

APPENDIX A: AIRSPACE CONFLICTS ANALYSIS

INTRODUCTION

As part of the Master Plan Update for Chandler Municipal Airport, a separate, more detailed analysis of the airspace was conducted. This separate airspace analysis provides the City of Chandler with detailed information on the potential for airspace conflicts given the changing conditions in the region. The analysis starts with an overview of the airspace, including definitions of the types of airspace in the region affecting aviation activities at Chandler Municipal Airport. Identification of potential conflicts based on existing and future conditions are then analyzed. The analysis is reported in the following sections:

- General Airspace Overview
- Air Traffic Control
- Current Airspace Issues
- Future Potential Airspace Issues
- Summary

GENERAL AIRSPACE OVERVIEW

The Chandler Municipal Airport is located among several of the busiest airports in the country in terms of aircraft take-offs and landings or operations. According to Airports Council International (ACI) Annual Traffic Data, during calendar year 2005 the Phoenix Sky Harbor International Airport (PHX) accommodated 555,256 aircraft operations while the Phoenix Deer Valley Airport (DVT) had 378,255 annual operations. This level of activity ranked the Phoenix Sky Harbor International Airport and Deer Valley airports as the 8th and 22nd busiest airports in the United States respectively. In addition to these airports, the Phoenix metropolitan area contains several other major general aviation airports, including Chandler Municipal. All combined these airports accounted for well over 2 million annual operations in 2005.

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. The following information is intended to explain how the FAA air traffic and airspace system functions in relation to the Chandler Municipal Airport. Additionally, information will be presented on existing and future airspace conditions and developments which have the potential to impact operations at the Chandler Municipal Airport.

Aircraft operate under two general sets of operating rules, Visual Flight Rules (VFR) and Instrument Flight Rules (IFR). The airspace and air traffic control (ATC) system is primarily designed to separate aircraft operating under VFR from aircraft operating under IFR.

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Under VFR, pilots are responsible to “see and avoid” other aircraft and terrain. In order to accomplish this, specific cloud clearance, terrain and visibility minimums are required by FAA regulations to be maintained. These requirements vary depending on the classification of airspace and day or nighttime operations. VFR aircraft are not required to file a flight plan or contact Air Traffic Control (ATC) unless they are planning to enter an area of restricted or controlled airspace where contact is mandatory. These areas are most commonly the airspace surrounding an airport with an operating air traffic control tower. The FAA publishes recommended procedures and altitudes for VFR flight. However, it should be noted that because contact with ATC is not required, the FAA’s ability to monitor or enforce the required or recommend flight altitudes and procedures outside of controlled airspace is limited. VFR flight plans are voluntary and are used by the FAA to assist in locating lost or overdue aircraft, and not for the purpose of controlling or approving VFR flight operations.

Under IFR, aircraft are separated by ATC using radar and direct radio communications. Under IFR, aircraft may operate inside of clouds with little or no outside visibility. IFR operations occur in what is termed “controlled airspace.” Controlled airspace includes five different classifications: Class A, Class B, Class C, Class D, and Class E airspace, which are different in each region served by airports. Class B, Class C, and Class D airspace are designated around at least one primary airport. For IFR operations in any class of controlled airspace, a pilot must file an IFR flight plan and receive an appropriate ATC clearance. With few exceptions, scheduled passenger and business jet aircraft operate under IFR in controlled airspace.

The following sections provide additional information and descriptions of each airspace classification.

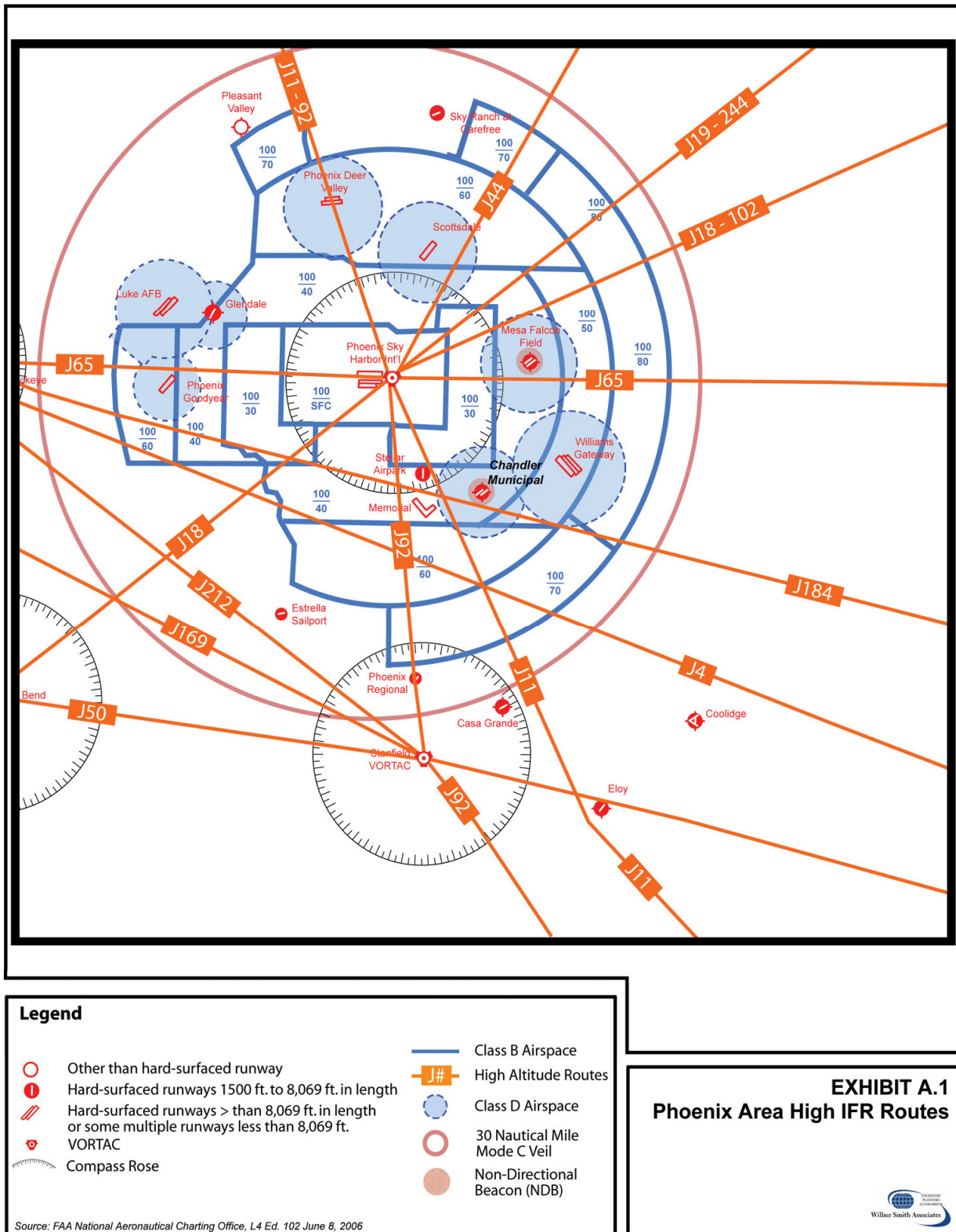
Controlled Airspace

Controlled airspace is primarily designated to insure separation between VFR and IFR aircraft. Controlled airspace and the requirements to operate within, differ depending on the type and number of aircraft operations occurring in the area. The following sections describe the unique characteristics of each type of controlled airspace in the Phoenix metropolitan area.

Class A Airspace. The Class A airspace includes all the airspace in the Region from 18,000 feet Mean Sea Level (MSL) upward through 60,000 feet MSL. This airspace includes jet routes, area high routes, and additional control areas at or above 18,000 MSL. All flights within the Class A airspace are conducted under IFR, and are under positive control by the Air Route Traffic Control Center (ARTCC) or military controller. The ARTCC for the Phoenix Metropolitan area is located in Albuquerque New Mexico.

Exhibit A.1 shows the Area High Routes that overlay the Region which are contained in Class A airspace.

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Class B Airspace. The Phoenix Class B Airspace is controlled airspace, centered on the Phoenix Sky Harbor International Airport (PHX), extending upward from the surface, or higher altitudes around the periphery, to specified altitudes. The top of the Class B Airspace is 10,000 feet above MSL, and the base extends from the surface at PHX to varying altitudes between 3,000 and 8,000 feet MSL. The boundaries and altitudes of each portion of the Phoenix Class B Airspace are depicted in **Exhibit A.2**. The altitude figures depicted on Class B airspace maps are displayed in hundreds. Thus a Class B airspace boundary labeled $\frac{100}{50}$ would indicate that the top or ceiling of this portion of airspace is 10,000 feet MSL and the floor or bottom of this portion of airspace is 5,000 feet MSL.

Rules for operating in the Class B Airspace are found in Federal Aviation Regulation (FAR) Part 91. In general, the following are required:

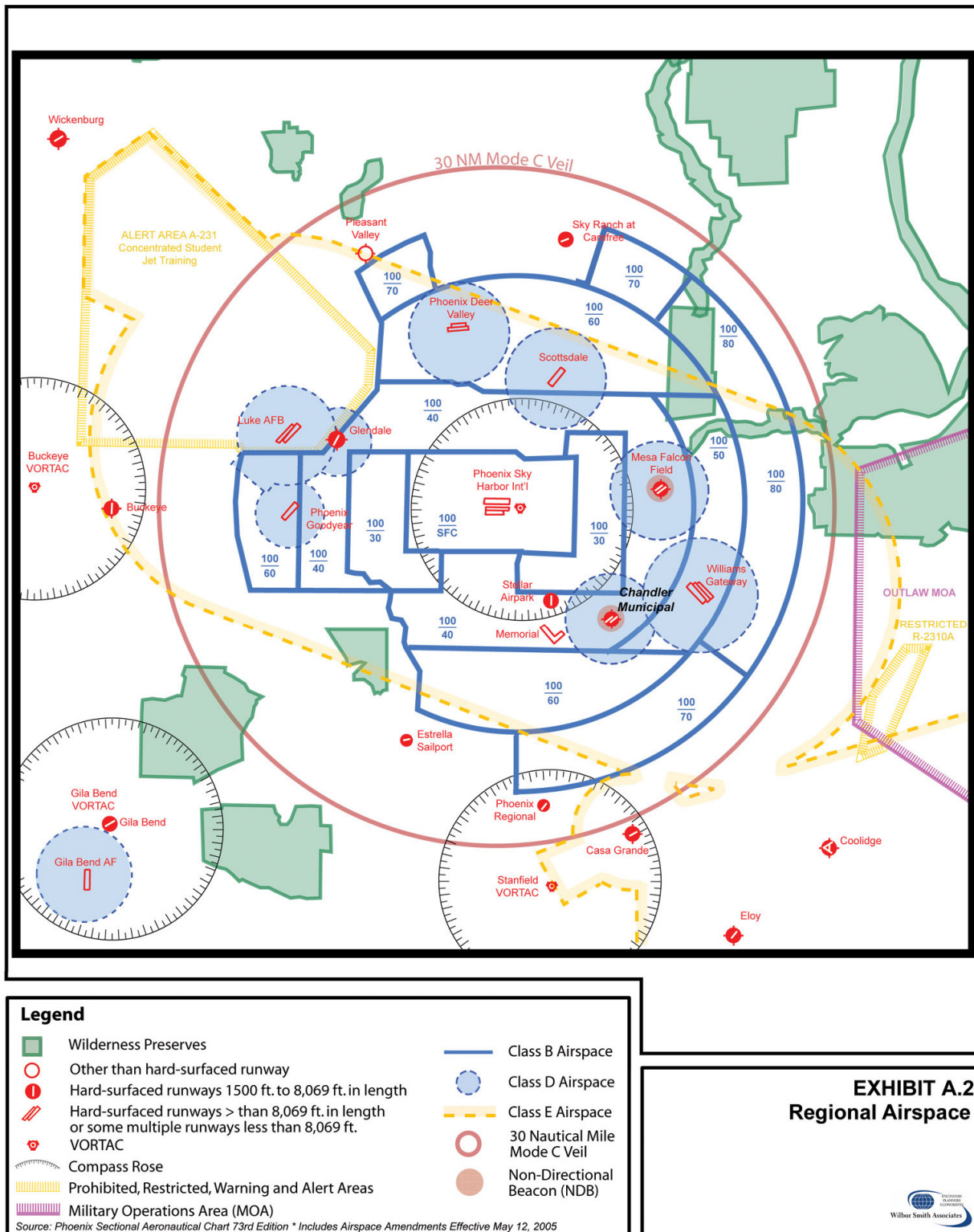
- An ATC clearance is mandatory prior to entering the Class B Airspace.
- The pilot in command of the aircraft must hold a private pilot certificate or higher rating.
- If a student pilot, the requirements of FAR Part 61.95 must be met.
- The aircraft must possess a two-way radio, VOR receiver, and a Mode C transponder.

Class C Airspace. Currently there is no Class C airspace in Phoenix region. Class C airspace generally surrounds airports which have an operating control tower, are serviced by a radar approach control, and have a certain number of IFR operations or passenger enplanements. The airspace surrounding the Tucson International airport is currently designated as Class C airspace.

Class D Airspace. Class D airspace is located at the following airports in the Phoenix region:

- Chandler Municipal Airport
- Williams Gateway Airport
- Falcon Field
- Scottsdale Airport
- Phoenix Deer Valley Airport
- Luke Air Force Base
- Glendale Municipal Airport
- Phoenix Goodyear Airport

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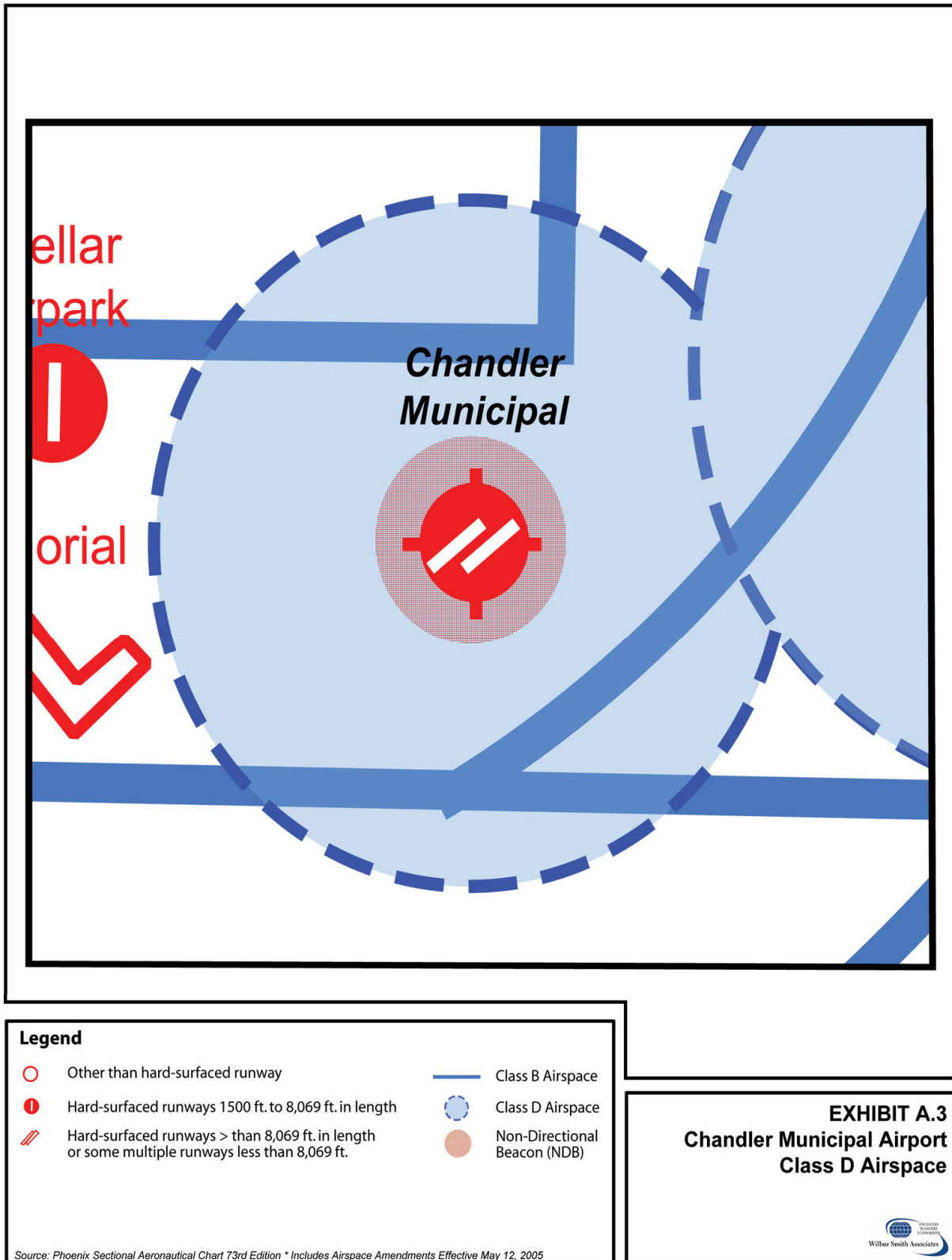
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Class D airspace can be considered, generally, as the traffic pattern airspace serving an airport. It is generally a 5 statute mile circle centered on an airport with an operating control tower, extending upward to 2500 feet Above Ground Level (AGL). All operations within Class D airspace are controlled by an air traffic control tower. **Exhibit A.3** depicts the Class D airspace surrounding the Chandler Municipal Airport. The Class D airspace boundary is identified by the dashed blue circle. The Class D airspace surrounding Chandler Municipal Airport is a 4 statute mile circle centered on the Airport because of the close proximity to Williams Gateway Airport. As shown in Exhibit A.3, the Williams Class D airspace supersedes a portion of the Chandler Municipal Airport Class D airspace.

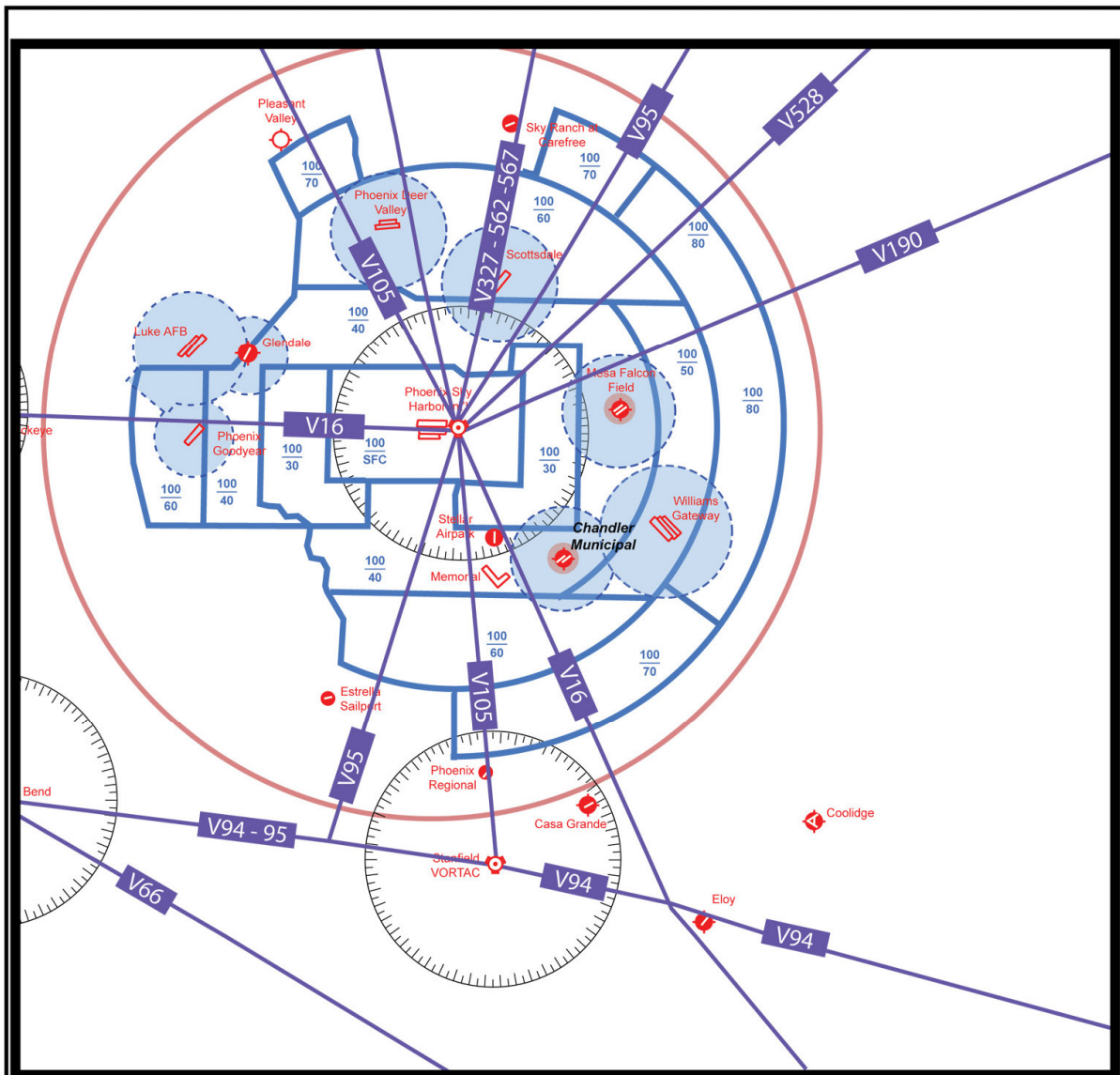
Class E Airspace. Class E airspace is general controlled airspace. The airspace includes Federal Airways, area low routes and additional control areas specified by the Regulation, all of which are outside (below) Class A airspace. **Exhibit A.4** depicts Federal Area Low Routes located in the Region. Surface areas for airports with instrument approaches are also classified as Class E airspace. The Class E airspace is configured to contain all instrument approach procedures. Class E airspace is also generally extended around Class B, C, and D airspace to provide controlled airspace to contain standard instrument approach procedures without imposing a communications requirement on pilots operating under VFR. VFR aircraft are not required to communicate with or receive clearance from ATC to enter Class E airspace.

VFR aircraft operating in Class E airspace are simply required to maintain the specified cloud clearance and flight visibility requirements in order to “see and avoid” other aircraft, including those operating under IFR. **Exhibit A.5** graphically depicts Class E airspace extended around Class D airspace. This is a typical representation, however, each airspace configuration is slightly different depending on local conditions. Class E airspace provides controlled airspace for transition to or from the enroute or terminal environment where there is a requirement to provide IFR enroute ATC services but the Federal airway system is inadequate. Currently the entire Phoenix Metropolitan area is Class E airspace from 700 AGL to 18,000 MSL, with the airspace below 700 AGL designated as Class G or uncontrolled airspace. Exceptions are the PHX Class B airspace, the areas of Class D airspace listed above, and an area northeast of the Deer Valley Airport, where the Class E airspace begins at the surface.

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Legend

- Other than hard-surfaced runway
- Hard-surfaced runways 1500 ft. to 8,069 ft. in length
- Hard-surfaced runways > than 8,069 ft. in length or some multiple runways less than 8,069 ft.
- VORTAC
- Compass Rose

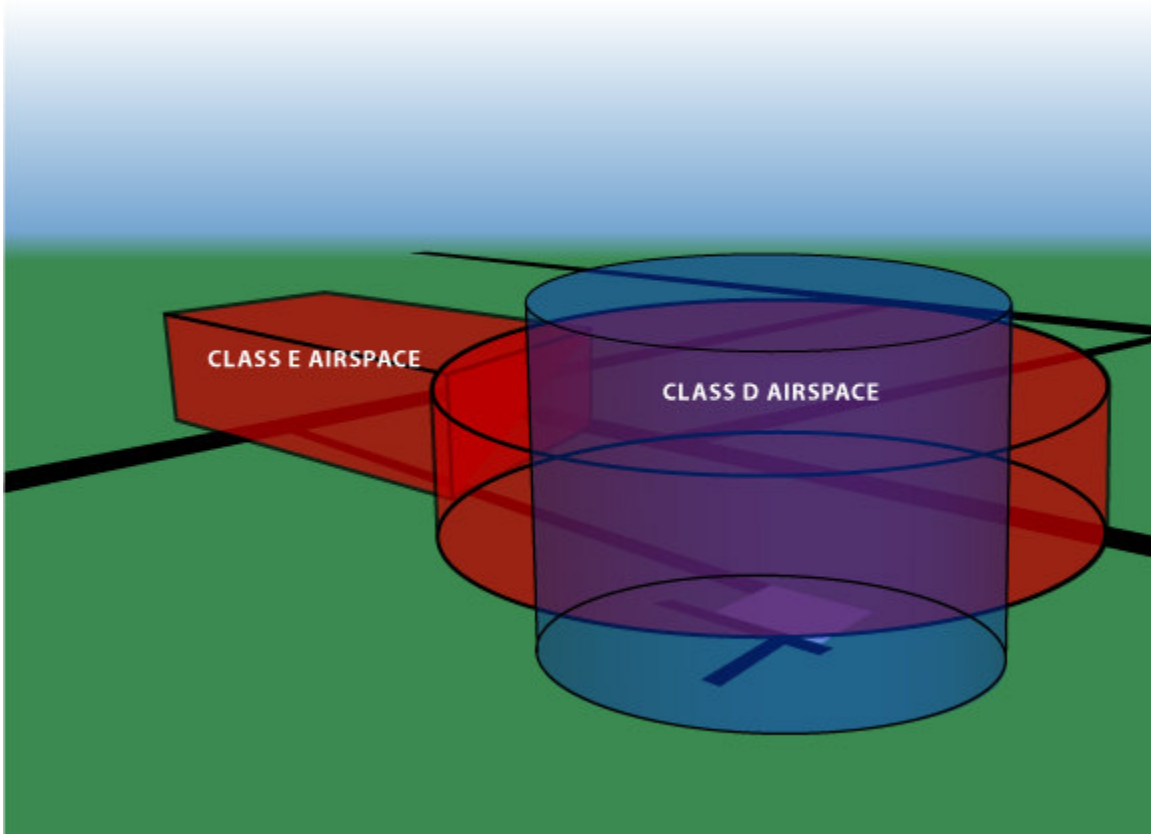
- Class B Airspace
- Low Altitude Routes
- Class D Airspace
- 30 Nautical Mile Mode C Veil
- Non-Directional Beacon (NDB)

Source: FAA National Aeronautical Charting Office, L4 Ed. 102 June 8, 2006

EXHIBIT A.4 Phoenix Area Low Altitude Routes



**Exhibit A.5
CLASS D AND CLASS E AIRSPACE**



SOURCE: Wilbur Smith Associates
PREPARED: July 2006

Special Use Airspace

Restricted Areas. There are seven different restricted areas in the region. Restricted areas are established, pursuant to FAR Part 73, to restrict but not prohibit flight, to permit the user (normally the military) large blocks of unimpeded airspace for their operations. These areas with the exception of the A-231 Alert Area are located well outside the Phoenix Class B airspace boundary; North of Florence, and South of Gila Bend. The restricted areas include R-2301E, R-2304, R-2305, R-2310A, R-2310B and R-2310C. A-231 Alert Area is located directly against the northwest boundary of the Phoenix Class B airspace, and provides airspace for training operations associated with Luke Air Force Base.

Military Operations Areas. There are two Military Operations Area (MOA) in the region. The Outlaw MOA begins approximately 25 miles east of Chandler Municipal Airport and extends to the east approximately 45 miles to the boundary of the Jackal MOA. The Sells MOA is located 45 nautical miles southwest of Chandler Municipal and extends to the U.S./Mexico border. This airspace is utilized by all military flying organizations in the State of Arizona. MOAs are airspace blocks outside positive control areas assigned to segregate certain military activities from IFR traffic, to identify VFR traffic to the user and to make non-participating aircraft aware of these operations. Scheduling, coordination and flight procedures for MOAs are established by letters of agreement between local military authorities and concerned ATC facilities. MOAs are intermittently used. They are scheduled by the designated military scheduling point and are activated by ATC.

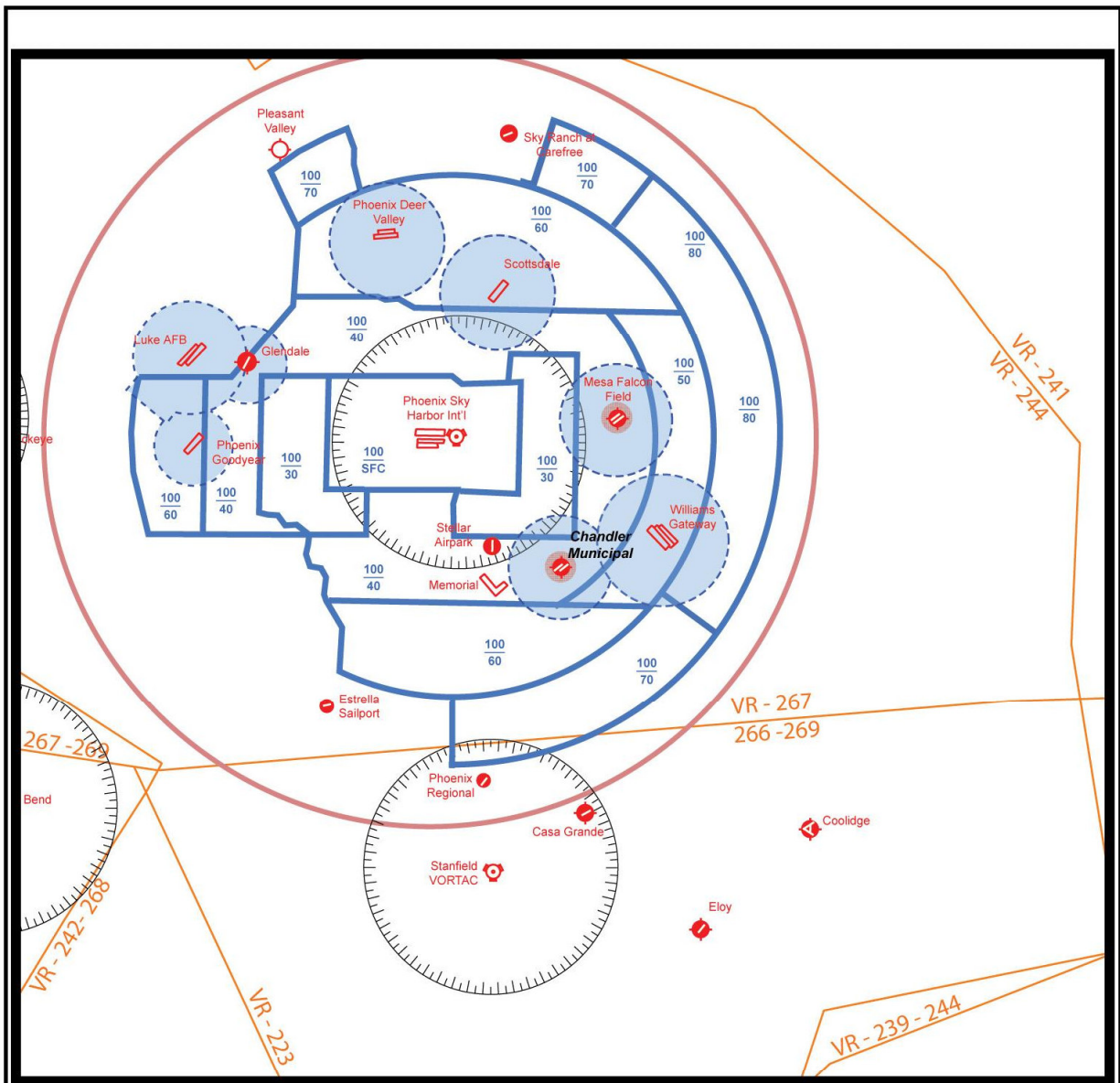
Military Training Routes. There are numerous designated Military Training Routes (MTRs) in the Region. MTRs are air corridors of defined lateral dimensions established for the conduct of military training at speeds in excess of 250 knots. MTRs may be bi-directional or unidirectional. The MTRs in the Phoenix area are located along the outer edges of the Phoenix Class B airspace boundary, and have limited impact on aircraft operating to and from Chandler Municipal Airport. **Exhibit A.6** depicts the MTRs in the Phoenix area.

Skydiving and Parachute Jumping Areas. There are 2 designated skydiving/parachute jumping areas in the Region located near the Buckeye and Coolidge airports. These areas are normally activated by Notices to Airmen (NOTAM) whenever parachute jumping is planned. There are additional areas occasionally used for parachuting activities, and these are identified by NOTAM. Skydiving is an FAA-recognized activity and is conducted in accordance with FAR Part 105.

Available VFR Airspace

When the volume of controlled airspace, special use airspace and restricted airspace is superimposed on a chart of the Region, the minimal amount of airspace available for VFR flying becomes apparent.

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Legend

- Other than hard-surfaced runway
- Hard-surfaced runways 1500 ft. to 8,069 ft. in length
- Hard-surfaced runways > than 8,069 ft. in length or some multiple runways less than 8,069 ft.
- VORTAC
- Compass Rose

- Class B Airspace
- Military Training Routes
- Class D Airspace
- 30 Nautical Mile Mode C Veil
- Non-Directional Beacon (NDB)

Source: FAA National Aeronautical Charting Office, L4 Ed. 102 June 8, 2006

EXHIBIT A.6 Phoenix Area Military Training Routes



AIR TRAFFIC CONTROL

Air Traffic Control Facilities

From the preceding information it is clear that a large portion of the airspace above the Phoenix area is controlled airspace. The FAA, acting through several subordinate agencies, manages the complex task of separating aircraft. Each agency, or sub-agency, has responsibility for a portion of the system. These air traffic control agencies work in harmony with one another and the various users of controlled airspace to ensure a safe and efficient environment for the flying public.

Albuquerque Air Route Traffic Control Center (ARTCC). Airspace control throughout most of the southwestern United States rests with the Albuquerque ARTCC, frequently referred to as "Albuquerque Center", or locally as "Center". The Center controls the airspace between 16,000 feet and FL 600 encompassing most of Arizona, New Mexico, and western portions of Texas. Albuquerque ARTCC is located in Albuquerque, NM and exercises its control through remote radar and radio facilities located throughout its region. The ARTCC maintains letters of agreement with other FAA ATC agencies and users throughout its area of responsibility. These agreements establish procedures for handing off air traffic from one agency to another and define local air control procedures and responsibilities. The Center also maintains a letter of agreement with the other radar-equipped FAA agencies to assume enroute air traffic control responsibilities in the event of an emergency which renders the Center incapable of control.

Phoenix Terminal Radar Approach Control (TRACON). The TRACON is the next level down of air traffic control provided in the Phoenix region. The TRACON exercises radar traffic control in the terminal area from a facility located at the Phoenix Sky Harbor International Airport. The terminal area includes the Phoenix Class B airspace as well as portions of controlled airspace surrounding the Class B airspace used by aircraft arriving and departing the Phoenix area. The TRACON manages all traffic in the in the terminal area which is not under center or tower control. The TRACON coordinates its many and varied responsibilities through letters of agreement with other controlling agencies and some users. The TRACON operates twenty-four hours a day and handles IFR arrivals and departures for most of the airports in the region, including Chandler Municipal Airport.

Luke Radar Approach Control (RAPCON). In conjunction with Phoenix TRACON, Luke RAPCON exercises radar traffic control in the West Valley of Phoenix's terminal area. When Luke Air Force Base is flying, RAPCON provides air traffic service in the portion of the Phoenix Class B airspace overlying Luke. As TRACON, the RAPCON coordinates its many and varied responsibilities through letter of agreement with other agencies. Luke RAPCON operates Monday through Friday from 6:30 am until 10:30 pm, weekends by notices to airmen (NOTAMs) and handles IFR arrival and departures to West Valley airports.

Air Traffic Control Towers. There are nine airports with operating control towers in the Phoenix metropolitan area. With the exception of the tower at the Phoenix Sky Harbor International Airport, each tower controls the Class D airspace associated with the airport as well as ground operations at each airport. Each Class D airspace is contained within or underlies the Phoenix Class B airspace. Many of the tower facilities including the Chandler Municipal ATCT are equipped with a terminal area radar repeater system (D Bright) which gives the tower controllers better awareness of aircraft operating in the vicinity, including all aircraft with an operating transponder. The D Bright presentation is a duplicate of the TRACON primary radar picture, including flight track data. This system improves tower controllers' ability to control airplanes safely under reduced visibility conditions.

Published Instrument Approaches

Under IFR, aircraft transition from the enroute system to a point where a landing can be made at an airport using a series of predetermined maneuvers called an instrument approach. An instrument approach or instrument approach procedure (IAP) is a method that allows pilots to land an aircraft during periods of restricted visibility known as instrument meteorological conditions (IMC). Instrument approaches are classified as either precision or non-precision, depending on the accuracy and capabilities of the navigational aids used. Precision approaches utilize both lateral or course, and vertical or glideslope information. Non-precision approaches provide course information only.

Pilots refer to charts known as terminal procedures or approach plates during an instrument approach. IAP's depict the horizontal and vertical approach path and radio frequencies used in addition to landmarks, airspace, and other relevant data. The majority of IAP's are aligned with the airport runway to allow for a straight-in landing once the airport environment is in sight. However, if wind conditions do not favor a straight-in landing or if the approach procedure does not line up with the runway a "circling approach" is used. During a circling approach, once the airport environment is in sight, the pilot maneuvers the aircraft while maintaining visual reference to the airport, to line the aircraft up with the runway favored by the prevailing wind. **Exhibit A.7** depicts the VOR non-precision IAP for Chandler Municipal Airport. The procedure includes both straight-in and circling minimums, which are the lowest altitudes that an aircraft can descend to before having the runway environment in sight. Within a 15 nautical mile (NM) radius of Chandler Municipal Airport there are four airports that currently have published instrument approaches. **Table A.1** summarizes the instrument approaches for the IFR capable airports within 15 NM of Chandler Municipal Airport. **Exhibit A.8** depicts the typical flight tracks of aircraft utilizing instrument approach procedures in the vicinity of Chandler Municipal Airport.

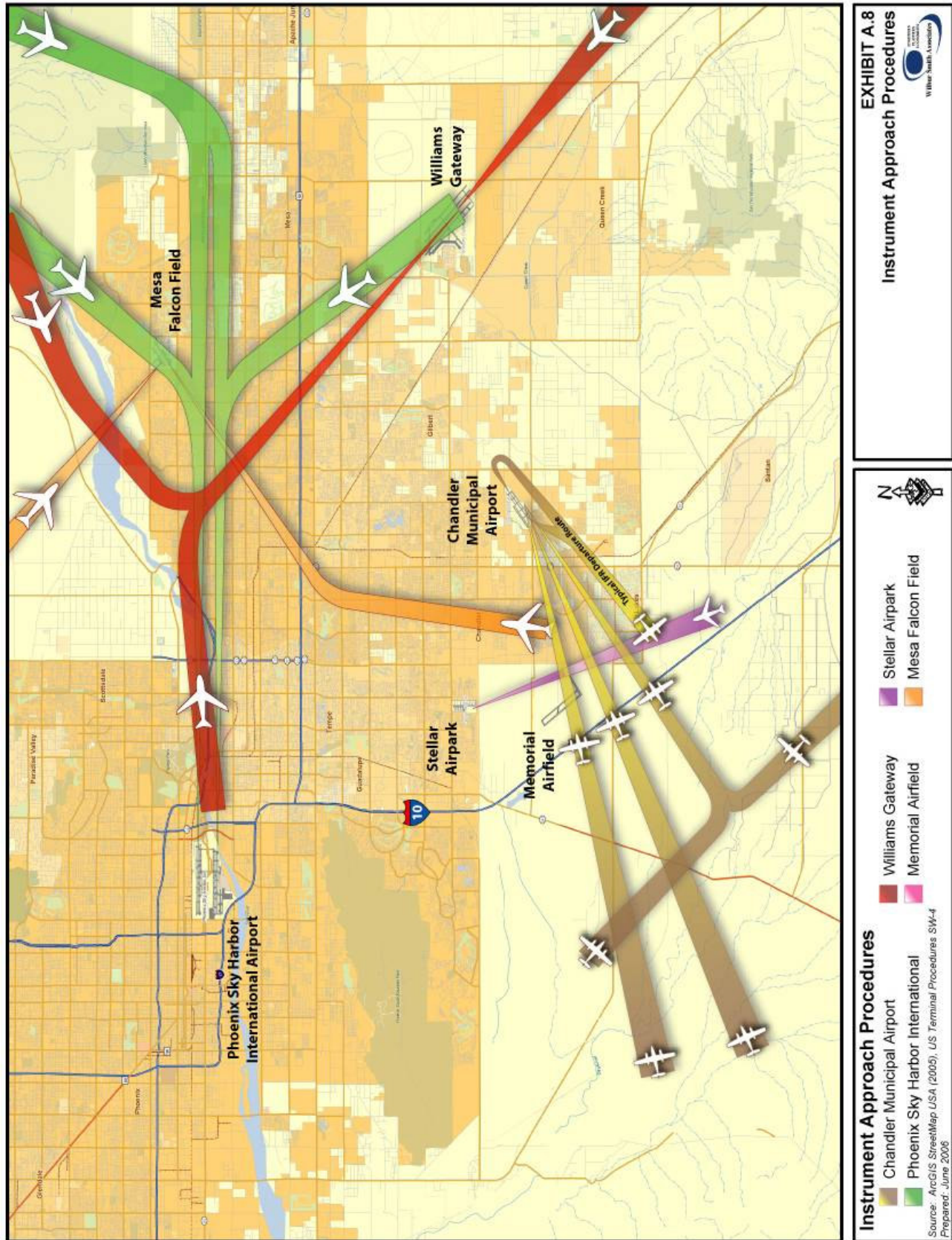
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**Table A.1
INSTRUMENT APPROACH PROCEDURES**

Chandler Municipal Airport (CHD)	
2005 Total Operations	235,111
Instrument Approach Procedures	NDB Runway 4R GPS Runway 4R VOR Runway 4R
Stellar Airpark (P19)	
Distance and Location from Chandler Municipal Airport	5.5 NM West-Northwest
2005 Total Operations	45,800
Instrument Approach Procedures	VOR or GPS-A
Williams Gateway (IWA)	
Distance and Location from Chandler Municipal Airport	8.2 NM East
2005 Total Operations	261,021
Instrument Approach Procedures	GPS Runway 30C ILS Runway 30C GPS Runway 12C GPS Runway 12R GPS Runway 30L VOR or TACAN Runway 30C
Falcon Field (FFZ)	
Distance and Location from Chandler Municipal Airport	12.2 NM North-Northeast
2005 Total Operations	257,028
Instrument Approach Procedures	GPS Runway 4R NDB or GPS-A
Phoenix Sky Harbor International (PHX)	
Distance and Location from Chandler Municipal Airport	14.1 NM Northwest
2005 Total Operations	559,887
Instrument Approach Procedures	ILS Runway 7L ILS Runway 7R ILS Runway 8 ILS Runway 25L ILS Runway 26 Localizer Back Course Runway 25R GPS Runway 7L GPS Runway 7R GPS Runway 8 GPS Runway 25L GPS Runway 25R GPS Runway 26 VOR/DME Runway 25R VOR/DME – A

*Colors of the instrument approach procedures correspond to the flight path colors in the following exhibits.

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CURRENT AIRSPACE ISSUES

As mentioned, Chandler Municipal Airport is located in close proximity to some of the most active airports in the county. **Exhibit A.9** shows the standard traffic pattern airspace for Chandler Municipal Airport in addition to the typical traffic patterns used at the airports surrounding the City of Chandler. In general the traffic pattern is the prescribed path for an airplane that is preparing to land at an airport. The pattern varies in size and shape depending on size and speed of aircraft that regularly uses the airport. Airports regularly used by large aircraft with faster landing approach speeds have larger traffic patterns.

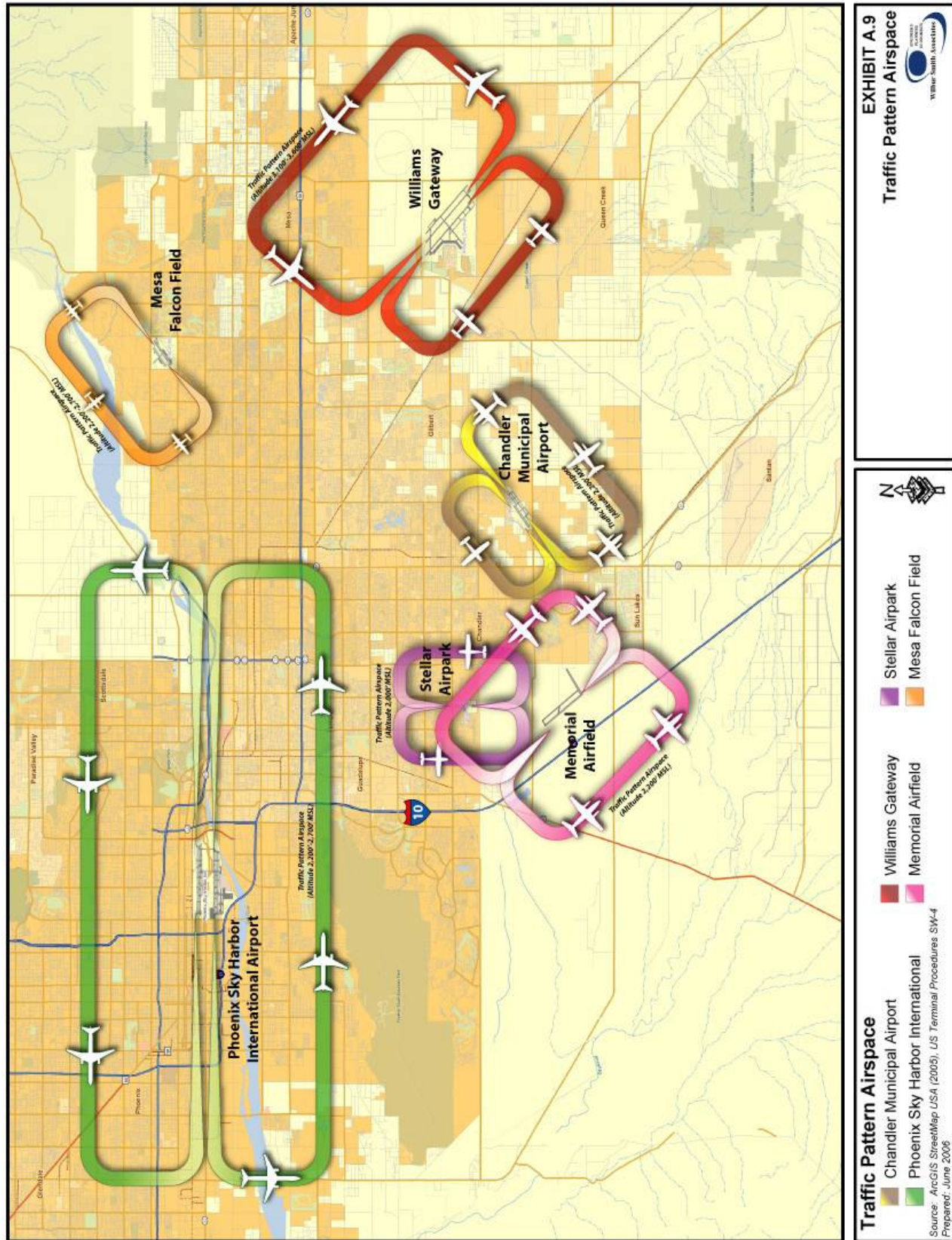
The following sections describe the airspace issues related to Chandler Municipal Airport and how activities at surrounding airports affect operations at Chandler Municipal Airport.

Stellar Airpark

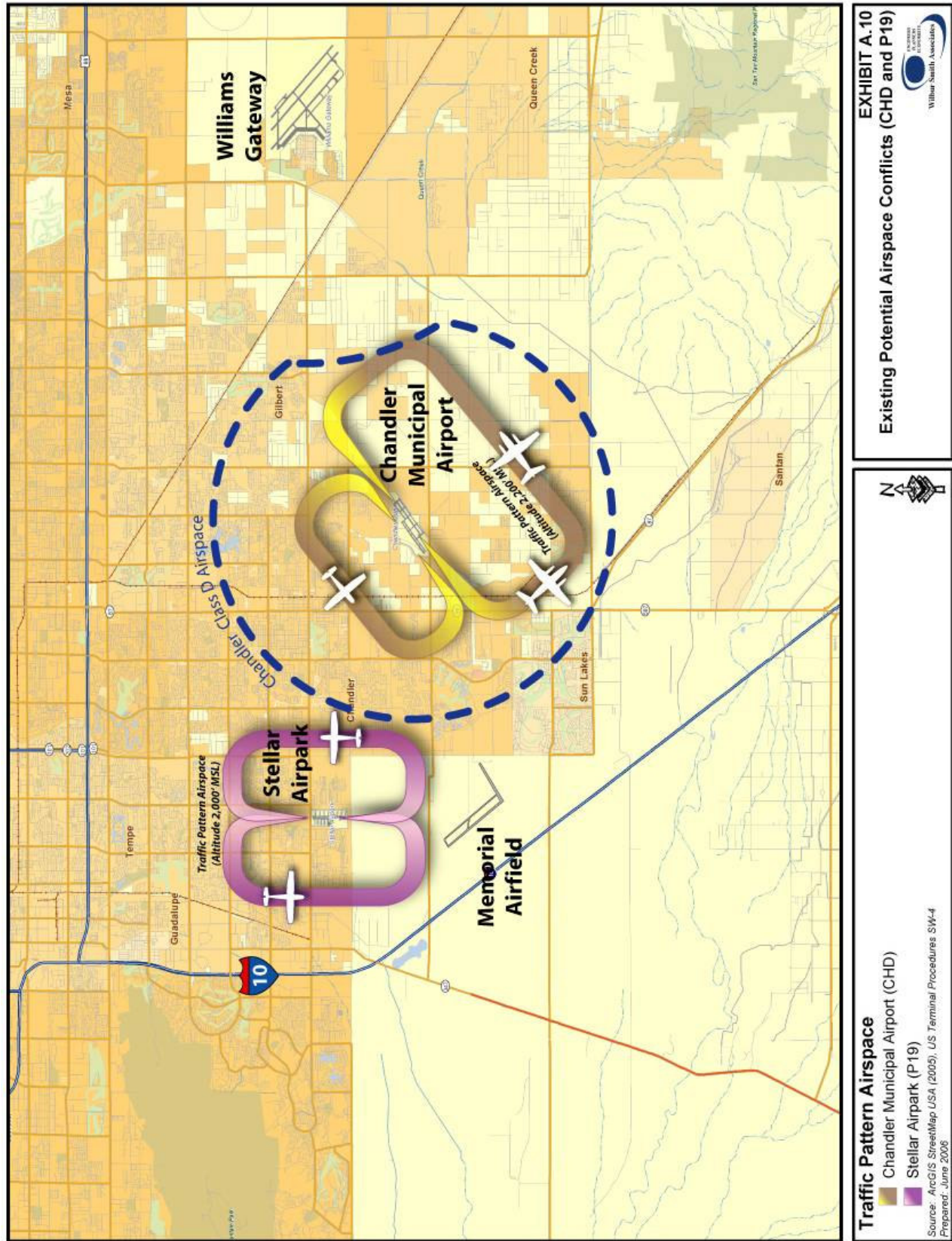
The standard traffic patterns of Stellar Airpark and Chandler Municipal Airport are separated by approximately 2 miles at the closest point. Stellar Airpark is a privately owned, public use facility located approximately 5.5 NM west of Chandler Municipal Airport. The privately owned facility has numerous private homes and commercial facilities with direct taxiway and runway access. Stellar Airpark does not have a control tower. **Exhibit A.10** depicts the standard traffic patterns of Stellar Airpark and Chandler Municipal Airport. The Stellar Airpark traffic pattern is located in uncontrolled airspace underneath the Phoenix Class B Airspace shelf. While this is relatively close, VFR operations can be conducted at each airport with minimal impact on each facility. Additionally, aircraft are required to receive clearance before entering the Chandler Class D Airspace which is located less than one mile east of Stellar Airpark. This requirement tends to keep aircraft operating at Stellar Airpark outside of the Chandler Municipal Airport Traffic area.

Stellar Airpark is served by a VOR and GPS IAP that arrives from the south. This approach procedure crosses the final approach course of all three IAPs to Chandler Municipal Airport. Because of the intersecting approach courses, aircraft operating under IFR to either airport must be sequenced by ATC to avoid conflicts. However, due to the low number of aircraft operating IFR at Stellar Airpark, separating IFR arrivals at the two facilities has seldom been an issue. **Exhibit A.11** shows the instrument approach procedures to Stellar Airpark and Chandler Municipal Airport.

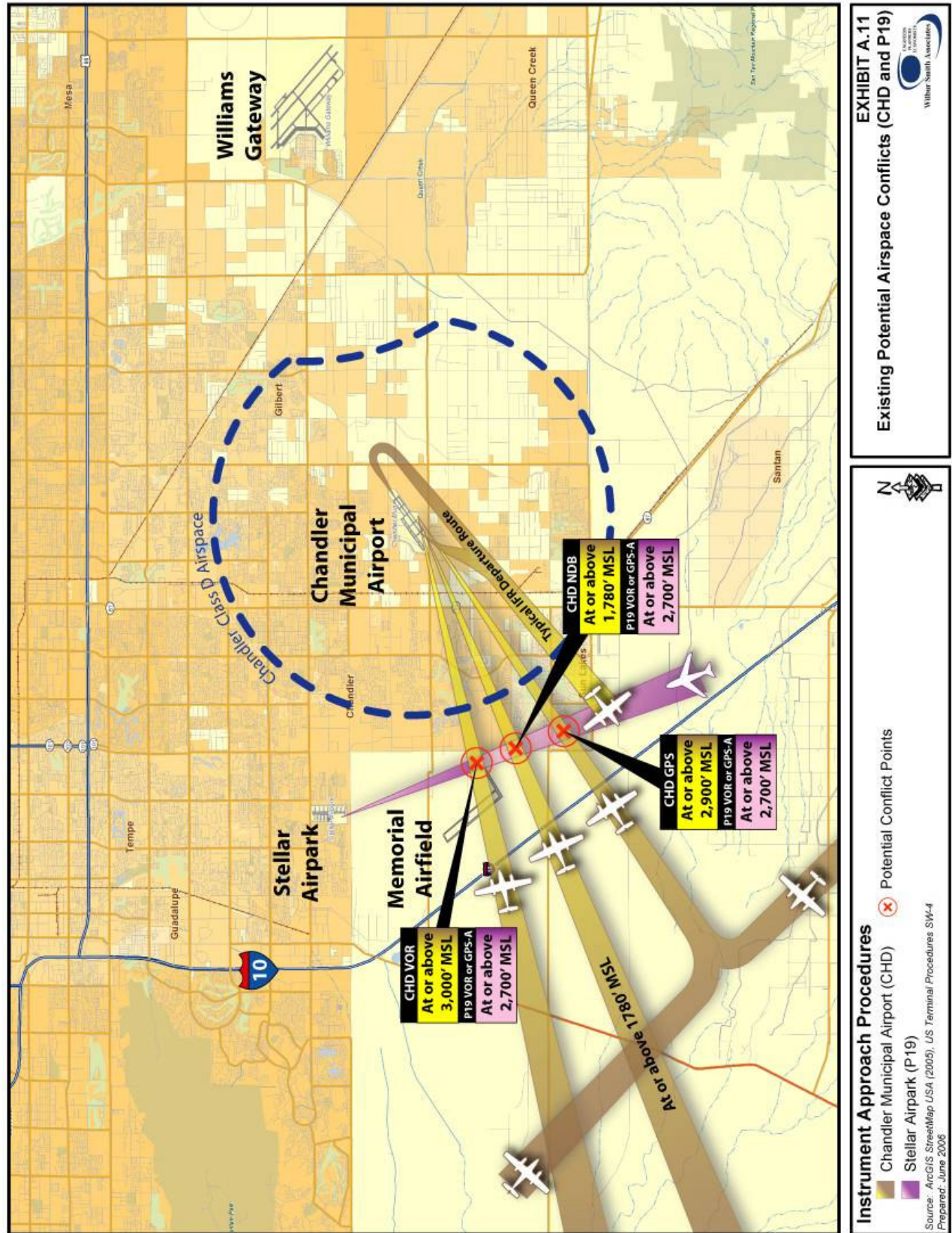
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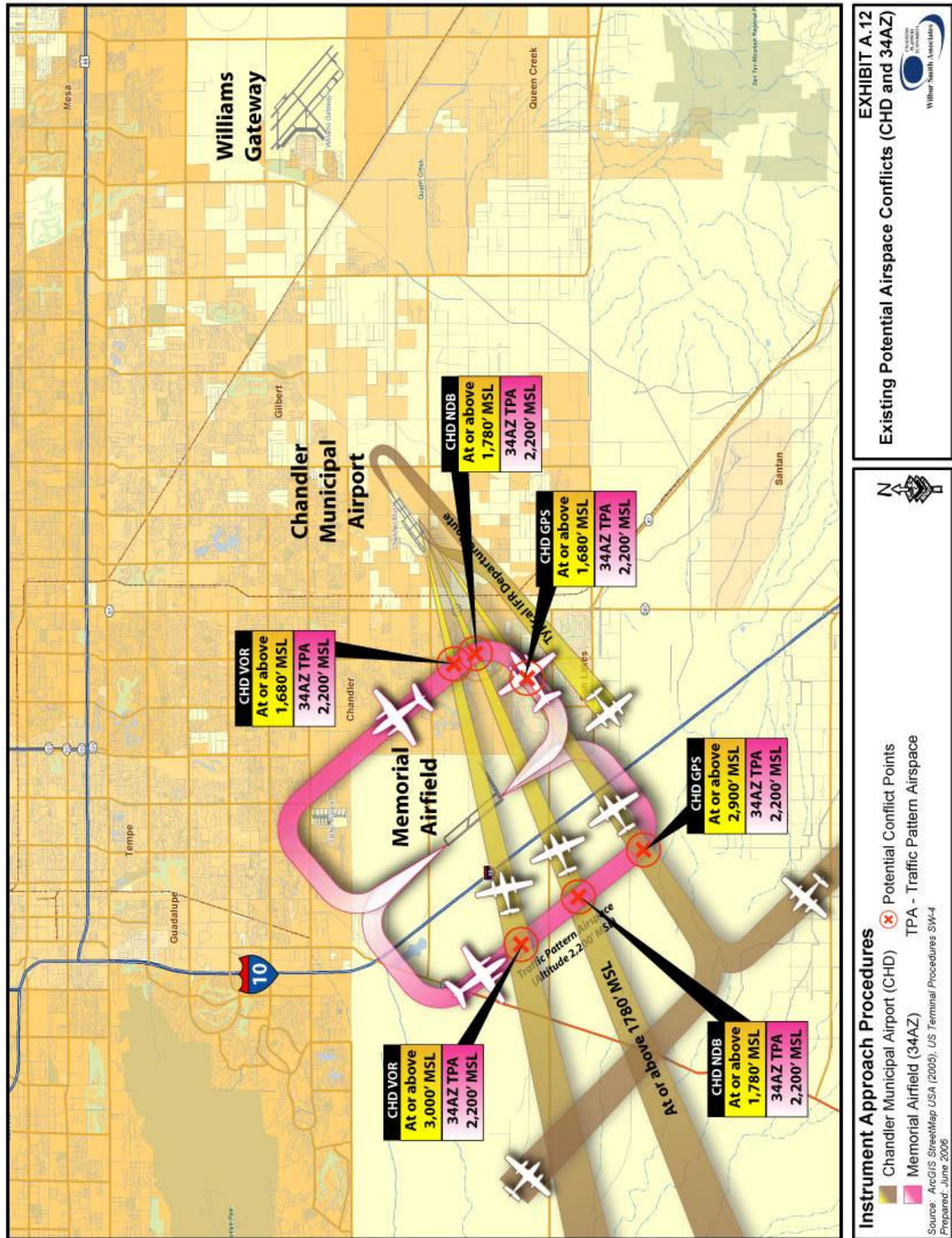


Memorial Airfield

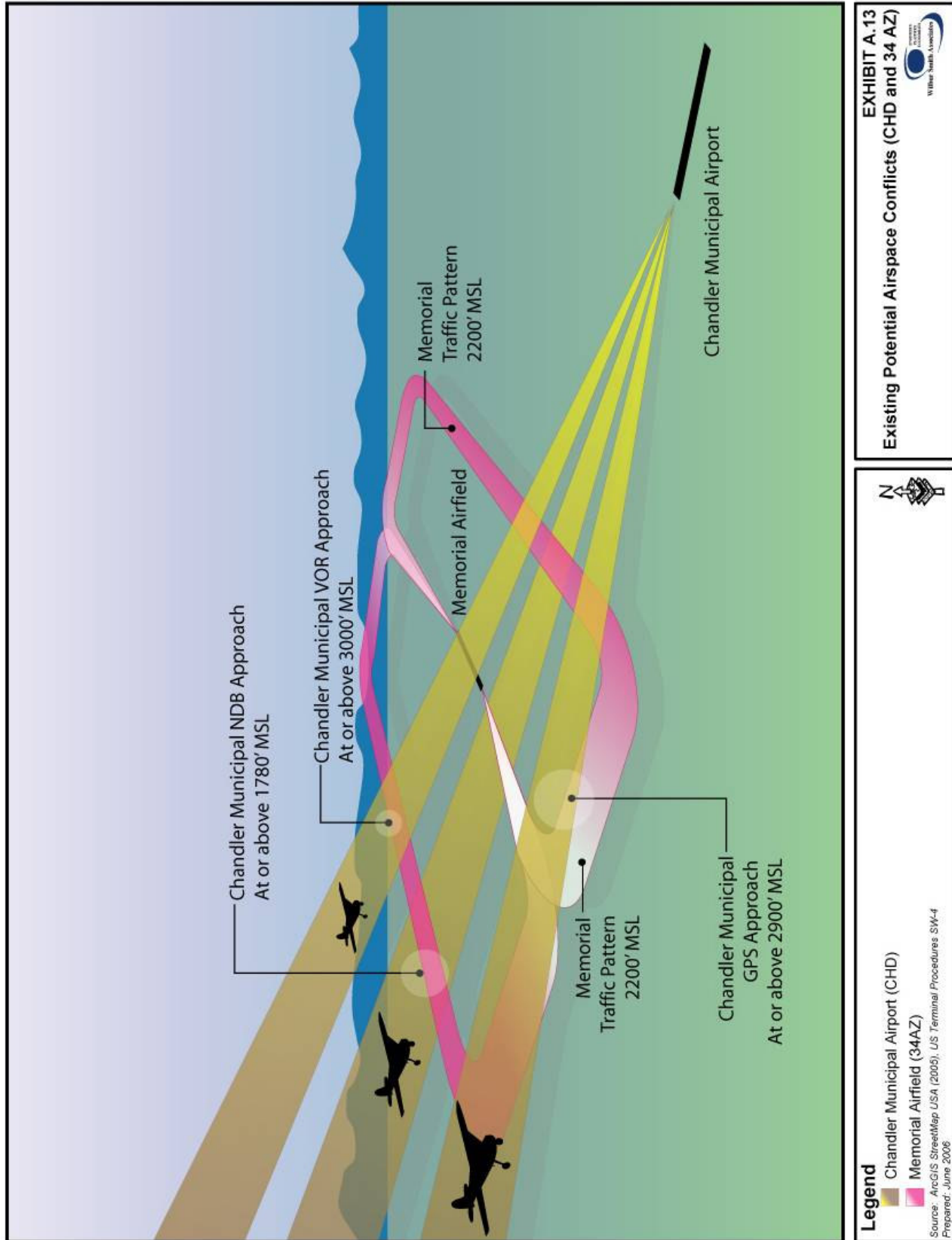
Memorial Airfield is a private airport owned and operated by the Gila River Indian Community. Because the airport is privately owned pilots must receive prior permission from the Gila River Airport Authority before using this airport. This requirement significantly reduces the amount of activity at this facility. Currently the only aircraft operations conducted at the airport are from aircraft based at the airport. Memorial Airfield is located approximately six miles west of Chandler Municipal Airport underneath the southern shelf of the Phoenix Class B Airspace. Memorial Airfield does not have a control tower or IAPs. The standard VFR traffic patterns for Chandler Municipal Airport and Memorial Airfield are relatively close to each other. However, the Chandler Class D airspace boundary is located less than one mile east of the Memorial Airfield, and requires an ATC clearance before entering. Because of restrictions on entering Chandler Class D airspace and the limited amount of activity at Memorial Airfield the two facilities currently have limited impact on each other during VFR conditions.

Currently Memorial Airfield is not served by an IAP and does not accommodate IFR operations. **Exhibits A.12** and **A.13** illustrate the traffic pattern airspace of Memorial Airfield, and the IAP's for Chandler Municipal Airport. It should be noted that the traffic pattern airspace and the IAPs depicted on the exhibits illustrate the routes and altitudes that aircraft typically fly. Some aircraft may fly a smaller pattern and remain closer to the airport, while others may fly a larger pattern further away from the airport. The three IAPs to Chandler Municipal Airport cross from west to east directly over, through, or under the Memorial Airfield traffic pattern airspace. Because the IAPs to Chandler are all non-precision procedures, the altitudes that aircraft cross over the Memorial Airfield traffic pattern airspace can vary. The altitudes depicted on the exhibits represent the lowest altitude aircraft are allowed to descend before the runway environment is in sight. Because Memorial Airfield is a private facility, a traffic pattern altitude is not published. A standard traffic pattern altitude is typically 1,000 feet above ground level (AGL). Utilizing this standard, the traffic pattern altitude at Memorial Airfield would be 2,200 feet MSL. Aircraft utilizing the VOR approach to Chandler Municipal Airport cross over the Memorial Airfield traffic pattern at or above 3,000 feet MSL. Aircraft utilizing the GPS approach to Chandler Municipal airport cross over the Memorial Airfield traffic pattern at or above 2,900 feet MSL. Aircraft utilizing the NDB approach are authorized to descend from 2,800 feet MSL to 1,780 feet MSL once the aircraft is within 10 NM of the Airport, and established inbound on the approach. Aircraft utilizing the NDB approach to Chandler Municipal Airport could cross over at or even below the Memorial Airfield traffic pattern altitude. These intersecting flight paths create the potential for conflict between aircraft operating under VFR in the traffic pattern at Memorial Airfield and aircraft on an instrument approach to Chandler Municipal Airport. Currently the low level of activity and the lack of operations at Memorial Airfield during IMC conditions make the potential for conflict limited. Additionally, radar coverage in the area enables ATC to identify aircraft in the pattern at Memorial and issue traffic advisories to aircraft on approach to Chandler.

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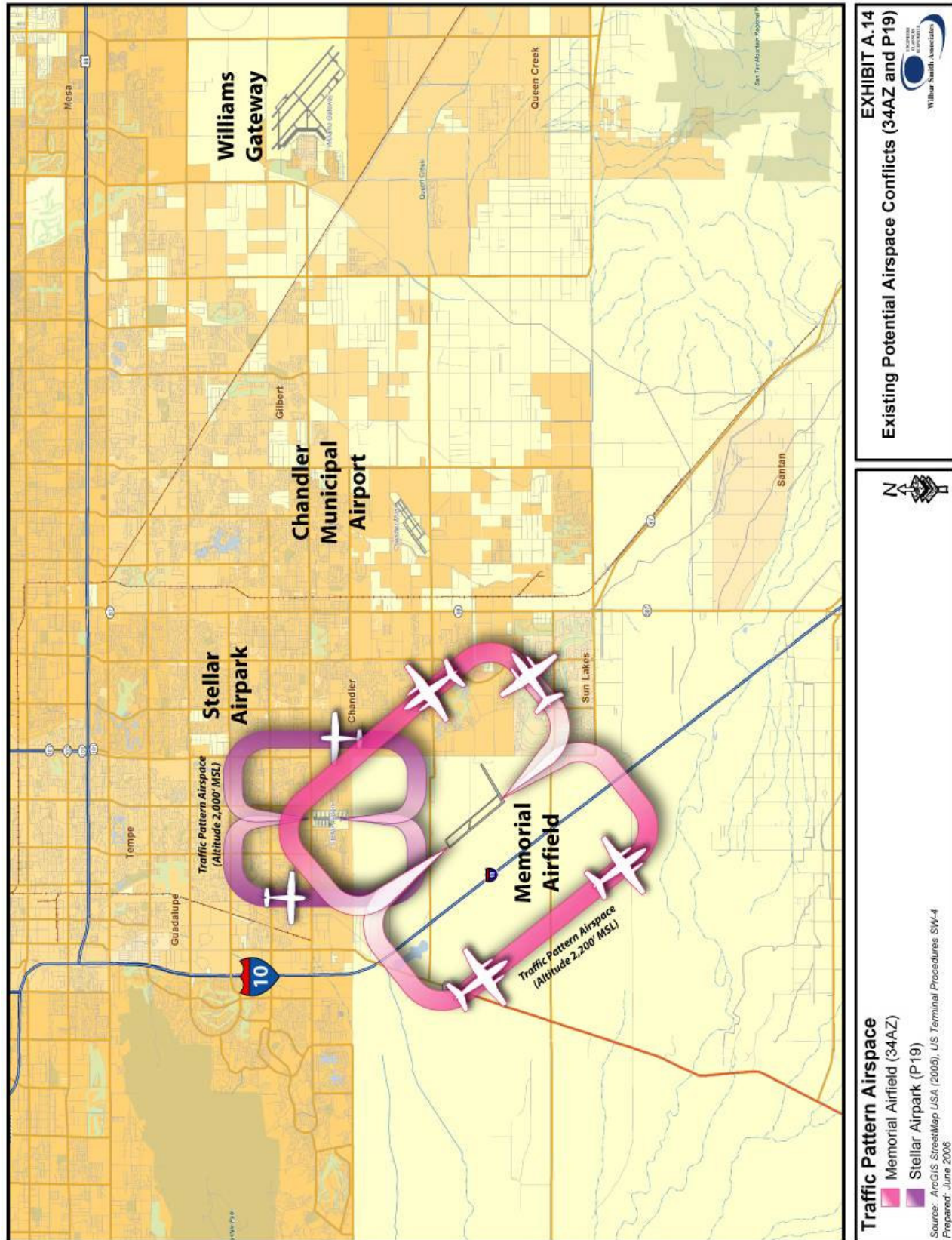


Stellar Airpark – Memorial Airfield

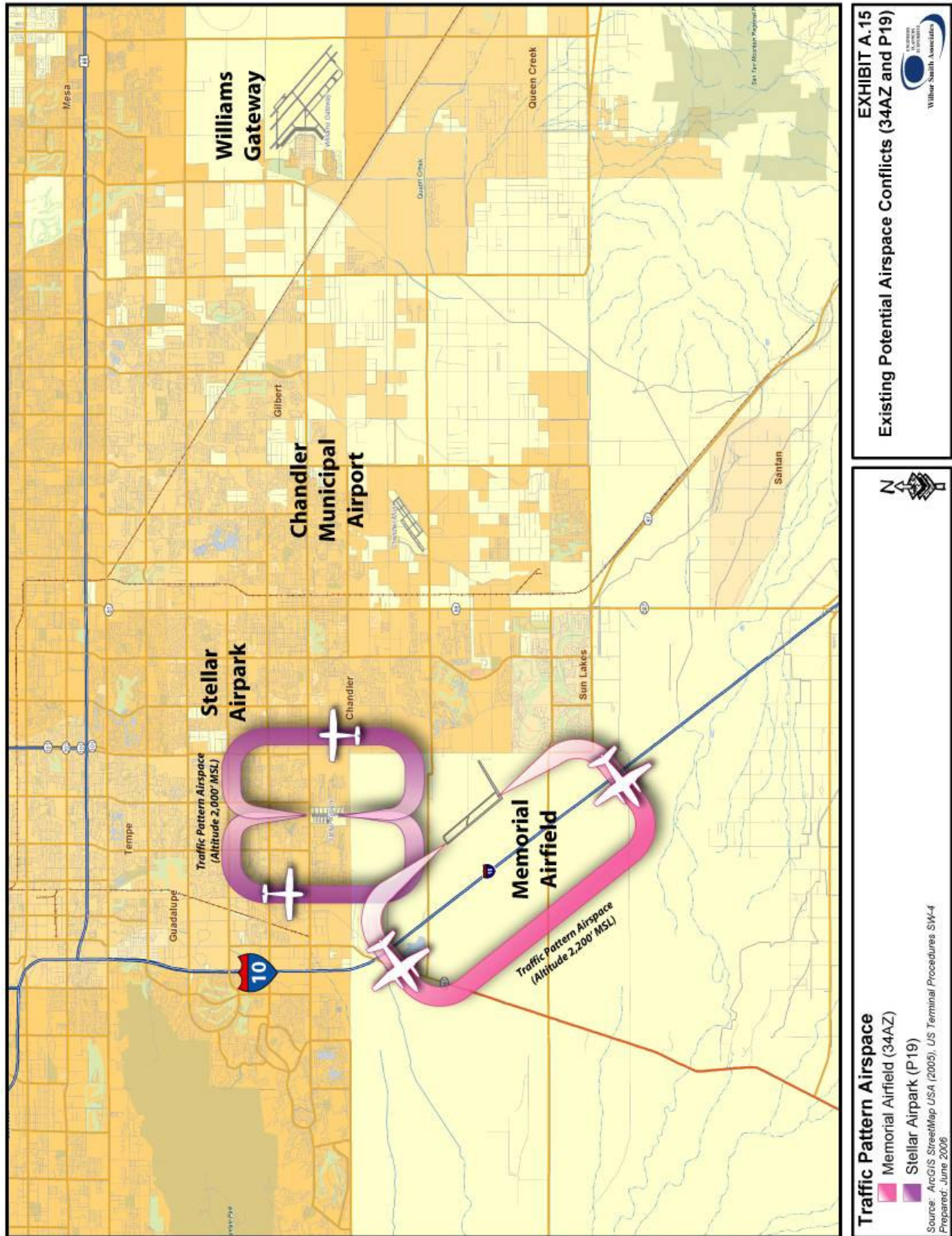
Memorial Airfield is located less than 2 NM south of Stellar Airpark. **Exhibit A.14** depicts the current traffic patterns of both airports. As shown in the exhibit, the standard traffic pattern on the northeast side of Memorial Airfield overlaps a significant portion of the traffic pattern at Stellar Airpark, creating the potential for a conflict at both facilities. Currently the limited activity and the requirement for prior permission to use the Memorial Airfield have reduced any conflicts between these airports. Because of the requirement to receive prior permission, pilots using Memorial Airfield are likely to be familiar with the location of Stellar Airpark and aware of the potential conflicts with the Stellar Airpark traffic pattern. If Memorial Airfield becomes a public use facility, and is utilized by transient pilots less familiar with the local area, there could be a greater potential for a conflict between the two facilities. To reduce this conflict the FAA has recommended that Memorial Airfield implement a right traffic pattern on runway 30. In addition, a left traffic pattern should be exercised when accessing from southwest of Memorial Airfield for landing on runway 12. Implementing this change would shift the pattern for runway 30 and runway 12 to the southwest side of the airport. This would reduce conflicts with Chandler IAPs and with Stellar Airpark traffic patterns. In recognition of the potential for conflicts, Stellar Airpark has prohibited practice instrument approaches to its runway.

Exhibit A.15 depicts the traffic patterns of both airports with this recommended change in place. As shown, this action would not entirely eliminate the conflict between Stellar Airpark and Memorial Airfield, but would significantly reduce it.

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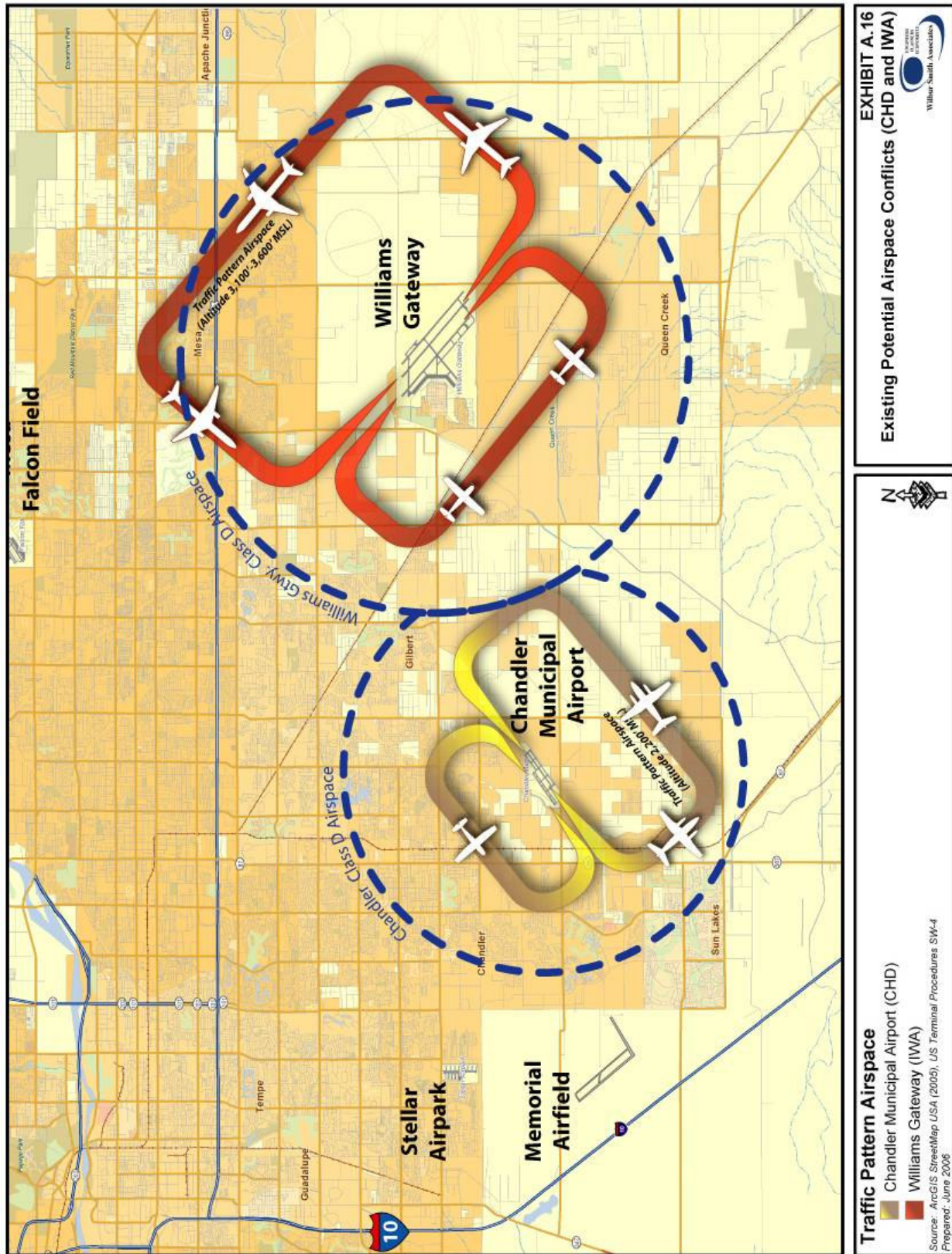


Williams Gateway Airport

Williams Gateway Airport is a public use reliever airport that was previously the Williams Air Force Base. The airport is located approximately 8 miles east of Chandler Municipal Airport and services a wide variety of general aviation and cargo operations. The Williams Gateway has an operating control tower with the associated Class D airspace slightly overlapping that of Chandler Municipal Airport. The distance between the two facilities is sufficient for VFR operations to occur at each airport with very little impact on each other. Operating control towers at both facilities further limit conflict between these two airports during both VFR and IFR conditions. **Exhibit A.16** depicts the traffic pattern airspace of both facilities.

Due to conflicts with aircraft arriving and departing Phoenix Sky Harbor International Airport, the IFR approaches to Williams Gateway arriving from the northwest are seldom utilized. Almost all aircraft operating IFR to Williams Gateway arrive from the southeast, outside the area used by the majority of aircraft operating to and from Chandler Municipal Airport. **Exhibit A.17** shows the IAP flight paths to both airports.

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EXHIBIT A.17
Existing Potential Airspace Conflicts (CHD and IWA)



Instrument Approach Procedures

Chandler Municipal Airport (CHD)

Williams Gateway (IWA)

Source: ArcGIS StreetMap USA (2005), US Terminal Procedures SW-4
Prepared: June 2006

FUTURE POTENTIAL AIRSPACE ISSUES

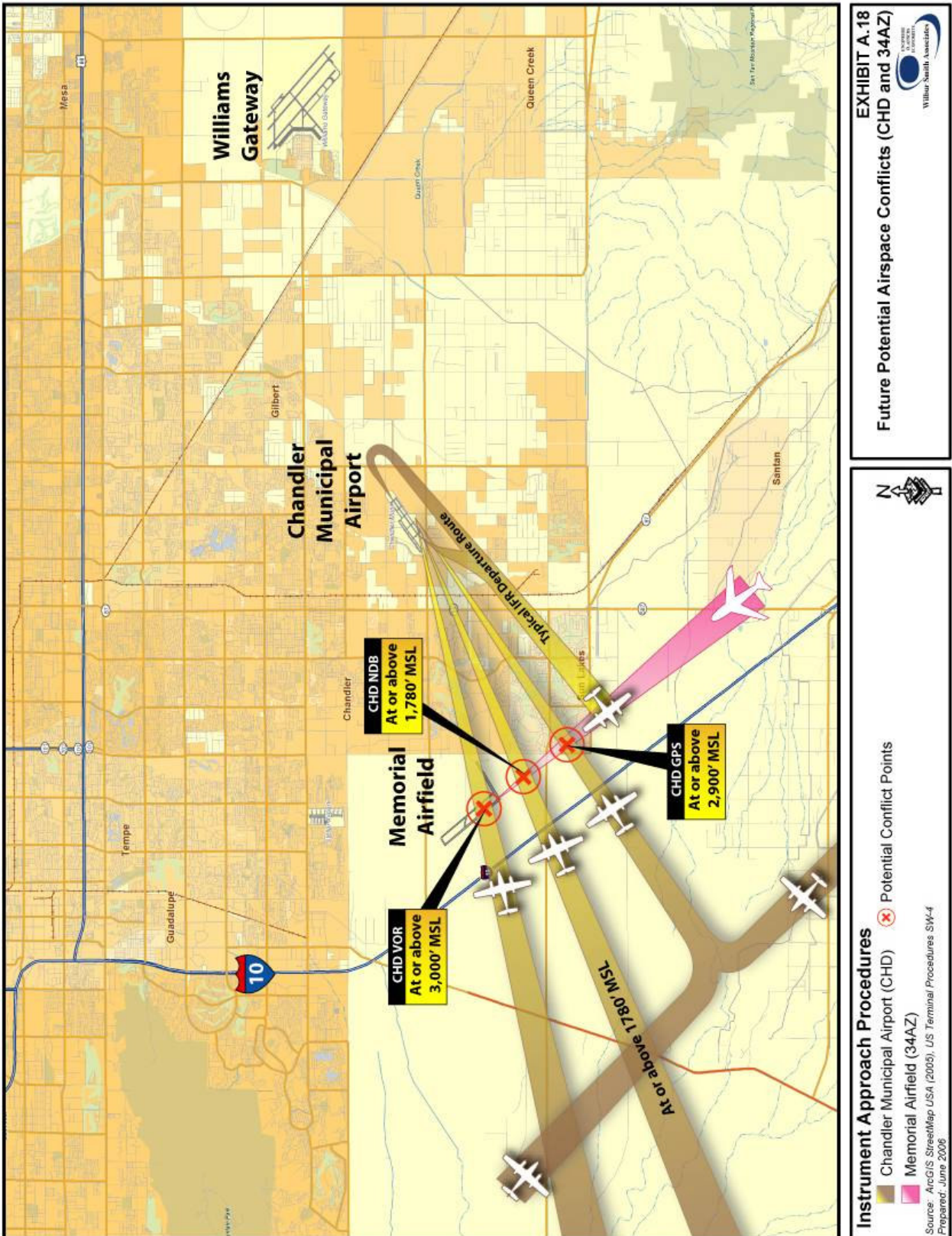
The previous analysis indicated where airspace conflicts in the existing airspace structure could occur relative to activity at Chandler Municipal Airport. There are several future potential aviation-related changes that may impact the airspace in the region. The following sections describe these potential future airspace issues as they relates to Chandler Municipal Airport

Memorial Airfield

The Memorial Airfield is currently in the process of a Master Plan Update. One of the development alternatives of the draft plan proposes to realign the existing runway and equip the airport with a GPS instrument approach. The proposed runway realignment would rotate the runway eleven degrees to a more north – south alignment and shift the runway approximately 2,400 feet north. The intent of the propose runway realignment and shift is to minimize the impacts of aircraft over flight on the Sun Lakes community located south of Memorial Airfield. The runway realignment and shift are not anticipated to have a significant effect on operations at Chandler Municipal Airport. The most significant impact on Chandler Municipal Airport will be the increased utilization of Memorial Airfield that will occur as a result of the airport being improved and designated as a public use facility. The draft Master Plan Update indicates the potential for construction of 418 hangar units. With the strong demand for hangar facilities in the Phoenix area, it is anticipated that new hangars at Memorial Airfield would be in high demand, creating the potential for a significant increase in aircraft activity at Memorial Airfield. The Master Plan Update projects Memorial Airfield to accommodate approximately 60,000 total operations at the end of the planning period (20 years). This level of activity would not meet FAA requirements for the establishment of an air traffic control tower. However, if the Gila River Airport Authority were to establish an air traffic control tower, the facility would most likely be a Non-Federal Control Tower, and would not have associated Class D airspace.

Currently Memorial Airfield does not have an IAP. The Master Plan Update proposes that the airport be designed to accommodate an instrument approach with not lower than one-half mile visibility minimums to the south end of the runway, and an approach with not lower the one mile visibility to the north end of the runway. Similar to the approach at Stellar Airpark, the approach to the south end of the runway would cross the approach paths of aircraft utilizing the instrument approach procedures at Chandler Municipal Airport. To eliminate this conflict, approaches to each airport would require sequencing by ATC, meaning that from an ATC standpoint the two airports would be treated as one, with only one aircraft being allowed to execute an instrument approach to either airport at one time. The approach to the north end of the runway is not anticipated to have a significant impact on operations at Chandler Municipal Airport, but could effect operations at Phoenix Sky Harbor International Airport. **Exhibit A.18** depicts the anticipated approach path of the IAP arriving from the south to Memorial Airfield with the proposed runway realignment.

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Class B Airspace Redesign

The current Phoenix Class B airspace configuration was published in November 1998. Since that time the Phoenix Sky Harbor International Airport has experienced a significant increase in air carrier traffic. In order to accommodate the increase in airline traffic, the FAA has proposed a series of revisions to the Class B airspace. **Exhibit A.19** depicts the Phoenix Class B airspace with the proposed changes.

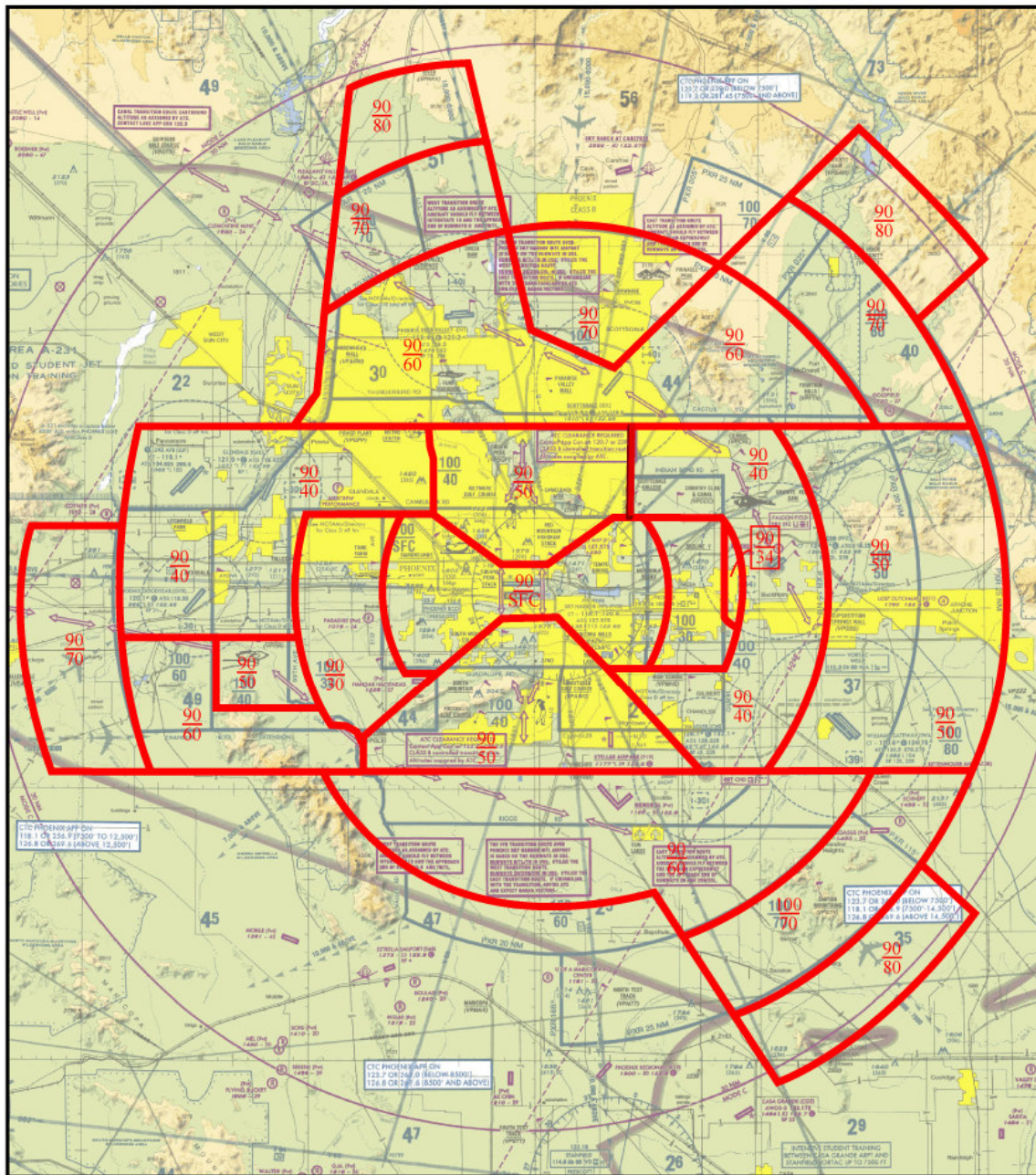
Numerous changes are proposed for the Phoenix Class B airspace. The following lists the major airspace changes proposed:

- Lowers the top of the Class B airspace from 10,000 feet MSL to 9,000 feet MSL
- 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
- Creates a new 4,000 to 9,000 feet MSL Class B shelf over Luke AFB
- Lowers the floor of the Class B shelf over Goodyear Airport from 6,000 to 4,000 feet MSL
- Raises the floor of the airspace directly south of Chandler Municipal from 4,000 to 6,000 feet MSL
- Adds an 8,000 to 9,000 feet MSL shelf north of Deer Valley Airport
- Adds an 8,000 to 9,000 feet MSL shelf on the northeast and southeast outer portion of the Class B airspace, extending just beyond the 30 NM Mode C boundary
- Adds an 4,000 to 9,000 feet MSL shelf west of Goodyear Airport

The proposed changes to the Class B airspace will have varying impacts on the airports in the Phoenix region.

The impact on operations at Chandler Municipal Airport appears to be minimal. The altitude of the Class B airspace shelf overlying Chandler Municipal Airport remains the same, or is higher in some areas than the existing airspace configuration. The intent of the proposed airspace changes is to increase the capacity for operations at Phoenix Sky Harbor International. IFR arrivals and departures to and from Chandler Municipal Airport are sequenced with arrivals and departures at Phoenix Sky Harbor International Airport. Thus improvements to the IFR capacity of Phoenix Sky Harbor International Airport, will improve ATC's ability to sequence IFR traffic to and from Chandler Municipal Airport.

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Legend

- Class B Airspace
- 90 Ceiling in hundreds of feet MSL
- 60 Floor in hundreds of feet MSL

Source: Source Title

EXHIBIT A.19 Proposed Phoenix Class B Airspace



Other airports in the Phoenix area appear to have more significant impacts as a result of the proposed changes. Luke Air Force base is currently outside the boundaries of the Class B airspace. The proposed changes include a 4,000 to 9,000 feet MSL Class B shelf over most of the Luke Air Force base Class D airspace; when Luke Air Force Base is flying, RAPCON will retain air traffic control service. The Goodyear Airport would see the Class D airspace lowered over the northwest portion of the Goodyear Class D airspace from 6,000 feet MSL to 4,000 feet MSL. Other minor changes include small portions of the Class B airspace overlying the Williams Gateway and Falcon Field Class D airspace that would be lower than before. The primary effect of these changes will be on aircraft who choose not to receive ATC services, or those who are not able to receive ATC clearance through the Class B airspace. These aircraft who are trying to avoid the Class B airspace will be required to fly at lower altitudes than before in order to remain outside of the Class B airspace boundaries. In these cases aircraft will be required to fly at lower altitudes over heavily populated areas increasing the potential for noise complaints in these areas. It should be noted that the currently proposed Class B airspace redesign is being reviewed with additional changes proposed by a wide cross section of organization representing various local aviation interests.

SUMMARY

The airspace in the Phoenix metropolitan area is a precious commodity. Proper allocation of airspace and coordination between controlling agencies becomes increasingly important as traffic density increases, as is projected for Chandler Municipal Airport, and the other airports in the Phoenix area. The projected increase in aircraft activity and the development of additional facilities to accommodate this demand will make day-to-day air traffic management and airspace control in this heavily congested area a continuing challenge. The purpose of this analysis is to identify existing and potential future airspace conflicts as they relate to the existing conditions at Chandler Municipal Airport, as well as potential improvements that would affect future development at Chandler Municipal Airport. Early identification of conflicts will provide local stakeholders and controlling agencies a better opportunity to find solutions to mitigate current and potential future airspace conflicts.

The following is a list of the current and potential future airspace conflicts identified in this analysis.

Current Issues

- IFR approaches to Chandler Municipal Airport cross through the VFR traffic pattern airspace of Memorial Airfield.
- The traffic pattern airspace at Memorial Airfield overlaps the traffic pattern airspace of Stellar Airpark.

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- The instrument approach to Stellar Airpark crosses the three instrument approach paths to Chandler Municipal Airport.

Future Issues

- A future instrument approach at Memorial Airport would cross the current instrument approaches at Chandler Municipal Airport. This will require ATC to sequence aircraft using the IAPs at either airport.
- Activity at Memorial Airfield is projected to significantly increase if the airfield is redeveloped and improved. As activity at Memorial increases, the potential for airspace conflicts increases as well.