM	602 571-3297
Jim Goulding	self	jimgoulding@my180.net	480-786-9544
Betty "	"	"	"
R.D. DAVIS	"		480 917-7523
Richard Shoemake	"		
JERRY LATIMER	SELF	jlatimer1@cox.net	480-753-0676

Chandler Municipal Airport

FAR Part 150 Noise Compatibility Study

Attendance Record

Chandler - Arizona
Where Values Make The Difference

DATE : TIME: PLACE:

(PLEASE PRINT)

NAME	REPRESENTING	EMAIL ADDRESS	PHONE
MARK PEBLER	QUANTOM HELICOPTERS	mpebler@yahoo.com	
LARRY Sebben	CHANDLER AIR SERVICE	LSebben@COX.NET	
EURAL D. CARVER	CHANDLER AIR SERVICE	EURALDEE@COX.NET	
William Laney II		wlaney707@yahoo.com	
MARVEN GIBSON		utopian1@earthlink.net	
SCOTT VANG		SCOTVANGER@cox.net	
MIKE LEFEVER	SELF	roxianmike@MSN.COM	
Paul Hansen-Mitev		paul.hansen.mitev@gmail.com	
Julie Brown	Quantum Helicopters		
Jennifer Jones	Quantum Helicopters		
Steve Skotnicki	Self	sjskotnicki@aol.com	
MIKE HAMPSITIZE	SELF		
Tim Vong	self		
Kelly Wallmueller	Self	Bigredstearman@Cox.Net	
Greg Chenoweth	Chandler airport	greg.chenoweth@chandleraz.gov	480-782-3540
Guy Lennon	" "	guy.lennon@chandleraz.gov	" " "

Chandler Municipal Airport

FAR Part 150 Study

COMMENT FORM

Chandler • Arizona
Where Values Make The Difference

Please provide the following information and submit your written comments for consideration in the study. You may also submit your comments via the website at **www.wilbursmith.com/chandlerpart150/**

NAME: Dale Whiting PHONE: 480 219 7959

EMAIL: dvwhiting@yahoo.com

Problem:

Uniform, thorough noise complaint processing.

City management concedes that noise complaint processing is perhaps airport staff's lowest priority, that some complaints process outside the designated system yet still are allowed to go forward crossing the desks of city council and everyone realizes that for those few valid complaints where abatement measures are violated, not enough is being done or can be done to follow up with pilots.

Observations:

The various recommendations presented tonight should help improve the noise situation, And several addressing complaint processing are good ie, maintain the complaint line and purchase a flight identification system.

Recommendations:

1) Consider developing an "on line" complaint reporting system and have the complaint line redirect complaints to this automated system

2) Through the Airport Commission solicite and create a group of volunteers to operate the cite - processing complaints. Members would include airport users w/ technical + aviation expertise, local neighbors who experience noise problems + neutral persons interested in airport ops

3) Set a goal to follow up with each + every complainant within 3 days to (over)

1) Gather necessary but missing technical data
2) Help complainant learn to collect data better
3) Let each complainant know someone cares, is interested in helping enforce abatement measures +
4) Educate the complainant about

a) noise abatement measures in place
b) the benefit air port operations have for the City at large

If the Airport Commission will undertake to organize such a volunteer group, it will happen.

Chandler Municipal Airport

FAR Part 150 Study

Chandler + Arizona
Where Values Make The Difference

COMMENT FORM

Please provide the following information and submit your written comments for consideration in the study. You may also submit your comments via the website at **www.wilbursmith.com/chandlerpart150/**

NAME: LISA Spencer PHONE: 480-802-5939

EMAIL: lbspence@yahoo.com

I have lived here (near the airport) for the past 7 1/2 years. There has never been a problem with aircraft noise. I live off cooper which is the entry point for aircraft to down wind + for aircraft to depart to practice areas and I have never been bothered by ~~the~~ noise.

CHD is a great airport + well run.

Lisa + Clyde Spencer

Chandler Municipal Airport

FAR Part 150 Study

Chandler + Arizona
Where Values Make The Difference

COMMENT FORM

Please provide the following information and submit your written comments for consideration in the study. You may also submit your comments via the website at **www.wilbursmith.com/chandlerpart150/**

NAME: Kathy Stafford + Larry Stafford PHONE: 480-895-7316

EMAIL: Kathy @ S5electronics.com

1.) Like the suggestion that helicopters turn further out + higher (The turning over our homes is the noisiest.)

2.) Don't understand the suggestion of "unincorporated areas included in city to limit residential growth." (incorrect quote) Does county not pay attention to the airport +/or limit residences?

3.) If people don't like the airport they should have thought of it before they moved next to one!

4.) We have no problem with the airport or staff-

Chandler Municipal Airport

FAR Part 150 Study

COMMENT FORM

Chandler • Arizona
Where Values Make The Difference

Please provide the following information and submit your written comments for consideration in the study. You may also submit your comments via the website at **www.wilbursmith.com/chandlerpart150/**

NAME: John D Clark Jr

PHONE: (480) 897-1177

EMAIL: jdclarkjr@cox.net

No real change. A whitewash!

Chandler Municipal Airport

FAR Part 150 Study

COMMENT FORM

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NAME: Ananamous

PHONE:

EMAIL:

Problem: Most noise complaints deal with the helicopter flight operations. The fleet of helicopters is small + ownership is consolidated with the flight school.
All pattern recommendations generate only marginal improvements while placing significant restrictions on use
Observation: In the commercial / scheduled airline fleet onboard noise abatement equipment have been designed into the aircraft over time

Recommendations: 1) Find out whether onboard noise abatement equipment has been developed for this fleet which does effectively reduce ground level noise levels
2) See whether sufficient economic incentives can be given to the owner to have equipment installed,

Chandler Municipal Airport

FAR Part 150 Study

Chandler + Arizona
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COMMENT FORM

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NAME: CRAIG ALBRIGHT

PHONE: (480) 776-9358

EMAIL: fcalbright@qwest.net

1. THE STUDY INDICATES THAT THE NOISE LEVELS ARE WITHIN GUIDELINES:
   65 dB ≈ CONVERSATION "NOISE" LEVEL
   4 MIN. OVER TARGET ⟺ SOMEONE CARRYING ON A CONVERSATION IN FRONT OF YOUR HOUSE FOR ~4 MIN. / DAY. THAT'S NOT A PROBLEM! WHY DO SOMETHING...

2. UNFUNDED MANDATES! WHY RECOMMEND BUYING SOMETHING WHEN THERE REALLY ISN'T A MEASURABLE PROBLEM? ADMITTEDLY, SUBJECTIVE COMPLAINTS VS. OBJECTIVE MEASUREMENTS CAN BE (AND OFTEN ARE) WORLDS APART. AND, FACTS DON'T VOTE — OPINIONS DO..

3. I'M DISAPPOINTED THAT YOU RECOMMEND ANYTHING! THE STUDY WARRANTS A CONCLUSION THAT ACTION ISN'T NECESSARY. TO RECOMMEND ANYTHING (EG. RAISING ~~AL~~ ALTITUDES, CHANGING PATTERNS) WITHOUT HAVING A BASIS IN PERCEPTUAL FACT IMPLIES THAT THE RESULT IS BASED ON POLITICAL EXPEDIENCY OR AN ATTEMPT TO JUSTIFY ANOTHER CONTRACT. ALTHOUGH I OWNED & RAN MY OWN BUSINESS OF ~28 YRS, I HOPE YOUR RECOMMENDATION ISN'T MOTIVITATED BY MARKETING YOUR BUSINESS SERVICES...

Thanks Craig

Chandler Municipal Airport

FAR Part 150 Study

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COMMENT FORM

Please provide the following information and submit your written comments for consideration in the study. You may also submit your comments via the website at **www.wilbursmith.com/chandlerpart150/**

NAME: Steve Skotnicki PHONE: 480-892-5057
EMAIL: sjskotnicki@aol.com

I am a pilot. I attained my pilot's certificate at great personal expense. I also teach not far from the airport at Chandler-Gilbert Community College. Aircraft noise has never been an issue. I also photograph landforms from the air to use in my teaching. I also work for Hydrosystems, Inc., which has drilled several of Gilbert's water production wells. I sometimes use aerial photos in my reports. In these regards the airport provides a public service. I am also biased in favor of the airport because it was constructed before the homes. Aircraft are more than just modes of transportation to me. They are flying machines that reflect the dream and enginuity of humans for thousands of years.

APPENDIX I: PUBLIC COMMENTS

Keidel-Adams, Pamela S

From: Grace Hu
Sent: Tuesday, May 26, 2009 5:18 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Grace Hu
Email : ghu@cox.net
Comments : My house is at Gilbert & Queen Creek Road and we are very much bothered by the airplane/helicopter noise. With the airport two miles away, I do not understand why the airplanes always have to circle above the resident communities before landing or after taking off. It makes more sense for the control tower to ask the pilots to avoid flying over communities as much as possible. Over the weekends, the flight training school let the student pilots cirling and cirling at low elevation above our communties, even when there is strong winds. Not only the noise bothers us, the saftey issue also concerns us. Chandler has so many unpopulated area, why not let the student pilots fly over the farm lands? They can fly as long as they want.
We put a lot of money and efforts in our house, trying to make it a relaxing, comforting place. But the airport noise ruined all of that. I sincerely request that you do an extensive study on noise abatement and flight pattern improvement. And I strongly request that the flight training school relocated to futher unpopulated area.
Thanks,
Grace

Keidel-Adams, Pamela S

From: Dirk Matthews
Sent: Wednesday, May 27, 2009 2:19 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Dirk Matthews
Email : azbdmatt@hotmail.com
Comments : HI, I am on the noise study committee but I still wanted to add a couple of more comments.
1) Putting the noise monitors out again was a great idea - however since the tennets at the airport knew of the time and locations of the monitors - it really can skew the numbers you see. I can personnaly attest to the gact the the helicopters flew half as often, twice as high and extended the path they normally fly bo over half a mile. It was SO obvious what they were doing.
2) The helicopters do NOT follow any of the Helicopter Associations guidelines for flying near residential areas.
3) You state that the committe will be able to see the feedback from the public at the next meeting - and that meeting will be held the night before. Where is this being advertised? I live next to the airport and have not heard of this meeting until I received this letter from you. This is CRITICAL information that is needed by the city.

I look forward to seeing your findings and recommendations - Thanks

Keidel-Adams, Pamela S

From: Brett Myzer
Sent: Wednesday, May 27, 2009 6:34 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Brett Myzer
Email : bmyzer@movephoenix.com
Comments : When buy a home in the subdivision to the east of the neighborhood, I studied the flight paths of the air traffic. They did not cross gilbert rd while the homes were being built. Now we are in the flight path 200 yards east of Gilbert rd. Why did this change?

Keidel-Adams, Pamela S

From: Byron Anderton
Sent: Thursday, May 28, 2009 12:40 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Byron Anderton
Email : landbaron2@gmail.com
Comments : Unfortunately I will not be able to make the meeting. I would however liek to voice my concern regarding the air traffic noise (particularly the helicopter traffic). On most weekends it is absolutely unbearable I assure you it is having a negative impact on housing in the Saguaro Canyon development. I own two houses in the neighborhood and have one rented to a prospective buyer. That buyer is no longer interested in purchasing my home because of the relentless helicopter noise overhead (very disappointing). Please address the helicopter noise it truly is contributing to home price decline.

Respectfully.

Keidel-Adams, Pamela S

From: B.G. Jones
Sent: Thursday, May 28, 2009 2:29 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : B.G. Jones
Email : bgjones2@cox.net
Comments : Very short notice about the meeting scheduled for June 4, 2009 and as luck has it I will be out of town. I have one comment to make besides the short notice and that is to extend the southwest take off climbing patterns further out over the Indian Reservation vacant lands (pass Riggs Road and Interstate I-10) so the planes will not make the noise they make while climbing and turning at the same time. Also in regards to this, as Falcon Field did with help from the Mayor of Mesa, change the altitudes higher which small planes can fly so that the noise will be less. The noise is a big problem and instead of gripping here is a viable solution.

Keidel-Adams, Pamela S

From: richard parker
Sent: Friday, June 05, 2009 6:12 AM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : richard parker
Email : rparker27@cox.net
Comments : runway extensions should be considered if patterns and altitudes change. for many aiorcraft current lenghts are somewaht of a safety issue during summer months. Lengthing would permit a majority of aircraft to climb out and achieve an altitude compatible with people that elected to live under the flight patterns. Landings approaches could be raised by the safe addition of a displaced threshold, which cannot be dome safely given current lengths.

Keidel-Adams, Pamela S

From: John Pein
Sent: Friday, June 05, 2009 7:52 AM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : John Pein
Email : jnjpein@fastmail.net
Comments : I attended last nights presentation and expressed my concerns along with many other concerned residents. I found it interesting that all the residents held their comments to 3-5 minutes as agreed. I found it interesting that the helicopter owner was allowed to ramble on and on stating how wonderful they are and the problem was all the people who moved in after he set up business. Listening to him tells me that he does not understand what a good neighbor policy is all about. Just as important was how the facilatator allowed him to violate the rules and just keep rambling on. I guess if you're in the inner circle the rules don't apply. Your facilatator certainly created the perception that money and influence has it's privledge. And no I won't accept a response that the owner represented the airport operators. He was there to beat his own drum.

Keidel-Adams, Pamela S

From: Ken Pichelmann
Sent: Friday, June 05, 2009 1:22 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Ken Pichelmann
Email : spichelman@aol.com
Comments : First I want to tell you that I appreciate the study and your interest in working with the Chandler communities. I attended your meeting Thursday night, June 4, 2009. Up front, I am a supporter of the airport and any other means for generating income in the Chandler area. I thought overall the meeting was very informative however I thought the facilitator could have done a better job of addressing some of the defensive comments from the pilots who attended, specifically the individuals representing the helicopter training and fixed wing training schools. They didn't seem to have anything constructive to offer only defensive rhetoric. Everyone was aware of the airport being in the area when they purchased their homes, beating the these homeowners over the head with the fact wasn't the purpose of the meeting and it should have been mentioned by the facilitator. I personally had addressed a concern for the touch and go training patterns. I was not aware and learned at this meeting there are no altitude restrictions associated with this type of flight. With this said I had asked if the study could investigate modifying these training flight patterns to avoid residential areas as much as possible to prevent the nuisance number of low level overhead flights in the populated areas. I do not have a problem with the occasional overhead flights but these extremely low sorties are annoying after awhile. I must admit, I have more concerns after listening to the individual with the training school who commented, "he was not going to move the flight pattern out for the safety of his pilots who might need to get back to the airport in an emergency". My problem with this comment and I'm not a pilot, but the individual never asked where it was that I lived so he had no idea of the distance to know if a modification of the pattern would effect the safety of his pilots. It seems to me if his pilots flew at a higher altitude, a little further out from the airport the safety factor is greatly improved for both his pilots and the home owners in the immediate area. If the residents heard his comments I think there would be more of a concern for the overall safety of the homeowners than for the noise! As information, I live just North of the 202, Pecos and Cooper being the main intersection, Canyon Oaks Estates subdivision. From a homeowners perspective, the comments and presentation made at the meeting by the individuals responsible for the FAR PART 150 STUDY, made it seem as though their only going through the motions of pleasing the communities and keeping them informed which in itself isn't all bad. More than once I heard the comment made that you will be following the guidelines of the FAA for setting up the airport. It would be better to also hear what you have done or plan to do in rectifying the communities concerns at these meetings. Only my opinion!

Keidel-Adams, Pamela S

From: Al Raleigh
Sent: Friday, June 05, 2009 6:30 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Al Raleigh
Email : ajraleigh@wbhsi.net
Comments : Thank you for the public hearing on June 4, 2009. I have these comments:

1. Noise Monitoring
It was stated by your representative that neither the airport nor pilots knew when or where monitoring was occuring. However, it was also stated by at least two residents that the level of noise was much less during monitoring at those locations. Noise monitoring needs to done anonymously and on an ongoing basis.

2. Noise Complaints
It was clear by the comments of your represensatives and the airport operators that nothing can be done about the exceptions to the procedures; that is, pilots that fly low, early or late in the day disregarding the peace and quiet of the residential area. Noise complaints must be taken into account when developing the contours.

3. Notification
The meeting was sparsely attended by residents from both inside and outside the city. No notice that I am aware of was given to the county residents adjacent to the city. I might guess that this lack of notice was intentional. A better effort must be made to contact the Sun Lakes homeowner's Associations.

4. FAA
It is clear that the primary mission of the FAA is to protect anyone who flies from anyone who doesn't. Private pilots seem to be referred to in print and speech almost as if they were Navy captains. Many are actually closer to ATV riders. The FAA needs to:
- allow complaints to be made directly and specifically to them regarding noise; the data saved and reported on
- require registration numbers to be clearly visible from the ground on the bottoms of wings or fuselage
- allow airports to fine or suspend pilots, as well as the FAA be able to do the same
- allow municipal airports to restrict the hours of operation except in emergency
- do anonymous noise monitoring and actually use the data to expand the DNL area or contours if needed

5. Airport
It is also clear that the vast majority of complaints from residents are due to the flight schools. It is incomprehensible how the city and FAA can allow flight schools in the middle of a residential area. These need to be reigned in or shut down as soon as possible. Like a sewage plant or rifle range, there is not enough benefit to the citizens to warrant such abuse of the area.

6. Part 150 study
While well-intentioned, the fact that pilots can violate any procedure with impunity means we could be wasting our time, as was suggested by one resident speaker.

Conclusion:

I applaud all efforts to close the gap between good pilots and bad, or good airport businesses and bad ones. I wish you success in that. If those are not your goals then I would appreciate knowing that too; perhaps the city could avoid the cost of those nice flyers.
- Al Raleigh, Sun Lakes, AZ

Keidel-Adams, Pamela S

From: Bill Blanchard
Sent: Sunday, June 07, 2009 12:11 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Bill Blanchard
Email : Blanchard3@mac.com
Comments : Regarding the helicopter noise at 3526 S. Newport Place. I wanted to submit my written complaint in regards to the amount and volume of Helicopter noise in the neighborhood. I regularly work from home and I am constantly frustrated with the noise from the helicopters. Clients on the other end of the phone can even hear the noise through the phone line. Trying to enjoy an afternoon out by the pool is constantly interrupted by the loud, and low flying helicopters. Is there any way that the flight path can be altered. Its not the flying so much as the banking, or the turning that takes place over the houses in the neighborhood. Also, I am not sure about the height they are supposed to stay at, but when you can see the whites of the pilots eyes, that just seems a little low. It is very annoying to not be able to enjoy some back yard time with my family and friends and even more upsetting when it impacts my work via the phone.
Please help us with this,
Bill Blanchard

Keidel-Adams, Pamela S

From: Thomas Woods
Sent: Monday, June 08, 2009 11:57 AM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Thomas Woods
Email : gtme@juno.com
Comments : I'm a resident in Redwood Estates neighborhood south of the airport (Cooper and Ocotillo). I have relatively few complaints about the fixed wing aircraft noise that I currently hear from my house (other than the very early morning or very late night that I occasionally hear). The helicopter traffic and noise is somewhat more disturbing. I have attended both of the public meetings held so far. I have greater concern that in the future the noise levels may become much worse.

My main comment/concern is one of ENFORCEMENT. Viewing the presentation materials and boards prepared for the meetings, there appears to be identified flight paths. In my experience these flight paths are not consistently adhered to. I understand that there is no "line in the sky" for pilots to follow, but the deviation from the flight paths identified in the presentation materials is often significant. I assume that there are also altitude requirements (recommendations?) that are not consistenly obeyed by all pilots all of the time.

At the last public meeting, I seemed to understand that whatever the outcome of the FAR Part 150 study, these will only be "recommendations" but cannot be enforced (in particular the "recommendations" to pilots and airport for noise abatement). If there can't be (or won't be) any real ENFORCEMENT beyond voluntary compliance, I think this effort is largely a waste of time and money. The few pilots/operations that are currently causing most of the problems (note I understand that it's not ALL pilots/operations) will not voluntary comply with the current or newly proposed recommendations, and hence the noise issues will not be solved as a result of this effort.

I also have concerns over citizen statements about non-responsive (or hostile) feedback to noise reporting. If the current procedure is to report noise events to the airport, perhaps reporting to a neutral (third party or web based) source would be preferred.

Thank you.

Keidel-Adams, Pamela S

Sent: Monday, June 18, 2007 7:00 AM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Jeremy A. Felstead
Email : allencomp@msn.com
Comments : I would like to learn more about the Chandler Airpot and it's plans for future development.

Keidel-Adams, Pamela S

Sent: Saturday, August 09, 2008 8:55 AM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Gary Howard
Email : azhawk98@cox.net
Comments : The problem for me and other residents of Cooper Commons is the helicopters that fly overhead all day long. I am assuming this is part of the training program run from the Northeast part of the airport.

They fly very low and so low that one can read the numbers on the craft. There must be some minumum flight height requirement set by the FAA. These folks are not following it. What can be done to enforce the flight height rules?

Keidel-Adams, Pamela S

Sent: Wednesday, August 13, 2008 8:19 AM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Stacey Nichols
Email : stacey.nichols@serco-na.com
Comments : I attended the first public meeting at Tumbleweed Park on August 12 for the Airport Noise Study and it seems that the meeting ended up being a venting forum. I realize that the residents around the airport have issues with the aircraft noise, but there is no way that these people did not know that they were buying a home close to an airport. I have no doubt that the neighborhoods closest to the airport were not originally slated to be residential. So the city agreed to allow houses to be built right up against the airport proper and now we have a big problem. Its unfortunate that those of us that had nothing to do with these descions are the ones who will have to jump through hoops to make things right for our neighbors.

Keidel-Adams, Pamela S

Sent: Wednesday, August 13, 2008 8:26 AM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Grazyna Gampe
Email : grazynagampe@gmail.com
Comments : We live just east of the airport and can't stand the helicopters anymore. Their frequency is increasing while our quality of life is decreasing. They fly right over our home, constantly!

Keidel-Adams, Pamela S

Sent: Thursday, August 14, 2008 2:56 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Diane Ross
Email : Lady7di@aol.com
Comments : My main complaint is with the helicopters that fly "Touch and Goes" from 8:00p.m. to 11:00p.m. and later. They fly over my house every 7 minutes and are so low I can sometimes tell you the color of the helicopter! We can hear them in our bedroom and family room with the TV on. They are flying these repetitous routes after the tower closes, so who's regulating them. You can't call and complain to the tower at that time of night because they're closed. I live 3 housed from the south side ofQueen Creek Rd and a 1/4 mile from Cooper Rd. I don't mind the small planes, but the helicopters that fly at night and fly low are very annoying!
One helicopter flying "Touch and Goes" was only about 150 ft above my house and rattled the windows. I stepped out my back door and it was right above me! They startle the horses when they fly that low and if were out with the horses it can be dangerous. The helicopters need to fly alot higher and further out, altering their patterns. We can't even leave our windows open when it's nice out because they are so loud and repetitious.

Keidel-Adams, Pamela S

From: ANDY QUIRK
Sent: Friday, April 24, 2009 4:43 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : ANDY QUIRK
Email : andy2hotnphx@hotmail.com
Comments : the more the 53 million dollar club LIES the more it will be easy to defeat YOU>>>>>>>>>>>>>>>>>

Keidel-Adams, Pamela S

Sent: Thursday, March 12, 2009 7:55 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : andy quirk
Email : andy2hotnphx@hotmail
Comments : dumb question? how much does it cost to park a car at sky harbour for 1 month? how much does it cost to park an airplane at CHD for 1 month? starting to get the picture. Tax paying people are FED UP with how OUR airport is run! If this airport can not make a profit than shut it down or correct the major mistakes of the past.

Keidel-Adams, Pamela S

Sent: Thursday, March 12, 2009 7:47 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : andy quirk
Email : andy2hotnphx@hotmail.com
Comments : funds from adot aero and faa have what in common of the value jet crash a few years ago??? be careful, because some may think that the faa/adot aero has failed AGAIN.

Keidel-Adams, Pamela S

Sent: Thursday, March 12, 2009 7:29 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : andy quirk
Email : andy2hotnphx@hotmail.com
Comments : who will be picking up the tab for clean up of the toxic waste from this airport CHD? FAA or ADOT aero??

Keidel-Adams, Pamela S

Sent: Thursday, March 12, 2009 7:27 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : andy quirk
Email : andy2hotnphx@hotmail.com
Comments : no need to hide behind a FLAWED airport/corrupt master plan. we as citizens own this airport. not the users!!!!!!!!!!!!!

Keidel-Adams, Pamela S

Sent: Thursday, March 12, 2009 7:21 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : andy quirk
Email : andy2hotnphx@hotmail.com
Comments : most will agree the ex crop dusting field known as chd is no POPULAR. when attending meetings and seeing the out and out lies to promote this money losing airport, it becomes apparent to most that the airport commission and current airport management are not trust worthy.

Keidel-Adams, Pamela S

Sent: Thursday, March 12, 2009 7:16 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : andy quirk
Email : andy2hotnphx@hotmail.com
Comments : how much money has the chandler airport "chd" lost in the last 10 years? subsidized and paid for by hard working TAX PAYERS of chandler.

Keidel-Adams, Pamela S

Sent: Thursday, March 12, 2009 7:13 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : andy quirk
Email : andy2hotnphx@hotmail.com
Comments : please share when the website was last updated...........

Keidel-Adams, Pamela S

Sent: Thursday, March 12, 2009 7:11 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : andy quirk
Email : andy2hotnphx@hotmail.com
Comments : many believe the master plan study is flawed and out right lied to citizens of chandler. airport traffic based on FALSE data my be considered corrupt!

Keidel-Adams, Pamela S

Sent: Tuesday, January 13, 2009 4:05 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Erika Mikles
Email : erikamikles@yahoo.com
Comments : I have concerns about the landing pattern into the airport. I spoke with Doug Whitney on the phone and he informed me that my issue may be easily addressed. My home is located off Dobson and Chapparal, directly East of Intel. I have noticed an increase in planes on approach directly over my house. It seems to be at certain times of the day and not necessarily everyday. Often, I see planes on approach more north towards Ocotillo Road. Unfortunately, when the planes approach and pass directly over the house, this creates a nuisiance. When we moved here 6 years ago, rarely would planes fly overhead. Now, it's a common occurence. I was hoping that we could find some alternative approach. I know it is probably a direct line into the airport over Intel but it shouldn't disrupt the community. Please advise me on what I need to do to have this issue addressed futher. Thank you in advance for your attention to this matter. Erika Mikles 480-219-0636

Keidel-Adams, Pamela S

From: captain
Sent: Monday, January 05, 2009 12:26 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : captain
Email : captainandcolleen@hotmail.com
Comments : NORTH EAST DEPARTURES 4L OR 4R, IT WOULD BE NICE TO HAVE A/C CLIMB TO 500-1000 FT. PRIOR TO TURNING LEFT AFTER DEPARTURE, KING AIR AND OTHER A/C TURN IMMEDIATLY NORTH AND SEEM TO ALMOST SKIM THE ROOF TOPS A MILE NORTH AT CGCC, I AM A FELLOW PILOT MYSELF, I REMEMBER IN FLIGHT TRAINING, TO CLIMB TO AT LEAST 500AGL BEFORE TURNING CROSSWIND,it is super noisy here 5-6 am some days, the pilots that do this know who they are, bashas plane being one of the loudest culprits, flight aware confirms this activity, FYI!

Keidel-Adams, Pamela S

Sent: Sunday, November 16, 2008 9:53 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Chris and April Meyer
Email : april.meyer@cox.net
Comments : We missed taking the survey, but would like to comment on helicopter noise over Peterson Farms subdivision. Our biggest complaint is the noise the helicopters generate and how low they fly over our house when there seems to be no reason to do so.

Keidel-Adams, Pamela S

Sent: Tuesday, November 11, 2008 10:35 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Woo Tae Park
Email : wtpark@gmail.com
Comments : More information on traffic patterns for the airport needs to be provided by the city website. Also if there is some statistics on the traffic throughout the year, that will be appreciated.

Keidel-Adams, Pamela S

Sent: Tuesday, November 04, 2008 6:17 AM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Gerard John
Email : gerard.john@gmail.com
Comments : I recently purchased a house near the Airport - with most aircraft I have no problem - but some of the aircraft that flies over us sound very loud - much like the motor bikes that have modified their exhaust to sound louder.
It would be much appriciated if you can impose a restriction on the amount of sound emitted by the engines of the aircraft that use Chandler regional.

Keidel-Adams, Pamela S

Sent: Monday, October 27, 2008 4:04 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Nicki Crause
Email : sncrause1@cox.net
Comments : I want to complain about the helicopter noise above our home. It is so loud you have to stop talking on the phone when they go over our house because you can't hear the other person. I can't keep our windows open during the nice time of year because they fly so low and are so increadibly loud it's ridiculous. It is to the point that we may have to move because it's so loud. Why can't they fly over businesses instead of residential areas. They fly so low you can see the numbers on their tails. I want something done about this!!!

Keidel-Adams, Pamela S

Sent: Thursday, October 09, 2008 3:07 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Scott Vang
Email : scotvanger@cox.net
Comments : Would like contact in regards to noise study. Can also be contacted via phone 602-370-9599.

Keidel-Adams, Pamela S

Sent: Tuesday, September 09, 2008 9:12 AM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Denise Mezzulo
Email : denisemezz@msn.com
Comments : I live approximately 2 miles south of the airport. My development, Countrysides Estates is located in the ne corner of chandler heights and cooper rd. I live outside area of where sound moniters were installed. I also am sick and tired of the problems caused by the helicopters. I have lived here four years and this year the helicopters fly over my house at low atltitude. The city issued the permits for the majority of the houses south of the airport in the last six years. The city of Chandler wants to have its cake and eat it too. Either do something about the helicopters noise or buy back the houses. My house rattles everyday. I am sick and tired of it. TO put the interest of one helecopter comany ahead of the right to live in ones' homes in peace and quiet is deplorable. There are thousands of homes between my house and the airport. They are all affected by the constant noise and vibration of the helecopters. To state that the airport was there for many years --well yes, but it was rural and no houses were around, again the city choose to allow building of houses. I live in a one story house - why should my house rattle constantly? The interest of one helecopter company are being put ahead of the rights of thousand of homeowners! I attended the recent meeting and heard from more than one homeowner that this problem with the helecopters is not tolerated at any of the other local airports. Please quit turning a deaf ear on residents! You cannot keep putting corporate interests ahead of residents. There are no cities withour residents. Thank you, Denise Mezzulo

Keidel-Adams, Pamela S

Sent: Monday, September 08, 2008 9:15 AM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Steve Dicker
Email : steve@azhomes123.com
Comments : September 9, 2008

Steve Dicker
2568 S Whetstone Place
Chandler, AZ 85286
602-418-6230

Our home is about one mile east of the Chandler Municipal Airport in Paseo Trails. We have lived here for three years and yes, we were aware the airport was going to be our neighbor! What we didn□t know, was how bad of a neighbor they were going to be. And based on my perception, how easy it is for the City of Chandler to turn a blind eye to this. The City of Chandler is more responsive to a barking dog complaint than a very noisy airplane!

We have a copy the current City of Chandler Aircraft Noise Abatement Guide and can tell you the management at the Chandler Municipal Airport DO NOT follow it. And they have never called us back when we have called to complain. We always left our name and telephone number! The major complaint we have is with the training schools or pilots doing touch and go. They continually fly over residential homes well below the 1000 foot recommendation for single engine aircraft, constantly. Some times they are so low you can see the pilot flying the plain. This is regular occurrence early on a Saturday and Sunday morning.

The other concern I have is safety. I have personally witnessed a near collision between a single engine aircraft and helicopter directly over Danny□s Car Wash on the south/east corner of Gilbert Road and German. The aircraft was not high enough on the turn south and came close to hitting the helicopter.

The new plan/old plan needs to have fines for pilots who do not follow what ever plan is in place. Just like bad car drivers.

Please feel free to contact me to discuss further.

Keidel-Adams, Pamela S

Sent: Sunday, September 07, 2008 8:28 AM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Byron Anderton
Email : landbaron2@gmail.com
Comments : I was unable to submit my survey due to conflicts with work. I would however like to submit my concerns over the helicopter noise that is incessant over the Saguaro Canyon and adjacent neighborhoods. It is my opinion that the helicopter pilots and students make very little effort to reduce the noise and alter their flight paths. On any given day that the helicopters are circling the neighborhoods, the noise is intolerable. It is obvious that the helicopter school is run in a fashion that the management truly does not care about the community they are exploiting. I have made numerous calls to the airport voicing my concerns. I understand that the helicopter school was once located in Scottsdale and moved to Chandler. The City of Scottsdale would not tolerate the noise and nor should the City of Chandler. As one of many taxpayers, I am greatly disappointed with the misfeasance that the Chandler Airport and the City of Chandler are demonstrating in regards to addressing the noise issues. I respectfully request that the City of Chandler address the noise issues and lookout for the best interest of the residents of Chandler.

Keidel-Adams, Pamela S

Sent: Friday, August 29, 2008 6:18 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Cori Roberts
Email : coriroberts@cox.net
Comments : I live at 3150 S. Eucalyptus off Queen Creek and Cooper road. Our back yard faces the airport. And many times the helicopters are so low that our windows shake and rattle. It's is quite loud.

Keidel-Adams, Pamela S

Sent: Monday, August 25, 2008 7:59 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Tony Cesarano
Email : tonycesarano@gmail.com
Comments : Please conduct the study, we live near the airport and find the information very valuable. Area of focus: Helicopter noise, Helicopter flight paths, Flight path is very inconsistent based on maps provided.

Keidel-Adams, Pamela S

Sent: Saturday, August 23, 2008 6:20 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Carolyn Rhinehart
Email : LV2SELLAZRE@cox.net
Comments : Regarding the noise from the airport, I am fine with it with the exception of the helicopters. We don't have a lot flying over us, however, I am concerned when pilots do not abide by the rules of the sky as we have to on the ground. I have had low flying helicopters during the day and at night I've had the pleasure to have a helicopter fly over without any lights on. Commercial jets were also overhead, but luckily they are thousands of feet higher. The City has their job cut out for them regarding the homes they allowed to be built within the vicinity to the airport. That is their biggest obstacle. I'd love to see some fantastic companies relocated here rather than Scottsdale Airpark. We've come a long way, however, we have a long way to go and we must do it right. Thanks for the opportunity to voice my opinion.

Keidel-Adams, Pamela S

Sent: Saturday, August 23, 2008 4:59 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Judith Garner
Email : judithgarner@cox.net
Comments : Regarding the Fixed Wing Itinerant Flight Tracks-Southwest Flow diagram: I live approx. 1/2 mi. west of the Arizona Avenue & Chandler Heights intersection in the Oakwood Lakes Subdivsion under the D15 & D20 flight tracks on your diagram. I frequently see planes flying south that turn east flying over the vicinity of my house. According to the diagram, planes in and easterly flight pattern should be in the D22 & D24 flight tracks which show the turns to take place between Queen Creek Rd. and a little south of Ocotillo Rd. Please be aware and reflect on the diagram that planes are turning to go east, much farther south than the diagram shows.

Keidel-Adams, Pamela S

Sent: Friday, August 22, 2008 11:06 AM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Don Richey
Email : drichey4@cox.net
Comments : Thank you for providing the public meeting on 8/12. Your consultants did a good job in presenting the material. However, I have concerns about the study that was conducted. The tracking patterns (flight tracks) of the helicopters as presented on the boards are inaccurarate. The helicopters fly in circles in an areas much more to the south than they show. Also, the noise monitors should be placed in areas where the helicopters actually fly. I live in the eastern portion of Lantana Ranch and the helicopters routinely fly over our house again and again at very low altitude. The monitors should be placed at locations where the helicopters turn and make that loud chopping noise.

It seems that the helicopters should fly over industrial property or the freeway to prevent excessive noise near residential areas. Also, other helicopters coming from the south routinely buzz our house at night causing the whole house to rattle.

We like the airport and don't mind living near it. However, we did not know about the helicopter training before we moved in. An occasional helicopter is one thing. A helicopter going around and around at low altitidues directly over your house is another thing. The complete disregard for noise by the helicopter operators will always create friction for the City with residents for an airport that is otherwise not much of an issue.

Keidel-Adams, Pamela S

Sent: Monday, August 18, 2008 11:50 AM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Judith Garner
Email : judithgarner@cox.net
Comments : I attended the public meeting August 12, 2008 at Tumbleweed Recreation Center. The audience was told that the charts and maps presented at the meeting would be available on this website within a couple of days. As of today, Monday August 18th, I do not find them posted. The public has been encouraged to submit comments, especially regarding discrepencies with the map showing flight pattern operations. I would like to submit a comment about this, but want to review the maps again, first. When will this information be posted?
Thanks for your reply

Keidel-Adams, Pamela S

Sent: Sunday, August 17, 2008 6:35 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Trevor Spears
Email : azspears@cox.net
Comments : Hello, we live in the lantana ranch subdivision just south of the airport. My only comment is that the helicopters that teach/train pilots follow the same route which is directly over my house. Fine but...they fly so low I can pretty much tell what kind of shoes the pilot is wearing as they hang out the side. Can you look at other options such as route, altitude? They fly sooo low that I can hear the blades chopping the wind. thanks.
Trevor Spears

Keidel-Adams, Pamela S

Sent: Thursday, August 14, 2008 3:33 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Jim Poland
Email : polandjr@cox.net
Comments : Re: Helicopter Operations Noise & Land Use Compatibility Study

My wife and I live at 3397 Valerie Drive, Chandler, AZ. Our home is located in the southeast quadrant of Queen Creek and Cooper; approximately one mile from the Chandler Airport (airport). We moved in June 2005.

At that time I believe the helicopter operations were located on the west side of the airport. The helicopter noise levels given their path and frequency were tolerable. My guess is the noise level and frequency of low flying helicopters at that time was due to the limited size and location of the ground facility smaller building and parking areas equals fewer helicopters and less noise.

Beginning in approximately the September/October 2007 time frame the noise level of low flying helicopters over the new residential areas southeast and south of the airport, south of Queen Creek Road along Cooper, has increased substantially on a daily basis. The duration of these flight evolutions can last one to two hours with over flights occurring every five to 90 seconds. In what the city billed on signage around the airport property as a new heliport was and is in fact a robust helicopter training facility.

These low flying helicopter training flights in the airports pattern routinely utilize the east side landing pattern. It has been my experience the downwind track of helicopters in the pattern are always east of the Cooper and Queen Creek intersection. In point of fact, I have not seen a helicopter in the pattern on the west side of the airport since their ground operations were moved to the east side of the airport.

Any number of steps could be taken to mitigate the noise from helicopters flying around the airport. One step could be to adopted guidelines similar to those followed by Scottsdales Airport:

http://www.scottsdaleaz.gov/Assets/documents/airport/HelicopterPilotGuide2005.pdf

http://www.scottsdaleaz.gov/Assets/documents/airport/HelicopterLOA6-1-2004.pdf

Another approach would have helicopters fly the pattern on the west side of the airport at higher altitudes not mixed with fixed wing aircraft on the east side. At present, there are few residential homes located below this flight pattern area. Also, the City of Chandler (city) could limit or eliminate all helicopter training in the airports pattern area.

In my view, the city has created the noise issues generated by helicopters at the airport. Based in part on the noise complaints by residents on the west side of the airport, the helicopter ground facility was relocated by the city to a much larger building on the north east side of runway 4R/22L.

I suspect the pattern flown by helicopters is further complicated by the citys contract tower personnel at the airport who may be more concerned with the wishes of airport personnel and operators - keeping their customers happy; than the communitys concern over noise and safety issues.

Concurrent with moving the helicopter ground facility, the city issued residential and commercial building permits for development immediately adjacent to the airport on the east, north and south side - under the airports traffic pattern. My point is simply, the city has the direct and sole responsibility to address noise and zoning issues surrounding the airport before any further infill permits are granted or started.

The public as a whole will accept admissions by their elected officials when honest mistakes in judgment are made. What the public will not tolerate at the ballot box are those who are out of touch or not responding to the community□s concerns, i.e., noise and safety. Based on the Part 150 meeting this past Tuesday evening, I got the feeling city officials think they□ll just keep making their plans and rollover any public opposition to helicopter noise. I have seen this scenario play out many times before in other communities where I have lived.

I suspect over the course of the next five to ten years as infill continues around the airport public pressure will increase greatly to reduce the noise and safety impacts generated from not only helicopters but fixed wing aircraft as well. In the intervening years if public officials and operators dismiss or pay lip service to the community□s concerns I could see a ballot measure deciding the future of the airport. In a recent AOPA article it stated, in the past five years 135 public use airports were closed □ many over zoning issues.

I understand WSA□s role concerning the FAR Part 150 Study and granted much of what I have written does not specifically apply. On the other hand, I believe WSA has a responsibility to serve the city□s greater benefit and communicate to city stakeholders the public□s resolve and overall sentiment regarding airport/aircraft noise and land use compatibility issues.

Jim & Karen Poland
polandjr@cox.net
480-629-8972

Keidel-Adams, Pamela S

From: Greg.Chenoweth@chandleraz.gov
Sent: Wednesday, October 29, 2008 4:14 PM
To: Keidel-Adams, Pamela S
Subject: Fw: Airport noise

Pam:

Before this slips too far back into my inbox of emails to be lost in an archive action, here's a noise complaint we received. Thought I'd pass it along for alternatives considerations.

Greg Chenoweth, A.A.E., C.A.E.
Airport Manager, Chandler Municipal Airport
vx: 480/782-3540
fx: 480/782-3541
greg.chenoweth@chandleraz.gov
----- Forwarded by Greg Chenoweth/COC on 10/29/2008 04:10 PM -----

"L.BURCHARTZ" <lburchartz@cox.net>
09/23/2008 10:24 PM

To <Greg.Chenoweth@chandleraz.gov>
cc
Subject Re: Airport noise

Mr. Chenowith,

Thank you for your reply.
I wish to clarify some items.
I live on Kerby Way south of Ocotillo ave. and between Mc Queen and AZ ave. Behind my house I have high masts with high voltage cables strung between them and NO orange safety balls. Aircraft staying in the pattern make their left turn at Ocotillo ave., fly over the high voltage cables and pass right over the Kerby Estate houses in my neighborhood. These are the "noise makers", not the ones flying straight toward AZ ave.
I hope this will clarify my concerns.
Thanks.

Lawrence Burchartz
----- Original Message -----
From: Greg.Chenoweth@chandleraz.gov
To: L.BURCHARTZ
Sent: Monday, September 22, 2008 5:36 PM
Subject: Re: Airport noise

Mr. Burchartz:

Thanks for your input. We are in the middle of a Federal Aviation Regulation (FAR) Part 150 Noise Compatibility Study. I will make sure your idea is considered as a part of the study. Your suggestion of a noise abatement procedure using AZ Ave has been discussed off and on for the 12 years I've been here. More recently, concern for this departure has been expressed for the residential areas that are now near AZ Ave and Ocotillo. But I do think your idea should be discussed again and will see that it is considered as a possible noise abatement procedure in the alternative stage of the noise study.

Greg Chenoweth, A.A.E., C.A.E.

Airport Manager, Chandler Municipal Airport
vx: 480/782-3540
fx: 480/782-3541
greg.chenoweth@chandleraz.gov
"L.BURCHARTZ" <lburchartz@cox.net>

"L.BURCHARTZ"
<lburchartz@cox.net>

09/22/2008 10:59 AM

To <greg.chenoweth@chandleraz.gov>
cc
Subject Airport noise

Dear Mr. Chenowith,

It is with interest that I read the airport article in the San Tan newspaper.
As an inactive private pilot, I used to fly out of Long Beach, So. California, I now live about 3/4 mi. at the S/E end of the Chandler Airport.
I have a suggestion ;
Why not come out and write a NOTAM stating the following:
Pilots taking off in a Southerly direction must remain on their straight-out direction until they reach Arizona ave. before turning left. This will take the pilots over empty vacant land they will be at a higher altitude when turning. It won't take more 10 to 20 seconds of fuel consumption and my neighbors and I will be much happier noise wise.
For landing in a N/W direction, use the shopping area as a landing waypoint.

I have been awakened as early in the morning as 6 o'clock by an airplane flying less then 100' over my house. This fortunately does not happened very often.

I hope you will consider my suggestion.

Truly yours,

Lawrence Burchartz

Chandler Municipal Airport

FAR Part 150 Study

Chandler + Arizona
Where Values Make The Difference

COMMENT FORM

Please provide the following information and submit your written comments for consideration in the study. You may also submit your comments via the website at **www.wilbursmith.com/chandlerpart150/**

NAME: MAUREEN DICKER PHONE: 480-215-2754
EMAIL: modicker e cox.net

I am concerned that none of my calls have ever been returned. I followed the directions on the web site about the noise ordinance. I have called the airport on the number provided:

I love airplanes - but if they followed the height recommendations - I believe there would be very few complaints.

Chandler Municipal Airport

FAR Part 150 Study

Chandler + Arizona
Where Values Make The Difference

COMMENT FORM

Please provide the following information and submit your written comments for consideration in the study. You may also submit your comments via the website at **www.wilbursmith.com/chandlerpart150/**

NAME: Kris Durrschmidt PHONE: 480-786-8883

EMAIL: KDurrschmidt@gmail.com

I would like to be notified of all future meetings & legislation on the airport noise issues.

Kris Durrschmidt
2005 N Pennington Dr
Chandler AZ 85224.

I want my concerned documented.
when may I speak?

Chandler Municipal Airport

FAR Part 150 Study

Chandler + Arizona
Where Values Make The Difference

COMMENT FORM

Please provide the following information and submit your written comments for consideration in the study. You may also submit your comments via the website at **www.wilbursmith.com/chandlerpart150/**

NAME: JERRY BROOKS PHONE: 480-963-0156

EMAIL: BROOKSDIDIT@AOL.COM

YOU SHOULD USE MAPS IN YOUR DISPLAYS WHICH SHOW CLEARLY WHERE HOMES ARE. THE LAND USE MAPS SHOW ZONING FOR RESIDENTIAL BUT ONE CAN NOT TELL IF HOUSING HAS BEEN BUILT, ARDEN PARK, SOUTH OF GERMANN B/T ALMA SCHOOL AND AZ AVE IS AN EXAMPLE, APPROACH AND DEPARTURE ROUTES ARE DIRECTLY OVER THIS HOUSING, WE MUST BE CREDITABLE IN THIS EFFORT,

J BROOKS

Chandler Municipal Airport

FAR Part 150 Study

Chandler + Arizona
Where Values Make The Difference

COMMENT FORM

Please provide the following information and submit your written comments for consideration in the study. You may also submit your comments via the website at **www.wilbursmith.com/chandlerpart150/**

NAME: PHIL BECKER PHONE: 714 746 6753

EMAIL: pbecker@tynangroup.com

RAISING FIXED WING TRAFFIC PATTERN IS COUNTER PRODUCTIVE

Chandler Municipal Airport

FAR Part 150 Study

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COMMENT FORM

Please provide the following information and submit your written comments for consideration in the study. You may also submit your comments via the website at **www.wilbursmith.com/chandlerpart150/**

NAME: CHAD GOUDIE

PHONE: 480.917.7294

EMAIL: jgoudie@cox.net

My Home is 1/3rd statute mile south of the end of Runway 4L. My input is that the "excessive" or "agressive" noise experienced @ that location ~~is~~ comes "pre-dominantly" from the rotary-wing aircraft. If changes to the PA for Rotary-Wing aircraft can be made, my input is ~~that~~ there will be a SIGNIFICANT improvement in noise experienced.

Chandler Municipal Airport

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COMMENT FORM

Please provide the following information and submit your written comments for consideration in the study. You may also submit your comments via the website at **www.wilbursmith.com/chandlerpart150/**

NAME: Jennifer Smith PHONE: 480-621-7484

EMAIL: jennifsmith@gmail.com

I recommend that we as a city invest money in a system that allows us to monitor flight elevations and monitor those pilots that are breaking regulations.

Thank you for your study & for the meeting.

Jennifer Smith

Chandler Municipal Airport

FAR Part 150 Study

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COMMENT FORM

Please provide the following information and submit your written comments for consideration in the study. You may also submit your comments via the website at **www.wilbursmith.com/chandlerpart150/**

NAME: GUY C. PEPOY PHONE: WORK # 602-276-6654

EMAIL: SALES@FOILGRAPHICS.COM

ONE OF MY NEIGHBORS (IN TWIN ACRES) HAD A NOISE SENSOR LOCATED ON HIS PROPERTY (NUMBER 10). HE NOTED AT A NEIGHBORHOOD MEETING THAT THERE WAS A SIGNIFICANT DECREASE IN TRAFFIC DURING THE PERIOD THE SENSORS WERE IN PLACE. INTERESTING.

I VOICED MY CONCERN (TO A MEMBER OF THE CITY COUNCIL) ABOUT THE FACT THAT THE PERIOD OF STUDY WAS ANNOUNCED BY THE AIRPORT MANAGER AT THE MARCH COMMISSION MEETING. OBVIOUSLY, IF THE STUDY PERIOD IS KNOWN THE NUMBER OF OPERATIONS CAN BE REDUCED AND ALTITUDE (AND OTHER BEHAVIORS THAT INFLUENCE OUTCOME) CAN BE MODIFIED. THUS INFLUENCING THE VALIDITY OF YOUR STUDY.

I WOULD LIKE TO SEE NUMBER OF OPERATIONS BEFORE AND AFTER THE STUDY PERIOD: 30 DAYS BEFORE STUDY = ___ ÷ NUMBER OF DAYS = AVE DAILY OPERATIONS. HOW DO THESE AVERAGE DAILY OPERATIONS COMPARE?

CLEARY, WE CANNOT MEASURE ALTITUDE & POWER SETTINGS. YOU CAN MEASURE NUMBER OF ~~[illegible]~~ OPERATIONS.

Chandler Municipal Airport

FAR Part 150 Study

COMMENT FORM

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Please provide the following information and submit your written comments for consideration in the study. You may also submit your comments via the website at **www.wilbursmith.com/chandlerpart150/**

NAME: Walter Wright

PHONE: 480-776-3817 W
480-883-1328 H

EMAIL: WSWright@Cox.net

~~1. Has the measurement portion of the study been done during a period of heavy usage? Is the DNL based on a real annual data or based on a portion of a year? Airport usage is not as heavy in warm weather.~~

~~2. Were users aware of when measurements were being made? They could bias the data.~~

3. Is there some way of using Technology to police the Airport? Can Photo's be triggered by excessive sound levels? I think they do it in Europe. I believe a lot of these issues could be solved with responsible behavior by Pilots.

4. How many of the Airport Commission members are not affiliated in any way with aviation or the airport?

5. It was stated airport has $53,000,000 impact. How much impact does Chandler Fashion Center have?

Chandler Municipal Airport

FAR Part 150 Study

COMMENT FORM

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Please provide the following information and submit your written comments for consideration in the study. You may also submit your comments via the website at **www.wilbursmith.com/chandlerpart150/**

NAME: Alfred E. Pfahl PHONE: 480 961 3837

EMAIL: Janalpfahl@cox.net

Helicopter flight pattern is completely bogus. Every training helicopter crosses Gilbert Road. What you are showing has never happened in 1½ years, since October 2006.
If the FAA gave you this information they must be asleep.

A E Pfahl

8-12-08

Chandler Municipal Airport

FAR Part 150 Study

COMMENT FORM

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Please provide the following information and submit your written comments for consideration in the study. You may also submit your comments via the website at **www.wilbursmith.com/chandlerpart150/**

NAME: SANJAY BHIDE

PHONE: 4/812 9511

EMAIL: sanjaybhide@hotmail.com

a) Helicopters make lot of sound, fly low with too much frequency causing real disturbance, They have increased the flights, frequency in last couple years since 2004

Why do you not move Helipad out of this airport? What is exact guideline for that from FAA. What is real cost benefit anyways for Helipad in chandler.

b) Please do not have any more runway extension, airport hangers. This is likely adding more noise than what we had really had.

8-12-08

Chandler Municipal Airport

FAR Part 150 Study

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COMMENT FORM

Please provide the following information and submit your written comments for consideration in the study. You may also submit your comments via the website at **www.wilbursmith.com/chandlerpart150/**

NAME: CHARLIE DAVIS PHONE: 602-696-7484

EMAIL: CDAVIS34@COX.NET

Less Helicopters – Less Noise

8-12-08

Chandler Municipal Airport

FAR Part 150 Study

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COMMENT FORM

Please provide the following information and submit your written comments for consideration in the study. You may also submit your comments via the website at **www.wilbursmith.com/chandlerpart150/**

NAME: THERESA ZIMM PHONE: 480-663-3609

EMAIL: theresa.zimm@cox.net

* Please include the Santan 202 freeway on your flight track and DNL Pattern maps, please! I am finding it difficult to "find my house" or other landmarks because this major artery is missing. Thank you.

Also, please try again to set up a fixed Station in the large greenbelt of Rancho Del Ray just north of the airport and Santan 202. I understand that children tried to tamper with the equipment but as a homeowner with multiple flights directly over my home which wake me from a sound sleep, I find it hard to believe that my community is within acceptable DNL range.

Thank you.

8-12-08

Chandler Municipal Airport

FAR Part 150 Study

COMMENT FORM

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Where Values Make The Difference

Please provide the following information and submit your written comments for consideration in the study. You may also submit your comments via the website at **www.wilbursmith.com/chandlerpart150/**

NAME: GUY PEPOY PHONE: 480-820-4666

EMAIL: SALES@FOILGRAPICS.COM

MY PRIMARY CONCERN RELATES TO THE CONSTANT, LOW FLYING HELICOPTER TRAFFIC OVER MY HOME. THEY ARE AT 150-250' ELEVATION AND FLY OVER EVER 5 TO 7 MINUTES.

THIS CONSTANT, INTRUSIVE NOISE IS A SEVERE IRRITANT. WHY DO THEY HAVE TO FLY CONSTANT TOUCH & GO OPERATIONS AT THIS LOCATION? CAN THEY FLY SOMEWHERE ELSE WITH LESS POPULATION DENSITY? IS IT POSSIBLE TO ALTER THE FLIGHT PATTERN SO THEY SPEND MORE FLIGHT TIME OVER THE 202? FEWER HOMES AND FAMILIES MORE INDUSTRIAL USEAGE IN THE 202 CORRIDOR

8-12-08

Ron Seymour

From: Grace Hu
Sent: Tuesday, May 26, 2009 8:18 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Grace Hu
Email : ghu@cox.net
Comments : My house is at Gilbert & Queen Creek Road and we are very much bothered by the airplane/helicopter noise. With the airport two miles away, I do not understand why the airplanes always have to circle above the resident communities before landing or after taking off. It makes more sense for the control tower to ask the pilots to avoid flying over communities as much as possible. Over the weekends, the flight training school let the student pilots cirling and cirling at low elevation above our communties, even when there is strong winds. Not only the noise bothers us, the saftey issue also concerns us. Chandler has so many unpopulated area, why not let the student pilots fly over the farm lands? They can fly as long as they want.
We put a lot of money and efforts in our house, trying to make it a relaxing, comforting place. But the airport noise ruined all of that. I sincerely request that you do an extensive study on noise abatement and flight pattern improvement. And I strongly request that the flight training school relocated to futher unpopulated area.
Thanks,
Grace

Ron Seymour

From: Dirk Matthews
Sent: Wednesday, May 27, 2009 5:19 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Dirk Matthews
Email : azbdmatt@hotmail.com
Comments : HI, I am on the noise study committee but I still wanted to add a couple of more comments.
1) Putting the noise monitors out again was a great idea - however since the tennets at the airport knew of the time and locations of the monitors - it really can skew the numbers you see. I can personnaly attest to the gact the the helicopters flew half as often, twice as high and extended the path they normally fly bo over half a mile. It was SO obvious what they were doing.
2) The helicopters do NOT follow any of the Helicopter Associations guidelines for flying near residential areas.
3) You state that the committe will be able to see the feedback from the public at the next meeting - and that meeting will be held the night before. Where is this being advertised? I live next to the airport and have not heard of this meeting until I received this letter from you. This is CRITICAL information that is needed by the city.

I look forward to seeing your findings and recommendations - Thanks

Ron Seymour

From: Brett Myzer
Sent: Wednesday, May 27, 2009 9:34 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Brett Myzer
Email : bmyzer@movephoenix.com
Comments : When buy a home in the subdivision to the east of the neighborhood, I studied the flight paths of the air traffic. They did not cross gilbert rd while the homes were being built. Now we are in the flight path 200 yards east of Gilbert rd. Why did this change?

Ron Seymour

From: Byron Anderton
Sent: Thursday, May 28, 2009 3:40 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Byron Anderton
Email : landbaron2@gmail.com
Comments : Unfortunately I will not be able to make the meeting. I would however liek to voice my concern regarding the air traffic noise (particularly the helicopter traffic). On most weekends it is absolutely unbearable I assure you it is having a negative impact on housing in the Saguaro Canyon development. I own two houses in the neighborhood and have one rented to a prospective buyer. That buyer is no longer interested in purchasing my home because of the relentless helicopter noise overhead (very disappointing). Please address the helicopter noise it truly is contributing to home price decline.

Respectfully.

Ron Seymour

From: "B.G. Jones"
Sent: Thursday, May 28, 2009 5:29 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : B.G. Jones
Email : bgjones2@cox.net
Comments : Very short notice about the meeting scheduled for June 4, 2009 and as luck has it I will be out of town. I have one comment to make besides the short notice and that is to extend the southwest take off climbing patterns further out over the Indian Reservation vacant lands (pass Riggs Road and Interstate I-10) so the planes will not make the noise they make while climbing and turning at the same time. Also in regards to this, as Falcon Field did with help from the Mayor of Mesa, change the altitudes higher which small planes can fly so that the noise will be less. The noise is a big problem and instead of gripping here is a viable solution.

Ron Seymour

From: richard parker
Sent: Friday, June 05, 2009 9:12 AM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : richard parker
Email : rparker27@cox.net
Comments : runway extensions should be considered if patterns and altitudes change. for many aiorcraft current lenghts are somewaht of a safety issue during summer months. Lengthing would permit a majority of aircraft to climb out and achieve an altitude compatible with people that elected to live under the flight patterns. Landings approaches could be raised by the safe addition of a displaced threshold, which cannot be dome safely given current lengths.

Ron Seymour

From: John Pein
Sent: Friday, June 05, 2009 10:52 AM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : John Pein
Email : jnjpein@fastmail.net
Comments : I attended last nights presentation and expressed my concerns along with many other concerned residents. I found it interesting that all the residents held their comments to 3-5 minutes as agreed. I found it interesting that the helicopter owner was allowed to ramble on and on stating how wonderful they are and the problem was all the people who moved in after he set up business. Listening to him tells me that he does not understand what a good neighbor policy is all about. Just as important was how the facilatator allowed him to violate the rules and just keep rambling on. I guess if you're in the inner circle the rules don't apply. Your facilatator certainly created the perception that money and influence has it's privledge. And no I won't accept a response that the owner represented the airport operators. He was there to beat his own drum.

Ron Seymour

From: Ken Pichelmann
Sent: Friday, June 05, 2009 4:22 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Ken Pichelmann
Email : spichelman@aol.com
Comments : First I want to tell you that I appreciate the study and your interest in working with the Chandler communities. I attended your meeting Thursday night, June 4, 2009. Up front, I am a supporter of the airport and any other means for generating income in the Chandler area. I thought overall the meeting was very informative however I thought the facilitator could have done a better job of addressing some of the defensive comments from the pilots who attended, specifically the individuals representing the helicopter training and fixed wing training schools. They didn't seem to have anything constructive to offer only defensive rhetoric. Everyone was aware of the airport being in the area when they purchased their homes, beating the these homeowners over the head with the fact wasn't the purpose of the meeting and it should have been mentioned by the facilitator. I personally had addressed a concern for the touch and go training patterns. I was not aware and learned at this meeting there are no altitude restrictions associated with this type of flight. With this said I had asked if the study could investigate modifying these training flight patterns to avoid residential areas as much as possible to prevent the nuisance number of low level overhead flights in the populated areas. I do not have a problem with the occasional overhead flights but these extremely low sorties are annoying after awhile. I must admit, I have more concerns after listening to the individual with the training school who commented, "he was not going to move the flight pattern out for the safety of his pilots who might need to get back to the airport in an emergency". My problem with this comment and I'm not a pilot, but the individual never asked where it was that I lived so he had no idea of the distance to know if a modification of the pattern would effect the safety of his pilots. It seems to me if his pilots flew at a higher altitude, a little further out from the airport the safety factor is greatly improved for both his pilots and the home owners in the immediate area. If the residents heard his comments I think there would be more of a concern for the overall safety of the homeowners than for the noise! As information, I live just North of the 202, Pecos and Cooper being the main intersection, Canyon Oaks Estates subdivision. From a homeowners perspective, the comments and presentation made at the meeting by the individuals responsible for the FAR PART 150 STUDY, made it seem as though their only going through the motions of pleasing the communities and keeping them informed which in itself isn't all bad. More than once I heard the comment made that you will be following the guidelines of the FAA for setting up the airport. It would be better to also hear what you have done or plan to do in rectifying the communities concerns at these meetings. Only my opinion!

Ron Seymour

From: SPichelman@aol.com
Sent: Friday, June 05, 2009 4:26 PM
To: Keidel-Adams, Pamela S
Subject: RE: FAR Part 150 Study

First I want to tell you that I appreciate the study and your interest in working with the Chandler communities. I attended your meeting Thursday night, June 4, 2009. Up front, I am a supporter of the airport and any other means for generating income in the Chandler area. I thought overall the meeting was very informative however I thought the facilitator could have done a better job of addressing some of the defensive comments from the pilots who attended, specifically the individuals representing the helicopter training and fixed wing training schools. They didn't seem to have anything constructive to offer only defensive rhetoric. Everyone was aware of the airport being in the area when they purchased their homes, beating the these homeowners over the head with the fact wasn't the purpose of the meeting and it should have been mentioned by the facilitator. I personally had addressed a concern for the touch and go training patterns. I was not aware and learned at this meeting there are no altitude restrictions associated with this type of flight. With this said I had asked if the study could investigate modifying these training flight patterns to avoid residential areas as much as possible to prevent the nuisance number of low level overhead flights in the populated areas. I do not have a problem with the occasional overhead flights but these extremely low sorties are annoying after awhile. I must admit, I have more concerns after listening to the individual with the training school who commented, "he was not going to move the flight pattern out for the safety of his pilots who might need to get back to the airport in an emergency". My problem with this comment and I'm not a pilot, but the individual never asked where it was that I lived so he had no idea of the distance to know if a modification of the pattern would effect the safety of his pilots. It seems to me if his pilots flew at a higher altitude, a little further out from the airport the safety factor is greatly improved for both his pilots and the home owners in the immediate area. If the residents heard his comments I think there would be more of a concern for the overall safety of the homeowners than for the noise! As information, I live just North of the 202, Pecos and Cooper being the main intersection, Canyon Oaks Estates subdivision. From a homeowners perspective, the comments and presentation made at the meeting by the individuals responsible for the FAR PART 150 STUDY, made it seem as though their only going through the motions of pleasing the communities and keeping them informed which in itself isn't all bad. More than once I heard the comment made that you will be following the guidelines of the FAA for setting up the airport. It would be better to also hear what you have done or plan to do in rectifying the communities concerns at these meetings. Only my opinion!

Ken Pichelmann
Resident, Chandler
spichelman@aol.com

From: Al Raleigh
Sent: Friday, June 05, 2009 9:30 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Al Raleigh
Email : ajraleigh@wbhsi.net
Comments : Thank you for the public hearing on June 4, 2009. I have these comments:

1. Noise Monitoring
It was stated by your representative that neither the airport nor pilots knew when or where monitoring was occuring. However, it was also stated by at least two residents that the level of noise was much less during monitoring at those locations. Noise monitoring needs to done anonymously and on an ongoing basis.

2. Noise Complaints
It was clear by the comments of your represensatives and the airport operators that nothing can be done about the exceptions to the procedures; that is, pilots that fly low, early or late in the day disregarding the peace and quiet of the residential area. Noise complaints must be taken into account when developing the contours.

3. Notification
The meeting was sparsely attended by residents from both inside and outside the city. No notice that I am aware of was given to the county residents adjacent to the city. I might guess that this lack of notice was intentional. A better effort must be made to contact the Sun Lakes homeowner's Associations.

4. FAA
It is clear that the primary mission of the FAA is to protect anyone who flies from anyone who doesn't. Private pilots seem to be referred to in print and speech almost as if they were Navy captains. Many are actually closer to ATV riders. The FAA needs to:
 - allow complaints to be made directly and specifically to them regarding noise; the data saved and reported on
 - require registration numbers to be clearly visible from the ground on the bottoms of wings or fuselage
 - allow airports to fine or suspend pilots, as well as the FAA be able to do the same
 - allow municipal airports to restrict the hours of operation except in emergency
 - do anonymous noise monitoring and actually use the data to expand the DNL area or contours if needed

5. Airport
It is also clear that the vast majority of complaints from residents are due to the flight schools. It is incomprehensible how the city and FAA can allow flight schools in the middle of a residential area. These need to be reigned in or shut down as soon as possible. Like a sewage plant or rifle range, there is not enough benefit to the citizens to warrant such abuse of the area.

6. Part 150 study
While well-intentioned, the fact that pilots can violate any procedure with impunity means we could be wasting our time, as was suggested by one resident speaker.

Conclusion:

I applaud all efforts to close the gap between good pilots and bad, or good airport businesses and bad ones. I wish you success in that. If those are not your goals then I would appreciate knowing that too; perhaps the city could avoid the cost of those nice flyers.
- Al Raleigh, Sun Lakes, AZ

Ron Seymour

From: Karen Pearson
Sent: Monday, June 22, 2009 10:01 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Karen Pearson
Email : khyll71@hotmail.com
Comments : The helicopters need to change their flight pattern...too loud, too low.

Ron Seymour

From: Kelly McMullen
Sent: Wednesday, December 09, 2009 12:11 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Kelly McMullen
Email : kellym@aviating.com
Comments : After attending the public meeting last night, I came to the conclusion that the majority of complaints are generated by helicopter noise. I would encourage Chandler to pursue an agreement to utilize the NW corner of the Memorial Airfield for helicopter training with the Gila River Indian Tribe. The airfield is unused at this time. The NW corner is furthest from any homes, and if a pattern were kept to the west of the airfield it would be over 2 miles away from any homes. This airfield is less than 5 minutes from Chandler to minimize any expense to the flight school and their students. Limiting helicopter operations at Chandler to arrivals and departures would enhance safety as well as minimizing noise, by keeping helicopters away from the flow of fixed wing aircraft, which is supported as a goal in the FARS.
Well done presentation that clearly demonstrates that fixed wing traffic presents minimal noise impacts as long as zoning and development around the airport are kept compatible.

Ron Seymour

From: Captain
Sent: Wednesday, July 29, 2009 5:14 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Captain
Email : captainandcolleen@hotmail.com
Comments : The noise from a/c departing runways 4L-4R have improved over the past few months, a few mindless pilots still try to take the tiles off the roof's just south of the gilbert college at o-dark 30 in the morning, I still would recomend departing traffic to continue climbing runway heading to 1000 AGL, then proceed on course, just imagine how happy the residents far below will feel, I am a pilot myself and love a/c noise, but flying under 500ft AGL over the college to the north is a bit too low, KIRK.

Ron Seymour

From: "James A. Tassie, Sr."
Sent: Friday, December 04, 2009 12:42 AM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : James A. Tassie, Sr.
Email : jtassie1@cox.net
Comments : Tuesday, December 8th, is a Holy Day of Obligation and I will be unable to attend the informational meeting due to church obligations. I am a strong supporter of the Chandler Municipal Airport and would appreciate being kept informed. I live 3 miles East of the airport and, being a retired USAF pilot, delight in watching the GA aircraft in the pattern which is often right above my house. No noise issue with me.

Ron Seymour

From: Mark Peters
Sent: Sunday, December 13, 2009 2:36 AM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Mark Peters
Email : boxvandude@msn.com
Comments : AIRPORT NOISE - ANOTHER PERSPECTIVE:

I attended the "Part 150 Study" public meeting the other night and found it very informative. I am a pilot/aircraft owner and operate out of Chandler. However I am not practically fond of living in a noisy environment and as such shunned airparks and the idea of living by an airport. With that said, I think it is fair to say I can understand everyone's position. I however, tend to analyze issues from a much higher perspective.

When one moves to and/or lives in a city, they are subjected to the changes, inconveniences, growth and infrastructure needs of that city. The expansion and increased traffic at the Chandler Airport is no different then the new roads and freeways that developed around my house over the last twenty some years not to mention the fire station one quarter mile away. Every morning we now awake to an ambient roar of traffic transpiring through the windows. On occasion we hear sirens, loud trucks, motorcycles and cars. Apparently because the automotive mode of transportation is exercised by every individual, these events are tolerated. Not everyone utilizes busses, planes, boats, trains, light rails, bikes or sidewalks. As result, these less common forms of transportation and their supporting infrastructures are subjected to endless public bias and scrutiny in every city.

In addition, noise is just one element of city inconveniences. There is traffic, crime, pollution both air and light, higher taxes, more stringent laws and codes and the list goes on. The inconvenient element of noise from the airport is no different then that element of a school or public bus hindering traffic flow. Or for that matter, emergency vehicle, trains, bikes, rail or pedestrians having the same effect. I highly suspect someone opposing the airport would not object to an emergency helicopter backing up traffic, blowing dust and making noise to save their own life.

The individual home owner has the option and choice to effectively change their living environment. However, a city's options to appease every individual is statistically impossible. Revenue spent to achieve the impossible is counter productive to the very intent of a city function. The airport is compliant and the city should stand firm on that fact.

NOT BLIND TO THE EXCEPTIONS:

With 20+ years of flying out of Chandler, I personally have observed questionable and irresponsible pilot behavior both on the ground and in the air. One could easily understand how a pilot racing across the parking ramp in a car with a total disregard for others would have no consideration for neighbors and safe flight. I have seen numerous aircraft over the years miserably fail their mag check or misfiring, only to take-off and claw for altitude over homes. A recent plane seen left running at the fuel pumps, not chocked and no one inside is obviously a red flag to the possibilities in flight.

Just as we have the ability to report a drunk driver on the road for wreckless and unsafe operation, so should one have the ability to report an aircraft that demonstrates obvious unsafe flight. For both parties involved, the reporting must be simple, factual and the data easily rendered for analysis. A simple online system with a user registration could provide basic statistics with meaningful results. If the user could not identify the N number, they could pick from some simple icons such as high wing, low wing, twin, jet, helicopter, enter colors and so on. This would also easily identify the location of the user from the airport, time of event and type of complaint.

Given the amount of funds and energy the city has spent over the years trying to appease so few, they could easily provide a simple reporting system for a much lesser cost. People feel better just knowing they have recourse and someone cares.

IN SUMMARY:

While the historical and current "PART 150" studies are meaningful and prove the airport is compliant, it might be time to respond to the impossible few through a less expensive and more effective complaint mechanism. The resulting data would easily identify all aspects of the issue from abuse to meaningful data.

Respectfully,

Mark Peters

Ron Seymour

From: "Josie D. Bell"
Sent: Sunday, December 06, 2009 4:46 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Josie D. Bell
Email : josiebell@attglobal.net
Comments : The helicopter noise at the Chandler Municipal Airport is quite excessive & extensive, particularly at the intersection area of Gilbert Road and Germann Road.

I am submitting this written response as a result of the information that has been presented to the Chandler, Arizona citizens relative to the Chandler Airport FAR Part 150 Noise Study and its effect on potential airport pilot operating procedures.

I was in attendance at the December 8,2009 meeting held at the Chandler Library and would like to express my concern for a Program that appears to have questionable validity for which the local taxpayers are providing funding.

Aviation Activity Levels for Chandler Municipal

Operations per Year:	2008	268,185
	2013	309,423

Fleet Mix:		2008		2013
Jet	950	(.35%)	1384	(.45%)
Turbo Prop	8000	(2.98%)	8859	(2.86%)
Single Engine	175423	(65.41%)	192619	(34.28%)
Helicopter	8320	(31.02%)	105948	(34.28%)
Military	612	(.23%)	612	(.20%)

Flight Rules: (Based on 2007& 2008 Data)

IFR:	2060 operations	0.08%
VFR:	266125 operations	99.2%

Type of Flight	2008	2013
Training School	66%	68%
Personal/Business	34%	32%

From the data provided, it is apparent that Chandler Municipal Airport is basically an airport that is devoted to training new pilots and supporting the VFR general aviation pilots. This sector represents the Grassroots of American Aviation.

Initial Studies

Although the regulations contained in FAR Part 150 are voluntary and airport operators are not required to participate, in 1998, The City of Chandler and the Chandler Airport conducted a FAR 150 Noise Program that resulted in the generation of Noise Exposure Maps and a Noise Compatibility Program that was presented to and approved by the FAA (NEM 6-24-99) in 2000 for a total cost of $442,650.

To address the noise concerns of the local citizens, the City of Chandler established several noise abatement elements for the Chandler Municipal.

a) Voluntary preferential arrival and departure procedures to avoid residential areas around the airport
b) Fixed wing aircraft were encouraged to fly to the airport boundaries before making a crosswind turn after takeoff
c) Quantum Helicopters established arrival and departure procedures with the ATCT

Growth in Chandler

The city of Chandler has grown in population from 1990 to 2008 as follows:

1990	90715	
2000	176958	+95%
2008	251281	+42%

I have personally seen this growth as I am a native to the Phoenix Valley, my Mother was born in Gilbert, and my Grandmother come from Kansas in a covered wagon as a young girl to settle in Gilbert.

The growth in Chandler and the whole of the Valley of the Sun saw phenomenal growth during this period up until the end of 2008 when our economy started to decline. The housing boom saw many new developments and the City Council was obliged to make several Zoning decisions. The area around the airport is no exception and as far as I am aware, all of the residence around the airport were required to sign a Waiver Form indicating that they were aware of the fact that they were purchasing a residence that is in close proximity to an airport that could result in higher noise levels than in a non airport area. I have friends in these neighborhoods who have indeed signed these forms.

Noise Data

With growth comes controversy and as with all airports except Sky Harbor which is the Airport Hub of Arizona, all satellite airports in the Phoenix area such as Deer Valley, Falcon Field, Gateway, Scottsdale, Luke Air Force Base, Glendale, Goodyear, and Stellar Airpark have all come under criticism for excessive noise reported by neighborhood residence. I would like to add that all of these airports when they were built were far outside any city limits at the time they were built. It is the growth of the communities that have encroached upon the airports. This is all in the name of progress and if the City Council members of each city take corrective Planning actions during a high growth period, there should be no conflict of interest between airport operations and neighborhood residence.

In 2005, a Noise database was initiated to gather information on noise complaints from neighbors surrounding the Chandler Municipal Airport. The following information was gathered over a 57 month period.

Table 1.2
COMPLAINTS BY CITY

Complaints by City	Total	Percentage by City
Chandler	98	49%
Unknown	93	46%
Sun Lakes	7	3%
Gilbert	4	2%
Grand Total	**202**	**100%**

SOURCE: Chandler Municipal Airport, ESA Airports

Table 1.4
COMPLAINTS BY AIRCRAFT TYPE

Type of Aircraft	Total	Percentage by Aircraft
Helicopter	105	52%
Unknown	56	28%
Aerobatic	17	8%
Jet	9	4%
Propeller	9	4%
Aircraft	4	2%
Balloon	1	0%
Fixed wing	1	0%
Grand Total	**202**	**100%**

SOURCE: Chandler Municipal Airport, ESA Airports.

Table 1.3
COMPLAINTS BY TYPE

Nature of Complaint	Total	Percentage of Complaint
Low Flying Helo in TPA	78	39%
Unknown	22	11%
Low Flying in TPA	20	10%
Noise & Low Flying	10	5%
Aerobatic	9	4%
Low flying aircraft	9	4%
Low Flying Helo	8	4%
Aerobatic plane in TPA	7	3%
Noisy Acft in TPA	6	3%
Noisy Planes	6	3%
Low flying Acft in TPA	3	1%
Low flying planes	3	1%
Noise from Acft	3	1%
Noisy low flying Acft	3	1%
TPA Traffic	2	1%
Acft	1	<1%
Acft Noise (not TPA)	1	<1%
Aircraft Traffic in TPA	1	<1%
Airplane Noise	1	<1%
Constant Helos Noisy	1	<1%
Idling Acft	1	<1%
Jet noise	1	<1%
Low flying Turbine < 500 ft	1	<1%
Low level Noisy Acft	1	<1%
Multi. Helo Low	1	<1%
Noise from Jet	1	<1%
Stellar traffic	1	<1%
Two F-16's Low north of Chd Blvd	1	<1%
Grand Total	**202**	**100%**

SOURCE: Chandler Municipal Airport, ESA Airports.

Here are some observations on the Data submitted for review;

1) Of the 202 Complaints filed by City, there are 46%, almost half of the total, who are "Unknown", which must be considered as coming from outside the Chandler area.
2) Of the 202 Complaints filed by Aircraft Type , 28%, more than one quarter of the total, are "Unknown" which can easily change the ranking of the type of aircraft that are being complained about.
3) The 202 Complaints by Type lists 11% "Unknown" along with very vague categories such as low flying aircraft, low flying in TPA, Noise and Low Flying, etc.. What is perceived by a neighborhood

residence as too low and too noisy may in fact be at the minimum flight level and noise levels for what is intended at the airport.

4) The 202 Complaints presented to the City does not indicate if there are 202 individual complaints submitted by 202 different residence or if there is only a handful of residence who have repeatedly submitted complaints.

The Degree of Noise Complaints

Based on the fact that the airport conducted 268,185 operations in 2008 and assuming that the 202 complaints came from 202 different individuals, that means that over the 57 month database, there were 3.54 complaints per month and 22348 operations per month. That results in a complaints per operation ratio of 0.016%. Based on the number of possible residence in local affected areas (this does not include all of the residence around the airport) being 17000 as depicted in the presentation, this results in a complaint to residence ratio of 1.2%. These values seem quite low to justify a costly program to initiate special operational procedures for a very few residence who signed a Noise Waiver Form and want to complain to the City.

City Council Action

Based on the complaints ratio stated previously, the City Council decided to initiate a Politically Correct solution and solicited the assistance of Wilbur Smith Associates to prepare new Noise Exposure Maps and a Noise Compatibility Program that would include operational or physical solutions that would reduce noise levels around the airport area. The program was initiated in 2008 with the intent to submit a final copy of the revised Noise Exposure Maps and the Noise Compatibility Program to the FAA for approval by the 1st Quarter of 2010.

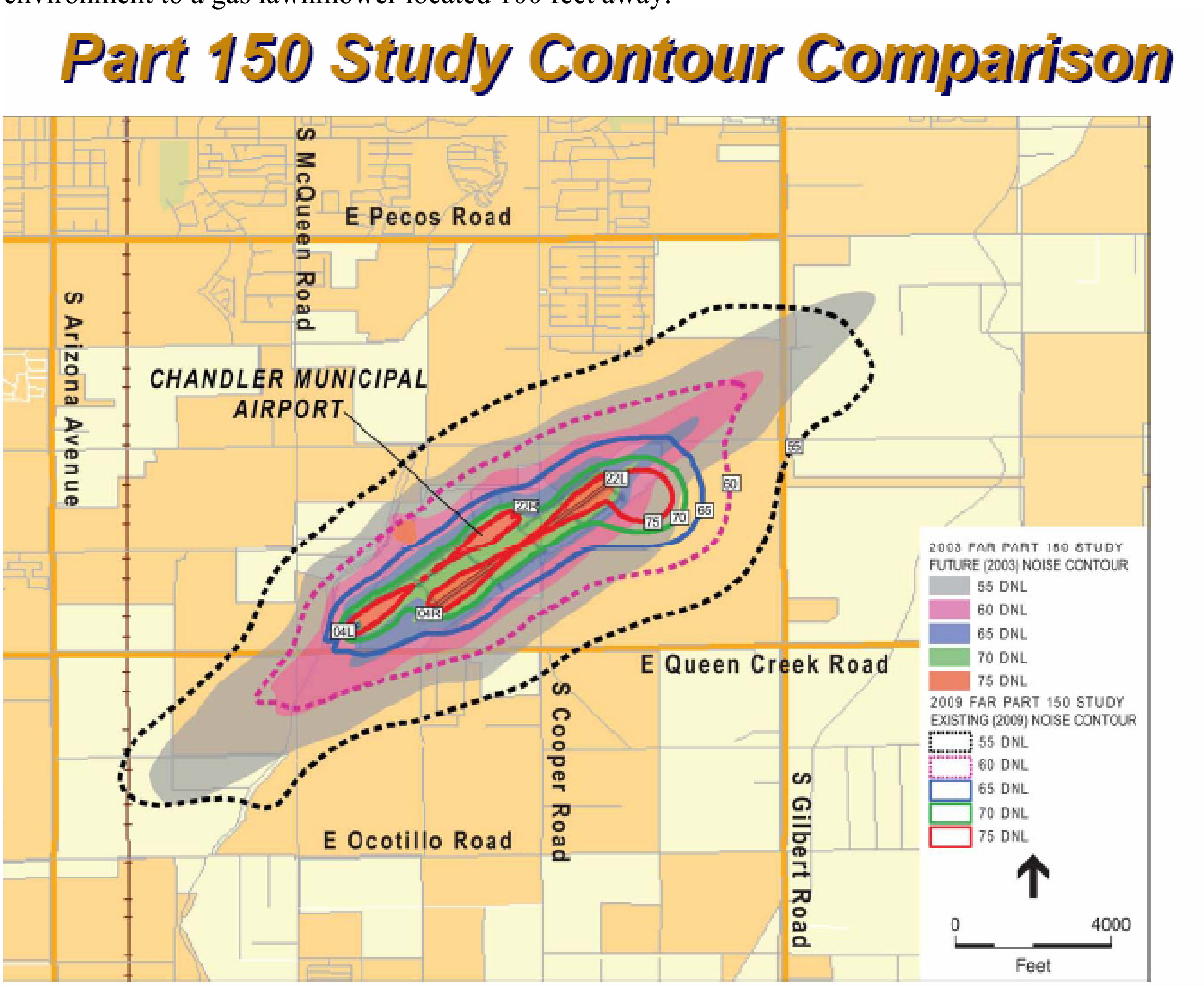
Results of Noise Data within the Airport Boundary

Wilbur Smith Associates has gathered and conducted a vast amount of information relative to actual measured and modeled (as required by the FAA in the form of an Integrated Noise Model INM) test results for the airport and it's surrounding area. The most important item to note is that the revised 2014 Draft Noise Exposure Map Contours shows that ***no*** area outside the airport boundary is above the required 65DNL noise level as required by FAR 150 Table 1 Land Use Compatibility with Yearly Day-Night Average Sound Levels. This implies that the FAA has no reason to implement any change recommended by the City Council.

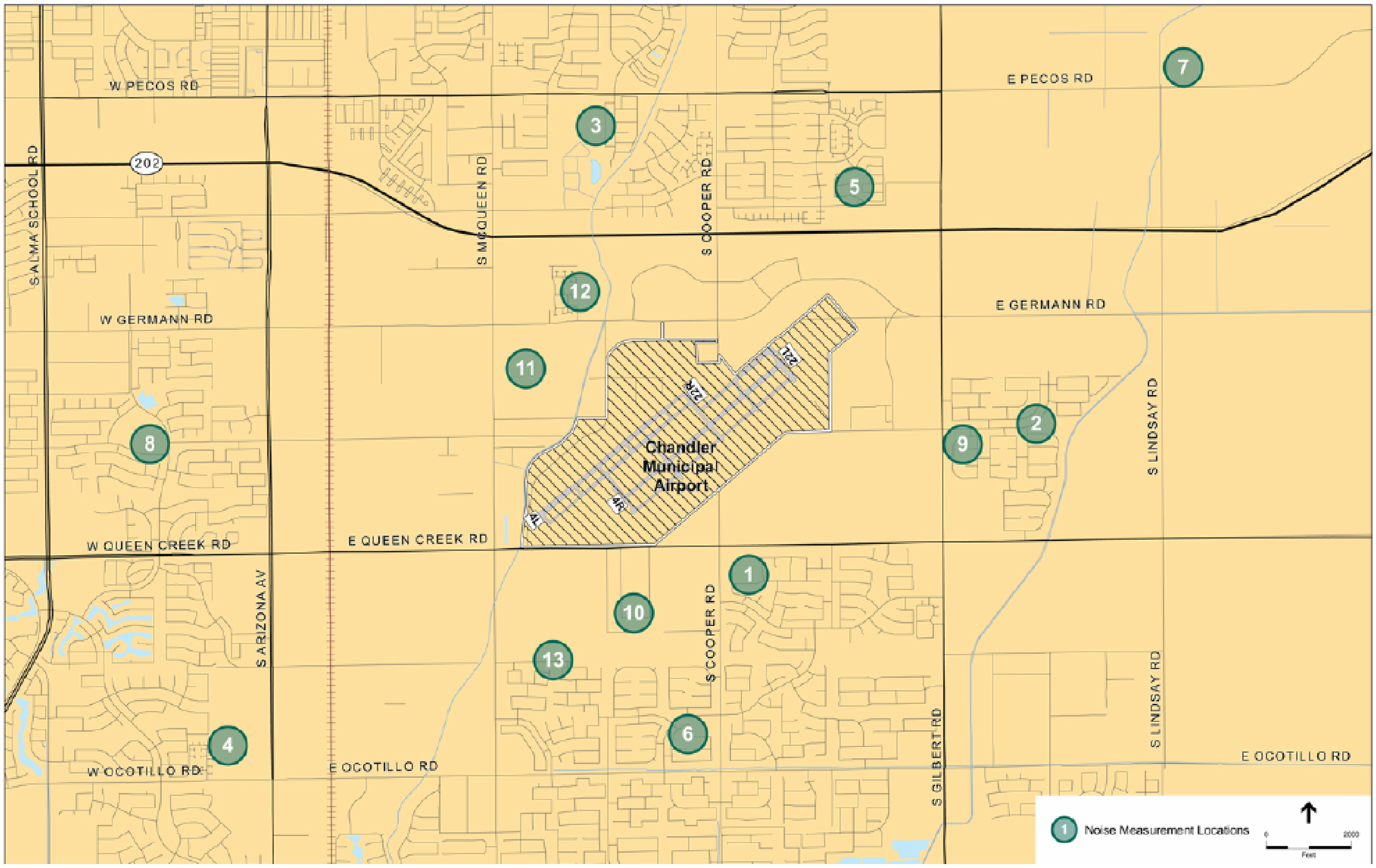
Figure 6.11
NOISE SENSITIVE USES AND THE FUTURE (2014) DNL CONTOURS

Results of Noise Data outside the Airport Boundary

Land Use areas have been defined by the FAA in FAR 150 and have been categorized as Residential, Public Use, Commercial Use, Manufacturing and Production, and Recreation. As indicated by the study there are **NO** noise sensitive land uses within the 65 DNL and higher contours.
Since the airport noise levels are within FAA requirements, it is probable to assume that the outlying areas around the airport will have a noise signature less than that measured at the airport due to the fact that the noise level decreases logarithmically with distance, Although the airport boundary Noise Levels are within the FAA requirements, Wilbur Smith Associates conducted noise tests on a SEL and Lmax noise level basis at 13 selected neighborhood areas. The overall maximum and minimum results indicated that for a single event occurrence of a single engine aircraft or helicopter passing overhead for a matter of a few seconds is equivalent to noise levels commensurate with quiet urban nighttime environment to a gas lawnmower located 100 feet away.



NOISE MEASUREMENT LOCATIONS



<u>*Responsibility of the City Council to establish proper Zoning around the Airport*</u>

Airport expansion and increased growth in housing development are essential ingredients as a source for increased City revenue and both must coexist in any community.

The airport serves:

- to train new pilots who are eager to soar like eagles and someday use these skills to become a professional pilot.
- as a hub for the many general aviation pilots who enjoy an occasional flight or two around the Valley or beyond.
- as a destination point for Businesses to fly into to have meetings at various gatherings in the Chandler area thus generating additional revenue for the city.
- to provide jobs for Airport workers, mechanics, Fixed based Operators, and FAA controllers.
- to accommodate future Business Jet activity into Chandler similar to that of the Scottsdale Airport which will promote additional revenue into the treasury of the City of Chandler

The neighborhood serves:

- to provide housing for families
- to provide schools, churches, hospitals and recreation areas for families to use
- to provide for manufacturing facilities and shopping centers that all need individuals who make up the residential community

It is the responsibility of the City Council to make sure that proper Zoning of Land use areas are defined early in the growth phase of a community such that no encroachment on the Chandler Municipal Airport will result in any controversial issues such as noise.

Status of the proposed Noise Compatibility Program

From the information presented at the meeting, it is apparent that the City Counsel and Wilbur Smith Associates have been working to provide a Noise Compatibility Program to the FAA by the 1st Quarter of 2010 which will include revised pilot operating procedures that will very slightly alter the noise level in the vicinity of an airport which already meets FAA requirements. The solutions proposed only concern pilot operating procedures of which some involve safety of flight issues and con not be considered viable solutions.

It appears that there are two options available to the City Council:

1) Complete the NCP and submit it to the FAA with revised Noise Exposure Maps that indicate that there are no noise issues within or outside the boundaries of the airport and that it is requesting that the FAA approve revised pilot operating procedures that will only slightly enhance noise levels in and around the airport.
2) Complete the NCP and submit it to the FAA with revised Noise Exposure Maps that indicate that there are no noise issues within or outside the boundaries of the airport and that there are no proposed changes to be submitted at this time.

Questions for the City Council

1) What is the breakdown of the reported 202 complaints by individuals and how many individuals actually submitted a report?
2) Can the Complaints by Type be revised to reflect more specific Complaints?
3) Can the Complaints by City be revised to know where the "Unknown" cities are located or have them removed from the list?
4) Can the Complaints by Aircraft Type be revised to reflect what type of "Unknown" aircraft is being considered or have them removed from the list?
5) Is a ratio of 0.16% complaints per operation and 1.2% complaints per residence sufficient to initiate a costly Noise Study?
6) If there were no complaints from the neighborhood residence, would the City Council have initiated a taxpayer paid cost study that is not required by law?
7) Was the intent of the Noise Level study to appease the few local residence or to establish new Noise Exposure Maps from which an assessment could be made to determine if the noise levels are within Far 150 requirements and if so propose to the FAA that no action is required?
8) Can the City Council implement independent operating procedures if the FAA decides not to take any action on an airport that already complies with existing regulations?
9) Does the City Council agree that the Airport meets the requirements of FAA150 as defined in the 2009 and 2104 projected Noise Exposure Maps?
10) Does the City Council agree that noise levels commensurate with quiet urban nighttime environment to a gas lawnmower located 100 feet away is adequate reason to initiate an FAA 150 Noise Review?
11) Has the City Council made all effort to Zone surrounding Land Use areas to be compatible with FAR 150?
12) Will the City Council consider submitting a completed NCP to the FAA with revised Noise Exposure Maps that indicates that there are no noise issues within or outside the boundaries of the airport and that there are no proposed changes to be submitted at this time?
13) Why did the City Council elect to spend taxpayer dollars on a program that does not appear to be outside the requirements of the FAA 150 Noise Requirements.
14) Is it true that there are no solutions within the proposed program that could be used by the Chandler Airport to gain FAA sponsored funding for Noise improvement solutions that will be outlined in the NCP.
15) Wilbur Smith Associates are consultants to the City Council and can only make recommendations to the Council. The Council has the authority to make changes to any recommendations submitted to them. Will the public get a chance to review the final copy of the NCP prior to submittal to the FAA?

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click a file in this PDF Package to view it.**

Ron Seymour

From: Wuchun Chou
Sent: Saturday, February 27, 2010 1:33 PM
To: Keidel-Adams, Pamela S
Subject: Comments from the Chandler website

Name : Wuchun Chou
Email : wuchunc@yahoo.com
Comments : In May 2009, we moved to Fulton Ranch community locating at the western end of the noise study zone. I would like to bring to your attention that for the past month or two (starting Jan 2010), I have noticed increasing noise impact of air traffic from Chandler Municipal Airport. I wonder if there is any modification to airport operation to induce such a dramatic change, or if there are a group of new pilots who may not be familiar with noise abatement suggestions.

* CITY ATTEMPT TO BIAS PUBLIC OPINION BY USING WORDING SUCH AS "REQUIRE" WHICH THE FAA SAYS IS ILLEGAL. OPERATORS AT THE AIRPORT ARE BEING EXCLUDED FROM FAIRLY PARTICIPATING IN THE PROCESS.
* CITY HAS CREATED (DAN COOK) A CONFRONTATIONAL SITUATION / RELATIONSHIP WITH THE OPERATORS.

IS THERE ANY PROVISIONS FOR SUBMITTING A MINORITY REPORT W/THE FINALIZED STUDY?

Chandler Municipal Airport

FAR Part 150 Study

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COMMENT FORM

Please provide the following information and submit your written comments for consideration in the study. You may also submit your comments via the website at **www.wilbursmith.com/chandlerpart150/**

NAME: Dale Whiting PHONE: 480 219 7959

EMAIL: dvwhiting@yahoo.com

Problem:

Uniform, thorough noise complaint processing.
City management concedes that noise complaint processing is perhaps airport staff's lowest priority, that some complaints process outside the designated system yet still are allowed to go forward crossing the desks of city council and everyone realizes that for those few valid complaints where abatement measures are violated, not enough is being done or can be done to follow up with pilots.

Observations:

The various recommendations presented tonight should help improve the noise situation. And several addressing complaint processing are good ie, maintain the complaint line and purchase a flight identification system.

Recommendations:

1) Consider developing an "on line" complaint reporting system and have the complaint line redirect complaints to this automated system

2) Through the Airport Commission solicite and creat a group of volunteers to operate the site - processing complaints. Members would include airport users w/ technical + aviation expertise, local neighbors who experience noise problems + neutral persons interested in airport ops

3) Set a goal to follow up with each + every complamant within 3 days to (over)

1) Gather necessary but missing technical data
2) Help complainant learn to collect data better
3) Let each complainant know someone cares, is interested in helping enforce abatement measures +
4) Educate the complainant about

a) noise abatement measures in place
b) the benefit airport operations have for the City at large

If the Airport Commission will undertake to organize such a volunteer group, it will happen.

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NAME: LISA Spencer PHONE: 480-802-5939

EMAIL: lbspence@yahoo.com

I have lived here (near the airport) for the past 7 1/2 years. There has never been a problem with aircraft noise. I live off Cooper which is the entry point for aircraft to down wind + for aircraft to depart to practice areas and I have never been bothered by ~~the~~ noise.

CHD is a great airport + well run.

Lisa & Clyde Spencer

Chandler Municipal Airport

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NAME: Kathy Stafford + Larry Stafford PHONE: 480-895-7316

EMAIL: Kathy @ S5electronics.com

1.) Like the suggestion that helicopters turn further out + higher (The turning over our homes is the noisiest.)

2.) Don't understand the suggestion of "unincorporated areas included in city to limit residential growth." (incorrect quote) Does county not pay attention to the airport +/or limit residences?

3.) If people don't like the airport they should have thought of it before they moved next to one!

4.) We have no problem with the airport or staff –

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Please provide the following information and submit your written comments for consideration in the study. You may also submit your comments via the website at **www.wilbursmith.com/chandlerpart150/**

NAME: John D Clark Jr PHONE: (480) 987-1177

EMAIL: jdclarkjr@get.net

No real change. A whitewash!

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Please provide the following information and submit your written comments for consideration in the study. You may also submit your comments via the website at **www.wilbursmith.com/chandlerpart150/**

NAME: Ananamous

PHONE:

EMAIL:

Problem: Most noise complaints deal with the helicopter flight operations. The fleet of helicopters is small + ownership is consolidated with the flight school.

All pattern recommendations generate only marginal improvements while placing significant restrictions on use

Observation: In the commercial / scheduled airline fleet onboard noise abatement equipment have been designed into the aircraft over time

Recommendations: 1) Find out whether onboard noise abatement equipment has been developed for this fleet which does effectively reduce ground level noise levels

2) See whether sufficient economic incentives can be given to the owner to have equipment installed,

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NAME: CRAIG ALBRIGHT PHONE: (480) 776-9358
EMAIL: fcalbright@qwest.net

1. THE STUDY INDICATES THAT THE NOISE LEVELS ARE WITHIN GUIDELINES:
65 dB ≈ CONVERSATION "NOISE" LEVEL
4 MIN. OVER TARGET ⟷ SOMEONE CARRYING ON A CONVERSATION IN FRONT OF YOUR HOUSE FOR ~4 MIN. / DAY. THAT'S NOT A PROBLEM! WHY DO SOMETHING...

2. UNFUNDED MANDATES! WHY RECOMMEND BUYING SOMETHING WHEN THERE REALLY ISN'T A MEASURABLE PROBLEM? ADMITTEDLY, SUBJECTIVE COMPLAINTS VS. OBJECTIVE MEASUREMENTS CAN BE (AND OFTEN ARE) WORLDS APART. AND, FACTS DON'T VOTE — OPINIONS DO..

3. I'M DISAPPOINTED THAT YOU RECOMMEND ANYTHING! THE STUDY WARRANTS A CONCLUSION THAT ACTION ISN'T NECESSARY. TO RECOMMEND ANYTHING (EG RAISING ~~AL~~ ALTITUDES, CHANGING PATTERNS) WITHOUT HAVING A BASIS IN PERCEPTUAL FACT IMPLIES THAT THE RESULT IS BASED ON POLITICAL EXPEDIENCY OR AN ATTEMPT TO JUSTIFY ANOTHER CONTRACT. ALTHOUGH I OWNED & RAN MY OWN BUSINESS OF ~28 YRS, I HOPE YOUR RECOMMENDATION ISN'T MOTIVATED BY MARKETING YOUR BUSINESS SERVICES...

Thanks Craig

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FAR Part 150 Study

COMMENT FORM

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Please provide the following information and submit your written comments for consideration in the study. You may also submit your comments via the website at **www.wilbursmith.com/chandlerpart150/**

NAME: Steve Skotnicki PHONE: 480-892-5057
EMAIL: sjskotnicki@aol.com

I am a pilot. I attained my pilot's certificate at great personal expense. I also teach not far from the airport at Chandler-Gilbert Community College. Aircraft noise has never been an issue. I also photograph landforms from the air to use in my teaching. I also work for Hydrosystems, Inc., which has drilled several of Gilbert's water production wells. I sometimes use aerial photos in my reports. In these regards the airport provides a public service. I am also biased in favor of the airport because it was constructed before the homes. Aircraft are more than just modes of transportation to me. They are flying machines that reflect the dream and enginuity of humans for thousands of years.

APPENDIX J: OPEN HOUSE HANDOUTS

FAR PART 150 STUDY

CHANDLER MUNICIPAL AIRPORT

What is a Part 150 Study?

The Federal Aviation Regulation (FAR) Part 150 Noise Study is a voluntary noise exposure and land use study that airports undertake to address noise and land use compatibility. The City of Chandler completed its first FAR Part 150 Study in 1999. This is an update of the previous study to reflect the changes that have occurred.

The Study, whose components are set by the Federal Aviation Administration (FAA), allows an airport to develop programs to increase compatibility of land uses around the airport. This compatibility can be accomplished by two primary avenues: noise abatement alternatives and land use alternatives.

FAR Part 150 Noise Compatibility Study

The first step in the Study process is to identify the existing and potential future noise exposure (at least five years in the future). This is accomplished by developing noise contours based on the aircraft operations occurring at Chandler Municipal Airport in the present, as well as predicting what those aircraft operations will be in the future. The noise contours are lines that depict equal levels of aircraft noise exposure around the airport. These noise contours are overlaid on updated land use maps to determine what land uses are present in the highest noise levels around the airport. The result is the Noise Exposure Map (NEM) which sets the baseline conditions for which alternatives will be developed to address the identified noise levels.

The second step in the process is the evaluation of potential alternatives to reduce the noise impacts around the airport. The alternatives evaluated include both aircraft operational procedures (abatement) as well as land use measures (mitigation). Recommendations may include the establishment of noise abatement flight corridors, sound insulation of homes, and working with the local jurisdictions to prevent future development in the most noise impacted areas.

The final product of the Study is a Noise Compatibility Program (NCP). The NCP contains all the alternatives that were considered in the Study and makes recommendations on which alternatives should be implemented. The NCP is reviewed by the FAA, and each specific recommended alternative is reviewed in detail. Those recommendations approved by the FAA requiring funding will become eligible for federal funds in the implementation phase.

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Roles and Responsibilities

CHANDLER AIRPORT ADMINISTRATION

The City of Chandler Airport Administration is responsible for planning and assisting with the implementation of actions designed to reduce the effect of noise on residents of the surrounding area. Such actions include noise abatement ground procedures, land acquisition, and other measures that do not discriminate, create an unsafe situation, impede the management of the air navigation system, or interfere with interstate or foreign commerce. Any operational procedure must be approved by the FAA.

FEDERAL AVIATION ADMINISTRATION

The FAA's Air Traffic Control is responsible for the movement of aircraft on both on the airfield and in the air and has the authority to implement noise abatement operational procedures which have been recommended by the airport sponsor and approved by FAA. Any noise mitigation procedure must be consistent with air safety and all legal requirements.

LOCAL GOVERNMENTS

The local governments have the responsibility to provide for land use planning, zoning, and housing regulations that limit land use near the airport to those compatible with airport operations.

PILOTS

The pilot has the ultimate responsibility for the operation of the aircraft. Although certain noise mitigation procedures are set by the airlines, and the FAA assigns the flight track and altitude, the pilot (both commercial and general aviation) still maintains the authority to make the final judgment. In general, it is up to the pilot to adhere to noise abatement procedures.

RESIDENTS AND PROSPECTIVE RESIDENTS

The residents in areas surrounding an airport should provide input regarding noise concerns and strive to understand procedures that can and cannot be taken to minimize the effect of aircraft noise. Future residents should acquaint themselves with noise and flight corridor information available through the Airport Administration.

MEASUREMENT LOCATIONS

Aircraft Noise Modeling

The standard methodology for analyzing the noise conditions at airports involves the use of a computer simulation model. The FAA has approved two models for use in preparing noise contours - NOISEMAP and the Integrated Noise Model (INM). NOISEMAP is used primarily at military airports, while the INM is used primarily at civilian airports. The INM version 7.0a, the latest version of the model, was developed by the Transportation Systems Center of the United States Department of Transportation at Cambridge, Massachusetts and is undergoing continuous enhancement. Airport specific data that is used in the model to develop the noise contours includes:

DAILY OPERATIONS: An aircraft operation is defined as an aircraft takeoff or landing. The total number of aircraft operations over a 12-month period is determined. The yearly operations are then divided by 365 to generate the annual-average day operations, which are used for noise modeling.

AIRCRAFT FLEET MIX: The aircraft fleet mix includes the various types of aircraft using the airport. Identifying the fleet mix is important because certain aircraft are noisier than others.

RUNWAY USE: Wind speed and direction together with runway length are the primary factors that determine the direction of flow of aircraft at the airport. The air traffic controllers at the airport designate the flow of aircraft arrivals and departures into the wind. Under calm wind conditions, air traffic control usually has more flexibility to vary the directional flow of aircraft at the airport.

FLIGHT CORRIDORS AND CORRIDOR USE: Flight corridors are established for use in the model by obtaining flight track information from air traffic controllers. These corridors represent the paths that aircraft follow when approaching or departing the airport.

DAY/NIGHT USE: Following FAA guidelines, day is defined as 7 a.m. to 10 p.m. with night being 10 p.m. to 7 a.m. The number of aircraft that use the airport during daytime or nighttime hours is an important factor in the calculation of aircraft noise exposure. The contribution of each nighttime operation to the total noise exposure is weighted to account for the greater annoyance of noise at night.

Noise Measurements

The data collected from noise measurements is primarily used to provide information to the Study on the ambient noise levels around the airport and to provide information on the noise levels associated with single event operations at a particular location. In addition, onsite noise monitoring information does allow the study team to compare single event and cumulative noise levels with noise exposure levels developed by the INM. Contrary to popular belief, the noise measurement data is not used to develop the noise contours. The FAA does not allow for the use of the noise measurement data in this way and sets a strict requirement that only their approved computer models are used for noise contour development.

Noise measurements were conducted for Chandler Municipal Airport's FAR Part 150 Study during two different periods: May 20-22, 2008, and March 24-26, 2009. Several noise monitors were used to collect noise measurement data at a total of 13 sites, located around the airport, during the collection periods. The first collection period collected noise measurements at eight sites, and the second collection period collected noise measurements at five sites. The noise measurement data conclusions will be presented at the next public open house for the Study.

Noise Complaints

Noise complaints are an important input to any airport and serve as the pulse of the community for the airport and provide the airport sponsor with key information on noise concerns. Noise complaints are being reviewed as part of this Study to provide a clear picture of the concerns of the local communities. A summary of this data will be provided in the NEM report submitted to the FAA. As with noise measurements, it is important to state that noise complaint data does not influence the noise contours or their development. Noise contour development is based on operational data.

FAR PART 150 STUDY
CHANDLER MUNICIPAL AIRPORT

Frequently Asked Questions

Why Prepare an FAR Part 150 Study?

Airport sponsors, such as the City of Chandler, have the option of implementing noise mitigation programs. Should the sponsor wish to use Federal funding to pay for the program, the sponsor is required to base the program on an FAA-approved noise exposure map and a noise compatibility program.

What will the Study include?

The Study will identify existing and future flight corridors; will develop aircraft noise exposure maps for current and future conditions; will evaluate air traffic control procedures that could be implement to reduce noise exposure over residentially developed areas; will consider land use controls that could be established to reduce future incompatible land uses from being developed within high noise areas; and will evaluate means to mitigate noise impacts within high noise exposure areas.

How long will the Study take to complete?

The Study began in January 2008 and is scheduled for submittal to the FAA by the end of 2009. Implementation of the Study recommendations will occur following review and approval of the reports by the FAA. The review period by the FAA is set at 180 days from the date of submittal.

More information about the Study can be found on the Study's website at:
http://www.wilbursmith.com/chandlerpart150/

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How can I be involved?

During the Study, workshops and public hearings will be held. Study progress will be shared during these sessions and the public is encouraged to provide input. The dates and locations of these sessions will be published in local newspapers, on the City's website, and on the Study's web site.

Advisory Committee

A Part 150 Advisory Committee representing organizations that use the airport as well as affected political jurisdictions, agencies and neighborhoods has been formed to provide feedback and comment throughout the Study. The Part 150 Advisory Committee will meet several times to review analysis and offer suggestions about the recommendations being considered. Membership to the committee is by invitation; a list of the invited members is provided on the study's website.

STUDY TIMEFRAME

Noise Exposure Map (NEM)
Complete July 2009

Noise Compatibility Program (NCP)
Anticipated December 2009

Public Input Received
4 Open Houses: August 2008, June 2009 and 2 more to be determined

FAA Review Period
January - June 2010

APPENDIX K: AVIATION ACRONYMS

AVIATION ACRONYMS

AC **-** Advisory Circular
ADF **-** Automatic Direction Finder
ADAP **-** Airport Development Aid Program
AFD **-** Airport Facility Directory
AFL **-** Above Field Level
AGL **-** Airport Ground Level
ALP **-** Airport Layout Plan
AOA **-** Airport Operations Area
ARC **-** Airport Reference Code
ARFF **-** Aircraft rescue and Fire Fighting Facilities
ARTCC **-** Air Route Traffic Control Center
ARTS **-** Automated Radar Terminal System
ASOS **-** Automated Surface Observation System
ATIS **-** Automated Terminal Information Service
ATCT **-** Air Traffic Control Tower
DB **-** Decibel
DBA **-** A-weighted decibel
DNL - Day Night Sound Level
ERG - Effective Runway Gradient
EPA - Environmental Protection Agency
EPNL - Effective Perceived Noise Level
FAA - Federal Aviation Administration
FAF - Final Approach Fix
FAR - Federal Aviation Regulation
FBO - Fixed Base Operator
FSS - Flight Service Station
GA - General Aviation
IAF - Initial Approach Fix
IFR - Instrument Flight Rules
ILS - Instrument Landing System
IM - Inner Marker
IMC - Instrument Meteorological Conditions
INM - Integrated Noise Model
Leq - Equivalent Noise Level
Lmax - Maximum Sound Level
LOA - Letter of Agreement
MOA - Military Operating Area
MSL - Mean Sea Level
NAVAIDS- Navigational Aids
NCP - Noise Compatibility Program
NDB - Non-Directional Beacon
NEM - Noise Exposure Map

NLR - Noise Level Reduction
NOTAM- Notice to Airmen
NAS - National Airspace System
NPIAS- National Plan of Integrated Airport Systems
OAG - Official Airline Guide
OM - Outer Marker
PAPI - Precision Approach Path Indicator
RPZ - Runway Protection Zone
RSA - Runway Safety Area
RWY - Runway
SEL - Sound Exposure Level
TAC - Technical Advisory Committee
TACAN- Tactical Air Navigation
TAF - Terminal Area Forecasts
TRACON- Terminal Radar Approach Control Facility
TW - Taxiway
VFR - Visual Flight Rules
VHF - Very High Frequency
VMC - Visual Meteorological Conditions
VOR - VHF Omni Directional Radar Beacon
VORDME- VHF Omni Directional Radar Beacon with Distance Measuring Equipment
VORTAC- VHF Omni Directional Range with Tactical Aircraft Approach & Navigation

APPENDIX L: AVIATION GLOSSARY

AVIATION GLOSSARY

A-Weighted Sound (DBA): A measurement representing a sound generally as the human ear hears it by filtering out as much as 20 to 40 decibels of sound below 100 hertz. Used for aircraft noise evaluations.

Airman's Information Manual: A publication containing basic flight information and ATC procedures designed primarily as a pilot's information and instructional manual for use in the Nation Air Space.

Advisory Circular (AC): A document published by the Federal Aviation Administration (FAA) giving guidance on aviation issues.

Air Route Traffic Control Center (ARTCC): An FAA facility established to provide air traffic control service to aircraft operating on an IFR flight plan within controlled airspace during the en route portion of a flight.

Air Traffic: Aircraft operating in the air or on an airport surface, exclusive of loading ramps and parking areas.

Air Traffic Control: Control of the airspace by an appropriate authority to promote the safe, orderly and expeditious movement of terminal air traffic.

Aircraft Operation: An aircraft arrival or departure from an airport with FAA airport traffic control service. There are two types of operations: local and itinerant.

Airport: Any public use airport, including heliports, as defined by the Aviation Safety and Noise Abatement Act of 1979 (ASNA), including: (a) Any airport which is used or to be used for public purposes, under the control of a public agency, the landing area of which is publicly owned; (b) any privately owned reliever airport; and (c) any privately owned airport which is determined by the Secretary to enplane annually 2,500 or more passengers and receive scheduled passenger service of aircraft, which is used or to be used for public purposes.

Airport Hazard: Any structure or object of natural growth located on or near the airport, or any use of land near the airport that obstructs the airspace required for the flight of aircraft in landing or taking off, or is otherwise hazardous to such landing and taking off.

Airport Impact Zones: Defined areas on and off airport property that are zoned to ensure airport compatible land uses. Low-activity airports without significant aircraft noise exposure contours can benefit by identifying and implementing land use controls in Airport Impact Zones. The Impact Zones generally include the runway protection zone, the FAR Part 77 approach surface and the airport traffic pattern.

Airport Improvement Program (AIP): The AIP is authorized by the Airport and Airway Improvement Act of 1982 (P.L. 97-248, as amended). The Act's broad objective is to assist in the development of a nationwide system of public-use airports adequate to meet the current and projected growth of civil aviation. The Act provides funding for airport planning and development projects at airports included in the National Plan of Integrated Airport Systems. The Act also authorizes funds for noise compatibility planning and to carry out noise compatibility programs as set forth in the Aviation Safety and Noise Abatement Act of 1979 (P.L. 96-143)

Airport Layout Plan (ALP): A scaled drawing of existing and proposed land and facilities necessary for the operation and development of the airport. The ALP shows (1) boundaries and proposed additions to areas owned or controlled by the sponsor, (2) the location and nature of existing and proposed airport facilities and structures and (3) the location on the airport of existing and proposed and non-aviation areas and improvements.

Airport Layout Plan Set: Included in the Airport Layout Plan set are six drawings: (1) Airport Layout Drawing (Plan), (2) Airport Airspace Drawing, (3) Inner Portion of the Approach Surface Drawing, (4) Terminal Area Drawing, (5) Land Use Drawing and (6) Airport Property Map. The drawings depict existing and proposed airport facilities, land uses, approach zones and other defined areas of airspace, and environmental features that may influence airport usage and expansion capabilities.

Airport Manager: The person authorized by the airport sponsor to exercise administrative control of the airport.

Airport Master Plan: A planning document, including appropriate documents and drawings, that describes the development of a specific airport from a physical, economical, social, environmental and political jurisdictional perspective. The airport layout plan drawing is part of the Master Plan.

Airport Noise Compatibility Program: A program including the measures proposed or taken by the airport owner to reduce existing incompatible land uses and to prevent the introduction of additional incompatible land uses within the area.

Airport Operations: The total number of movements in landings (arrivals) plus takeoffs (departures) from an airport.

Airport Owner: Any person or authority having the operational control of an airport as defined in the ASNA Act.

Airport and Airway Improvement Act of 1982: This Act authorizes the Secretary of Transportation to make project grants for airport planning and development to maintain a safe and efficient nationwide system of public-use airports.

Airport Noise and Capacity Act of 1990: This act required the establishment of a National Noise Policy and a requirement to eliminate Stage 2 aircraft weighing 75,000 pounds or greater operating in the contiguous United States by the year 2000.

Airport Reference Code (ARC): The ARC is a FAA coding system used to relate airport design criteria to the operational and physical characteristics of the airplanes intended to operate at the airport.

Airport Sponsor: A public agency or tax-supported organization such as an airport authority, that is authorized to own and operate the airport, to obtain property interests, to obtain funds, and to legally, financially and otherwise able to meet all applicable requirements of current laws and regulations.

Airport Surveillance Radar (ASR): A radar system which allows air traffic controllers to identify an arriving or departing aircraft distance and direction from an airport.

Air Traffic Control Tower (ATCT): The air traffic control facility located on an airport that is responsible for providing air traffic control services to airborne aircraft near the airport and to aircraft operating on the airport movement area.

Airside: That portion of the airport facility where aircraft movements take place, airline operations areas, and areas that directly serve the aircraft, such as taxiway, runway, maintenance and fueling areas.

Airspace: The space lying above the earth or above a certain area of land or water that is necessary to conduce aviation operations.

Airway: A corridor of controlled airspace whose centerline is established by radio navaids.

Ambient Noise: The total amount of noise in a given place and time, which is usually a composite of sounds from varying sources at varying distances.

Approach Surface – A surface defined by FAR Part 77 “Objects Affecting Navigable Airspace,” that is longitudinally centered on the runway centerline and extends outward and upward from each end of the primary surface. An approach surface is applied to each end of each runway based on the type of approach available or planned for that runway end.

ASNA Act: The Aviation Safety and Noise Abatement Act of 1979, as amended (49 U.S.C. 2101 et seq.).

Attainment Area: An area in which the federal or state standards for ambient air quality is being achieved.

Attenuation: Acoustical phenomenon whereby a reduction of sound energy is experienced between the noise source and the receiver. This energy loss can be attributed to atmospheric conditions, terrain, vegetation, man made features, and natural features.

Automated Radar Terminal System (ARTS): Computer aided radar display subsystems capable of associating alphanumeric data such as weather and NOTAMS.

Automatic Terminal Information Service (ATIS): Continuous radio broadcast of recorded air traffic control information at selected high activity airports.

Average Sound Level: The level in decibels, of the mean square, A-weighted sound pressure during a specified period, with reference to the square of the standard reference sound pressure of 20 micropascals.

Avigation Easement: A grant of a property interest in land over which a right of unobstructed flight in the airspace is established.

Aviation Safety and Noise Capacity Act: Provides assistance to airport operators to prepare and carry out noise compatibility programs. Authorizes the FAA to help airport operators develop noise abatement programs and makes them eligible for AIP grants.

Based Aircraft: An aircraft permanently stationed at an airport by agreement between the aircraft owner and the airport management.

Base Leg: A flight path, normally in the standard traffic pattern, of a landing aircraft which is at a right angle to a landing runway of its approach end. Base leg normally extends from the downwind leg to the final approach in the standard traffic pattern.

Baseline Condition: The existing condition or conditions prior to future development, which serve as a foundation for analysis.

Building Codes: Codes, either local or state, that control the functional and structural aspects of buildings and/or structures. Local ordinances typically require proposed buildings to comply with zoning requirements before building permits can be issued under the building codes.

CAT I: Category I instrument landing system

CAT II: Category II instrument landing system

CAT III: Category III instrument landing system

Class A Airspace: Generally, that airspace from 18,000 feet MSL up to and including FL600, including the airspace overlying the waters within 12 nautical miles of the coast of the 48 contiguous States and Alaska. Unless otherwise authorized, all persons must operate their aircraft under IFR.

Class B Airspace: Generally, that airspace from the surface to 10,000 feet MSL surrounding the nation's busiest airports in terms of IFR operations or passenger enplanements. The configuration of each Class B airspace area is individually tailored and consists of a surface area and two or more layers (some Class B airspace areas resemble upside-down wedding cakes), and is designed to contain all published instrument procedures once an aircraft enters the airspace. An ATC clearance is required for all aircraft to operate in the area, and all aircraft that are so cleared receive separation services within the airspace. The cloud clearance requirement for VFR operations is "clear of clouds."

Class C Airspace: Generally that airspace from the surface to 4,000 feet above the airport elevation (charted in MSQ surrounding those airports that have an operational control tower, are serviced by a radar approach control, and that have a certain number of IFR operations or passenger enplanements. Although the configuration of each Class C airspace area is individually tailored, the airspace usually consists of a surface area with a 5NM radius, and an outer circle with a 1 ONM radius that extends from 1,200 feet to 4,000 feet above the airport elevation. Each person must establish two-way radio communications with the ATC facility providing air traffic services prior to entering the airspace and thereafter maintain those communications while within the airspace. VFR aircraft are only separated from IFR aircraft within the airspace.

Class D Airspace: Generally, that airspace from the surface to 2,500 feet above the airport elevation (charted in MSQ surrounding those airports that have an operational control tower. The configuration of each Class D airspace area is individually tailored and when instrument procedures are published, the airspace will normally be designed to contain the procedures. Arrival extensions for instrument approach procedures may be Class D or Class E airspace. Unless otherwise authorized, each person must establish two-way radio communications with the ATC facility providing air traffic services prior to entering the airspace and thereafter maintain those communications while in the airspace. No separation services are provided to VFR aircraft.

Class E Airspace: Generally, if the airspace is not Class A, Class B, Class C, or Class D, and it is controlled airspace, it is Class E airspace. Class E airspace extends upward from either the surface or a designated altitude to the overlying or adjacent controlled airspace. When designated as a surface area, the airspace will be configured to contain all instrument procedures. Also in this class are Federal airways, airspace beginning at either 700 or 1,200 feet AGIL used to transition to/from the terminal or enroute environment, enroute domestic, and offshore airspace areas designated below 18,000 feet MSL. Unless designated at a lower altitude, Class E airspace begins at 14,500 MSL over the United States, including that airspace overlying the waters within 12 nautical miles of the coast of the 48 contiguous States and Alaska. Class E airspace does not include the airspace 18,000 MSL or above.

Commercial Service Airport: A public airport that has at least 2,500 passenger boarding each year and is receiving scheduled passenger aircraft service.

Commuter Aircraft: Commuters are those operators that provide regularly scheduled passenger or cargo service with aircraft seating 72 passengers or less.

Compatible Land Use: As defined in FAR Part 150: The use of land (e.g., commercial, industrial, agricultural) that is normally compatible with aircraft and airport operations, or sound insulated lands uses (e.g., sound insulated homes, schools, nursing homes, hospitals, libraries) that would otherwise be considered incompatible with aircraft and airport operations. See Table X, Land Use Compatibility Guidelines – FAR Part 150, to review the FAA land use compatibility table.

Comprehensive Plan: Similar to a Master Plan, the comprehensive plan is a governmental entity's official statement of its plans and policies for long-term development. The plan includes maps, graphics and written proposals, which indicate the general location for streets, parks, schools, public buildings, airports, and other physical development of the jurisdiction.

Conditional Zoning: The imposition or exaction of conditions or promises upon the grant of zoning by the zoning authority.

Conformity (Air Quality): No department, agency or instrumentality of the federal government shall engage in, support in any way or provide financial assistance for, license, or permit, or approve, any activity which does not conform to a State Implementation Plan (SIP).

Transportation Conformity: Federally funded or approved highway or transit projects; (and regionally significant non-federal highway and transit projects) within nonattainment and maintenance areas.

Controlled Airspace: An airspace of defined dimensions within which air traffic control service is provided to I FR flights and to VFR flights in accordance with the airspace classification.

Day-Night Average Sound Level (DNL): A noise measure used to describe the average aircraft noise levels over a 24-hour period, typically an average day over the course of a year. DNL considers aircraft operations occurring between the hours of 10 p.m. and 7 a.m. to be ten decibels louder than operations occurring during the daytime to account for increased annoyance when ambient noise levels are lower and residents are sleeping. DNL may be determined for individual locations or expressed in noise contours.

Decibel (dB): Sound is measured by its pressure or energy in terms of decibels. The decibel scale is logarithmic; when the scale increases by ten, the perceived sound is two times as loud.

Delay: The difference, in minutes, between the scheduled time and actual time of an aircraft arrival or departure. For airport planning purposes, it is often expressed as an annual average delay per aircraft operation (in minutes).

Displaced Threshold: A threshold that is located at a point on the runway other than the designated beginning of the runway. The portion of pavement behind a displaced threshold may be available for takeoffs and landings from the opposite direction.

Distance Measuring Equipment (DME): A flight instrument that measures the distance from a navigational radio station in nautical miles.

Duration: length of time, in seconds, a noise event such as an aircraft flyover is experienced.

Downwind Leg: A standard landing procedure in which an aircraft parallels the landing runway in the direction opposite to the landing direction.

Easement: An interest in land owned by another that entitles its holder to a specific limited use or enjoyment. Easements may include right of passage over, on, or below the property; certain air rights above the property, including view right; and the rights to any specified form of development or activity.

Effective Perceived Noise Level (EPNL): Time integrated perceived noise level calculated with adjustments for irregularities in the sound spectrum, such as that caused by discrete frequency components (tone correction)

Enplanement: A passenger boarding of a commercial flight.

Environmental Assessment (EA): A concise document that assesses the environmental impacts of a proposed federal action. The EA discusses the need for and environmental impacts of the proposed action and alternative actions. An EA should provide sufficient evidence and analysis for a federal determination whether to prepare an Environmental Impact Statement or a Finding of No Significant Impact.

Environmental Impact Statement (EIS): A document that provides full and fair discussion of the significant environmental impacts that would occur as a result of a proposed project and informs decision makers and the public of the reasonable alternatives that would avoid or minimize adverse impacts.

Equivalent Sound Level (LEQ)- The steady A-weighted sound level over any specified time period. It is used to identify the average sound level over a period of time.

Euclidean Zoning: A traditional legislative method or device for controlling land use by establishing districts with set boundaries and providing for specific uniform regulations as to type of permitted land use, height, bulk and lot coverage of structure, setback and similar building restrictions. (Reference from 1929 U.S. Supreme Court landmark decision upholding zoning as a means of land use control in "City of Euclid, Ohio v. Ambler Realty")

FAR Part 36, Certificated Airport Noise Levels: Noise certification standards for civil turbojet and large transport category aircraft. Provides a reference source for aircraft noise levels.

Far Part 150, Airport-Land Use Compatibility Planning: Designed to assist airport operators in determining the extent and nature of noise impacts at a given airport.

Federal Aviation Administration (FAA): A federal agency charged with regulating air commerce to promote its safety and development, encouraging and developing civil aviation, air traffic control and air navigation and promoting the development of a national system of airports.

Federal Aviation Regulations (FAR): Regulations established and administered by the FAA that governs civil aviation and aviation-related activities.

Federal Aviation Regulations Part 77 "Objects Affecting Navigable Airspace": Part 77 (a) establishes standards for determining obstructions in navigable airspace; (b) defines the requirements for notice to the FAA Administrator of certain proposed construction or alteration; (c) provides for aeronautical studies of obstructions to air navigation to determine their effect on the safe and efficient use of airspace; (d) provides for public hearings on the hazardous effect of proposed construction or alteration on air navigation; and (e) provides for establishing antenna farm areas.

Federal Grant Assurance: The terms and conditions of accepting Airport Improvement Program (AIP) grants from the Federal Aviation Administration for carrying out the provisions of Title 49, United States Code. The terms and conditions become applicable when the airport sponsor accepts a grant offer from the FAA.

Final Approach (IFR): The flight path of an aircraft which is inbound to the airport on an approved final instrument approach course.

Final Approach (VFR): The flight path, normally in the standard traffic pattern, of a landing aircraft along the extended centerline of the runway centerline. Final approach is preceded by a base leg in the standard traffic pattern.

Finding of No Significant Impact (FONSI): A document briefly explaining the reasons an action will not have a significant effect on the human environment and therefore justifies the decision to not prepare an EIS. A FONSI is issued by the federal agency following the preparation of an EA.

Fix: A geographical position.

Fixed-Base Operator (FBO): An airport facility that serves the general aviation community by selling and repairing aircraft and parts, selling fuel, and providing flight and ground-school instruction.

General Aviation (GA): Refers to all civil aircraft and operations that are not classified as air carrier, commuter or regional. The types of aircraft used in general aviation activities cover a wide spectrum from corporate multi-engine jet aircraft piloted by professional crews to amateur-built single engine piston acrobatic planes, balloons and dirigibles.

General Conformity: All federal actions (except those involving highways and transit projects) within non-attainment and maintenance areas that result in a net increase in emissions above specified de minimis levels.

Glide Slope: Provides vertical guidance for aircraft during approach and landing. The glide scope consists of the following: Electronic components emitting signals which provide vertical guidance by reference to airborne instruments during instrument approaches such as ILS, or Visual ground aids, such as VASI, which provide vertical guidance for VFR approach or for the visual portion of an instrument approach and landing.

Global Positioning System (GPS): A system of satellites used as reference points to enable navigators equipped with GPS receivers to determine their latitude, longitude, and altitude.

Grid Analysis: A type of aircraft noise analysis, which evaluates the noise, levels at individual points rather than through the generation of noise contours.

Ground Effect: Noise attenuation attributed to absorption or reflection of noise by man made or natural features on the ground surface.

Growth Policy: A local or regional governmental policy intended to influence the rate, amount, type, location and/or quality of future development within the Jurisdiction.

Hourly Noise Level (HNL): A noise metric that considers primarily those single events that exceed a specific threshold or duration during one hour.

Housing Codes: The codes that usually apply to both existing and future living units. The codes include minimum standards of occupancy, and usually govern spatial, ventilation, wiring, plumbing, structural and heating requirements.

Hubbing: A method of airline scheduling that times the arrival and departure of several aircraft in a close time period to allow the transfer of passengers between different flights of the same airline. Several airlines may conduct hubbing operations at an airport.

Incompatible Land Use: The use of land, which is defined in Appendix A, Table 1 of FAR Part 150, which is normally incompatible with the aircraft and airport operations (such as homes, schools, nursing homes, hospitals, and libraries). See Table X, Land Use Compatibility Guidelines – FAR Part 150, of this guide to review the FAA land use compatibility table.

Infrastructure: A community's built elements that establish the community's foundation for maintaining existing populations, activities, future growth and development. Infrastructure elements include airports, roads and highways, bridges, water and sewer systems, waste disposal facilities, utilities and telecommunications systems, schools, and governmental and community facilities.

Instrument Approach: A series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing or to a point from which a landing may be made visually.

Instrument Flight Rules (IFR): Rules governing the procedure for conducting instrument flight. In addition, a term used by pilots and controller to indicate a type of flight plan.

Instrument Landing System (ILS): An electronic system installed at some airports which helps guide pilots to runways during periods of limited visibility or inclement weather.

Instrument Meteorological Conditions (IMC): Weather conditions expressed in terms of visibility, distance from clouds, and cloud ceilings during which all aircraft are required to operate using instrument flight rules (IFR).

Integrated Noise Model (INM): FAA's computer model used by the civilian aviation community for evaluating aircraft noise impacts near airports. The INM uses a standard database of aircraft characteristics and applies them to an airport's average operational day to produce noise contours.

Itinerant Operation: Any aircraft arrival and/or departure other than a local operation.

Knots: Airspeed measured as the distance in nautical miles covered in one hour.

Land Use Compatibility: The coexistence of land uses surrounding the airport with airport-related activities.

Land Use Controls: Measures established by state or local government that are designed to carry out land use planning. The controls include among other measures: zoning, subdivision regulations, planned acquisition, easements, covenants or conditions in building codes and capital improvement programs, such as establishment of sewer, water, utilities or their service facilities.

Land Use Management Measures: Land use management techniques that consist of both remedial and preventive measures. Remedial, or corrective, measures typically include sound insulation or land acquisition. Preventive measures typically involve land use controls that amend or update the local zoning ordinance, comprehensive plan, subdivision regulations, and building code.

Landing and Takeoff (LTO) Cycle: The time an aircraft is in operation at an airport.

Landside: That part of an airport used for activities other than the movement of aircraft, such as vehicular access roads and parking.

Ldn: Ldn is used in place of DNL in mathematical equations.

Leq: Equivalent Sound Level

Local Passenger: A passenger who either enters or exits a metropolitan area on flights serviced by the area's airport.

Localizer: The component of an ILS, which provides lateral course guidance to the runway.

Local Operation: Any operation performed by an aircraft that: (a) operates in the local traffic pattern or within sight of the tower or airport, or (b) is known to be departing for, or arriving from, flight in local practice areas located with a 20-mile radius of the control tower or airport, or (c) executes a simulated instrument approach or low pass at the airport.

Location Impact Analysis: An analysis conducted to determine if noise level increases associated with projected development would approach the FAA threshold of a 1.5 DNL increase within the 65 DNL or greater noise contours over any noise-sensitive land use.

Loudness: The subjective intensity of sound.

Maintenance Area: A geographical area which was once designated as nonattainment but the pollution levels have met the National Ambient Air Quality standards for two consecutive years and has an approved maintenance plan which outlines how the geographical area will continue to meet these standards.

Master Plan Update: An update to the long-range airport development requirements.

Mediation: The use of a mediator or co-mediators to facilitate open discussion between disputants and assist them to negotiate a mutually agreeable resolution. Mediation is a method of alternative dispute resolution that provides an initial forum to informally settle disputes prior to regulatory intervention on the part of the FAA.

Missed Approach: A prescribed procedure to be followed by aircraft that cannot complete an attempted landing at a airport.

Mitigation: The avoidance, minimization, reduction, elimination, or compensation for adverse environmental effects of a proposed action.

Mitigation Measure: An action taken to alleviate adverse impacts.

Narrowbody Aircraft: A commercial passenger jet having a single aisle and a maximum of three seats on each side of the aisle.

National Airspace System (NAS): The common network of U.S. airspace.

National Environmental Policy Act of 1969 (NEPA): The original legislation establishing the environmental review process.

National Plan of Integrated Airport Systems (NPIAS): A primary purpose of the NPIAS is to identify the airports that are important to national transportation and, therefore, eligible to receive grants under the Airport Improvement Program (AIP). The NPIAS is composed of all commercial service airports, all reliever airports, and selected general aviation airports.

Nautical Mile: A measure of distance equal to one minute of arc on the earth's surface, which is approximately 6,076 feet.

Navigation Aids (NAVAIDS): Any facility used by an aircraft for guiding or controlling flight in the air or the landing or take-off of an aircraft.

Noise: Unwanted sound

Noise Abatement Procedures: Changes in runway usage, flight approach and departure routes and procedures, and vehicle movement, such as ground maneuvers or other air traffic procedures that shift aviation impacts away from noise sensitive areas.

Noise Compatibility Plan (NCP): The NCP consists of an optimum combination of preferred noise abatement and land use management measures, and a plan for the implementation of the measures. For planning purposes, the implementation plan also includes the estimated cost for each of the recommended measures to the airport sponsor, the FAA, airport users, and the local units of government.

Noise Compatibility Program: See "Part 150 Study."

Noise Exposure Contours: Lines drawn about a noise source indicating constant energy levels of noise exposure. DNL is the measure used to describe community exposure to noise.

Noise Exposure Map (NEM): The NEM is a scaled map of the airport, its noise contours and surrounding land uses. The NEM depicts the levels of noise exposure around the airport, both for the existing conditions and forecasts for the five-year planning period. The area of noise exposure is designated using the DNL (Day-Night Average Sound Level) noise metric.

Noise Impact Routing System (NIRS): A computer simulation model that evaluates noise impacts in a defined area from the ground up to 18000 feet.

Noise Level Reduction (NLR): The amount of noise level reduction in decibels achieved through incorporation of noise attenuation (between outdoor and indoor levels) in the design and construction of a structure.

Noise-Sensitive Area: Areas where aircraft noise may interfere with existing or planned use of the land. Whether noise interferes with a particular use depends upon the level of noise exposure and the types of activities that are involved. Residential neighborhoods, educational, health, and religious structures and sites, outdoor recreational, cultural and historic sites may be noise sensitive areas.

Nonattainment: Areas that exceeded the national ambient air quality standards for any of six pollutants (ozone, or smog; carbon monoxide; lead; particulate matter; or PM-10; or nitrogen dioxide)

Nonconforming Use: Any pre-existing structure, tree, or use of land that is inconsistent with the provisions of the local land use or airport master plans.

Non directional Beacon (NDB): A beacon transmitting nondirectional signals that can be used by pilots whose aircraft are equipped with direction finding equipment to determine a bearing to and from the station.

Nonprecision Approach: A standard instrument approach procedure providing runway alignment but no glide slope or decent information.

Notice to Airman (NOTAM): A notice containing information concerning the condition of the National Airspace System.

Off-Airport Property: Property that is beyond the boundary of land owned by the airport sponsor.

Official Airline Guide (OAG): Contains a listing of airline flight schedules.

Official Map: A legally adopted map that conclusively shows the locations and width of proposed streets, public facilities, public areas and drainage rights-of-way.

On-Airport Property: Property that is within the boundary of land owned by the airport sponsor.

Outer Fix: An air traffic control term to describe the fixes in the terminal area from which aircraft are normally cleared to the approach fix or final approach course.

Overlay Zone: A mapped zone that imposes a set of requirements in addition to those of the underlying zoning district.

Part 150 Study: Part 150 is the abbreviated name for the airport noise compatibility planning process outlined in Part 150 of the Federal Aviation Regulation (FAR) that allows airport owners to voluntarily submit noise exposure maps and noise compatibility programs to the FAA for review and approval. See Noise Compatibility Plan.

Passenger Facility Charge (PFC) Program: The PFC Program, first authorized by the Aviation Safety and Capacity Expansion Act of 1990 and now codified under Section 40117 of Title 49 U.S.C., provides a source of additional capital to improve, expand and repair the nation's airport infrastructure. The legislation allows public agencies controlling commercial service airports to charge enplaning passengers using the airport a facility charge. The FAA must approve any facility charges imposed on enplaning passengers.

Performance Standards: Minimum acceptable levels of performance, imposed by zoning, that must be met by each land use.

Positive Control: The separation of all air traffic within designated airspace.

Precision Approach Procedure: A standard instrument approach procedure in which an electronic glideslope is provided.

Primary Commercial Service Airport: A commercial airport which enplanes .01 percent or more of the total annual U.S. enplanements.

Primary Runway: The runway used for the majority of airport operations.
Large, high-activity airports may operate two or more parallel primary runways.

Profile: The physical position of the aircraft during landings or takeoffs in terms of altitude and distance in relation to the runway.

Propagation: Sound propagation refers to the spreading or radiation of sound energy from the noise source.

Public Use Airport: A publicly or privately owned airport that offers the use of its facilities to the public without prior notice or special invitation or clearance.

Quadrant: A quarter part of a circle, centered on a NAVAID oriented clockwise from magnetic north.

Radial: A magnetic bearing extended from a VOR,VORTAC,or TACAN facility.

Reliever Airport: An airport that meets certain FAA criteria and relieves the aeronautical demand on a busier air carrier airport.

Rotational Runway Use: Variance in the use of runways over a specific time.

Run Up: A routine procedure for testing aircraft at high power settings conducted by maintenance personal.

Runway: A defined area on an airport for the purpose of landing and takeoff.

Runway Protection Zone (RPZ): A trapezoidal-shaped area centered about the extended runway centerline that is used to enhance the safety of aircraft operations. It begins 200 feet beyond the end of the runway or area usable for takeoff or landing. The RPZ dimensions are functions of the design aircraft, type of operation and visibility minimums.

Runway Use Program: A noise abatement runway selection plan designed to enhance noise abatement efforts with regards to airport communities for arriving and departing aircraft.

Single Event: An occurrence of audible noise usually above a specified minimum noise level.

Slant-Range Distance: The straight line distance between an aircraft and a point on the ground.

Sound Attenuation: Acoustical phenomenon whereby a reduction of sound energy is experienced between the noise source and the receiver. This energy loss can be attributed to atmospheric conditions, terrain, vegetation, constructed features (e.g., sound insulation) and natural features.

Sound Exposure Level (SEL): A measure of the physical energy of the noise event that takes into account both intensity and duration. By definition SEL values are referenced to a duration of one second. SEL is higher than the average and the maximum noise levels as long as the event is longer than one second is. Sound exposure level is expressed in decibels (dB). People do not hear SEL.

Special Exceptions: Land uses that are not specifically permitted as a matter of right but can be permitted in accordance with performance standards and other local criteria. Also known as “conditional uses.”

Special Use Airspace: Six types of airspace designated to special uses and defined in the Airmans informational manual. It identifies areas wherein activities must be confined because of their nature and/or wherein limitations may be imposed upon aircraft operations that are not part of those activities.

Stage 2 Aircraft: Aircraft that meet the noise levels prescribed by FAR Part 36 and are less stringent than noise levels established for the quieter designation Stage 3 aircraft. The Airport Noise and Capacity Act requires the phase-out of all Stage 2 aircraft by December 31, 1999, with case-by-case exceptions through the year 2003.

Stage 3 Aircraft: Aircraft that meet the most stringent noise levels set forth in FAR Part 36.

Standard Instrument Departure Procedure (SID): A preplanned IFR air traffic control departure printed for pilot use in graphic and or text form. SID’s provide transition from the terminal to the en route structure.

Standard Terminal Arrival Routes (STARS): A preplanned IFR air traffic control departure printed for pilot use in graphic and or text form. STARS provide transition from an en route structure to an outer fix or a instrument approach fix in the terminal area.

State Implementation Plan (SIP): a detailed description of the programs a state will use to carry out its responsibilities under the Clean Air Act. State Implementation Plans are collections of the regulations used by a state to reduce air pollution.

Statute Mile: A measure of distance equal to 5,280 feet.

TACAN- Tactical Air Navigation. A navigation system used by the military.

Taxiway: A defined path established for taxing of aircraft from one part of an airport to another.

Terminal Area: A general term used to describe airspace in which airport traffic control or approach control service is provided.

Terminal Radar Approach Control (TRACON): An FAA Air Traffic Control Facility which uses radar and two way communication to provide separation of air traffic within a specified geographic area in the vicinity of one or more airports.

Threshold: The beginning of the usable section of a runway.

Time Above (TA): Time above indicates the time in minutes that a given DBA level is exceeded in a 24 hour period.

Traffic Patterns: A traffic flow that is prescribed for aircraft landing at and taking off from an airport.

Transfer of Development Rights: This involves separate ownership and use of the various "rights" associated with a parcel of real estate. Under this concept, some of the property's development rights are transferred to a remote location where they may be used to intensify allowable development.

Turbojet Aircraft: Aircraft operated by jet engines incorporating a turbine-driven air compressor to take in and compress the air for the combustion of fuel, the gases of combustion (or the heated air) being used both to rotate the turbine and to create a thrust-producing jet.

Turboprop Aircraft: Aircraft in which the main propulsive force is supplied by a gas turbine driven conventional propeller. Additional propulsive force may be supplied from the discharged turbine exhaust gas.

Variance: An authorization for the construction or maintenance of a building or structure, or for the establishment or maintenance of a use of land that is prohibited by a zoning ordinance. A lawful exception from specific zoning ordinance standards and regulations predicated on the practical difficulties and/or unnecessary hardships on the petitioner being required to comply with those regulations and standards from which an exemption or exception is sought.

Vector: Compass heading instructions issued by ATC to provide navigational guidance by radar.

Very High Frequency Omnidirectional Range Station (VOR): A ground based radio navigation aid transmitting signals in all directions. A VOR provides azimuth guidance to pilots by reception of electronic signals.

Visual Approach: An approach to an airport conducted with visual reference to the terrain.

Visual Flight Rules (VFR): Rules that govern flight procedures in good weather, with conditions usually being at least 1,000-foot ceiling and three miles visibility.

Visual Meteorological Conditions (VMC): Weather conditions equal to or greater than those specified in 14 CFR 91.155 for aircraft operations under Visual Flight Rules.

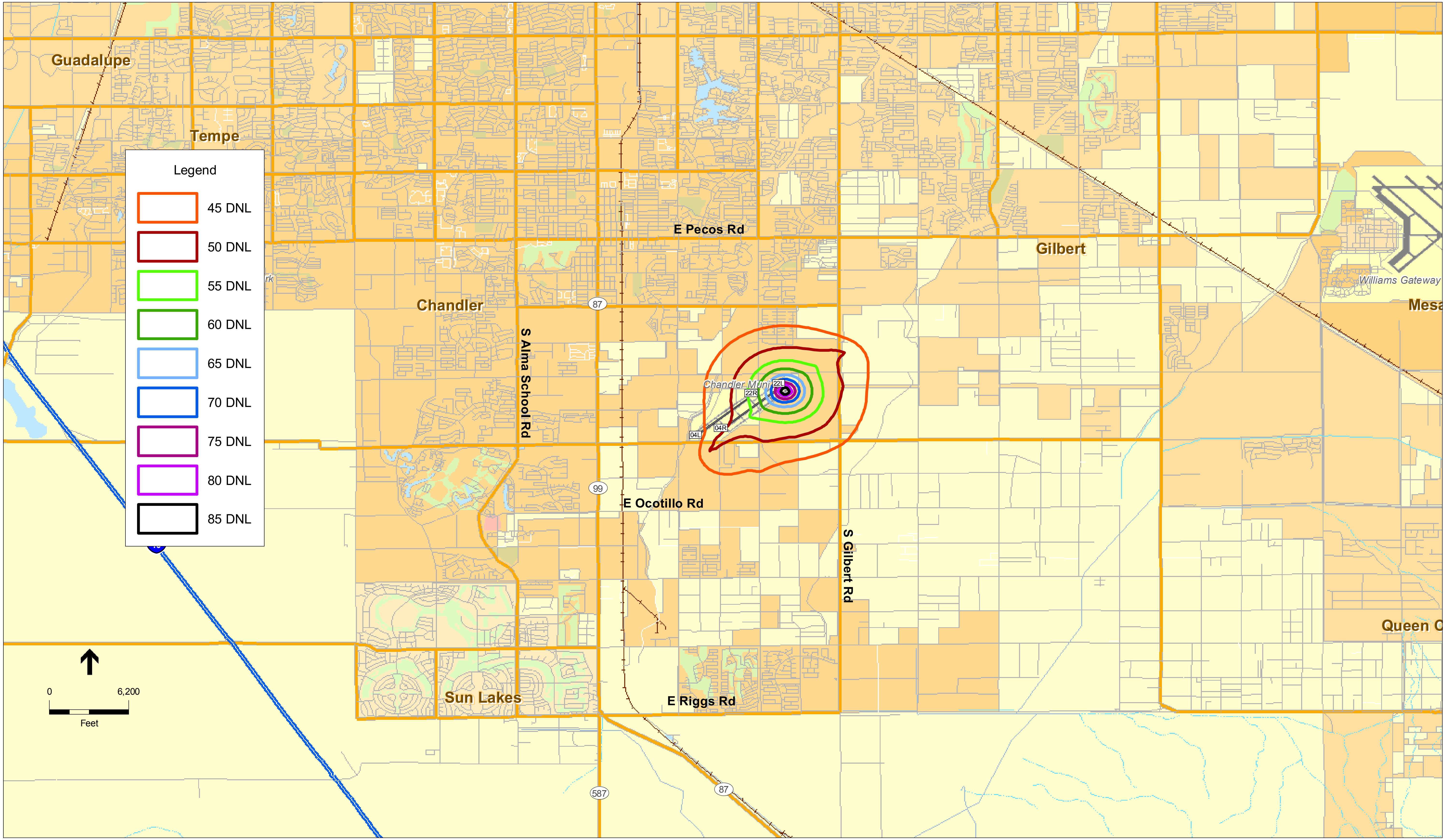
VORTAC: Very High Frequency Omnidirectional Range with Tactical Air Navigation. A navigational aid providing VOR azimuth and TACAN distance measuring equipment at one site.

Wetlands Mitigation Banking: involves consolidating fragmented wetland mitigation projects into one large contiguous site. Units of restored, created, enhanced or preserved wetlands are expressed as "credits" which may be withdrawn to offset "debits" incurred at a project development site.

Zoning: The partitioning of land parcels in a community by ordinance into zones and the establishment of regulations in the ordinance to govern the land use and the location, height, uses, and land coverage of buildings within each zone. The zoning ordinance usually consists of text and zoning map.

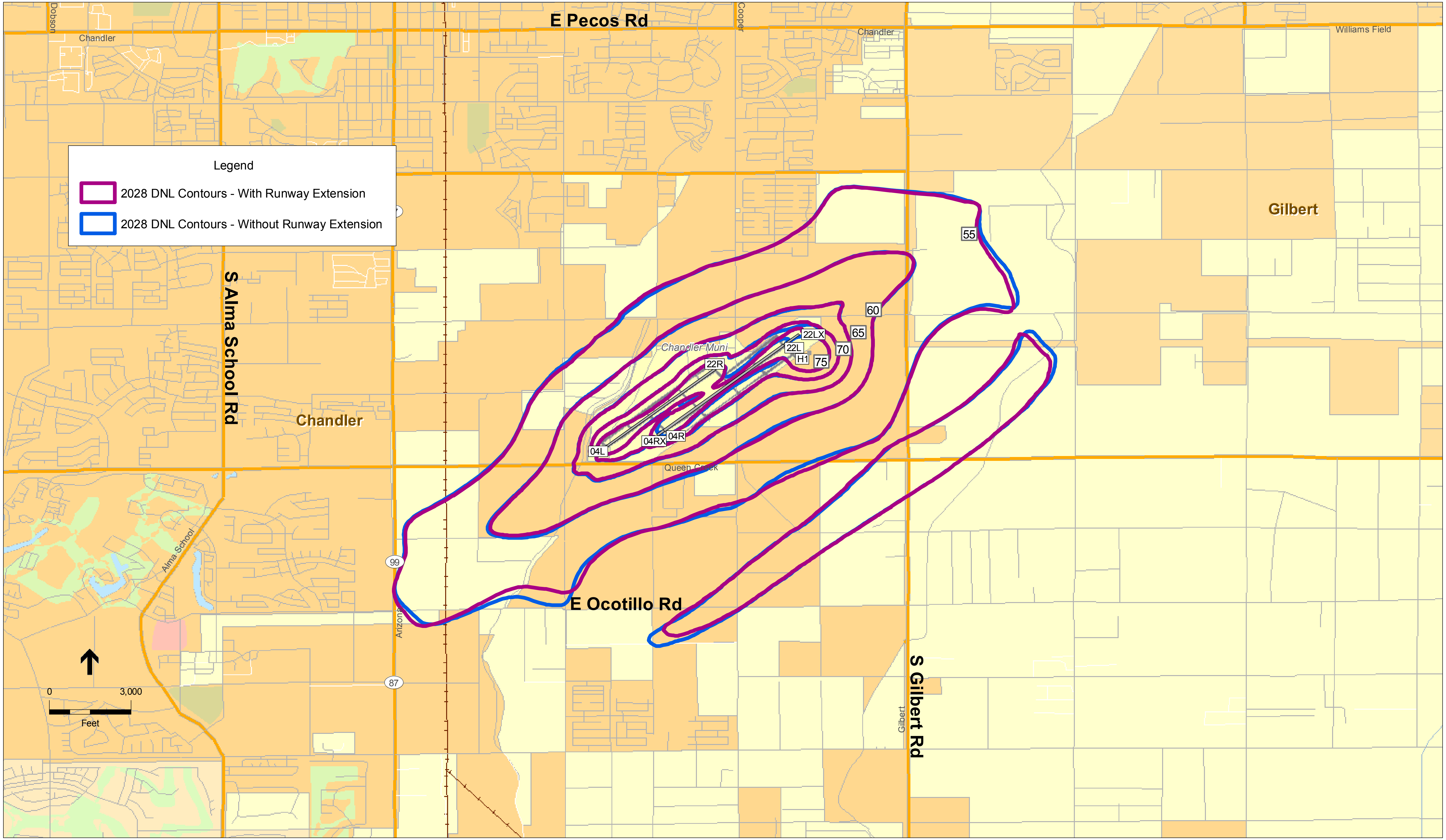
Zoning Ordinance: Primarily a legal document that allows a local government effective and legal regulation of uses of property while protecting and promoting the public interest.

APPENDIX M: HELICOPTER ONLY CONTOURS



2008 DNL Noise Contour - Helicopter Only

APPENDIX N: CONTOUR COMPARISON/RUNWAY EXTENSION



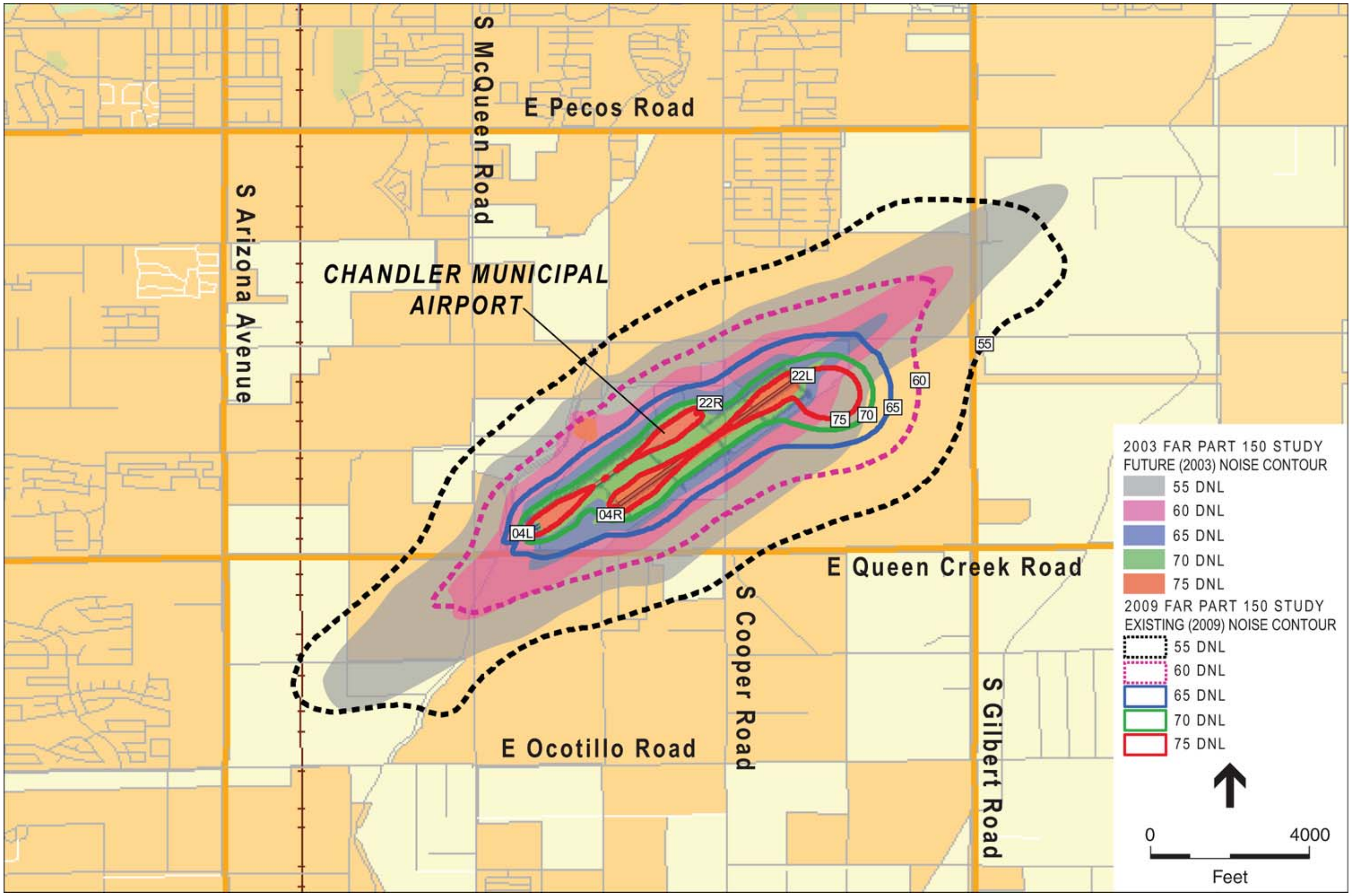
SOURCE: ESA Airports

Chandler FAR Part 150 Study . 207031

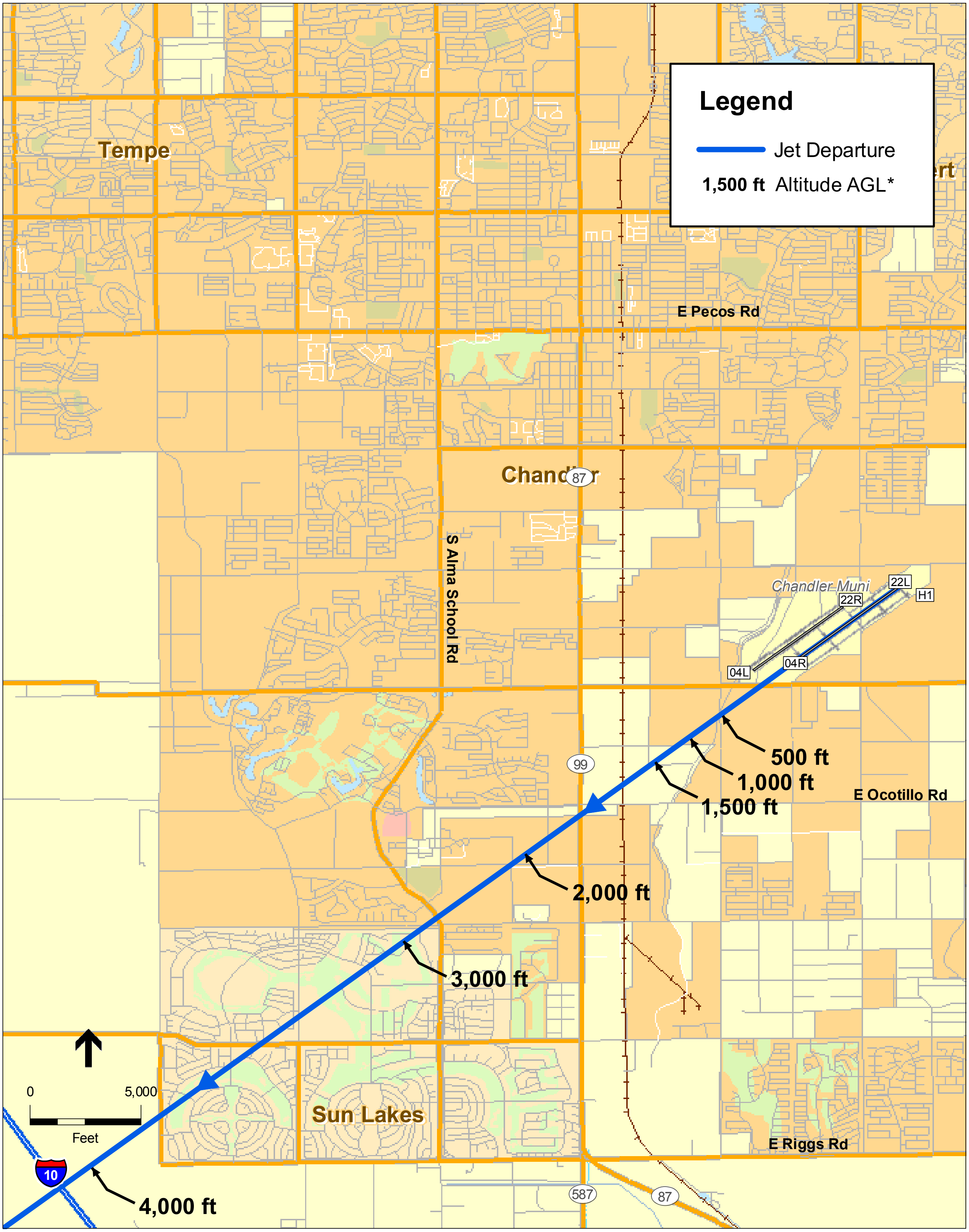
2028 DNL Noise Contour Comparison - With and Without Runway Extension

APPENDIX O: PART 150 STUDIES CONTOUR COMPARISON

Part 150 Study Contour Comparison



APPENDIX P: TRACK ALTITUDE ANALYSIS



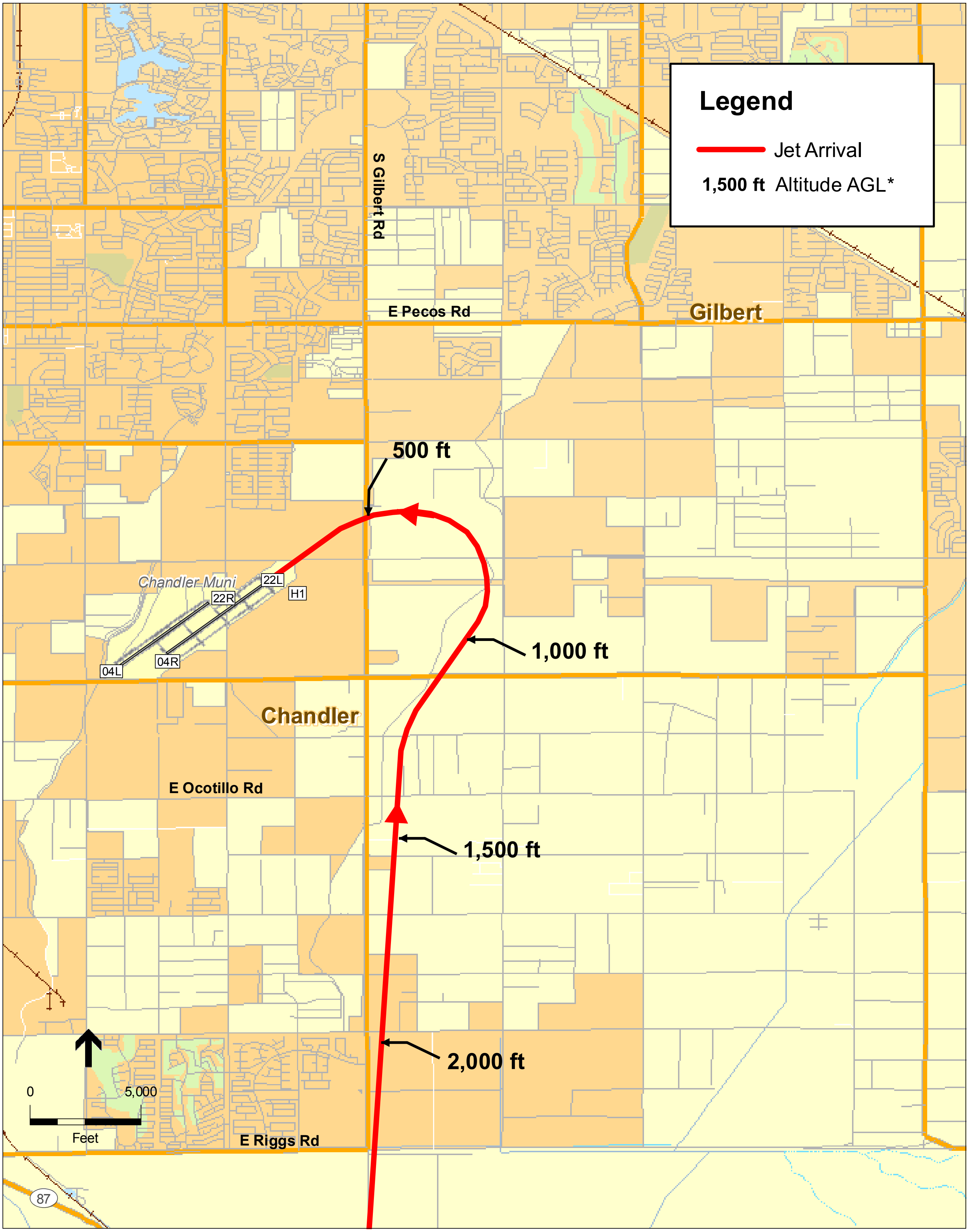
*Approximate Altitude Above Ground Level

SOURCE: ESA Airports

Chandler FAR Part 150 Study . 207031

Flight Track Altitude Analysis

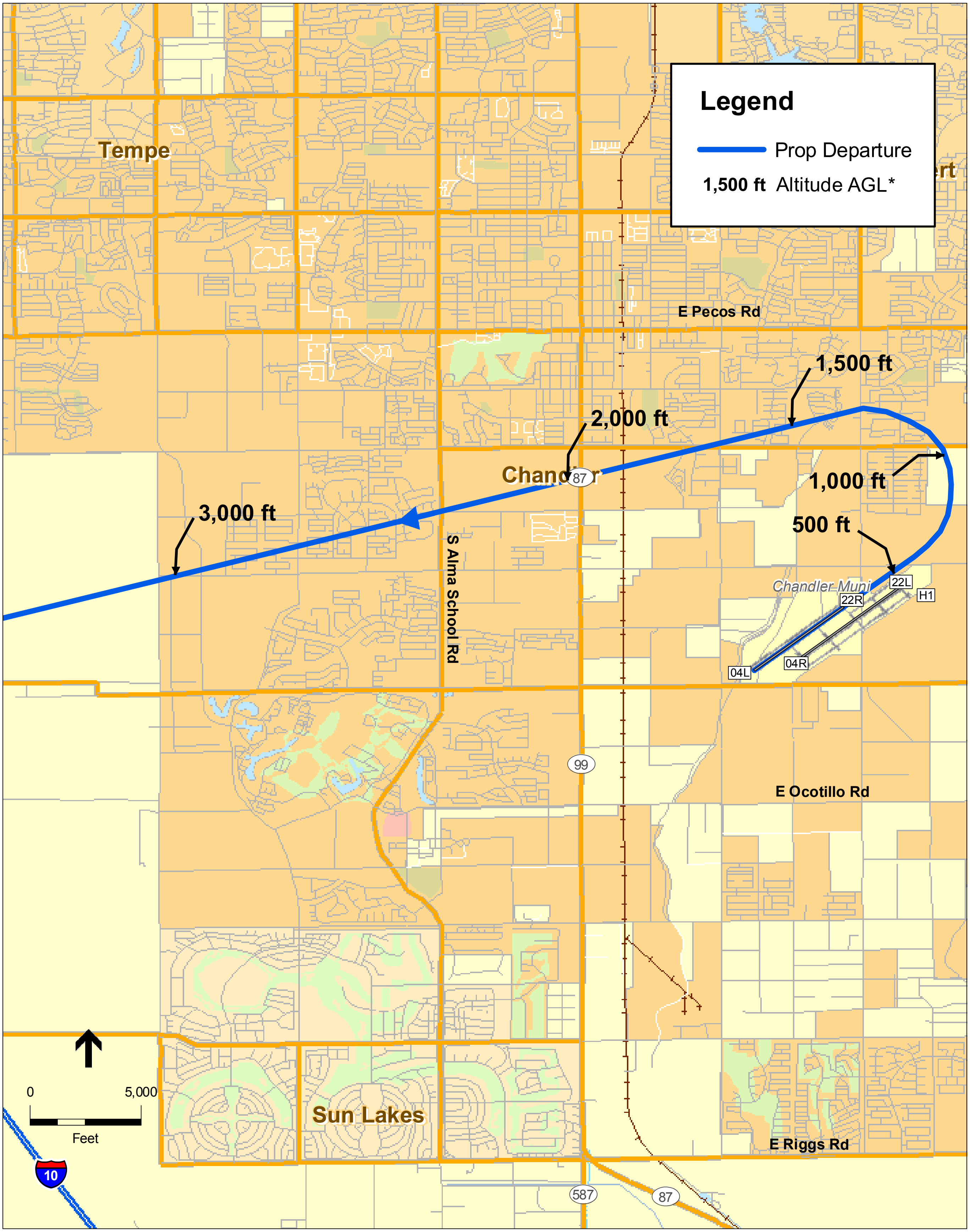
Learjet 35 Departure



*Approximate Altitude Above Ground Level

SOURCE: ESA Airports

Chandler FAR Part 150 Study . 207031
Flight Track Altitude Analysis
Lear 35 Arrival



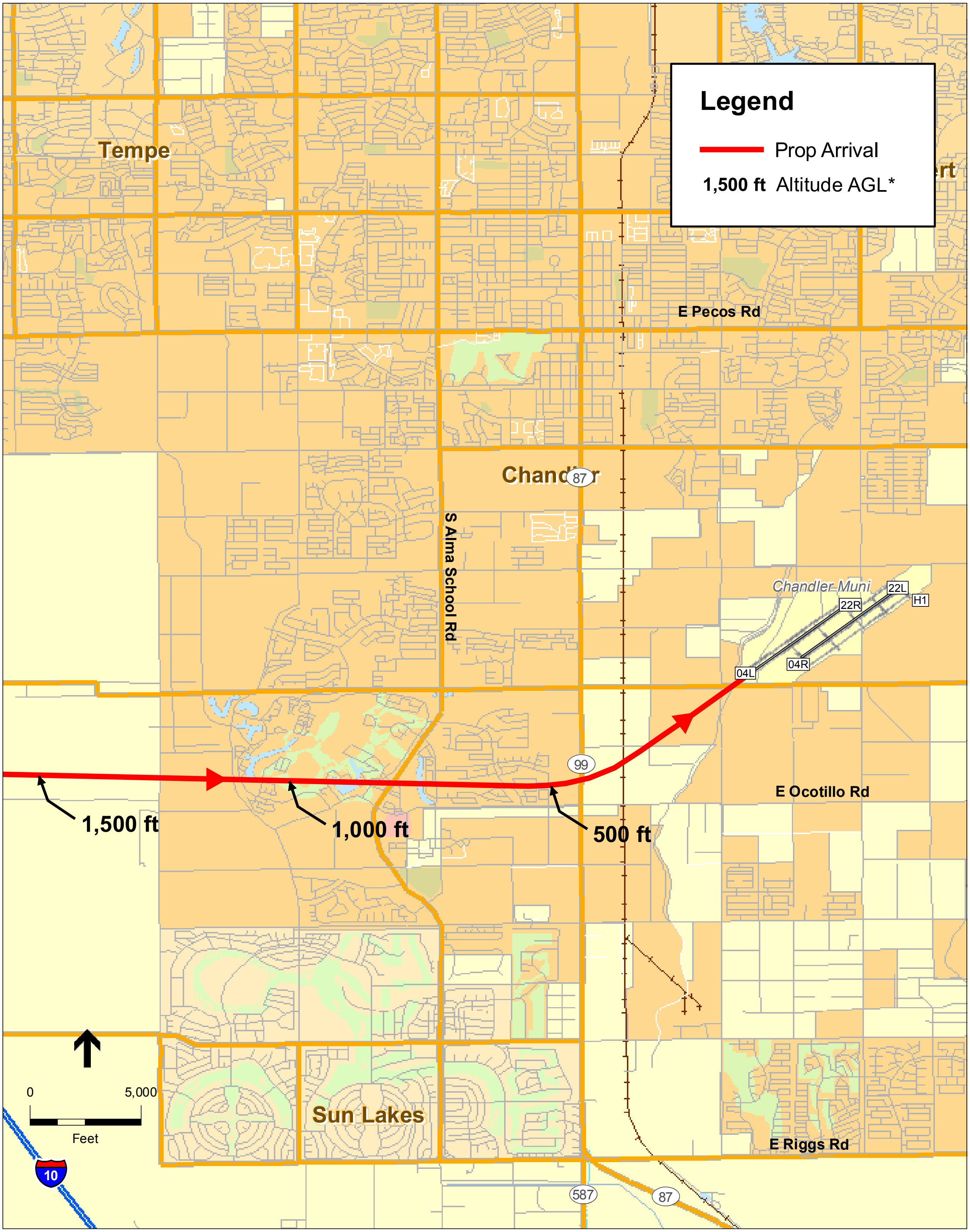
*Approximate Altitude Above Ground Level

SOURCE: ESA Airports

Chandler FAR Part 150 Study . 207031

Flight Track Altitude Analysis

Cessna 172 Departure



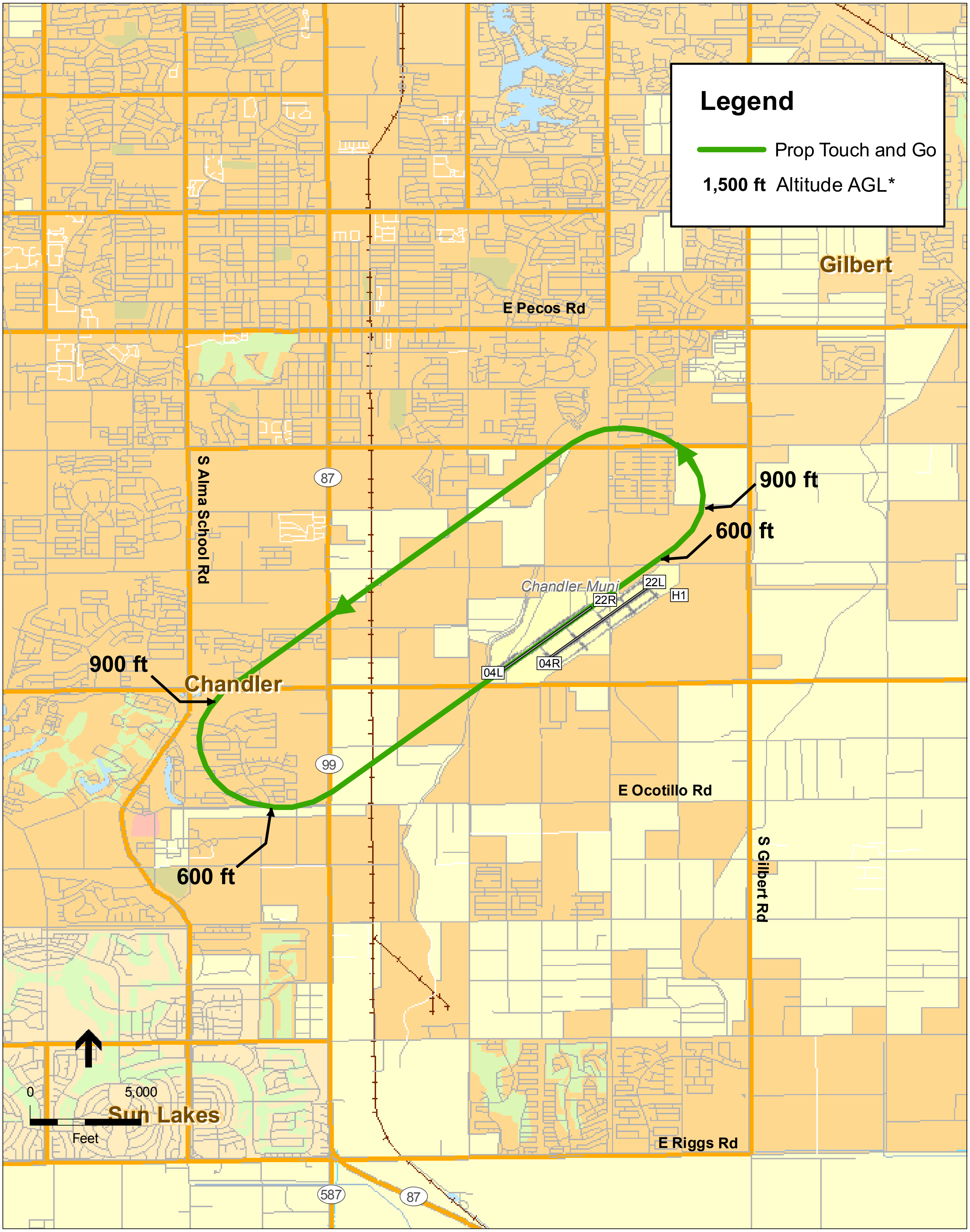
*Approximate Altitude Above Ground Level

SOURCE: ESA Airports

Chandler FAR Part 150 Study . 207031

Flight Track Altitude Analysis

Cessna 172 Arrival

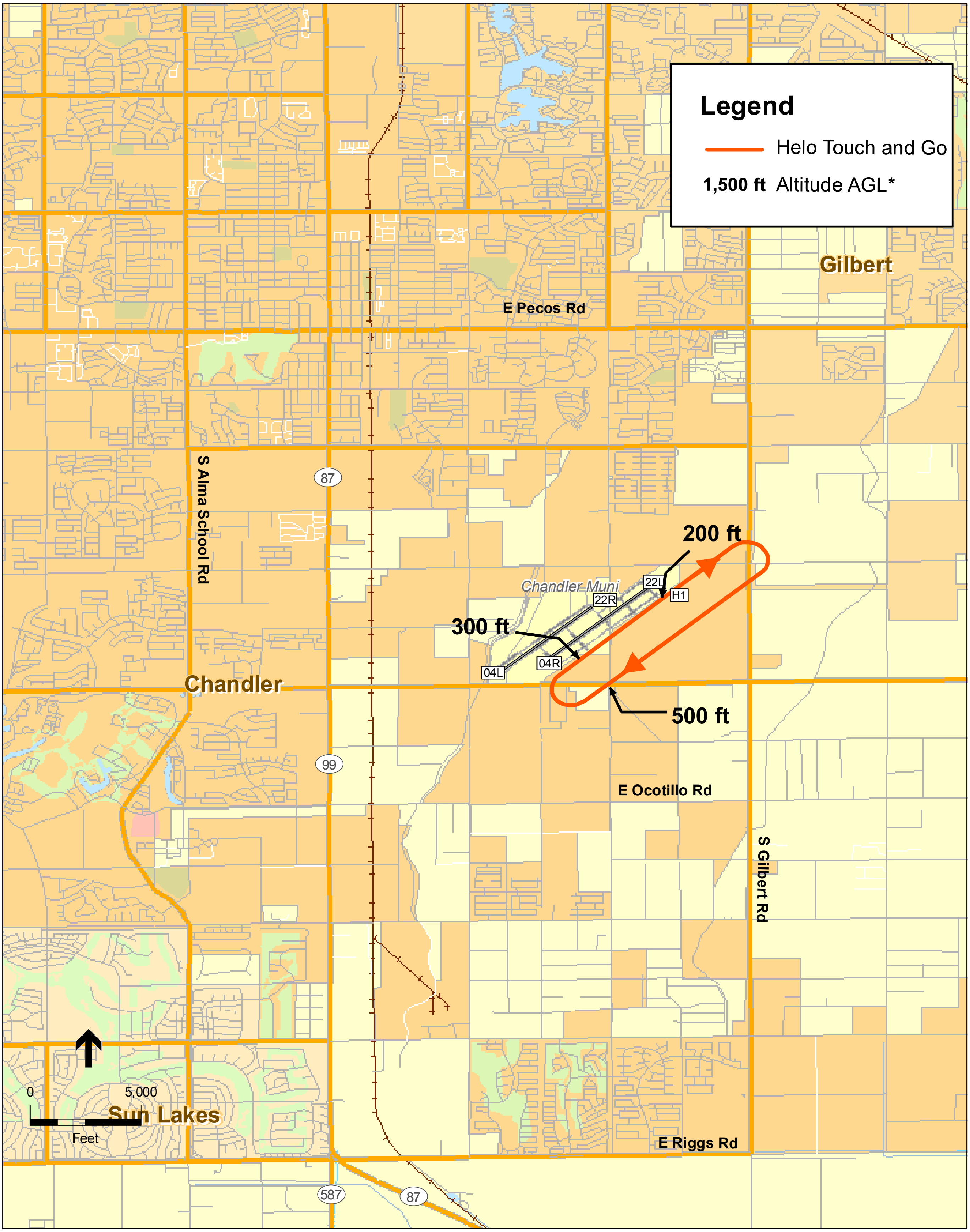


*Approximate Altitude Above Ground Level

SOURCE: ESA Airports

Chandler FAR Part 150 Study . 207031

Flight Track Altitude Analysis
Cessna 172 Touch and Go



*Approximate Altitude Above Ground Level

SOURCE: ESA Airports

Chandler FAR Part 150 Study . 207031
Flight Track Altitude Analysis
R22 Helo Touch and Go

APPENDIX Q: CHANDLER TOWER AND QUANTUM HELICOPTERS LETTER OF AGREEMENT

CHANDLER FAA CONTRACT TOWER AND QUANTUM HELICOPTERS

LETTER OF AGREEMENT

EFFECTIVE: February 11, 2008

SUBJECT: VFR HELICOPTER DEPARTURE AND ARRIVAL PROCEDURES

1. PURPOSE. This letter of agreement specifies responsibilities, defines terms, and establishes procedures for operation of helicopters within the Chandler Class Delta Airspace.

2. CANCELLATION. This letter of agreement cancels the letter of agreement dated August 23, 2006.

3. SCOPE. The provisions of this letter apply only to helicopters conducting operations VFR by persons authorized by Quantum Helicopters and only when Chandler Tower is in operation.

4. RESPONSIBILITIES.

   a. Quantum Helicopters is responsible to ensure each pilot operating a helicopter under their jurisdiction is thoroughly briefed, is familiar with and can demonstrate a working knowledge of the procedures contained in this letter of agreement.

   b. Chandler Tower will issue ATC clearances to helicopters operating to/from movement areas, and traffic advisories when workload permits, within the Chandler Class Delta Airspace.

5. DEFINITIONS.

   a. Movement Area: The helipad, runways and taxiways used for taxi, hover taxi, air taxi, takeoff, and landing of aircraft at Chandler Municipal Airport. Specific approval is required from the tower for entry onto the movement area.

   b. Non-Movement Area: Apron, parking areas, Quantum turf area, Quantum ramp (including the ramp associated with the helipad) and all other areas that are not controlled by the tower.

c. Transient Ramp: Southwest portion of the heliport.

d. Quantum Ramp: The twelve parking spots in front of the hangar.

e. Quantum Turf: The grass area next to the Quantum Ramp (a row of lights divide the two areas)

f. Elbow Departure: A procedure wherein the helicopter will hover taxi from the Quantum ramp, over the helipad, to the elbow of the taxi-lane (non-movement area) adjacent to the Quantum Turf.

g. North Point: The intersection of Germann Road and McQueen Road.

h. South Point: The intersection of Cooper Road and Queen Creek Road.

i. Transition: Airport enter/exit routes to/from North Point, referred to as north transition (Alpha) and south transition (Bravo).

j. Standard Departure/Arrival procedure: Routing procedures for operations to/from North Point and South Point.

k. Alpha/Bravo Direct: An abbreviated procedure wherein, upon pilot/tower request, the helicopter will intercept the appropriate transition without going to south point.

6. PROCEDURES. Departure and arrival profiles are a combination of two phases of flight: the transition phase (enter/exit the helipad) and the standard departure/arrival phase (routes to/from the airport). Taxiway Charlie operations are designed to segregate helicopter operations from fixed wing operations.

Helicopters shall not cross the airport environment without specific approval. The tower must authorize a flight across the airport or across the extended centerlines of the runways with specific phrases, such as: “cross both runways”, or “cross the centerlines of both runways”.

The active runway will dictate the type departure/arrival unless otherwise requested and approved (traffic permitting).

a. Departures shall:

(1). Use frequency 133.1 unless otherwise specified by Chandler Tower.

(2). State: call sign, position, preferred departure and direction of flight, with current ATIS.

a. Alpha Departure – depart northeast from the helipad, make a right circle to South Point.

b. Bravo Departure – depart southwest from the helipad, as soon as practical make a left turn to South Point.

(4). Remain at or below 1800 feet MSL within 2 miles of the airport, then maintain at or below 2000 feet MSL until clear of the Chandler Class Delta Airspace.

b. Arrivals shall:

(1). Use the frequency specified on current publications and charts to contact Chandler Tower.

(2). State call sign, position, intentions and current ATIS.

(3). Specify preferred transition/arrival to the helipad when approaching North/South Point.

From North Point (after midfield crossing):

a. Alpha Arrival: Proceed to South Point, make a left circle to the helipad.

b. Bravo Arrival: Proceed to South Point, make a right circle to the helipad.

From South Point:

a. Alpha Arrival: At South Point turn right, intercept the alpha transition and proceed to the helipad

b. Bravo Arrival: At south Point turn left, intercept the bravo transition and proceed to the helipad.

(4). Remain at or below 2000 feet MSL entering the Chandler Class Delta Airspace, then descend to 1800 feet MSL at least 2 miles from the airport.

c. The Alpha and Bravo transitions shall be conducted well clear of taxiways, runways and extended centerlines of runway 4R/22L.

d. The control tower may direct other flight operations using plain language.

e. Taxiway Charlie Operations:

(1). Taxiway Charlie traffic pattern operations shall be conducted at or below 1,800 feet in a single rectangular pattern and shall not extend to the air space used by fixed wing aircraft for crosswind or base leg operations.

(2). The touch down point is the intersection of November 3 and Taxiway Charlie.

(3). Pilots shall announce their departure if they remain in place on Taxiway Charlie for two minutes or more while exercising an option clearance.

(4). The control tower will issue “touch-and-go/low approach” clearances when multiple Helicopters operate simultaneously in the Taxiway Charlie pattern.

(5). Slope Operations. Upon request, the tower will authorize helicopters to operate clear of Taxiway Charlie in an undeveloped area. Pilots must request approval to rejoin Taxiway Charlie.

(6). Maneuvering on Taxiway Charlie. Upon request, the tower will authorize helicopters to operate freely, back and forth, on Taxiway Charlie. Pilots must request departure clearance at the conclusion of this operation.

(7). 180 Degree Auto-rotation. Upon request, the tower will authorize auto-rotation/simultaneous auto-rotation operations in the Taxiway Charlie pattern from 1,900 feet MSL. Pilots are expected to remain within ¼ mile of Taxiway Charlie on the downwind leg and base leg will be conducted prior to reaching the end of the taxiway.

f. Special VFR Procedures: Chandler Tower will authorize a special VFR clearance to helicopters upon request prior to any flight within the Chandler Class Delta Airspace when the weather is reported below VFR minimums at Chandler Municipal Airport.

APPROVED:

Stacey Y. Nichols	Neil Jones
Air Traffic Manager	President
Chandler Tower	Quantum Helicopters

APPENDIX R: 2028 OPERATIONS

2028 ACTIVITY PROJECTIONS

In addition to activity projections for 2014, the FAR Part 150 Study Update also examined projected growth through 2028. The TAF only contains projections through 2025. Therefore, the average annual rate of growth between 2024 and 2025 was used to extrapolate the 2025 forecast to 2028. The projected total operations for 2028 are shown in **Table R.1**.

Table R.1
ACTUAL AND PROJECTED OPERATIONS

Projected	2028	130,659	315,504	**446,163**

SOURCE: FAA Air Traffic Activity System, May 2008; FAA Terminal Area Forecast, Wilbur Smith Associates
PREPARED: June 2008

Aircraft Fleet Mix

The projected fleet mix percentages were then applied to the 2028 forecast of operations presented above. The projected 2028 aircraft operation fleet mixes at Chandler Municipal are presented in **Table S.2**.

Table R.2
CURRENT AND PROJECTED OPERATIONAL FLEET MIX

Year	**2028**	**Percent of Total**
Jet Local	-	
Jet Itinerant	4,838	
Jet Total	*4,838*	*1.08%*
Multi \Turbine Local	720	
Multi \Turbine Itinerant	16,952	
Multi \Turbine Total	*17,672*	*3.96%*
Single Engine Local	170,176	
Single Engine Itinerant	98,149	
Single Engine Total	*268,325*	*60.14%*
Helicopter Local	144,565	
Helicopter Itinerant	10,151	
Helicopter Total	*154,716*	*34.68%*
Military Itinerant	569	
Military Local	43	
Military Total	*612*	*0.14%*
Total Local	***315,504***	***70.71%***
Total Itinerant	***130,659***	***29.29%***
Total Operations	**446,163**	

SOURCE: FAA Air Traffic Activity System, May 2008 and Wilbur Smith Assoc.

2028 OPERATIONAL ACTIVITY AND FLEET MIX

Projections for future aircraft operations in 2028, presented previously in this appendix, were further refined to the level of individual aircraft types. While not required, or recognized by FAR Part 150 as part of the NEM process, the Airport wanted to present a full build-out scenario for the Airport to aid in future land use decisions for the local jurisdictions. The full build-out takes into account the proposed project of extending Runway 4R-22L along with anticipated hangar development around the Airport. The projections for future aircraft operations in 2028 are presented in **Table R.3**.

As shown in Table 5.7, total operations at the Airport for the future year 2028 are projected to be 446,163 per year, or 1,222 per average annual day. A breakdown of 2028 itinerant operational activity and fleet mix that is used as the basis for the preparation of 2028 noise contours is presented in **Table R.4** with a breakout of local operations in **Table R.5**.

TABLE R.3
2028 ANNUAL OPERATIONS
CHANDLER MUNICIPAL AIRPORT
14 CFR PART 150 STUDY

	Air Taxi	Itinerant General Aviation	Local General Aviation	Helo	Local Helo	Total
Yearly Totals	13,314	106,620	170,897	10,723	144,609	*446,163*
Average 24-Hour Day	36.48	292.11	468.21	29.38	396.19	*1,222.36*

Source: Wilbur Smith Assoc., ESA Airports

TABLE R.4
2028 ANNUAL-AVERAGE DAY FLEET MIX (ITINERANT OPERATIONS)
CHANDLER MUNICIPAL AIRPORT
14 CFR PART 150 STUDY

			Arrivals			Departures		
Category	***Sub-Category***	***INM Aircraft***	***Day***	***Night***	***Total***	***Day***	***Night***	***Total***
Itinerant General Aviation	Jets	CL600	0.10	--	*0.10*	0.10	--	*0.10*
		CNA500	2.53	0.24	*2.77*	2.66	0.13	*2.79*
		CNA55B	0.51	0.04	*0.55*	0.53	0.01	*0.54*
		GII	0.01	--	*0.01*	0.01	--	*0.01*
		IA1125	0.04	--	*0.04*	0.04	--	*0.04*
		LEAR35	0.32	0.02	*0.34*	0.26	0.08	*0.34*
		MU3001	2.55	0.24	*2.79*	2.67	0.11	*2.78*
		Subtotal	***6.06***	***0.54***	***6.60***	***6.27***	***0.33***	***6.60***
	Multi Engine/ Turboprop	BEC58P	6.25	0.29	*6.54*	6.39	0.15	*6.54*
		CNA441	4.29	0.04	*4.33*	4.09	0.24	*4.33*
		DHC6	7.58	0.75	*8.33*	7.96	0.37	*8.33*
		GASEPV	2.54	--	*2.54*	2.49	0.05	*2.54*
		PA31	1.24	--	*1.24*	1.24	--	*1.24*
		SD330	0.13	0.06	*0.19*	0.17	0.02	*0.19*
		Subtotal	***22.03***	***1.14***	***23.17***	***22.34***	***0.83***	***23.17***
	Single Engine	CNA172	18.54	0.60	*19.14*	18.55	0.59	*19.14*
		CNA206	26.04	0.98	*27.02*	26.19	0.83	*27.02*
		GASEPF	25.34	0.92	*26.26*	25.46	0.80	*26.26*
		GASEPV	60.18	1.85	*62.03*	60.22	1.81	*62.03*
		Subtotal	***130.10***	***4.35***	***134.45***	***130.42***	***4.03***	***134.45***
Helo	Non-Military	R22	12.17	0.35	*12.52*	12.17	0.35	*12.52*
		H500D	2.13	0.04	*2.17*	2.13	0.04	*2.17*
		Subtotal	***14.30***	***0.39***	***14.69***	***14.30***	***0.39***	***14.69***
Total			**171.71**	**6.42**	***178.91***	**172.55**	**5.58**	***178.13***

Source: Wilbur Smith Assoc., ESA Airports

TABLE R.5
2028 ANNUAL-AVERAGE DAY FLEET MIX (LOCAL OPERATIONS)
CHANDLER MUNICIPAL AIRPORT
14 CFR PART 150 STUDY

			Touch and Go		
Category	***Sub Category***	***INM Aircraft***	***Day***	***Night***	***Total***
General Aviation	Multi Engine	BEC58P	1.90	0.07	*1.97*
		Subtotal	***1.90***	***0.07***	***1.97***
	Single Engine	CNA172	82.37	2.59	*84.96*
		CNA206	65.04	2.02	*67.06*
		GASEPF	130.36	4.10	*134.46*
		GASEPV	174.38	5.38	179.76
		Subtotal	***452.15***	***14.09***	***466.24***
	Helo	R22	346.05	10.56	*356.61*
		H500D	*38.41*	1.17	*39.58*
		Subtotal	***384.46***	***11.73***	***396.19***
Total			**838.51**	**25.89**	***864.40***

Source: Wilbur Smith Assoc., ESA Airports

2028 RUNWAY UTILIZATION

The future condition (2028) includes an extension to Runway 4R/22L. With the completion of this extension, it is anticipated the runway use percentages will slightly change. The jets and multi-engine/turboprop aircraft will increase their use of Runway 4R/22L, and the single-engine aircraft will shift more operations to Runway 4L/22R. The expected future (2028) runway utilization, by aircraft category, is shown in **Table R.6**.

TABLE R.6
FUTURE 2028 PERCENTAGE RUNWAY UTILIZATION
CHANDLER MUNICIPAL AIRPORT
14 CFR PART 150 STUDY

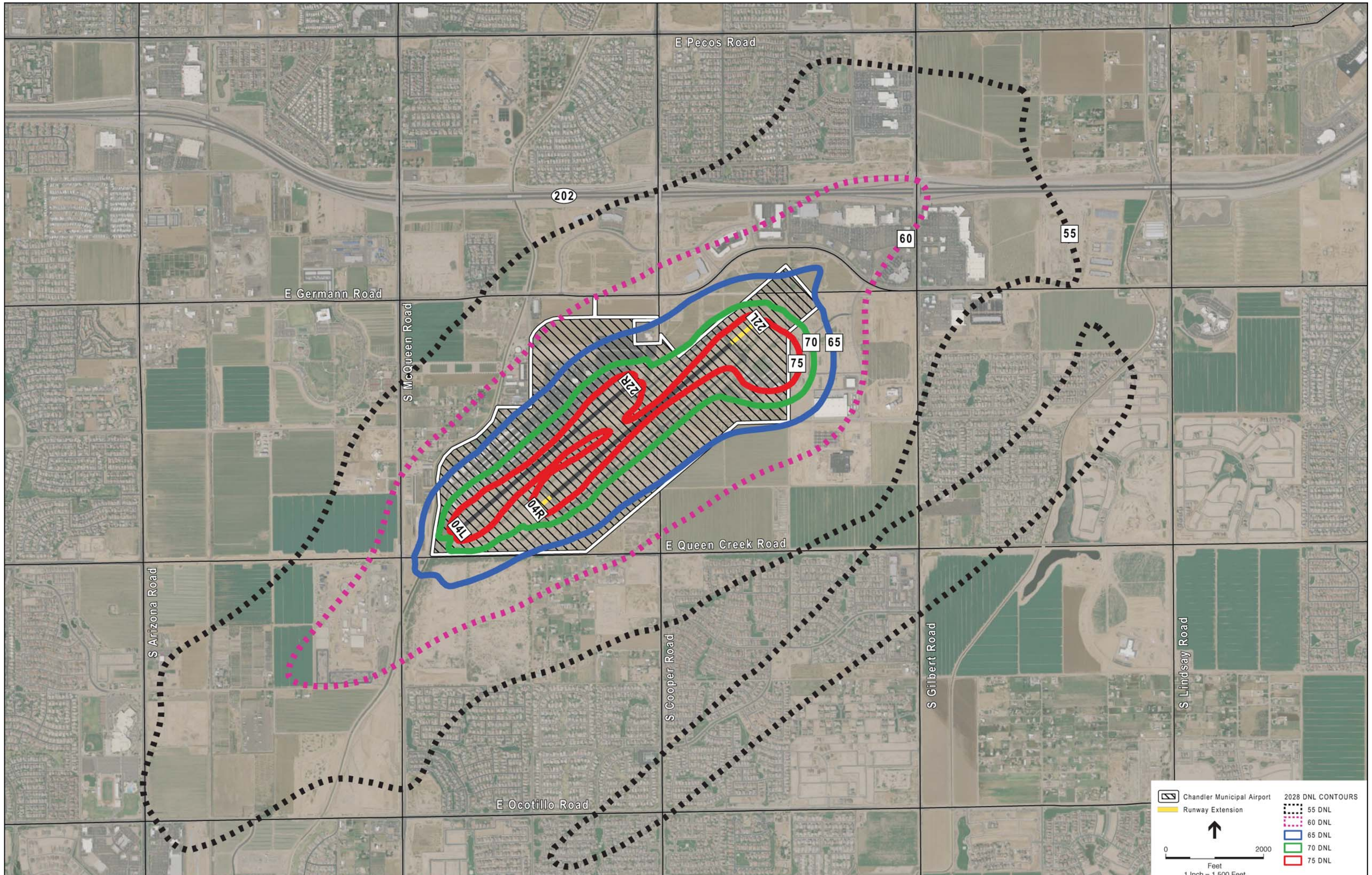
		Runway				
Operation Type	**Aircraft Category**	**04L**	**04R**	**22L**	**22R**	**Total**
Arrivals	Jets	2.0	48.0	48.0	2.0	100.00
	Multi Engine/Turboprop	10.0	40.0	40.0	10.0	100.00
	Single Engine Prop	35.0	15.0	15.0	35.0	100.00
Departures	Jets	2.0	48.0	48.0	2.0	100.00
	Multi Engine/Turboprop	10.0	40.0	40.0	10.0	100.00
	Single Engine Prop	35.0	15.0	15.0	35.0	100.00
Local Pattern	Multi Engine/Turboprop	30.0	20.0	20.0	30.0	100.00
	Single Engine Prop	20.0	30.0	30.0	20.0	100.00

Source: CHD ATCT; ESA Airports

2028 NOISE CONDITIONS

In addition to the 2014 future DNL contours, a DNL contour was developed to show future noise exposure for 2028. These DNL contours are not part of the NEM and are intended to be used for informational and land use planning purposes. The 2028 DNL contours are shown on **Figure R.1**. As with the 2014 DNL contours, the 2028 DNL contours include a forecast for the number of aircraft operations and fleet mix when compared to the 2014 DNL contours. Also, the 2028 DNL contours include the runway extension for Runway 4R/22L as identified in the Airport’s Master Plan. Overall, the runway extension has very little affect on the size or shape of the contour and in both future years does not create incompatible land uses.

Figure R.1
2028 DNL CONTOURS



SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA Airports, 2009

APPENDIX S: CONTOURS BEYOND 65 DNL FOR 2009 AND 2014

EXISTING POPULATION WITHIN DNL CONTOUR AREAS

To determine the estimated population within the 60 DNL and 55 DNL contours, a 2008 aerial was used to determine the housing units and 2000 census information was used to determine average household population. As shown below in **Figure S.1**, within the 2009 55 DNL contour there are estimated to be 172 housing units and an estimated population of 552 people. Within the 2009 60 DNL contour, there are estimated to be 5 housing units and an estimated population of 17 people. This information is being provided for land use planning purposes only. The FAA considers residential land uses to be compatible with contours of 64 DNL and lower. As shown in **Figure S.2**, presented below, by 2014 the DNL contours are projected to increase in size. No housing units are located within the 65 DNL contour and higher for 2014. Within the 2014 55 DNL contour, there are estimated to be 252 housing units and an estimated population of 803 people. Within the 60 DNL contour, there are estimated to be 9 housing units and an estimated population of 31 people. **Table S.1** and **Table S.2** provide a summary of the housing units and population located within the existing and future contours.

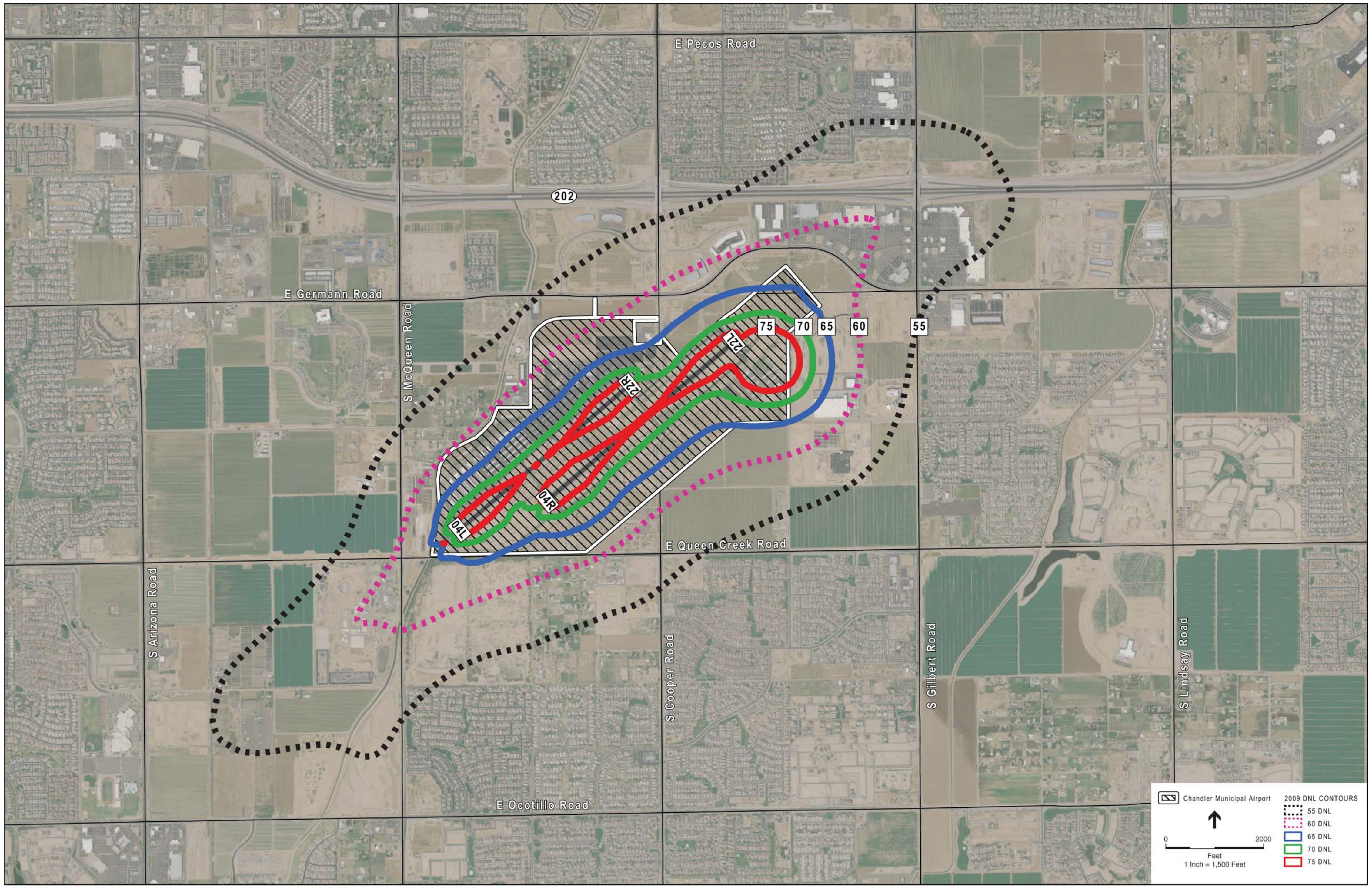
Table S.1
2009 DNL CONTOUR POPULATION SUMMARY

Contour Range	Housing Units	Population
55-59 DNL	172	552
60-64 DNL	5	17
65-69 DNL	0	0
70-74 DNL	0	0
75+ DNL	0	0

Table S.2
2014 DNL CONTOUR POPULATION SUMMARY

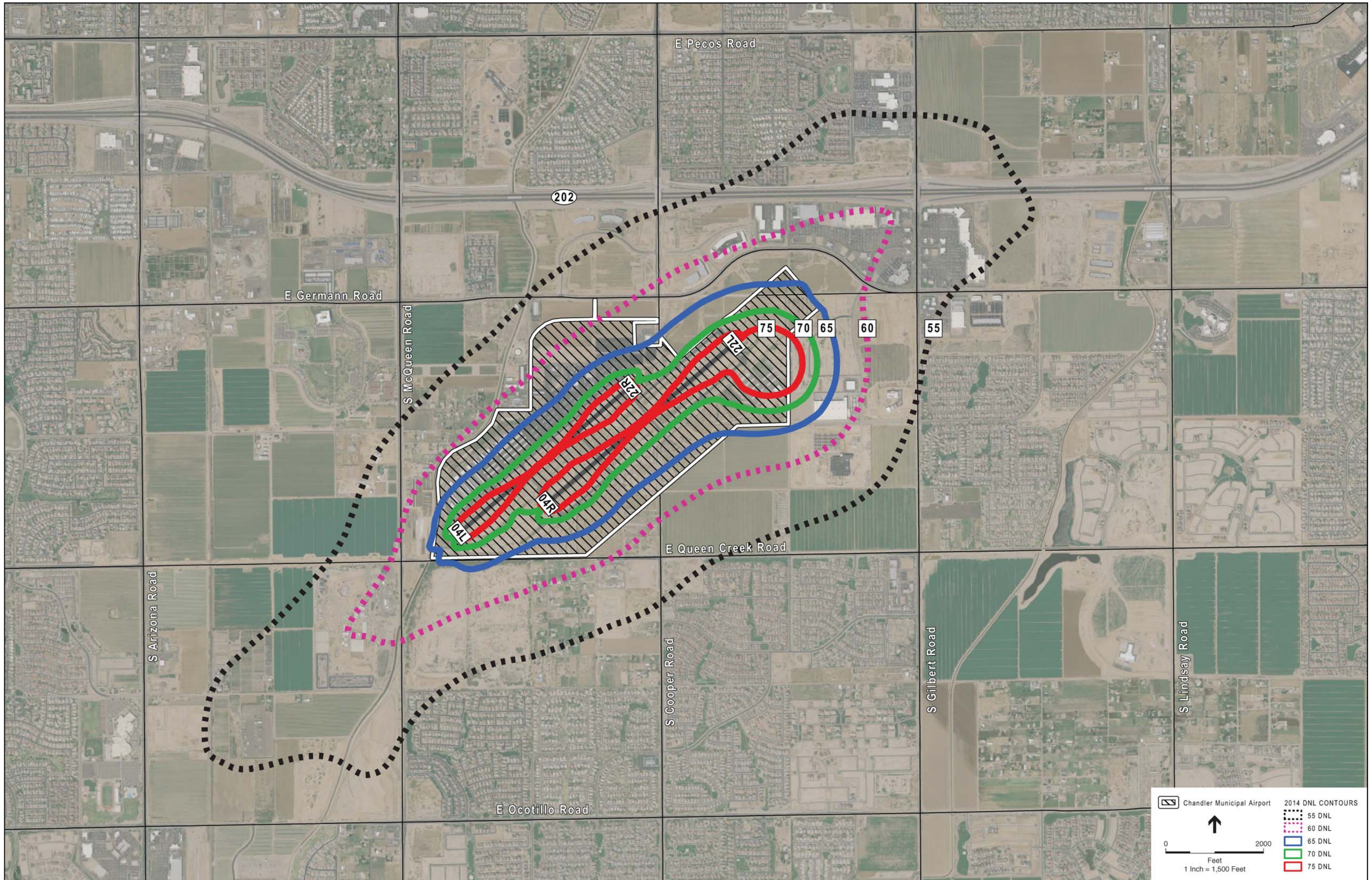
Contour Range	Housing Units	Population
55-59 DNL	252	803
60-64 DNL	9	31
65-69 DNL	0	0
70-74 DNL	0	0
75+ DNL	0	0

Figure S.1
2009 DNL CONTOURS



SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA Airports, 2009

Figure S.2
2014 DNL CONTOURS



SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA Airports, 2009

APPENDIX T: CONTOURS BEYOND 65 DNL FOR 2014 WITH OPERATIONAL RECOMMENDATIONS

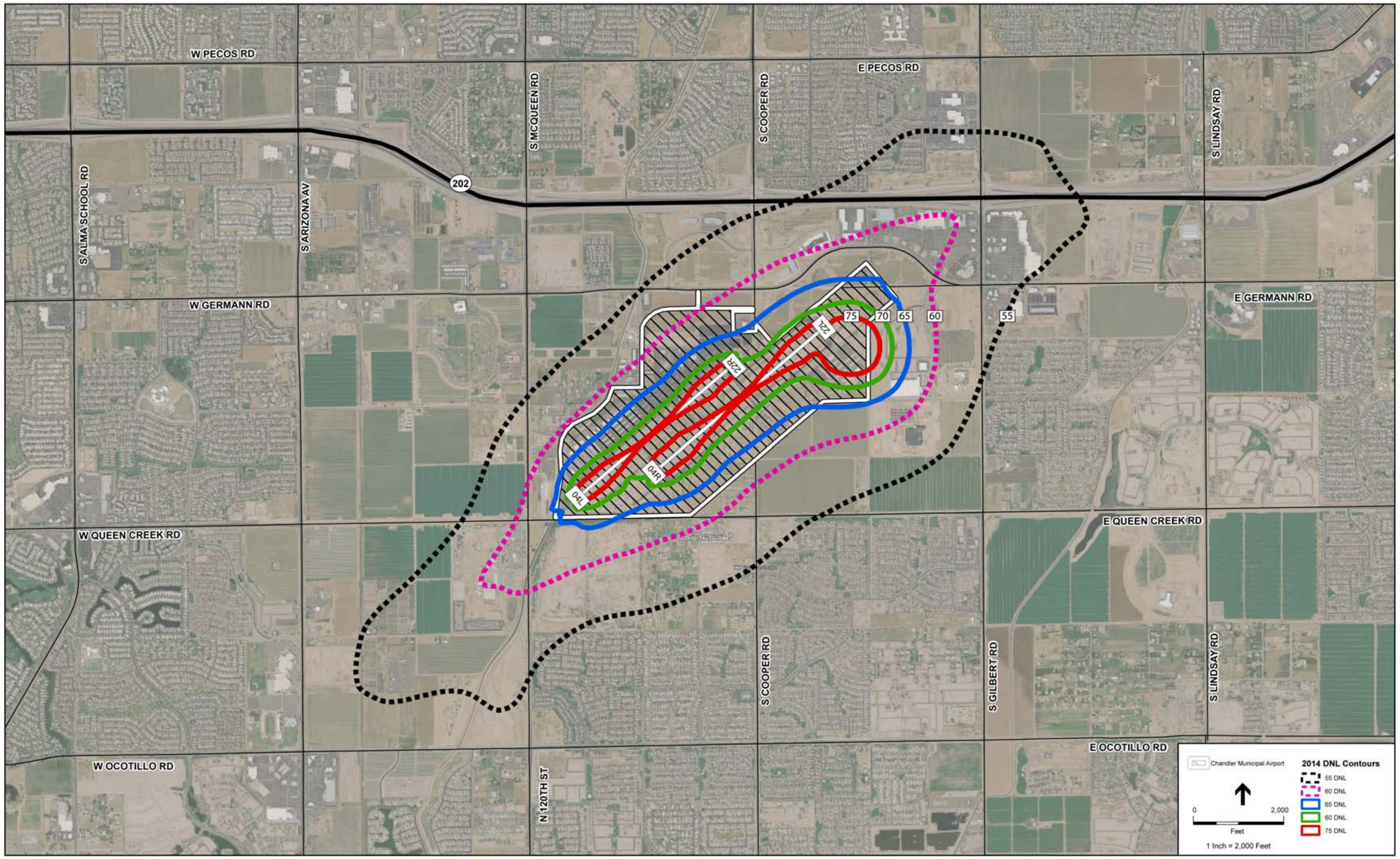
EXISTING POPULATION WITHIN DNL CONTOUR AREAS

To estimate the population within the 60 DNL and 55 DNL contours, a 2008 aerial was used to determine the housing units and 2000 census information was used to determine average household population. As shown below in **Figure T.1**, within the 2014 55 DNL contour there are estimated to be 236 housing units and an estimated population of 750 people. Within the 2014 60 DNL contour, there are estimated to be 10 housing units and an estimated population of 34 people. This information is being provided for land use planning purposes only. The FAA considers residential land uses to be compatible with contours of 64 DNL and lower. **Table T.1** provides a summary of the housing units and population located within the future contours that include the operational recommendations from the Study.

Table T.1
2014 DNL CONTOUR POPULATION SUMMARY

Contour Range	Housing Units	Population
55-59 DNL	236	750
60-64 DNL	10	34
65-69 DNL	0	0
70-74 DNL	0	0
75+ DNL	0	0

Figure T.1
2014 DNL CONTOURS WITH OPERATIONAL RECOMMENDATIONS



SOURCE: City of Chandler, 2008; Town of Gilbert, 2006; City of Mesa, 2008; Town of Queen Creek, 2008; Wilbur Smith Associates, 2008; ESRI, 2008; and ESA, 2009

APPENDIX U: CHANDLER MUNICIPAL AIRPORT'S EXISTING NOISE ABATEMENT PROCEDURES

Chandler Municipal Airport

Noise Abatement

Tips from the Aircraft Owners & Pilots Association to help pilots reduce noise over residential areas.

Noise Abatement Info

- If practical, avoid noise-sensitive areas. Make every effort to fly at or above 2,000 feet over such areas when overflight cannot be avoided.
- Consider using a reduced power setting if flight must be low because of cloud cover or overlying controlled airspace or when approaching the airport of destination. Propellers generate more noise than engines; flying with the lowest practical RPM setting will reduce aircraft noise substantially.
- Perform stalls, spins, and other practice maneuvers over uninhabited terrain.
- Familiarize yourself and comply with airport noise abatement procedures.
- On takeoff, gain altitude as quickly as possible without compromising safety. Begin takeoffs at the start of a runway, not at an intersection.
- Use Precision Path Approach Indicator (PAPI). This will indicate a safe glidepath and a low a smooth, quiet descent to the runway.
- Retract the landing gear either as soon as landing straight ahead on the runway can no longer be accomplished or as soon as the aircraft achieves a positive rate of climb. If practical, maintain best-angle-of-climb airspeed until reaching 50 feet or an altitude that provides clearance from terrain or obstacle. Then accelerate to best-rate-of-climb airspeed. If consistent with safety, make the first power reduction at 500 feet.
- Fly a tight landing pattern to keep noise as close to the airport as possible. practice descent to the runway at low power settings and with as few power changes as possible.
- If possible, do not adjust the propeller control for flat pitch on the downwind leg; instead, wait until short final. this practice not only provides a quieter approach, but also reduces stress on the engine and the propeller governor.
- Avoid low-level, high-power approaches, which not only create high noise impacts, but also limit options in the event of engine failure.
- Flying between 11 p.m. and 7 a.m. should be avoided whenever possible.

Note: These are general recommendations; some may not be advisable for every aircraft in every situation. No noise reduction procedure should be allowed to compromise flight safety.

APPENDIX V: REVISED 2014 NOISE EXPOSURE MAP (11X17 FORMAT)