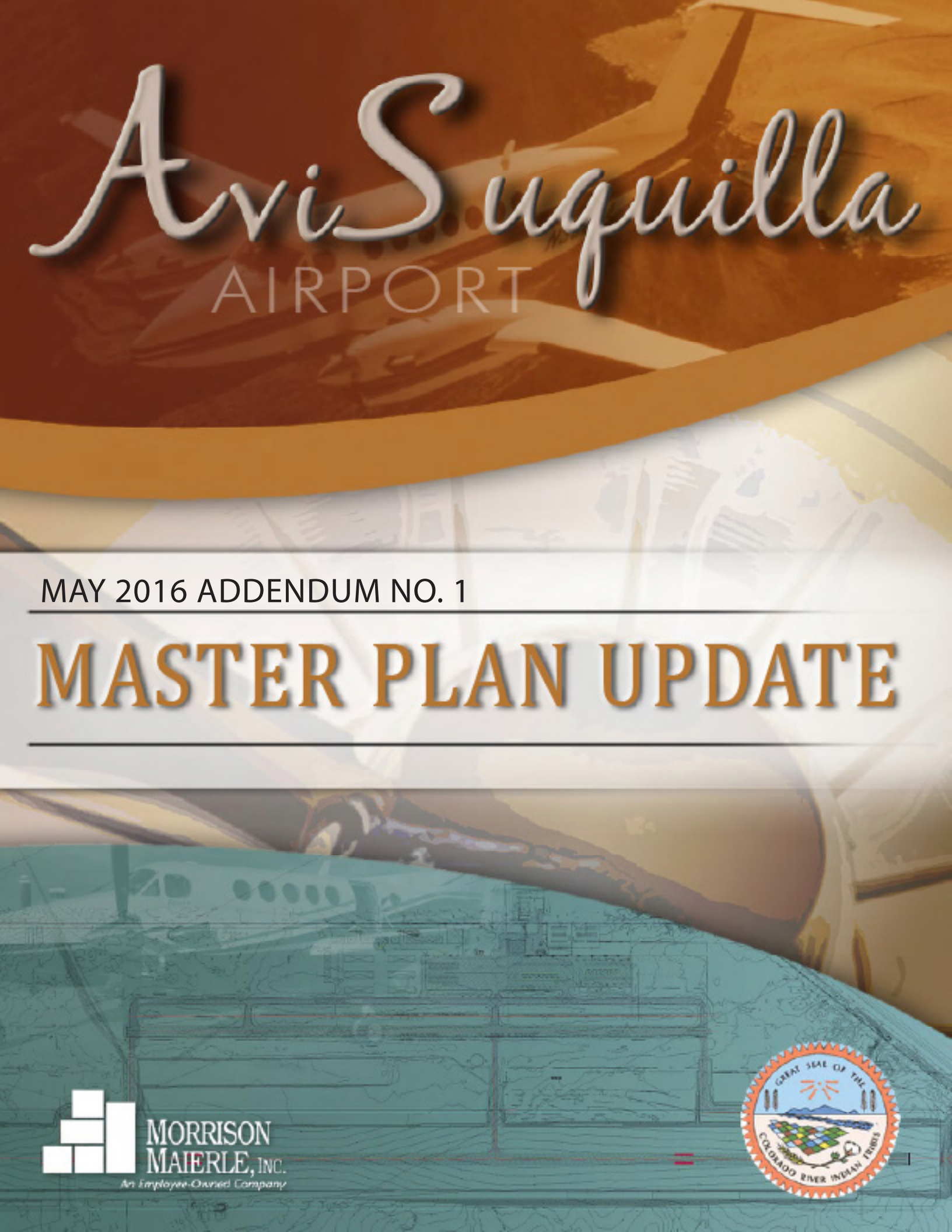
Avi Suquilla AIRPORT

MAY 2016 ADDENDUM NO. 1

MASTER PLAN UPDATE



MORRISON MAIERLE, INC.
An Employee-Owned Company

GREAT SEAL OF THE COLORADO RIVER INDIAN TRIBES

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AIRPORT MASTER PLAN UPDATE
(May 2016 Addendum No. 1)

Avi Suquilla Airport
Parker, Arizona

Prepared For
The Colorado River Indian Tribes

May 2016 FAA ALP Drawing Approval

Prepared By

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"The contents of this plan do not necessarily reflect the official views or policy of the FAA or ADOT Multimodal Planning Division (MPD). Acceptance of this document by the FAA and ADOT MPD does not in any way constitute a commitment on the part of the United States or the State of Arizona to participate in any development depicted herein nor does it indicate that the proposed development is environmentally acceptable in accordance with applicable public laws."

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A1. ADDENDUM No. 1 – FAA APPROVAL AIRPORT LAYOUT PLAN DRAWINGS

A1.1 INTRODUCTION

Review comments from the FAA addressing the Final Draft of the Master Plan Update and the Airport Layout Plan (ALP) drawing set were received on December 10, 2015. No comments were received from the Arizona Department of Transportation.

The FAA did not have any comments on the Master Plan Narrative.

The FAA had 16 comments that suggested revisions to the ALP drawing set which were addressed by the Master Plan Team (Airport Management and Master Plan Consultant).

A1.2 ADDENDUM HISTORY

Addendum No. 1 revised the following in the Master Plan Update Report:

- Cover and Title Page – added Addendum No. 1 and date of addendum
- Revised Table of Contents – included Addendum No. 1, deleted "Draft #" from Chapter Titles, Added FAA ALP Approval Letter to Appendix and approved ALP drawings, and dated footer May 2016
- Chapters 1 – 7 removed "Draft # and Draft Date" from footer; dated all footers May 2016
- Attachment – Added May 20, 2016 FAA Airport Layout Plan Approval Letter and 11" x 17" set of FAA approved drawings

Full size drawings are available on the CDs provided to the FAA, ADOT Aeronautics and the Avi Suquilla Airport.

Addendum No. 1 does not update any of the Master Plan Chapters to current (2106) FAA criteria. **The Chapters were last updated in February and March 2014**.

The Airport Layout Plans that the FAA reviewed were current to April 2015 FAA criteria when submitted to the FAA for approval. The approved ALP drawings are current for FAA criteria in effect in December 2015.

Addendum #1 was issued on June 6, 2016 following receipt of the FAA ALP approval letter and as part of the Master Plan Update closeout process where one printed hard copy of the final Master Plan is provided to the FAA along with electronic (PDF) files on CDs.

ADOT Aeronautic will receive electronic files and the Sponsor both hard copies for the Airport files, CRIT Library and CRIT Planning.

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INVENTORY

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1. INVENTORY OF EXISTING CONDITIONS

1.1. Introduction

The purpose of this Airport Master Plan Update is to present guidelines for development of the Avi Suquilla Airport to meet the needs of the Colorado River Indian Tribes (CRIT), the City of Parker, La Paz County and the surrounding trade area over the next 20 year period. Forecasts of aviation demand will provide the basis for recommended future physical development of airport facilities, including terminal development, instrument approach minimum improvements, future land needs, access requirements, and other infrastructure requirements for 5, 10, and 20 year planning periods. Economic feasibility, funding mechanisms, and timing of proposed developments will be reviewed so that the recommendations are economically practical. Environmental conditions will be documented and considered in the identification and analysis of airport development alternatives.

An inventory of present airport facilities, usage, and local economic factors, along with input from airport users, will provide the necessary data and information required to forecast aviation activity and existing and future facilities requirements. Alternatives Development and Evaluation, Chapter 4, will identify and evaluate alternatives for meeting existing and future facilities requirements. Recommended development alternatives will be selected in Chapter 4. The existing airport layout plan drawings will be updated to show the recommended development alternatives in accordance with current FAA criteria.

The latest Avi Suquilla Airport Master Plan was completed in April 1997. Numerous changes have occurred at the Airport since completion of the 1997 Master Plan. Major changes include the construction of a relocated Runway 1-19 and connecting taxiways, apron expansion, drainage improvements, and installation of security fencing surrounding airport property.

The Runway 1-19 Relocation Project was identified in an Airport Layout Plan Narrative Report and Airport Layout Plan (ALP) drawings update completed in December 2003. The Runway 1-19 Relocation and Extension Environmental Assessment was approved by the FAA and a Finding of No Significant Impact (FONSI) issued in May 2006.

Improvements that have been undertaken from the inception of the current FAA Airport Improvement Program (AIP) in 1982 and since completion of the 1997 Master Plan are listed in **Table 1-1**.

This Master Plan update is primarily intended for use by the aviation community and those authorities and public agencies, which are charged with the approval, promotion, and funding of the proposed improvements. All of those involved in the airport planning process, especially federal and state aviation officials, airport management, members of the Colorado River Indian Tribes, local government officials and planners, state and regional planning personnel, and the general public, are urged to review this study periodically to compare future aviation developments with those forecast.

1.2. Airport Management

The Avi Suquilla Airport is owned and operated by the Colorado River Indian Tribes (CRIT). CRIT includes four distinct tribes, the Mohave, Chemehuevi, Hopi and Navajo. CRIT tribal government is overseen by a nine-member Tribal Council, led by a Chairman and selected by bi-annual votes of the membership. The Avi Suquilla Airport is an enterprise department of the tribal government.

The department, known as CRIT Air, also fulfills functions often undertaken by a Fixed Base Operator (FBO) such as fuel sales, and collection of hangar rental and tie-down fees. CRIT Air is not a full service FBO as it does not currently offer flight instruction or aircraft maintenance or repairs. The Airport Manager, as the Department Head, is responsible for the day to day operation of CRIT Air and the overall management of the airport.

1.3. Airport History

The Airport was originally established in its present location during the 1920's. It was utilized by two different flying Service companies which trained Navy pilots up until 1941, at which time both companies relocated their operations to Prescott, Arizona.

The first paved surface, consisting of asphaltic concrete, was placed on the runway in 1959, in the current 01-19 runway orientation.

During a 20-year period, from 1962 to 1982, the airport was leased by CRIT to the Town of Parker. During this time, numerous airport improvements were made which included the addition of a paved parallel taxiway and connector taxiways, a paved apron, a hangar, underground fuel tanks, medium intensity runway and taxiway lighting (MIRL and MITL), and a 2-box visual approach slope indicator (VASI) system at each end of the runway. In 1982, the lease agreement between the Town of Parker and CRIT was terminated, and the ownership and operational responsibility for the Airport was transferred to the Colorado River Indian Tribes.

In 1984, a Master Plan Update was prepared for the Airport and in 1993 the Airport received federal funding for reconstruction and overlay of the runway, drainage improvements, apron expansion, and the installation of a Precision Approach Path Indicator (PAPI) and a new lighted wind sock. The existing VASI's were abandoned.

The Master Plan was again updated in 1997. Following the 1997 update, an Airport Layout Plan Narrative Report and the ALP drawing set was updated to support the Relocation and Extension of Runway 1-19. The extension contemplated in the 1997 Master Plan was no longer valid due to changes in FAA lateral clearance and runway safety area criteria. Runway 1-19 was relocated 1,050' east of its former location and lengthened to a dimension of 6,250' X 100'. The former runway was converted to a taxiway. Connecting taxiways with medium intensity taxiway lighting (MITL) were constructed and land was acquired for the relocated runway and runway approach protection.

Table 1-1 shows the variety of capital projects undertaken at the Avi Suquilla Airport since the inception of the current federal Airport Improvement Program (AIP) 30 years ago in 1982. The airport undoubtedly benefited from several projects under both the original Federal Aid Airport Program (FAAP) 1946-1969 and the Airport Development Aid Program (ADAP) 1970-1981. Data in the 1984 and 1997 Master Plans concerning previous federal grants was sketchy, and a listing of previous FAAP and ADAP projects is not readily available. Table 1-1 shows that the majority of AIP projects have been undertaken since the 1997 Master Plan was completed.

Table 1-1: Capital Improvement Projects 1982-2012

CRIT Projects

Year	Description	Project Cost
1998 Est	Above Ground Fuel Farm (Av-Gas and Jet A)	$177,000 Est
2000 Est	Two Ten Unit T-Hangars	$300,000 Est
Total CRIT Projects		**$477,000 Est**

AIP Projects

Year	AIP No.	Description	Grant Amount
1985	01	Master Plan Update	$29,517
1987	02	Expand Apron, Construct Taxiway, Install apron Lighting	$382,338
1992	03	Runway 1-19 and Parallel Taxiway A Overlay and Extension; South Apron Extension	$868,052
1996	04	Master Plan Update	$60,000
2002	05 & 06	Apron Rehabilitation Project	$307,000 $400,231
2005	7	Design Runway 1-19 Relocation and Extension Project	$445,435
2006	09 & 10	Phase I Runway Relocation Project - Security (Perimeter) Fence Project (AIP 09) and Grading and Drainage Project (AIP 10)	$650,436 $1,995,048
2007	11	Phase II Runway Relocation Project including Grading and Runway/Taxiway Paving Phase I Erosion Control Project	$3,473,605
2008	12	Phase III Runway Relocation Project including Airfield Lighting and AWOS, Pavement Seal Coat and Marking High Speed Diesel Powered Runway Sweeper	$1,401,844
2009	13 & 14	Preliminary Design Taxiway A and B Rehabilitation (AIP 13) Taxiway A and B Rehabilitation Including Lighting (ARRA Funded AIP 14)	$68,073 $1,790,786
2010	16 & 17	Phase II Erosion Control (AIP 16) Phase II Taxiway B Rehabilitation (ARRA Funded AIP 17)	$369,984 $309,501
2011	18	Master Plan Update	$150,000
2012	19	GA Apron Rehabilitation and Reconstruction including Erosion Control and Vehicle Security Gate Upgrade	$909,234
Total AIP Projects			**$13,611,084**

From 1984 through 2004, the Federal Grant amount was 91.06% of the FAA eligible project cost, making the CRIT share 9.84%. In 2005, as part of the recovery from the 9/11 terrorism attack and subsequent recession, the Federal Grant was increased to 95% of the FAA eligible project cost. The 2009 and 2010 projects funded under the American Recovery and Reinvestment Act (ARRA) of 2009 were 100% reimbursable by the FAA. When the AIP program was reauthorized in 2012, the Federal Grant share returned to the 2004 levels.

The Federal Grant share for general aviation airports is 90% in the Act. However, Arizona is one a few states where the percentage is increased due to the large amount of federal land (including land held in trust for Indian reservations) in the state.

1.4. Airport Setting

The Avi Suquilla Airport is located on the Colorado River Indian Reservation in Southwestern Arizona, immediately east of the Town of Parker, which is the county seat of La Paz County.

Railroad Bridge Parker, AZ

Parker provides easy access to 16 miles of Colorado River, known as the Parker Strip. This stretch of river, with abundant fishing, boating and camping opportunities, brings an abundance of holiday and weekend visitors from the Phoenix area and Southern California. In addition, regular area annual events bring an influx of visitors throughout the year. These events include:

- January: Parker 250 Off Road Race
- February: BlueWater Resort & Casino Parker 425 Off Road Race
- February: Parker Rotary Desert Dash
- February: Big Bass Classic Tournament
- March: Parker Marathon IWSRA Ski Races
- April: SCSC Spring Powerboat Classic
- April: Annual Open Golf Tournament, Emerald Canyon Golf Course
- May: Annual Cinco de Mayo Golf Tournament
- May: BlueWater Resort & Casino Grand Prix
- June: The Great Western Tube Float
- October: Blue Water Desert Challenge Off Road Race
- October: Annual Colorado River Chili Cook-off and Classic Car Show
- October: Enduro Speed Boat Competition
- November: Triathlon
- November: Thanksgiving Boat Regatta
- December: Colorado River Outfitters Outdoor Expo

The business climate in the Town of Parker and La Paz County is geared toward services and agriculture with manufacturing / industry beginning to emerge. The service and retail business sectors are the major economic contributors to the area through recreation and tourism. Agriculture follows closely with hay, cotton, melons and lettuce as the main crops.

Mild winters bring out of state visitors, many of whom return each year for a 4 to 6 month stay.[1]

Figure 1-1 depicts the location of the airport in its regional setting. As shown, Avi Suquilla is located 164 miles west of Phoenix via Interstate 10 and SR 95, 120 miles north of Yuma and 38 miles south of Lake Havasu City via SR 95.

The Airport is situated on approximately 744 acres located near the east bank of the Colorado River. The Airport has relatively level terrain and an elevation of 458.4 feet above mean sea level (MSL). However, the Whipple and Buckskin Mountains are located to the northwest and northeast of the airport, respectively, with elevations in the range of 850 feet MSL. Due to their elevations, these desert mountains must be considered in the planning of future improvements to the airport.

Highway access to the Town of Parker is provided by Arizona State Routes 72 and 95, and California State Highway 62. In addition, the Arizona and California Railroad also runs through Parker, where they have a switching yard. Rail service is limited to the shipping of freight only.

The primary access to the Avi Suquilla Airport is provided by SR 95 which is a two-lane highway which connects the Town of Parker with Lake Havasu City to the North. Access to the terminal area is provided by Airport Road, a two lane road.

[1] Parker Area Chamber of Commerce

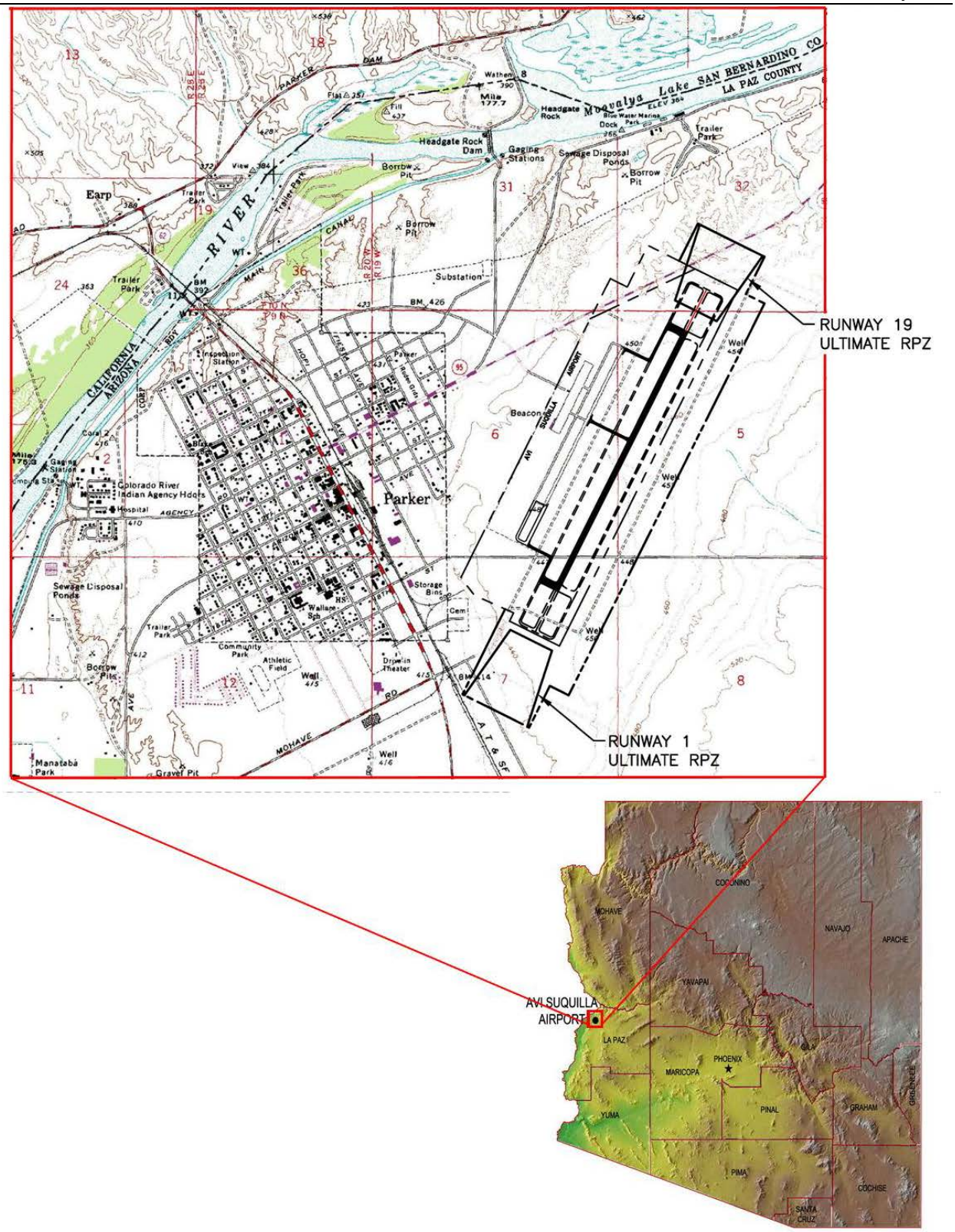

Figure 1-1 Location Map

1.5. Climate

Local weather conditions affect the daily operations of an airport and must be considered in planning future facilities. Most importantly, temperature and wind patterns must be considered in determining runway length and orientation requirements.

Parker's climate is that of an arid desert, characterized by mild winters and hot summers and low precipitation. The normal daily minimum temperature ranges from 41 degrees in December to 80 degrees in July. The normal daily maximum temperature ranges from 68 degrees in December to 109 degrees in July. The region averages approximately 5.11 inches of precipitation annually. On average, Parker experiences sunshine 82 percent of the year. The monthly average wind speed is 7.1 miles per hour (mph), and the predominant wind directions are from the north and the southwest. A summary of climactic data for Parker is presented in **Table 1-2**.

Table 1-2: Parker, AZ Climate Data

	Jan.	Feb.	Mar	Apr	May	Jun	Jul	Aug.	Sep.	Oct.	Nov.	Dec.
High Temp Avg. (F)	69	73	80	88	97	105	109	107	102	91	77	68
Low Temp Avg. (F)	42	45	50	56	65	73	80	79	72	61	49	41
Precip. Avg. (in.)	1.01	0.70	0.56	0.15	0.08	0.01	0.26	0.64	0.48	0.28	0.37	0.57
Wind Speed (mph)	6.0	6.5	7.6	8.0	8.1	8.0	8.0	7.5	7.1	6.5	6.0	5.8
Sunshine (%)	76	79	81	85	86	89	83	84	86	85	81	76

Source: www.weather .com and www.city-data.com

1.6. Airport System Planning Role

The National Plan of Integrated Airport Systems is a federal planning document which defines the service level and role of all airports in the federal airport system. NPIAS defines Avi Suquilla Airport's service level as a General Aviation General Utility Airport. According to the 2008 Arizona State Airports System Plan, the airport is one of 14 Native American, public-use airports open for use in the State of Arizona, and it is the only NPIAS General Aviation airport in La Paz County.

There is no commercial service activity at the airport. The nearest locations for commercial, scheduled air service are Bullhead City and Yuma located 100 miles and 120 miles from Parker respectively.

1.7. Airport Facilities

An essential element of the master planning process is identifying existing aviation facilities, noting the location of these facilities and analyzing the ability of these facilities to meet the airport's needs. The inventory of existing facilities at Avi Suquilla Airport was accomplished through physical inspection of the airport, discussion with airport staff, and review of existing airport layout drawings and related studies. An overview of the Airport layout is provided on **Figure 1-2**.

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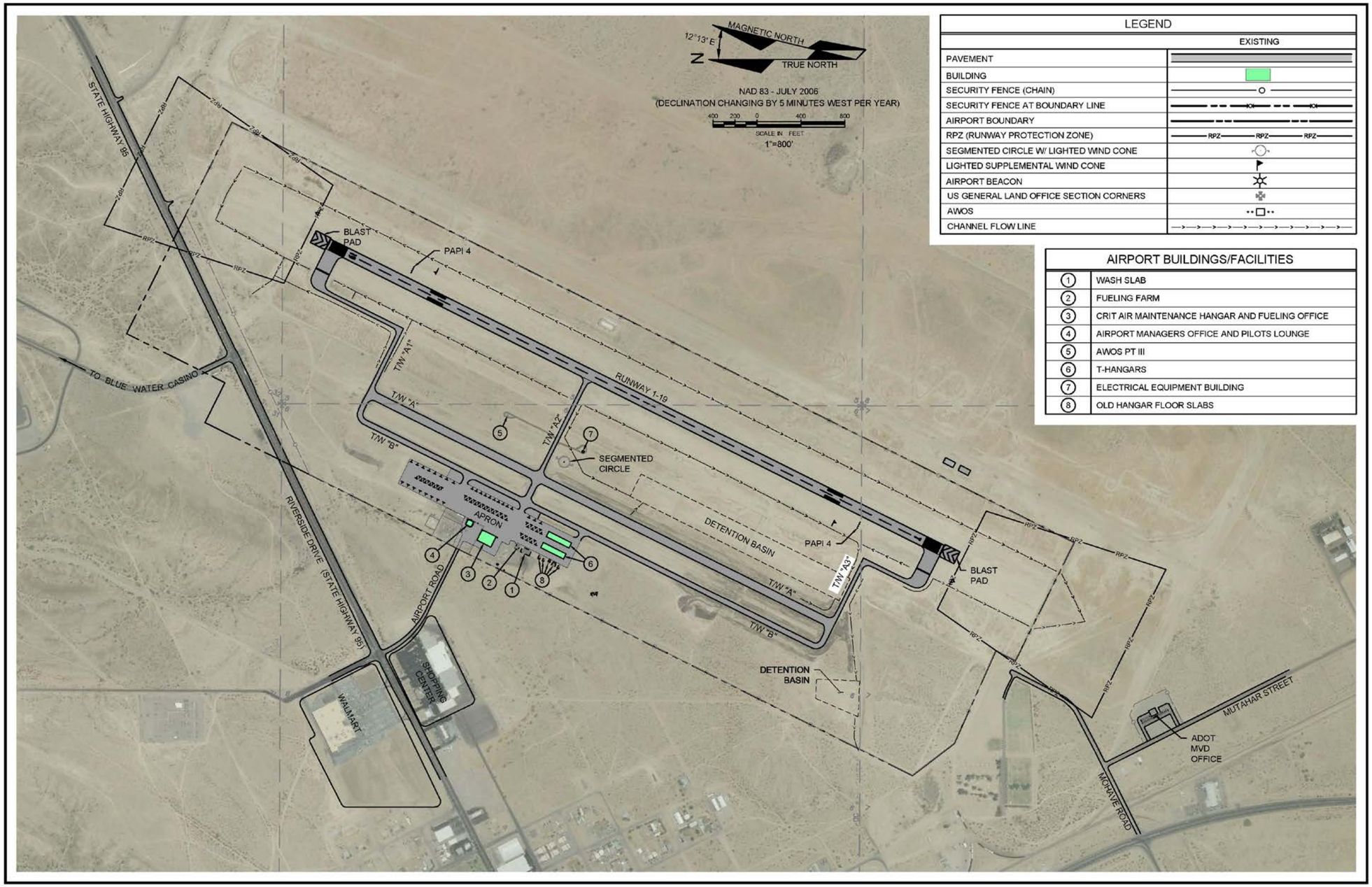

LEGEND	EXISTING
PAVEMENT	
BUILDING	
SECURITY FENCE (CHAIN)	
SECURITY FENCE AT BOUNDARY LINE	
AIRPORT BOUNDARY	
RPZ (RUNWAY PROTECTION ZONE)	
SEGMENTED CIRCLE W/ LIGHTED WIND CONE	
LIGHTED SUPPLEMENTAL WIND CONE	
AIRPORT BEACON	
US GENERAL LAND OFFICE SECTION CORNERS	
AWOS	
CHANNEL FLOW LINE	

AIRPORT BUILDINGS/FACILITIES	
1	WASH SLAB
2	FUELING FARM
3	CRIT AIR MAINTENANCE HANGAR AND FUELING OFFICE
4	AIRPORT MANAGERS OFFICE AND PILOTS LOUNGE
5	AWOS PT III
6	T-HANGARS
7	ELECTRICAL EQUIPMENT BUILDING
8	OLD HANGAR FLOOR SLABS

Figure 1-2: Airport Layout

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1.8. Airside Facilities

Airside facilities consist of runways, taxiways and apron areas along with associated markings, lighting systems and instrumentation. The airport reference point, which defines the midpoint of the airfield is located at latitude 34˚08' 59.37" N and longitude 114˚16'04.23" W. The airport elevation, the highest point on the airfield pavement is 484.4' above Mean Sea Level (MSL).

1.9. Runway

The existing runway configuration consists of one active runway, Runway 1-19. Runway 1-19 is the Primary Instrument Runway (PIR) and is designed to accommodate C-II aircraft. Runway 1-19 is 6,250 feet long and 100 feet. A blast pad, also known as an overrun, extends 150 feet beyond the Runway 1 and 19 thresholds to protect the ground from erosion during aircraft departures; it also serves as an emergency stopway for aircraft landing on Runway 1 and 19. The runway elevation slopes up from 453.55 feet above MSL at the Runway 1 end to 458.75 feet above MSL at the Runway 19 end (a 0.08% slope).

Runway 1-19 consists of asphalt pavement over base material. The load bearing capacity of the runway is 30,000 pounds for single wheel aircraft and 50,000 pounds for dual wheel aircraft. The runway was newly constructed in 2009. Runway 1-19 is equipped with medium intensity runway lights (MIRL) and threshold lights that define the edges and ends of the runway.

To aid pilots in judging the correct approach slope of the aircraft toward the touchdown zone of the runway in conditions of poor visibility and at night, both ends of Runway 1-19 are equipped with four-light Precision Approach Path Indicators (PAPI). A PAPI aids pilots in judging the correct approach slope of the aircraft toward the touchdown zone of the runway in conditions of poor visibility and at night. The PAPI has four light boxes installed in a single row instead of the far and near bars characteristic of a VASI. On Runway 1, the light boxes are spaced approximately 764 feet from the runway threshold. On Runway 19, the light bars are spaced approximately 908 feet from the threshold.

Runway 1-19 is marked as a non-precision instrument runway.

Table 1-3: Runway Characteristics

Runway Data	1-19	
Length (feet)	6,250	
Width (feet)	100	
Pavement Type	Asphalt	
Pavement Strength (lbs.) **Single Wheel** **Dual Wheel**	 30,000 50,000	
Marking	Non-Precision Instrument	
	RW 1	**RW 19**
Lighting **Runway** **Runway end/approach** **Centerline** **Touchdown Zone**	 MIRL -- -- --	 MIRL -- -- --
Approach Aids **Visual** **Electronic**	 PAPI-4 VORTAC DME (GPS)	 PAPI-4 VORTAC DME (GPS)
Approach Visibility Minimums	>1 ¼ Mi.	>1 ¼ Mi.
FAR Part 77 Category	Visual	Visual
Approach Slope	20:1	20:1

1.10. Taxiways

Taxiway A2 from Terminal Apron

As shown on **Figure 1-2** the taxiway system at the airport is comprised primarily of two taxiways aligned with primary Runway 1-19 and several connecting taxiways. **Table 1-4** summarizes the features of all existing taxiways.

Taxiway A is a full length parallel taxiway to Runway 1-19 with a centerline-to-centerline spacing of 1,050 feet from the runway. Taxiway A was formerly a runway, but was converted to a taxiway when the runway was relocated and lengthened. Taxiway B is also a full length parallel taxiway to Runway 1-19. Taxiway B has a centerline-to-centerline spacing of 1,300 feet from the runway and 250 feet from Taxiway A. Taxiways A1, A2, and A-3 serve as connecting taxiways connecting parallel Taxiways A and B to Runway 1-19. Connecting Taxiways C1 and C2 connect the apron to Taxiway B.

Taxiway A is 75 feet wide and Taxiway B is 50 feet wide. Connecting Taxiways A1, A2 and A3 are all 35 feet wide. Taxiway C1 is 50 feet wide and taxiway C2 is 40 feet wide. All taxiways are constructed of asphalt pavement. All taxiways are equipped with medium intensity taxiway lights (MITL).

The configuration of taxiways necessitates several 90 degree turns as aircraft taxi from the ends of Runway 1-19 to the terminal area. Airport users with larger aircraft have indicated difficulty in maneuvering the 35 feet wide sections of taxiway.

Table 1-4: Existing Taxiway Data

Taxiway	Width (Design Group)	Safety Area Width	Pavement Strength
TW A	75'(IV)	79'	30S;50D
TW B	50'(III)	79'	30S;50D
TW A1	35'(II)	79'	30S;50D
TW A2	35' (II)	79'	30S;50D
TW A3	35' (II)	79'	30S;50D
TW C1	50' (III)	79'	30S;50D
TW C2	40' (II)	79'	7.5S

1.11. Apron Areas

Transient Apron – Avi Suquilla Airport

The Avi Suquilla Airport has one apron area for public use. The apron is divided into two categories, based aircraft and transient, based on usage. These apron areas are listed in **Table 1-5** and are depicted in **Figure 1-2**.

Table 1-5

	Apron Area (Square Yards)	Tie Downs
Based Aircraft Apron	9,450	19
Transient Apron	33,700	58
TOTAL	**43,150**	**77**

The pilots' lounge / General Aviation Terminal is located in the center of the airfield west of Runway 1-19. The transient apron extends from the east façade of the pilots' lounge to the north and south and provides access for transient air traffic to and from the taxiways. The transient apron is approximately 33,700 square yards with 58 tie downs and is constructed of asphalt pavement.

The based aircraft apron to the south of the transient apron is approximately 9,450 square yards. Currently the based aircraft apron has a total of 19 aircraft tie downs.

Apron lighting consists of automobile street lights mounted on weathered wooden poles. The lights are served by overhead power lines which run parallel with the edge of the apron.

1.12. Pavement Conditions

A detailed pavement inspection survey was completed at Avi Suquilla Airport in 2010. The survey was performed using the Pavement Condition Index (PCI) methodology developed by the U.S. Army Corps of Engineers during the 1970s. The PCI is a numerical representation of the condition of a pavement section at the time of its inspection. An index of "100" indicates new pavement, while an index of "0" indicates pavement that has failed. Indices that fall between these numbers indicate proportionate pavement conditions. The PCI rating is primarily based on the accurate identification of certain visual indications of pavement distress and deterioration. The procedures for conducting these investigations are outlined in AC 150/5380-6A.

Figure 1-3 shows the strength of the airfield pavement by section. **Figure 1-4** depicts the age of the various sections of pavement on the airfield by age. The oldest sections of pavement, the based aircraft apron and two portions of Taxiway B, are more than 20 years old, followed by the transient apron, which is currently 9 years old. The runway and portions of Taxiways A1, A2 and A3 between the Runway and Taxiway A were newly constructed in 2009. Taxiway A and the end portions of Taxiway B were reconstructed in 2010.

The results of the survey are shown on **Figure 1-5**. Runway and taxiway pavements were rated in excellent condition with the exception of two sections of Taxiway B, which were found to be at the lower end of good condition, and Taxiway C2, a small section of pavement connecting the south end of the apron to Taxiway B, which was found to be in poor condition. Two sections of apron, the based aircraft apron around the T-hangars and the section extending behind the large hangar, were rated "fair" and "failed" respectively. The remainder of the apron is aging and in need of maintenance in the near term. The study recommended continued routine crack sealing, fog sealing, and shoulder and ditch grading on all pavements rated "good" and better. For the sections of apron and taxiway rated "fair" and worse, the study recommended a more substantive rehabilitation effort.

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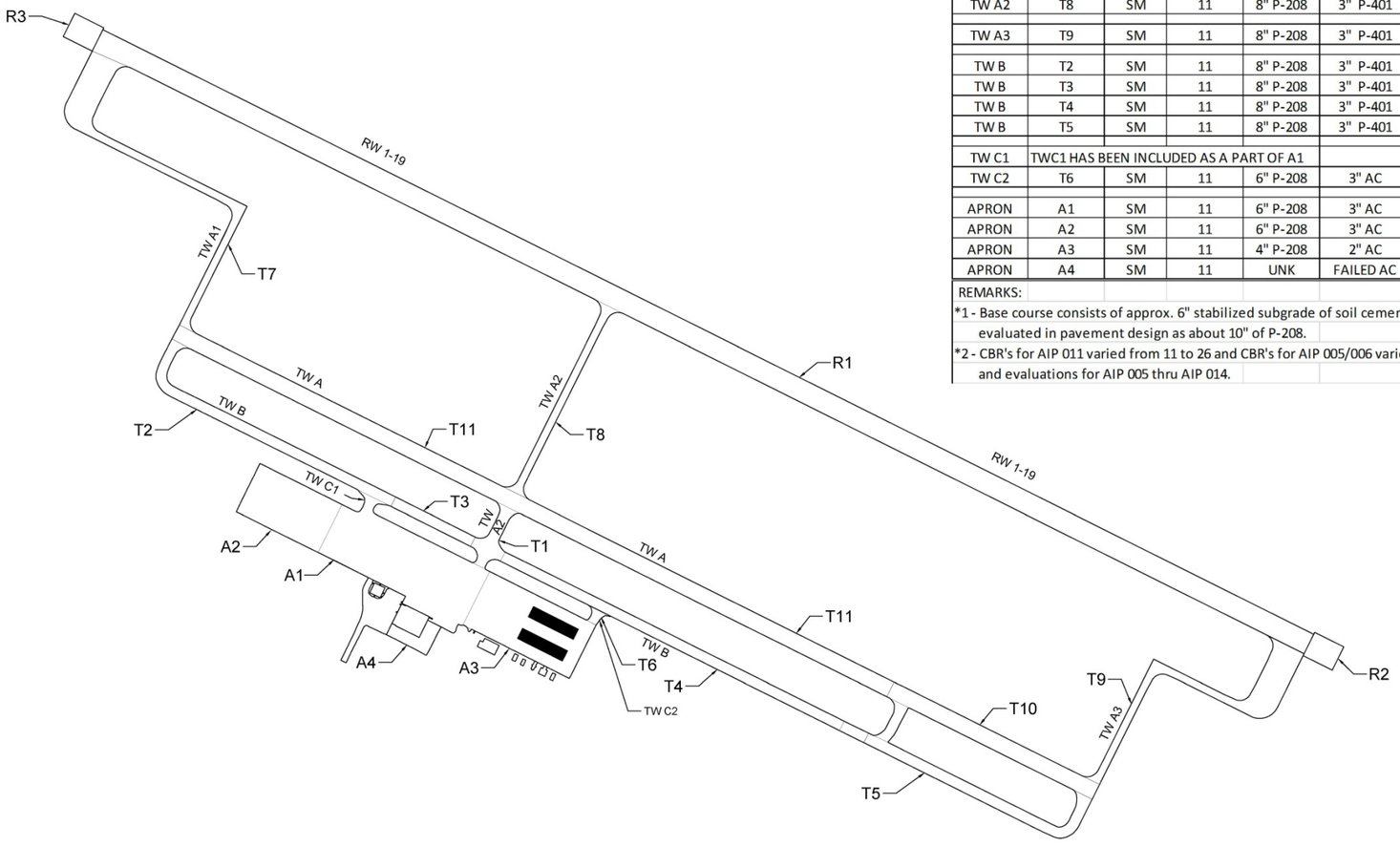


AVI SUQUILLA AIRPORT, PARKER ARIZONA
PAVEMENT STRENGTH SURVEY

PAVEMENT	BRANCH	SOIL CLASS	SUBGRADE CBR*2	BASE COURSE	SURFACE COURSE	OVERLAY	PAVEMENT STRENGTH, MAX. GROSS LOAD, SINGLE	DUAL	DUAL TANDEM	AIP 3-04-0026 AIP/YEAR
RW 1-19	R1	SM	11	8" P-208	3" P-401		30,000 lbs	50,000 lbs	-	AIP 011 / 2008
RW 1-19	R2	SM	11	8" P-208	3" P-401		30,000 lbs	50,000 lbs	-	AIP 011 / 2008
RW 1-19	R3	SM	11	8" P-208	3" P-401		30,000 lbs	50,000 lbs	-	AIP 011 / 2008
TW A	T10	SM	11	8" P-208	3" P-401		30,000 lbs	50,000 lbs	-	AIP 014 / 2010
TW A	T11	SM	11	*1	3" P-401		30,000 lbs	50,000 lbs	-	AIP 014 / 2010
TW A1	T7	SM	11	8" P-208	3" P-401		30,000 lbs	50,000 lbs	-	AIP 011 / 2008
TW A2	T1	SM	11	8" P-208	3" P-401		30,000 lbs	50,000 lbs	-	AIP 014 / 2010
TW A2	T8	SM	11	8" P-208	3" P-401		30,000 lbs	50,000 lbs	-	AIP 011 / 2008
TW A3	T9	SM	11	8" P-208	3" P-401		30,000 lbs	50,000 lbs	-	AIP 011 / 2008
TW B	T2	SM	11	8" P-208	3" P-401		30,000 lbs	50,000 lbs	-	AIP 014 / 2010
TW B	T3	SM	11	8" P-208	3" P-401		30,000 lbs	50,000 lbs	-	AIP 017 / 2011
TW B	T4	SM	11	8" P-208	3" P-401		30,000 lbs	50,000 lbs	-	AIP 017 / 2011
TW B	T5	SM	11	8" P-208	3" P-401		30,000 lbs	50,000 lbs	-	AIP 014 / 2010
TW C1	TWC1 HAS BEEN INCLUDED AS A PART OF A1								-	AIP 05-06 / 2003
TW C2	T6	SM	11	6" P-208	3" AC		12,500 lbs	-	-	AIP 017 / 2011
APRON	A1	SM	11	6" P-208	3" AC		30,000 lbs	-	-	AIP 05-06 / 2003
APRON	A2	SM	11	6" P-208	3" AC		30,000 lbs	-	-	AIP 05-06 / 2003
APRON	A3	SM	11	4" P-208	2" AC		4,000 lbs	-	-	AIP 003 / 1993
APRON	A4	SM	11	UNK	FAILED AC		4,000 lbs	-	-	1970±

REMARKS:
*1 - Base course consists of approx. 6" stabilized subgrade of soil cement (construction date unknown), underneath minimum 4" P-208 -2010 const. evaluated in pavement design as about 10" of P-208.
*2 - CBR's for AIP 011 varied from 11 to 26 and CBR's for AIP 005/006 varied from 8 to 20. A CBR of 11 has been used for pavement design and and evaluations for AIP 005 thru AIP 014.

Figure 1-3 Pavement Strength

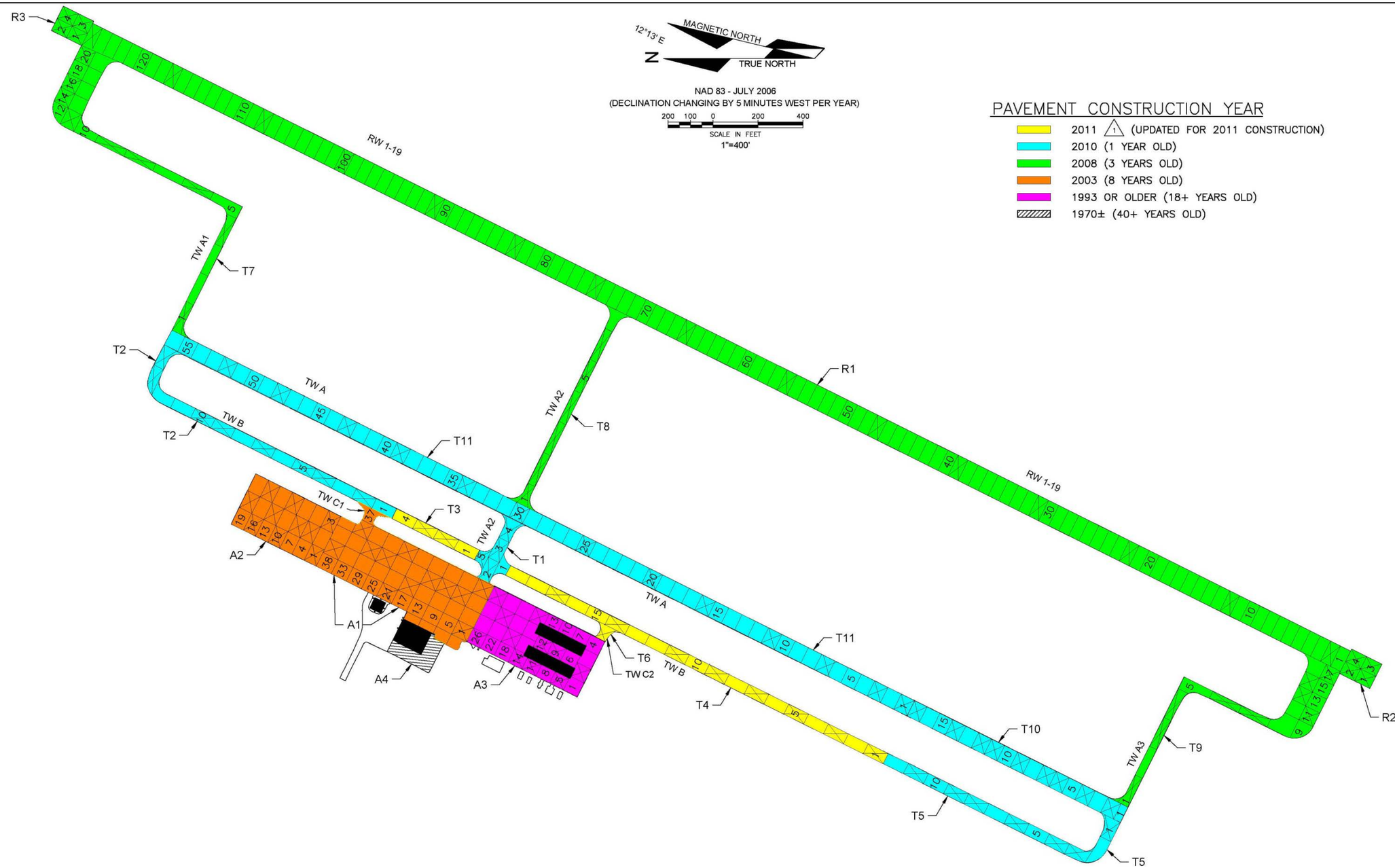
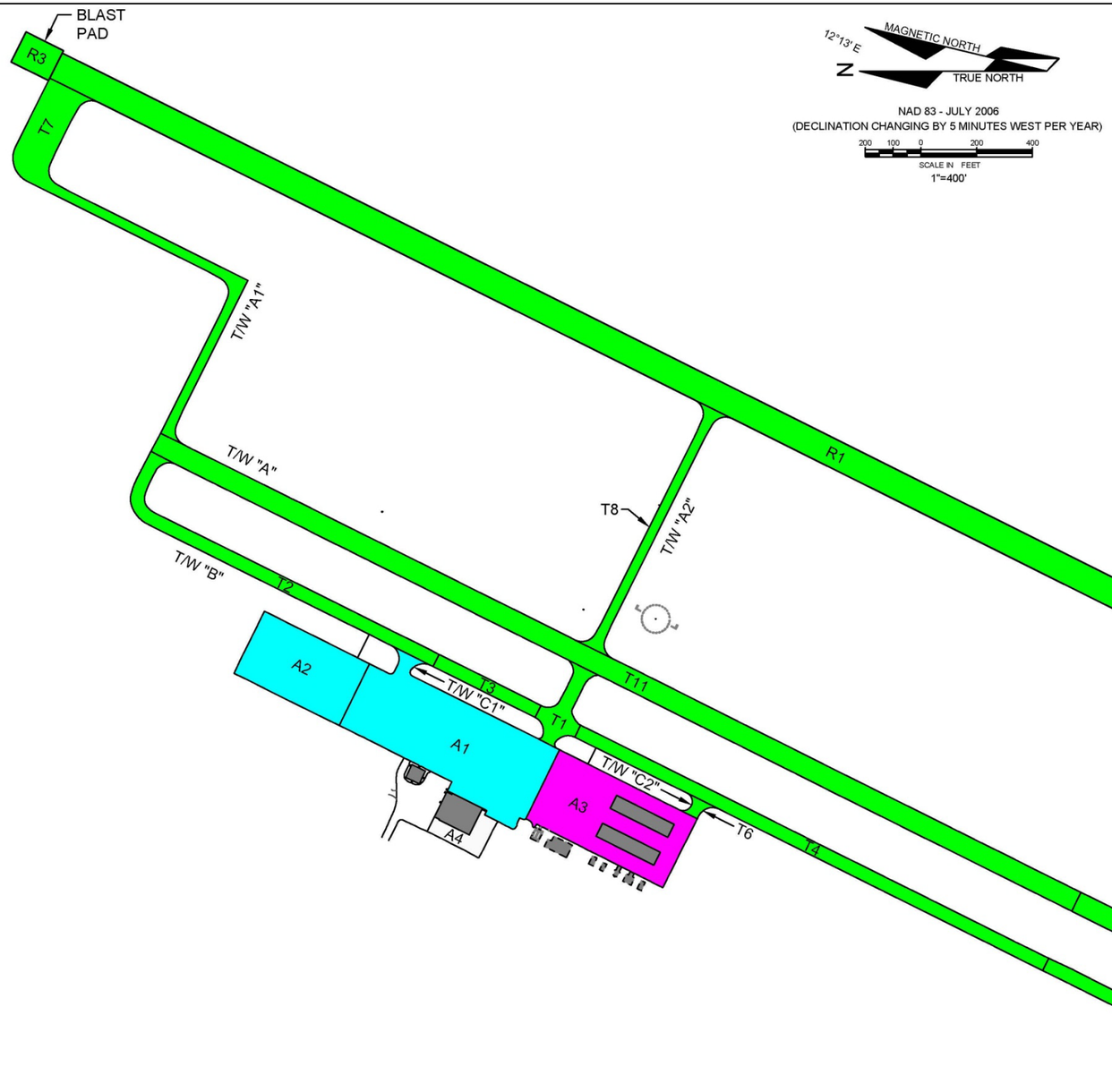


Figure 1-4 Pavement Age



2011 PCI Data				
BRANCH	SECTION	PCI	CONDITION	LAST CONSTRUCTION
RW 1-19	R1	100	EXCELLENT	2008
RW 1-19	R2	100	EXCELLENT	2008
RW 1-19	R3	100	EXCELLENT	2008
TW A	T10	100	EXCELLENT	2010
TW A	T11	100	EXCELLENT	2010
TW A1	T7	100	EXCELLENT	2008
TWA2	T8	100	EXCELLENT	2008
TWA2	T1	100	EXCELLENT	2010
TWA3	T9	100	EXCELLENT	2008
TW B	T2	100	EXCELLENT	2010
TW B	T3	100	GOOD	2011
TW B	T4	100	GOOD	2011
TW B	T5	100	EXCELLENT	2010
TW C1	INCLUDED IN A1			2003
TW C2	T6	100	EXELLENT	2011
APRON	A1	69	GOOD	2003
APRON	A2	70	GOOD	2003
APRON	A3	51	FAIR	1993
APRON	A4	10	FAILED	1970±

PCI LEGEND		
COLOR	PCI RANGE	RATING
	86 - 100	EXCELLENT
	71 - 85	VERY GOOD
	56 - 70	GOOD
	41 - 55	FAIR
	26 - 40	POOR
	11 - 25	VERY POOR
	0 - 10	FAILED

Figure 1-5 Pavement Condition

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1.13. Landside Facilities

Avi Suquilla Airport currently covers approximately 744 acres. Landside facilities at the airport include all areas not considered part of the previously discussed airfield system. Existing landside facilities include the GA terminal building/pilots lounge, automobile parking and vehicular access as well as general aviation, airport support, and non-aviation related commercial and industrial tenants.

The GA terminal and associated parking facilities are shown on **Figure 1-6**. Services associated with the GA terminal area include automobile parking, pilot services, fuel sales and aircraft storage.

1.14. Pilots' Lounge / GA Terminal / Administration Office

An approximately 1,500 square foot building serves the multiple functions of pilots' lounge, FBO office and airport administration office. The building is of block construction and was constructed in the early 1960's.

A sketch of the GA Terminal's layout is shown on **Figure 1-7**. The building consists of three primary functional areas within the 1,500 square foot space; a pilots' lounge, FBO counter and airport manager's office. Airport administration meetings involving groups must be conducted in the pilots' lounge space.

CRIT has plans to remodel the interior of the GA terminal to utilize the existing space more efficiently.

The building has no insulation except in the ceiling and its windows are all single pane. With summer temperatures frequently in excess of 110 degrees Fahrenheit, it is often impossible to cool the inside of the building below 90 degrees.

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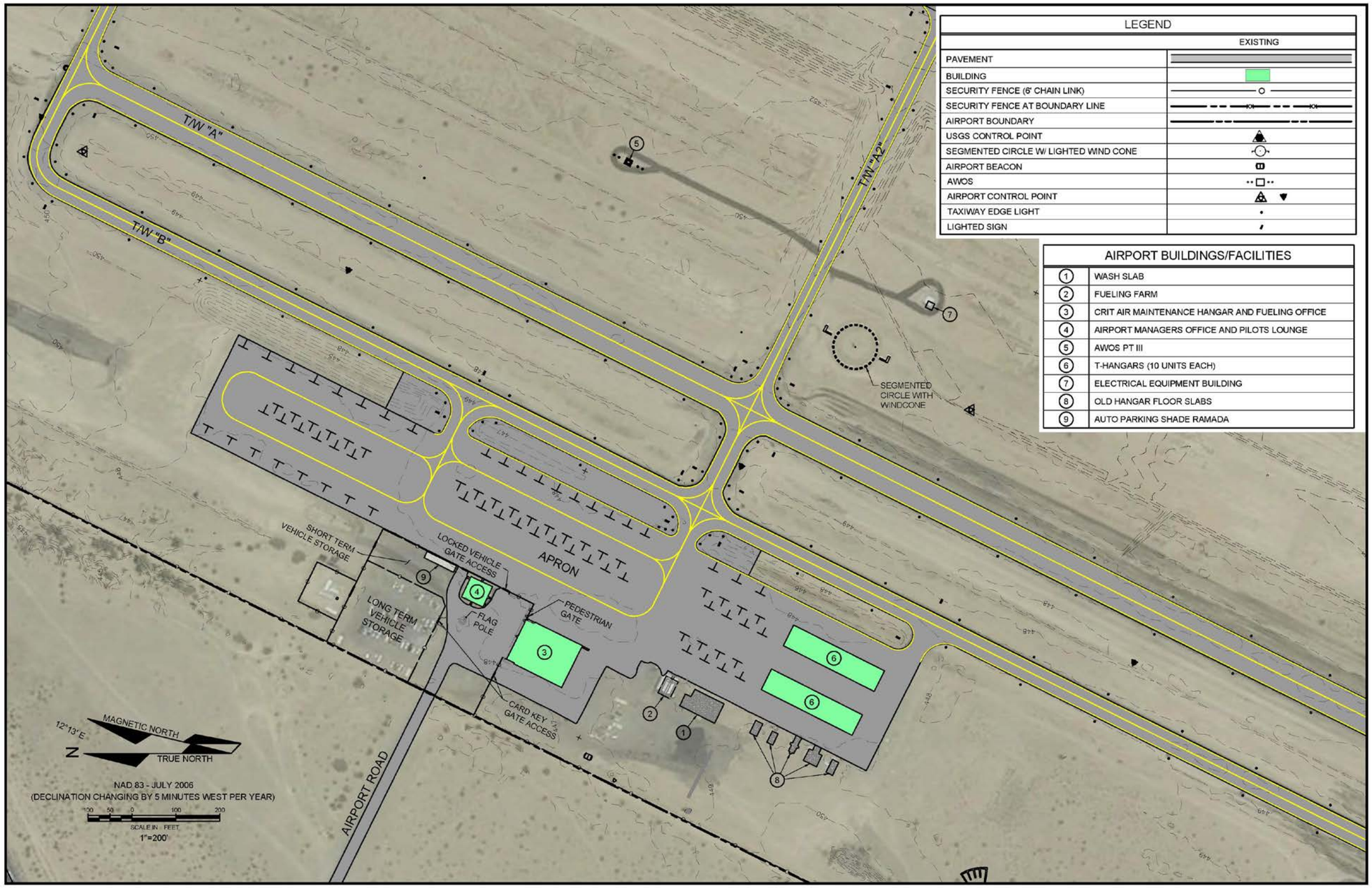

Figure 1-6: Terminal Area

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GA Terminal / Pilots Lounge Exterior

GA Pilots Lounge Area

FBO Office Administers Fuel Sales and Hangar/Tiedown Rentals

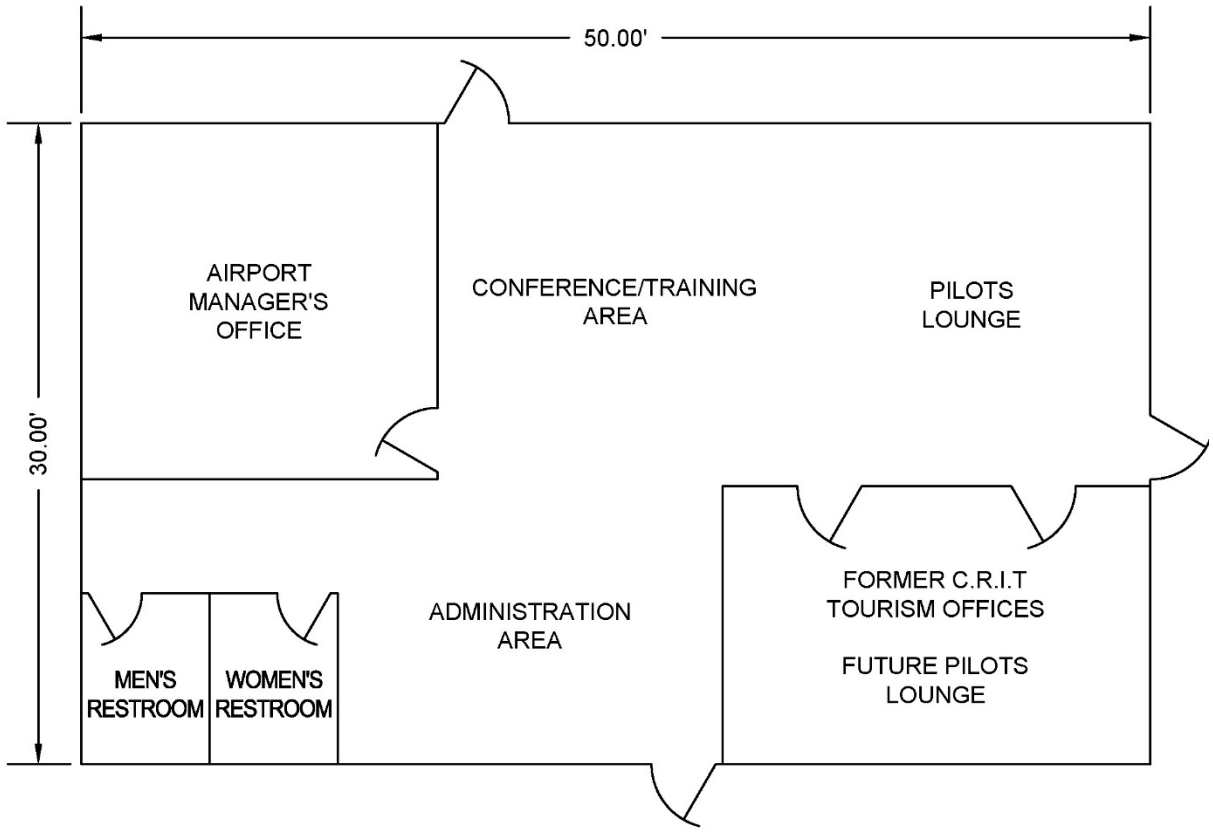


Figure 1-7, GA Terminal Floor Plan

1.15. Access and Parking

Access to the terminal is currently from Riverside Drive. Airport Road, approximately ¼ mile long, connects Riverside Drive with the GA terminal parking lot. The road is in poor condition. Signage to the airport from Riverside Drive is limited to a single 24" x 24" way finding sign.

A small visitors parking area is located north of the GA Terminal. Spaces are unmarked, however it is estimated that there is space for approximately 15 vehicles. At the present time, rainfall runoff from a portion of the aircraft apron and public parking lot floods the Terminal and main hangar buildings. Although average annual rainfall at the airport is in the two to four inch range, it is not uncommon for intense localized summer monsoon thunder storms to drop up to an inch of rainfall in less than an hour. An August, 2012 storm (3/4" in about 25 minutes) completely overwhelmed the capacity of the parking lot to the drain the surface runoff, resulting in flooding of the hangar and terminal buildings.

The airport also has two lots which it leases for vehicle storage at a market rate for revenue generation to support the airport's financial self-sufficiency; an unfenced, covered parking area for short term vehicle storage and an unpaved, fenced parking lot for long term vehicle storage. Spaces are not marked, however, it is estimated that the long term lot has space for 60 to 70 vehicles. The Ramada covering the short term parking area has space for eight vehicles.

Short Term Covered Parking

Long Term Parking

1.16. General Aviation Facilities

General Aviation facilities are located on the northwest side of the airfield fronting Taxiway B. CRIT Air, owned by the Colorado River Indian Tribes, is the airport's sole fixed base operator (FBO). CRIT Air offers fueling, hangar storage and tie-down storage and has personnel on duty seven days a week from 8:00am to 5:00pm. Limited maintenance services are available through a part time on-call contract provider.

Fuel Sales

As noted, CRIT Air provides fuel sales on the Avi Suquilla Airport. CRIT Air provides both avgas and jet fuel. The historic fuel sales since 2008 are summarized on **Table 1-6**.

Table 1-6: Historic Fuel Sales

YEAR	AV Gas	Jet A	TOTAL	% CHANGE
2008	23,669.9	39,176.5	62,846.4	
2009	25,837.5	41,952.5	67,790.0	7.9
2010	25,005.4	30,360.0	55,365.4	-18.3
2011	25,669.8	22,593.0	48,262.8	-12.8
****2012**	24,809.7	32,708.9	57,518.6	19.2

** Projected based on 5 months of sales

The fuel farm consists of two above ground tanks, one 12,000 gallon jet fuel tank and one 12,000 gallon avgas tank. The tank system was constructed to auto fueling standards with minimal engineering and is poorly designed for aviation use. The facility lacks a number of features typically standard to aviation fuel farms including spill containment facilities, inbound pumping, inbound filtration, proper low point sumping mechanisms, and design provisions for system maintenance (the canopy is too low to perform maintenance, there are no openings to pull pumps). Fueling capacity is 23 gallons per minute, which is very low for an aviation fueling facility. The fuel farm also lacks security fencing.

Fuel is delivered to aircraft with two fuel trucks, a 1,200 gallon capacity AvGas truck and a 1,000 gallon capacity truck for jet fuel. Both vehicles are designed for over wing fueling. The airport does not have the ability to provide underwing, or "single-point" fueling, which is needed to fuel larger capacity jet aircraft in a reasonable timeframe. CRIT Air staff indicates that limited capacities of the fuel truck tanks, together with the lack of single point fueling capability have turned away revenue from potential military and larger jet fuel customers. There is no spill containment in the fuel truck parking area.

Hangar and Tie-Down Leases

There are currently 3 hangar buildings on the airport. There are 2 units of nested T-hangars (approximately 12,000 sf. each), which each contain 10 units, for a total of 20 units. There is also one large hangar (approximately 12,000 sf. of hangar area with a 2,000 sf. one story lean-to office area), known as the CRIT hangar, that currently stores 4 aircraft. All hangars are of metal construction. The pavement around the CRIT hangar is higher than the floor of the building containing a hangar and airport office. Consequently, this structure floods whenever it rains with runoff from the parking lot.

The based aircraft ramp on general aviation ramp on the south side of the airfield has a total of 19 aircraft tie downs. 13 tie down spaces are currently leased on a monthly basis.

1.17. Support Facilities

Airport Rescue and Fire Fighting

The Avi Suquilla Airport does not currently have Airport Rescue and Fire Fighting (ARFF) facilities or equipment. Fire protection is provided by the CRIT Fire Department (primary response) and by the Parker Fire Department (secondary response). The Town of Parker Fire Department is located approximately 10 minutes from the airport. The CRIT Fire Department is located in Poston within a 20 minute drive of the airport. Currently, there are not any water mains or fire hydrants protecting the aircraft parking area, terminal or hangars at the airport. The closest fire hydrant is at a shopping center at the intersection of Airport Road and Highway 95, which is about 1,400 feet away from the closest aircraft parked on the GA Apron. The National Fire Protection Association (NFPA) provides guidance for the protection of structures on airports. The spacing of fire hydrants is governed by the capabilities of local fire departments with fire hydrant spacing's of 300 feet in commercial areas and 600 feet in single family residential areas generally accepted maximum distances. The Department of Defense Unified Facilities Criteria provides additional guidance for the spacing of fire hydrants in aircraft parking and fueling areas, generally using a 300 foot spacing and a minimum fire flow of 1000 gpm.

Airport Security

A 6 foot tall perimeter security fence was installed around the airport boundary in 2006. Access into the terminal area is made through a chain link swing gate on Airport Road, which is left unlocked. A 6 foot high chain link fence provides a physical barrier between the terminal and airfield areas. Access to the airfield can be made through this chain link fence via a vehicle gate and/or a pedestrian gate. The vehicle gate is locked with a keypad.

The CRIT Police Department provides police protection on the airport. The CRIT Police Department is also responsible for providing law enforcement on the reservation. Because limited police resources are committed to the entire reservation, routine surveillance of the airport is limited.

1.18. On-Airport Utilities

Water
Potable water is supplied to the west side of the Airport by the CRIT Utility Department. Water is distributed to the Airport via a two (2) inch water line which runs from its connection to the main CRIT transmission line at the Parker Cemetery to a meter box to the west of the CRIT Hangar. It was discovered by the airport during the construction of the AIP 019 project that portions of the water line are constructed of Schedule 40 electrical conduit which is not approved for domestic water use. In addition, the service line is undersized for domestic use and does not provide fire protection. The line provides domestic service to the GA Terminal, CRIT Hangar, a hose bib near the fuel farm and hose bibs at the T-Hangars for aircraft washing.

Sanitary Sewer
The airport is not served by a sanitary sewer service. Both the GA Terminal and the Hangar are on a joint septic tank and drain field. The nearest gravity sanitary sewer line is in the far southerly parking lot of the shopping center west of the airport. There is also a 16 inch force main line which parallels old SR 95 and connects to the gravity system in Wal-Mart parking lot west of the current alignment of SR 95.

Electricity
Electrical power is supplied to the Airport by the Bureau of Indian Affairs (BIA) Branch of Electrical Services. Although a single line feeds the west side of the airport, there are currently four electrical meters serving the office, hangar and other facilities. The Airfield Electrical Vault is served by a BIA electrical line located on the east side of the Airport.

Telephone
Telephone service to the Airport is provided by Verizon. Internet service is provided to the three computers in the GA terminal by use of Verizon wireless cards.

Gas
There is no natural gas service at the Airport; however, the Southwest Gas Corporation has a 6-inch gas line which formerly crossed airport property and now located at the south end of the airport outside of the future airport boundary. The BlueWater Casino has connected to the Southwest Gas line near the southwest corner of the Airport. The Casino gas line parallels the west airport property line and could be accessed for service in the future with the permission of the Casino.

1.19. FAR Part 77 Surfaces and Runway Protection Zones

FAR Part 77 Objects Affecting Navigable Airspace applies to all civil airports under the jurisdiction of the FAA and provides standards to determine obstructions in navigable airspace. **Figure 1-8** shows the existing Part 77 airspace surface structure at Avi Suquilla Airport.

Subpart C of FAR Part 77 defines obstruction standards and establishes imaginary surfaces with relation to an airport and each runway. The size of each imaginary surface is based on the category of each runway and the type of approach available or planned for that runway. Runway 1-19 at Avi Suquilla Airport is categorized as a visual runway for larger than utility aircraft by Part 77 definitions. The imaginary surfaces that apply to Avi Suquilla include the Primary, Approach, Horizontal, Transitional and Conical surfaces. The following paragraphs define these surfaces.

The Primary Surface is longitudinally centered on the runway. For runways with a specially prepared hard surface, it extends 200 feet beyond each runway end. For all other runways with no hard surface it ends at the end of the runway. The primary surface for Avi Suquilla Airport is 500 feet wide.

The Approach Surfaces are trapezoidal in shape, are longitudinally centered on the extended runway centerline and extend outward and upward from each end of the primary surface. The beginning width of the Approach Surfaces is the same width as the primary surface. The approach surfaces for Runways 1 and 19 extend to a width of 1,500 feet at a distance 5,000 feet from its beginning. The approach slope for Runways 1 and 19 extend outward and upward at a slope of 20:1.

The Horizontal Surface is a horizontal plane 150 feet above the established airport elevation or 608.4 feet MSL (458.4 + 150). The perimeter of the surface is constructed by swinging 5,000 foot arcs from the center of the end of the primary surfaces for Runway 1-19 and by connecting each arc with tangent lines.

The Transitional Surfaces extend outward and upward at right angles from the primary and approach surfaces at a slope of 7:1 to 150 feet AGL. The Conical Surface extends outward from the Horizontal Surface 4,000 feet at a slope of 20:1.

Each runway end has a “Runway Protection Zone” (RPZ) which is trapezoidal in shape and centered on the extended runway centerline. The RPZ’s function is to enhance the protection of people and property on the ground. Control is preferably exercised through the acquisition of sufficient property interest in the RPZ. The FAA recommends that the airport sponsor own these designated land areas in fee simple terms.

The RPZs for Runway 1-19 are depicted on **Figure 1-2**. The RPZ for Runway 1 is 1000 feet wide at its narrow end, 1510 feet wide at its wide end and is 1700 feet long. The RPZ for Runway 19 is the same as Runway 01.

AIRPORT SURFACE DATA

ITEM	DIMENSIONAL STANDARDS (FEET)					
	VISUAL RUNWAY		NON–PRECISION INSTRUMENT RUNWAY			PRECISION INSTRUMENT RUNWAY
	A	B	A	B		
				C	D	
WIDTH OF PRIMARY SURFACE AND APPROACH SURFACE WIDTH AT INNER END.	250	500	500	500	1,000	1,000
RADIUS OF HORIZONTAL SURFACE	5,000	5,000	5,000	10,000	10,000	10,000
	VISUAL APPROACH		NON–PRECISION INSTRUMENT APPROACH			PRECISION INSTRUMENT APPROACH
	A	B	A	B		
				C	D	
APPROACH SURFACE WIDTH AT END	1,250	1,500	2,000	3,500	4,000	16,000
APPROACH SURFACE LENGTH	5,000	5,000	5,000	10,000	10,000	a
APPROACH SLOPE	20:1	20:1	20:1	34:1	34:1	a

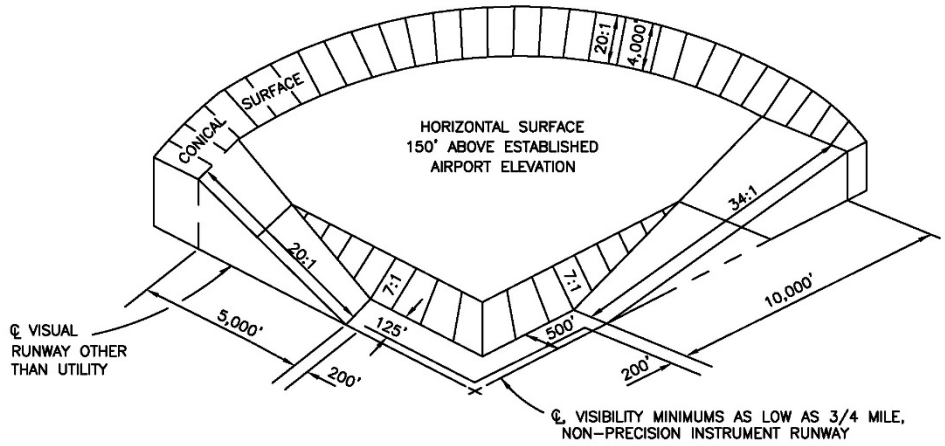
A– UTILITY RUNWAYS.

B– RUNWAYS LARGER THAN UTILITY (EXISTING VISUAL).

C– VISIBILITY MINIMUMS GREATER THAN 3/4 MILE.

D– VISIBILITY MINIMUMS AS LOW AS 3/4 MILE (ULTIMATE).

a PRECISION INSTRUMENT APPROACH SLOPE IS 50:1 FOR INNER 10,000 FEET AND 40:1 FOR AN ADDITIONAL 40,000 FEET.



TYPICAL CIVIL AIRPORT
IMAGINARY SURFACES DETAIL

Figure 1-8 FAR Part 77 Imaginary Airspace Surfaces

1.20. Airspace

Aircraft operating to or from an airport do so under either Visual Flight Rules (VFR) or Instrument Flight Rules (IFR). VFR governs the procedures for flying under visual conditions, when a pilot is able to safely control and navigate an aircraft by visual reference to the environment outside of the cockpit. Meteorological conditions that meet the minimum requirements for VFR flight are called visual meteorological conditions (VMC)[2] Conditions that do not meet the minimum requirements for VFR flight are called instrument meteorological conditions (IMC), under which a flight may only operate under IFR. IFR are a set of regulations and procedures for flying aircraft whereby navigation and obstacle clearance is maintained with reference to aircraft instruments only, while separation from other aircraft is provided by the air traffic control.

1.21. Air Traffic Control

No air traffic control facilities are available at the airport. There is no requirement for pilots to communicate with any air traffic control facility while operating at the airport.

1.22. Airport Traffic Patterns

The airport currently operates as a non-towered general aviation airport, and as such, has a single circular shaped airport traffic pattern which is situated above the airport. Runway 1 has a standard left-hand VFR airport traffic pattern. Runway 19, for overflight avoidance purposes, has a right-hand VFR airport traffic pattern. Airport pattern altitude is 800 feet above the airport's 458 foot MSL elevation.

1.23. VFR Operations

Operations to and from the airport during VMC conditions are conducted under basic VFR. The airport is depicted on the Phoenix Sectional Aeronautical Chart. **Figure 1-10**.

1.24. IFR Operations

One instrument approach is available to pilots operating under IMC when cloud ceiling heights are equal to or greater than 1448 feet above the airport elevation and/or horizontal visibility is equal to or greater than 1.25 miles. The details for the VOR/DME or GPS-A approach is summarized in **Table 1-7**. There is no straight-in instrument approach approved for the airport at this time. The VOR/DME or GPS-A approach is considered a circling approach only, which allows pilots to approach the airport and then land on the runway most closely aligned with the current winds.

1.25. Airspace Structure

Airspace in the United States is classified as controlled, uncontrolled, or special use. Controlled airspace encompasses those areas where there are specific certification, communication and navigation equipment requirements that pilots and aircraft must meet to operate in that airspace. Airspace is classified as Class A, B, C, D, E, G or special use airspace.

[2] AC 150/5060, Airport Capacity and Delay, defines VMC as a cloud ceiling height of at least 1,000 feet above ground level (AGL) and visibility greater than three nautical miles (nm). IMC is defined as a ceiling height less than 1,000 feet AGL and visibility less than three nm.

Avi Suquilla Airport is located under Class E, airspace with a floor 700 feet above the surface of the ground extending to 18,000 feet MSL. Class E airspace is controlled airspace that encompasses all instrument approach procedures and low altitude federal airways. Only aircraft conducting instrument flights are required to be in contact with air traffic control when operating in Class E Airspace.

Several Military Operating Areas (MOAs) are regionally associated with the Avi Suquilla Airport. MOAs consist of airspace of defined vertical and lateral limits established for the purpose of separating certain military training activities from Instrument Flight Rules (IFR) traffic. Whenever an MOA is being used, nonparticipating IFR traffic may be cleared through an MOA if IFR separation can be provided by Air Traffic Control (ATC). Otherwise, ATC will reroute or restrict nonparticipating IFR traffic.

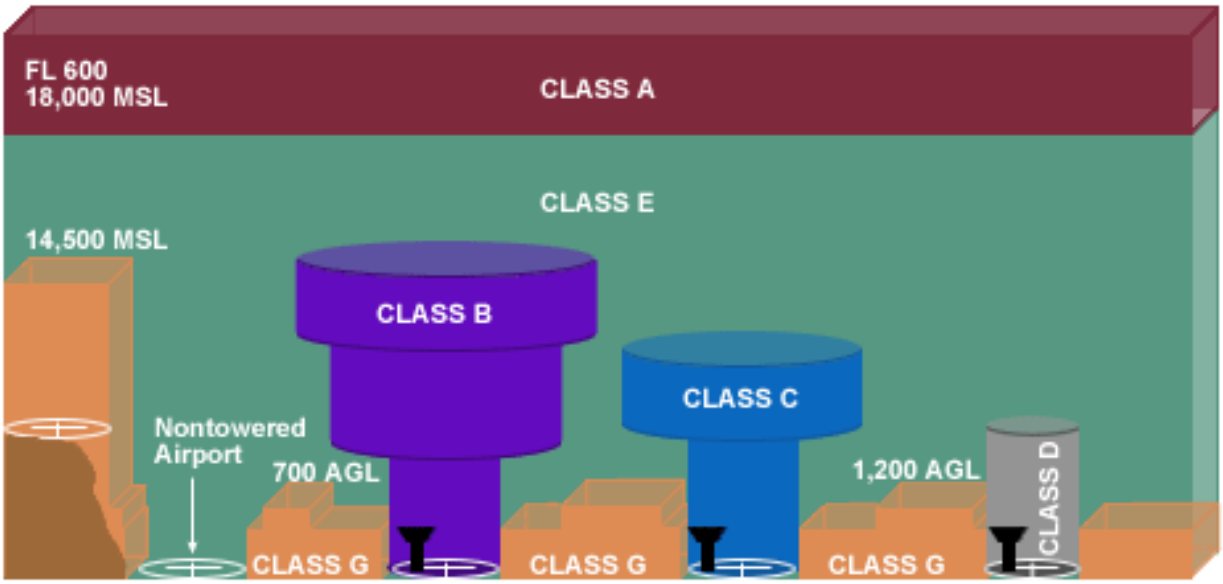
Most military training activities require acrobatic or abrupt flight maneuvers. Therefore, military pilots conducting flights in Department of Defense aircraft within a designated and active MOA are exempt from the provisions of FAR 91.71(c) and (d) which prohibit acrobatic flight within federal airways and control zones.

Pilots operating under Visual Flight Rules (VFR) should exercise extreme caution while flying within an MOA when military exercises are being conducted. Information regarding activity in MOAs may be obtained from Arizona or California Flight Service Stations (FSS) in the vicinity. Prior to flying through an MOA, FAA recommends that the pilot contact the controlling agency for traffic advisories. The south end of the runway at Avi Suquilla Airport is less than 1 mile north of the northern boundary of the Quail MOA. However, the Quail MOA begins at 10,000 feet MSL and continues upward to the floor of the positive control area at 18,000 feet MSL.

Three other MOAs are located near Parker, the Turtle MOA, approximately 10 miles north-northwest at the nearest point, Bagdad 1 MOA about 16 miles northeast and Gladden 1 Alpha MOA about 16 miles southeast.

Other controlled airspace associated with the airport are the federal “Victor” airways. A Victor airway is an imaginary corridor which is based on a centerline that extends from one navigational aid (NAVAID) or intersection to another NAVAID specified for that airway. The centerline is shown on aeronautic charts along with the magnetic course and the airway’s identity. Each airway includes airspace within parallel boundary lines which are normally 4 nautical miles each side of the centerline extending from 1,200 feet above ground level (unless a higher altitude is indicated) upward to, but not including, 18,000 feet MSL. In as much as a federal airway is controlled airspace, VFR flight within the airway requires distinct weather minimums. Acrobatic flight is not permitted in an airway or control zone.

The airway most closely associated with the Avi Suquilla Airport is Victor 135 located west of the Airport in a north-south fashion as described by the Blythe, Parker, and Needles VORTACs. Victor 135 has a designated ceiling of 9,000 feet MSL south of Parker VORTAC, and 10,000 feet MSL between the Parker and Needles VORTACs.



Airspace Features	Class A	Class B	Class C	Class D	Class E	Class G
ATC Facility	ARTCC	TRACON	TRACON or ATCT	ATCT	ARTCC	None
Operations Permitted	IFR	IFR & VFR	IFR & VFR	IFR & VFR	IFR & VFR	IFR & VFR
Entry Requirements	ATC Clearance	ATC Clearance	ATC Clearance for IFR. All require radio contact	ATC Clearance for IFR. All require radio contact	ATC Clearance for IFR. All require radio contact	None
VFR Minimum Distance from Clouds	N/A	Clear of clouds	500' below, 1,000' above, and 2000' horizontal	500' below, 1,000' above, and 2000' horizontal	500' below, 1,000' above, and 2000' horizontal	Clear of clouds
Aircraft Separation	All	All	IFR, SVFR, and runway operations	IFR, SVFR, and runway operations	IFR and SVFR	None

Courtesy of FAA

Figure 1-9 Airspace Classification

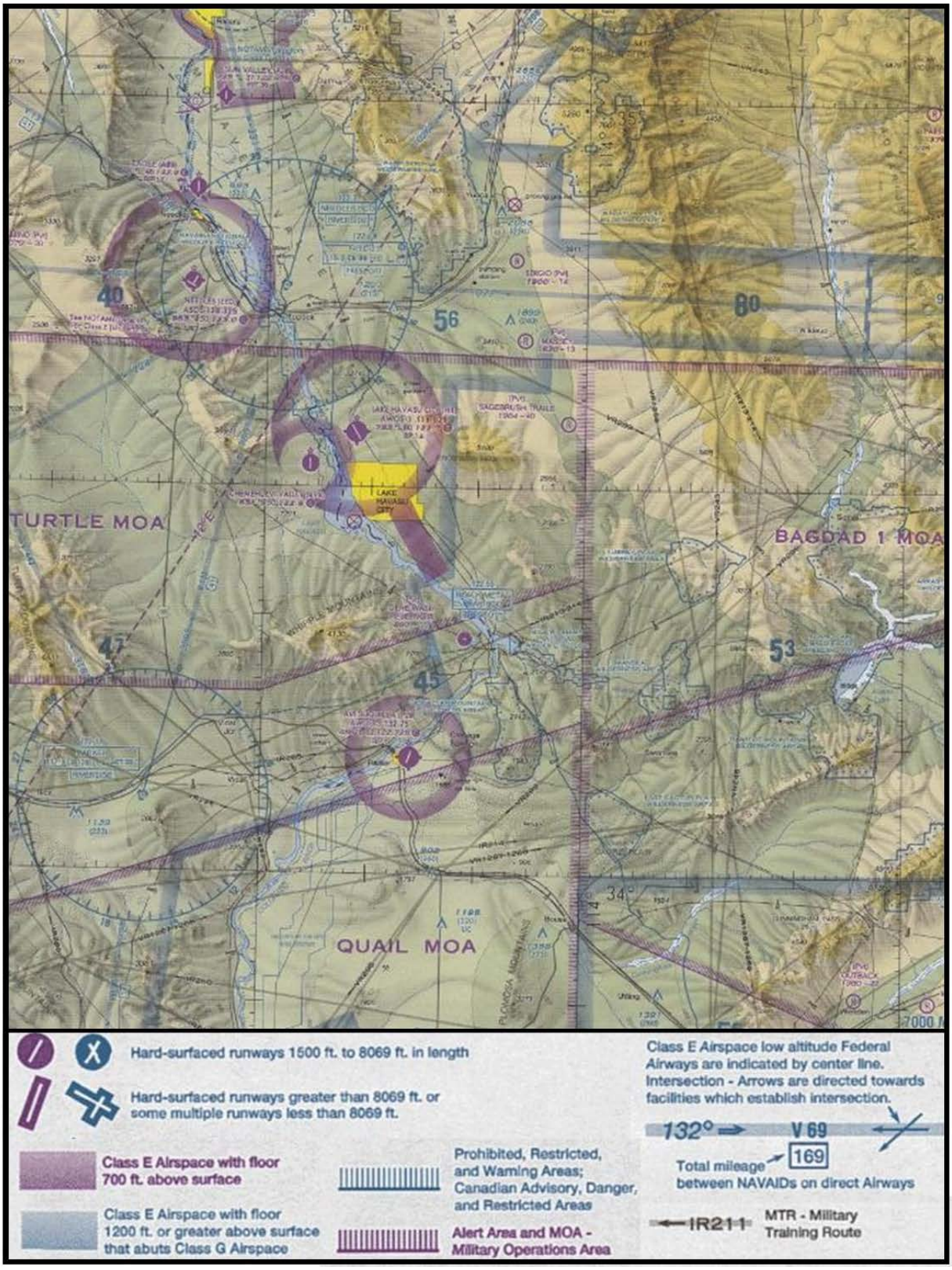


Figure 1-10 Sectional Chart

1.26. Navigational Aids, Radio Communication, Weather Aids

As noted above, the airport and terminal area navigational aids include Very-High-Frequency Omnirange Equipment (VOR) with Tactical Air Navigation (TACAN), commonly called a VORTAC. This ground based, electronic navigation system, provides both azimuth (directional) and distance information usable by both civilian and military aircraft. The Parker VORTAC is located approximately 20 nautical miles west of Avi Suquilla Airport and serves as the fix establishing a published circling approach to the airport.

Global Positioning Systems (GPS) is an additional navigational aid for pilots' enroute to the airport. GPS was initially developed by the United States Department of Defense for military navigation around the world. Increasing, over the last few years, GPS has been utilized more in civilian aircraft. GPS uses satellites placed in orbit around the globe to transmit electronic signals which properly equipped aircraft use to determine altitude, speed, and navigational information. With GPS, pilots can directly navigate to any airport in the country and are not required to navigate using a specific navigational facility.

Visual navigational aids are also provided at the airport. In addition to Medium Intensity Runway Lights (MIRL), Runway 1-19 has four box Precision Approach Path Indicators (PAPI) at both the Runway 1 and 19 approaches. A PAPI is a system of lights which indicate to pilots whether they are above, below or on the designated descent path to the runway.

The airport also provides a clear and green rotating beacon, compass calibration pad, lighted wind cone and segmented circle onsite.

CRIT Air operates the field UNICOM on a frequency of 122.725 MHZ. UNICOM is a non-government communications facility which may provide airport information for non-air traffic control purposes. Airport traffic advisories may be available to pilots via the use of the UNICOM radio frequency. All Pilots are encouraged by the FAA to utilize the UNICOM Radio service.

The airport is equipped with an Automated Weather Observation System III (AWOS-III). An AWOS automatically records weather conditions such as wind speed, wind gusts, wind direction, temperature, dew point, altimeter setting, and density altitude. In addition, the AWOS-III will record visibility, precipitation, and cloud height. This information is then transmitted at regular intervals on radio frequency 132.75 MHz. In addition, the same information is available through a dial-in telephone number (928-669-2160). The AWOS is located approximately 600 feet west of Runway 1-19 north of Taxiway A2.

1.27. Instrument Approach Procedures

One instrument approach has been approved for the Avi Suquilla Airport. The details for the VOR/DME or GPS-A approach is summarized in **Table 1-7**. There is no straight-in instrument approach approved for the airport at this time. The VOR/DME or GPS-A approach is considered a circling approach only, which allows pilots to approach the airport and then land on the runway most closely aligned with the current winds.

Table 1-7: Instrument Approach Data, Avi Suquilla Airport

	Category A		Category B		Category C		Category D	
Approach Speed (Knots)	0-90		91-120		121-140		141-165	
	Cloud Height (feet AGL)	Visibility (miles)	Cloud Height (feet AGL)	Visibility (miles)	Cloud Height (feet AGL)	Visibility (miles)	Cloud Height (feet AGL)	Visibility (miles)
Circling	1448	1.25	1448	1.5	1448	3	NA	NA

Source: U.S. Terminal Procedures, SW-4 (April 2012)

1.28. Community Profile

The Avi Suquilla Airport serves an area that includes the Town of Parker, La Paz County, the Colorado River Indian Reservation and San Bernardino County California. In order to provide a general look at the socioeconomic makeup of the community that utilizes the airport, the following sections will examine demographic and economic information from local, state and federal sources.

1.28.1 Population

La Paz County encompasses 4,499 square miles of land, of which 9 percent is the Colorado River Indian Tribes' reservation and 4 percent is privately held. The majority of the land, 87 percent, is controlled by various public agencies which include the Bureau of Land Management (BLM), and the State of Arizona. This fact, coupled with the region's rugged terrain, attributes to the relatively low growth in population in La Paz County over the last 20 years. As shown in **Table 1-8**, the population in La Paz County since 1990 has increased at an average annual rate of 2.4 percent versus 3.7 percent for the State of Arizona. The Town of Parker's average annual growth rate has been even less, at 0.3 percent, which may be attributable to the limitations of available land within the town limits. However, much of the growth in the Parker area is projected to take place outside the town limits. **Table 1-9**, shows the Arizona Department of Commerce projections for average annual growth over the next 20 years for Census Designated Places (CCPs) in the Parker Census County Division (CCD).

Most Native Americans residing within La Paz County belong to the Colorado River Indian Tribes (CRIT) and live on the reservation. The CRIT reservation spans three counties in two states (La Paz County in Arizona and Riverside and San Bernardino Counties in California) and was created in 1865 by the federal government for the Chemehuevi and the Mohave tribes who have lived in the region for centuries. In more recent years, the federal government relocated members of the Hopi and the Navajo tribes to the CRIT reservation. CRIT, therefore, actually consists of the four distinct tribes named above. CRIT has approximately 3,500 active members.[3] Additionally, many other people live on CRIT reservation land, including other Native Americans who are not registered as CRIT members, people of Hispanic or Latino ethnicity, and White persons.

[3] Colorado River Indian Tribes Website: http://www.crit-nsn.gov/crit_contents/about/

Table 1-8: Population Trends for the Years 1990-2035

	State of Arizona	La Paz County	CRIT Reservation (La Paz County Only)	CRIT Reservation (Arizona and California)	Town of Parker	State of California	San Bernardino County
Historical							
1990	3,680,800	13,900	7,865		2,900	29,758,213	1,418,380
1995	4,228,900	16,550			2,950	31,617,770	1,574,240
2000	5,175,581	19,903	7,466	9,201	3,139	34,000,835	1,763,780
2005	5,924,476	20,608			3,164	35,985,582	1,942,734
2010	6,401,569	20,495	7,077	8,764	3,088	37,318,481	2,038,771
Projected							
2015	7,915,629	24,070	7,967		3,553	38,926,281	2,146,336
2020	8,779,567	25,487	8,130		3,688	40,817,839	2,283,798
2025	9,588,745	26,837	8,226		3,816	42,721,958	2,433,574
2030	10,347,543	28,074	8,428		3,933	44,574,756	2,588,990
2035	11,049,577	29,054	8,541		4,026	46,330,221	2,746,645
Historical							
% Increase 1990-2010	73.9%	47.4%	-10.0%		6.5%	25.4%	43.7%
A.A.G.R. 1990-2010	3.7%	2.4%	-0.5%		0.3%	1.3%	2.2%
Projected							
% Increase 2015-2035	39.6%	20.7%	7.2%		13.3%	19.0%	28.0%
A.A.G.R. 2015-2035	2.0%	1.0%	0.4%		0.7%	1.0%	1.4%

A.A.G.R. = Average Annual Growth Rate
Sources: Arizona Department of Administration Office of Employment and Population Statistics (http://www.workforce.az.gov/population-estimates.aspx)
La Paz Economic Development Corporation (http://www.lapazedc.com/CRITPopulation.html)
US Census (Census Tracts 9402 & 9403)
US Census (Colorado River Reservation AZ-CA)
California County and State Population Estimates, California Department of Finance

Table 1-9: Arizona Department of Commerce La Paz County Population Projections

	2015	2020	2025	2030	2035
La Paz County	24,070	25,487	26,837	28,074	29,054
Parker CCD	24,070	25,487	26,837	28,074	29,054
BlueWater CDP	897	951	1,003	1,050	1,088
Bouse CDP	868	950	1,029	1,101	1,158
Cibola CDP	221	237	252	266	277
Ehrenberg CDP	1,454	1,486	1,516	1,543	1,565
Parker Town	3,553	3,688	3,816	3,933	4,026
Parker Strip CDP	4,531	4,930	5,311	5,660	5,937
Poston CDP	389	389	389	389	389
Quartzite Town	4,080	4,317	4,542	4,748	4,912
Salome CDP	2,785	3,141	3,480	3,791	4,038
Wenden CDP	730	787	841	890	930
Remainder of Parker CCD	4,562	4,611	4,659	4,702	4,736
Reservations					
Colorado River (AZ)	7,967	8,130	8,286	8,428	8,541
Total Reservation	7,967	8,130	8,286	8,428	8,541
Total Non-Reservation	16,103	17,357	18,551	19,646	20,513

CCD - Census County Division
CDP - Census Designated Place

Source: Arizona Department of Commerce Website (http://www.workforce.az.gov/population-projections.aspx)

By comparison, San Bernardino County, California encompasses 20,057 square miles of land. Also shown in **Table 1-8**, the population in San Bernardino County since 1990 has increased at an average rate of 2.2 percent versus 1.3 percent for the State of California. As shown in **Table 1-9**, the projected average growth rate is 1.0 percent for the State of California and 1.4 percent for San Bernardino County.

The age distribution within La Paz County and San Bernardino County is shown on **Table 1-10**, with the age group of 65+ having the highest percentage of the total in La Paz County and 25-44 having the highest percentage of the total in San Bernardino County.

The composition of the population in La Paz County is shown in **Table 1-11**, with 70 percent White (Anglo) and 15 percent Native American. The composition of the population in San Bernardino County is also shown in **Table 1-11,** with 58 percent White and 10 percent African American.

Table 1-10: Age Distribution Within La Paz and San Bernardino Counties

	La Paz		San Bernardino	
Age	**Number**	**Percent**	**Number**	**Percent**
0-14	3,012	15%	484,950	24%
15-24	1,822	9%	339,535	17%
25-44	3,266	16%	555,040	27%
45-64	5,706	28%	474,337	23%
65+	6,683	33%	181,348	9%

Source: US Census - 2010

Table 1-11: Population Composition of La Paz and San Bernardino Counties

	La Paz		San Bernardino	
Race	**Number**	**Percent**	**Number**	**Percent**
White	14,901	70%	1,236,552	58%
African American	243	1%	208,806	10%
Native American	3,118	15%	43,859	2%
Asian/Pacific Islander	187	1%	168,227	8%
Other	2,840	13%	488,471	23%
Total	21,289	100%	2,145,915	100%
Spanish Heritage*	4,806	23%	1,001,145	47%

* Persons of Spanish Heritage may be of any race.

1.28.2 Employment

The major industries in La Paz County are trade related to tourism, light manufacturing, agriculture and government. Trade services related to tourism and recreation activities rank high on the list, with the annual influx of winter visitors to the region, as well as the year-round visitors who enjoy the fishing, boating, and other water sports activities offered by the Lower Colorado River. The next largest source of employment in the county is government and public services which includes the Tribal, county and town governments; hospital and public health services; and public schools. Agriculture, mining, construction, and light manufacturing are also sources of employment although mining has declined in recent years.

In 1995, the Tribes opened the 18,000-square foot Blue Water Casino adjacent to the Moovalya Shopping Center on SR 95, in close proximity to the Avi Suquilla Airport. Today, the Casino employs approximately 400 people.

Table 1-12 provides recent statistics on the civilian labor force and unemployment levels in La Paz County and San Bernardino County. As shown, the unemployment levels increased in La Paz County between 2009 and 2010, but declined slightly in 2011. As shown, the unemployment levels have exhibited a similar pattern in San Bernardino County in recent years. This pattern is consistent with national unemployment rates tied to the slow recovery from the great recession.

Table 1-13 shows the employment by sector for La Paz County and San Bernardino County. **Tables 1-14** and **1-15** provide a listing of the major employers in La Paz County and San Bernardino County, respectively.

The major industries in San Bernardino County are related to trade, services and state-local government. Construction, manufacturing and transportation are also significant sources of employment.

Table 1-12: Civilian Labor Force and Unemployment Rate

	State of Arizona	La Paz County	CRIT Reservation	Town of Parker	State of California	San Bernardino County
2009						
Labor Force	3,130,407	7,701	3,520	1,663	17,162,949	858,298
Unemployment Rate	9.9	9.8	11.9	9.1	11.3	12.9
2010						
Labor Force	3,121,744	7,659	3,508	1,653	18,208,603	860,656
Unemployment Rate	10.5	10.6	12.9	9.9	12.4	14.2
2011						
Labor Force	3,061,756	7,394	3,383	1,596	18,358,135	860,571
Unemployment Rate	9.5	10.3	12.5	9.6	11.7	13.2

Sources: US Bureau of Labor Statistics (http://www.bls.gov/lau/tables.htm)
Arizona Department of Administration Office of Employment and Population Statistics
(http://www.workforce.az.gov/local-area-unemployment-statistics.aspx)

Table 1-13: Employment by Sector

	La Paz			San Bernardino		
	2008	**2009**	**2010**	**2008**	**2009**	**2010**
Trade, Transportation and Utilities	1,230	1,214	1,175	172,102	157,722	157,670
Education & Health Services	851	844	843	137,777	138,324	136,150
Leisure & Hospitality	1,012	912	924	62,796	60,041	59,421
Public Administration	1,155	1,096	1,141	29,943	30,121	30,764
Natural Resources & Mining	505	589	460	3,431	3,109	2,990
Construction	90	66	57	35,973	27,281	24,230
Manufacturing	187	134	126	65,175	57,197	52,296
Information	28	24	22	512	492	464
Financial Activities	110	126	127	24,796	23,035	22,032
Professional and Business Services	196	228	242	79,093	74,347	71,807

Source: Bureau of Labor Statistics

Source: Bureau of Labor Statistics

Table 1-14: Major Employers in La Paz County

Employer	Employment Type
Arizona / California Railroad, Parker	Railroad
Bashas, Parker	Grocery Store
Colorado River Indian Tribes, Parker	Government / General business
Blue Water Casino, Colorado River Indian Tribes, Parker	Casino / Gambling
Dayton Superior Corp, Parker	Miscellaneous Fabrication / Wire Products
Flying J Trucks, Ehrenberg	Service Center
Growers Oil Co., Salome	Wholesale Trade
K.D. and Vicksburg Farms, McMullen Valley	Fresh Produce
Kofa Café, U.S. 60 between Wenden and Quartzite	Restaurant
La Paz County, Parker	Government
La Paz Regional Hospital, Parker	Government
Loves Travel Stop, Quartzsite	Travel Center
Morgan Corp. , Ehrenberg	Truck Bodies
Parker Indian Hospital, U.S. Public Health Service, Parker	General Medical Hospital
Parker Unified School District, Parker	Elementary and Secondary Schools
Pilot Travel Center, Quartzite	Travel Center
River Medical Inc., Parker	Ambulance Service
Safeway Stores, Inc., Parker	Grocery Stores
Salome Elementary and High School	Elementary and Secondary Schools
Tomahawk Auto / Truck Stop, Salome	Travel Center
Town of Parker	Government
Town of Quartzsite	Government
U.S. Bureau of Indian Affairs, Parker	Government
Wenden Elementary	Elementary School

Source: Arizona Department of Commerce

Table 1-15: Major Employers in San Bernardino County

Employer, City	Number of Employees
County of Riverside, Riverside	18,291
Stater Bros. Markets, San Bernardino	18,000
Arrowhead Regional Medical Center, Colton	18,000
County of San Bernardino, San Bernardino	17,395
National Training Center, Fort Irwin	13,805
U.S. Marine Corps Air, Twenty-nine Palms	12,486
Abbott Vascular, Temecula	12,000
March Air Reserve Base, Moreno Valley	8,750
San Bernardino City Unified School District, San Bernardino	8,574
Ontario International Airport, Ontario	7,510
University of California, Riverside	6,657
Claremont Colleges, Claremont	6,500
University of California, Riverside	6,294
Kaiser Permanente, Fontana	5,682
Riverside Unified School District, Riverside	5,099
Pechanga Resort & Casino, Temecula	4,800
Loma Linda University Medical Center, Loma Linda	4,676
Guidant Corp (now Abbot Labs), Temecula	4,500
San Bernardino City Unified School District, San Bernardino	4,055
Fontana Unified School District, Fontana	3,953
Loma Linda University, Loma Linda	3,906
Riverside Community College, Riverside	3,753
Kaiser Permanente Medical Center, Riverside	3,200
Chino Valley Unified School District, Chino	3,200
City of Riverside, Riverside	3,261
San Manuel Band of Mission Indians	3,261
California State University, San Bernardino	3,012
Morongo Casino, Resort & Spa, Cabazon	3,000
Southern California Edison, Rosemead	2,804
Temecula Unified School District, Temecula	2,667
Cal Poly Pomona, Pomona	2,640
California Institution for Men, Chino	2,327
Hemet Unified School District, Hemet	2,270

Table 1-15 (Continued): Major Employers in San Bernardino County

Pomona Unified School District, Pomona	2,267
Colton Joint Unified School District, Colton	2,257
Jerry L. Pettis Veterans Hospital, Loma Linda	2,100
Eisenhower Medical Center, Rancho Mirage	2,053
Riverside County Office of Education, Riverside	2,000
Hemet Valley Medical Center, Hemet	2,000
Patton State Hospital, Highland	2,000
Fender, Corona	2,000
Alvord Unified School District, Riverside	2,000
Hesperia Unified School District, Hesperia	1,946
San Antonio Community Hospital, Upland	1,900
Fleetwood Enterprises Inc., Riverside	1,875
Marine Corps Logistics Base, Barstow	1,868
Redlands Unified School District, Redlands	1,824
City of San Bernardino, San Bernardino	1,760
Riverside Community Hospital, Riverside	1,600
Environmental System Research Institute (ESRI), Redlands	1,600
Lake Elsinore Unified School District, Lake Elsinore	1,577
Jurupa Unified School District, Riverside	1,548
City of San Bernardino, San Bernardino	1,500
Watson Pharmaceuticals, Corona	1,500
Riverside Community College, Riverside	1,436
The Press-Enterprise, Riverside	1,400
United States Postal Service, Redlands	1,400
Starcrest, Perris	1,400
Saint Bernadine Medical Center, San Bernardino	1,400
Apple Valley Unified School District, Apple Valley	1,390
Chaffey Community College District, Rancho Cucamonga	1,385
North American Medical Management, Ontario	1,304
Redlands Community Hospital, Redlands	1,300
Community Hospital of San Bernardino, San Bernardino	1,200
State of California Rehabilitation Center, Norco	1,169
Fantasy Springs Resort Casino, Indio	1,100
Etiwanda School District, Etiwanda	1,094

Table 1-15 (Continued): Major Employers in San Bernardino County

City of Ontario, Ontario	1,075
Corona Regional Medical Center, Corona	1,011
Agua Caliente Casino, Rancho Mirage	1,000
California Steel Industries Inc., Fontana	956
Naval Surface Warfare Center, Corona	926
Trinity Child and Family Services, Colton	900
City of Corona, Corona	875
San Bernardino Community College District, San Bernardino	862
Rockwell Collins, Pomona	850
Mag Instruments, Ontario	850
Spotlight 29 Casino, Coachella	800
Amphastar Pharmaceuticals Inc., Rancho Cucamonga	729
John F. Kennedy Memorial Hospital, Indio	725
Citizens Business Bank, Ontario	718
Perris Union High School District, Perris	643
Robert E. Bush Naval Hospital, Twenty-nine Palms	660
Renaissance Esmeralda Resort and Spa Indian Wells	600
The Sun Newspaper, San Bernardino	526
Edge Development Inc., Temecula	500
Wal-Mart Stores, Inc., Ontario	500
Doctor's Hospital Medical, Montclair	500
Wells Fargo Home Mortgage, Riverside	500
Victor Valley Community Hospital, Victorville	495
Hi-Dessert Medical Center, Joshua Tree	450
Lewis Group of Cos., Upland	450
HMC Architects	408
Farmer Boys Food Inc., Riverside	400
Casa Colina Hospital, Pomona	390
Chemicon, Temecula	380
Moreno Valley Community Hospital, Moreno Valley	375
Park Place GMAC Real Estate, Riverside	350
Menifee Valley, Sun City	350
Fullmer Construction, Ontario	350
Blood Bank of San Bernardino, San Bernardino	340

Table 1-15 (Continued): Major Employers in San Bernardino County

Classic Containers Inc., Ontario	335
Al's Garden Art Inc., Colton	331
Classic Containers Inc., Ontario	325
Kindred Hospital Ontario, Ontario	325
J.D. Deffenbaugh Inc., Riverside	320
Mervyn's, Ontario	300
Mark Christopher Auto Center, Ontario	279
Robert H. Ballard Rehabilitation Hospital, San Bernardino	250
Barstow Community Hospital, Barstow	250
Epic Management LP, San Bernardino	250
Moore Maintenance, San Bernardino	250
Claremont Toyota, Claremont	221
Big League Dreams, Chino Hills	220
Best, Best & Krieger LLP, Riverside	210
Fritts Ford, Riverside	201
FFF Enterprises Inc., Temecula	160
Mountains Community Hospital, Lake Arrowhead	150
Canyon Ridge Hospital, Chino	150
Hemborg Ford, Riverside	130
Elite Electric, Riverside	120
Toyota of Riverside, Riverside	120
Martinez & Turek Inc., Rialto	115
Jack Jones Trucking Inc., Ontario	104
M.K. Smith Chevrolet, Chino	100

Source: San Bernardino Area Chamber of Commerce

1.28.3 Income

Another important economic indicator is the Effective Buying Income (EBI) for the region. As shown in **Table 1-16**, the median household income levels for Arizona are slightly higher than for the United States, and the income levels for La Paz County are lower than the State of Arizona. This can be attributed to the fact that La Paz County is a remote, rural area and the primary sources of employment are related to tourism and government / public service.

Table 1-16 shows median household income levels for the United States, California and San Bernardino County. The median household income is less than the State of California, but greater than the Unites States figures.

Table 1-16 Effective Buying Income per Median Household, $

	United States	Arizona	La Paz County	California	San Bernardino County
2008	41,792	42,157	29,841	48,759	44,276
2009	42,303	43,328	29,910	49,589	45,814

1.29. Land Use

1.29.1 Existing Land Use

The Avi Suquilla Airport is located on the CRIT Reservation, immediately east of the Town of Parker. Adjacent land uses have historically been undeveloped land and agricultural uses in addition to the commercial / industrial uses on the east side of Parker. Today, the land uses adjacent to the airport include new commercial and recreational uses from the development of the Moovalya Shopping Center and an 80,000 square foot casino, 200 room hotel and a marina by the Tribes. The shopping center and casino are located on the south side of SR 95 between the eastern boundary of the Town of Parker and Airport Road. The land immediately north of Avi Suquilla is still principally undeveloped land and the land east of the airport that was under agricultural use is no longer being farmed. Land use on the north side of SR 95 has been, and continues to be, principally undeveloped except adjacent to Lake Moovalya, where there are recreational facilities, RV trailer parks, mobile home developments, and single-family residences in the Blue Water Drive area. **Figures 1-11 and 1-12** show generalized existing land uses.

1.29.2 Future Land Use

Figure 1-13 is a composite of Site Plans and Land Use Plans for CRIT in and around the Town of Parker compiled for the 2008 Transportation Planning Study by THK Associates. The plan shows commercial and industrial uses planned adjacent to the airport on the south side of SR 95.

On the north side of SR 95, the tribes have implemented the first phase of a mixed-use development of the “Blue Water Resort Area” located along the Colorado River off of SR 95 along Blue Water Drive. This includes an 80,000 square foot casino, a 200 room hotel and a marina. The plans for the second phase comprise the entire area between SR 95 and the Colorado River and include several residential subdivisions, shops, and a golf course. The specific components of the second phase of the project have not yet been proposed.

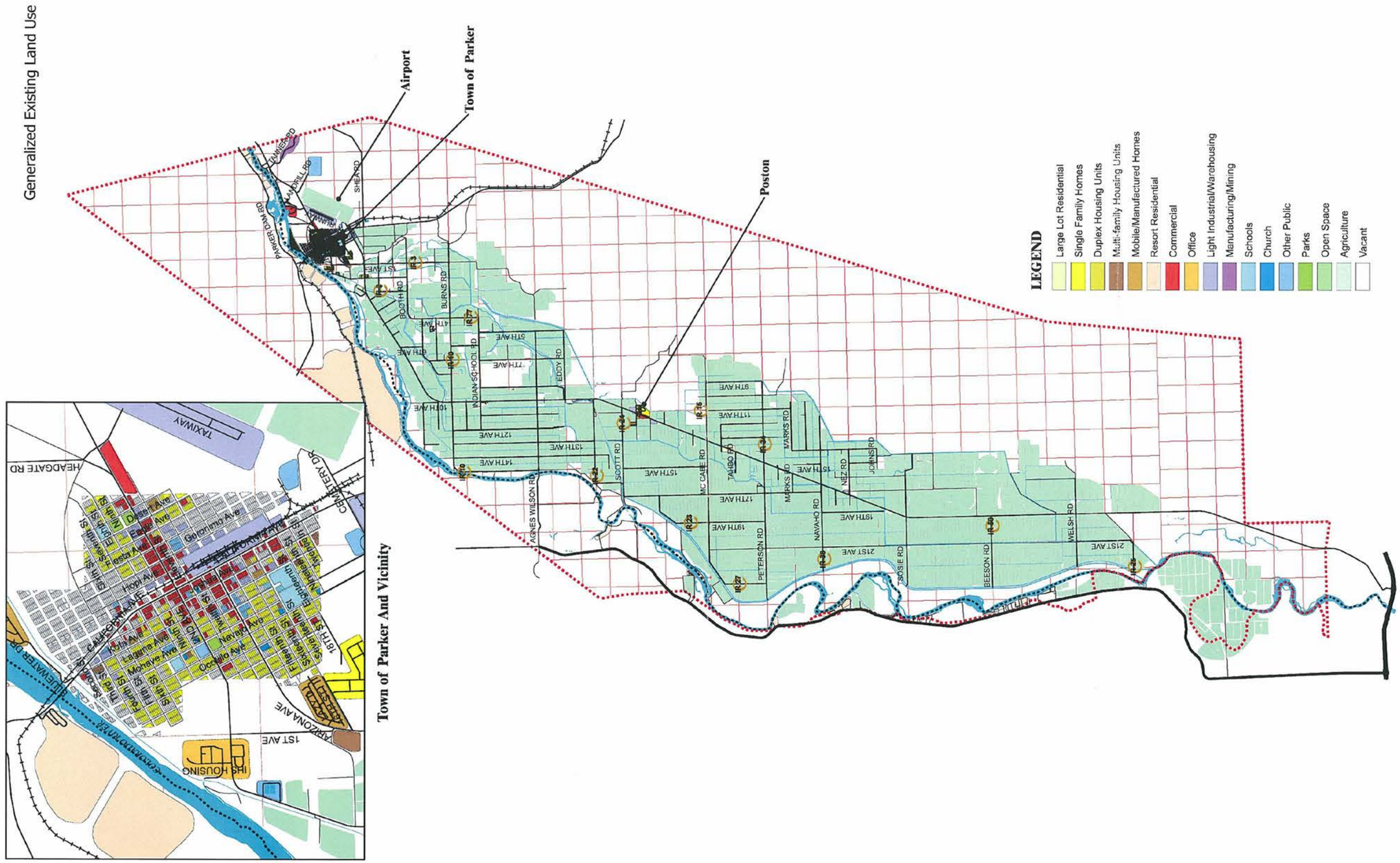


Figure 1-11: Generalized Existing Land Use

Figure 1-12: Generalized Existing Land Use (Parker Town Limits)

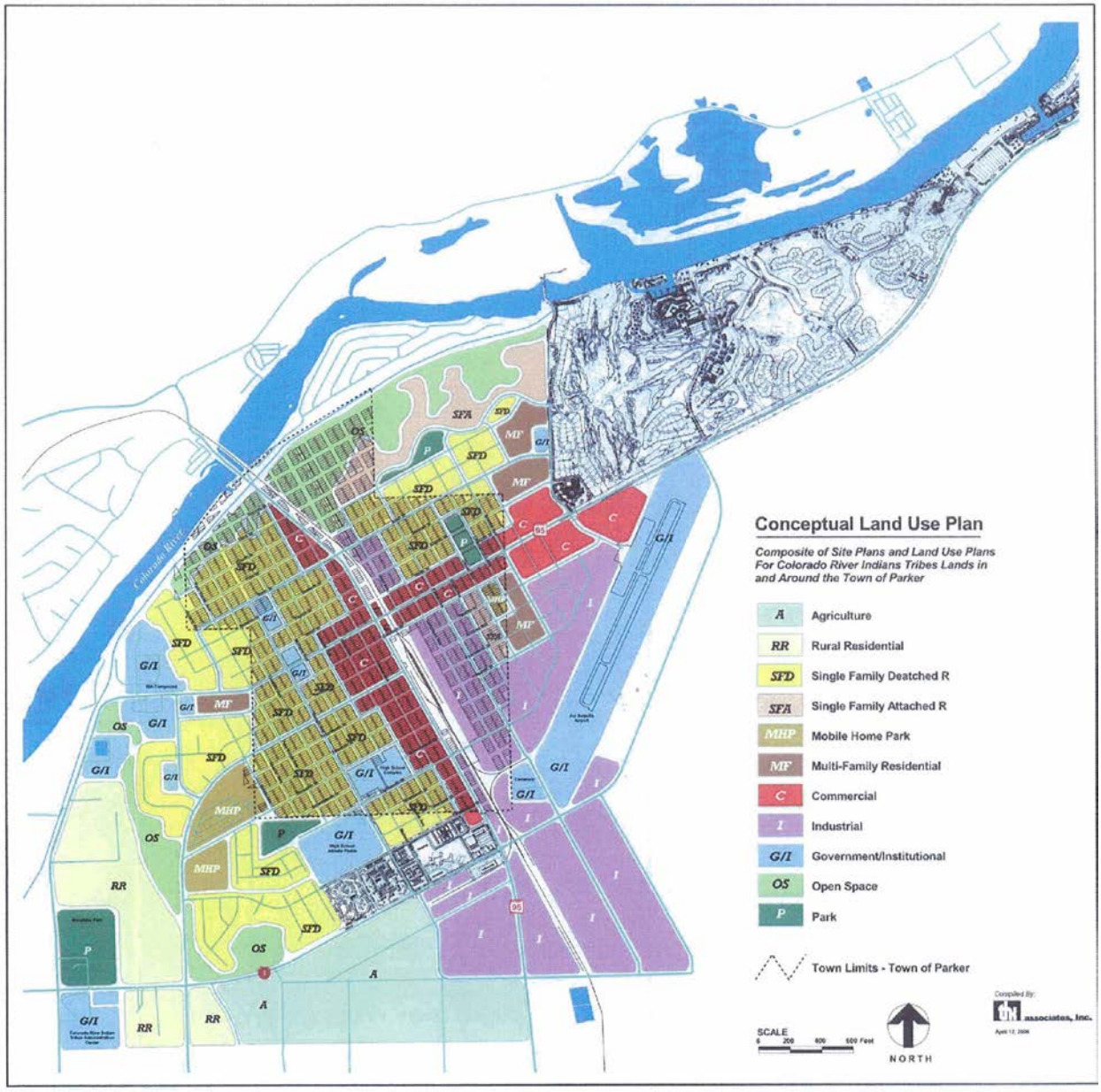


Figure 1-13: Conceptual Land Use

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FORECASTS

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2. AVIATION DEMAND FORECASTS

2.1. Introduction

The purpose of this chapter is to prepare forecasts of aviation activity for the Avi Suquilla Airport. These forecasts will serve as the basis for planning the aviation facilities required to meet the needs of the airport and its users over the next twenty years. The forecasts will be applied to several phases of the Airport Master Plan. Initially, they will be used to identify individual segments of future activity. They will then be used in the evaluation of airfield capacity, and the facility requirements of the airfield and the terminal area. From these evaluations, the need for new or improved facilities within the twenty year planning period can be determined.

Aviation activity and the demand for aviation services is affected by a variety of unforeseeable and unpredictable influences such as competition; local, regional, national and global economies; fuel supply volatility and pricing; and the implementation of effective airport sales and marketing programs. Planning and projecting aviation activities for a twenty year planning period with absolute certainty is unrealistic. Therefore, forecasts should only serve only as guidelines. Planning and development of improvements must remain a dynamic process, flexible enough to respond to unforeseen facility needs.

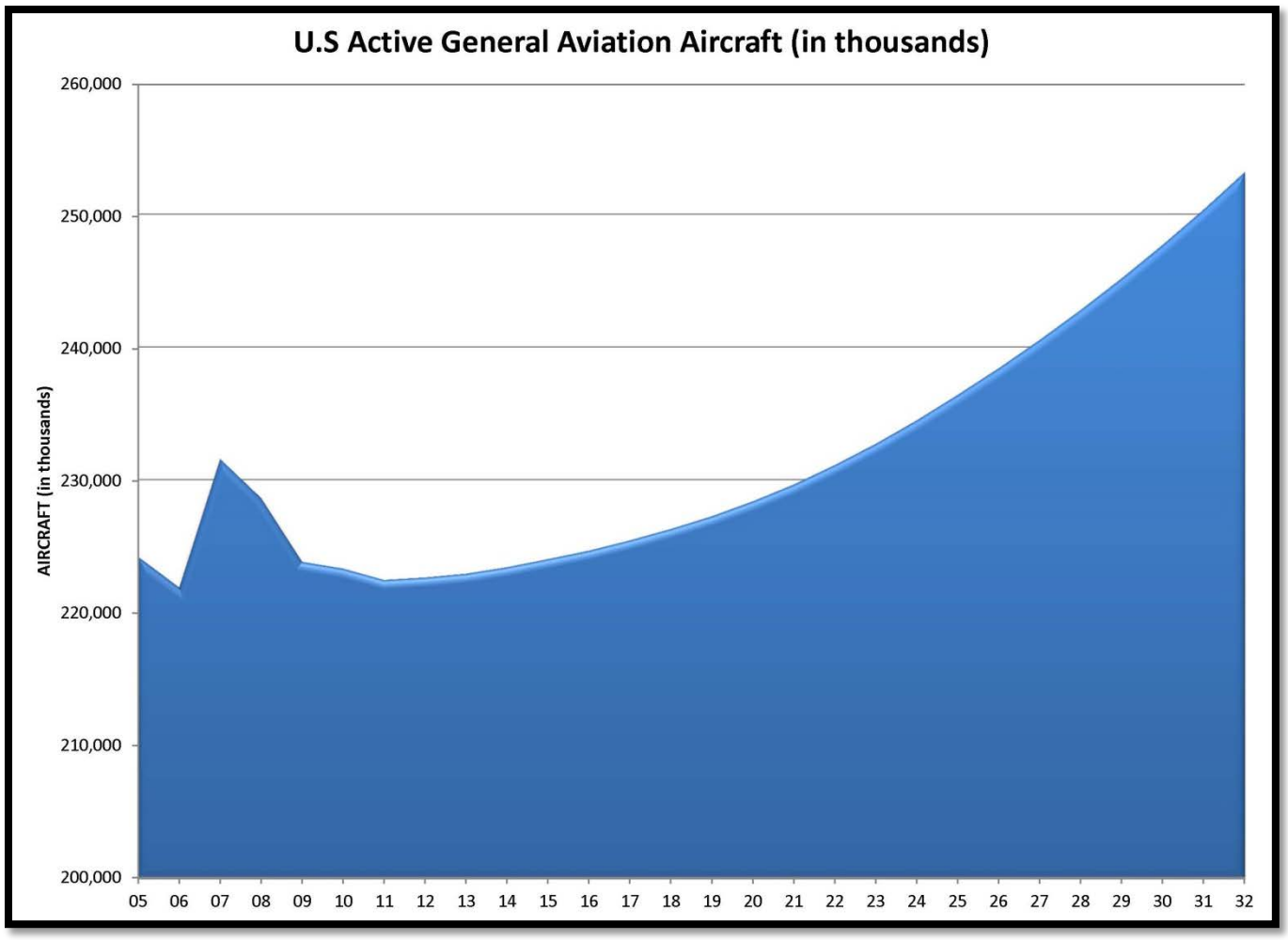
The following forecast analysis examines recent developments, historical information, and current aviation trends for the Avi Suquilla Airport to provide an updated set of based aircraft and operational projections.

2.2 National Aviation Trends

The Federal Aviation Administration (FAA) publishes its national aviation forecast each year which includes forecasts for major air carriers, regional/commuters and general aviation. The forecast uses the economic performance of the United States as an indicator of future aviation industry growth. The current edition at the time of this chapter's preparation was FAA Aerospace Forecast Fiscal Years 2012-2032.

The FAA forecast indicates that the aviation industry is in the process of recovering from the shocks of the past decade including the terror attacks of September 11, skyrocketing prices for fuel, and a global recession which led to a reduced demand for air travel. As the economy recovers from the most serious economic downturn since the Great Depression, the FAA forecasts that aviation will continue to grow over the long term.

Figure 2-3 depicts the FAA forecast for active general aviation aircraft in the United States. The FAA forecasts general aviation active aircraft to increase at an average annual rate of 0.6 percent over the next 20 years. The growth in business jet aircraft is expected to outpace that of personal/recreational use aircraft. The turbine-powered fleet is projected to grow at an average of 4.7 percent a year over the forecast period with the turbine jet portion increasing at 4.8 percent a year.



Source: FAA Aerospace Forecast, FY 2012-2032

Figure 2-1 U.S. General Aviation Aircraft Forecasts

2.3 Airport Activity

Airport activity at Avi Suquilla is influenced by the resort area activity associated with the CRIT Blue Water Casino, second home sites along the Colorado River located on land leased from CRIT, or located on the Parker Strip area north of the reservation. According to the La Paz County website (www.co.la-paz.az.us) the area can experience some 500,000 visitors during the months of March to September. In addition two major hospitals also impact airport activity through regular medical staff travel and Medi-Vac flights. The La-Paz Regional Hospital serves La Paz County and surrounding California areas. The Indian Health Service Hospital opened in 2002 and serves five reservations.

Airport activity is heavily oriented toward weekend travel, starting as early as Thursday evenings and extending into Monday. During the week, much of the airport activity is related to Medi-Vac flights, and corporate flights serving tribal business, casino business, the two hospitals and businesses owned by non-Parker residents (grocery chains, banks, U.S. filter, etc.)

Avi Suquilla Airport's activity is not typical of a rural airport serving a slow growing rural economy. Its activity is more related to the economic health of the more affluent people of Arizona, California and Nevada who have a significant amount of disposal income.

2.4 Based Aircraft Forecasts

The number of general aviation aircraft which can be expected to base at an airport facility is dependent on several factors, such as airport communication practices, available facilities, airport operator's services, airport proximity and access, and similar considerations.

In 2002, a CRIT survey found 41 aircraft and one helicopter based at the Avi Suquilla Airport, including:

- 30 Single Engine
- 5 Light Twin Engine
- 6 Executive Jets
- 1Jet Helicopter

Of the above, one of the executive jets was hangared at the airport. The other executive jets belonged to companies or individuals with homes on the Colorado River. These individuals typically use executive jet aircraft to (1) visit their homes on weekends, (2) for extended family stays, or (3) to ferry household guests to the Parker area. Length of time these aircraft are at Avi Suquilla Airport varies, as many of the jets are also used for other corporate or charter duties.

In 2004, Airport management reported the following aircraft based at the Avi Suquilla Airport.

- 40 Single Engine including: Beech Bonanza; Cessna 150, 170, 172 and 182; Mooneys; Piper Lances and Commanches
- 7 Twin Engine including: 3 Piper Navajos; 1 Cessna 424, 1 Cessna 441 (Medi-Vac), 1 Beech Barron and 1 Aero Commander.
- 2 Jet Helicopters (CRIT Police and La Paz Regional Hospital)

Executive jet aircraft owned by companies or individuals with second homes on the CRIT Reservation or in the Parker Strip area were not counted as based in the 2004 summary.

Airport records indicate a current total of 35 based aircraft broken down as follows:

- 27 Single Engine
- 5 Light Twin Engine
- 1 Executive Jet
- 2 Helicopter

Table 2-1 presents the based aircraft at the Avi Suquilla Airport since 2000 by category. Historical based aircraft counts from the FAA's Terminal Area Forecast (TAF) are shown in years where airport records were not available. The historical counts show that based aircraft counts have fluctuated from a low of 18 in 2000 to a high of 49 aircraft in 2004. Following a drop-off in 2008 through 2011 that coincided with a severe national economic downturn, it appears that based aircraft counts are again on the increase. These trends are consistent with national general aviation trends.

Table 2-1 Avi Suquilla Airport Based Aircraft

	Single Engine	Multi Engine	Jet	Helicopter	Other	TOTAL
ACTUAL						
2000*	18	0	0	0	0	18
2001*	40	1	0	1	0	42
2002**	30	5	6	1	0	42
2003*	40	1	0	1	0	42
2004**	40	7	0	2	0	49
2005*	40	1	0	1	0	42
2006*	40	1	0	1	0	42
2007*	40	1	0	1	0	42
2008*	20	7	0	2	0	29
2009*	20	7	0	2	0	29
2010*	16	4	0	2	0	22
2011*	16	4	0	2	0	22
2012**	27	5	1	2	0	35

*Source: FAA Terminal Area Forecast 2011
** Source: Airport Records

The historical counts for based aircraft have fluctuated widely to say the least. The based aircraft count went from 18 to 35 in this period, which equates to an average annual compound growth rate of 5.7 percent. The high growth period between 2000 and 2004 showed an average annual compound growth rate of 28.4 percent. The growth period between 2008 and 2012 shows an average annual compound growth rate of 4.8 percent. The period of decline associated with the economic downturn between 2007 and 2011 represented an average annual decline of 17.5 percent.

The FAA's Terminal Area Forecast presents a scenario of no growth in based aircraft at Avi Suquilla airport over the twenty year planning horizon. This flat growth rate does not seem likely given past growth rates and the dynamic nature of recreation and tourism in the region.

Table 2-2 presents a based aircraft forecast compared to La Paz County and Parker Townsite populations. The relationship between historic population and based aircraft does not demonstrate a strong correlation. As noted previously, the sporadic based aircraft count at Avi Suquilla has little to do with the local resident population of Parker or of La Paz County which has seen relatively slow, steady growth over the last 20 years. Rather, based aircraft counts are tied to the more variable rate of tourism and recreational activity along the Parker Strip. Therefore, population based forecasts are not given a high degree of confidence relative to predicting based aircraft counts at Avi Suquilla.

Table 2-2 Based Aircraft Projections Based on Population Trends

	La Paz County Population*	Population Per Based Aircraft - La Paz County	Parker Townsite Population*	Population Per Based Aircraft - Parker	Based Aircraft per La Paz County Population	Based Aircraft per Parker Population
Historical						
1990	13,900	515	2,900	107	27	27
1995	16,550	473	2,950	84	35	35
2000	19,903	1,106	3,139	174	18	18
2005	20,608	491	3,164	75	42	42
2010	20,495	932	3,088	140	22	22
2012	20,730	664	3,111	89	35	35
Forecast						
2017	24,629	666	3,606	88	37	41
2022	26,039	668	3,740	90	39	42
2027	27,352	668	3,865	90	41	43
2032	28,509	663	3,975	89	43	45

*Source: Arizona Department of Administration Office of Employment and Population Statistics

Tables 2-3, 2-4 and **2-5** present three forecast scenarios for total based aircraft at Avi Suquilla Airport that are based on a more judgmental analysis, taking into consideration of the impact of local marketing initiatives, as well as growth connected to resort development and single family residential development ancillary to the casino / hotel complex. The low forecast, presented in **Table 2-3**, applies an annual compound growth rate of 0.6 percent to based aircraft levels. This is the growth rate predicted for the national general aviation fleet in the current 2012-2032 FAA Aerospace Forecast, and would assume minimal effects of community based marketing and development. The high forecast, presented in **Table 2-5**, represents a based aircraft growth rate of 4 percent, which is consistent with a slightly slower continuation of the 4.8 percent growth in based aircraft seen at Avi Suquilla between 2008 and 2012. This scenario would assume an aggressive marketing effort by the community as well as a strong response to local development initiatives. A mid-range forecast, presented in **Table 2-4**, represents an average annual compound growth rate of 2.3 percent. This scenario assumes that while Avi Suquilla will be influenced by the somewhat sluggish growth predicted in the general aviation fleet nationwide, a combination of marketing by the community, growth in local amenities available, and development of the casino complex will contribute to a higher growth rate as compared to national levels. This mid-range forecast is considered a reasonable growth rate and is selected as the preferred forecast.

Table 2-3 Based Aircraft Scenario 1: Low Forecast

	Single Engine	Multi Engine	Jet	Helicopter	Other	TOTAL
2012	27	5	1	2	0	35
2017	27	7	1	2	0	37
2022	27	8	1	2	0	38
2027	26	9	2	2	0	39
2032	26	10	2	2	0	40

Table 2-4 Based Aircraft Scenario 2: Mid-Range Forecast

	Single Engine	Multi Engine	Jet	Helicopter	Other	TOTAL
2012	27	5	1	2	0	35
2017	29	7	2	2	0	40
2022	32	8	2	2	0	44
2027	35	11	2	2	0	50
2032	37	14	3	2	0	56

Table 2-5 Based Aircraft Scenario 3: High Forecast

	Single Engine	Multi Engine	Jet	Helicopter	Other	TOTAL
2012	27	5	1	2	0	35
2017	32	7	2	2	0	43
2022	37	10	2	2	0	52
2027	45	15	2	2	0	64
2032	51	20	3	3	0	77

The current fleet mix for based aircraft is:

Single Engine – 77.1%
Multi Engine – 14.3%
Jet – 2.8%
Helicopter – 5.7%
Other – 0%

It is expected that the fleet mix will shift during the planning period with higher percentages of multi-engine, and business jet aircraft and lower percentages of single engine piston powered aircraft. This is consistent with national trends and the predicted need for multi-engine aircraft and corporate jets to support the air ambulance industry, the emerging gaming industry and the growth of environmental related industries on the reservation. The shift toward higher percentages of multi-engine and business jet aircraft is reflected in the forecasts provided in **Tables 2-3, 2-4** and **2-5**.

2.5 Operations Forecasts

The forecasting of aircraft operations at Avi Suquilla Airport considers the three different growth scenarios for based aircraft discussed in the previous section. As a non-towered airport, the development of trends based on historical data is difficult due to the limited information available. However, a forecast of the local and itinerant operations can be predicated on the forecast projections of based aircraft as well as on practical judgment related to the impact of gaming at other comparable airports. **Tables 2-6, 2-7** and **2-8** present aircraft operations forecasts for the low growth, mid-range and high growth scenarios. The types of aircraft currently observed at the airport include single engine aircraft, multi-engine aircraft and turbo prop aircraft.

Base year operations were estimated using the FAA Terminal Area Forecast with two additions. The TAF does not include counts for Air Taxi/Commuter Operations or itinerant military operations. Air Taxi operations occur regularly at Avi Suquilla for Medi-Vac flights and charters for medical staff serving two nearby hospitals, the Indian Health Service Hospital and La Paz Regional Hospital. On average, it is estimated that there are 5 Medi-Vac flights and 4 charter flights for medical staff weekly. Occasional itinerant military helicopter activity also occurs at Avi Suquilla. 50 annual operations are estimated which equates to approximately 4 operations per month.

Local operations projected under the low growth scenario assume Operations per Based Aircraft (OPBA) of 35 which are comparable to what exists today at Avi Suquilla. Under the high growth scenario, an OPBA of 100 is assumed for year 2017, increasing to 250 in the year 2015. These higher OPBAs are assumed since the development of the Blue Water Area includes recreational, resort and residential development which is likely to attract more aircraft owners. The OPBA is assumed to increase over time as the volume of high end residential development increases. The mid-range scenario assumes an OPBA between the low and high forecasts of 75 for year 2017, increasing to 100 by the end of the planning period. This scenario represents the assumptions that the growth brought on by development of the Blue Water Area will be tempered by sluggish growth in the national general aviation fleet as predicted in the current FAA Aerospace Forecast.

The projection of itinerant operations under the low growth scenario assumes an average annual growth rate of 0.3 percent for both air taxi and general aviation operations, which is a low growth rate, closely mirroring the FAA Aerospace Forecast for general aviation itinerant operations nationwide. Under the high growth scenario, the itinerant operations are expected to increase at a higher rate (4.0 percent) since the casino / hotel / resort complex will attract more tourists to the area. Also, because of the remoteness of the reservation from more densely populated areas, it is likely that there will be a greater percentage of tourists who travel by air. The mid-range forecast assumes a growth rate of 2.0 percent, between the low and high forecasts.

Overall, the total annual operations at Avi Suquilla are projected to increase over the forecast period under the low, mid-range and high forecasts at average annual growth rates of 0.35 percent, 2.5 percent and 5.2 percent respectively. Because it represents a balanced view of growth in airport activity, the mid-range forecast will be carried forward as the preferred forecast.

Table 2-6 Operations Scenario 1: Low Forecast

			Itinerant Operations					Local Operations			
	Based Aircraft	OPBA	Air Carrier	Air Taxi / Commuter	GA	Military	Total Itinerant	GA	Military	Total Local	Total Ops
2012	35	34	0	1,000	9,000	50	10,050	1,200	0	1,200	11,250
2017	37	35	0	1,015	9,136	50	10,201	1,295	0	1,295	11,496
2022	38	35	0	1,030	9,274	50	10,354	1,330	0	1,330	11,684
2027	39	35	0	1,046	9,414	50	10,510	1,365	0	1,365	11,875
2032	40	35	0	1,062	9,556	50	10,667	1,400	0	1,400	12,067

Table 2-7 Operations Scenario 2: Mid-Range Forecast

			Itinerant Operations					Local Operations			
	Based Aircraft	OPBA	Air Carrier	Air Taxi / Commuter	GA	Military	Total Itinerant	GA	Military	Total Local	Total Ops
2012	35	34	0	1,000	9,000	50	10,050	1,200	0	1,200	11,250
2017	40	75	0	1,015	9,937	50	11,002	3,000	0	3,000	14,002
2022	44	85	0	1,030	10,971	50	12,051	3,740	0	3,740	15,791
2027	50	90	0	1,046	12,113	50	13,209	4,500	0	4,500	17,709
2032	56	100	0	1,062	13,374	50	14,485	5,600	0	5,600	20,085

Table 2-8 Operations Scenario 3: High Forecast

			Itinerant Operations					Local Operations			
	Based Aircraft	OPBA	Air Carrier	Air Taxi / Commuter	GA	Military	Total Itinerant	GA	Military	Total Local	Total Ops
2012	35	34	0	1,000	9,000	50	10,050	1,200	0	1,200	11,250
2017	43	100	0	1,015	10,950	50	12,015	4,300	0	4,300	16,315
2022	52	150	0	1,030	13,322	50	14,403	7,800	0	7,800	22,203
2027	64	200	0	1,046	16,208	50	17,304	12,800	0	12,800	30,104
2032	77	250	0	1,062	19,720	50	20,832	19,250	0	19,250	40,082

Tables 2-9 and **2-10** provide a summary of the forecasts of based aircraft and aviation activity at Avi Suquilla in comparison with the 1997 Master Plan and the FAA's Terminal Area Forecast. The Terminal Area Forecast for based aircraft is adjusted to reflect current based aircraft counts from CRIT records. The forecasts represent a middle ground between the no-growth forecasts of the TAF and the forecasts of the 1997 Master Plan which were prepared during a period of robust national economic growth.

Table 2-9 Comparison of Aircraft Operations Forecasts

	1997 Master Plan			Current Master Plan		
	Scenario 1	Scenario 2	TAF	Low Forecast	Mid Range Forecast	High Forecast
2012	24,040	36,470	10,200	11,250	11,250	11,250
2017	26,800	45,750	10,200	11,496	14,002	16,315
2022			10,200	11,684	15,791	22,203
2027			10,200	11,875	17,709	30,104
2032			10,200	12,067	20,085	40,082

Table 2-10 Comparison of Based Aircraft Forecasts

	1997 Master Plan			Current Master Plan		
	Scenario 1	Scenario 2	*TAF	Low Forecast	Mid Range Forecast	High Forecast
2012	47	62	35	35	35	35
2017	51	63	35	37	40	43
2022			35	38	44	52
2027			35	39	50	64
2032			35	40	56	77

*Adjusted for CRIT based aircraft records

2.6 Forecast Summary

This chapter has outlined the key aviation demand levels anticipated over the planning period. Long term growth at Avi Suquilla Airport will be sustained by local promotion of the airport and trends experienced at the national level. The next step in the master planning process will be to assess the capacity of existing facilities, their ability to meet forecast demand, and to identify changes to the airfield or landside facilities which will create a more functional facility. The preferred mid-range aviation forecasts have been summarized in **Table 2-11**.

Table 2-11: Aviation Demand Forecast Summary

	2012	2017	2022	2027	2032
Based Aircraft	35	40	44	50	56
Annual Operations					
Commuter / Air Taxi	1,000	1,015	1,030	1,046	1,062
Military	50	50	50	50	50
General Aviation					
Itinerant	9,000	9,937	10,971	12,113	13,374
Local	1,200	3,000	3,740	4,500	5,600
Total	11,250	14,002	15,791	17,709	20,085

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FACILITY REQUIREMENTS

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3. DEMAND / CAPACITY ASSESSMENT AND FACILTIY REQUIREMENTS

3.1. Introduction

The previous chapter forecasted the levels of aviation demand that could reasonably be expected to occur at Avi Suquilla Airport through the planning period (2032). This chapter will assess whether or not existing facilities are adequate to meet that demand. This chapter will also identify what types and quantities of new facilities may be required as well as establish a time frame for when these facilities may be needed to accommodate the future demand. Further, an extensive analysis will be conducted to insure that all airside facilities meet current FAA design standards and, if necessary, a list of all deviations from the current standards will be provided.

The FAA outlines the essential facilities into the following categories:

- Runways
- Taxiways
- Navigational Aids
- Aprons
- Terminal Building and Associated Facilities
- Airport Access and Automobile Parking
- Airport Support Facilities

This chapter will provide a complete assessment of these facilities at the Avi Suquilla Airport.

3.2 Demand / Capacity Analysis

Based on the forecasts from Chapter 2, it is expected that within 20 years, the airport is likely to provide service for over 20,000 operations per year. Future development at the airport within this time frame may be necessary to accommodate this future demand. The next step in the Demand / Capacity Analysis is to determine the current capacity of the airfield.

The principal guidance for the analysis of airfield capacity is FAA Advisory Circular 150/5060-5, Airport Capacity and Delay. There are two key measurements of airfield capacity that assist planners in evaluating the adequacy of airfield facilities. Hourly capacity considers the throughput during a typical busy hour. Factors such as percentage of arrivals, runway crossings, and taxiway exit locations are considered to arrive at an hourly number of aircraft that can use the airfield without undue delays.

The other measure is Annual Service Volume (ASV), an estimate of the number of aircraft operations that can be accommodated in one year. This measure is used to program additional runways, and/or modified taxiway exits. Airfield capacity improvements are typically programmed when actual annual operations reach 60 percent of ASV and constructed when operations reach 80 percent of ASV.

Hourly Capacity

This approach utilizes the projections of annual operations by the specified fleet mix as projected in the Aviation Activity Forecasts. It considers a variety of factors including airfield layout, meteorological conditions, runway conditions, runway use, aircraft mix, percent arrivals, percent touch-and-go's, and exit taxiway locations.

Airfield characteristics, particularly the layout of the runways and taxiways, directly affect the capacity of the airfield. The location and orientation of the runways, the percent of time that a particular runway or combination of runways is in use and the length, width, weight bearing capacity, and instrument approach capability of each runway at the airport all factor in to hourly capacity analysis. The location and orientation of exit taxiways also have a direct bearing on hourly capacity in that properly placed exit taxiways will allow an aircraft to clear the runway environment in the least amount of time and allow for the following arrival or departure procedure.

Weather also plays a key role in determining hourly capacity. When weather conditions are such that there are low clouds and/or reduced visibility, arriving and departing aircraft operate under different flight rules. The conditions for each set of rules are listed below:

Visual Flight Rules (VFR)

Conditions necessary to operate under VFR are a cloud ceiling that is equal to or greater than 1,000 feet above the ground level (AGL) and the visibility is equal to or greater than 3 statute miles. This does not cover every situation, but these are the most common criteria used at most commercial service airports with instrument approaches.

Instrument Flight Rules (IFR)

Conditions requiring operation under IFR are complicated, but in general are conditions that do not qualify as VFR. Weather that is worse than the minimum requirements for instrument approach procedures at an airport will preclude any operation at the airport and can cause cancellations or diversions to other airports. These conditions vary by operation type, type of aircraft, and aircraft equipment.

When operating in VFR conditions, pilots are responsible for the separation of their aircraft from other aircraft and obstacles. However, when IFR operations are required, Air Traffic Control is responsible for the separation of aircraft and obstacle clearance. This is done through the use of RADAR, where available, and through the use of Standard Instrument Procedures. Large margins are built into the system, which is what limits the capacity in the airspace surrounding the airport, as well as the hourly capacity of the airfield.

The demand characteristics that are relevant to calculating airfield capacity are the mix of aircraft types that utilize the airport in the busy hour along with the percentage of arrivals and the percentage of touch-and-go operations. Aircraft types are classified according to size as shown below.

Class A: Small single engine aircraft weighing less than 12,500 pounds

Class B: Small twin engine aircraft weighing less than 12,500 pounds.

Class C: Aircraft weighing between 12,500 pounds and 300,000 pounds

Class D: Aircraft weighing more than 300,000 pounds

Avi Suquilla Airport has a single runway with two parallel taxiways, has instrument approach procedures and no aircraft in Class D. According to FAA Advisory Circular 150/5060-5, Airport Capacity and Delay, this airfield configuration should yield an hourly capacity of approximately 98 aircraft per hour in VFR conditions and 59 aircraft per hour in IFR conditions.

The approximate annual capacity of this airfield configuration is estimated at 230,000 operations. The Annual Service Volume, the VFR hourly capacity and the IFR capacity all far exceed the demand projections for the 20 year period.

3.3 Airfield Requirements

Airfield requirements relate to those facilities needed for the arrival, departure, and ground movement of aircraft. Key airfield facilities include the following:

- Runways
- Taxiways
- Navigational and Approach Aids

The Federal Aviation Administration (FAA) has recently introduced the new Airport Design Advisory Circular 150/5300-13A which includes clarifications, revisions and the introduction of new terms. As always, the planning and design of airfield facilities is based primarily on the types of aircraft using the airport. The FAA has established the Airport Reference Code (ARC) for planning and design purposes that signifies the airport's highest Runway Design Code (RDC). The RDC is a code based on planned development and signifies the design standards to which the runway is to be built. The Runway Design Code has three components. The first component, depicted by a letter, is the Aircraft Approach Category (AAC) and relates to **aircraft approach speed**. The second component, depicted by a Roman numeral, is the Airplane Design Group (ADG). ADG is a function of the design aircraft's **wingspan**. The third component of the RDG is the Visibility Minimums and is used to establish runway to taxiway separation distances. The FAA has also introduced the Runway Reference Code (RRC) which is comprised of the same three components as the RDC, however, describes the current operation capabilities of a runway where no special operating procedures are necessary. For layout of airport facilities, the design aircraft is the most demanding aircraft or group of aircraft having, or forecast to have, more than 500 annual operations at the airport.

Aircraft Approach Category is a grouping of aircraft based on 1.3 times their stall speed in their landing configuration at their maximum certificated landing weight. FAA design standards recognize the following Aircraft Approach Categories:

- Category A: Speed less than 91 knots.
- Category B: Speed 91 knots or more but less than 121 knots.
- Category C: Speed 121 knots or more but less than 141 knots.
- Category D: Speed 141 knots or more but less than 166 knots.
- Category E: Speed 166 knots or more.

Airplane Design Group is a grouping of aircraft based on wingspan. FAA design standards recognize the following Airplane Design Groups.

- Group I: Up to but not including 49 feet, tail height less than 20 feet.
- Group II: 49 feet up to but not including 79 feet, tail height 20 feet to less than 30 feet.
- Group III: 79 feet up to but not including 118 feet, tail height 30 feet to less than 45 feet.
- Group IV: 118 feet up to but not including 171 feet, tail height 45 feet to less than 60 feet.
- Group V: 171 feet up to but not including 214 feet, tail height 60 feet to less than 66 feet.
- Group VI: 214 feet up to but not including 262 feet, tail height 66 feet to less than 80 feet.

Visibility Minimums are expressed as Runway Visual Range (RVR) values in feet corresponding to the following Flight Visibility categories.

- 4000 ft: Lower than 1 mile but not lower than ¾ mile
- 2400 ft: Lower than ¾ mile but not lower than ½ mile
- 1600 ft: Lower than ½ mile but not lower than ¼ mile
- 1200 ft: Lower than ¼ mile

Therefore, for example, RDG B-I/2400 is an aircraft meeting the requirements for Aircraft Approach Category B (91 knots or more but less than 121 knots) and Airplane Design Group I (wingspan up to but not including 49 feet, tail height less than 20 feet) with visibilities lower ¾ mile. Typically, increasing the Aircraft Approach Category or Airplane Design Group, and providing for lower approach visibility minimums will increase required airport geometric design standards.

Additional design criteria are determined based on aircraft weight and type of approach. A small aircraft is defined in Advisory Circular 150/5300-13A, Airport Design, as “an airplane of 12,500 pounds or less maximum certificated takeoff weight”. An aircraft weighing more than 12,500 pounds is considered a large aircraft. Aircraft weight affects the required Part 77 surfaces and pavement design strength.

It is important to note that it is not necessary to design all of the airfield system to the standards of the most demanding aircraft using the airfield. For airports with two or more runways it is generally most practical to design some airfield components for a less demanding RDG. **Figure 3-1** on the follow page provides a visual representation of various aircraft and their associated RDG’s

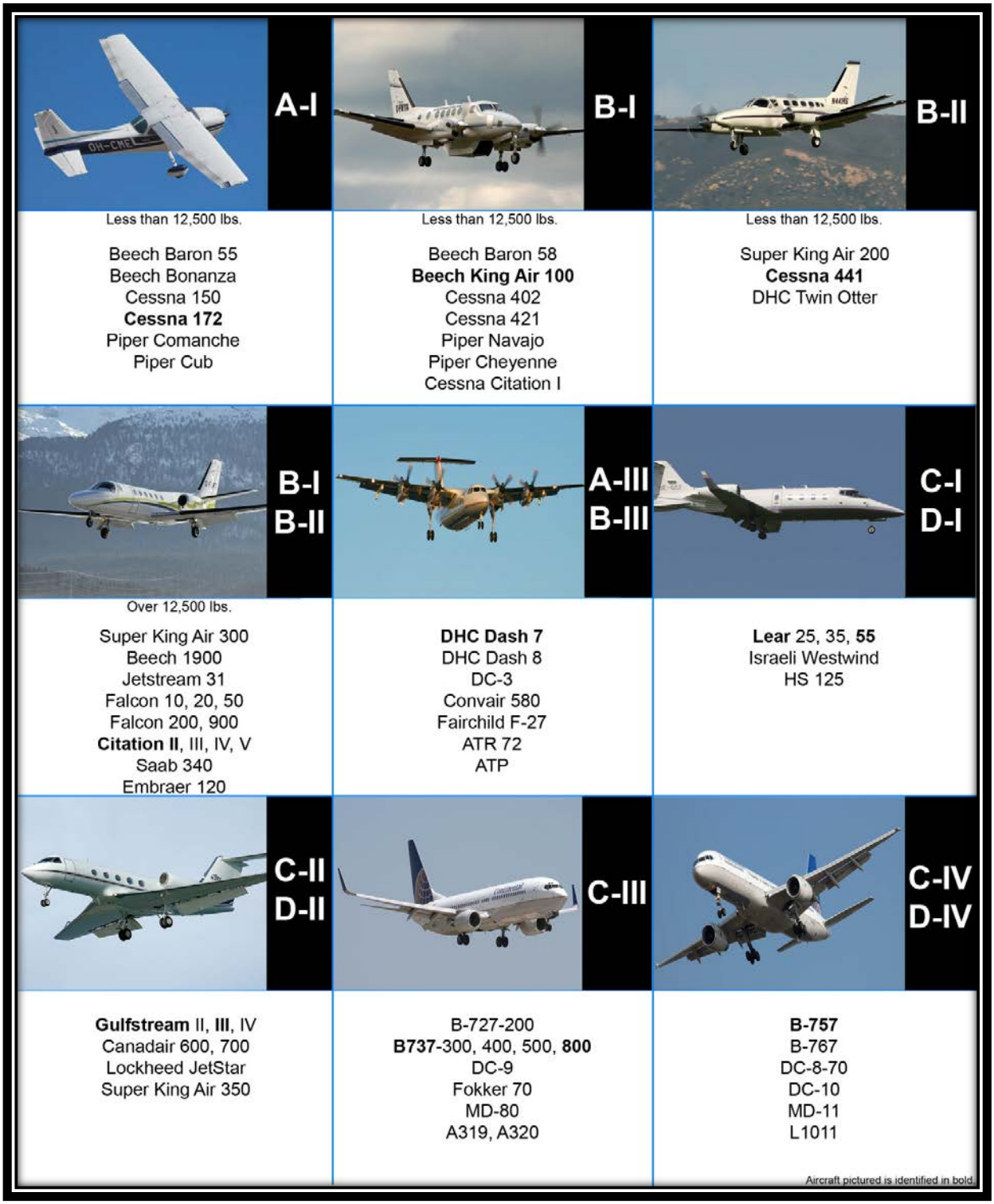

Figure 3-1 Runway Design Group

Currently, the most demanding aircraft using the airport are any number of the large B-II and C-II class corporate aircraft. Corporate aircraft, used on a regular basis at the Avi Suquilla Airport, include the following:

Owner	Aircraft Type	Runway Reference Code
Sun Care	(Medi-Vac) Piper Navajo	B-I
Native American Air	(Medi-Vac) Citation II, Pilatus, Helicopter	B-II, A-II
Guardian Air	(Medi-Vac) King Air 90	B-II
Manchester Feed, Inc.	Cessna 441	B-II
Air Rutter International	Citation III, Hawker HS 700, Gulfstream IV and V	C-II, C-II, C-III
Delta Media Corp.	Citation X	C-II
Bank One	Cessna 402	B-I
Basha's Grocery	King Air 350	B-II
Terrible Herbst	Citation III, Learjet	C-II, C-I
Safeway Grocery	King Air 350	B-II
Indian Health Service	King Air 350, Hawker HS 700	B-II, C-II

Based and transient GA aircraft include small single- and multi-engines (RDG A-I and B-I) and corporate turboprops (RDG B-II).

Avi Suquilla has developed an Airport Layout Plan (ALP) which provides a graphic representation of current and future airport facilities. It acts as a guide for long-term development at the airport. The airport's existing and ultimate design aircraft, shown on the ALP is the Gulfstream III (Runway Design Group C-II).

The critical aircraft, also called the design aircraft, may be a single aircraft or a composite of the most demanding characteristics of several aircraft. Considering the existing and future fleet mix, including B-II and C-II corporate jets and occasional usage by C-III aircraft, it is recommended that airfield areas continue to maintain RRC C-II design standards

Under former guidance, taxiway design was based on Airplane Design Groups (ADG). In the updated Advisory Circular AC 150/5300-13A, taxiway design is based on newly established Taxiway Design Groups (TDG), which are based on the overall Main Gear Width (MGW) and the Cockpit to Main Gear (CMG) distance. With respect to the former design standards, all taxiway lateral clearances, with the exception of Taxiway C2 are currently planned for ultimate Group III lateral clearances on the Airport Layout Plan. (Taxiway C-2 is an apron access taxiway which would be used primarily by smaller aircraft.) Group III standards are comparable to current standards for TDG 3. Use of TDG 3 provides clearances for aircraft such as the Gulfstream IV and V, which do occasionally use the airport. This represents a conservative approach for facility design.

In summary, the Runway Reference Code and Taxiway Design Groups of the associated airside facilities are shown below in **Table 3-1.**

Table 3-1 Facility Classifications

	Existing Classification	Ultimate Classification
Runway 1-19	RRC C-II	RRC C-II
Taxiway A	TDG 5	TDG 5
Taxiway B	3	3
Taxiway C	NA	3
Taxiway D	NA	3
Taxiway A1, A2, A3	2, 3	3
Taxiway C1	3	3
Taxiway C2	2	2

*Taxiways A1, A2, and A3 currently meet TDG 3 design standards between Taxiway A and B, and between future taxiway C and Runway 1-19. The remaining sections meet or will meet TDG 2 design standards.

3.4 Runway Requirements

In consideration of the forecast of future aviation activity, the existing runway was analyzed from several perspectives. These include airfield capacity, runway orientation, runway length, pavement strength, and compliance with applicable FAA design standards. The analysis for these various aspects of the runway system design is the basis for recommendations pertaining to airside improvements.

3.4.1 Runway Length

The critical aircraft selection is the primary consideration for the length requirements for Runway 1-19 The FAA Airport Design software program was used for evaluating the runway. Variables required by the program include the airport elevation, mean maximum temperature of the hottest month, the difference in feet between the high and low points of the runway, stage length for aircraft weighing more than 60,000 pounds, and the condition of the runway in terms of either dry or wet and slippery. Input variables for the Avi Suquilla Airport are:

Airport Elevation:	458.4 Feet
Effective Runway Gradient:	0.05 %
Mean Maximum Temperature:	109.0 Degrees F
Stage Length for Aircraft Greater than 60,000 Pounds:	1200 Miles

The results from the program can be found in **Table 3-2.** The software's output provides information for different classifications and percentages of aircraft that the runway will be designed to accommodate. The first distinction is between small and large aircraft. Small aircraft are defined as those weighing less than 12,500 pounds. Aircraft in the small category are almost exclusively piston driven propeller aircraft, although there are some small turboprop aircraft in this category as well. Large aircraft are those weighing in excess

of 12,500 pounds and encompass the remainder of the fleet. The critical aircraft for the Avi Suquilla Airport, the Gulfstream III, is within the large aircraft classification. Additionally, the aircraft weighs in excess of 60,000 pounds, which FAA guidance indicates the appropriate runway length would be (at least) 6,510 feet.

According to the table a runway length of 4,670 feet will accommodate 100 percent of small airplanes. This runway length is adequate to accommodate all small aircraft up to ARC B-II.

The present runway length of 6,250 is adequate to accommodate 75 percent of the business jet fleet at a useful load of 60 percent. Thus the current runway length is adequate for some use by a number of business jet aircraft. To accommodate a full range of business jet activity at 60 percent useful load, however, a runway length of 6,980 feet will be needed.

The 1997 Master Plan Update reviewed a summary of flight manual runway length requirements for aircraft most likely to operate at Avi Suquilla. The adjusted runway lengths for Avi Suquilla (450 AMSL, 100% gross take-off weight) gave runway lengths varying from 4,100 feet (turbo-prop) to 8,500 feet. The average runway length for aircraft weighing less than 30,000 lbs. was 6,650 feet with about 75% of the fleet requiring 7,500 feet of runway.

To accommodate longer range flights, such as nonstop flights to the east coast, the useful load would need to be increased to 90 percent for 75 percent of the business jets. As indicated on the table, this would require a runway length of 8470 feet. It is not anticipated that 100 percent of the fleet at 90 percent useful load would need to be accommodated, because this length typically represents long range international trips. While extension to this length is not anticipated to be justified during the planning period, the ability to ultimately extend the runway to as near to 8470 feet as possible should be preserved through land ownership control and protection of the airspace.

Table 3-2 FAA Runway Lengths, FAA Design Software

AIRPORT AND RUNWAY DATA
Airport elevation . . . . . 458.4 feet Mean daily maximum temperature of the hottest month . . . . . 109.0 F. Maximum difference in runway centerline elevation . . . . . .3.2 feet Length of haul for airplanes of more than 60,000 pounds . . . . . 1200 miles Dry runways
RUNWAY LENGTHS RECOMMENDED FOR AIRPORT DESIGN
Small airplanes with approach speeds of less than 30 knots . . . . . .310 feet Small airplanes with approach speeds of less than 50 knots . . . . . 840 feet Small airplanes with less than 10 passenger seats 75 percent of these small airplanes . . . . . .2860 feet 95 percent of these small airplanes . . . . . .3420 feet 100 percent of these small airplanes . . . . . 4090 feet Small airplanes with 10 or more passenger seats . . . . . .4670 feet
Large airplanes of 60,000 pounds or less 75 percent of these large airplanes at 60 percent useful load . . . . . .5120 feet 75 percent of these large airplanes at 90 percent useful load . . . . . .8470 feet 100 percent of these large airplanes at 60 percent useful load . . . . . .6980 feet 100 percent of these large airplanes at 90 percent useful load . . . . . .11030 feet
Airplanes of more than 60,000 pounds . . . . . .Approximately 6510 feet
REFERENCE: Chapter 2 of AC 150/5325-4B, Runway Length Requirements for Airport Design, no Changes included.

3.4.2 Runway Orientation, Additional Runways

FAA design standards recommend additional runway orientations when the primary runway orientation provides less than 95 percent wind coverage. The Avi Suquilla runway orientation was analyzed according to various crosswind components and calculated for all-weather conditions.

Crosswind limitations are a function of an aircraft's stall speed, pilot proficiency and other factors. For general planning purposes, the FAA has established crosswind limits of 10.5 knots for general aviation A-I and B-I aircraft, 13 knots for A-II and B-II general aviation

aircraft and 16 knots for transport aircraft A-III, B-III and C-I through D-III. Aircraft in approach category IV (A-IV through D-VI) have a crosswind limit of 20 knots.

The wind roses at the Avi Suquilla Airport were analyzed using 10.5 knot 13 knot and 16 knot crosswind components. **Table 3-3** summarizes wind coverage data for the airport. For the 10.5 knot crosswind limit, Runway 1-19 is available 96.66% of the time. For the 13 knot crosswind limit the runway is available 98.22% of the time and Runway 1-19 is available 99.51 of the time for the 16.0 knot crosswind component.

Table 3-3 Wind Coverage Summary Avi Suquilla Airport

	10.5 Knots Crosswind	13 Knots Crosswind	16 Knots Crosswind
Runway 1-19	96.66%	98.22%	99.51%

Because the Runways 1-19 achieves greater than 95% coverage at 10.5 knot, 13 knot and 16 knot crosswinds, additional or adjusted runway orientations are not necessary at the Avi Suquilla Airport.

3.4.3 Runway Width

The width of the existing runway was also examined to determine if it meets the needs for aircraft the currently and are forecasted to use the airfield. Currently, Runway 1-19 is 100 feet wide. This width will accommodate the requirements for Airplane Design Groups (ADG) II and III through the planning period.

3.4.4 Runway Pavement Strength

According to airport records, Runway 1-19 is rated as having an existing runway pavement strength of 30,000 pounds for single wheel aircraft, 50,000 pounds for dual wheel aircraft. The heaviest critical aircraft that will be used to determine load bearing capacity is the Gulfstream III, which has a maximum takeoff weight of 68,700 pounds on dual wheel gear. A pavement strength of 60,000 pounds for dual wheel aircraft would provide suitable strength for this aircraft at a 90 percent useful load, which is reasonable given likely haul lengths. In addition, taxiways and designated apron areas must be strengthened sufficiently to support taxiing and parking of these aircraft.

A regular series of pavement maintenance is recommended for all airfield pavements. Based on the current condition of existing pavements, a general schedule for major and preventative maintenance items is presented in **Table 3-4**. Actual project timing will depend on the availability of funding and actual wear on pavement. The primary elements are listed, followed by their typical useful life.

Table 3-4 Airfield Pavement Maintenance

Recommended Maintenance Program		Approximate Life Expectancy		
Pavement Overlays Sealcoat Cracksealing		15 to 20 years 6 to 8 years 3 years		
Pavement	**Last Construction**	**Overlay**	**Sealcoat**	**Cracksealing**
Runway 1-19	2008	2018	2013	3 year cycle
Parallel Taxiway A	2010	2020	2013	3 year cycle
Parallel Taxiway B	2010/2011	2020	2013	3 year cycle
Other Taxiways	*	*	*	3 year cycle
Transient Apron	2008	2018	2012	3 year cycle
Based Aircraft Apron	1993	2012	2017	3 year cycle

*Maintenance on exit and connecting taxiways should be done as part of related runway, parallel taxiway, or apron projects.

3.5 Taxiway Requirements

Taxiways are constructed primarily to facilitate aircraft movement to and from the runway system. Some taxiways are necessary simply to provide access between aprons and runways, while other taxiways become necessary as activity increases and safer and more efficient use of the airfield is needed. Runway 1-19 is served by two parallel taxiways located west of the runway. Taxiway A is located 1,050 feet from the runway centerline and Taxiway B is located 1,300 feet from the runway centerline. Taxiway A is the former runway alignment and is 75 feet wide. Taxiway B is 50 feet wide. Connecting Taxiways A1, A2 and A3 link parallel Taxiways A and B to Runway 1-19. Connecting Taxiways A1, A2 and A3 are 50 feet wide between the parallel runways and 35 feet wide between Taxiway A and Runway 1-19.

The existing 50 and 75 foot taxiway widths are adequate for TDG 2 and 3 aircraft; the Taxiway Design Group 2 and 3 standards are 35 feet and 50 feet respectively. The configuration of taxiways necessitates several 90 degree turns as aircraft taxi from the ends of Runway 1-19 to the terminal area. Airport users with larger aircraft have indicated difficulty in maneuvering the 35 feet wide sections of taxiway. Consideration should be given in the future for widening the 35 foot sections of taxiway on the airfield and/or modifying taxiway geometry to eliminate 90 degree turns.

3.6 FAA Design Standards

One of the key considerations of any airport planning effort is to evaluate the dimensional standards for the airfield layout, established by the FAA. **Table 3-5** presents a summary of significant FAA design standards that need to be compared with existing conditions to evaluate whether the Avi Suquilla airport meets criteria for the aircraft currently being served. The application of these design standards establishes airport geometry. As previously mentioned, the airport is currently classified as a C-II facility.

Table 3-5 FAA Design Standards

	Existing RW 1-19	FAA Standards for C-II	FAA Standards for C-III*
Runway Object Free Area			
Width	800’	800’	800’
Length Beyond Runway End	1,000’	1,000’	1,000’
Runway Safety Area			
Width	500’	500’	500’
Length Beyond Runway End	1,000	1,000	1,000
Runway Obstacle Free Zone			
Width	400’	400’	400’
Length Beyond Runway End	200’	200’	200’
Taxiway Object Free Area			
Width	131’	131’	186’
Taxiway Safety Area			
Width	79’	79’	118’
Design Criteria			
Runway Width	100’	100’	100
Taxiway Width	40’-75’	35’ (TDG 2)	50’ (TDG 3)
Runway Centerline to Parallel T/W Centerline	400’	300’	400’
Runway Centerline to Holdline	250’	250’	250’
Runway Centerline to Edge of Aircraft Parking	>500’	400’	500’
Taxiway Centerline to Fixed or Movable Object	>93’	65.5’	93’

*Note that most of the existing Avi Suquilla airfield facilities also meet the FAA Standards for RDG C-III.

Runway Object Free Area (OFA): The Runway Object Free Area is a two dimensional ground area surrounding the runway. The runway OFA clearing standard precludes parked airplanes and objects except those whose location is fixed by function such as a navigational aid. In order to meet the standard for RRC C-II, the OFA for Runway 1-19 must be 800 feet wide and extend 1,000 feet beyond each runway end. The existing OFA for Runway 1-19 does meet the FAA design standards for RRC C-II.

Runway Safety Area (RSA): The Runway Safety Area is a defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway. The RSA should be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface

variations. The RSA dimensions associated with C-II standards are a width of 500 feet and an extension of 1,000 feet beyond the runway end. The existing RSA for Runway 1-19 meets the FAA design standards for RRC C-II.

Runway Obstacle Free Zone (OFZ): The runway OFZ is a defined volume of airspace centered above the runway centerline. It is the airspace above a surface whose elevation at any point is the same as the elevation of the nearest point on the runway centerline. The standard OFZ for RRC C-II aircraft is 400 feet wide and 200 feet beyond the runway end. The OFZ for Runway 1-19 meets the FAA design standards for RRC C-II, measuring 400 feet wide and extending 200 feet beyond the runway end.

Taxiway Object Free Area (TOFA): The TOFA is a two dimensional ground area adjacent to taxiways. The taxiway OFA clearing standard precludes vehicle service roads, parked airplanes, and objects except those whose location is fixed by function such as a navigational aid. The FAA standard TOFA for Group II aircraft is 131' wide centered on the taxiway centerline. This indicates that parked aircraft need to be at least 65.5 feet from the centerline of the nearest taxiway. The provided TOFA is 131 feet wide and meets required FAA design standards for Group II aircraft.

Taxiway Safety Area (TSA): The TSA is a defined surface alongside the taxiway prepared or suitable for reducing risk of damage to an airplane unintentionally departing the taxiway. The minimum standard TSA width for Group II aircraft is 79 feet. The existing taxiways currently have a TSA of 79' wide which meets the FAA design standard for Group II aircraft.

3.7 Design Criteria

Runway Width: The design standards for runway width take into account not only aircraft approach category, but also consider operations conducted during reduced visibility. The FAA runway width design standard for RRC C-II aircraft is 100 feet for aircraft weighing less than 150,000 pounds. Runway 1-19 is 100 feet wide and meets FAA RRC C-II standards.

Line of Sight: FAA line of sight standards require that two points five feet above the centerline of a runway, without a parallel taxiway, be mutually visible for the entire runway. For runways with a full parallel taxiway, the standard requires that two points, five feet above the centerline, be mutually visible for one half of the runway length. Further, there is a requirement that for intersecting runways, points five feet above the centerline must be mutually visible within the Runway Visibility Zone (RVZ).

Line of sight requirements are currently met at Avi Suquilla Airport; however, care must be taken not to create a problem should the runway be lengthened in the course of development.

Taxiway Width: Taxiway width is correlated to the physical characteristics of the aircraft design group without respect to the operational characteristics of the airport approach category. The Taxiway Design Group 2 width standard is 35 feet, the Taxiway Design Group 3 width standard is 50 feet and the TDG 5 standard is 75 feet.

Taxiway A is 75 feet wide and Taxiway B is 50 feet wide. Connecting Taxiways A1, A2 and A3 are 50 feet wide between the parallel taxiways and 35 feet wide between Taxiway A and Runway 1-19. Taxiway C1 is 50 feet wide and taxiway C2 is 40 feet wide.

The existing configuration of taxiways necessitates several 90 degree turns as aircraft taxi from the ends of Runway 1-19 to the terminal area. Airport users with larger aircraft have indicated difficulty in maneuvering the 35 feet wide sections of taxiway.

Runway Centerline to Parallel Taxiway Centerline: This design criterion establishes the minimum separation between the centerline of the runway and the centerline of the parallel taxiway. This separation is determined based upon the RRC. The separation standard for Runways and Parallel Taxiways with a RRC of C-II is 300 feet and C-III is 400 feet.

The distance between the centerline of Runway 1-19 and the parallel portions of Taxiway A-1 and A-3 is 400 feet. The distance between the centerlines for Runway 1-19 and Taxiway A is 1,050 feet. The distance between the centerlines for Runway 1-19 and Taxiway B is 1,300 feet.

Runway Centerline to Holdline: This standard provides for marking on pavement and placing signs at locations on taxiways where aircraft hold prior to receiving clearance to enter the runway. These locations are chosen to ensure that aircraft are clear of the RSA and OFZ during operations by other aircraft on the runway. The standard holding positions for RRC C-II and C-III aircraft are located 250 feet from the runway centerline.

A holdline position of 250 feet of separation is provided for Runway 1-19. This meets the standard for RRC C-II and C-III.

Runway Centerline to Edge of Parking Area: This standard is designed to allow additional clearance between aircraft parking areas and aircraft operations on the runway, while protecting space between these areas for a parallel taxiway. The FAA standard for RRC C-II is 400 feet and C-III is 500 feet.

The airport's aircraft parking separation currently exceeds the required distance. No construction of aircraft parking aprons will be permitted within the designated area.

3.8 Airfield Marking, Lighting and Signage

Pavement markings, lighting and signage facilitate the safe movement of aircraft about the airfield by directing pilots to their destinations. Runway markings are designed according to the type of instrument approach available on the runway. FAA Advisory Circular (AC) 150/5340-1G, Marking of Paved Areas on Airports, provides the guidance necessary to design an airport's markings.

Runway 1-19 has the necessary markings for the non-precision instrument approach that serves the runway. Besides routine maintenance of the runway markings, these markings will suffice through the planning period.

Taxiway and apron areas also require marking. Yellow centerline stripes are currently painted on all taxiway surfaces at the airport to provide guidance to pilots. The terminal

apron surface has centerline markings to indicate the alignment of taxilanes within these areas, however the general aviation apron does not. Taxilane markings should be added to the general aviation apron areas during routine maintenance of the pavement surface.

Airport lighting systems provide critical guidance to pilots during nighttime and low visibility operations. Runway 1-19 is equipped with medium intensity runway edge lighting (MIRL).Effective ground movement at night is enhanced by the availability of taxiway lighting. Medium intensity taxiway lighting (MITL) is in place on all taxiways and exits. The existing airfield lighting systems, while adequate in intensity, will need routine maintenance and upgrades during the planning period.

Airfield signage provides another means of notifying pilots as to their location on the airport. A system of signs placed at several airfield intersections on the airport is the best method available to provide this guidance. Signs located at intersections of runways and taxiways provide crucial information to avoid conflicts between moving aircraft. Directional signage instructs pilots as to the location of taxiways and terminal aprons.

Signage for the Avi Suquilla Airport was surveyed and updated in 2008 in conjunction with the relocation of Runway 1-19. Airfield signage at the airport includes hold position signs, distance remaining signs and directional signs. Airfield signs are incandescent internally lighted and reflect current FAA standards.

3.9 Navigational and Approach Aids

Electronic and visual approach aids provide guidance to arriving aircraft and enhance the safety and capacity of the airfield. Such facilities are vital to the success of the airport and provide additional safety to passengers using the air transportation system. While instrument approach aids are especially helpful during poor weather, they are often used by commercial pilots when visibility is good.

Instrument approaches are categorized as either precision or non-precision. Precision instrument approach aids provide an exact alignment and decent path for an aircraft on final approach to a runway while non-precision instrument approach aids provide only runway alignment information. Most existing instrument approaches in the United States are instrument landing systems (ILS).

With the advent of Global Positioning System (GPS), stand-alone instrument assisted approaches will eventually be established that provide vertical guidance down to visibility minimums currently associated with precision runways. As a result, airport design standards that formerly were associated with a type of instrument procedure (precision/non-precision) are now revised to relate instead to the designated or planned approach visibility minimums. It is expected that future instrument approaches to the airport will involve the use of GPS to provide vertical guidance and runway alignment information with visibilities of 3/4 mile or less.

3.10 Existing Instrument Approaches

The current instrument approach procedures at Avi Suquilla are “circling to land” using a VOR/DME or GPS-A approach. The existing minimums are:

Category A: 1,450 ft. ceiling, 1 ¼ mile visibility
Category B: 1,450 ft. ceiling, 1 ½ mile visibility
Category C: 1,450 ft. ceiling, 3 mile visibility

Future refinements of GPS along with the installation of a GPS ground station will permit lower minimums in the future. For planning purposes, establishment of a non-precision approach with visibility minimums as low as ¾ mile should be assumed to establish future FAR part 77 lateral clearances.

3.11 Approach Lighting

In most instances, the landing phase of any flight must be conducted in visual conditions. To provide pilots with visual guidance information during landings to the runway electronic visual approach aids are commonly provided at airports. The existing visual approach aids consist of four light precision approach path indicators (PAPI-4) on both ends of Runway 1-19.

Runway end identifier lights (REILs) provide rapid and positive identification of the approach end of the runway. Runway ends at Avi Suquilla are not currently equipped with REILs. REILs should be considered for runway ends not planned for a more sophisticated approach lighting system. Addition of a medium intensity approach lighting system with runway alignment indicator lights (MALSR) would ultimately enable the airport to meet Category I minimums of one half mile visibility.

RUNWAYS AND TAXIWAYS		
EXISTING	**SHORT TERM (2017)**	**LONG TERM (2032)**
Runway 1-19 6250' X 100' 30,000 lbs SWL, 50,000lbs DWL, Full length parallel TW A Full length parallel TW B	**Runway 1-19** Same	**Runway 1-19** 8,500' X 100' 60,000 lbs DWL
NAVIGATIONAL AIDS		
EXISTING	**SHORT TERM (2015)**	**LONG TERM (2032)**
Runway 1-19 VORTAC DME GPS PAPI-4	**Runway 1-19** Same	**Runway 1-19** Stand Alone GPS (WAAS)
LIGHTING AND MARKING		
EXISTING	**SHORT TERM (2015)**	**LONG TERM (2032)**
Runway 1-19 Non-Precision Instrument Markings MIRL, MITL	**Runway 9-27** Non-Precision Instrument Markings MIRL, MITL REIL	**Runway 9-27** Non-Precision Instrument Markings MIRL, MITL REIL MALSR

Figure 3-2 Airfield Facility Requirements

3.12 Landside Facility Requirements

Landside facilities are those that support the airside facilities, but are not actually a part of the aircraft operating areas. The capacities of the various components of each area were examined in relation to projected demand to identify future landside facility needs during the planning period for the following types of facilities:

- General Aviation Terminal Services
- Hangars
- Aircraft Parking Apron
- Access and Vehicle Parking
- Fuel Storage

3.12.1 Terminal Area

Terminal Building

A general aviation terminal can serve several functions including providing space for passenger waiting, pilot's lounge, flight planning, concessions, line service, airport management offices, and various other needs. At most general aviation airports, these functions may not necessarily be limited to a single, separate terminal building, but can also be included in the space offered by fixed base operators (FBO) for these functions and services. For the purposes of this analysis, and since CRIT serves as the airport's FBO, the space requirements will reflect that of a single, functional, terminal building.

The existing building serving the functions of airport administration office, pilots lounge, and FBO office is located adjacent to the itinerant ramp and is approximately 1,500 square feet. The methodology used in estimating general aviation terminal facility needs is based on the number of airport users expected to utilize general aviation facilities during the design hour. General aviation space requirements were then based upon providing 120 square feet per design hour itinerant passenger. The number of design hour itinerant passengers is determined by multiplying design hour itinerant operations by the number of passengers on the aircraft (multiplier). An increasing passenger count (from 1.9 to 2.2) is used to account for the likely increase in larger, more sophisticated aircraft using the airport. **Table 3-6** outlines the general space requirements for a public general aviation terminal at Avi Suquilla. This analysis indicates that while the existing terminal building may be appropriately sized in the short term, it will be undersized in the intermediate and long term.

Table 3-6 General Aviation Terminal Area Facilities

	Available	2017	2022	2027	2032
Design Hour Itinerant Operations	5	6	6	7	8
Multiplier	1.8	1.9	2	2.1	2.2
Total Design Hour Passengers	10	11	13	15	17
General Aviation Building Space (s.f.)	1,500	1,320	1,560	1,800	2,040

Apart from sizing, it should be noted that the building is approaching 50 years old and is in need of extensive renovations or replacement. The building has no insulation except in the ceiling and its windows are all single pane. With summer temperatures frequently in excess

of 110 degrees Fahrenheit, it is often impossible to cool the inside of the building below 90 degrees.

Fire Protection

Currently, there are not any water mains or fire hydrants protecting the aircraft parking area, terminal or hangars at the airport. The closest fire hydrant is at a shopping center at the intersection of Airport Road and Highway 95, which is about 1,400 feet away from the closest aircraft parked on the GA Apron. A fire protection water line to serve the general aviation parking apron, terminal and hangar areas is urgently needed to increase fire safety on the airfield.

Drainage Issues

At the present time, rainfall runoff from a portion of the aircraft apron and public parking lot floods the Terminal and main hangar buildings. Although average annual rainfall at the airport is in the two to four inch range, it is not uncommon for intense localized summer monsoon thunder storms to drop up to an inch of rainfall in less than an hour. An August, 2012 storm (3/4" in about 25 minutes) completely overwhelmed the capacity of the parking lot to the drain the surface runoff, resulting in flooding of the hangar and terminal buildings. The existing conditions are due to a number of factors, most of which can be traced to decisions for siting the terminal and hangar when they were constructed in the 1960's and subsequently the lack of funds to reconstruct airside at more desirable locations. This drainage situation needs to be corrected by re-grading the parking lot and installing an underground storm drainage system. Because facilities are currently damaged and continue to degrade with each flooding event, the construction of the storm drain system should be viewed as a high priority project.

Parking lot flooding 8/1/2012

Utilities

The existing terminal is served by a 40+ year old septic tank and leach field, which does not meet current standards. There are no as-built plans available, and the leach field is covered by asphalt, which is not permitted under current regulations. The airport is in need of a sanitary sewer line that extends to the Parker/CRIT sanitary sewer system for treatment. The administration building is currently served with above ground electrical power and telephone service which should be placed underground. In addition, the building relies on dial-up internet access, which does not provide the speed required for Pilots Flight Planning or AWOS weather data download. An upgrade in Internet communications access is recommended.

3.12.2 Hangars

The demand for hangar facilities typically depends on the number and type of aircraft expected to be based at the airport. For planning purposes, it is necessary to estimate hangar and apron facilities based on peak design periods. However, hangar and apron development should be based on actual demand trends and financial investment conditions.

Typical utilization of hangar space varies across the country as a function of local climate conditions, airport security and owner preferences. Although most of the based aircraft at the Avi Suquilla Airport are stored in hangars, weather is not the only factor that influences the demand for hangar storage. Nationwide trends for general aviation aircraft, whether single or multi-engine, are toward larger, more sophisticated and expensive aircraft. Owners of these types of aircraft normally desire hangar space to protect their investment.

The future allocation of based aircraft storage is presented in **Table 3-7**. Single-engine aircraft use was split evenly between conventional hangars and T-hangars / condos, with a small percentage being stored using tie-downs. Conventional hangar use was assumed for 80 percent of the multi-engine and helicopter fleet and 100 percent of the business jets.

Table 3-7: Based Aircraft Storage Distribution

	Current Need	2017	2022	2027	2032
Tie Down					
Single Engine	40%	30%	20%	15%	10%
Multi Engine	0%	0%	0%	0%	0%
Jet	0%	0%	0%	0%	0%
Rotorcraft	0%	0%	0%	0%	0%
T-Hangar					
Single Engine	57%	60%	70%	75%	80%
Multi Engine	50%	45%	40%	35%	30%
Jet	100%	50%	50%	50%	30%
Rotorcraft	50%	0%	0%	0%	0%
Conventional Hangar					
Single Engine	3%	10%	10%	10%	10%
Multi Engine	50%	55%	60%	65%	70%
Jet	0%	50%	50%	50%	70%
Rotorcraft	50%	100%	100%	100%	100%

Determining hangar requirements involves estimating the area necessary to accommodate the required hangar space. A planning standard of 1,250 square feet per based aircraft stored in T-hangars was used. For conventional hangars, a planning standard of 1,500 square feet for single-engines and 2,500 square feet for twin-engine, jet and helicopters was used. Current hangars provide an average of 1950 square feet for each aircraft based on the airfield. Since portions of conventional hangars are also used for aircraft maintenance and servicing, requirements for service hangar area were estimated using a planning standard of approximately 15 percent of the total hangar space needs.

Table 3-8 compares existing hangar availability to the future hangar requirements for the planning period. From the analysis, additional hangar area is justified in the near term.

Table 3-8: Hangar Requirements

	Currently Available	Current Need	2017	2022	2027	2032
Based Aircraft*						
Single Engine		27	29	32	35	37
Multi Engine		5	7	8	11	14
Jet		1	2	2	2	3
Rotorcraft		2	2	2	2	2
Total Based Aircraft*		35	40	44	50	56
Aircraft to be Hangared						
T-Hangar /Condo Positions	20	20	22	27	31	35
Conventional Hangar **	4	4	10	11	14	18
Total Aircraft ***	24	24	31	38	45	52
Hangar Area (s.f.)						
T-Hangar/Condo Area	25,000	24,863	26,938	33,250	38,875	43,375
Conventional Hangar Area	10,000	9,965	21,475	24,300	30,625	40,300
Maintenance Area ****		5,224	7,262	8,633	10,425	12,551
Total Hangar Area (s.f.)	35,000	40,052	55,674	66,183	79,925	96,226

* Not including military aircraft
** An average of 5 positions per large hangar, 2 positions per standard hangar assumed for current conditions
*** May not total due to rounding
**** Existing maintenance areas included within conventional hangar area.

3.13 Aircraft Parking Apron

A parking apron should be provided to accommodate the number of locally-based aircraft that are not stored in hangars as well as transient aircraft. As noted in **Table 3-9**, it is anticipated that some based single engine aircraft owners will still prefer ramp storage over the long range. Therefore, the parking apron should be sized to accommodate this demand through the planning period. FAA planning criterion of 300 square yards per tie down was used to estimate the ramp area that would be needed for based aircraft. The number of local tie downs and ramp space for the planning period is presented in **Table 3-9**.

FAA Advisory Circular 150/5300-13A suggests a methodology by which transient apron requirements can be determined from knowledge of busy-day operations. At Avi Suquilla Airport, the number of transient spaces required was estimated to be approximately 25 percent of busy day itinerant operations. Planning criterion of 500 square yards per aircraft was applied to the number of transient apron requirements. The transient apron space ratio is higher than that of the based aircraft apron because it serves a larger variety of aircraft and is typically designed for taxi-through parking spaces. The results of this analysis are presented in **Table 3-9**. There is approximately 43,000 square yards of parking apron in the

general aviation area. While the results shown in the table indicate that the existing general aviation apron area should be adequate for the planning period, consideration must be given to the regular special events that occur at the airport. The apron regularly exceeds full capacity during special events when the ramp can fill with in excess of 100 aircraft. Another consideration will be the location of the apron in relation to other facilities. Currently helicopter operations are integrated into fixed wing activity on the ramp. Separating helicopter operations from fixed wing aircraft would reduce the risk of damage to aircraft due to wind turbulence and flying debris.

Table 3-9: Aircraft Parking Apron Requirements

	Currently Available	Current Need	2017	2022	2027	2032
Based Aircraft						
Non-Hangared Aircraft		11	9	6	5	4
Tie-down Area (s.y.)		3,240	2,610	1,920	1,575	1,110
Transient Aircraft						
Busy Day Itinerant Operations		44	48	52	57	63
Transient Parking Positions		11	12	13	14	16
Transient Apron Area		5,444	5,959	6,528	7,155	7,846
Total Parking Apron Positions	77	22	21	19	20	19
GA Apron Area (s.y.)	43,150	8,684	8,569	8,448	8,730	8,956

3.14 Fuel Storage

The fuel farm consists of two above ground tanks, one 12,000 gallon jet fuel tank and one 12,000 gallon avgas tank. Fuel storage requirements are typically based upon maintaining a one month supply of fuel during an average month, however more frequent deliveries can reduce the fuel storage capacity requirement. Over the past four years, avgas fuel sales at Avi Suquilla Airport have averaged 2.36 gallons per operation while Jet A fuel sales have averaged 3.15 gallons per operation. This ratio was used to project future fuel sales. **Table 3-10** presents future fuel storage requirements for the airport.

Table 3-10: Fuel Storage Requirements

	Currently Available	Current Need	2017	2022	2027	2032
Annual Operations		11,250	14,002	15,791	17,709	20,085
AvGas						
Annual Demand (gal.)		26,550	33,045	37,267	41,793	47,400
Existing Capacity (gal.)		12,000	12,000	12,000	12,000	12,000
Number of Days Supply (gal.)		165	133	118	105	92
Jet A						
Annual Demand (gal.)		35,438	44,106	49,741	55,783	63,268
Existing Capacity (gal.)		12,000	12,000	12,000	12,000	12,000
Number of Days Supply (gal.)		124	99	88	79	69
*Note recommended minimum tank size – 12,000 gallons						

It is anticipated that avgas and Jet fuel storage capacities will be adequate for the planning period. However, as noted in Chapter 1, the tank system was constructed to auto fueling standards with minimal engineering and is poorly designed for aviation use. The fuel storage tanks themselves appear adequate, however, the fuel dispensing systems require significant upgrade in order to meet aviation fueling standards. To better serve after-hours operations and in consideration of limited staffing, it is recommended that a fueling system with self-serve capability be considered in the short term. In addition, it is recommended that a spill containment facility be constructed at the fuel truck parking location.

It is recommended that the following items be included in the specifications for a fuel dispensing system upgrade:

Jet A Tank System

- **Automated Self-Serve Fuel Management System** capable of unattended operation for 7 days a week, 24 hours a day.
- **Filtration:** Milli-pore test ports installed on the inlet and outlet lines of the Jet-A filter vessel. For self service delivery directly into an aircraft from storage, a filter/monitor should be used. Filter vessels should be equipped with a means of convenient sump draining, and a DP (Delta Pressure or differential pressure gauge), a pressure relief valve, and an air eliminator with any discharges captured to a container.
- **Drain / Sump:** Filter vessels should be equipped with a sump drain positioned at the low point of the vessel for removal of accumulated water and free water (i.e., a ball valve piped to an accessible location, all stainless steel).
- **Overwing Nozzles:** OPW 1 ½" inlet x 1 ½" outlet anti mis-fueling overwing nozzle. Nozzle should be equipped with swivel, dust cap, and static ground/wire clamp. Nozzle should be interchangeable and completely functional between both hoses.
- **Single Point Nozzle:** A single point fuelling nozzle with hose end pressure control valve. Nozzle should be equipped with 100-mesh strainer, swivel and dust cap. Nozzle should be interchangeable and completely functional between both hoses.

- **Deadman Control Unit:** The single point nozzle shall have an independent deadman control handle.

Avgas 100LL Tank System

- **Automated Self-Serve Fuel Management System** capable of unattended operation for 7 days a week, 24 hours a day.
- **Filtration:** Avgas 100LL, a one (1) micron filter monitor should be used on the outlet line of the system. Filter vessels must be equipped with a means of convenient sump draining and a DP (Delta Pressure or differential pressure gauge). Pressure relief valve and air elimination are not required or advised for this low flow system.
- **Drain / Sump:** Filter vessels should be equipped with a sump drain positioned at the low point of the vessel for removal of accumulated water and free water (i.e., a ball valve piped to an accessible location, all stainless steel).
- **Overwing Nozzles:** OPW 1" inlet x 1" outlet anti miss-fueling over wing nozzle. Nozzle shall be equipped with swivel, dust cap, and static ground/wire clamp.

3.15 Security

Avi Suquilla Airport is currently surrounded by six foot security fencing; however, the perimeter road used to inspect the fence is on unstable sand. A perimeter road with an all-weather surface is recommended.

As noted in Chapter 1, Apron lighting consists of automobile street lights mounted on weathered wooden poles. The lights are served by overhead power lines which run parallel with the edge of the apron. It is recommended that apron lighting be upgraded to standard specifications and converted to underground power.

3.16 Summary

The facility requirements evaluation has identified several facility improvements for the airfield, in the terminal area and in general aviation segments. Key recommendations in each of these areas are summarized below.

Airfield

- Plan for lengthening of Runway 1-19 to 7,000 feet within the planning period
- Plan for ultimate length of up to 8,500 feet on Runway 1-19
- Consider widening 35 foot wide sections of taxiways to 50 feet
- Consider modification of taxiway geometry to eliminate 90 degree turns
- Protect lateral ground clearance for possibility of future GPS
- Protect lateral ground clearance for MALSR approach lighting system
- Add REILS to Runway 1-19
- Designate helicopter landing area(s)

Terminal Area / Access

- GA terminal expansion / replacement
- Access / signage from Riverside Drive
- Fire Protection Water Line
- Drainage improvements to terminal parking area

- Utility installation / relocation – electric, telephone, internet, sewer

General Aviation

- Apron expansion to accommodate regular special events
- Additional storage hangars
- Segregated area for helicopter operators
- Fueling system upgrades including self-service and spill containment
- Upgrade apron lighting
- All-weather perimeter road

Each of these functional areas will be given consideration in the following evaluation of airport development alternatives. The next chapter will provide analysis and recommend the best alternative for the future development of the airport, taking into consideration other factors such as access and highest and best use of airport property.

ALTERNATIVES

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4. AIRPORT IMPROVEMENT ALTERNATIVES

4.1 Introduction

Chapter 3, *Demand Capacity Analysis and Facility Requirements* identified airport facility improvements required over a twenty-year planning period. The purpose of this chapter is to identify alternative development plans capable of meeting those needs. A series of improvement alternatives will be compared for their ability to meet airfield, terminal and general aviation needs. Other improvements on the airport property which can provide revenue support will also be discussed. A preferred master plan concept will be recommended based on an evaluation of which alternative or combination of alternatives best meet the identified airport need. Because actual activity levels can vary from forecast levels, the plan must always retain an element of flexibility.

The evaluation of airport improvement alternatives may include the "no action" or "no build" alternative. This alternative will eventually reduce the quality of services provided to the public and potentially affect the Parker area's ability to accrue additional economic growth.

While this study does not deal with the potential relocation of services to other airports, this option also exists. It would be difficult to duplicate the services and convenience of the current facility at a nearby airport and the economic and environmental costs of new site development are generally far greater than the cost of developing the existing site. It is sometimes possible to relocate, or encourage the relocation of some services. However, most of the services which local users find attractive are not easily met at nearby airports.

If the Avi Suquilla Airport were closed, service would need to be transferred to:

- Lake Havasu City Airport, approximately 45 miles to the north.
- Yuma International Airport, approximately 120 miles to the south.
- Blyth, CA Airport, approximately 65 miles south and west of Parker.

Closing the airport and transferring services to another airport does not meet Tribal or La Paz County needs. Parker is the La Paz County seat and CRIT Reservation Tribal Headquarters. Yuma and Blythe do not meet the needs of the current airport users.

Transfer of aircraft larger than utility aircraft to Lake Havasu Airport does not meet the needs of CRIT, Parker or La Paz County. Travel time is in excess of one-hour on a heavily traveled two-lane curvilinear road, congested with trucks, RV's, winter visitors and summer tourists.

The inconvenience to business in Parker and corporations supporting Tribal activities will be significant if corporate aircraft fly to another existing airport.

The effect on Medi-Vac flights with passengers requiring one to two hours of ground transport time before transferring to a Medi-Vac aircraft will also be significant.

Because the "no-build" and "transfer of services" options are not feasible for Avi Suquilla Airport, the master planning process must attempt to address the facility needs which have been identified in the previous chapter, by providing a logical decision path which the CRIT

can follow in order to meet projected needs. Through coordination with CRIT staff, the Tribal Council and the public, the alternatives will be refined and modified as necessary to shape the recommended improvement program. The alternatives presented in this chapter can be considered a beginning point for formulating the updated master plan improvement program, and input will be necessary to define the resulting program. A final decision with regard to pursuing a particular improvement plan which meets the needs of commercial and general aviation users ultimately rests with the Colorado River Indian Tribes (CRIT).

4.2 Development Considerations

Development objectives have been established to show the intent, purpose, and direction for future airport development. Development objectives for Avi Suquilla Airport are as follows:

- Accommodate the forecast aviation fleet in a safe and efficient manner with the appropriate facilities
- Plan and develop an airport that is capable of accommodating the future needs and requirements of the Avi Suquilla Airport's service area.
- Enhance the self-sustaining capability of the airport and ensure the financial feasibility of development.
- Develop a facility offering services and infrastructure that will attract new businesses to the area and the airport.
- Plan and develop an airport that is environmentally compatible with the community and minimize environmental impacts to both airport and adjacent properties.
- Develop a plan that will encourage economic development for the community.

In attempting to meet these objectives, improvement of facilities should be undertaken in such a manner as to minimize operational constraints. Flexibility is essential to assure adequate capacity while minimizing financial commitments until market potential is realized. **Figure 4-1** summarizes the major airport development considerations based on facility requirements. While many of these development considerations reflect projects or topics which are demand driven, others are functional in nature.

Airfield Considerations

- **Plan for lengthening of Runway 1-19 to 7,000 feet within the planning period**
- **Plan for ultimate length of up to 8,500 feet on Runway 1-19**
- **Consider widening 35 foot wide sections of taxiways to 50 feet**
- **Consider modification of taxiway geometry to eliminate 90 degree turns**
- **Protect lateral ground clearance for possibility of future GPS**
- **Protect lateral ground clearance for MALSR approach lighting system**
- **Add REILS to Runway 1-19**
- **Designate helicopter landing area(s)**

Terminal / Access Considerations

- **GA terminal expansion / replacement**
- **Access / signage from Riverside Drive**
- **Construction of a sanitation sewer line**

General Aviation Considerations

- **Apron expansion**
- **Additional storage hangars**
- **Segregated area for helicopter operators**
- **Fueling system upgrades including self-service and spill containment**
- **Drainage improvements to reduce flooding**
- **Fire/water line to increase safety at the airport and in the GA terminal area**

Miscellaneous

- **Revenue enhancement on the airport**
- **Perimeter road**

Figure 4-1 Avi Suquilla Alternative Development Considerations

4.3 Safety and Investment Preservation

Chapter 3, *Facility Requirements*, identifies fire protection, utility and drainage deficiencies in the terminal area. These deficiencies should be addressed in the short term in order to preserve the investments that have been made in terminal area facilities.

Figure 4-2 illustrates a project which will correct the identified terminal area deficiencies. Since trenching for the fire protection impacts other utilities and the area to be addressed for drainage, it is most cost effective and efficient to accomplish the work in a single project.

A 12” fire water line is proposed to be extended from the 18” CRIT rural water main serving the Reservation lands north of the airport to the apron. Fire hydrants will be installed at an approximately 300-ft spacing along the apron. The drainage will be improved by installing a trench drain between the apron and the hangar, and connecting it to the storm drainage system to be installed in the vehicle parking area. The storm drainage system will be extended to an existing detention area at the intersection of Airport Road and Highway 95. Due to the re-grading of the parking area, other underground utilities in the parking lot will

need to be reinstalled at new grades, or relocated. In the case of the sanitary sewer, an existing septic tank and drain field will be removed, and a new sanitary sewer line installed as shown on the sketch. The sewer connection to the Parker – CRIT sewer system is being made at the manhole closest to the airport. The final element of the project is the rehabilitation of the existing airport access road and the reinstallation of power, telephone and communication facilities which will be impacted by the construction.

These projects are necessary regardless of future growth and development, and are included in all alternatives.

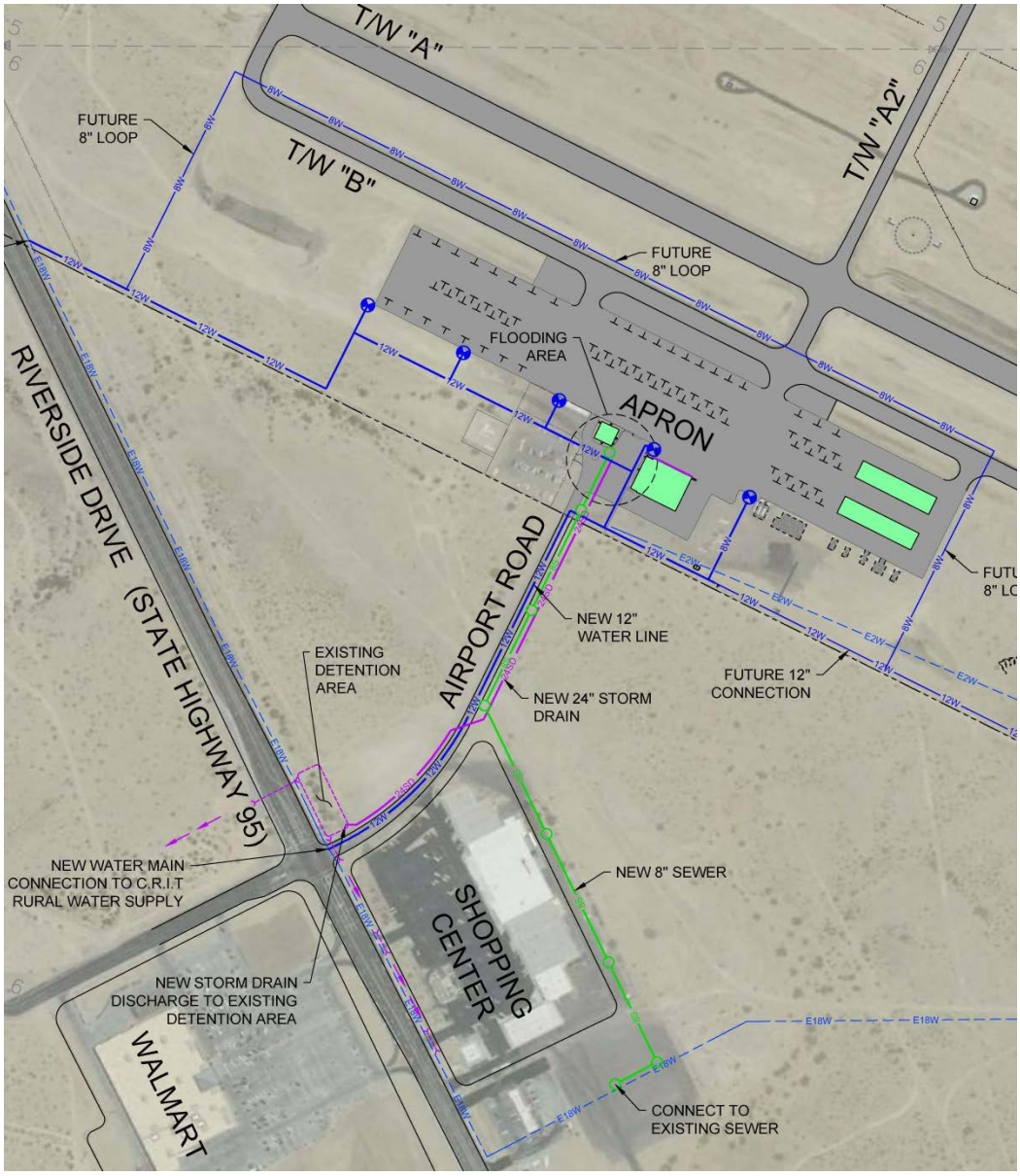

Figure 4-2 Safety / Investment Preservation Project

4.4 Airfield Alternatives

Airfield facilities are, by nature, a focal point of the airport complex. Because of their primary role and the fact that they physically dominate airport land use, airfield facility needs are often the critical factor in the determination of a viable airport improvement program. Analysis in the previous chapter indicated the need to continue to maintain the current runway length and width. Other factors to be considered include taxiway circulation and the potential to provide additional runway length if needed in the future.

The 1997 Master Plan considered and discussed a variety of potential airfield development schemes to provide an upgraded runway to meet demand for Class C aircraft. An Airport Layout Plan Narrative Report was completed in 2003 and revised in 2005 which confirmed the need for a lengthened runway and determined a relocated runway centerline was necessary in order to conform to FAA dimensional criteria. Since that time, an Environmental Assessment has been completed, a Finding of No Significant Impact (FONSI) issued, and the relocated runway has been constructed with appurtenant taxiways and lighting. Given the significant planning effort that was involved to determine this airfield plan, and the commitment that has already taken place in its implementation, the alternatives analysis of this Master Plan will serve to refine the airfield plan rather than reinvent it.

The alignment of the relocated runway was selected based on its ability to accommodate phased runway extensions to 7,250 feet and ultimately 8,250 feet. A runway length of 7,250 feet meets the needs of 100% of the fleet at a 60% useful load. The ultimate length of 8,250 feet comes close to meeting the needs of 75% of the fleet at a 90% useful load. This data is based on the “declared distance” procedures outlined in the previous chapter. Lengthening the runway beyond 8,250 becomes impracticable as it requires relocation of State Highway 95.

Consistent with the previous Master Plan and the current Airport Layout Plan, all alternatives propose carrying forward the approved runway alternative. This Alternative would extend Runway 1-19 1,000 feet to the southeast to achieve an interim length of 7,250 feet. In addition to the runway extension, a full 1,000-foot runway safety area would be extended beyond the end of the pavement to the southeast. The southeast extension would require relocation of the ADOT Motor Vehicles Division office in order to remove it from the ultimate Runway Protection Zone. An ultimate extension of 1,000 feet to the northwest would achieve the ultimate runway length of 8250. A full 1,000 foot safety area to the northwest would need to be achieved using declared distance procedures.

4

4.3

4.4.1 Alternative 1

Alternative 1, as depicted on **Figure 4-3,** proposes an ultimate extension to Runway 1-19 to 8250 feet with parallel taxiway extensions to accommodate the runway extension. The ends of Taxiway C (previously referred to as the ‘parallel portions of Taxiways A1 and A3’) are connected to provide a full length parallel taxiway that provides dual-directional taxiing capabilities. The 90 degree angle of Taxiway A-3 with Taxiway C is replaced with a diagonal taxiway facilitating a smoother and more efficient flow to and from the Runway 1

end. This alternative also depicts the addition of parallel Taxiway D, with its centerline located 400 feet east of the Runway 1-19 centerline. The addition of this parallel taxiway will help facilitate development on the east side of the airport.

With the release of the new Airport Design AC (150/5300-13A), a few modifications are required to the existing taxiway layout with respect to apron access to the runway. The new design AC clearly indicates that there should be no direct access from an apron to the runway. Therefore, Alternative 1 depicts the removal of Taxiway A2 between Taxiways A and B and the addition of two new 50 foot wide taxiways between Taxiways A and B.

This alternative also shows a new commercial passenger terminal complex constructed to the north side of the airport. This area would accommodate commercial and/or charter operations in the event that the airport needed to support FAR Part 121 or Part 135 operations in the future. The terminal building is planned at the northwestern edge of the apron to provide access and visibility from Riverside Drive (State Highway 95). Several conventional hangar facilities could be constructed along the northwestern edge of the apron with space available for an Aircraft Rescue Fire Fighting (ARFF) facility when needed. A large apron area would be available for larger business jets and turboprops. This terminal area would be accessible via a new access road extending from Riverside Drive (State Highway 95) at the Blue Water Casino entrance road intersection. The existing GA apron would be expanded to the north of the existing terminal area to provide for the development of additional T-hangars. A designated helicopter pad is shown at the southern edge of the commercial apron to separate helicopter activity from fixed wing activity as much as possible. The area south of the existing terminal area is reserved for long-term future aviation related development.

The south side of the airport west of Taxiway C would be reserved for corporate parcels. These parcels could be leased to develop a mixture of aviation-related businesses requiring large hangars and/or ramp space, and non-aeronautical uses for revenue support. Aviation related parcels would access the runway via Taxiway A-3 and Taxiway C. A new access road extending from Mohave Drive would serve these corporate parcels.

With the abundance of land available in the southeast quadrant of airport property a potential opportunity exists to develop an airport industrial park. A site is reserved in the south east quadrant for a multi-modal airport industrial park with access to Runway 1-19 through proposed Taxiway D. A conceptual layout is presented as part of Alternative 3 on **Figure 4-5**. Natural gas is available to this site and the cost to extend water and sewer would not be prohibitive. With the extension of the railroad spur, the potential exists for development of an intermodal center with access to both rail and air.

A continuous perimeter road is shown along the inside of the fence line to facilitate vehicular access to all areas of the airfield for regular security inspection.

Advantages:

Alternative A provides distinct separations between corporate and general aviation activity on the airport. Corporate aircraft activity would be concentrated on the northwest side of the airport. This would provide direct access to the runway and some separation from other

general aviation uses. This can be attractive for safety and security purposes. The new terminal area would be highly visible with access off Riverside Drive (State Highway 95).

Aviation related business uses have the potential to develop on the south side parcels. Small general aviation uses would be focused midfield in the currently developed area.

Disadvantages:

While separation of function is desirable, this alternative also requires the development of infrastructure in two separate quadrants. In addition the location of corporate parcels on the south side of the airfield provides limited visibility from major roadways.

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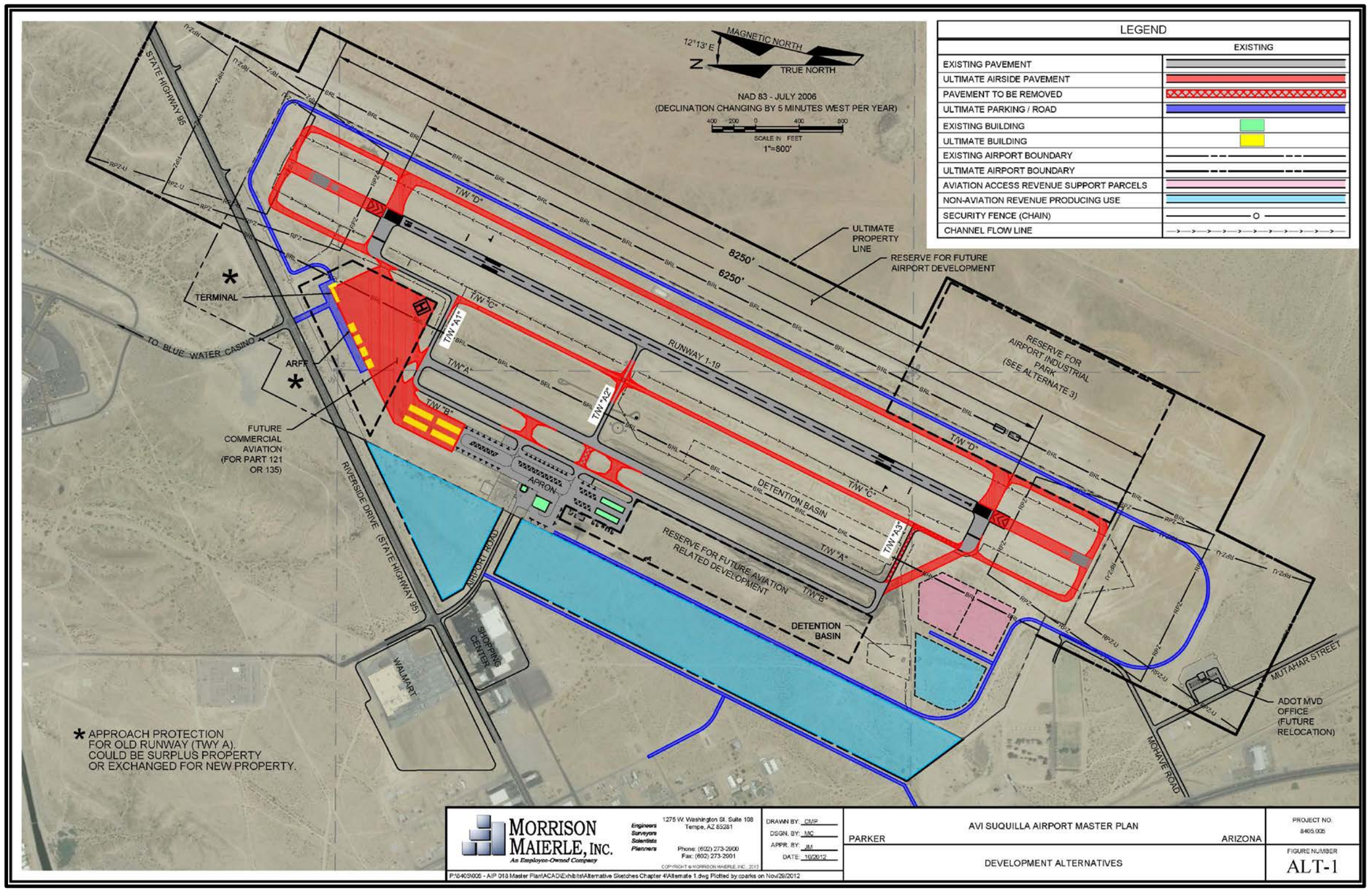

Figure 4-3 Airport Development Alternative 1

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4.4.2 Alternative 2

As presented on **Figure 4-4**, Alternative 2 provides the same runway extension proposed in Alternative 1 as well as parallel taxiway extensions to accommodate the runway extension. This alternative most closely resembles the current Airport Layout Plan. The terminal apron is expanded to the east to provide additional depth, converting a portion of Taxiways A and B into taxilanes. The ends of Taxiway C (previously referred to as the 'parallel portions of Taxiways A1 and A3') are connected to provide a full length parallel taxiway which provides dual-directional taxiing capabilities. This alternative also shows parallel Taxiway D, east of the runway as well as two new exit taxiways from Runway 1-19 to proposed Taxiway C. The new exit taxiways are each located 5,000 feet from each runway threshold and will allow 100% of small singe and twin engine aircraft and 49% of large aircraft to exit the runway without having to taxi to the end.

Consistent with the new Airport Design AC requirements, a portion of Taxiway A2 must be removed to eliminate direct access from the apron to the runway. This pavement section is located between Taxiway A and the east apron expansion and a new connector taxiway is shown just south of the removed connector taxiway.

This alternative also shows an apron expansion to the north of the existing terminal area. This area could be designated as a commercial passenger terminal complex to accommodate to support future FAR Part 121 or Part 135 operations. The terminal area is designed in the same manner as in Alternative 1 with corporate parcels and hangar development areas, but with access from the airport's current entry from Airport Road. A designated helicopter pad is shown at the extreme north end of the proposed apron to separate helicopter activity from fixed wing activity. The area south of the current apron would be expanded for general aviation T-hangar and conventional hangar development. The area further to the south is reserved for long-term future aviation related development.

The north side of the airport, west of Taxiway C, would be reserved for corporate parcels. These parcels could be leased to develop a mixture of aviation-related businesses requiring large hangars and/or ramp space, and non-aeronautical uses for revenue support. Aviation related parcels would access the runway via Taxiway A-1 and Taxiway C. A new access road extending from Riverside Drive (State Highway 95) would serve these corporate parcels.

As discussed for Alternative 1, the abundance of land available in the southeast quadrant of airport property provides a potential opportunity to develop an airport industrial park. The site will have access to the runway through utilization of Taxiway D.. A conceptual layout of the site is presented on **Figure 4-5**.

Alternative 2 also includes a continuous perimeter road along the inside of the fence line to facilitate vehicular access to all areas of the property.

Advantages:
This alternative provides centralized terminal facilities all within the same area as current operations. This provides some efficiencies for taxiways, utilities and other landside infrastructure. The growth of facilities can be incremental with contiguous apron expansion

to the north, south and east. Corporate parcels have high visibility from Riverside Drive (Highway 95) which would make them more attractive to potential lessees.

Disadvantages:
This alternative provides less separation of corporate and general aviation activity. The terminal building would be in the center core and not distinctly visible from surrounding arterial roadways.

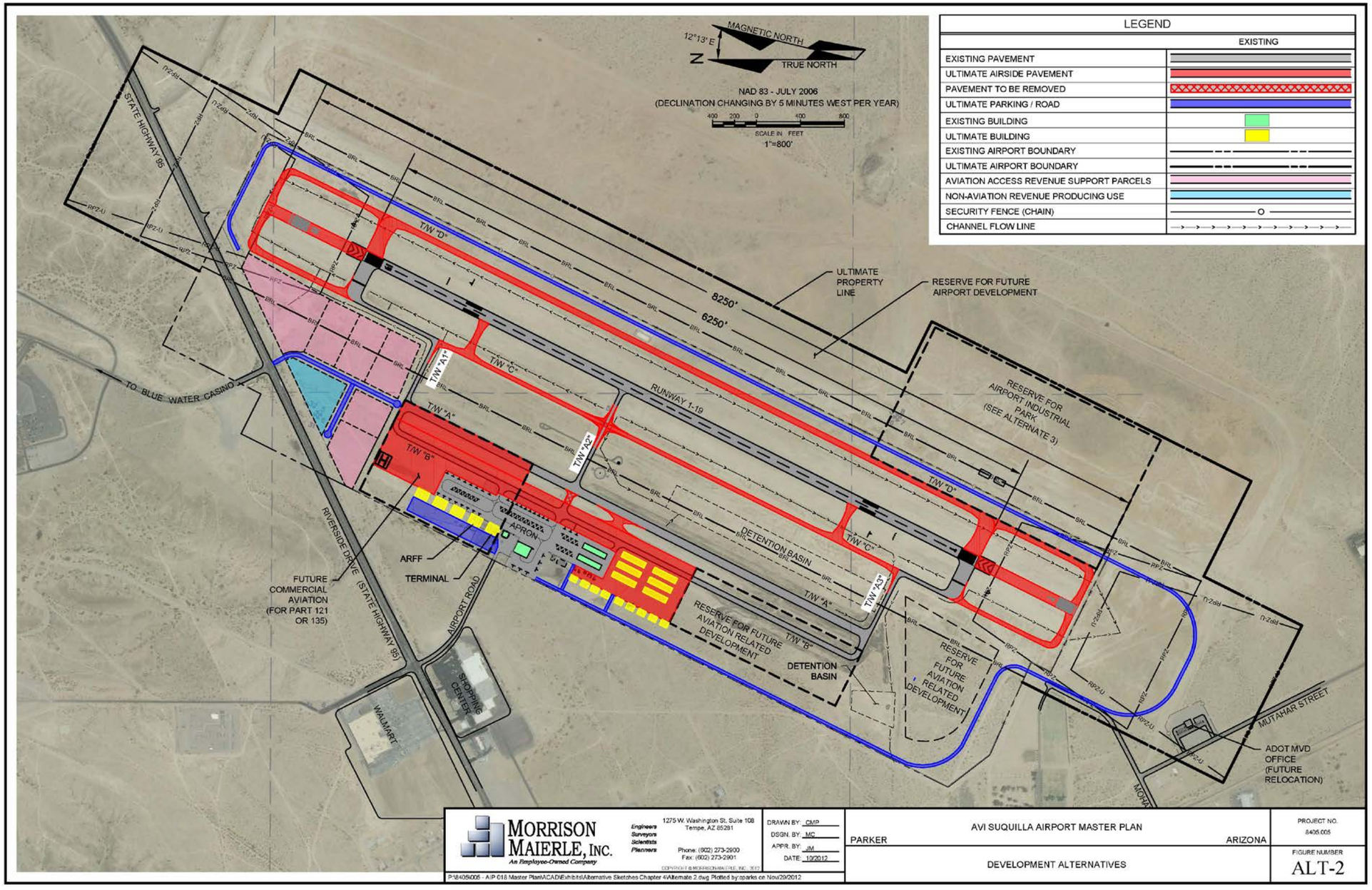

Figure 4-4 Airport Development Alternative 2

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4.4.3 Alternative 3

Alternative 3, as depicted on **Figure 4-5,** proposes the same Runway 1-19 and taxiway extensions as proposed for both Alternatives 1 and 2 as well as the addition of Taxiway D east of the runway..

This alternative assumes that the airport will not require a commercial / charter terminal area, but will continue to serve predominantly general aviation operations. The GA terminal apron is expanded to the east to provide additional depth, converting a portion of Taxiway B into a taxilane. Along with the extension of Taxiway C to create a full length parallel taxiway with dual direction taxiing capabilities, exit taxiways located 5,000 feet from each runway end have been provided between the runway and Taxiway C to facilitate a more efficient route from the runway to parking facilities. This alternative shows an apron expansion to the north of the existing terminal area, which extends to the far north side of the airfield. Areas are identified for both T-hangar and conventional hangar development. A designated helicopter pad is shown at the north end of the existing apron to separate helicopter activity from fixed wing activity as much as possible. As with the other two alternatives, a portion of Taxiway A2 must be removed. This alternative provides new connector taxiways, both north and south of Taxiway A2, to facilitate aircraft from the apron to Taxiway A.

The area on north side of the airport west of Taxiway C between the apron and Riverside Drive would be reserved for corporate and non-aviation revenue producing parcels. These parcels could be leased to develop a mixture of aviation-related businesses and non-aeronautical uses for revenue support. A new access road extending from Riverside Drive (State Highway 95) would serve these parcels.

The area south of the current terminal area would be reserved and developed for aircraft storage. Interest in this use has been indicated to airport management. Potential layouts are noted on **Figure 4-6**, **Figure 4-7** and **Figure 4-8**. Further to the south an area is reserved for long-term future aviation related development.

As discussed with each of the previous alternatives, the land available in the southeast quadrant of airport property provides a potential opportunity for the development of an airport industrial park. Alternative 3 presents a conceptual layout for the airport industrial park. The layout includes development of a cargo apron, a receiving facility, corporate parcels with taxiway access, an access road and an extension of the railroad spur. This rail extension creates the potential for the development of an intermodal center with access to both rail and air. The industrial airpark will have access to Runway 1-19 via Taxiway D.

As with the previous two alternatives, Alternative 3 includes a continuous perimeter road along the inside of the fence line to facilitate vehicular access to all areas of the property for regular security inspection.

Advantages:

Similar to Alternative 1, this alternative provides two distinct apron areas that could be utilized to separate smaller general aviation from larger corporate turboprops and jets. This can be attractive for both safety and security purposes. The corporate parcels, similar to Alternative 2, have high visibility from Riverside Drive (Highway 95) which would make them

more attractive to potential lessees. This alternative also introduces an aircraft storage use which could provide a valued service and viable revenue stream for the airport.

Disadvantages:

Like Alternative 1, this alternative requires the development of infrastructure in two separate quadrants. It also does not provide airfield access to the majority of corporate parcels.

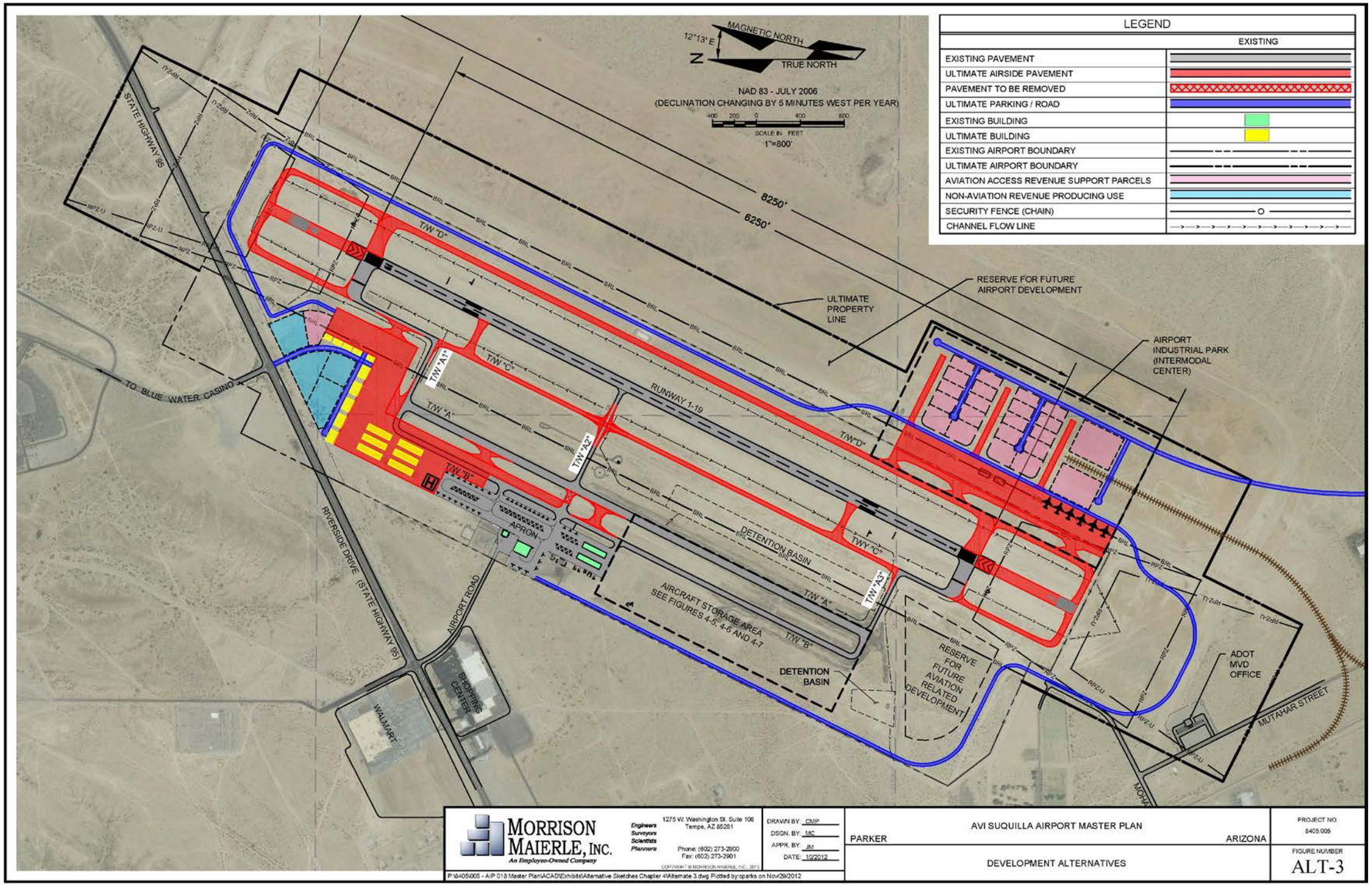

Figure 4-5 Airport Development Alternative 3

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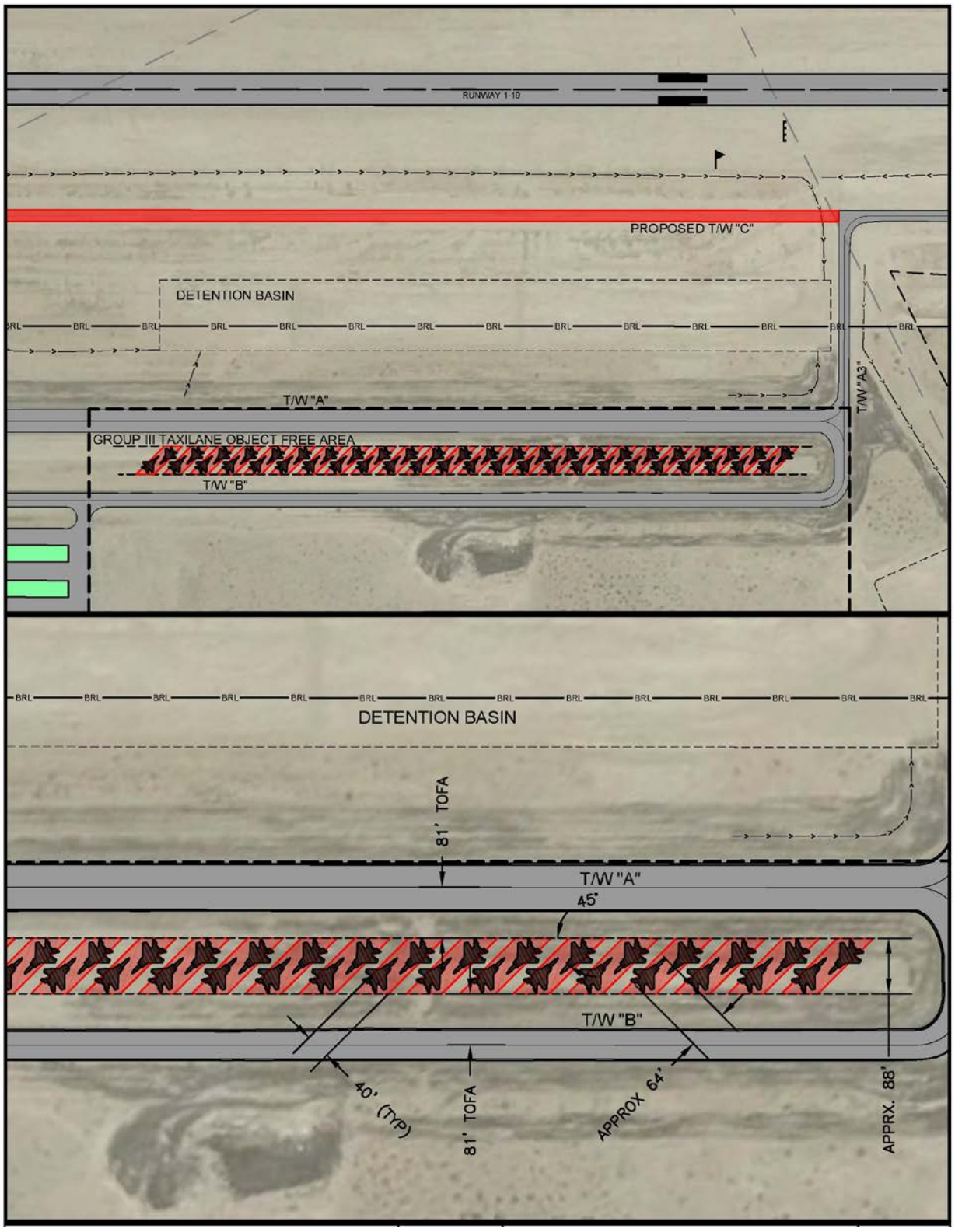

Figure 4-6 Potential Aircraft Storage Layout 1

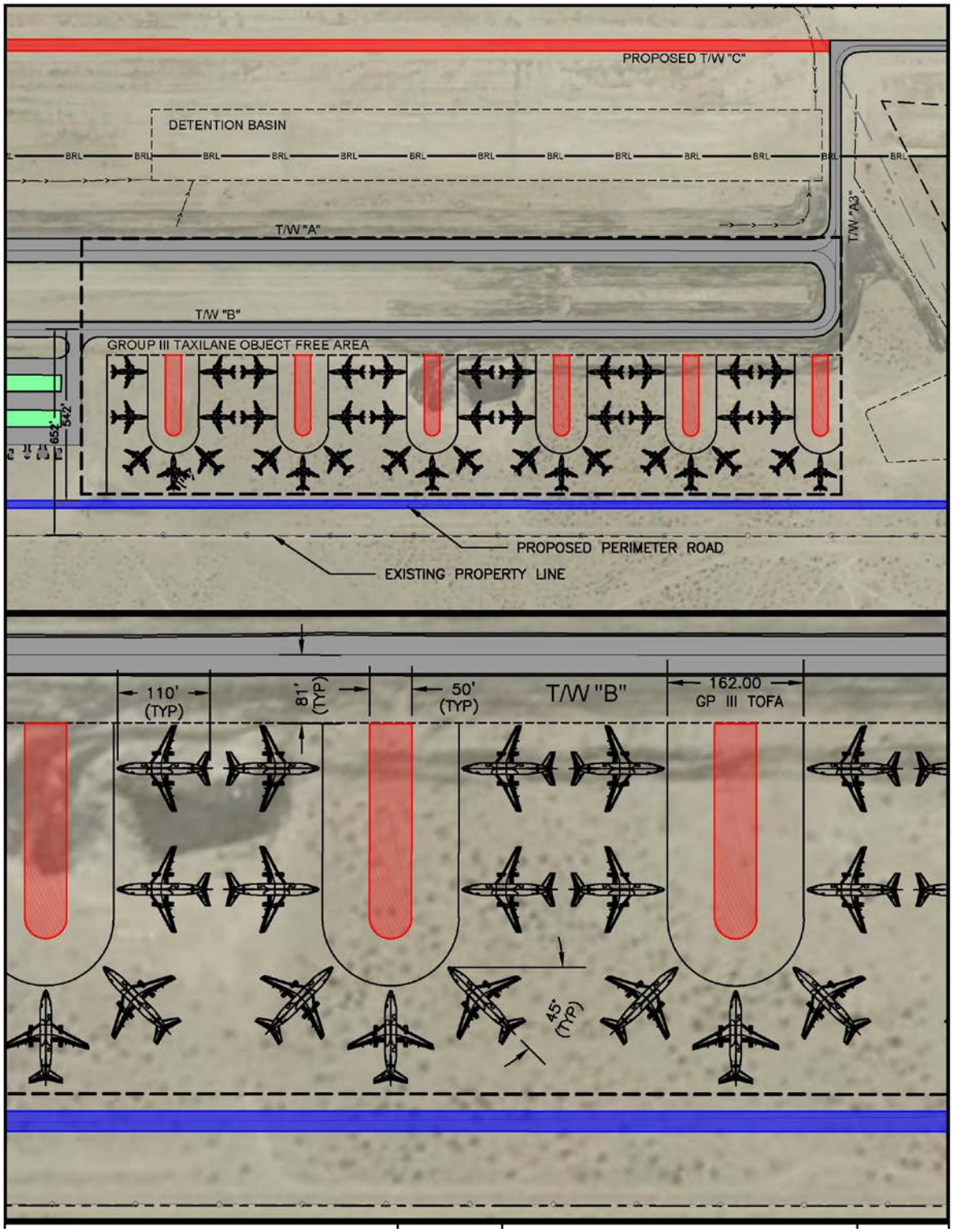

Figure 4-7 Potential Aircraft Storage Layout 2

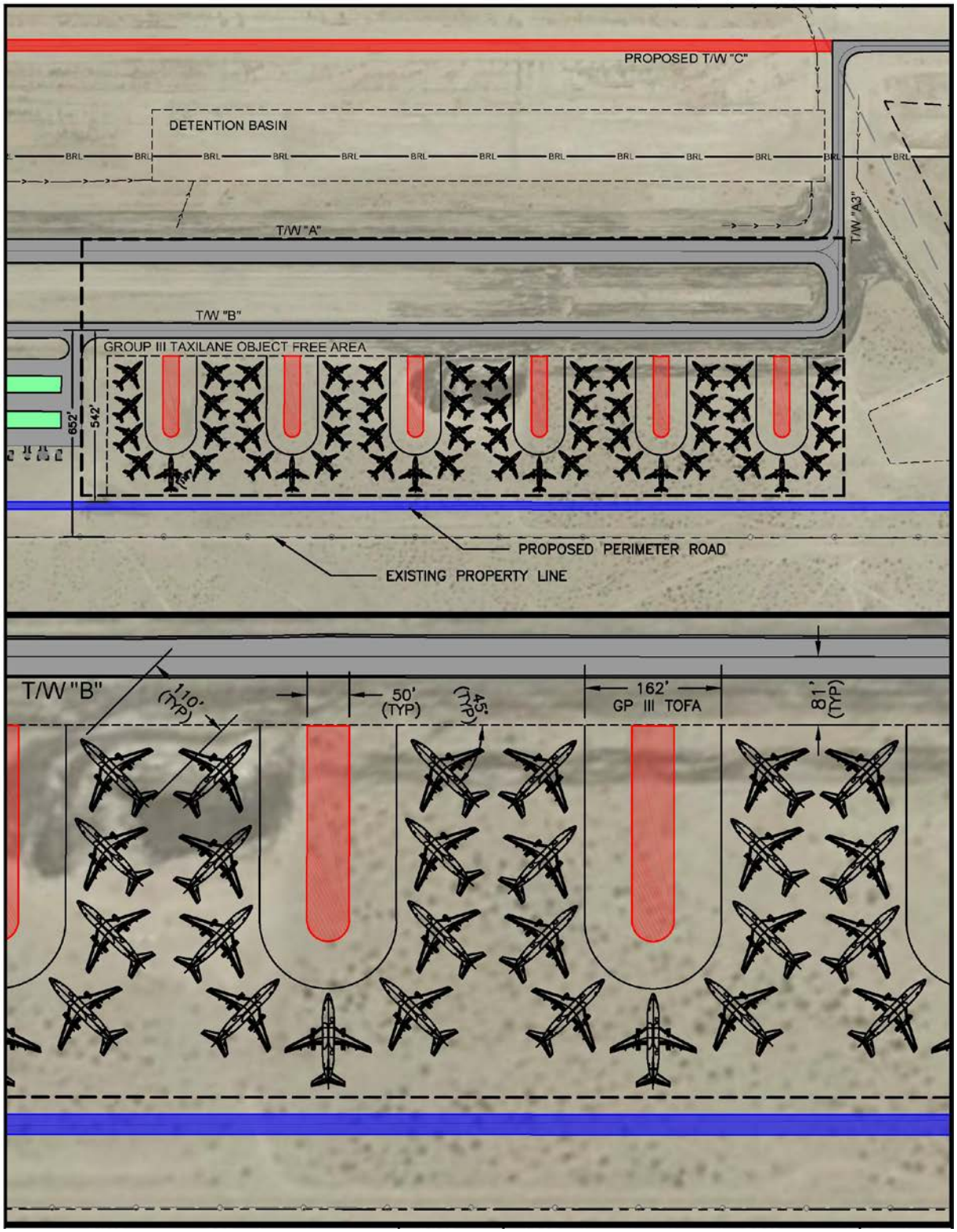

Figure 4-8 Potential Aircraft Storage Layout 3

4.4.4 Preferred Alternative

Airfield and landside development alternatives were assessed using a process that considered short and long term needs as well as future growth potential. Safety, both in the air and on the ground, was given high priority in the analyses and current airport design standards were considered in every scenario.

The recommended development concept for Avi Suquilla Airport represents a means by which the airport can grow in a balanced manner to accommodate demand over the planning period. In addition, the plan provides the flexibility to meet activity growth beyond the long range planning horizon.

Through further meetings and discussions with the Tribal Council, the Planning Advisory Committee, as well as the public, a recommended concept has evolved which includes elements from all three alternative scenarios. The recommended concept represents a means by which the airport can continue to effectively serve general aviation needs within the overall operation and development of the airport as well as provide direction for corporate and multi-modal development and services.

The Preferred Alternative, as depicted on **Figure 4-9,** proposes the following elements as outlined in one, two or three of the previously proposed planning alternatives:

- Extension of Runway 1-19 to north and south
- Extension of Taxiway C
- Addition of Taxiway D
- Extension of Taxiways C and D to new Runway 1-19 Ends
- Additional exit taxiways between Runway 1-19 and Taxiway C
- North apron development west of Taxiway C with commercial/corporate terminal and hangar development
- Expansion of existing apron to the north, east and south for increased parking capacity and new hangar development
- Aircraft storage area south of the apron expansion
- Industrial airpark development within the southeast quadrant of airport property
- Addition of a perimeter road along the existing property fence
- Reserved land for future aviation related development

The area south of the southern apron expansion, which is reserved for aircraft storage, is smaller than the reserved area proposed in Alternative 3. New potential layouts for aircraft storage are depicted on **Figure 4-10**, **Figure 4-11** and **Figure 4-12.**

The proposed apron expansions will require a reconfiguration of the apron tie-downs to accommodate additional aircraft and helicopters as well as to meet the requirements of AC 150/5300-13A. The apron tie-down layout can be found on **Figure 4-13.** The airports design aircraft, the Gulfstream III, was used to design 6 corporate jet parking tie-down and a Citation II was used to design 74 smaller aircraft parking tie-downs within the main apron parking area near the terminal. The apron configuration also allows for 8 helicopter parking locations. The northern most apron addition, west of Taxiway C, includes a heliport and an additional 40 tie-downs.

As discussed in the previous chapter, several fuel-farm improvements and upgrades are necessary ensure the fuel dispensing systems meet current aviation fueling standards. A self-serve system is desirable in order to provide fuel service to those utilizing the airport after-hours. **Figure 4-14** depicts a layout of the fueling area that can accommodate a Gulfstream III.

4.5 Summary

Airfield and landside development alternatives were assessed using a process that considered short and long term needs as well as future growth potential. Safety, both in the air and on the ground, was given high priority in the analyses and current airport design standards were considered in every scenario.

The recommended development concept for Avi Suquilla Airport represents a means by which the airport can grow in a balanced manner to accommodate demand over the planning period. In addition, the plan provides the flexibility to meet activity growth beyond the long range planning horizon.

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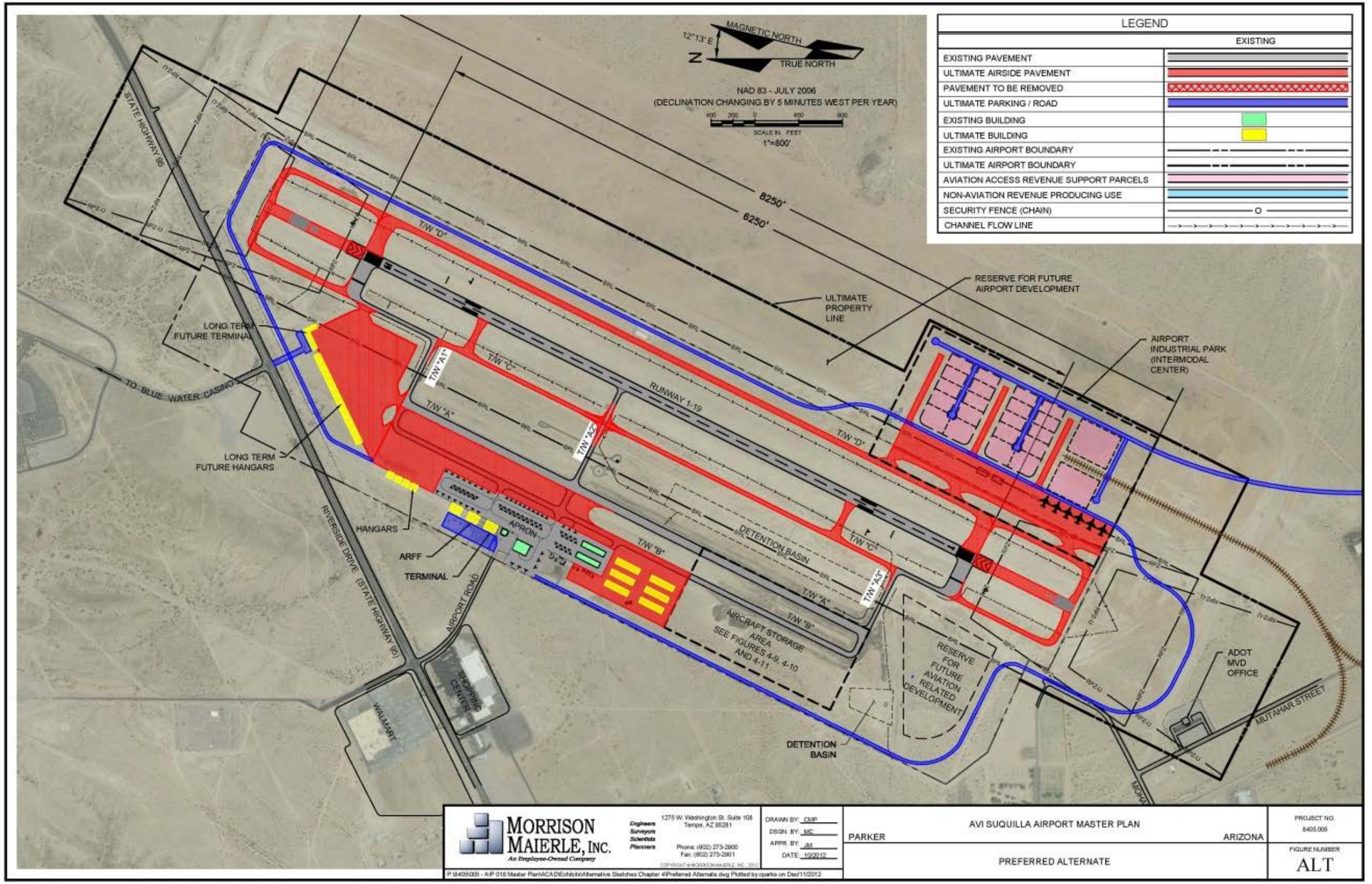

Figure 4-9: Preferred Alternative

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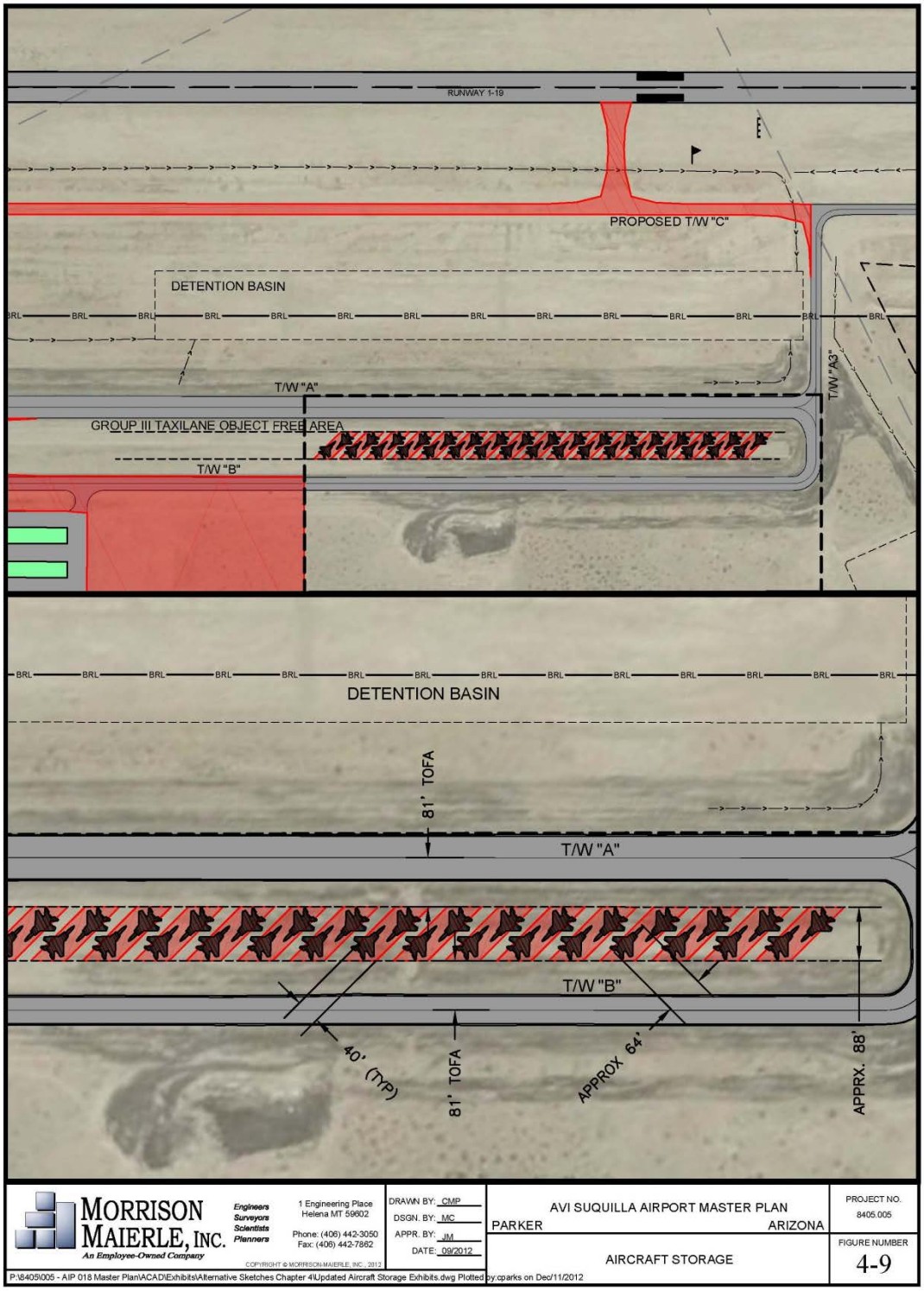

Figure 4-10: Aircraft Storage Concept 1

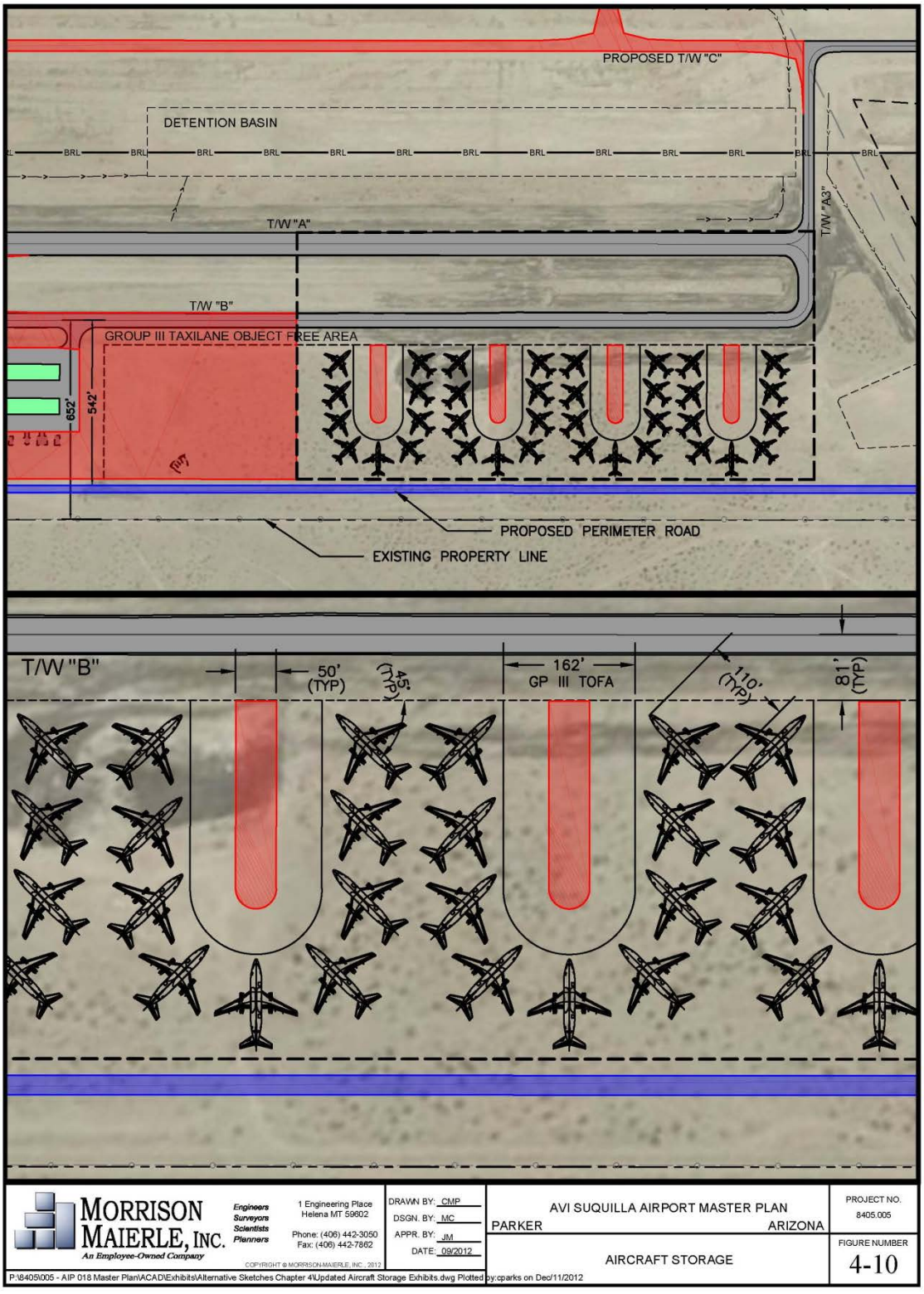

Figure 4-11: Aircraft Storage Concept 2

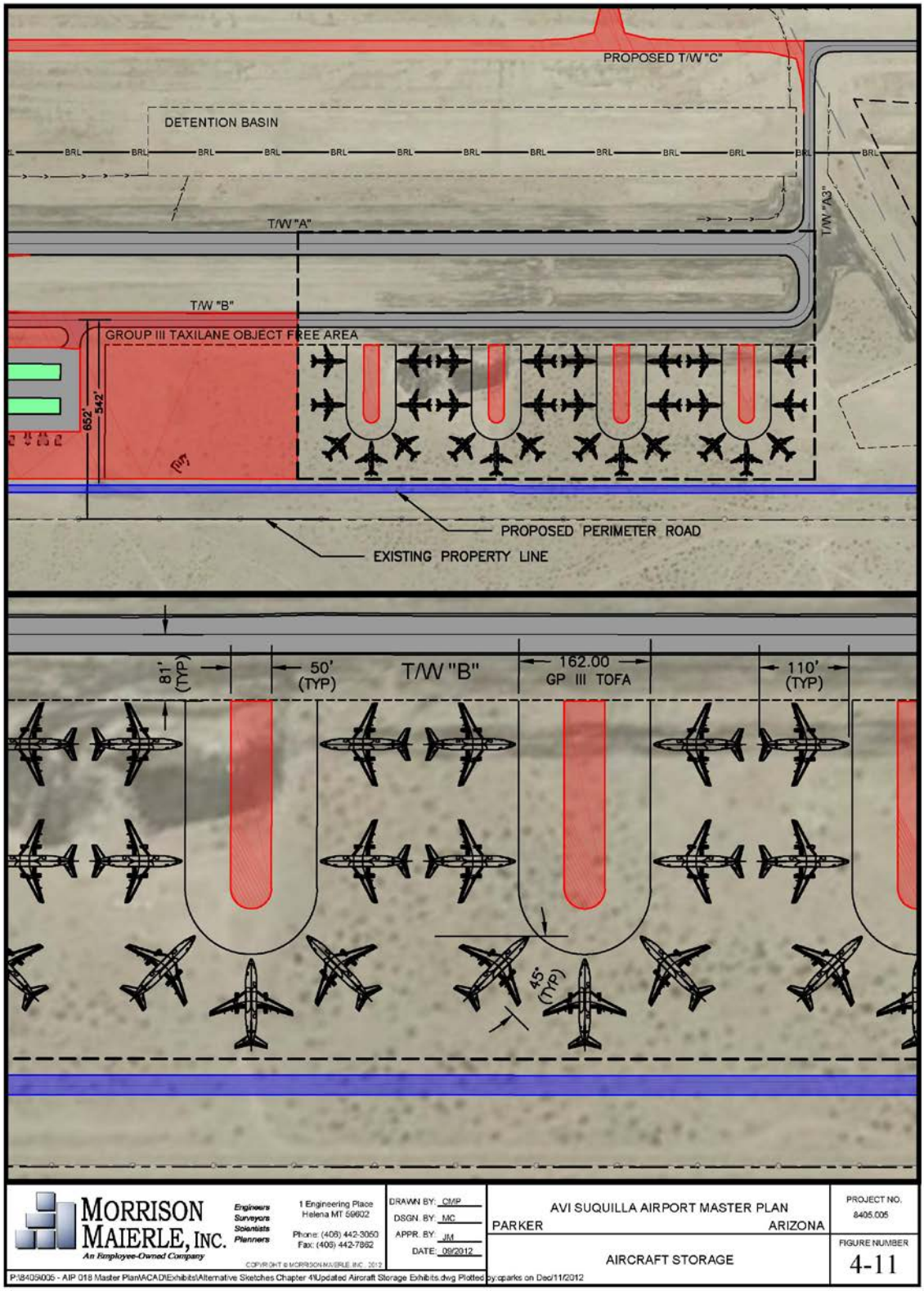

Figure 4-12: Aircraft Storage Concept 3

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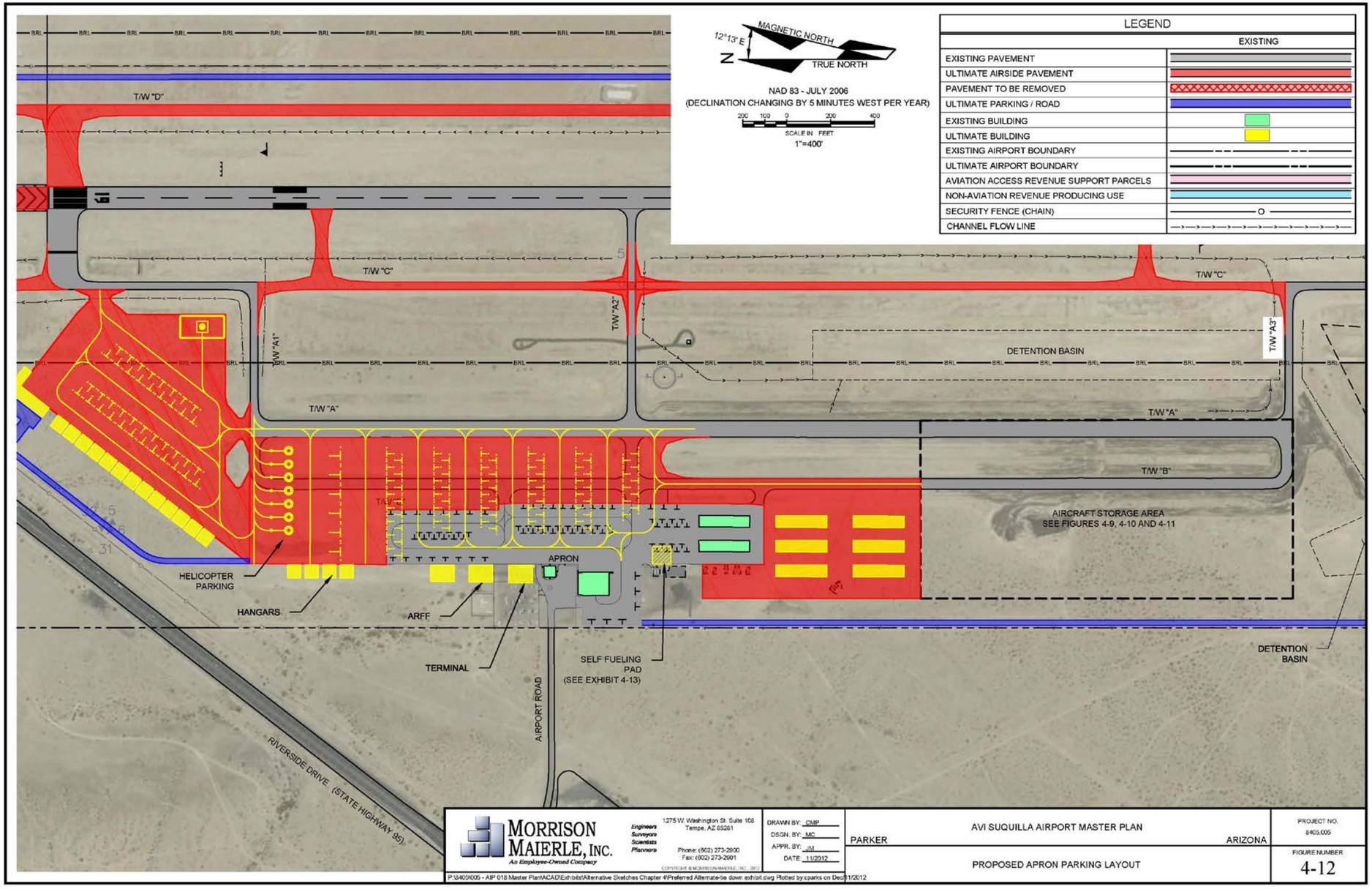

Figure 4-13: Tie-Down Layout

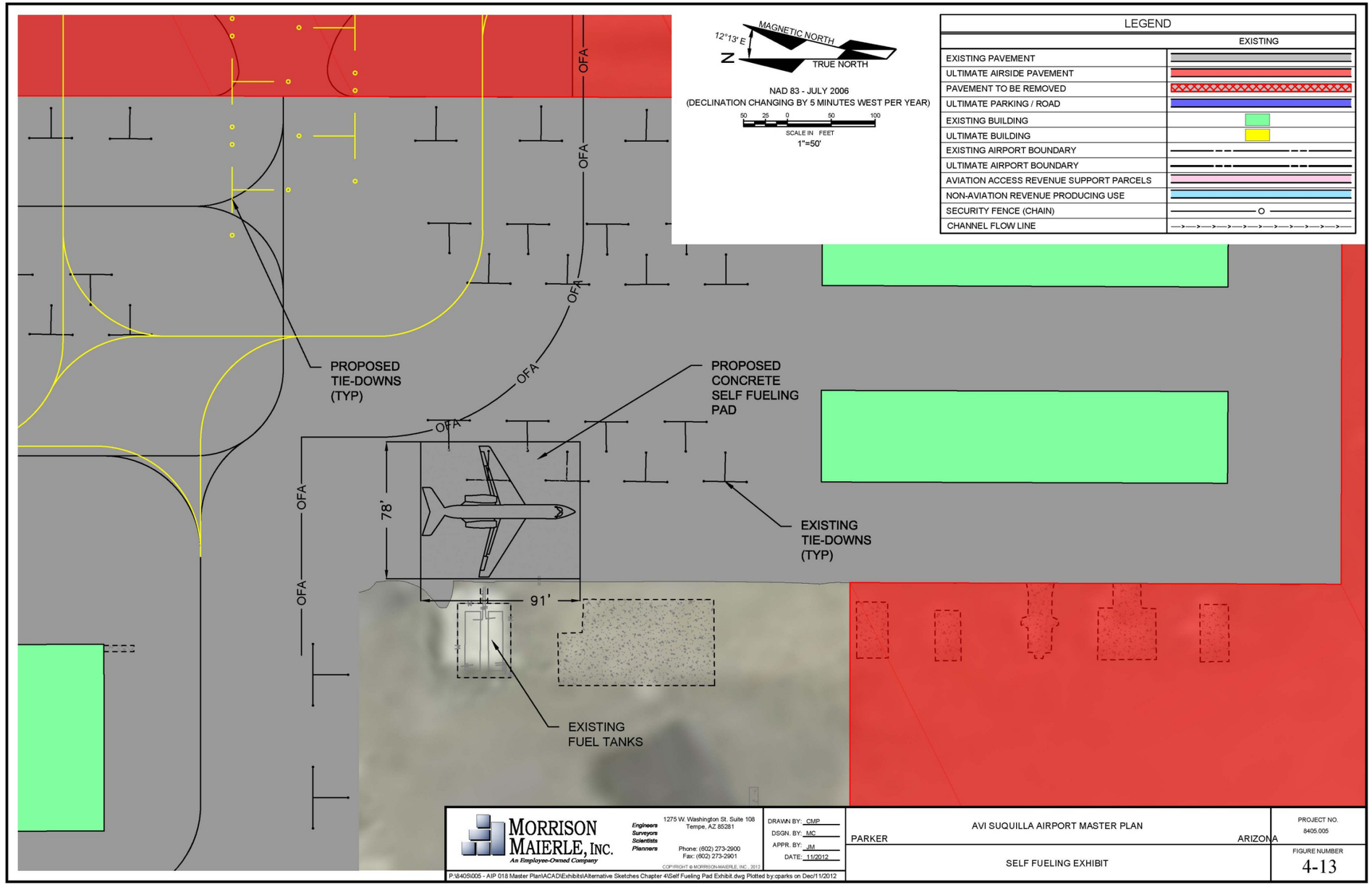

Figure 4-14: Self-Serve Fueling Pad

LAND USE

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5. AIRPORT LAND USE

This chapter deals with compatible land use. It seeks to establish land use patterns on airport property that promote the efficient operation and financial self-sufficiency of the airport while ensuring compatibility with the surrounding community. Off-airport land use planning involves coordinating with surrounding jurisdictions to ensure compatible development on land the airport does not control. This includes coordinating with adjacent communities on their growth plans and continuation of safety and noise overlay zoning that serves to protect the long-term viability of the airport.

Land use compatibility refers to a pattern of land uses around the airport which will be most compatible with activities on the airport. The two primary concerns for land use compatibility are maintaining operationally safe and obstruction free approaches and minimizing impacts due to aircraft noise.

Ensuring compatible land use is a condition of the grant assurances when accepting federal Airport Improvement Program grants. The applicable grant assurances are as follows:

> **Compatible Land Use**: It (the airport sponsor) will take appropriate action, including the adoption of zoning laws, to the extent 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 landing and takeoff of aircraft.
>
> In addition, if the project is for noise compatibility program implementation, it will not cause or permit any change in land use, within its jurisdiction, that will reduce its compatibility, with respect to the airport, of the noise compatibility measures upon which federal funds have been expended.
>
> **Hazard Removal and Mitigation**:
> It will take appropriate action to assure that such terminal airspace as is required to protect instrument and visual operations to the airport (including established minimum flight altitudes) will be adequately cleared and protected by removing, lowering, relocating, marking, or lighting or otherwise mitigating existing airport hazards and by preventing the establishment or creation of future airport hazards.

5.1 Existing Off Airport Land Use

The Avi Suquilla Airport is located on the CRIT Reservation, immediately east of the Town of Parker. **Figure 5-1** shows generalized existing land uses in the vicinity of the Airport. Adjacent land uses have historically been undeveloped land and agricultural uses in addition to the commercial / industrial uses on the east side of Parker. Today, the land uses adjacent to the airport include new commercial and recreational uses from the development of the Moovalya Shopping Center and an 80,000 square foot casino, 200 room hotel and a marina by the Tribes. The shopping center and casino are located on the south side of SR 95 between the eastern boundary of the Town of Parker and Airport Road. The land immediately north of Avi Suquilla is still principally undeveloped land and the land east of the airport that was under agricultural use is no longer being farmed. Land use on the north

side of SR 95 has been, and continues to be, principally undeveloped except adjacent to Lake Moovalya, where there are recreational facilities, RV trailer parks, mobile home developments, and single-family residences in the Blue Water Drive area.

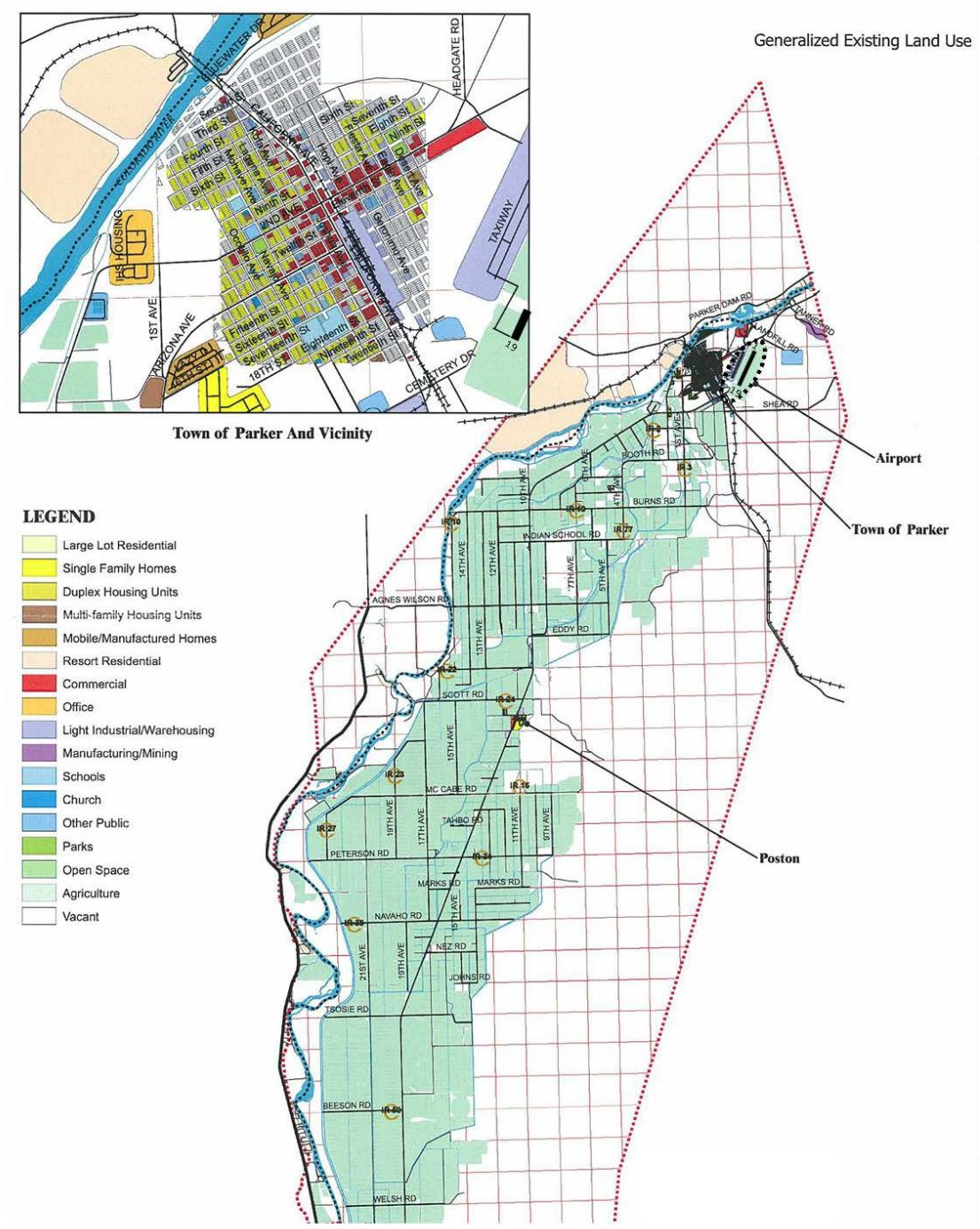

Figure 5-1: Generalized Existing Land Use

5.2 Schools and other Public Facilities

The following schools, hospitals and parks are located in the "vicinity" (two to three miles) of the airport. **Table 5-1** identifies the facility, and their location with respect to FAR Part 77 Horizontal and Conical Surfaces and the Airport Influence (Traffic Pattern Airspace) Boundary. **Figure 5-2**, Public Facilities Located near Avi Suquilla Airport shows the location of these facilities.

Table 5-1 Public Facilities – Avi Suquilla Airport Vicinity

Description & Address	Part 77 Surface	Within Airport Influence (Traffic Pattern Airspace) Area
Hospitals		
La Paz Regional Hospital 1200 W. Mohave Road	Horizontal Surface	Yes
US Public Health Services Agency Road	Conical Surface	No
Schools		
Parker High School 1600 S. Kofa	Horizontal Surface	No
Blake Elementary 707 Navajo Ave.	Conical Surface	No
Wallace Elementary School 1600 Mohave Ave.	Horizontal Surface	No
Wallace Junior High School 1320 18th Street	Horizontal Surface	No
Parks		
Community Park & Athletic Fields, South of Park	Horizontal Surface	No
Monitaba Park Mohave & Second Ave.	Horizontal Surface	No
Rodeo Grounds 7th Street & Desert Lane	Horizontal Surface	No
City Park Agency Road & Mohave	Horizontal Surface	No

Description & Address	Part 77 Surface	Within Airport Influence (Traffic Pattern Airspace) Area
Casinos Blue Water Casino North of SR 95	Horizontal Surface	Yes

As noted in the table, all of the facilities are located within the Horizontal Surface of the airport. Only two facilities are located within the Airport Influence (Traffic Pattern Airspace) Boundary. The facilities are the La Paz Regional Hospital and the Tribe's BlueWater Casino.

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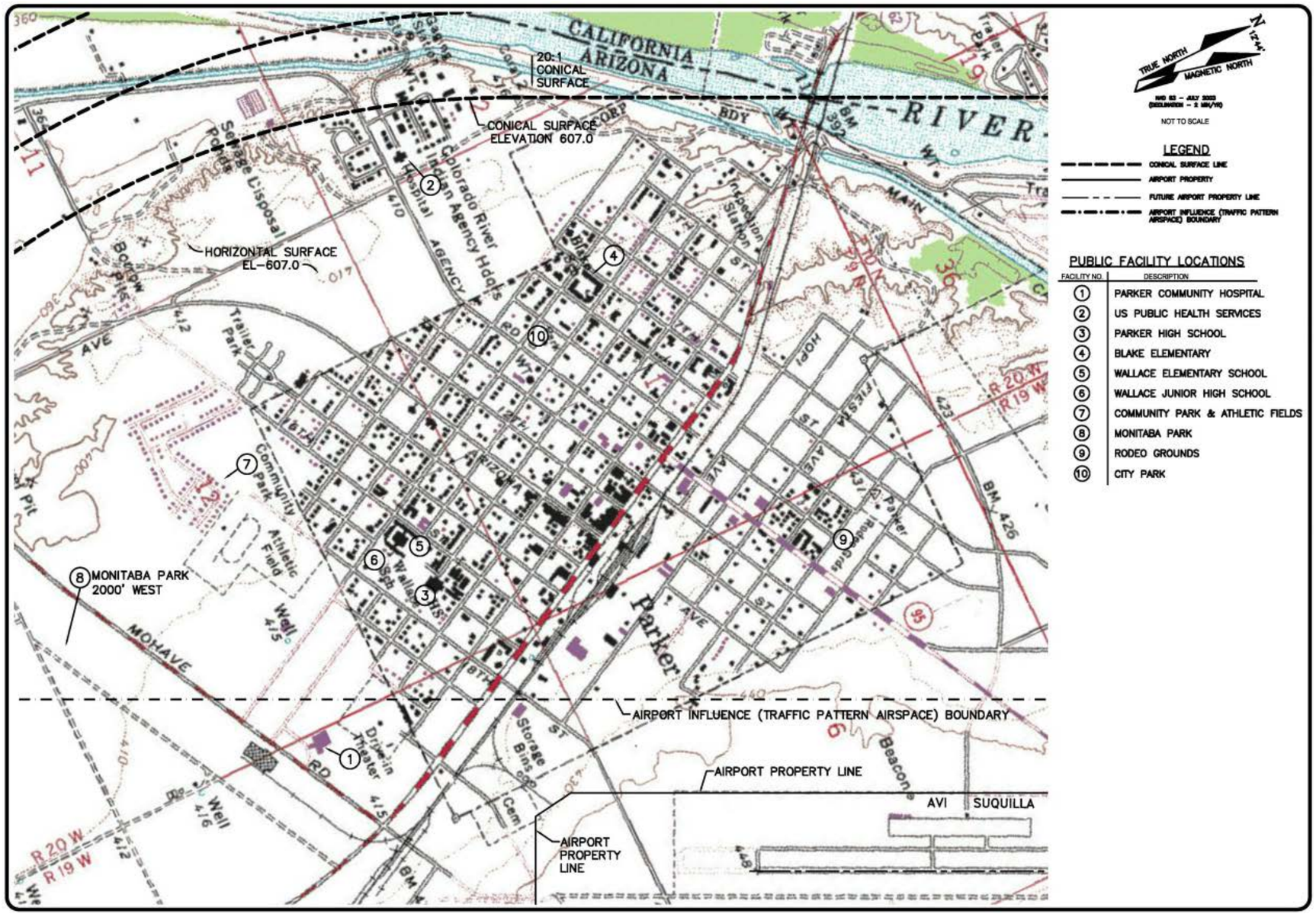

Figure 5-2: Public Facilities Located Near Avi Suquilla Airport

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5.3 Zoning & Planned Land Use

Town of Parker

The Town of Parker Zoning Code establishes seventeen zoning districts and three overlay districts for the Town of Parker and 13,000 acres on non-contiguous land to the southeast known as Parker South. A zoning map for "Parker Central" is sown on **Figure 5-3.**

Parker Central has seven applicable zoning districts. All districts have a maximum building height limitation of forty feet or less.

La Paz County

The unincorporated areas surrounding the Avi Suquilla Airport are within the Colorado River Indian Tribes (CRIT) reservation. La Paz County's zoning ordinance and comprehensive planning documents do not apply to Indian Reservation Lands.

Colorado River Indian Tribes Reservation

CRIT has jurisdiction over land surrounding airport outside the jurisdictional limits of the Town of Parker. CRIT also has ownership control of this land.

Figure 5-4 is a composite of Site Plans and Land Use Plans for CRIT in and around the Town of Parker compiled for the 2008 Transportation Planning Study by THK Associates. The plan shows commercial and industrial uses planned adjacent to the airport on the south side of SR 95, which is compatible with airport operations.

On the north side of SR 95, the tribes have implemented the first phase of a mixed-use development of the "Blue Water Resort Area" located along the Colorado River off of SR 95 along Blue Water Drive. This includes an 80,000 square foot casino, a 200 room hotel and a marina. The plans for the second phase comprise the entire area between SR 95 and the Colorado River and include several residential subdivisions, shops, and a golf course. The specific components of the second phase of the project have not yet been proposed.

5.4 Noise Compatibility

Aircraft noise emissions are often the most noticeable environmental effect an airport will produce on the surrounding area. If the sound is sufficiently loud or frequent in occurrence, it may interfere with various activities or otherwise be considered objectionable. To assist planners in ensuring that land uses near the airport are compatible with aircraft operations, federal land use guidelines have been included in this report and are summarized on **Figure 5-5**.

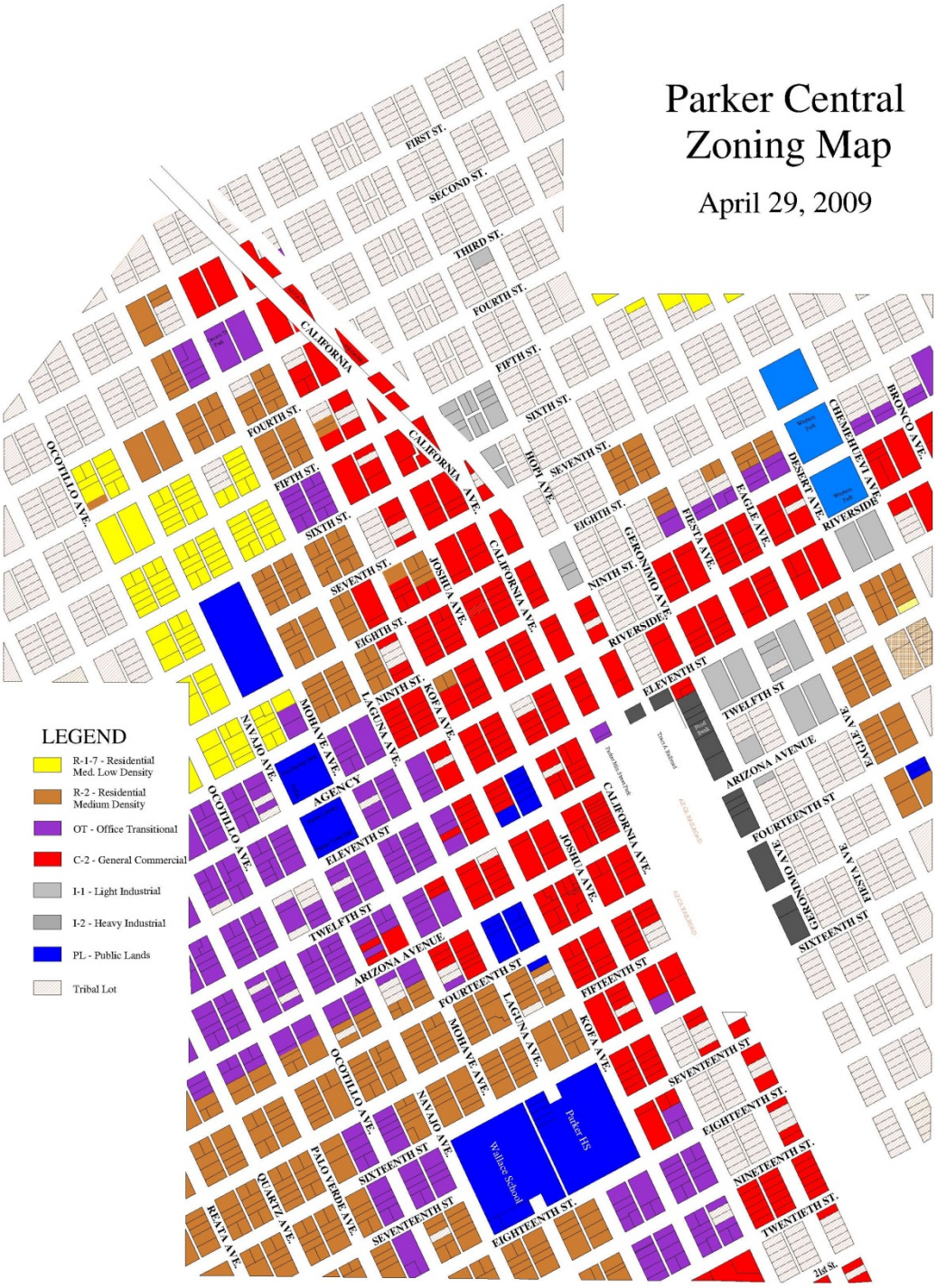

Figure 5-3: Central Parker Zoning Map

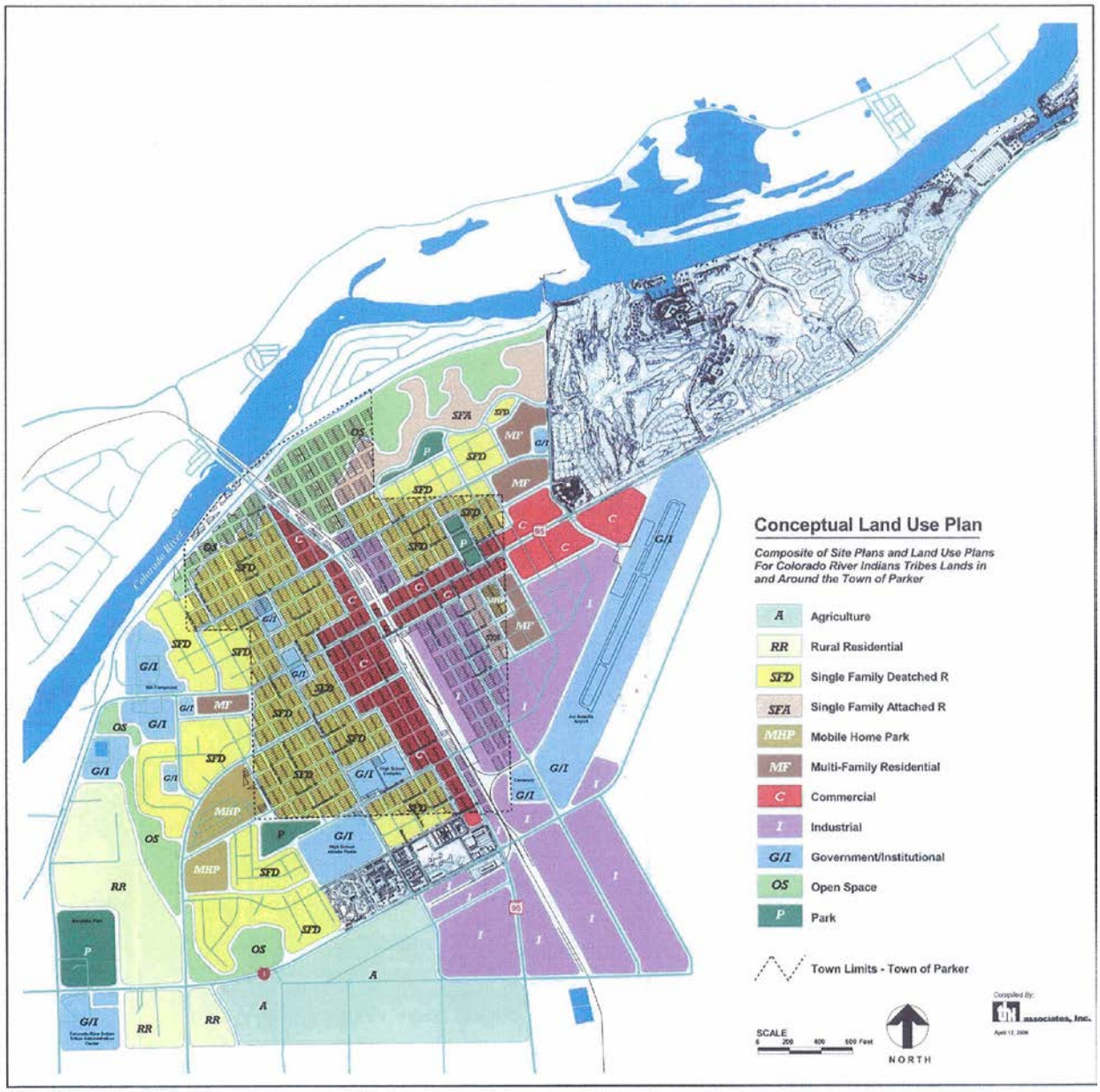

Figure 5-4: Conceptual Land Use

LAND USE	Yearly day-night average sound 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)	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 / 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

*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.

See next page for Notes and Key to table.

Figure 5-5: Land Use Compatibility Guidelines

Key

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 and 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 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 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 level is low.

(5) Land use compatible provided 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: *FAR Part 150,* Appendix A, Table 1

Figure 5-5 (Continued) Land Use Compatibility Guidelines

As part of the 2006 Environmental Assessment for the relocation, widening and extension of Runway 1-19, a noise contour analysis was conducted for the Avi Suquilla Airport.

Noise Contour maps were prepared for the airport for the years 2000, 2005 and 2025 assuming development of an 8,400 foot runway on its current alignment. Noise contours are based on the annual number of flight operations at an airport and the airport fleet mix. The FAA considers the DNL metric useful for airport noise studies because it uses a single number to describe the constantly fluctuating noise levels at a receiver location during an average 24 hour day. The use of DNL contours is meant to provide a general indication of impact and is not intended to determine the reaction of people due to individual events.

With the adoption of FAR Part 150, *Airport Noise Compatibility Planning*, the FAA established that noise exposure contour maps would be used as a planning tool to determine if land located near airports is compatible with the operation of the airport and to determine if noise-sensitive locations near airports would be negatively impacted by changes to an airport or its operations. This document determined that residences and schools should not be located within the 65 DNL contour associated with an airport.

Arizona Revised Statutes (ARS) 28-8486 and House Bill 2523 require that the Arizona Department of Real Estate shall make available a map showing the exterior boundaries of each territory in the vicinity of a public airport to the public on request. Because of this legislation, the Arizona Department of Real Estate requested that all public airports provide the Department with data to satisfy the statute, including a noise contour map showing the 60 DNL noise contour with nearby properties for counties with a population of more than 500,000 persons and the 65 DNL contour for counties with a population of 500,000 persons or less.

The predicted DNL contours for any airport do not precisely define impacts. The purpose of the noise contours, and specifically the 65DNL contour, is to highlight potential incompatibilities between an airport and surrounding development, assess relative noise exposure levels, and provide guidance for the development of land use control devices, such as zoning ordinances, subdivision regulations and building codes.

The predicted noise contours for the 2025 time horizon under the current runway alignment is shown in **Figure 5-6.** The contours were developed using a high operations forecast, which represents more activity than predicted in this master plan. Thus the contours provide a “worst case scenario.” As is typical for a general aviation airport, the 65 DNL contour is located almost entirely on airport property.

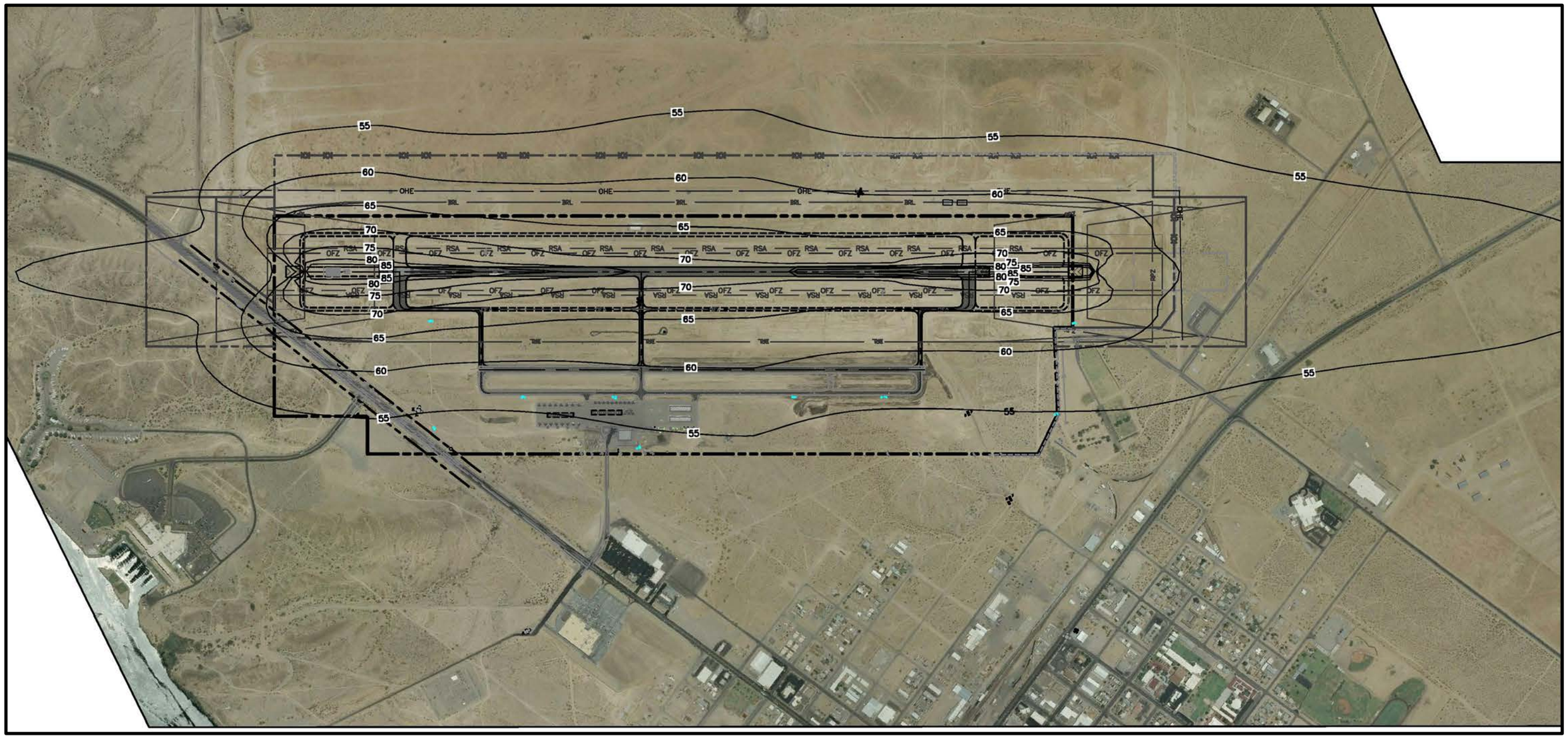

Figure 5-6: Avi Suquilla Airport 2025 Noise Contours

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While the 65 DNL noise contours for Avi Suquilla Airport are forecast to remain contained within the airport boundary, it should be recognized that noise complaints often come from residents outside the 65 DNL contour. It should also be recognized that the DNL metric represents average sound over a twenty four hour period. Individual overflight of low flying aircraft will create individual noise events that exceed DNL noise levels and may cause annoyance. In order to ensure continued land use compatibility with aircraft noise, CRIT should consider the following recommendations:

- Continue to plan non-residential, noise compatible development in the vicinity of the Avi Suquilla Airport.
- For proposed development within the CRIT Reservation, submit development plans within traffic pattern airspace to Airport Manager for review pertaining to compatible use.
- Coordinate with the Town of Parker to include the Airport Manager in the review of development requests within the traffic pattern airspace in the jurisdictional limits of the Town of Parker.

5.5 OPERATIONAL PROTECTION

Development within the operational airspace of aircraft using the airport can have an impact on the safe operation of the airport. Because large areas can be affected by the need to constrain heights of objects, zoning is generally the most reasonable and effective means of protection. However, since CRIT is in the unique position of possessing ownership control of the land in the immediate vicinity of the Avi Suquilla Airport, effective preservation of the airspace can be accomplished through Tribal planning and policy rather than zoning.

FAR Part 77 – Objects Affecting Navigable Airspace

The Federal Aviation Regulations (FAR) Part 77 defines airport imaginary surfaces. Although not specifically "design standards," these surfaces are geometric shapes which surround every airport. These surfaces determine, in part, the approach minima and compliance to standards for each airport. The imaginary surfaces are defined relative to the runway, the established airport elevation, elevation of the approach end runways, and type of existing or planned approaches for each runway end. Any object, whether natural or manmade, which penetrate FAR Part 77 surfaces should be recommended for marking, lighting, or removal. All obstructions to FAR Part 77 surfaces are identified in the Airport Layout Plan set of drawings.

Runway 1-19 currently corresponds to dimensional standards for a larger than utility runway with a visual approach. To allow for future improvements to runway approaches, it is recommended that the airspace be protected based on Part 77 standards for larger than utility non-precision instrument runway with visibility minimums as low as ¾ mile criteria. **Figure 5-7** shows the existing Part 77 airspace surface structure at Avi Suquilla Airport.

Primary Surface: A surface longitudinally centered on a runway. When the runway has a paved surface, the primary surface extends 200 feet beyond each end of the runway. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline. The width of primary surface is currently 500 feet wide and should be planned for 1000 feet wide for Runway 1-19.

Approach Surface: The Approach Surfaces are trapezoidal in shape, are longitudinally centered on the extended runway centerline and extend outward and upward from each end of the primary surface. The beginning width of the Approach Surfaces is the same width as the primary surface. The approach surfaces for Runways 1 and 19 extend to a width of 1,500 feet at a distance 5,000 feet from its beginning. The approach slope for Runways 1 and 19 extend outward and upward at a slope of 20:1. To meet requirements for a larger than utility non-precision instrument runway with visibility minimums as low as ¾ mile criteria, the approach surface should be planned to extend to a width of 4,000 feet at a distance 10,000 feet from its beginning. The approach slope for Runways 1 and 19 would extend outward and upward at a slope of 34:1.

Horizontal Surface: The Horizontal Surface is a horizontal plane 150 feet above the established airport elevation or 608.4 feet MSL (458.4 + 150). The radius for a visual runway measures 5,000 feet and for all other runways the radius is 10,000 feet.

Conical Surface: An inclined surface at a slope of 20:1 extending upward and outward from the periphery of the horizontal surface for a distance of 4,000 feet.

Transitional Surface: These surfaces extend outward and upward at right angles to the runway centerline extended at a slope of 7:1 from the sides of the primary surface and approach surfaces until intersecting with the horizontal surface and the precision approach surfaces that extend beyond the limits of the conical surface.

The width of the primary surface impacts the setback requirement for the Building Restriction Line (BRL), depicted on the Airport Layout Plan. The BRL provides the airport with the minimum setback from the runway centerline for permanent structures, such as hangars. Typically, the BRL is located where the height of the Transitional Surface reaches approximately 35 feet above ground level, or the planned maximum height of buildings closest to the runway.

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GENERAL NOTES

1. EXISTING RUNWAY 1–19 CLASSIFIED AS VISUAL LARGER THAN UTILITY RUNWAY.
2. ULTIMATE RUNWAY 1–19 CLASSIFIED AS RUNWAYS LARGER THAN UTILITY (B) AND FUTURE NON–PRECISION INSTRUMENT RUNWAY WITH MIMIMUMS AS LOW AS 3/4 MILE (D) IN TABLE BELOW.
3. NO OBSTRUCTINGS IN HORIZONTAL, CONICAL OR APPROACH SURFACE.
4. NO AIRSPACE ZONING ORDINANCE IN EFFECT.
5. SEE INNER PORTION OF THE APPROACH SURFACE DRAWING FOR APPROACH PROFILES.
6. AIRPORT INFLUENCE AREA BOUNDARY ESTABLISHED AT TRAFFIC PATTERN AIRSPACE BOUNDARY IN ACCORDANCE WITH FAA ORDER 7400.2E. RUNWAY 1 IS RIGHT TRAFFIC.
7. 1 NAUTICAL MILE = 6,076 FEET

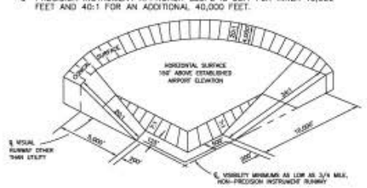
LEGEND

- PRIMARY SURFACE
- 7:1 TRANSITION SURFACE
- 34:1 APPROACH SURFACE (BELOW HORIZONTAL SURFACE)
- 34:1 APPROACH SURFACE (ABOVE HORIZONTAL SURFACE)
- HORIZONTAL SURFACE
- 20:1 CONICAL SURFACE
- AIRPORT PROPERTY
- FUTURE AIRPORT PROPERTY LINE
- AIRPORT INFLUENCE AREA BOUNDARY

AIRPORT SURFACE DATA

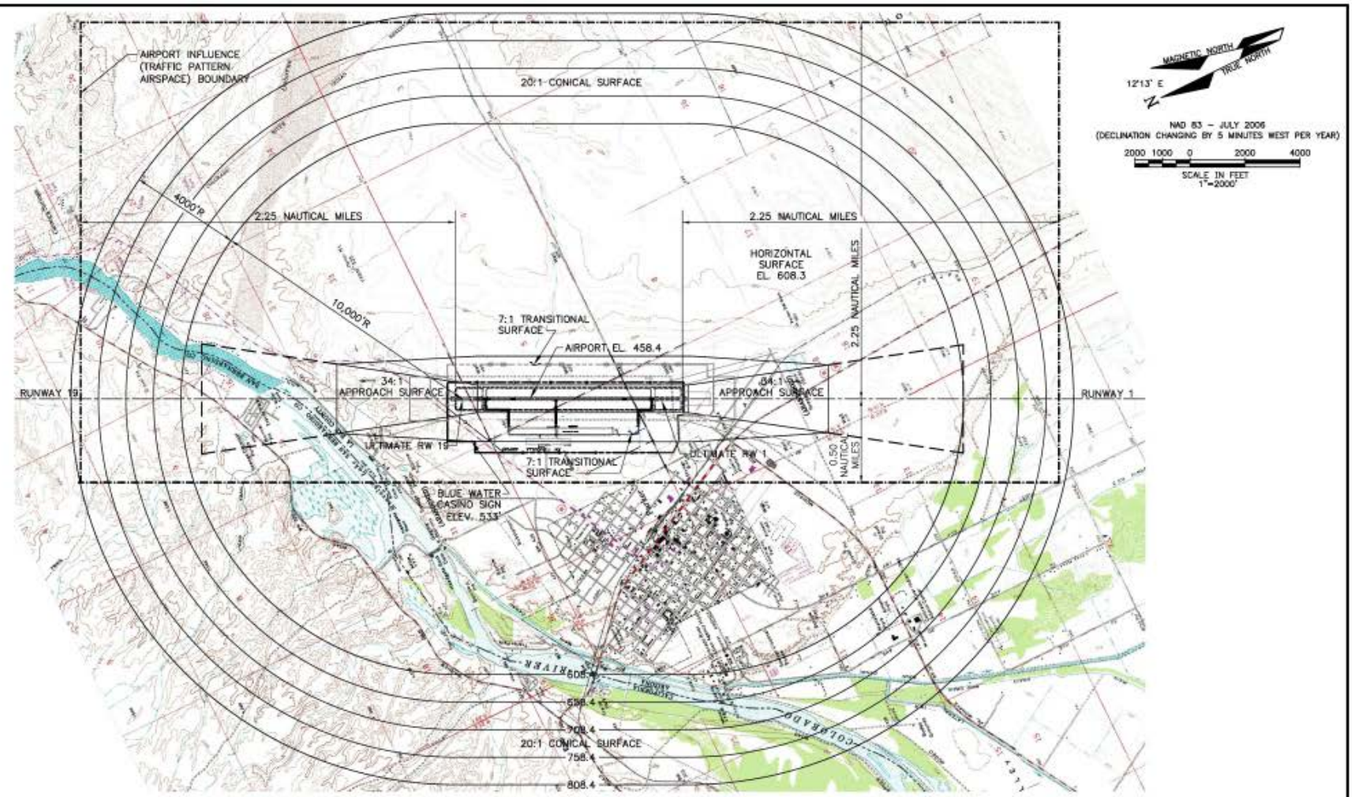
ITEM	DIMENSIONAL STANDARDS (FEET)					
	VISUAL RUNWAY		NON–PRECISION INSTRUMENT RUNWAY			PRECISION INSTRUMENT RUNWAY
	A	B	A	B C	B D	
WIDTH OF PRIMARY SURFACE AND APPROACH SURFACE WIDTH AT INNER END	250	500	500	500	1,000	1,000
RADIUS OF HORIZONTAL SURFACE	5,000	5,000	5,000	10,000	10,000	10,000
	VISUAL APPROACH		NON–PRECISION INSTRUMENT APPROACH			PRECISION INSTRUMENT APPROACH
	A	B	A	B C	B D	
APPROACH SURFACE WIDTH AT END	1,250	1,500	2,000	3,500	4,000	16,000
APPROACH SURFACE LENGTH	5,000	5,000	5,000	10,000	10,000	a
APPROACH SLOPE	20:1	20:1	20:1	34:1	34:1	a

A– UTILITY RUNWAYS.
B– RUNWAYS LARGER THAN UTILITY (EXISTING VISUAL).
C– VISIBILITY MINIMUMS GREATER THAN 3/4 MILE.
D– VISIBILITY MINIMUMS AS LOW AS 3/4 MILE (ULTIMATE).
a PRECISION INSTRUMENT APPROACH SLOPE IS 50:1 FOR INNER 10,000 FEET AND 40:1 FOR AN ADDITIONAL 40,000 FEET.



TYPICAL CIVIL AIRPORT IMAGINARY SURFACES DETAIL

NO.	DESCRIPTION	DATE
	REVISIONS	
7	UPDATE FOR AIP 3–04–0026 –11 & 012 CONSTRUCTION	5/09
6	SW GAS LINE RELOCATED OFF AIRPORT	11/08
5	UPDATE FOR AIP 3–04–0026 –09 & 010 CONSTRUCTION	8/07
4	ALP REPORT & ALP GENERAL UPDATE	12/03
3	ALP REVALIDATION	8/15/01
2	ADDED S.W. GAS LINE UTILITY EASEMENT	4/23/98
1	1997 AIRPORT MASTER PLAN UPDATE	4/28/97



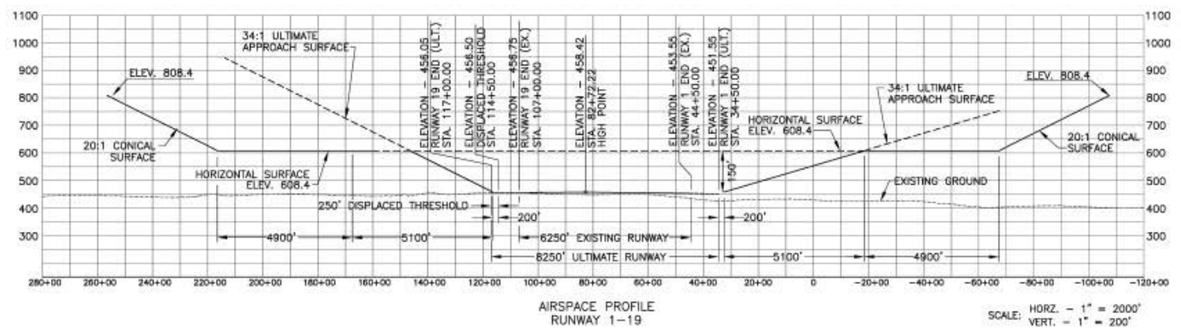


Figure 5-7 FAR Part 77 Imaginary Airspace Surfaces, Avi Suquilla Airport

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To ensure the safety of aircraft arriving and departing the airport and the ability to establish future approaches to each runway end, CRIT should consider adopting regulations and development guidelines to insure land use in the vicinity of the airport remains compatible with the airport. The FAA, in AC 150/5190-4A has provided a model zoning height and hazard zoning ordinance based upon Federal Aviation Regulations (FAR) Part 77, Objects Affecting Navigable Airspace. The Part 77 Airspace Drawing prepared for this master plan provides a graphic depiction of the Part 77 regulatory criterion applicable to the recommendations of this master plan.

Hazardous Wildlife Attractants

The FAA has developed Advisory Circular 150/5200-33B, Hazardous Wildlife Attractants on or near Airports, to provide guidance on certain land uses that have the potential to attract hazardous wildlife on or near public-use airports.

Information about the risks posed to aircraft by certain wildlife species has increased a great deal in recent years. Improved reporting, studies, documentation, and statistics clearly show that aircraft collisions with birds and other wildlife are a serious economic and public safety problem. While many species of wildlife can pose a threat to aircraft safety, they are not equally hazardous. The Circular ranks the wildlife groups commonly involved in damaging strikes in the United States.

Most public-use airports have large tracts of open, undeveloped land that provide added margins of safety and noise mitigation. These areas can also present potential hazards to aviation if they encourage wildlife to enter an airport's approach and departure airspace or air operations area (AOA). Constructed or natural areas – such as poorly drained locations, detention/retention ponds, roosting habitats on buildings, landscaping, odor-causing rotting organic matter (putrescible waste) disposal operations, wastewater treatment plants, agricultural or aquaculture activities, surface mining, or wetlands-can provide wildlife with ideal locations for feeding, loafing, reproduction, and escape. Even small facilities, such as fast food restaurants, taxicab staging areas, rental car facilities, aircraft viewing areas, and public parks can produce substantial attractions for wildlife.

During the past century, wildlife-aircraft strikes have resulted in the loss of hundreds of lives worldwide, as well as billions of dollars in aircraft damage. Hazardous wildlife attractants on or near airports can jeopardize future airport expansion, making proper community land-use planning essential.

When considering proposed land uses, airport operators, local planners, and developers must take into account whether the proposed land uses, including new development projects, will increase wildlife hazards. Land-use practices that attract or sustain hazardous wildlife populations on or near airports can significantly increase the potential for wildlife strikes. The FAA recommends minimum separation criteria for land-use practices that attract hazardous wildlife to the vicinity of airports. Current land-uses in the vicinity that are identified as possible hazards by the Advisory Circular are discussed below.

Avi Suquilla Airport has not historically had problems with bird strikes or other wildlife hazard issues. Future coordination with surrounding jurisdictions when considering proposed land

uses will be critical in ensuring that new wildlife hazards do not emerge. The following guidelines and recommendations are provided by FAA:

Waste Disposal Operations
Municipal solid waste landfills (MSWLF) are known to attract large numbers of hazardous wildlife, particularly birds. Because of this, these operations, when located within 5 miles, are considered incompatible with safe airport operations. FAA recommends against locating new MSWLF facilities within the separation criteria.

Water Management Facilities
Drinking water intake and treatment facilities, storm water and wastewater facilities, associated retention and settling ponds, ponds built for recreational use, and ponds that result from mining activities often attract large numbers of potentially hazardous wildlife. To prevent wildlife hazards, land-use developers and airport operators may need to develop management plans in compliance with local and state regulations, to support the operation of storm water management facilities on or near public-use airports to ensure a safe airport environment.

Existing storm water management facilities. On-airport storm water management facilities allow quick removal of surface water, including discharges related to aircraft deicing, from impervious surfaces, such as pavement and terminal/hangar building roofs. Existing on-airport detention ponds collect storm water, protect water quality, and control runoff. Because they slowly release water after storms, they create bodies of water that can attract hazardous wildlife.

Where possible, airport operators should modify storm water detention ponds to allow a maximum 48-hour detention period for the design storm. Detention basins should remain totally dry between rainfalls.

New storm water management facilities. The FAA strongly recommends that off-airport storm water management systems located within 10,000 feet of the airport be designed and operated so as not to create above-ground standing water. Storm water detention ponds should be designed, engineered, constructed, and maintained for a maximum 48-hour detention period after the design storm and remain completely dry between storms. To facilitate the control of hazardous wildlife, the FAA recommends the use of steep-sided, rip-rap lined, narrow, linearly shaped water detention basins. If the soil conditions and other requirements allow, the FAA encourages the use of underground storm water infiltration systems, such as French drains or buried rock fields, because they are less attractive to wildlife.

The FAA recommends that airport operators encourage off-airport storm water treatment facility operators to incorporate wildlife hazard mitigation techniques into storm water treatment facilities operating practices when their facility is located within 10,000 feet of the airport.

Existing wastewater treatment facilities. The FAA strongly recommends that airport operators immediately correct any wildlife hazards arising from existing wastewater treatment facilities located on or near the airport. Accordingly, airport operators should encourage wastewater treatment facility operators to incorporate measures, developed in

consultation with a wildlife damage management biologist, to minimize hazardous wildlife attractants. Airport operators should also encourage those wastewater treatment facility operators to incorporate these mitigation techniques into their standard operating practices. In addition, airport operators should consider the existence of wastewater treatment facilities when evaluating proposed sites for new airport development projects and avoid such sites when practicable.

New wastewater treatment facilities. The FAA strongly recommends against the construction of new wastewater treatment or associated settling ponds within 10,000 feet of the airport or 5 statute miles of approach, departure and circling airspace. The FAA defines wastewater treatment facility as “any devices and/or systems used to store, treat, recycle, or reclaim municipal sewage or liquid industrial wastes.” During the site-location analysis for wastewater treatment facilities, developers should consider the potential to attract hazardous wildlife if an airport is in the vicinity of the proposed site, and airport operators should voice their opposition to such facilities if they are in the proximity of the airport.

Wastewater discharge and sludge disposal. The FAA recommends against the discharge of wastewater or sludge on airport property because it may improve soil moisture and quality on unpaved areas and lead to improved turf growth that can be an attractive food source for many species of animals. Also, the turf requires more frequent mowing, which in turn may mutilate or flush insects or small animals and produce straw, both of which can attract hazardous wildlife. In addition, the improved turf may attract grazing wildlife, such as deer and geese. Problems may also occur when discharges saturate unpaved airport areas. The resultant soft, muddy conditions can severely restrict or prevent emergency vehicles from reaching accident sites in a timely manner.

Agricultural Activities

Because most, if not all, agricultural crops can attract hazardous wildlife during some phase of production, the FAA recommends against the use of airport property for agricultural production, including hay crops, within 10,000 feet of the airport. If the airport has no financial alternative to agricultural crops to produce income necessary to maintain the viability of the airport, then the airport shall follow the crop distance guidelines listed in Table 3-10 titled "Crop Buffers" found in AC 150/5300-13A, *Airport Design*. The cost of wildlife control and potential accidents should be weighed against the income produced by the on-airport crops when deciding whether to allow crops on the airport.

Golf Courses

The large grassy areas and open water found on most golf courses are attractive to hazardous wildlife, particularly Canada geese and some species of gulls. These species can pose a threat to aviation safety. The FAA recommends against construction of new golf courses within 5 miles of the airport. Existing golf courses located within these separations must develop a program to reduce the attractiveness of the sites to species that are hazardous to aviation safety. Airport operators should ensure these golf courses are monitored on a continuing basis for the presence of hazardous wildlife. If hazardous wildlife is detected, corrective actions should be immediately implemented.

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FINANCIAL ANALYSIS

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6. FINANCIAL ANALYSIS

6.1. INTRODUCTION

CRIT Airside investments at the Avi Suquilla Airport over the past decade (2002 thru 2012) have produced a well maintained airport with the runway, taxiway, apron and airfield lighting system in good to excellent conditions. The high speed diesel powered sweeper and other maintenance equipment provides airport management with most of the tools required to maintain pavements and keep the airport FOD (foreign object debris) free.

The next step in the development of Avi Suquilla Airport is Landside improvement to enhance revenue with the ultimate goal of the airport to become self-supporting.

The analyses conducted in the previous chapters evaluated airport improvement needs based upon forecast activity changes and operational efficiency. However, the most important element of the master planning process is the application of basic economic, financial, and management rationale to each improvement item so that the feasibility of implementation can be assured. The purpose of this chapter is to provide financial management information and tools which will make the master planning recommendations achievable.

This chapter provides a financial plan and examines the economic feasibility of developing the proposed improvements at Avi Suquilla Airport. The use of airport revenue, federal and state grant programs, is evaluated in considering the ability of the Avi Suquilla Airport to finance the proposed capital improvements. Implementation of the improvements will be on an “as required” basis consistent with “when demand occurs” along with the financial capability of the Tribe.

Guidelines for establishing criteria for Return on Investment (ROI) and Cost Benefit Analysis (CBA) are discussed in Section 6.5. ROI analyses are appropriate for revenue enhancing projects where there are not broader societal costs or benefits to evaluate. The most common example of an ROI analysis might be the construction of additional hangars where the cost of the project is easy to predict as well as the future rent income. This type of project should have a ROI greater than 1.00 over time using the formula ROI = (Gains – Cost)/Cost.

A Cost Benefit Analysis is more comprehensive than a ROI, and attempts to quantify both tangible and intangible (or “soft”) costs and benefits. Historically, CBA has been applied to large public works projects with societal costs and benefits that are more difficult to quantify than “hard” construction costs. Intangible benefits and costs are very relevant to an overall determination of what is a good investment for the public well-being. The disadvantage of a CBA is that monetizing intangible benefits and costs that do not have easily discovered market prices can be complex and any estimate derived from them may have a relatively high uncertainty.

Performing ROI and CBA analyses for projects identified in the master plan are beyond the scope of the study. A ROI is appropriate for revenue enhancing projects when the 5-yr Airport Capital Improvement Program (ACIP) is adopted each year. A CBA for public works projects with societal costs and benefits is most appropriate for Environmental Assessments and to a lesser extent a part of the ACIP process.

6.2. AIRPORT IMPROVEMENT SCHEDULE AND COST SUMMARIES

With the establishment of the specific needs and improvements for the airport in Chapters 3 and 4, the next step is to determine a realistic schedule and costs for implementing the plan. This section examines the overall cost of improvement and presents a development schedule. The recommended improvements are grouped into three planning horizons: short, intermediate, and long-term. **Table 6-1** summarizes the key activity milestones for each planning horizon.

Table 6-1 Planning Horizons Avi Suquilla Airport

	PLANNING HORIZONS			
	2012	Short Term	Intermediate Term	Long Term
General Aviation				
Based Aircraft	35	40	44	56
Annual Operations				
Local	1,200	3,000	3,740	5,600
Itinerant	10,000	10,952	12,001	14,435
Total GA Operations	11,200	13,952	15,741	20,035
Military				
Based Aircraft	0	0	0	0
Operations*	50	50	50	50
Total Airport Operations	11,250	14,002	15,791	20,085

*Military operations do not include potential future military training support at the Avi Suquilla Airport.

The short-term planning horizon covers items of highest priority. These items are coordinated with the FAA on a yearly basis, as they update short-term capital program information and assign potential funding sources and priorities to individual projects. Each year, the airport will need to re-examine the priorities for funding in the short-term period, bringing projects which were originally included in intermediate or long-term planning horizons, onto the FAA's capital programming list. While some projects will be demand-based, others will be dictated by design standards, safety, or rehabilitation needs. In putting together a listing of projects, an attempt has been made to include anticipated rehabilitation and capital replacement needs through the planning period. However, it is difficult to project with certainty the scope of such projects when looking 20 years into the future.

The airport improvement schedule has been presented as **Table 6-2**. An estimate has been included with each project of federal funding eligibility, although this amount is not guaranteed. For larger capital projects, it may be necessary for the Airport to apply for federal discretionary funds (discussed in more detail in the following paragraphs).

The staging of the improvement program is graphically presented on **Figures 6-1 through 6-3**.

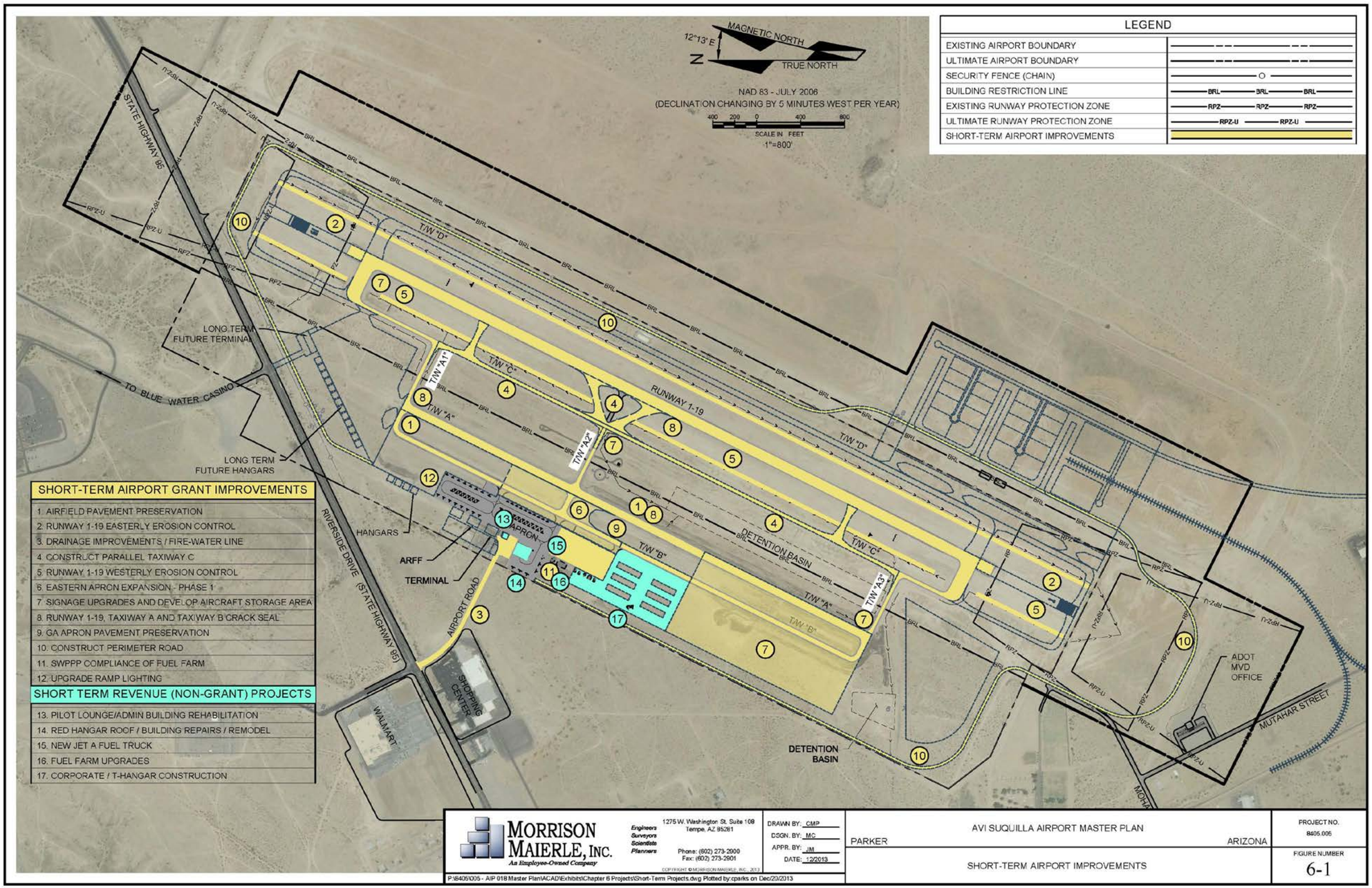

Figure 6-1 Capital Improvement Program: Short Term

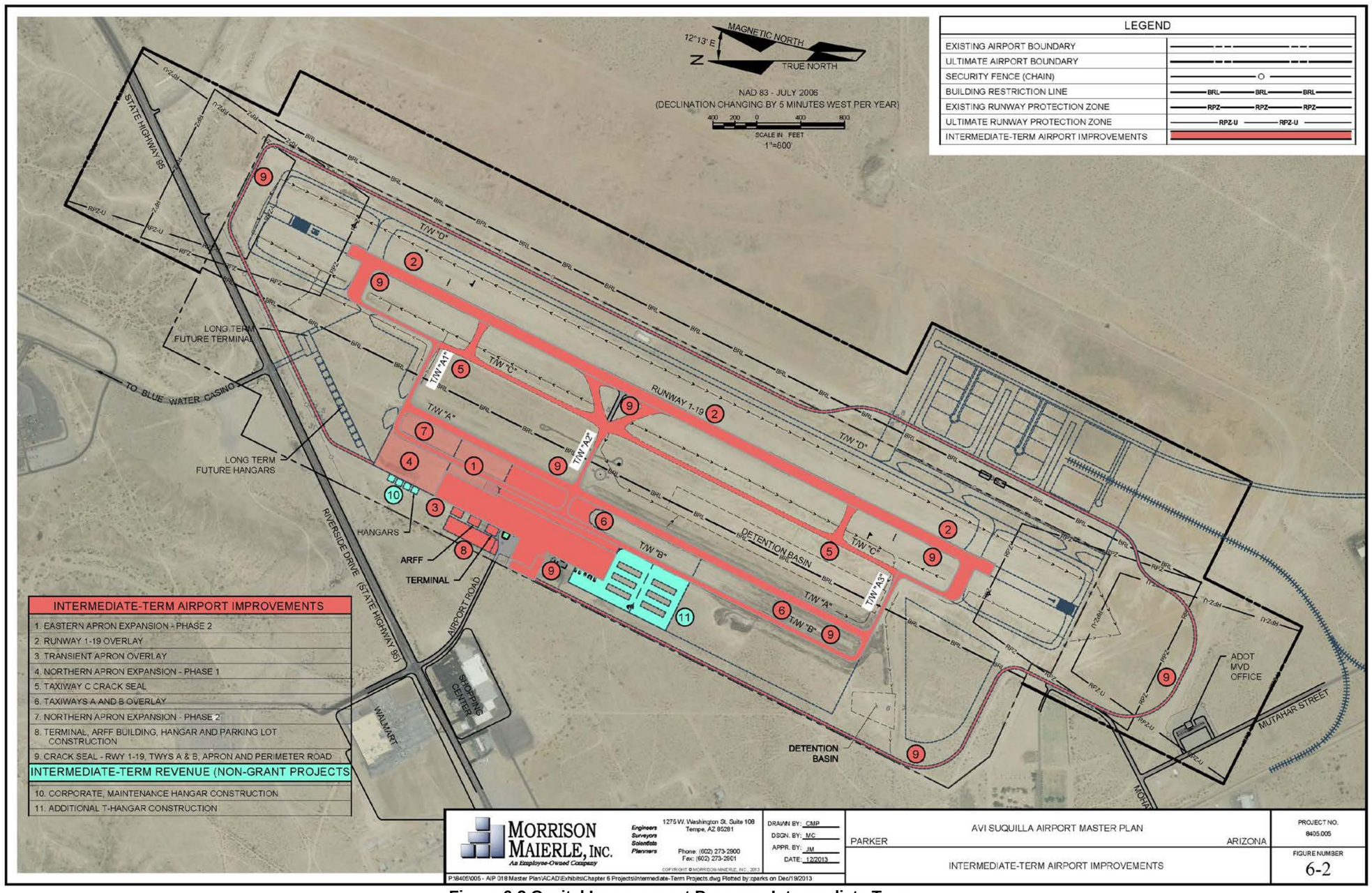

Figure 6-2 Capital Improvement Program: Intermediate Term

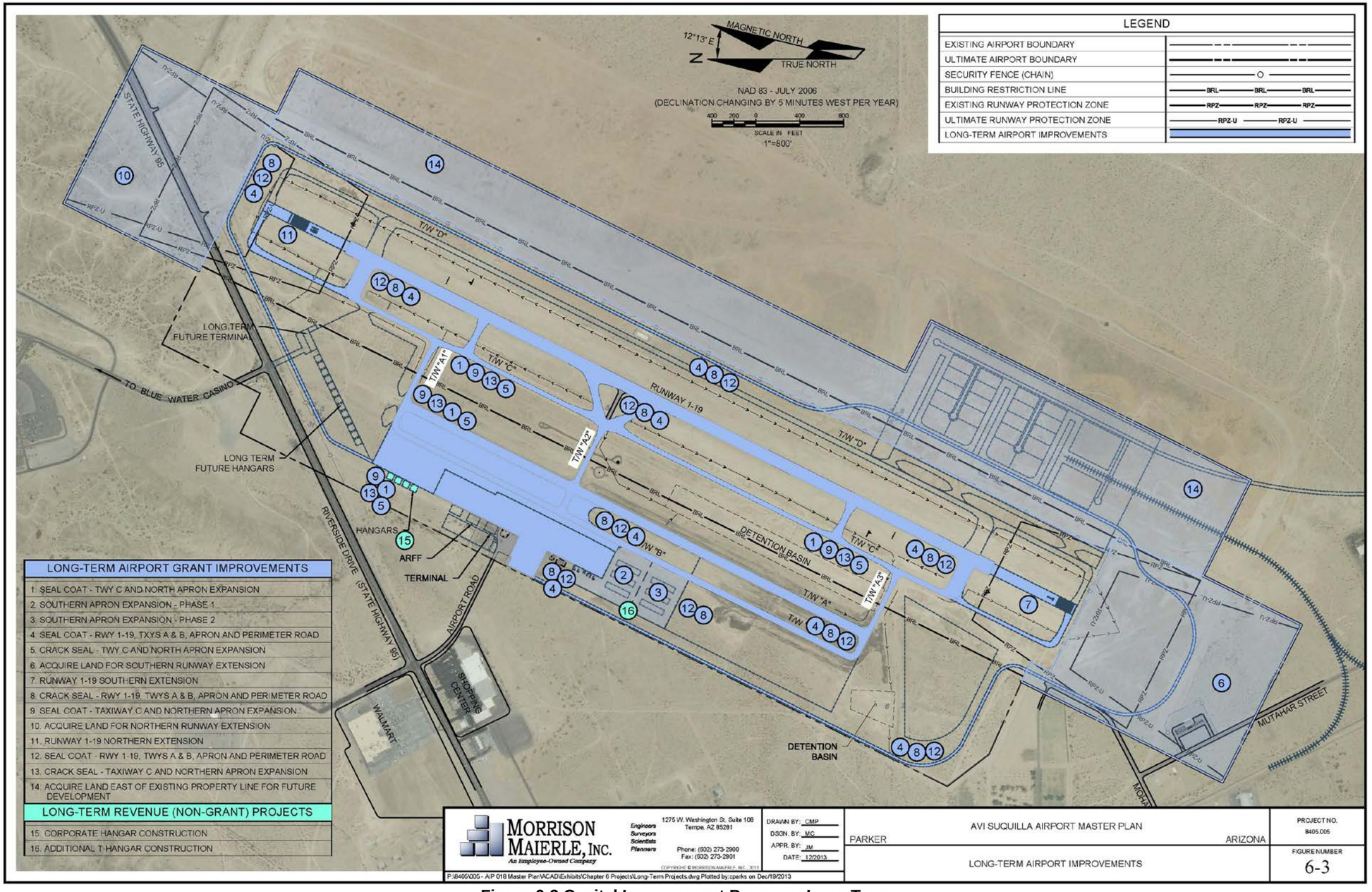

Figure 6-3 Capital Improvement Program: Long Term

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Table 6-2 Capital Improvement FAA/ADOT Grant Program Avi Suquilla Airport

Project Descriptions	Total Cost	AIP Eligible	ADOT Share	Local Share
SHORT-TERM PLANNING HORIZON				
Airfield Pavement Preservation	$800,000	$728,480	$35,760	$35,760
Runway 1-19 Easterly Erosion Control	$562,000	$511,757	$25,121	$25,121
Drainage Improvements / Fire-Water Line	$2,150,000	$1,957,790	$96,105	$96,105
Construct Parallel Taxiway C	$2,100,000	$1,912,260	$93,870	$93,870
Runway 1-19 Westerly Erosion Control	$562,000	$511,757	$25,121	$25,121
Eastern Apron Expansion - Phase 1	$2,471,000	$2,250,093	$110,454	$110,454
Signage Upgrades and Develop Aircraft Storage Area	$54,000	$49,172	$2,414	$2,414
Runway 1-19, Taxiway A and Taxiway B Crack Seal	$411,000	$374,257	$18,372	$18,372
GA Apron Pavement Preservation	$518,000	$471,691	$23,155	$23,155
Construct Perimeter Road	$1,725,000	$1,570,785	$77,108	$77,108
Subtotal	***$11,353,000***	***$10,338,042***	***$507,479***	***$507,479***
INTERMEDIATE-TERM PLANNING HORIZON				
Eastern Apron Expansion - Phase 2	$1,364,000	$1,242,058	$60,971	$60,971
Runway 1-19 Overlay	$1,764,000	$1,606,298	$78,851	$78,851
Transient Apron Overlay	$520,000	$473,512	$23,244	$23,244
Northern Apron Expansion - Phase 1	$1,821,000	$1,658,203	$81,399	$81,399
Taxiway C Crack Seal	$49,000	$44,619	$2,190	$2,190
Taxiways A and B Overlay	$1,676,000	$1,526,166	$74,917	$74,917
Northern Apron Expansion - Phase 2	$900,000	$819,540	$40,230	$40,230
Terminal, ARFF Building , Hangar and Parking Lot Construction	$3,290,000	$2,995,874	$147,063	$147,063
Crack Seal - Runway 1-19, Taxiways A and B, Apron and Perimeter	$377,000	$343,296	$16,852	$16,852
Seal Coat - Taxiway C and North Apron Expansion	$224,000	$203,974	$10,013	$10,013
Subtotal	***$11,985,000***	***$10,913,541***	***$535,730***	***$535,730***
LONG-TERM PLANNING HORIZON				
Seal Coat - Taxiway C and Northern Apron Expansion	$224,000	$203,974	$10,013	$10,013
Southern Apron Expansion - Phase 1	$1,500,000	$1,365,900	$67,050	$67,050
Southern Apron Expansion - Phase 2	$1,714,000	$1,560,768	$76,616	$76,616
Seal Coat - Runway 1-19, Taxiways A and B, Apron and Perimeter R	$1,351,000	$1,230,221	$60,390	$60,390
Crack Seal - Taxiway C and North Apron Expansion	$56,000	$50,994	$2,503	$2,503
Acquire Land for Southern Runway Extension	$875,000	$796,775	$39,113	$39,113
Runway 1-19 Southern Extension	$1,734,000	$1,578,980	$77,510	$77,510
Crack Seal - Runway 1-19, Taxiways A and B, Apron and Perimeter	$377,000	$343,296	$16,852	$16,852
Seal Coat - Taxiway C and Northern Apron Expansion	$224,000	$203,974	$10,013	$10,013
Aquire land for Northern Runway Extension	$625,000	$569,125	$27,938	$27,938
Runway 1-19 Northern Extension	$1,848,000	$1,682,789	$82,606	$82,606
Seal Coat - Runway 1-19, Taxiways A and B, Apron and Perimeter R	$1,351,000	$1,230,221	$60,390	$60,390
Crack Seal - Taxiway C and Northern Apron Expansion	$56,000	$50,994	$2,503	$2,503
Aquire land east of existing property line for future development	$2,200,000	$2,003,320	$98,340	$98,340
Subtotal	***$14,135,000***	***$12,871,331***	***$631,835***	***$631,835***
Program Totals	**$37,473,000**	**$34,122,914**	**$1,675,043**	**$1,675,043**

As discussed in the subsequent sections, the Avi Suquilla Airport Capital Improvement FAA/ADOT Grant Program will be dependent on actual demands, approval of environmental assessments and availability of Federal, State and Local funding. Some identified short term and intermediate needs will probably need to be deferred because of funding restraints. Federal grants will require the use of entitlement, state apportionment and discretionary funds. FAA, ADOT and CRIT shares based on a 91.06%, 4.47%, 4.47% ratio. Currently, the FAA share in Arizona is 91.06% and has been as high as 95% in the recent past. ADOT matches one-half of the local share on FAA projects. On state grant projects, the local share is 10% of the eligible cost.

Table 6-3 summarizes the cost of Revenue Enhancement Projects in the Short and Intermediate Terms.

Table 6-3 Revenue Enhancement Projects

Project Descriptions	Total Cost	AIP Eligible	ADOT Loan Term	Annual Cost 4% Loan	Monthly Cost
SHORT-TERM PLANNING HORIZON					
Pilot Lounge/Admin Building Rehabilitation	$78,000	No	5-years	$17,521	$1,460
Red Hangar Roof/Building Repairs/Remodel	$153,000	No	10-years	$18,863	$1,572
New Jet A Fuel Truck	$100,000	No	5-years	$22,463	$1,872
Fuel Farm Upgrades	$50,000	Possibly	3-years	$18,018	$1,501
Corporate Hangar Construction 2,500 SF	$125,000	No	10-years	$15,411	$1,284
INTERMEDIATE-TERM PLANNING HORIZON					
Maintenance Hangar Construction 12,000 SF	$900,000	No	20-years	$66,222	$5,519
Additonal T-Hangar Construction 12,000 SF	$480,000	Possibly	20-years	$35,318	$2,943
LONG-TERM PLANNING HORIZON					
Corporate Hangar Construction 2,500 SF	$125,000	No	10-years	$15,411	$1,284
Additonal T-Hangar Construction 12,000 SF	$480,000	Possibly	20-years	$35,318	$2,943

The revenue projects are generally not AIP eligible, but are usually eligible for an ADOT loan, and some may be eligible for future AIP or ADOT grants. The table assumes a loan and provides an annual cost based on varying loan terms. Costs are based on current budget estimates in the Avi Suquilla Capital Improvement Program as well as rough order of magnitude square foot costs for buildings. Building costs are also dependent on ancillary costs (taxiways, water, electrical, sewer/septic, telephone, internet access) which can be difficult to estimate until the Airport is ready to proceed with the project, In the case of individual and T-hangars, restrooms, multiple 20 - 30 amp circuits, telephone and internet access, are great amenities. But if the Airport doesn't have the funds - or the tenants don't want to pay for those amenities, then the project can be tailored to meet projects restraints in order for it to move forward.

Due to the conceptual nature of a master plan, capital projects should undergo further refinement during annual 5-yr ACIP preparation and prior to requesting funds from the FAA and ADOT. Capital costs presented in Table 6-2 and Table 6-3 are in current (2013) dollars. Adjustments will need to be applied over time as construction costs or capital equipment costs change. Capital costs in this chapter should be viewed only as estimates subject to further refinement during the ACIP and project application process.

6.3. AIRPORT IMPROVEMENT GRANT FUNDING SOURCES

Financing capital improvements at the airport will not rely exclusively upon the financial resources of the Colorado River Indian Tribes. Capital improvements funding is available through various grant-in-aid programs administered at the state and federal levels.

6.3.1 FEDERAL AVIATION ADMINISTRATION GRANTS

The United States Department of Transportation, through the Federal Aviation Administration, provides a portion of development costs for eligible airport projects. This program is the Airport Improvement Program (AIP).

The source for AIP funds is the Aviation Trust Fund. The Aviation Trust Fund was established in 1970 to provide funding for aviation capital investment programs (aviation development, facilities and equipment, and research and development). The Trust Fund also finances the operation of the FAA. It is funded by user fees, taxes on airline tickets, aviation fuel, and various aircraft parts. The program is subject to review and reauthorization by Congress on an approximate five year cycle.

Prior to establishment of the Trust Fund, federal aids to airports was funded from the federal general fund under the Federal Aid to Airport Projects (FAAP) program administered by the Civil Aeronautics Administration (CAA) from 1946-1958 and the FAA from 1958-1969. With the exception of short periods while the legislation was being reauthorized, there has been a federal aid to airports program since it was first authorized by Congress in 1946 for post-World War II support of civil aviation. It is expected the federal government will continue to support airport development throughout the study period.

Under the current AIP law, eligible projects (such as airfield, apron, terminal, and access roads) can receive up to 90 percent federal participation. Projects that are undertaken for security, safety, operational efficiency, or environmental reasons are generally eligible for funding. Projects that have the potential to generate revenue or benefit a private individual or company are generally ineligible. Examples of ineligible projects include the construction of general aviation terminals, hangars and fuel farms, though there are some exceptions for revenue producing projects at General Aviation airports. AIP funds are distributed each year by the FAA under budget authorization and appropriations from Congress.

Starting with the FAAP program in 1946, as one of the conditions for accepting federal airport development grants, the federal government requires that all tax money collected by local governments for aviation facilities or fuel has to go for airport operations and maintenance. Airport revenue non-diversion provisions have been updated and strengthened in subsequent revisions to the federal airport development grant programs. Currently all income generated by an airport, including tax revenue is to be used for airport operation, maintenance or capital improvements.

6.3.2 FAA FACILITIES AND EQUIPMENT PROGRAM

The Airway Facilities Division of the FAA administers the Facilities and Equipment (F&E) Program. This program provides funding for the installation and maintenance of various navigational aids and equipment of the national airspace system. Under the F&E program, funding is provided for FAA airport traffic control towers, enroute navigational aids, on-airport navigational aids, and approach lighting systems.

Currently, there are not any FAA owned navigational aids programmed for the Avi Suquilla Airport, nor are any currently forecast during the study period. However, with advances in technology, there may be a future need for on-airport navigational aids which could potentially be installed by the FAA, or the Airport as an AIP project.

6.3.3 ARIZONA STATE AID TO AIRPORTS

In support of the state airport system, the State of Arizona also participates in airport improvement projects, through the Arizona Department of Transportation (ADOT). Taxes levied by the State on aviation fuel, flight property, aircraft registration tax, and registration fees, as well as interest on these funds is deposited in the Arizona Aviation Fund. The Transportation Board establishes the policies for distribution of these State funds.

Prior to September 2013, Airports owned by Native American communities have not historically been eligible to receive ADOT funding. In 2013, The Arizona Legislature passed and the Governor signed SB 1317 which made Native American airports eligible for ADOT funding. The full effect of the new law will not be felt until Arizona's 2015 fiscal year which begins on July 1, 2014. However, projects in the planning stage or bid in the spring of 2014 may be eligible if all state criteria have been met. While the FAA and ADOT programs are similar, funding has to be applied for from each agency. In addition to complying with the federal requirements, the state has additional criteria that need to be met to qualify for state aid.

SB 1317 provides the following airport funding benefits to CRIT:

Airport Preventative Maintenance System (APMS) Program: Every three years ADOT conducts a Pavement Condition Index (PCI) Survey all of Arizona's non-air carrier hub NIPIAS airports, including for the first time the Avi Suquilla Airport in 2013. The PCI survey is completed with no cost to CRIT and serves as the basis for scheduling of routine pavement maintenance by ADOT at participating airports. The maintenance is based on the PCI of the pavement segment and could consist of crack sealing, asphalt emulsion seal coats, cape seals, thin asphalt concrete overlays and pavement marking, all dependent on the condition of the pavement.

In order to participate in the pavement maintenance projects, ADOT requires a match of 10% of the construction and construction inspection cost. ADOT pays 100% of the project design and bidding. Generally four to six airports are included each construction bid package. There is no federal participation in the APMS maintenance projects as this type of project is generally not eligible for federal assistance.

The direct benefit to CRIT is that they will save roughly $25,000 in tri-annual PCI Survey costs and $30,000 to $50,000 in design and bidding for each APMS maintenance project.

ADOT Development Grants Program: On Projects **utilizing federal, state and local funds**, ADOT will pay 50% of the local share on AIP projects. Application for the 50% match is made by letter when the AIP grant is received. However, in order to be eligible for the grant, consultant selection, consultant contracts and plan reviews must be completed in accordance with ADOT regulations and the Arizona Airports Best Practices Manual adopted by the FAA, ADOT and Arizona Airports Association. Much of what ADOT requires is also required by the FAA, however there are some criteria which are unique to ADOT and could put the match in jeopardy in not followed to the letter.

For projects **utilizing state and local funds only,** ADOT has a State Grant Program for safety and capacity enhancement, environmental, planning and land acquisition projects that have met the State Transportation Board's qualifying priority rating. They are also available for several airports that are in the State System Plan but not included in the

NIPIAs. State grants are often used to fund design of AIP projects in order to save FAA entitlement funds for the follow on construction project. They are also used for projects that are not eligible for AIP funding or have too low of a priority for AIP state apportionment or discretionary funds. The State grant is limited to $2,000,000 per project and requires a CRIT match of 10%.

ADOT Airport Development (Low Interest Rate) Loan: To enhance the utilization of available state funds, ADOT established the Arizona Development Loan Program. The program is designed to be a flexible funding mechanism to assist eligible airport sponsors in improving the economic status of their respective airports. Eligible Projects include typical airport related construction projects such as runways, taxiways, aircraft parking ramps, aircraft storage facilities, (hangars), fueling facilities, general aviation terminal buildings or pilot lounges, utility services (power, water, sewer, etc.) to the airport runway or taxiway lighting, approach aids (electronic or visual), ramp lighting, airport fencing, airport drainage, land acquisition, planning studies, and under certain conditions, the preparation of plans and specifications for airport construction projects.

6.3.4 OTHER GRANT FUNDING SOURCES

In addition, other grant or low interest loans for projects not eligible for funding under FAA and ADOT programs and which may assist the airport in achieving self-sufficiency include the following potential agencies:

- Economic Development Grants or Loans from:
  - ✓ Bureau of Indian Affairs (BIA)
  - ✓ Housing and Urban Development (HUD)
  - ✓ State of Arizona Commerce Authority (ACA)
- Rural Water / Pollution Prevention Grants of Loans from:
  - ✓ Indian Health Service (IHS)
  - ✓ Water Infrastructure Finance Authority of Arizona (WIFA)
- Road Transportation
  - ✓ ADOT Technical Assistance and Safety Grants
  - ✓ BIA Road Construction Funds

Airport Management in conjunction with the CRIT Planning Office, CRIT Grants Writer and CRIT Representatives on Regional Transportation Committees will need to identify airport infrastructure projects which may be eligible for other funding sources and work jointly to apply for funding.

6.4 CRIT (LOCAL) FUNDING

The balance of project costs, after consideration has been given to grants available, must be funded through local resources. While it is desirable for the airport to directly pay for itself, it is rare for smaller general aviation and commercial service airports to generate enough revenue to offset both their Operating and Maintenance (O & M) costs and Capital Improvement expenditures. Thus, most large capital improvement projects at smaller airports are very rarely funded 100% from airport revenues. Instead, they are funded by appropriations from the Airport Owner's (Tribe, City, County or State) capital improvements budget.

As discussed and in subsequent sections, the **indirect and intangible benefits of the airport to the community's economy and growth must be considered in implementing future capital improvements, particularly airside (runway, taxiway, apron) improvement projects.** Airside projects may stimulate growth in other areas of the community such as tourism and industrial development.

Avi Suquilla Airport O & M Budget: The Avi Suquilla Airport operates as an Enterprise Department of the Tribes. The department is also known locally as CRIT Air, and its financial statements follow the general accepted accounting principles (GAAP) prescribed by OMB Circular A-133. An A-133 Audit is also required annually by the FAA and other federal grantees. Indian Tribal Governments are included under the definition of "State" in Circular A-133 based on the statutory definition of "State" in the Single Audit Act of 1984 and the 1996 Amendments.

The budget approved annually by CRIT in addition to including O & M and Capital Improvements also includes a "depreciation" line item which results in a budget deficit that is not representative of the Airports actual financial condition. In a profit making business, depreciation is an income tax deduction used to reduce taxes. In a government entity, it shows the current value the Airport's assets. When annual depreciation costs are included in an operating budget, income rarely is enough to cover depreciation. This is especially true if the improvement cost being depreciated includes the current 90 to 95% federal grant.

On a Cash Basis, the current Airport revenues and current O & M expenses are at a break-even point, and have been that way for past two or three years during the recession. Most major capital improvements, with the exception of two ARRA funded project have used appropriated capital improvement funds for the "Local" Share.

It is expected that general aviation will grow slowly, particularly during the next few years. It will take some time to reach pre-recession levels, but when it does, increases in fuel sale revenues will go to the bottom line as there will be little increase in O & M costs.

For the purposes of the Master Plan, we have assumed that for the short term airside projects will require the appropriation of the Local Matching share by CRIT, and will be justified, if necessary, by a Cost Benefit Analysis. Revenue enhancement projects will generally be justified on a Return on Investment analysis, which may or may not require an appropriation from the CRIT capital improvement budget.

The need for appropriation of the matching share for Intermediate and Long Term improvements is dependent future economic trends, particularly the local economy and the health of general aviation.

The following subsections provide a review of the sources of operating revenue that are available at Avi Suquilla Airport to assist in meeting operating expenses and capital improvement program costs for the airport. Both direct income to the Airport (fuel sales, land leases and hangar leases) and indirect revenue (Tribal tax revenue, TERO, Tribal Enterprises, etc.) are discussed.

6.4.1 EXISTING AND POTENTIAL DIRECT AVI SUQUILLA AIRPORT INCOME

Fuel Revenues: Fuel sales are typically a leading revenue source for general aviation airports. At many general aviation airports, FBO services are contracted to private vendors. The airport receives revenue in the form of a fuel flowage fee which is assessed on every gallon of aviation fuel that is sold at the airport. At Avi Suquilla, CRIT Air serves as the Fixed Base Operator. Airport management staff serves the dual function of FBO staff and fuel is sold at going market rates. This approach is efficient, eliminates duplication of staff and maximizes revenue potential to the Tribe from fuel sales.

Hangar Leases: CRIT currently leases the large CRIT hangar and 20 T-hangars. Individual T-hangar units lease for $340 monthly and a position in the large hangar leases for $400 per month. The large hangar has space for approximately 4 aircraft, depending on aircraft size. If all units are filled, this represents a revenue potential of $8,400 per month.

Hangar development costs are generally not eligible for federal funding, though under the new AIP legislation some revenue projects could be eligible. Hangars are eligible for ADOT loans. The existing T-hangars were financed through an interdepartmental loan. Additional T-hangers will generally need to be financed by an ADOT loan or an interdepartmental loan assuming grant funding will not be available in the immediate foreseeable future. Alternately, CRIT may wish to consider proposals from private developers to construct and manage hangar facilities at the airport. Outsourcing hangar development can benefit the airport sponsor by generating land lease revenue and relieving the sponsor of operations and maintenance costs, however, financial returns are diminished. See the Hangar Construction Return on Investment analysis in Paragraph 6.5

Other Existing Income: There are other smaller and less reliable sources of income that can be considered at the airport. Other income typically includes aircraft parking, automobile parking, concession income and special events. Avi Suquilla currently collects fees for aircraft parking ($50 monthly, overnight $5 single, $8 twin, $10 jet) and long term auto parking ($20 monthly). General aviation airports are often good locations for hosting special events such as air shows. While part of the interest in hosting special events is to draw attention to the airport's facilities, temporary use of available areas, as well as advertising and concessions, can also provide additional revenue.

Potential Avi Suquilla Income Sources: Potential income sources include:

- Flight Instruction
- Aircraft Repair (Aircraft Frame and Engine Repair, Radios and Communications)
- Special Operations Training (US and Foreign Military Inquiries)
- Land Leases
- Additional Corporate (box) or T-Hangars

Flight Instruction and Aircraft Repair: CRIT Air is not a full service Fixed Base Operator (FBO) providing charters, flight instruction and aircraft repair. At one time, in the 1980's CRIT Air did operate as more of a full service FBO. This venture was not profitable, and during the past 20-yrs CRIT Air services have been limited to fuel sales and the Operation and Maintenance of the airport.

At the current time, there is a limited demand for flight instruction and aircraft repair which cannot be met until the CRIT Hangar is renovated and communication facilities upgraded (additional phone lines, high speed internet and perhaps fiber optics). Once facilities are renovated, office space in the hangar could be leased to firms or individuals offering flight instruction or aircraft repair services. Depending on the response and future demand, FAR Part 135 Charter operations may also be feasible as part of the flight instruction or aircraft repair business.

The success of an FBO at Avi Suquilla is dependent on many factors and survival of FBO would be very dependent on the firms' owners. CRIT should approach contractual relationships with caution and not overbuild facilities that would be leased to companies that may fail in economic downturns.

Special Operations Training: During the course of study, CRIT has been approached informally by both representatives of the US and Canadian military (or training contractors) about the capability of the Avi Suquilla airport to support certain types of military training at the airport. In one case, it involved refueling of helicopters and Osprey's during training exercises in the vicinity of the Airport. Another proposal involved high altitude parachute training.

In each instance, some facilities or equipment (larger fuel trucks, for example) would be required. Discussions have been very preliminary to date. In most instances it is believed the military could not enter into long term commitments due to programs being canceled and future congressional appropriations dependent on a variety of factors. CRIT should continue to discuss these opportunities, and if the facilities required have alternate uses, make other airport operations feasible, or benefit other Tribal Enterprises consider entering into agreements. CRIT's ROI or a CBA analysis should be part of the decision making process.

Land Leases: The airport has a valuable resource in its land holdings. While a portion of these holdings will need to be reserved for aviation-related improvements, considerable land can be developed for additional commercial/industrial uses to increase airport revenues. The Master Plan includes provision for land lease areas such as aircraft storage, corporate parcels, and a multi-modal industrial park. Future development of industrial properties will require additional infrastructure development. Airport and Economic Development marketing can be instrumental in developing land and leasing airport property.

CRIT has the option of developing future industrial/commercial sites on the airport for lease to individual tenants, or of entering into a master ground lease with a private developer who would perform the necessary development and offer both sites and buildings to tenants. Master ground leases offer a substantial financial advantage to a private developer as there are not up-front acquisition costs, and lease payments are fully deductible for tax purposes (owned land cannot be depreciated). This option could be structured as a straight ground lease or as a joint venture.

All land leased will require Bureau of Indian Affairs approval and depending on what the land is being used for, possible the approval of the FAA. All leases at the airport should have Consumer Price Index (CPI) clauses allowing for periodic rate increases in line with inflation.

Additional T-Hangar or Box Hangars: The Airport has a waiting list for the construction of additional T-Hangars and individual Corporate or Box Hangars. Interest in corporate/box hangars includes construction by CRIT and leasing the hangar as well as leasing ground from CRIT and constructing the Hangar on leased ground with title to the building passing to CRIT on the expiration of the lease. The typical term for land leases is 30-years to allow the lessee to amortize the cost of hangar construction and realize a return on his investment.

Prior to construction of new hangars CRIT needs to confirm the commitment of persons on the waiting list to lease the units, rather than adopting a "build and they will come" approach.

It is generally beneficial for the Airport Owner to own hangars as the airport will generate more revenue in the long run. The downside is that if hangars are constructed with debt financing and there is a long downturn in the economy, vacancy rates can also escalate rapidly in the event that hangars are overbuilt at an airport.

Section 6.5. discusses the return on investment for both CRIT Owned Hangars and Hangars constructed on Leased Land.

6.4.2 EXISTING CRIT INDIRECT AVI SUQUILLA AIRPORT INCOME

In addition to the direct revenue associated with the Airport, CRIT also receives direct taxes related to the capital improvements at the airport, as well as indirect revenue from Tribal Enterprises.

2012 ADOT Economic Impact Study of Aviation in Arizona: ADOT, as part of periodic updates for the Arizona State Aviation Systems Plan also publishes economic impact studies of aviation in Arizona. The most recent study published in May 2013 summarized the **Benefits of Aviation** to Airport Owners (State, Tribal and Local Government) as:

- Enhances business investment
- Creates jobs and tax revenue
- Supports tourism
- Supports economic growth and development

The La Paz County Economic Impacts were estimated to be:

- $5.1 Million
- Included both direct and indirect benefits

Assuming the average cash budget including local matching share is about $0.75 Million, the return on CRIT's investment was about 680% for CRIT and La Paz County.

Revenue from 2% Fuel Tax: The Avi Suquilla Airport collects a 2% fuel tax which is remitted to the CRIT Revenue department. Federal law requires that all revenue, including fuel taxes, generated by an Airport be reinvested in the operation and maintenance of the Airport, including capital improvements. The requirement for fuel taxes to be reinvested goes back to 1946. More recent amendments to the Federal Airport Development laws have further defined and restricted diversion of revenue to non-airport uses. The federal

government goal is to make all airports self-supporting and the latest AIP legislation does permit use of federal funds to fund eligible revenue enhancement projects at GA airports.

Because CRIT has used their Capital Improvement Budget as well as their General Operating Budget to support the operations and maintenance of the Airport, CRIT is probably in compliance with the federal legislation. It is suggested the budget process be revised to clearly show that fuel tax revenue remitted to the CRIT Revenue Department is being returned to the Airport from the Tribes' general fund or Capital Improvement Budget.

General Sales Tax Revenue: The Colorado River Indian Tribes Tax Code imposes a one to two percent (1% to 2%) tax on retailers for "the privilege of conducting a sale of property within lands subject to the jurisdiction of the Colorado River Indian Tribes." This tax applies to any business that sells any property on tribal land, including any business that sells any property for delivery to the Tribes, tribal members or tribal land. "Business" is defined as "all activities or acts, personal, corporate or otherwise, engaged in with the object of profit, gain, benefit or advantage, either directly or indirectly, wholly or in part, within lands subject to the jurisdiction of the Tribes." Although the sales tax is not imposed on construction services, contractors are required to pay sales tax on the materials, supplies, and equipment they purchase off the reservation and incorporate in the work.

The Special Provisions in Airport construction projects advise Contractors of the CRIT taxation laws and also advises non-Indian Prime contractors that they are currently exempt from the State's Contractors' State Transaction Privilege tax for activities performed on a reservation for the Tribes or a tribal entity. The specification advises non-Indian contractors to consult with the Revenue Department, Attorney General and their tax consultant when preparing bids as the specification requirements do not constitute legal or tax advice.

Revenue from TERO Tax: CRIT has enacted a Labor Code, Article 1 - Tribal Employment Rights (Code) which authorized the creation of the TERO Commission to better regulate the employment practices of the Tribe and other employers and contractors conducting business on the reservation. The TERO provides a number of services which include matching qualified applicants from the Tribe to career opportunities on the Reservation and investigating complaints regarding employment practices.

The Code authorizes the TERO to administer the provisions of the Code, including keeping records of jobs performed within the boundaries of the Colorado River Indian Reservation. All employers or contractors conducting business within the Colorado River Reservation, including the Tribal government and all its programs, departments, and chartered entities or enterprises; private employers and independent contractors and subcontractors, including those performing work for the Tribe, any State Government, or the United States, are required to file an Employer Compliance Plan with the TERO.

The Employer Compliance plan, among other things, requires that employers:

- Use local goods and services when developing a project, with preference given to Indian-owned businesses and entrepreneurs.
- Use local manpower when filing open positions, with first preference given to Indians living on or near the Reservation

- Pay a 3.5% fee on construction contracts totaling $50,000 dollars or more. This fee is assessed against prime contractors who perform work on the Colorado River Indian Reservation. A portion of the fee supports the operation of the TERO office and a portion is allocated to the Tribes' General Fund.

The construction contract Special Provisions also discusses the application of the Labor Code and its relationship with federal requirements for Equal Employment Opportunity and Disadvantaged Business Enterprise firms. In order to be in compliance with federal regulations and law on federally (or state) assisted Department of Transportation projects, Bidders who are Indian-owned businesses do **not** receive any preference in the bidding process. Indian preference is not a consideration or factor in the acceptance of bids, analysis of bids, or award of the contract. The CRIT Labor Code is **not** applicable to any bid process or analysis. Nothing in the construction specifications should be construed as permitting a tribal employment preference, a tribal or Native American contracting preference, or a waiver of the Disadvantaged Business Enterprise (DBE) Program requirements under 49 CFR Part 26. Once a contract is awarded, the Contractor is required to comply with all Tribal laws, including the applicable provisions of the CRIT Labor Code.

Indirect Revenue from Tribal Enterprises: CRIT also receives indirect revenue and benefits from Airport operations and capital improvement projects. The airport provides transportation to visitors to go to Tribal Headquarters and Tribal enterprises and of course purchases supplies from Tribal Enterprises. Construction Contractors and their employees also purchase supplies and services from a number of Tribal Enterprises. The Enterprises most directly affected by the airport include:

Colorado River Sand & Rock is the enterprise of the Colorado River Indian Tribes that most directly benefits from airport projects. Established in October 1998, the enterprise supplies concrete ready mix, asphalt, sand and gravel products to La Paz County, Riverside County and San Bernardino County. Airport paving projects consistently utilize Colorado River Sand & Rock for material needs.

Colorado River Building Supply provides building supplies.

Blue Water Resort and Casino benefits from meeting rooms rented for special events at the airport, from contractor and consultant staff staying at the resort and from transportation provided by the airport to tourists staying at the resort or businessmen meeting with resort Management.

Kofa Inn benefits from contractor and consultant staff staying at the Inn and from transportation provided by the airport to tourists staying at the Inn.

Many of the visitors to the airport own homes along the river, including parcels leased from CRIT through resorts like Aha Quin or individual leases. It is difficult to estimate the indirect revenue this provides to the CRIT; however the benefit of having a nearby airport may have been one of the factors influencing them to locate on or near the reservation.

6.4.3 SUMMARY – BENEFITS OF CONTINUED CRIT SUPPORT OF THE AVI SUQUILLA AIRPORT

Section 6.3 discussed Grant Funding available for airport development including FAA and ADOT funds available for both "eligible" airside and landside projects. FAA and ADOT projects currently require a local match of approximately 10%. In the case of FAA funded projects, ADOT provides one-half the matching funds required. On ADOT projects, the local match is 10%. There is also the potential of low interest loans from ADOT for revenue enhancing projects.

Several other agencies which have infrastructure grant or loan programs were identified as potential sources for funding of projects that benefit the airport and provide economic development opportunities for CRIT.

Section 6.4 reviewed both the direct revenues available from the Avi Suquilla Airport to support Operations and Maintenance and Capital improvements, as well as CRIT's indirect revenues from the Airport and Airport Construction projects. In addition, indirect benefits to CRIT from support of Tribal Enterprises were also discussed.

For the overall community, Economic Studies indicate that the benefits of having an airport far outweigh the costs. Although the direct benefit to the Tribes may be less than the 680% estimated in the recent ADOT study, it is significant and provides positive return on investment when easy to measure direct and indirect benefits are evaluated.

The one intangible benefit that is difficult to put a dollar value on is the role the airport plays in Medevac flights from both the Indian Health Service (IHS) Hospital and the La Paz County Regional Hospital. The IHS Hospital serves five reservations, and the airport plays a major role in their medevac flights. Putting a dollar value on having a corporate jet capable airport within a 2-mile distance from both the IHS and La Paz County Hospitals is difficult, but saving one or two lives annually may be equivalent of the annual cost of operating the airport.

Continued investment by CRIT in the airport is justified as it works toward full self-sufficiency.

The following two sections discuss ROI and CBA analysis and Master Plan Implementation.

6.5 RETURN ON INVESTMENT AND COST BENEFIT ANALYSES

Return on Investment: The Tribal Council has requested that Capital Improvement plans must have some type of economic justification to provide them with financial information in order to help them know that they are doing the "right thing" by investing in or implementing the requested project. A popular economic calculation for the attractiveness of an investment is **"Return on Investment" (ROI)**. ROI is a calculation of the most tangible financial gains or benefits that can be expected from a project versus the costs for implementing the suggested project. ROI is commonly used to evaluate investments in real estate, stocks or similar investments.

The ROI formula is simple; take the gains on the investment, subtract the costs and divide by the cost; or alternatively net benefits divided by total cost. The ROI is a ratio and is generally expressed as a percentage.

The formulas' are: ROI = (net benefits/total cost) X 100 or ROI = (Gains – Cost)/Cost X 100 which expresses the return on investment as a percentage.

For example if the net gain or benefits from project is $25,000 and it costs $50,000 to implement, then the ROI calculation would appear as follows.

ROI = (25,000/50,000) X 100 = 50%

The ROI in this example is 50% which represents a positive return on the investment. It typically takes an ROI ratio greater than zero for a program to be attractive. A sub-zero ratio may not automatically "kill" a project, because it may result in a required capability that doesn't currently exist. Not all government functions are required to have a positive rate of return as they are in the business world. Government is required to provide certain services to the public, and so is more tolerant of low ROI.

Comparing the ROI of various options will help to ensure that CRIT selects the most cost effective technology and approach. Additional support for negative (and positive) rates of return with the qualitative benefits can be identified and provided by the airport management and planning team.

The following example is an ROI analysis of a T-Hanger project and illustrates the danger of looking at the ROI alone and not the results of the investment. Many ROI analyses have exaggerated results because all costs are not taken into account. In addition, the ROI is the same whether $200 grows to $250, $2.00 grows to $2.50 or $200,000 grows to $250,000. The ROI is the same 25% in all three cases.

T-Hangar Example: When airport has the financial and staffing resources to construct and manage hangar facilities itself, it can often realize greater returns by retaining control of hangar development. **Table 6-4** provides an illustrative comparison of an airport constructing and managing a ten unit T-hangar building versus outsourcing hangar development to a private developer and collecting a ground lease over a thirty year period when the private hangar would revert to the Airport. The table also compares what happens if (1) the ground lease is extended for another ten years and (2) the private hangars revert to the Airport at the end of 30 years.

The table compares CRIT constructing a new 10-unit T-hangar, at construction cost of $300,000, a starting monthly rental rate of $340 per individual unit and vacancy rates of 20% and 5% to CRIT offering a land lease to a private developer to construct and manage the same unit starting at $0.08 per square foot. Both scenarios assume an annual 2.5% inflationary adjustment to lease rates. CRIT constructing and managing the T-hangars results in an increased net return of from approximately $507,000 to $1,427,000 compared with outsourcing T-hangar development depending on occupancy rates and the time period selected (30 to 40 years). If the T-hangars revert to the Airport after 30-yrs the net return would be $1,141,000 to $1,125,000 at the end of 40-yrs excluding any major repair costs.

Table 6-4 Comparison of CRIT Hangar Construction vs CRIT Land Lease

Airport Development of T-Hangars				
	*Unit Lease (per mo.)	Annual Cost $300,000 Loan @ 4%	Net Income 80% Occupancy	Net Income 95% Occupancy
2013	$340	$22,074	$10,566	$16,686
2014	$349	$22,074	$11,382	$17,655
2015	$357	$22,074	$12,218	$18,648
2016	$366	$22,074	$13,076	$19,666
2017	$375	$22,074	$13,954	$20,710
2018	$385	$22,074	$14,855	$21,779
2019	$394	$22,074	$15,778	$22,876
2020	$404	$22,074	$16,725	$23,999
2021	$414	$22,074	$17,695	$25,151
2022	$425	$22,074	$18,689	$26,332
2023	$435	$22,074	$19,708	$27,542
2024	$446	$22,074	$20,753	$28,782
2025	$457	$22,074	$21,823	$30,054
2026	$469	$22,074	$22,921	$31,357
2027	$480	$22,074	$24,045	$32,693
2028	$492	$22,074	$25,198	$34,062
2029	$505	$22,074	$26,380	$35,465
2030	$517	$22,074	$27,592	$36,904
2031	$530	$22,074	$28,833	$38,378
2032	$544	$22,074	$30,106	$39,890
20-Yr Subtotal		$441,480	$392,298	$548,631
2033	$557	$0	$53,484	$63,513
2034	$571	$0	$54,822	$65,101
2035	$585	$0	$56,192	$66,728
2036	$600	$0	$57,597	$68,396
2037	$615	$0	$59,037	$70,106
2038	$630	$0	$60,513	$71,859
2039	$646	$0	$62,026	$73,655
2040	$662	$0	$63,576	$75,497
2041	$679	$0	$65,166	$77,384
2042	$696	$0	$66,795	$79,319
Total		$441,480	$991,504	$1,260,189
Less Value of Land			$110,400	$110,400
CRIT Net Return @ 30 years			**$881,104**	**$1,149,789**
CRIT Average Annual Rate of Return			5.32%	6.94%
Airport Development of T-Hangars				
2043	$713	$0	$68,465	$81,301.72
2044	$731	$0	$70,176	$83,334.26
2045	$749	$0	$71,931	$85,417.62
2046	$768	$0	$73,729	$87,553.06
2047	$787	$0	$75,572	$89,741.89
2048	$807	$0	$77,461	$91,985.43
2049	$827	$0	$79,398	$94,285.07
2050	$848	$0	$81,383	$96,642.20
2051	$869	$0	$83,417	$99,058.25
2052	$891	$0	$85,503	$101,534.71
Total		$441,480	$1,758,539	$2,171,043
Less Value of Land			$110,400	$110,400
CRIT Net Return @ 40 years			**$1,648,139**	**$2,060,643**
CRIT Average Annual Rate of Return			7.47%	9.33%
Private Development T-Hangars Revert to Airport in 2043				
2043 thru 2052	$713 to $891	$0	$767,035	$910,854
Total (30-yr Land Lease + 10-yr Hangar Rental)			$1,251,721	$1,395,540
Less Value of Land			$110,400	$110,400
CRIT Net Return @ 40 years			**$1,141,321**	**$1,285,140**
CRIT Average Annual Rate of Return			25.85%	29.10%

Private Developmentof T-Hangars		
	*Ground Lease (per S.F., per mo.)	CRIT Income (Return)
2013	$0.08	$11,040
2014	$0.08	$11,316
2015	$0.08	$11,599
2016	$0.09	$11,889
2017	$0.09	$12,186
2018	$0.09	$12,491
2019	$0.09	$12,803
2020	$0.10	$13,123
2021	$0.10	$13,451
2022	$0.10	$13,787
2023	$0.10	$14,132
2024	$0.10	$14,485
2025	$0.11	$14,848
2026	$0.11	$15,219
2027	$0.11	$15,599
2028	$0.12	$15,989
2029	$0.12	$16,389
2030	$0.12	$16,799
2031	$0.12	$17,219
2032	$0.13	$17,649
20-Yr Subtotal		$282,013
2033	$0.13	$18,090
2034	$0.13	$18,543
2035	$0.14	$19,006
2036	$0.14	$19,481
2037	$0.14	$19,968
2038	$0.15	$20,468
2039	$0.15	$20,979
2040	$0.16	$21,504
2041	$0.16	$22,041
2042	$0.16	$22,592
		$484,686
		$110,400
CRIT Net Return @ 30 years		**$374,286**
CRIT Average Annual Rate of Return		11.30%
Private Developmentof Lease Extended		
2043	$0.17	$23,157
2044	$0.17	$23,736
2045	$0.18	$24,329
2046	$0.18	$24,938
2047	$0.19	$25,561
2048	$0.19	$26,200
2049	$0.19	$26,855
2050	$0.20	$27,527
2051	$0.20	$28,215
2052	$0.21	$28,920
Total		$744,124
Less Value of Land		$110,400
CRIT Net Return @ 40 years		**$633,724**
CRIT Average Annual Rate of Return		19.13%

Assumes Value of Land 2013 = 10% of Annual Lease or $110,400
Assumes Monthly Land Lease in 2013 = $0.08 x 11,500 x 12 = $11,040
*Assumes 2.5 % inflation

Generally, the annual land lease cost of the land on an airport varies from about 8% to 12% of the appraised value. The ground lease rate of $0.08 per S.F. per month ($0.96 per year) places the value of the land at $110,400 assuming the annual rate is 10% of the appraised value. In the case of most airport land leases, the improvements revert to the Owner at the end of the lease period. Thirty years is typical for hangar ground rental leases. In developing the scenario it was assumed the CRIT hangar construction would be financed by a loan, either interdepartmental or an ADOT loan. This has the effect of reducing the return on investment as it increases CRIT costs.

For the private developer, the important issue is for the project to cash flow – in other words he needs to more than breakeven when land rent, debt costs and income are considered. As a taxpaying entity, the developer can deduct depreciation and interest costs from income for tax purposes. In the illustration for the private developer and assuming his debt costs and unit lease income are the same as CRIT's, at the end of the 20-yrs the developer's net income at 80% occupancy would be about $110,000 (392,298 – 282,013) and at 95% occupancy the net income would be approximately $266,000 (548,631 – 282,013).

This results in an average rate of return for the Developer over the first 20-yr period of (110,000/300,000) X 100/20 = 1.83% (80% occupancy) to (266,000/300,000) X 100/20 = 4.43% (90 % occupancy). The tax benefits of the interest deduction and depreciation are not included, but they would generally result in increasing the developer's rate of return.

Over a 30-year period, the Developers average rate of return would increase to (507,000/300,000) X 100/30 = $5.63% (80% occupancy) to (776,000/300,000) X 100/30 = 8.62% (95% occupancy), excluding deductions for depreciation.

The cost for CRIT is the value of the land and cost of debt service. Depending on occupancy, the average annual rate of return over a 30 year period is 5.32% and 6.94%. For the land lease only, the average annual rate of return is 11.30%, however hangar ownership by CRIT results in $507,000 to $775,000 more income over the 30-year period.

If the private lease is extended 10-yrs, then the average annual rate of return for airport owned hangars over a 40 year period is 7.47% and 9.33%. For the land lease only, the average annual rate of return is 19.13%; however hangar ownership by CRIT results in $1,015,000 to $1,427,000 more income over the 40-year period.

If the hangars revert to CRIT at the end of the 30 years, the analysis shows a much higher rate of return over 40 years as the cost to the Tribe is only the land cost. The average annual rate of return is 25.85% to 29.10% depending on occupancy. However, the dollar return to CRIT if the hangars are airport owned for forty years is about $507,000 to $775,000 more than if the hangars revert to CRIT. This high rate of return in the reversion analysis assumes that when CRIT assumes hangar ownership, major building repairs or upgrading will not be required.

In general, in long term there is a greater return to the Airport if Hangar facilities are airport owned and leased to tenants when compared to leasing land for private hangar development.

To ensure that the airport maximizes revenue potential in the future, CRIT should periodically review aviation services rates and charges (i.e., hangar and tiedown rental, etc.) at other regional airports to ensure that rates and charges at the airport are competitive and similar to aviation services at other airports. This makes ROI analyses valid as well as keeps the Avi Suquilla Airport competitive. The two most competitive airports to consider are most likely Lake Havasu City and Blythe California.

Cost Benefit Analysis (also known as Benefit-Cost Analysis) are required by the FAA for all capacity projects that will require more than $10 Million in discretionary funds over the life of the project. Most of the CBA's submitted to the FAA are done for air carrier airports where the benefits of the project are measured by cost savings due to the reduction in airport delays. The operating cost of aircraft delays is a tangible cost that can be computed, and the FAA has monetized the intangible benefits to passengers and the traveling public with respect to delays affecting ground transportation costs, terminal operating costs as well as passenger delay costs.

The FAA also requires a **CBA** if Portland Cement Concrete Pavement (PCCP) is proposed for some projects due to the generally higher initial costs of concrete paving compared to asphalt pavement. In this analysis, the longer life of concrete paving is compared to the initial asphalt pavement cost and asphalt pavement maintenance costs (including a mill and overlay project) required for asphalt to have the same 30-yr life as PCCP pavements. The time value of money is also taken into account in this cost benefit analysis.

A new Terminal Building, whether for a commuter airline, charter flights or more efficient General Aviation Facilities is also a candidate for a **CBA.** The challenge will be monetizing the intangible benefits to the passengers, community and CRIT, particularly external downstream benefits like measuring the impact of tourism on CRIT facilities, or the convenience of businesses meeting with CRIT, CRIT enterprises or businesses located on Tribal land.

ROI and CBA calculations are useful, because they allow CRIT to examine their options and make more informed choices. They are also an essential component of the Avi Suquilla Airport business plan, because they become the "proof" that implementing a project is a sound business decision. ROI is useful when costs and benefits are tangible and tightly focused on a specific program with boundaries. CBA is more comprehensive, and is useful when both tangible and intangible costs and benefits need to be considered.

In its business plan, the Airport needs to determine what statutory or other requirements CRIT and the FAA or ADOT may have for developing ROI or CBA calculations in prescribed formats.

In addition, CRIT should determine the threshold for project value at which you must perform these analyses. The level of effort that is put toward ROI/CBA should be commensurate with the contemplated expenditure. For example, spending a week's worth of effort to gather information and crunch numbers may not be a wise investment of time in order to justify a project expenditure of $10,000, but it might be if the amount is $100,000.

6.6 PLAN IMPLEMENTATION

The successful implementation of the Avi Suquilla Airport Master Plan will require sound judgment on the part of airport management with regard to implementation of projects meeting future activity demands, while maintaining the existing infrastructure and expanding this infrastructure to support new improvements. While the projects included in the capital program have been broken into short, intermediate, and long-term planning periods, CRIT will need to consider the scheduling of projects in a flexible manner, and add new projects from time to time to satisfy safety or design standards, or newly created demands. As new buildings or pavement is added, the as-built information should be reflected on the Airport Layout Plan drawings, and the revised drawings resubmitted to the FAA for approval.

The challenge the Airport and CRIT have is that the aviation field is dynamic, and when opportunities arise for economic development or revenue enhancement, it is generally not a long lead project where CRIT has time to develop or upgrade facilities. The challenge is to anticipate aviation related needs, what developments make sense and have multiple uses, and meet or support the economic development goals of CRIT and airport users.

In summary, the airport and business planning process requires that the Colorado River Indian Tribes continually monitor the need for new or rehabilitated facilities, since applications (for eligible projects) must be submitted with the FAA and ADOT each year. CRIT should continually monitor with the FAA Airport District Office those projects which are required for safety and continued compliance with airport standards, and internally those projects required to enhance airport revenues.

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AIRPORT PLANS

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7. ENVIRONMENTAL CONSIDERATIONS

A review of the potential environmental impacts associated with proposed airport projects is an essential consideration in the Airport Master Plan process. The primary purpose of this section is to review the proposed improvement program at Avi Suquilla Airport to determine whether the proposed actions could, individually or collectively, have the potential to significantly affect the quality of the environment. An Environmental Assessment was completed for the relocation of Runway 1-19 in August, 2006 with a Finding of No Significant Impact (FONSI) and Record of Decision (ROD) issued in June, 2006. The EA contained an airport wide Cultural Resources Inventory and a biological assessment. The information contained in this evaluation was obtained primarily from these studies, various internet websites, and analysis by the consultant.

Construction of the improvements depicted on the Airport Layout Plan will require compliance with the *National Environmental Policy Act* (NEPA) *of 1969*, as amended, to receive federal financial assistance. For projects not "categorically excluded" under FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, compliance with NEPA is generally satisfied through the preparation of an EA. Instances in which significant environmental impacts are expected, an Environmental Impact Statement (EIS) may be required. While this portion of the Master Plan is not designed to satisfy the NEPA requirements for a categorical exclusion, EA, or EIS, it is intended to supply a preliminary review of environmental issues that would need to be analyzed in more detail within the NEPA process. This evaluation considers all environmental categories required for the NEPA process as outlined in FAA Order 1050.1E and Order 5050.4B, *National Environmental Policy Act* (NEPA) *Implementation Instructions for Airport Actions*.

Upon preliminary evaluation, none of the projects identified in the Master Plan for development during the planning period fall within the "airport actions normally requiring an EA." under FAA Order 5050.4B. (Note: The extension of Runway 1-19, which is identified beyond the planning period will require an EA.) It is anticipated that most, if not all projects identified to occur during the planning period will be able to proceed with a Categorical Exclusion. Final determination of the extent of environmental evaluation required under NEPA will be made by the responsible FAA official.

ENVIRONMENTAL ANALYSIS

The following table provides a description of the environmental resources which could be impacted by the proposed airport development as discussed in Chapter Four.

Table 7-1 Environmental Evaluation

Environmental Resource	Potential Resource Impacts
Air Quality. The U.S. Environmental Protection Agency (EPA) has adopted air quality standards that specifies the maximum permissible short-term and long-term concentrations of various air contaminants. The National Ambient Air Quality Standards (NAAQS) consist of primary and secondary standards for six criteria pollutants which include: Ozone (O_3), Carbon Monoxide (CO), Sulfur Dioxide (SO_2), Nitrogen Dioxide (NO_2), Particulate matter (PM10 and PM 2.5), and Lead (Pb). Potentially significant air quality impacts, associated with an FAA project or action, would be demonstrated by the project or action exceeding one or more of the NAAQS for any of the time periods analyzed. Various levels of review apply within both NEPA and permit requirements.	• No projects within the planning horizon are located within non-attainment areas for criteria pollutants. • A number of projects planned at the airport could have temporary air quality impacts during construction. Emissions from the operation of construction vehicles and fugitive dust from pavement removal are common air pollutants during construction. • Best management practices (BMPs) during construction will need to be implemented in order to reduce impacts to air quality during construction. Examples of BMPs include: o Minimization of exposed erodible earth to the extent possible o Stabilization of exposed earth with dust palliative, pavement or other cover as early as possible, o Application of water or other stabilizing agents to work and haul areas, o Covering, shielding, or stabilizing stockpiled materials as necessary, and o Use of covered haul trucks
Coastal Resources. Federal activities involving or affecting coastal resources are governed by the Coastal Barriers Resource Act (CBRA), the Coastal Zone Management Act (CZMA), and E.O. 13089, Coral Reef Protection.	• No impacts. The airport is not located within a Coastal Management Zone or Coastal Barrier Area.
Compatible Land Use. The compatibility of existing and planned land uses in the vicinity of an airport is usually associated with the extent of the airport's noise impacts. Typically, significant impacts will occur over noise-sensitive areas within the 65 DNL noise contour.	• As discussed further within the noise section, the Master Plan is not recommending capacity enhancement projects that would lead to increased noise levels on noise sensitive uses. • It is recommended that CRIT adopt regulations and develop guidelines to insure land use in the vicinity of the airport remains compatible with the airport.

Environmental Resource	Potential Resource Impacts
Construction Impacts. Construction impacts typically relate to the effects on specific impact categories, such as air quality or noise, during construction.	• The use of BMPs during construction is typically a requirement of construction related permits such as a National Pollution Discharge Elimination System (NPDES) permit. Use of these measures typically alleviates potential resource impacts. • Construction-related noise impacts may be experienced during development of the proposed facilities. However, these impacts typically do not arise unless construction is being undertaken during early morning, evening, or nighttime hours.
Department of Transportation Act, Section 4(f). A significant impact would occur when a proposed action involves more than a minimal physical use of a Section 4(f) property, (publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or any land from a historic site of national, state, or local significance) or is deemed a "constructive use", substantially impairing the Section 4(f) property where mitigation measures do not reduce or eliminate the impacts. Substantial impairment would occur when impacts to Section 4(f) lands are sufficiently serious that the value of the site, in terms of its prior significance and enjoyment, is substantially reduced or lost.	• No impact. No park, recreation area, federal park, state park or wildlife refuges will be affected by anticipated development.
Farmlands. Under the *Farmland Protection Policy Act* (FPPA), federal agencies are directed to identify and take into account the adverse effects of federal programs on the preservation of farmland to consider appropriate alternative actions which could lessen adverse effects and to assure that such federal programs are, to the extent practicable, compatible with state or local government programs and policies to protect farmland. The FPPA guidelines apply to farmland classified as prime or unique, or of state or local importance as determined by the appropriate government agency, with concurrence by the Secretary of Agriculture.	• No impact. According to the Soil Survey of Colorado River Indian Reservation Arizona-California, the soils found at Avi Suquilla Airport (Superstition series) do not meet the soil requirements for prime or unique farmlands.

Environmental Resource	Potential Resource Impacts
Fish, Wildlife, and Plants. The Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) determines that a significant impact will result when the proposed action would likely jeopardize the continued existence of a species in question or would result in the destruction or adverse modification of federally designated critical habitat in the area. Lesser impacts, as outlined by agencies and organizations having jurisdiction, may result in a significant impact.	• A review of US Geological Service Quadrangle maps and US Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) maps revealed that the majority of airport property comprises man-dominated areas, interspersed with upland communities adjacent to the airport. The proposed improvements are not anticipated to impact any sensitive biotic areas. • A field investigation conducted by Aztlan Archaeology, Inc. in April of 2000 identified no federally threatened, endangered, or candidate animal or plant species. Additionally, no Arizona state species of special concern were observed. • These findings would need to be confirmed through consultation with the U.S. Fish and Wildlife Service.
Floodplains. Significant impacts to floodplains occur when a proposed action results in notable adverse impacts on natural and beneficial 100-year floodplain values.	• According to the Flood Insurance Rate Maps (FIRM) produced by the Federal Emergency Management Agency (FEMA), the airport area is designated as a Zone C, which is an area outside the 100-year floodplain. The proposed improvements are not anticipated to impact any floodplains. Retention of the increased runoff from the existing and increased impervious areas will eliminate impacts to downstream floodplains.
Hazardous Materials, Pollution Prevention, and Solid Waste. The airport must comply with applicable pollution control statutes and requirements. Impacts may occur when changes to the quantity or type of solid waste generated, or type of disposal, differ greatly from existing conditions.	• A portion of the airport, bounded by the cemetery on the south, by the airport boundary on the west, and the existing parallel taxiway and runway on the east and north, has been graded in the past and has some buried household trash on the site • A Stormwater Pollution Prevention Plan (SWPPP) will be required to address storm-water runoff during construction. Temporary barriers, (silt fenced, hay bales, etc.) should be placed around the perimeter of construction areas to prevent silt and sediment due to construction from leaving the project site. • Stormwater retention basins to limit airport runoff from impervious (paved) areas to that which existed before the airport was constructed are in place. • As a result of increased operations at the airport, solid waste output may slightly increase; however, these increases are not anticipated to be significant.

Environmental Resource	Potential Resource Impacts
Historical, Architectural, Archaeological, and Cultural Resources. Impacts may occur when the proposed project causes an adverse effect on a property which has been identified (or is unearthed during construction) as having historical, architectural, archaeological, or cultural significance.	• The Avi Suquilla Airport property's proximity to the Colorado River on Tribal land lends to its potential for disturbing sites of cultural and historical significance. However, the airport operation has been present since the 1920's. Various improvement projects over the years have disturbed the land within the airport boundary including the area proposed for the future airfield improvements including runway extension, and expansion of the general aviation apron and terminal area. • A cultural resource survey was conducted by the CRIT Museum as a part of the 2005 EA. The results of the investigation indicated no significant findings. The primary basis for this conclusion related to prior disturbance of the property and lack of artifacts encountered.
Light Emissions and Visual Impacts. Impacts occur when lighting associated with an action will create an annoyance among people in the vicinity or interfere with their normal activities. Aesthetic impacts relate to the extent that the development contrasts with the existing environment and whether the jurisdictional agency considers this contrast objectionable.	• Light emissions are assessed on the basis of creating an annoyance among residents in the vicinity of the proposed facilities. • The continued operation of the existing airport will not increase the impact of light emissions. • Installation of REILS on both ends of Runway 1-19 may occur in the future. • A MALSR may also be installed on Runway 1 to achieve visibility minimums of ¾ miles. • The installation of these lights does not have any potential to create annoyance because no residences are located near the runway ends. • Lighting associated with apron is not anticipated to create annoyance since the residential areas are several miles away.
Natural Resources and Energy Supply. In instances of major proposed actions, power companies or other suppliers of energy will need to be contacted to determine if the proposed project demands can be met by existing or planned facilities.	• Increased use of energy and natural resources are anticipated as the operations at the airport grow. None of the planned development projects are anticipated to result in significant increases in energy consumption.

Environmental Resource	Potential Resource Impacts
Noise. The Yearly Day-Night Average Sound Level (DNL) is used in this study to assess aircraft noise. DNL is the metric currently accepted by the FAA, EPA, and Department of Housing and Urban Development (HUD) as an appropriate measure of cumulative noise exposure. These three federal agencies have each identified the 65 DNL noise contour as the threshold of incompatibility. The threshold of significance for noise, as indicated in FAA Order 5050.4B, is when an action, compared to the no action alternative for the same timeframe, would cause noise sensitive areas located at or above DNL 65 dB to experience a noise increase of at least DNL 1.5 dB.	• The 2005 EA examined noise contours for future runway configurations up to 8,400 feet in length and up to 57,995 operations, which represents a more aggressive scenario than that anticipated in this Master Plan Update. Given the land uses around the airport, noise impacts were considered not significant. • As stated in the Land Use section, it is recommended that CRIT adopt regulations and develop guidelines to insure land use in the vicinity of the airport remains compatible with the airport.
Secondary (Induced) Impacts. These impacts address those secondary impacts to surrounding communities resulting from the proposed development, including shifts in patterns of population growth, public service demands, and changes in business and economic activity to the extent influenced by airport development.	• Significant shifts in patterns of population movement or growth or public service demands are not anticipated as a result of the proposed development. It could be expected, however, that the proposed development would potentially induce positive socioeconomic impacts for the community over a period of years. The airport, with expanded facilities and services, would be expected to attract additional users. It is also expected to encourage tourism, industry, and trade, and to enhance the future growth and expansion of the community's economic base. Future socioeconomic impacts resulting from the proposed development are anticipated to be primarily positive in nature.
Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks. Impacts occur when disproportionately high and adverse human health or environmental effects occur to minority and low-income populations; disproportionate health and safety risks occur to children; and extensive relocation of residents, businesses, and disruptive traffic patterns are experienced.	• The proposed projects will not result in proportionately high or adverse impacts to human health, nor will it result in disproportionate health and safety risks to children.

Environmental Resource	Potential Resource Impacts
Water Quality. Water quality concerns associated with airport expansion most often relate to domestic sewage disposal, increased surface runoff and soil erosion, and the storage and handling of fuel, petroleum, solvents, etc.	• During the development of the 1997 Airport Master Plan, the US Army Corps of Engineers advised that it is likely that the airport site contains jurisdictional waters as defined in the Clean Water Act. Due to the proximity of the Colorado River to Parker, additional coordination with the US Army Corps of Engineers took place as requested in their 1995 review. The results of the coordination confirmed that a Section 404 Permit from the Corps of Engineers for drilling or filling navigable waters of the US was not required for the runway relocation project. • A Stormwater Pollution Prevention Plan (SWPPP) will be required to address storm-water runoff during construction. Temporary barriers, (silt fenced, hay bales, etc.) should be placed around the perimeter of construction areas to prevent silt and sediment due to construction from leaving the project site. • Stormwater retention basins to limit airport runoff from impervious (paved) areas to that which existed before the airport was constructed are in place.
Wetlands. Wetlands are defined by Executive Order 11990*, Protection of Wetlands*, as those areas that are inundated by surface or groundwater with a frequency sufficient to support, and under normal circumstances, does or would support a prevalence of vegetation or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction.	• A review of USFWS National Wetlands Inventory (NWI) maps, US Natural Resources Conservation Service soil maps, and aerial photography of the airport indicated that there are no areas designated as wetlands within the airport boundaries. Wetland classifications are as defined in "Classification of Wetlands and Deepwater Habitats of the United States (Cowardin, et al., 1979). • The entire airport site is designated as uplands according to the NWI maps. Uplands, according to the US Department of Agriculture, are those areas which are not sufficiently wet to elicit development of vegetation, soils and/or hydrologic characteristics associated with wetlands. • There are no anticipated impacts to wetlands associated with airport improvements.
Wild and Scenic Rivers. Wild and scenic rivers (WSR) are designated by the Wild and Scenic River Act. A National Rivers Inventory (NRI) is maintained to identify those river segments which are protected under this act.	• There are currently two designated Wild and Scenic Rivers at or near the project site. The Verde River is the closest Wild and Scenic River to Avi Suquilla Airport, and is located approximately 130 miles east of the airport.

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APPENDIX

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Resolution No. 102-14

RESOLUTION

COLORADO RIVER TRIBAL COUNCIL

A Resolution to Adopt the Avi Suquilla Airport Master Plan Update and Airport Layout Plan

Be it resolved by the Tribal Council of the Colorado River Indian Tribes, in *special* meeting assembled on April 1, 2014.

WHEREAS, the Colorado River Indian Tribes (hereinafter "CRIT" or "Tribe") is a federally recognized Indian Tribe, duly organized with a tribal governing body known as the Tribal Council according to the provisions contained in the Indian Reorganization Act of June 18, 1934; and

WHEREAS, Article VI, Section 1, (e&f), of the Constitution of the Colorado River Indian Tribes authorizes the Tribal Council to manage the economic affairs of the Tribes; and

WHEREAS, The Colorado River Indian Tribes (Tribe) has received grants from the Federal Aviation Administration (FAA) for the improvement and expansion of the Avi Suquilla Airport, an enterprise of the Tribe; and

WHEREAS, the proposed Airport Master Plan Update provides for a 20-year development and funding plan for the Avi Suquilla Airport.

NOW, THEREFORE, BE IT RESOLVED that the Tribal Council hereby adopts the Avi Suquilla Airport Master Plan and the Airport Layout Plan as the official guide for development of the Avi Suquilla Airport.

BE IT FURTHER AND FINALLY RESOLVED that the Tribal Council Chairman and Secretary or their designated representatives, are authorized and directed to execute any and all documents necessary to implement this action.

The foregoing resolution was on April 1, 2014 duly approved by a vote of 5 for, 0 against and 0 abstaining, by the Tribal Council of the Colorado River Indian Tribes, pursuant to authority vested in it by Sections 1.e&f., Article VI of the Constitution and By laws of the Tribes, ratified by the Tribes on March 1, 1975 and approved by the Secretary of the Interior on May 29, 1975, pursuant to Section 16 of the Act of June 18, 1934, (46 Stat. 984). This resolution is effective as of the date of its adoption.

COLORADO RIVER TRIBAL COUNCIL

By _____

Chairman

_____

Secretary

U.S. Department
of Transportation
**Federal Aviation
Administration**

Western-Pacific Region
Los Angeles Airports District Office

P.O. Box 92007
Los Angeles, CA 90009-2007

May 7, 2013

Ted Swendra, Airport Manager
Colorado River Indian Tribes
Avi Suquilla Airport
28940 Airport Road
Parker, AZ 85344

Dear Mr. Swendra:

Avi Suquilla Airport (P20), Parker, Arizona
Aviation Activity Forecast

The Federal Aviation Administration (FAA) has reviewed Chapter 2; Aviation Demand Forecasts dated July 2012, in the Airport Master Plan Update for Avi Suquilla Airport (P20). You selected the mid-range forecast for FAA approval based on the balanced view of growth in airport activity at P20 for the 20-year planning period.

The forecast does not fall within the standard Terminal Area Forecast (TAF) tolerance of 10 percent and 15 percent within the 5 and 10-year planning periods. However, the TAF has not been updated to reflect the current estimated base line operations at the airport and standard TAF procedure is to flat line forecasts for non-towered general aviation airports.

Due to the relatively low activity projected by your airport forecast, the FAA approve your forecast as generally consistent with the TAF for airport planning purposes including Airport Layout Plan (ALP) development. If you have any questions, please give me a call at (310) 725-3625.

Sincerely,

Darlene Williams

Darlene Williams
Planner/PFC Specialist

cc: ADOT

AIRPORT PLANS

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AIRPORT LAYOUT PLANS - ATTACHMENT

The following FAA approved Airport Layout Plan drawings are included as an 11' x 17" Attachment:

01 Title Sheet
02 Airport Data Sheet
03 Airport Layout Plan Drawing
04 Part 77 Airspace Drawing Plan
05 Part 77 Airspace Drawing Plan Profile View
06 Runway 19 Inner Portion of Approach Surface
07 Runway I Inner Portion of Approach Surface
08 Runway 1-19 Profile
09 Runway 19 and Runway 1 Departure Surface Drawing
10 Terminal Area Drawing
11 Land Use Drawing and Noise Contour Drawing
12 Exhibit A – Property Map

The ARP SOP 2.00 Appendix A Checklist was used in lieu of the FAA AC 150/5070-6B, Appendix F, Airport Layout Plan Drawing set checklist. The ARP SOP 2.00 check list became effective on October 1, 2013 when it was adopted by all the Regional FAA Airport Division Managers and the FAA Headquarters Director of Airport Planning and Programming.

This checklist is required for use when submitting a new or updated ALP to the FAA for review and approval. The completed checklist is submitted to the FAA and used in their review and verification of the ALP.

The revisions to the 2009 ALP required by the new ARP SOP 2.00 Appendix A checklist are extensive. Following approval of the master plan by the Tribal Council in April of 2014, submission of the updated ALP Drawing Set was delayed to circumstances beyond the Control of the Sponsor and Consultant. The ALP Drawing set included in the Attachment is current to December 2015 when the revisions required for FAA final approval were made.

On the following pages is the May 20, 2016 FAA letter approving the ALP Drawings.

The ALP Drawing Set is included the Master Plan Document.

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U.S. Department
of Transportation
Federal Aviation Administration

Western Pacific Region
Airports Division
Phoenix Airports District Office

3800 N. Central Ave.
Suite 1025 10th Floor
Phoenix, AZ 85012

May 20, 2016

Mr. Ted Swendra
Airport Manager
Colorado River Indian Tribe
28940 Airport Road
Parker, Arizona 85344

Dear Mr. Swendra:

The Avi Suquilla Airport Layout Plan (ALP), prepared by Morison Maierle Consultants, and bearing your Tribal President's signature, is approved and the Avi Suquilla Master Plan is accepted. A signed copy of the approved ALP is enclosed.

An aeronautical study (**No. 2015-AWP-1007-NRA**) was conducted on the proposed development. This determination does not constitute FAA approval or disapproval of the physical development involved in the proposal. It is a determination with respect to the safe and efficient use of navigable airspace by aircraft and with respect to the safety of persons and property on the ground.

In making this determination, the FAA has considered matters such as the effects the proposal would have on existing or planned traffic patterns of neighboring airports, the effects it would have on the existing airspace structure and projected programs of the FAA, the effects it would have on the safety of persons and property on the ground, the effects that existing or proposed manmade objects (on file with the FAA), and known natural objects within the affected area would have on the airport proposal.

The FAA has only limited means to prevent the construction of structures near an airport. The airport sponsor has the primary responsibility to protect the airport environs through such means as local zoning ordinances, property acquisition, avigation easements, letters of agreement or other means.

Approval of the plan does not indicate that the United States will participate in the cost of any development proposed. Additionally, the United States will only participate in the cost of projects that meet the standards for which that airport is designed. Associated costs for any projects that exceed the appropriate airport design standard will be the responsibility of the airport sponsor.

This ALP approval is conditioned on acknowledgement that any development on airport property requiring Federal environmental approval must receive such written approval from FAA prior to commencement of the subject development. This ALP

approval is also conditioned on acceptance of the plan under local land use laws. We encourage appropriate agencies to adopt land use and height restrictive zoning based on the plan.

AIP funding requires evidence of eligibility and justification at the time a funding request is ripe for consideration. When construction of any proposed structure or development indicated on the plan is undertaken, such construction requires normal 45-day advance notification to FAA for review in accordance with applicable Federal Aviation Regulations (i.e., Parts 77, 157, 152, etc.). More notice is generally beneficial to ensure that all statutory, regulatory, technical and operational issues can be addressed in a timely manner. Additionally, any future development that will require amendments to instrument flight procedures must be coordinated by the airport district office and the airport manager to ensure those changes are made in a timely manner.

Please attach this letter to the Airport Layout Plan and retain it in the airport. We wish you great success in your plans for the development of the airport. If we can be of further assistance, please do not hesitate to call Mr. Jared Raymond, Airport Planner, at 602-792-1072.

Sincerely,

Mike N Williams A.A.E
Manager, Phoenix Airports District Office

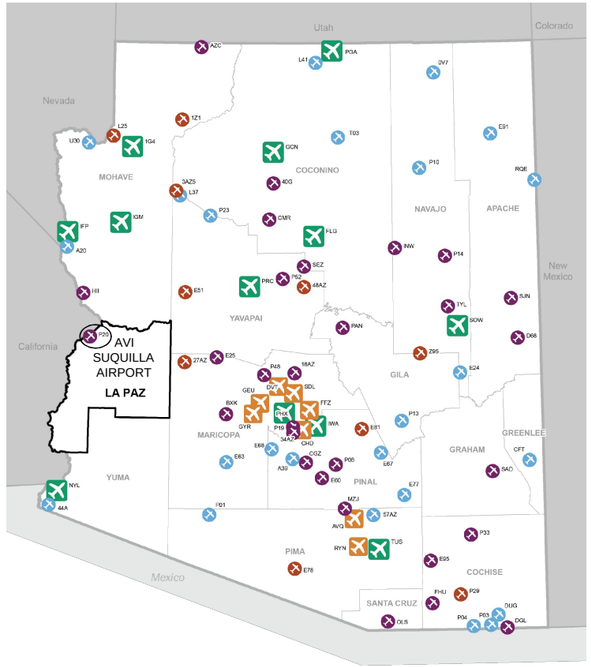
cc: ADOT, Mr. Matt Smith, ADOT Grant Manager
Morrison Maierle, Inc., John Morrison, Jr., Senior Airport Engineer

Enclosure: Updated Airport Layout Plan

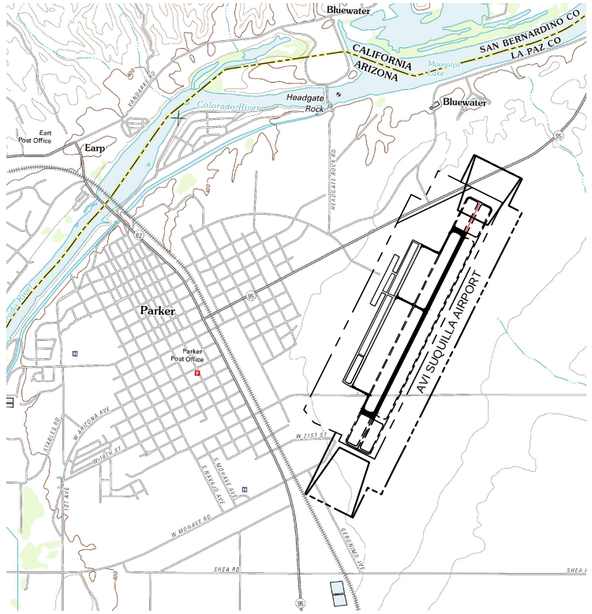
AVI SUQUILLA AIRPORT

PARKER, ARIZONA

AIRPORT LAYOUT PLANS



LOCATION MAP



VICINITY MAP

PREPARED FOR

THE COLORADO RIVER INDIAN TRIBES

MAY 2016

INDEX OF DRAWINGS

SHEET NO.	SHEET TITLE	REVISION DATE
01	TITLE SHEET	
02	AIRPORT DATA SHEET	
03	AIRPORT LAYOUT PLAN DRAWING	
04	PART 77 AIRSPACE DRAWING PLAN	
05	PART 77 AIRSPACE DRAWING PLAN PROFILE VIEW	
06	RW 19 INNER PORTION OF APPROACH SURFACE	
07	RW 1 INNER PORTION OF APPROACH SURFACE	
08	RUNWAY 1-19 PROFILE	
09	RUNWAY 19 AND RUNWAY 1 DEPARTURE SURFACE DRAWING	
10	TERMINAL AREA DRAWING	
11	LAND USE DRAWING AND NOISE CONTOUR DRAWING	
12	EXHIBIT A - AIRPORT PROPERTY MAP	

REVISIONS				REVISIONS			
NO.	DESCRIPTION	DATE	BY	NO.	DESCRIPTION	DATE	BY
5	SW GAS LINE RELOCATED OFF AIRPORT	11/08	MMI				
4	UPDATE AIP 3-04-0026-009 & 010 CONSTRUCTION	08/07	MMI	9	AIRPORT MASTER PLAN & ALP UPDATE	12/15	MMI
3	ALP REPORT & ALP GENERAL UPDATE	12/03	MMI	8	UPDATE AIP 3-04-0026-14,16,17&19 CONSTRUCTION	09/13	MMI
2	ALP REVALIDATION	8/15/01	URS	7	UPDATE AIP 3-04-0026-011 & 012 CONSTRUCTION	08/09	MMI
1	AIRPORT MASTER PLAN UPDATE	4/28/98	URS	6	ALP REVALIDATION	5/28/09	MMI

MORRISON MAIERLE, INC.
An Employee-Owned Company

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AIRPORT DATA

	EXISTING	ULTIMATE
AIRPORT REFERENCE CODE (ARC)	C-II	C-III
MEAN MAX TEMP. (July)	109° F	109° F
AIRPORT ELEVATION (NAVD 88)	458.4' ABOVE MSL	458.4' ABOVE MSL
AIRPORT AND TERMINAL NAVIGATIONAL AIDS*	RNAV(GPS) RWY 1 VOR/DME	Same
AIRPORT REFERENCE POINT (NAD 83) Latitude	34° 08' 59,37"	34° 08' 59,37"
AIRPORT REFERENCE POINT (NAD 83) Longitude	114° 16' 04.23"	114° 16' 04.23"
MISCELLANEOUS FACILITIES	MIRL, MITL, Segmented Circle and Lighted Wind Cone, Lighted Supplementary Wind Cone R/W 1 and R/W 19, AWOS PT III	Same Plus RWY 1 MALSR
CRITICAL AIRCRAFT (C-II EXISTING, C-III ULTIMATE)	GULFSTREAM III	GULFSTREAM G500
AIRPORT MAGNETIC VARIATION, WMM 2010 NOAA WEBSITE	May 12, 2014 11° 24' 45" E	Changing by 6,1 minutes West per year,
NPIAS SERVICE LEVEL	GA	GA
AZ STATE SYSTEMS PLAN SERVICE ROLE	GA Community	GA Community

* PARKER (PKE) VOR 20,4 NAUTICAL MILES WEST OF AIRPORT

TAXIWAY DATA

	T/W A		T/W B		T/W C	T/W D	T/W A1, A2, A3	
	EXISTING	ULTIMATE	EXISTING	ULTIMATE	ULTIMATE	ULTIMATE	EXISTING	ULTIMATE
WIDTH	75'	50'	50'	50'	50'	50'	35'	50'
AIRCRAFT DESIGN GROUP	C-II	C-III	C-II	C-III	C-III	C-III	B-II	C-III
T/W DESIGN GROUP (TDG)	2	3	2	3	3	3	2	3
PAVEMENT STRENGTH	30K SWL 50K DWL	30K SWL 60K DWL	30K SWL 50K DWL	30K SWL 60K DWL	30K SWL 60K DWL	30K SWL 60K DWL	30K SWL 50K DWL	30K SWL 60K DWL
T/W SAFETY AREA WIDTH	79'	118'	79'	118'	118'	118'	79'	118'
T/W OBJECT FREE AREA WIDTH	131'	186'	131'	186'	186'	186'	131'	186'
T/W EDGE SAFETY MARGIN	7.5'	10'	7.5'	10'	10'	10'	7.5'	10'
T/W SHOULDER WIDTH	15'	20'	15'	20'	20'	20'	15'	20'
T/W WINGTIP CLEARANCE	26'	34'	26'	34'	34'	34'	26'	34'
T/W LIGHTING	MITL	MITL	MITL	MITL	MITL	MITL	MITL	MITL

APRON TAXILANE DATA

	TAXILANE NORTH OF TW C1		TAXILANE A2 TO C1		TAXILANE SOUTH OF A2		T-HANGAR TAXILANES	
	EXISTING	ULTIMATE*	EXISTING	ULTIMATE*	EXISTING	ULTIMATE*	EXISTING	ULTIMATE*
WIDTH	70'	115'	70'	115'	79'	115'	60'	79' to 115'
AIRCRAFT DESIGN GROUP	B-I	B-II	B-I	B-II	B-I	B-II		
PAVEMENT STRENGTH	30K SWL	30K SWL	30K SWL	30K SWL	7.5K SWL	30K SWL	7.5K SWL	30K SWL
TAXILANE OBJECT FREE AREA WIDTH (REQUIRED)	79'	115'	79'	115'	79'	115'	79'	79' to 115'
TAXILANE WINGTIP CLEARANCE	10'	18'	10'	18'	15'	18'	6'	15' to 18'
TAXILANE LIGHTING	NONE	SAME	NONE	SAME	NONE	SAME	NONE	SAME

* EXISTING GENERAL AVIATION APRON GENERALLY DOES NOT MEET 150/5300-13A OBJECT FREE AREA WIDTH STANDARD. WHEN GA APRON IS EXPANDED, PARKING WILL BE RECONFIGURED TO MEET TAXILANE OFA STANDARDS.

APPROVAL DATE	AIRSPACE CASE NO.	DESCRIPTION - STANDARD TO BE MODIFIED

NOTE: RUNWAY DESIGNATION WILL CHANGE FROM 01/19 TO 02/20 IN CY 2020. IFR FLIGHT PROCEDURE AMENDMENT REQUEST WILL BE SUBMITTED IN 2018.

DECLARED DISTANCES RUNWAY 1-19

DESCRIPTION	EXISTING		ULTIMATE	
	RW 1	RW 19	RW 1	RW 19
TORA	6,250'	6,250'	7,450'	8,250'
TODA	6,250'	6,250'	7,450'	8,250'
ASDA	6,250'	6,250'	8,250'	8,250'
LDA	6,250'	6,250'	8,250'	7,850'

TORA - TAKEOFF RUN AVAILABLE
TODA - TAKEOFF DISTANCE AVAILABLE
ASDA - ACCELERATE-STOP DISTANCE AVAILABLE
LDA - LANDING DISTANCE AVAILABLE

	EXISTING			ULTIMATE		
1	LAT.	34°08'31.64"N		1	LAT.	34°08'22.77"N
	LONG.	114°16'20.66"W			LONG.	114°16'25.92"W
19	LAT.	34°09'27.10"N		19	LAT.	34°09'35.97"N
	LONG.	114°15'47.79"W			LONG.	114°15'42.53"W
R/W 19 DISPLACED THRESHOLD						
19	LAT.	N.A.		19	LAT.	34°09'33.76"N
	LONG.	N.A.			LONG.	114°15'43.85"W

RUNWAY DATA

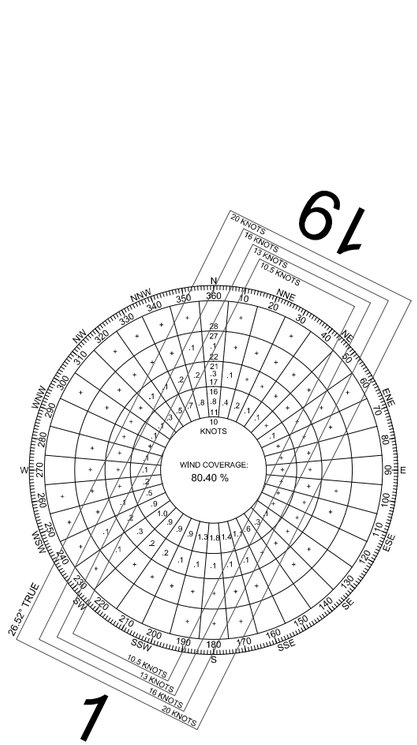
		RUNWAY 1-19			
		EXISTING		ULTIMATE	
RUNWAY DESIGN CODE (RDC)		1	C-II-5000	1	C-III-4000
		19	C-II-VIS	19	C-III-5000
APPROACH REFERENCE CODE (APRC)		1	C-II-5000	1	C-III-4000
		19	C-II-VIS	19	C-III-5000
DEPARTURE REFERENCE CODE (DPRC)		1	C-II	1	C-III
		19	C-II	19	C-III
CRITICAL AIRCRAFT	AIRCRAFT	Gulfstream		GulfStream G500	
	WINGSPAN	77,8'		93,5'	
	WHEELBASE	17,7'		45'	
	APPROACH SPEED	136 knots		140 knots	
	MAX. TAKEOFF WT. (lbs.)	68,700		85,100	
PAVEMENT STRENGTH & MATERIAL TYPE	TYPE	ASPHALT		ASPHALT	
	STRENGTH (1,000#) S/D/DT	30/50/-		30/60/-	
	STRENGTH PCN	10/F/B/X/T		10/F/B/X/T	
	SURFACE TREATMENT	NONE		NONE	
EFFECTIVE RUNWAY GRADIENT AND MAXIMUM GRADE	EFFECTIVE GRADIENT %	0,09%		0,07%	
	MAXIMUM GRADE %	0.20%		0.20%	
	MEETS LINE OF SIGHT	YES		YES	
PERCENT WIND COVERAGE (ALL WEATHER)	A-I & B-I 10.5 KNOTS	96.66%		96.66%	
	A-II & B-II 13 KNOTS	98.22%		98.22%	
	A-III THRU C-III 16 KNOTS	99.51%		99.51%	
RUNWAY LENGTH AND WIDTH FOR RDC C-III*	REQUIRED	7,000' X 100'		8,500' X 100'	
	RUNWAY LENGTH	6,250'		8,250'	
	RUNWAY WIDTH	100'		100'	
RUNWAY SAFETY AREA (RSA) - LENGTH BEYOND RUNWAY END	C-II DESIGN STANDARD	1	1,000'	1	1,000'
		19	1,000'	19	1,000'
	ACTUAL AND ULTIMATE	1	1,000'	1	1,000'
		19	1,000'	19	600' / 1,000' **
RUNWAY SAFETY AREA WIDTH (500' REQUIRED)		500'		500'	
RUNWAY TRUE BEARING		N 26°13' 56.25" E			
RUNWAY END COORDINATES (NAD 83)					
RUNWAY 1 END COORDINATES	LATITUDE	34°08' 31.64" N		34°08' 22.77" N	
	LONGITUDE	114°16' 20.66" W		114°16' 25.92" W	
RUNWAY 19 END COORDINATES	LATITUDE	34°09' 27.10" N		34°09' 35.97" N	
	LONGITUDE	114°15' 47.79" W		114°15' 42.53" W	
R/W 19 DISPLACED THRESHOLD	LATITUDE	N/A		34°09' 32.39" N	
	LONGITUDE	N/A		114°15' 44.67" W	
RUNWAY LIGHTING TYPE		MEDIUM INTENSITY		MEDIUM INTENSITY	
RUNWAY PROTECTION ZONE (RPZ) DIMENSIONS	REQUIRED - NPI VISIBILITY MINIMUMS AS LOW AS 3/4 MILE	1	1000 X 1510 X 1700	1	1000 X 1510 X 1700
		19	1000 X 1510 X 1700	19	1000 X 1510 X 1700
	ACTUAL AND ULTIMATE	1	1000 X 1510 X 1700	1	1000 X 1510 X 1700
		19	1000 X 1510 X 1700	19	1000 X 1510 X 1700
RUNWAY MARKING TYPE		1	NON-PRECISION	1	NON-PRECISION
		19	NON-PRECISION	19	NON-PRECISION
14 CFR PART 77 APPROACH CATEGORY		1	20:1	1	34:1
		19	20:1	19	34:1
14 CFR PART 77 APPROACH TYPES		1	NON-PRECISION	1	NON-PRECISION
		19	VISUAL	19	NON-PRECISION
VISIBILITY MINIMUMS		1	NOT > 1 MI.	1	NOT > 3/4 MI.
		19	NOT > 3 MI.	19	NOT > 1 MI.
TYPE OF AERONAUTICAL SURVEY REQUIRED FOR APPROACH (VGS OR NVGS***)		1	NVGS3	1	NVGS3
		19	NVGS3	19	NVGS3
40:1 RUNWAY DEPARTURE SURFACE		1	YES	1	YES
		19	YES	19	YES
RUNWAY OBJECT FREE AREA (ROFA) - LENGTH BEYOND RUNWAY END		1	1,000'	1	1,000'
		19	1,000'	19	600' / 1,000'2
OBJECT FREE AREA WIDTH		800'		800'	
RUNWAY OBSTACLE FREE ZONE (ROFZ) - LENGTH BEYOND RUNWAY END		1	200'	1	200'
		19	200'	19	200'
OBSTACLE FREE ZONE WIDTH		400'		400'	
THRESHOLD SITING SURFACE (TSS) - NO TSS PENETRATIONS	TSS APPROACH SURFACES	1	20:1	1	20:1
		19	20:1	19	20:1
	TSS DEPARTURE SURFACES	1	40:1	1	40:1
		19	40:1	19	40:1
VISUAL AND INSTRUMENT NAVAIDS	INSTRUMENT NAVAIDS	1	VOR/DME OR GPS-A	1	RNAV (GPS) NPI
		19	VOR/DME OR GPS-A	19	RNAV (GPS) NPI
	VISUAL AIDS	1	PAPI-4	1	MALSR/PAPI-4
		19	PAPI-4	19	REILS/PAPI-4
RUNWAY END ELEVATIONS (NAV88)		1	453.6'	1	451.6'
		19	456.8'	19	456.1'
RUNWAY TOUCHDOWN ZONE ELEVATIONS (TDZE)		1	456.1'	1	454.7'
		19	458.4'	19	458.2'
RUNWAY 19	DISPLACED THRESHOLD ELEVATION	N/A		456.5'	
	DISPLACED THRESHOLD TDZE	N/A		458.3'	
RUNWAY HIGH POINT		458.4'		458.4'	
RUNWAY LOW POINT		453.6'		451.6'	
DISTANCE from RWY. CL to PARALLEL TWY. CL		1,050'		400'	
DISTANCE from RWY. CL to PARKED AIRCRAFT		1,390'		500'	

TAXIWAY DATA - SEE TAXIWAY DATA TABLE FOR TAXIWAY DESIGN GROUP AND DESIGN CRITERIA

* - RUNWAY LENGTH REQUIREMENTS:
EXISTING - 100% LARGE AIRPLANES <60,000 LBS AT 60% USEFUL LOAD
ULTIMATE - 75% LARGE AIRPLANES < 60,000 LBS AT 90% USEFUL LOAD

** - SEE DECLARED DISTANCE TABLE -
RUNWAY SAFETY AREA AND RUNWAY OBJECT FREE AREA EXTENDS 1,000' BEYOND TORA
RUNWAY SAFETY AREA IS 600' LONG PRIOR TO LDA

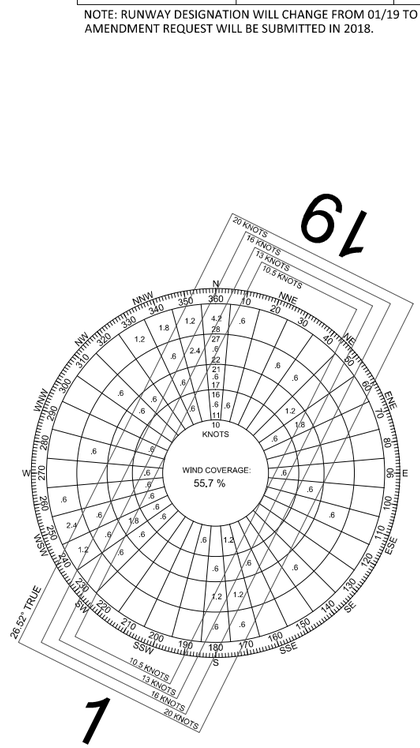
*** - NVGS SURVEYS MUST BE SUPPLEMENTED WITH THE FIRST 10,200 FEET OF THE VGS FOR CIRCLING AND NON-PRECISION INSTRUMENT APPROACHES VISIBILITY MINIMUMS AS LOW AS 3/4 MILE



ALL WEATHER WIND COVERAGE

RUNWAY	10.5 KNOTS (12 MPH) CROSSWIND	13 KNOTS (15 MPH) CROSSWIND	16 KNOTS (18 MPH) CROSSWIND	20 KNOTS (23 MPH) CROSSWIND
1-19	96,66%	98,22%	99,51%	99,88%

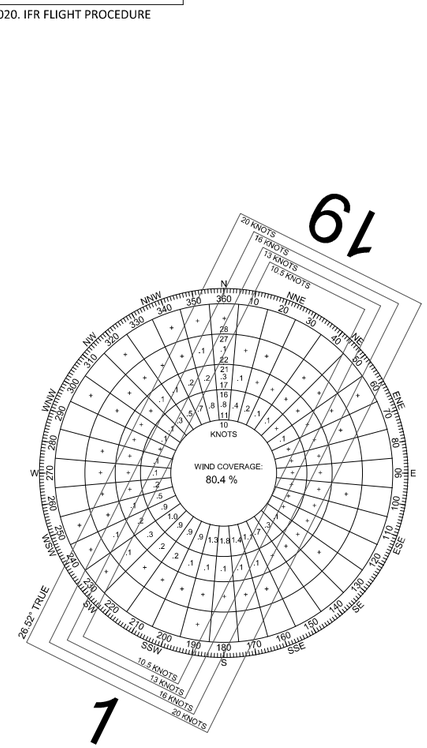
STATION: BLYTHE, CA. NO. 74718
PERIOD OF RECORD: 1996-2005
OBSERVATIONS: 75,155



IFR WIND COVERAGE

RUNWAY	10.5 KNOTS (12 MPH) CROSSWIND	13 KNOTS (15 MPH) CROSSWIND	16 KNOTS (18 MPH) CROSSWIND	20 KNOTS (23 MPH) CROSSWIND
1-19	67,85%	76,64%	84,79%	91,34%

STATION: BLYTHE, CA. NO. 74718
PERIOD OF RECORD: 1996-2005
OBSERVATIONS: 28



VFR WIND COVERAGE

RUNWAY	10.5 KNOTS (12 MPH) CROSSWIND	13 KNOTS (15 MPH) CROSSWIND	16 KNOTS (18 MPH) CROSSWIND	20 KNOTS (23 MPH) CROSSWIND
1-19	94,72%	98,28%	99,55%	99,91%

STATION: BLYTHE, CA. NO. 74718
PERIOD OF RECORD: 1996-2005
OBSERVATIONS: 74,859

VERIFY SCALE!

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MODIFY SCALE ACCORDINGLY!

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PARKER — AVI SUQUILLA AIRPORT
AIRPORT LAYOUT PLAN — ARIZONA

AIRPORT DATA SHEET

PROJECT NUMBER 8405,005
SHEET NUMBER 02 OF 13
DRAWING NUMBER 02

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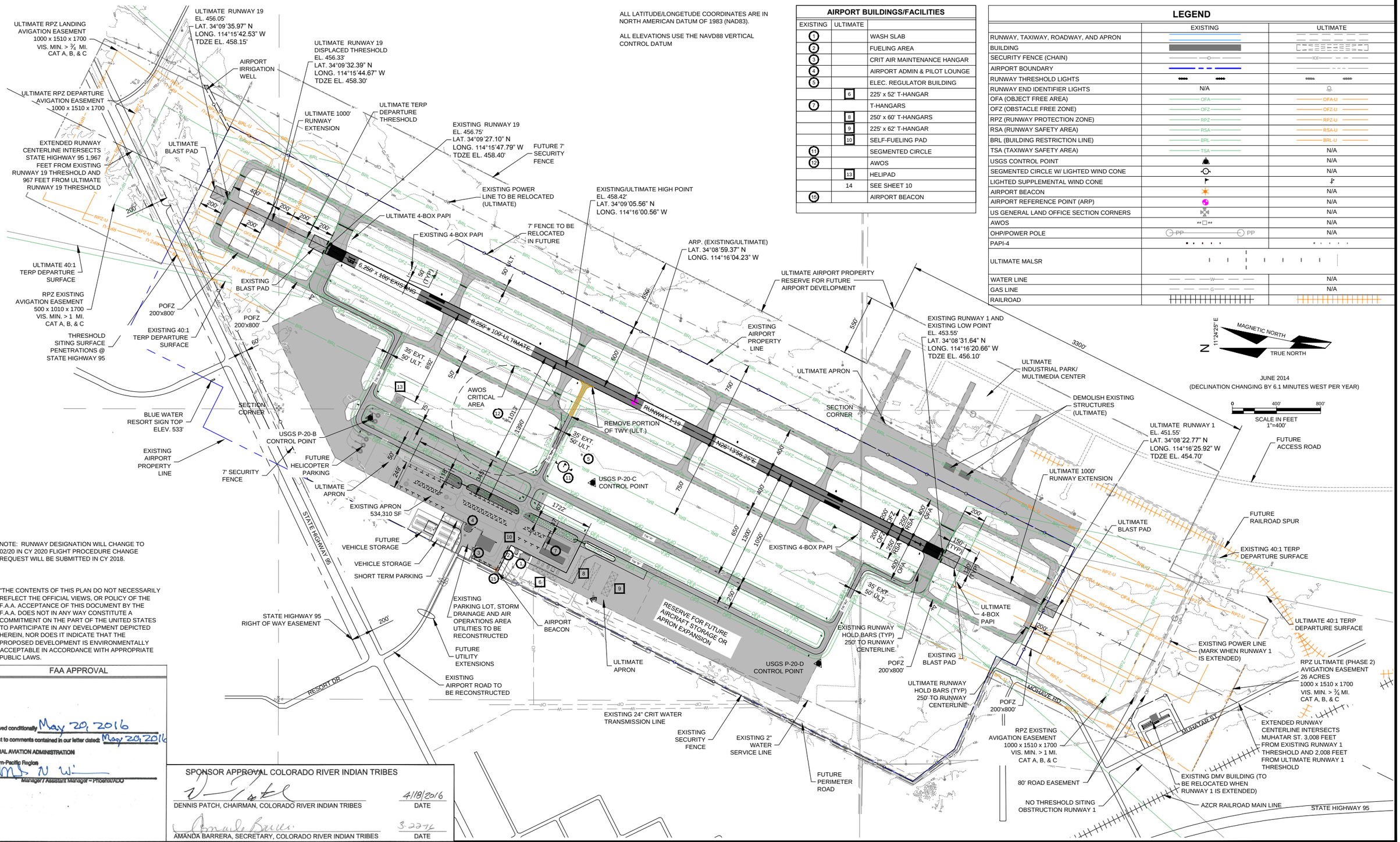

ALL LATITUDE/LONGETUDE COORDINATES ARE IN NORTH AMERICAN DATUM OF 1983 (NAD83).

ALL ELEVATIONS USE THE NAVD88 VERTICAL CONTROL DATUM

AIRPORT BUILDINGS/FACILITIES		
EXISTING	ULTIMATE	
1		WASH SLAB
2		FUELING AREA
3		CRIT AIR MAINTENANCE HANGAR
4		AIRPORT ADMIN & PILOT LOUNGE
5		ELEC. REGULATOR BUILDING
	6	225' x 52' T-HANGAR
7		T-HANGARS
	8	250' x 60' T-HANGARS
	9	225' x 62' T-HANGAR
	10	SELF-FUELING PAD
11		SEGMENTED CIRCLE
12		AWOS
	13	HELIPAD
	14	SEE SHEET 10
15		AIRPORT BEACON

LEGEND		
	EXISTING	ULTIMATE
RUNWAY, TAXIWAY, ROADWAY, AND APRON		
BUILDING		
SECURITY FENCE (CHAIN)		
AIRPORT BOUNDARY		
RUNWAY THRESHOLD LIGHTS		
RUNWAY END IDENTIFIER LIGHTS	N/A	
OFA (OBJECT FREE AREA)		
OFZ (OBSTACLE FREE ZONE)		
RPZ (RUNWAY PROTECTION ZONE)		
RSA (RUNWAY SAFETY AREA)		
BRL (BUILDING RESTRICTION LINE)		
TSA (TAXIWAY SAFETY AREA)		N/A
USGS CONTROL POINT		N/A
SEGMENTED CIRCLE W/ LIGHTED WIND CONE		N/A
LIGHTED SUPPLEMENTAL WIND CONE		N/A
AIRPORT BEACON		N/A
AIRPORT REFERENCE POINT (ARP)		N/A
US GENERAL LAND OFFICE SECTION CORNERS		N/A
AWOS		N/A
OHP/POWER POLE	PP	N/A
PAPI-4		
ULTIMATE MALSR		
WATER LINE	W	N/A
GAS LINE	G	N/A
RAILROAD		

NOTE: RUNWAY DESIGNATION WILL CHANGE TO 02/20 IN CY 2020 FLIGHT PROCEDURE CHANGE REQUEST WILL BE SUBMITTED IN CY 2018.

"THE CONTENTS OF THIS PLAN DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS, OR POLICY OF THE F.A.A. ACCEPTANCE OF THIS DOCUMENT BY THE F.A.A. DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN, NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS.

FAA APPROVAL

Approved conditionally May 20, 2016

Subject to comments contained in our letter dated: May 20, 2016

FEDERAL AVIATION ADMINISTRATION

Western-Pacific Region

By: [signature]

Manager / Assistant Manager – Phoenix ADO

SPONSOR APPROVAL COLORADO RIVER INDIAN TRIBES

[signature] 4/18/2016

DENNIS PATCH, CHAIRMAN, COLORADO RIVER INDIAN TRIBES — DATE

[signature] 3-22-16

AMANDA BARRERA, SECRETARY, COLORADO RIVER INDIAN TRIBES — DATE

VERIFY SCALE!

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AVI SUQUILLA AIRPORT
AIRPORT LAYOUT PLAN

PARKER ARIZONA

AIRPORT LAYOUT PLAN DRAWING

PROJECT NUMBER 8405.005

SHEET NUMBER 03 OF 13

DRAWING NUMBER 03

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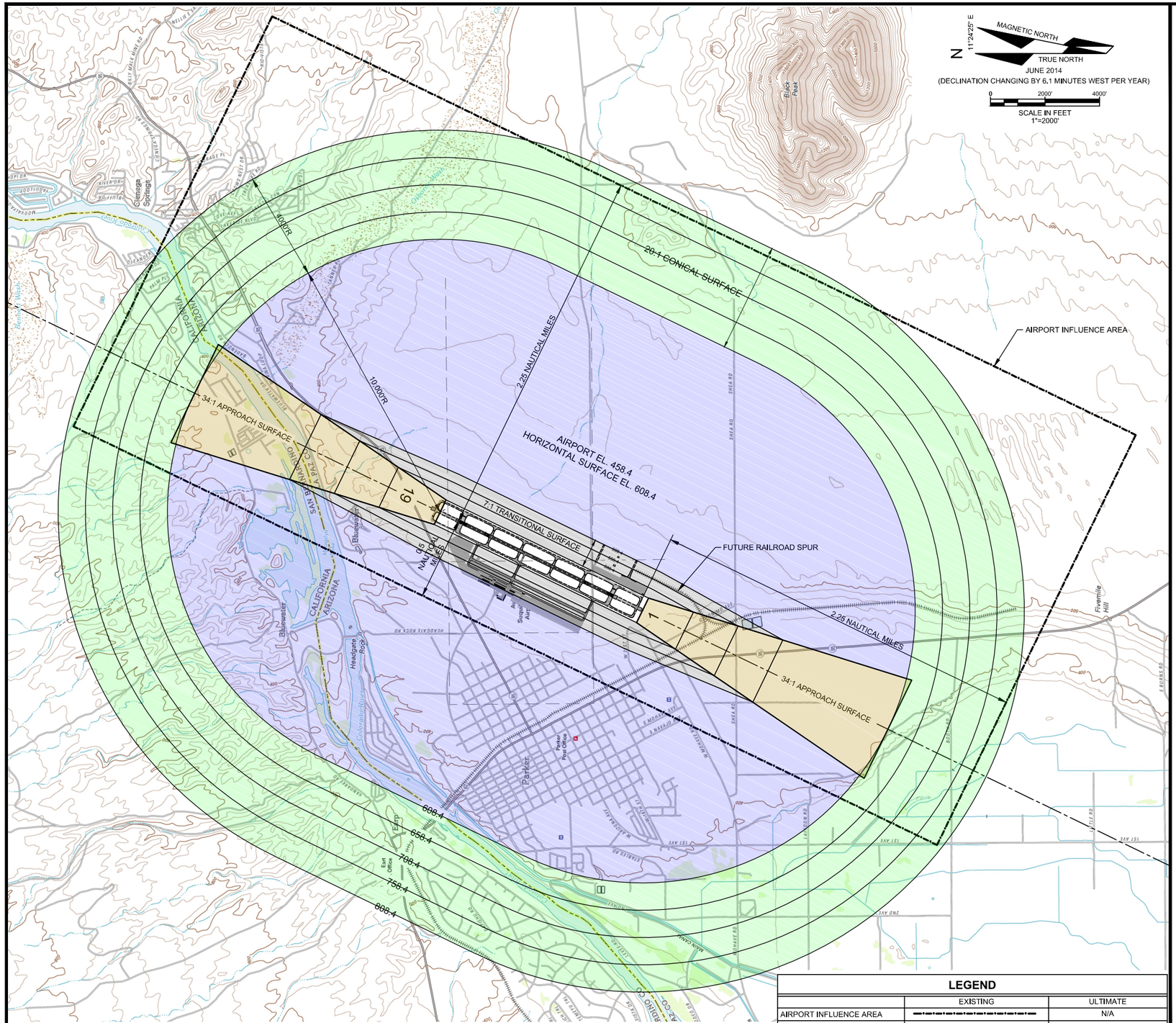
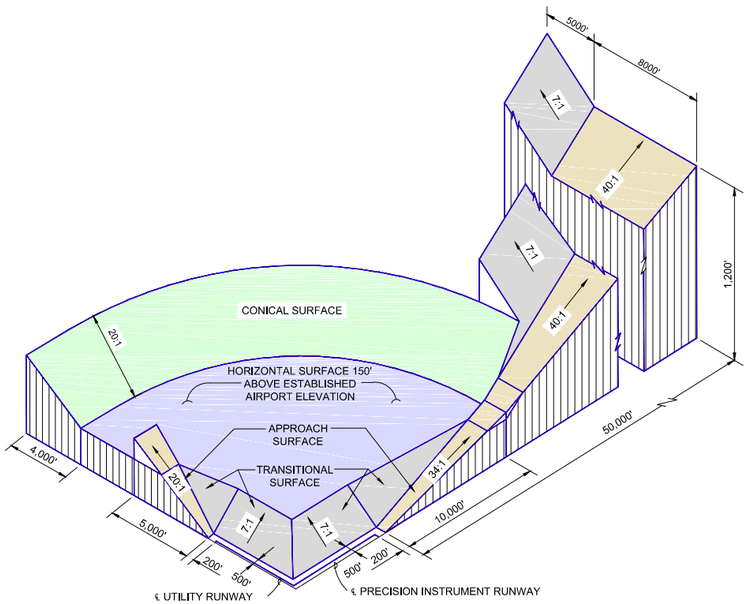


LEGEND

	EXISTING	ULTIMATE
AIRPORT INFLUENCE AREA	▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬	N/A

GENERAL NOTES

1. EXISTING RUNWAY 1-19 CLASSIFIED AS VISUAL LARGER THAN UTILITY RUNWAY.
2. ULTIMATE RUNWAY 1-19 CLASSIFIED AS RUNWAYS LARGER THAN UTILITY AND FUTURE NON-PRECISION INSTRUMENT RUNWAY WITH MINIMUMS AS LOW AS 3/4 MILE.
3. NO OBSTRUCTIONS IN HORIZONTAL, CONICAL OR APPROACH SURFACES.
4. NO AIRSPACE ZONING ORDINANCE IN EFFECT.
5. SEE INNER PORTION OF THE APPROACH SURFACE DRAWING FOR APPROACH PROFILES.
6. SEE SHEET 8 FOR RUNWAY PROFILE.
7. AIRPORT INFLUENCE AREA BOUNDARY ESTABLISHED AT TRAFFIC PATTERN AIRSPACE BOUNDARY IN ACCORDANCE WITH FAA ORDER 7400.2E. RUNWAY 1 IS RIGHT TRAFFIC.
8. 1 NAUTICAL MILE = 6,076 FEET



TYPICAL CIVIL AIRPORT IMAGINARY SURFACES
NTS

AIRPORT SURFACE DATA

ITEM	DIMENSIONAL STANDARDS (FEET)					
	VISUAL RUNWAY		NON-PRECISION INSTRUMENT RUNWAY			PRECISION INSTRUMENT RUNWAY
	A	B	A	B C	B D	
WIDTH OF PRIMARY SURFACE AND APPROACH SURFACE WIDTH AT INNER END.	250	500	500	500	1,000	1,000
RADIUS OF HORIZONTAL SURFACE	5,000	5,000	5,000	10,000	10,000	10,000
	VISUAL APPROACH		NON-PRECISION INSTRUMENT APPROACH			PRECISION INSTRUMENT APPROACH
	A	B	A	B C	B D	
APPROACH SURFACE WIDTH AT END	1,250	1,500	2,000	3,500	4,000	16,000
APPROACH SURFACE LENGTH	5,000	5,000	5,000	10,000	10,000	a
APPROACH SLOPE	20:1	20:1	20:1	34:1	34:1	a

A– UTILITY RUNWAYS.
B– RUNWAYS LARGER THAN UTILITY (EXISTING VISUAL).
C– VISIBILITY MINIMUMS GREATER THAN 3/4 MILE.
D– VISIBILITY MINIMUMS AS LOW AS 3/4 MILE (ULTIMATE).
a PRECISION INSTRUMENT APPROACH SLOPE IS 50:1 FOR INNER 10,000 FEET AND 40:1 FOR AN ADDITIONAL 40,000 FEET.

VERIFY SCALE!

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MODIFY SCALE ACCORDINGLY!

REVISIONS

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2	ALP REVALIDATION	8/15/01	URS
1	AIRPORT MASTER PLAN UPDATE	4/28/98	URS

REVISIONS

NO.	DESCRIPTION	DATE	BY
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AVI SUQUILLA AIRPORT
AIRPORT LAYOUT PLAN

PARKER ARIZONA

PART 77 AIRSPACE DRAWING PLAN

PROJECT NUMBER
8405.005

SHEET NUMBER
04 OF 13

DRAWING NUMBER
04

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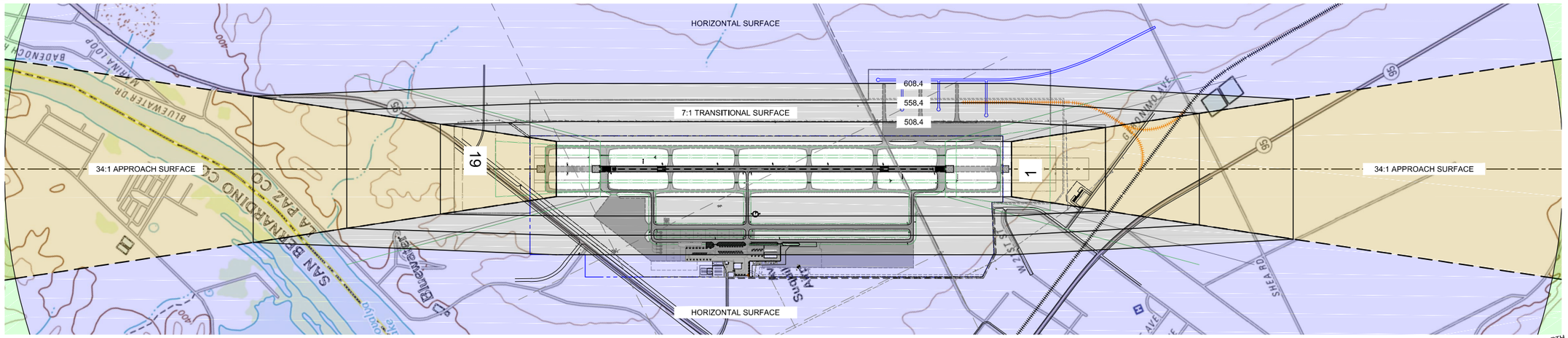
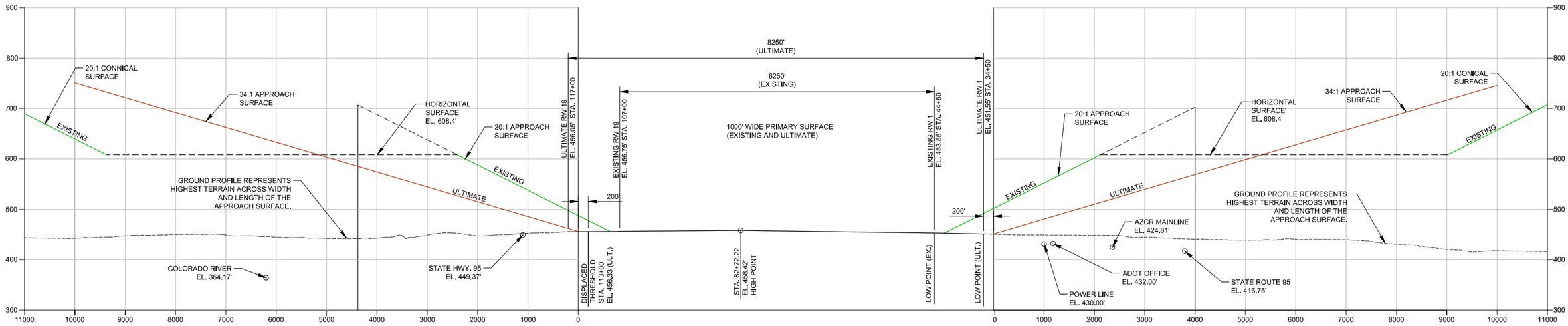


PLAN - RUNWAY 19-1



HORIZONTAL SCALE 1" = 1000'
VERTICAL SCALE 1" = 100'

AIRPORT ELEVATION - 458.4'

PROFILE - RUNWAY 19-1

PROFILE - OBSTRUCTIONS

NO.	DESCRIPTION	PART 77 SURFACE PENETRATION	ELEVATION	PENETRATIONS (±)		DISPOSITION
				EXISTING	ULTIMATE	
		NONE				
		NONE				

NO OBSTRUCTIONS IDENTIFIED FOR RUNWAY 19-1.

NOTES

1. ELEVATIONS SHOWN ALONG GROUND PROFILE ARE EXISTING GROUND ELEVATIONS.
2. POWER POLES IN RUNWAY 1 APPROACH ARE 30' HIGH.
3. RUNWAY 19 APPROACH HAS BEEN DISPLACED TO PROVIDE 15' CLEARANCE AT THE INTERSECTION OF WEST EDGE OF THE 34:1 APPROACH SURFACE WITH THE EASTERLY EDGE OF THE NORTH BOUND OF STATE ROUTE 95.
4. FIFTEEN FEET ADDED TO NON INTERSTATE ROAD ELEVATIONS, SEVENTEEN FEET ADDED TO INTERSTATE ROAD ELEVATIONS. TWENTY-THREE FEET ADDED TO RAILROAD TRACK ELEVATIONS. TRANSITIONAL SURFACE SLOPES ARE 7:1 UNLESS OTHERWISE INDICATED.
5. FOR CLOSE-IN OBSTRUCTIONS IN THE APPROACH AREAS, REFER TO THE OBSTRUCTION TABLES ON THE INNER PORTION OF THE APPROACH SURFACE DRAWING.
6. THE PRIMARY, APPROACH, TRANSITIONAL, HORIZONTAL, AND CONICAL SURFACES ARE PROTECTED BY TRIBAL OWNERSHIP EXCEPT FOR PRIVATE AND PUBLIC PROPERTY IN TOWN OF PARKER.
- *7. OBSTRUCTIONS, CLEARANCES, AND LOCATIONS ARE CALCULATED FROM EXISTING AND ULTIMATE RUNWAY END ELEVATIONS AND EXISTING AND ULTIMATE APPROACH SURFACES.
8. DEPICTION OF FEATURES AND OBJECTS WITHIN THE OUTER PORTION OF THE APPROACH SURFACES, ARE ILLUSTRATED ON THE APPROACH PROFILES.
9. DEPICTION OF FEATURES AND OBJECTS WITHIN THE INNER PORTION OF THE APPROACH SURFACES, ARE ILLUSTRATED ON THE RUNWAY APPROACH ZONES.
- *10. FUTURE HEIGHT AND HAZARD ORDNANCES ARE TO REFERENCE PART 77 AIRSPACE PLAN.

VERIFY SCALE!

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AVI SUQUILLA AIRPORT
AIRPORT LAYOUT PLAN
PARKER ARIZONA

PART 77 AIRSPACE DRAWING PLAN PROFILE VIEW

PROJECT NUMBER 8405.005
SHEET NUMBER 05 OF 13
DRAWING NUMBER 05

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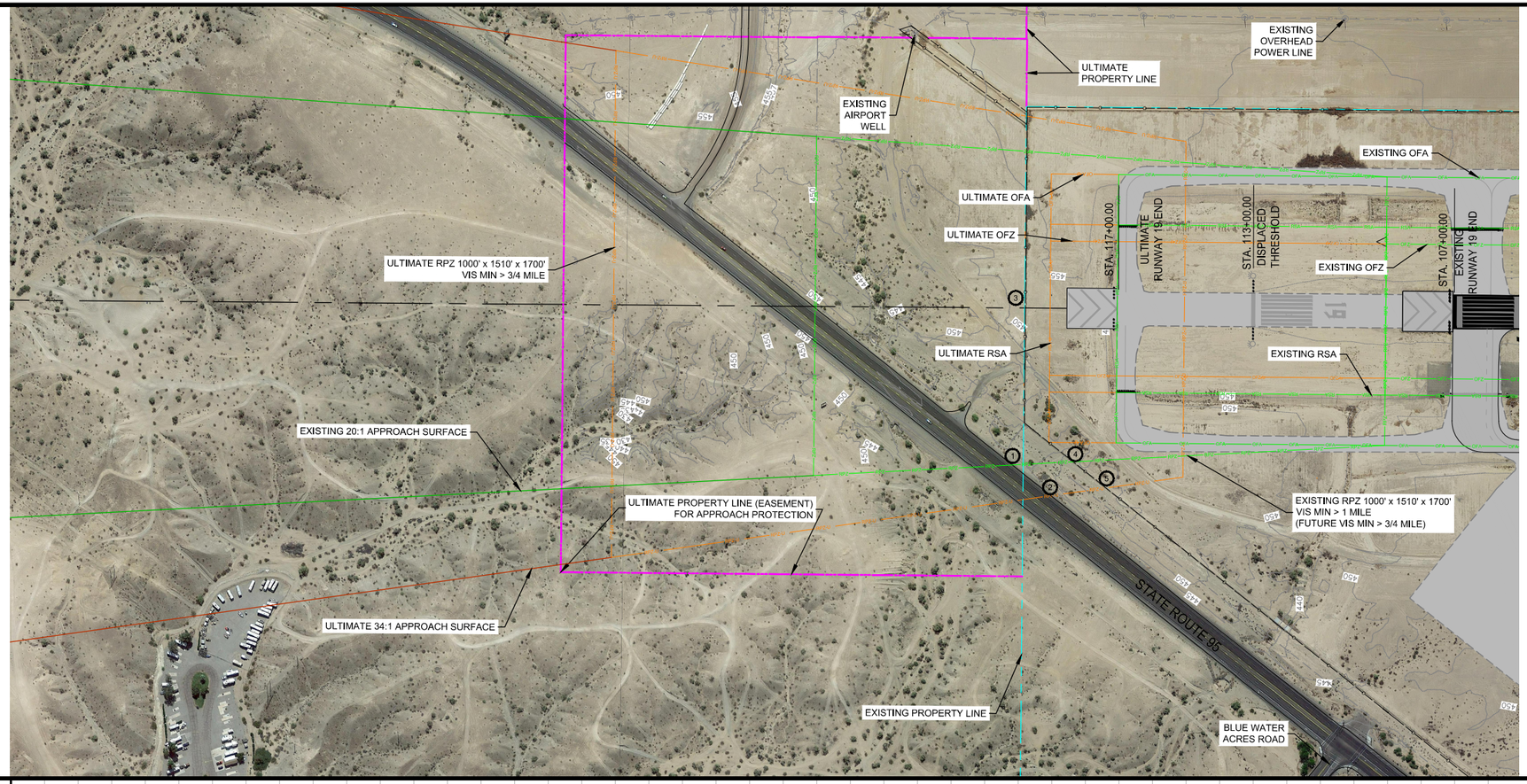
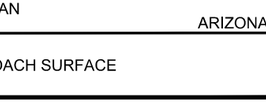
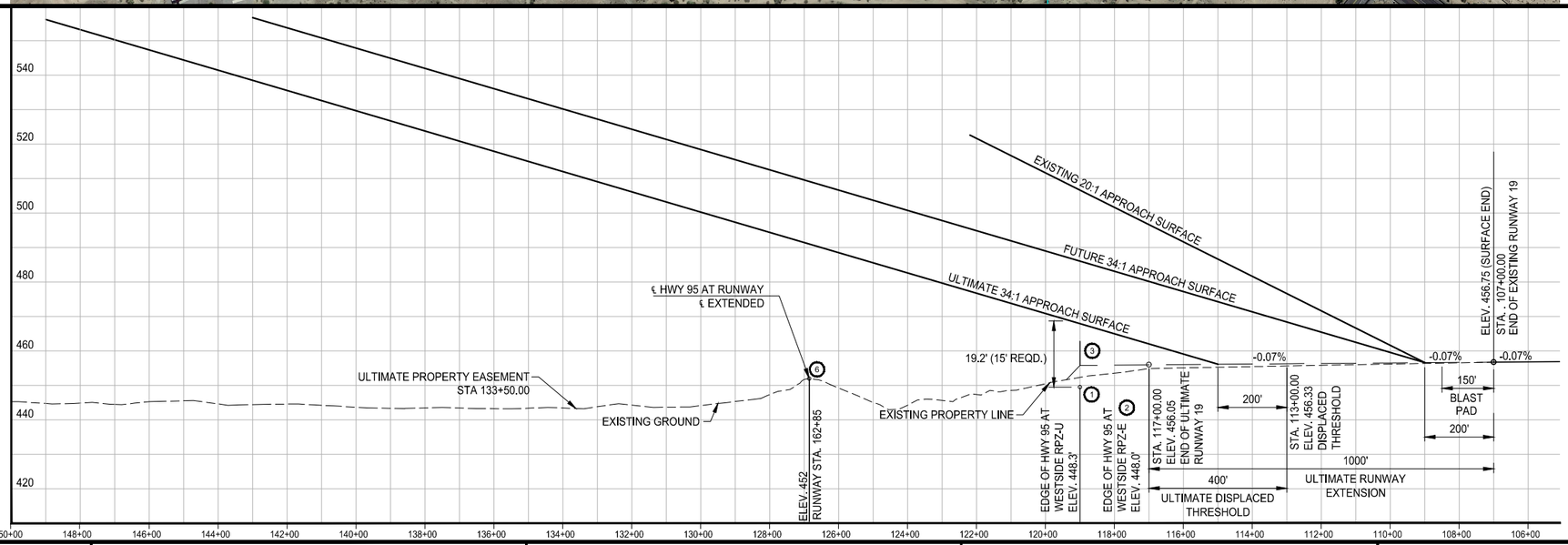


OBSTRUCTION TABLE			
CLEAR ZONE RUNWAY 19			
DESCRIPTION	ELEVATION - (MSL)	OBSTRUCTION	RECOMMENDATION
1. INTERSECTION WEST EDGE WITH EXISTING RPZ RWY STA 118+07 EASTERLY PAVEMENT EDGE SR 95 STA 86+45.5 ±	GROUND 448.0	20:1 EXISTING APPROACH SURFACE ELEV. 502.1 34:1 FUTURE APPROACH SURFACE ELEV. 483.4	54.1' CLEARANCE NO ACTION REQUIRED 35.1' CLEARANCE NO ACTION REQUIRED
2. INTERSECTION WEST EDGE ULTIMATE RPZ RUNWAY STATION 119+00 WITH EASTERLY PAVEMENT EDGE SR 95 STA B7+57.5±	GROUND 448.3	34:1 ULTIMATE APPROACH SURFACE ELEV. 467.5	19.2' CLEARANCE (15' REQUIRED) NO ACTION REQUIRED
3. 7 FT HIGH SECURITY FENCE AT RUNWAY STA 119+70	TOP OF FENCE 465.0 (HIGHEST POINT)	34:1 ULTIMATE APPROACH SURFACE ELEV. 470.1	5.1' CLEARANCE NO ACTION REQUIRED
4. 7 FT HIGH SECURITY FENCE AT RWY STA 117+35	TOP OF FENCE ELEV. 456	34:1 ULTIMATE APPROACH SURFACE ELEV 463.2	7.2' CLEARANCE NO ACTION REQUIRED
5. 7 FT HIGH SECURITY FENCE AT RWY STATION 116+40	TOP OF FENCE ELEV. 457	34:1 ULTIMATE APPROACH SURFACE ELEV. 478.5	21.5' CLEARANCE NO ACTION REQUIRED
6. HWY 95 INTERSECTS EXTENDED RUNWAY CENTERLINE AT STA 162+85	GROUND 452'	34:1 ULTIMATE APPROACH SURFACE ELEV. 596.9	144.9' CLEARANCE NO ACTION REQUIRED



JUNE 2014
(DECLINATION CHANGING BY 6.1 MINUTES WEST PER YEAR)

200 100 0 200 400
SCALE IN FEET



LEGEND		
	EXISTING	ULTIMATE
PROPERTY BOUNDARY		
SECURITY FENCE		
RAILROAD		
OVERHEAD POWER LINE		
GROUND CONTOURS	445	
RUNWAY SAFETY AREA (RSA)	RSA	RSA-U
RUNWAY PROTECTION ZONE (RPZ)	RPZ	RPZ-U
OBSTACLE FREE ZONE (OFZ)	OFZ	OFZ-U
OBJECT FREE AREA (OFA)	OFA	OFA-U

SCALE:
HORZ. - 1" = 200'
VERT. - 1" = 20'

SURVEY: MARCH 2006 ARIAL TOPOGRAPHIC SURVEY
0.5'± (1/2 CONTOUR INTERVAL)

VERIFY SCALE!

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AVI SUQUILLA AIRPORT
AIRPORT LAYOUT PLAN

PARKER ARIZONA

RW 19 INNER PORTION OF APPROACH SURFACE

PROJECT NUMBER 8405.005
SHEET NUMBER 06 OF 13
DRAWING NUMBER 06

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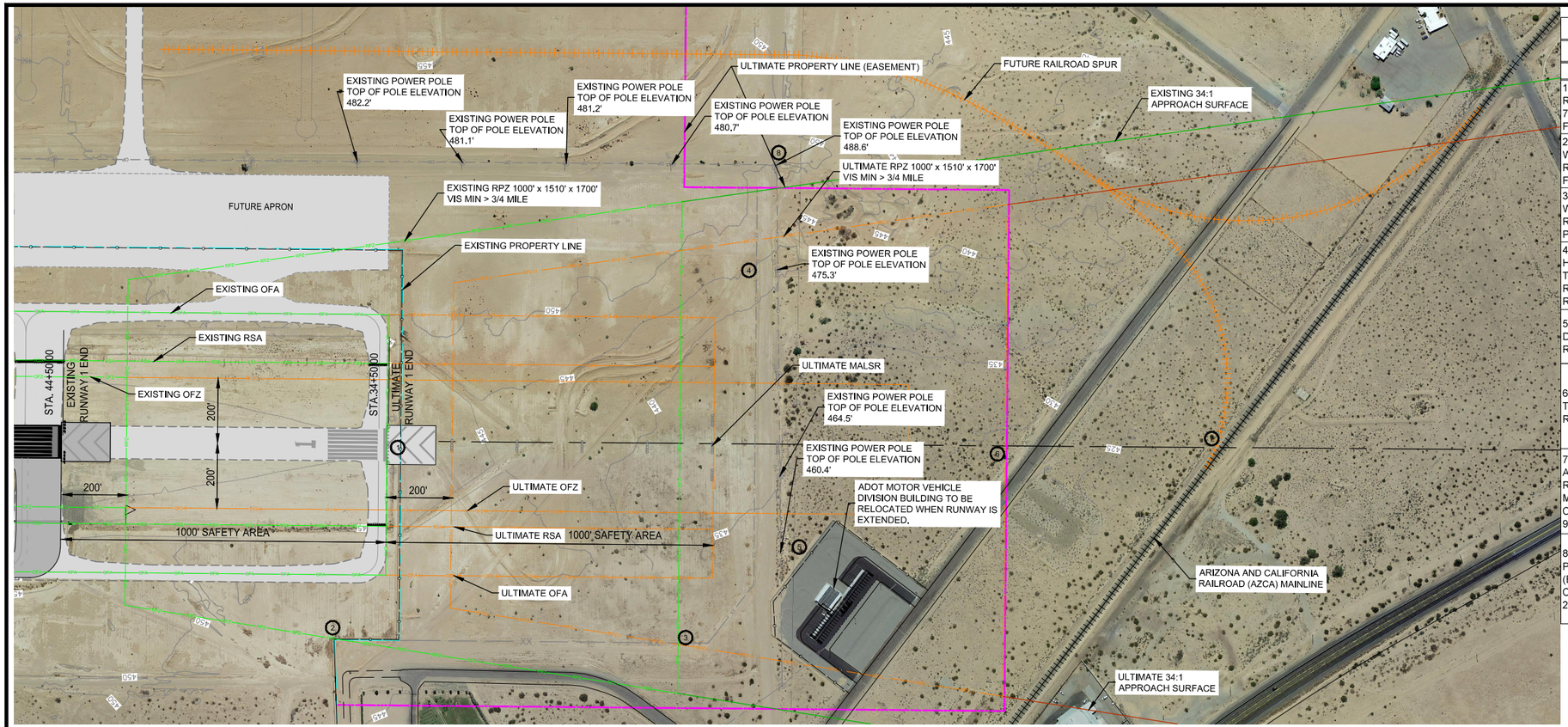
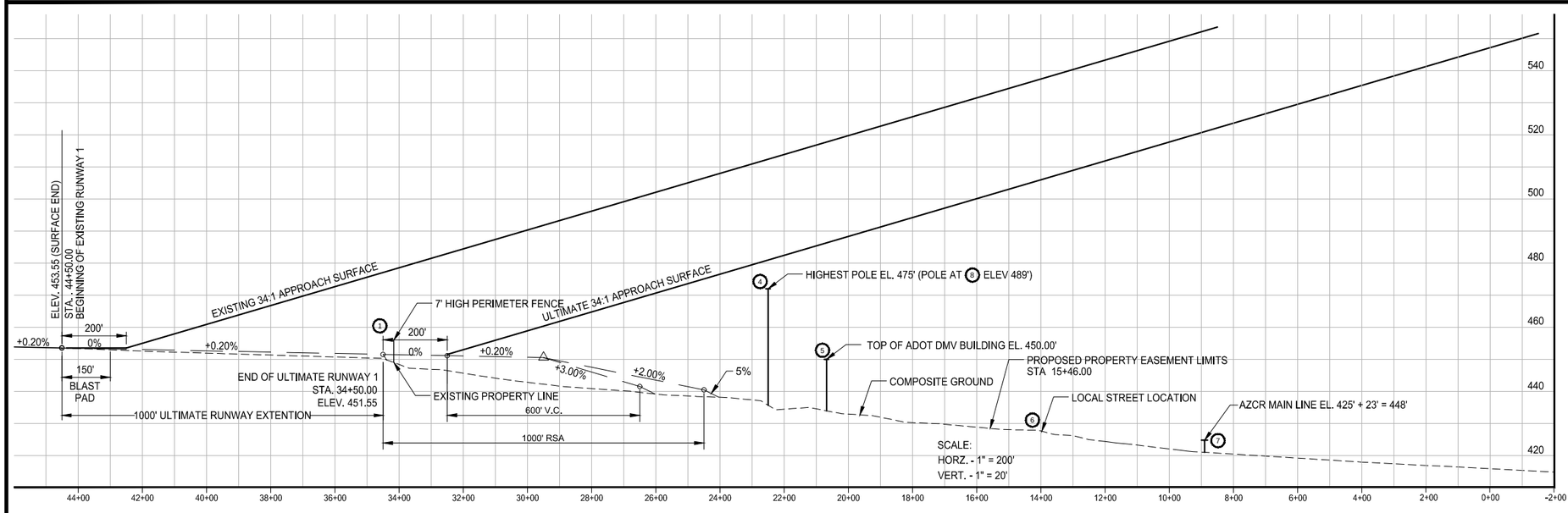


OBSTRUCTION TABLE			
CLEAR ZONE RUNWAY 1			
DESCRIPTION	ELEVATION - (MSL)	OBSTRUCTION	RECOMMENDATION
1. INTERSECTION OF RWY CENTER LINE WITH 7' HIGH PERIMETER FENCE	TOP OF FENCE ELEV 455.0 AT RWY STA 34+10	34:1 EXISTING APPROACH SURFACE ELEV 478.3	23.3' CLEARANCE - NO ACTION REQUIRED (RELOCATE FENCE WHEN RWY IS EXTENDED)
2. INTERSECTION OF WEST EDGE EXISTING RPZ WITH 7' PERIMETER FENCE	TOP OF FENCE ELEV 453.0 AT RWY STA 36+58	34:1 EXISTING APPROACH SURFACE ELEV 470.95	17.9' CLEARANCE - NO ACTION REQUIRED
3. INTERSECTION OF WEST EDGE ULTIMATE RPZ WITH ULTIMATE 7' PERIMETER FENCE	TOP OF FENCE ELEV 442.0 AT RWY STA 25+50	34:1 ULTIMATE APPROACH SURFACE ELEV 472.1	30.1' CLEARANCE - NO ACTION REQUIRED
4. EXISTING 30' TO 38' HIGH POWER LINE TRAVERSES ULTIMATE RPZ PERPENDICULAR TO RWY CENTERLINE	TOP OF HIGHEST POWER POLE ELEV 475 AT RWY STA 22+50 (NEAR EASTERLY EDGE OF RPZ)	34:1 ULTIMATE APPROACH SURFACE ELEV 481.0	SIX FEET (6') CLEARANCE - NO ACTION REQUIRED (CONSIDER MARKING WHEN RUNWAY EXTENDED)
5. ADOT MOTOR VEHICLE DIVISION IS IN ULTIMATE RPZ	TOP OF MVD BUILDING ELEV 450 AT RWY STA 11+50 (NEAR WESTERLY EDGE OF RPZ)	34:1 ULTIMATE APPROACH SURFACE ELEV 483.9	33.9' CLEARANCE - FAA WILL REQUIRE RELOCATION WHEN RUNWAY EXTENDED
6. LOCAL STREET TRAVERSES PORTION OF RPZ	LOCAL STREET ELEVATION APPROXIMATLY 428 AT SOUTH END OF RPZ	34:1 ULTIMATE APPROACH SURFACE ELEV 501.6	73.5' CLEARANCE AT SOUTH END OF RPZ - REQUEST WAIVER TO PERMIT EXISTING STREET TO REMAIN IN RPZ WHEN RUNWAY IS EXTENDED
7. INTERSECTION OF ARIZONA & CALIFORNIA RAILROAD (AZCR) MAINLINE AT RWY CENTERLINE STATION 9+20	RAILROAD MAINLINE GROUND ELEV 425	34:1 ULTIMATE APPROACH SURFACE ELEV 520	95' CLEARANCE - NO ACTION REQUIRED
8. EXISTING 38' HIGH POWER POLE 870' RIGHT (EAST) EXTENDED CENTERLINE STATION 22+50	TOP OF POWER POLE ELEVATION 489'	34:1 EXISTING APPROACH SURFACE ELEV 512.4 34:1 ULTIMATE APPROACH SURFACE 481.1; 7:1 TRANSITIONAL SURFACE ELEV 513.1	23.4 CLEARANCE - NO ACTION REQUIRED ULTIMATE 7:1 TRANSITIONAL SURFACE CLEARANCE 24.0' - NO ACTION REQUIRED



LEGEND		
	EXISTING	ULTIMATE
PROPERTY BOUNDARY		
SECURITY FENCE		
RAILROAD		
OVERHEAD POWER LINE		
GROUND CONTOURS	445	
RUNWAY SAFETY AREA (RSA)	RSA	RSA-U
RUNWAY PROTECTION ZONE (RPZ)	RPZ	RPZ-U
OBSTACLE FREE ZONE (OFZ)	OFZ	OFZ-U
OBJECT FREE AREA (OFA)	OFA	OFA-U

N 11°24'25" E
MAGNETIC NORTH
TRUE NORTH

JUNE 2014
(DECLINATION CHANGING BY 6.1 MINUTES WEST PER YEAR)

200 100 0 200 400
SCALE IN FEET

SCALE:
HORZ. - 1" = 200'
VERT. - 1" = 20'

SURVEY: MARCH 2006 ARIAL TOPOGRAPHIC SURVEY
0.5'± (1/2 CONTOUR INTERVAL)

VERIFY SCALE!

THESE PRINTS MAY BE REDUCED. LINE BELOW MEASURES ONE INCH ON ORIGINAL DRAWING.

MODIFY SCALE ACCORDINGLY!

REVISIONS				REVISIONS			
NO.	DESCRIPTION	DATE	BY	NO.	DESCRIPTION	DATE	BY
5	SW GAS LINE RELOCATED OFF AIRPORT	11/08	MMI				
4	UPDATE AIP 3-04-0026-009 & 010 CONSTRUCTION	08/07	MMI	9	AIRPORT MASTER PLAN & ALP UPDATE	12/15	MMI
3	ALP REPORT & ALP GENERAL UPDATE	12/03	MMI	8	UPDATE AIP 3-04-0026-14,16,17&19 CONSTRUCTION	09/13	MMI
2	ALP REVALIDATION	8/15/01	URS	7	UPDATE AIP 3-04-0026-011 & 012 CONSTRUCTION	08/09	MMI
1	AIRPORT MASTER PLAN UPDATE	4/28/98	URS	6	ALP REVALIDATION	5/28/09	MMI

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AVI SUQUILLA AIRPORT
AIRPORT LAYOUT PLAN
PARKER ARIZONA

RW 1 INNER PORTION OF APPROACH SURFACE

PROJECT NUMBER 8405.005
SHEET NUMBER 07 OF 13
DRAWING NUMBER 07

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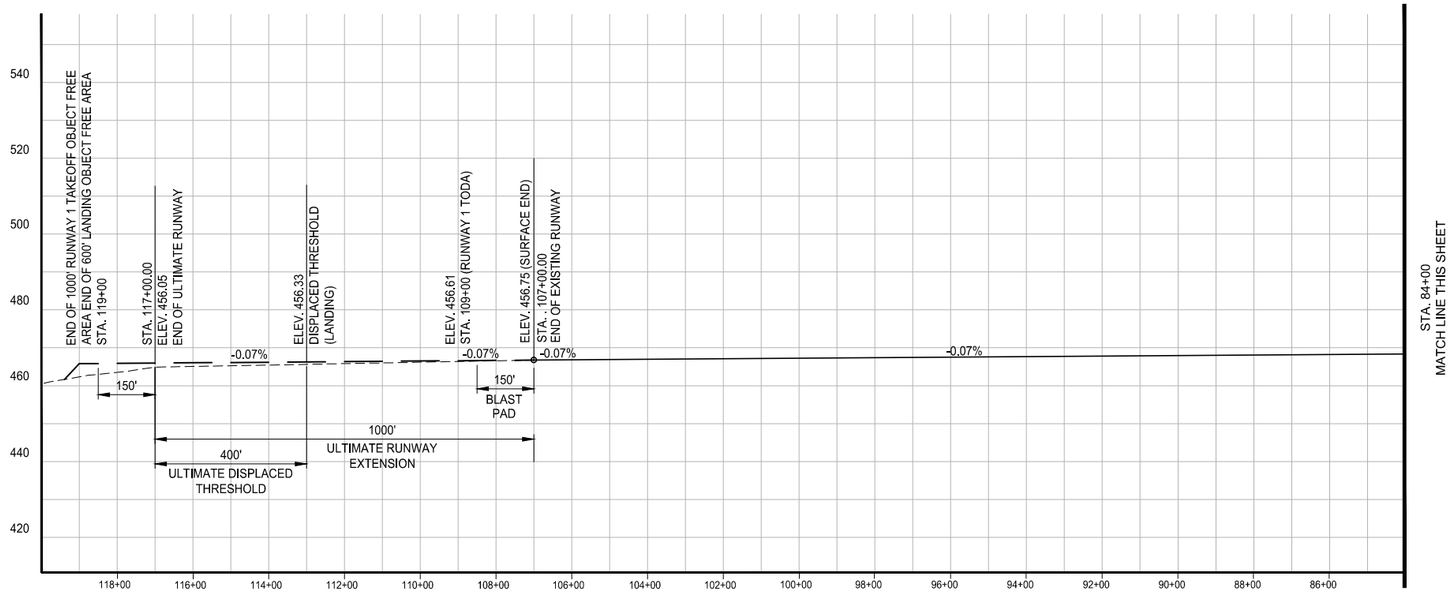
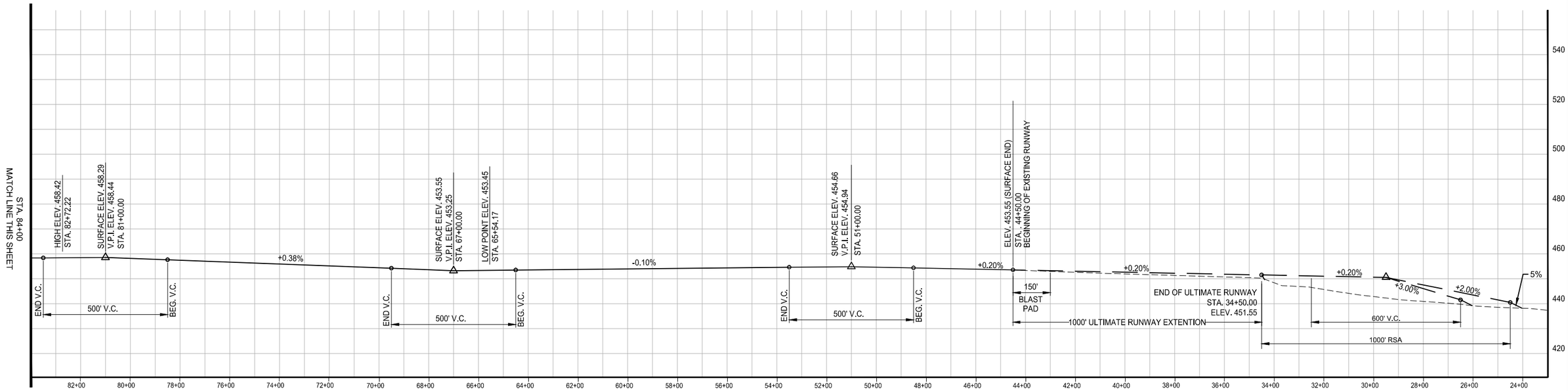


RUNWAY 1-19 PROFILE

RUNWAY LINE OF SIGHT NOTES

1. 8250 ULTIMATE LENGTH RUNWAY 1-19 PROFILE MEETS LINE OF SIGHT STANDARD IN AC 150/5300-13A CHANGE 1 PARAGRAPH 305.B. (1) RUNWAY WITHOUT FULL PARALLEL TAXIWAYS. ANY POINT 5-FEET ABOVE RUNWAY CENTERLINE IS MUTUALLY VISIBLE WITH ANY OTHER POINT 5-FEET ABOVE RUNWAY CENTERLINE.
2. 5 FOOT HIGH OBJECT AT RUNWAY 19 THRESHOLD NOTE: WILL SEE OBJECTS @ MINIMUM OF 3.65 FEET HIGH AT STATION 65+55 AND 3.17 FEET HIGH AT RUNWAY 1 THRESHOLD.
3. 5 FOOT HIGH OBJECT AT RUNWAY 1 THRESHOLD WILL SEE OBJECT AT MINIMUM OF 2.70 FEET HIGH AT RUNWAY 19 THRESHOLD.



RUNWAY 1-19 PROFILE

0 200' 400'

SCALE IN FEET
HORIZONTAL: 1"=200'
VERTICAL: 1"=20'

VERIFY SCALE!

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PARKER — AVI SUQUILLA AIRPORT
AIRPORT LAYOUT PLAN — ARIZONA

RUNWAY 1-19 PROFILE

PROJECT NUMBER 8405.005

SHEET NUMBER 08 OF 13

DRAWING NUMBER 08

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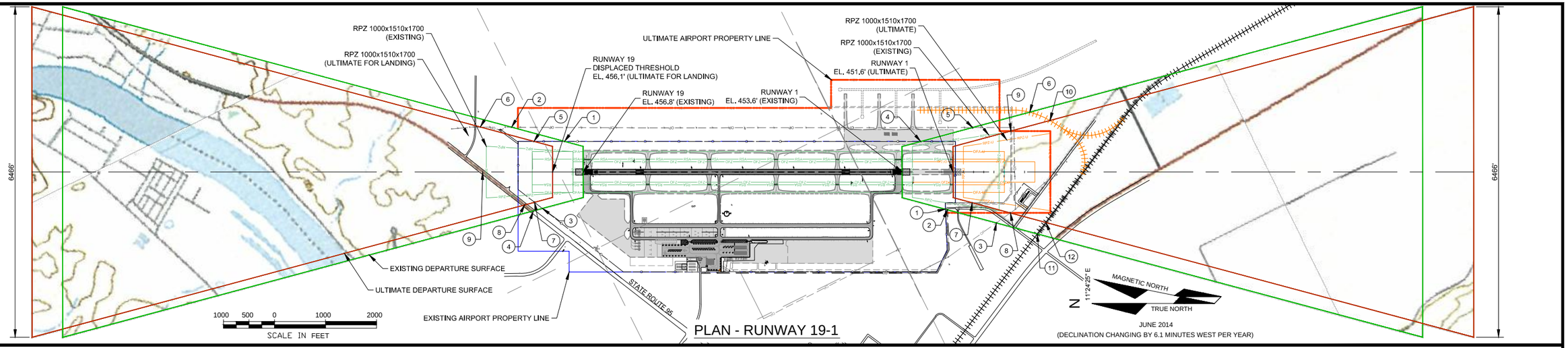
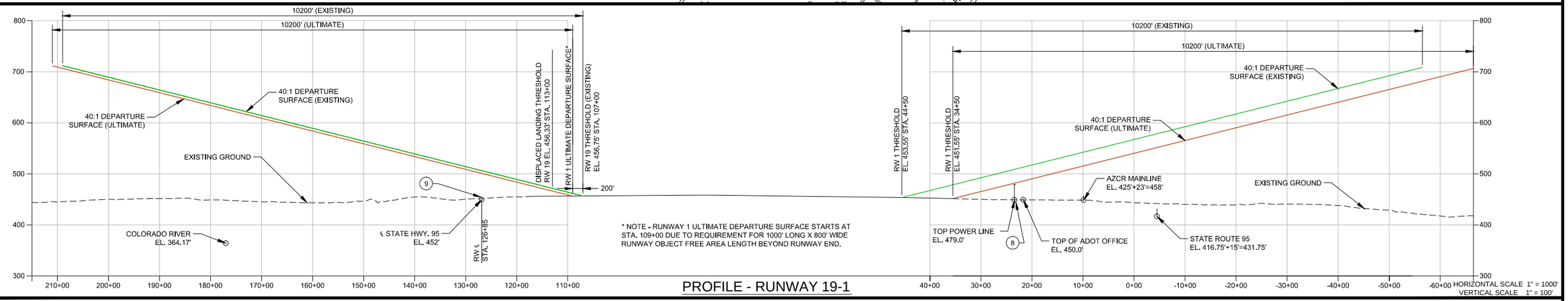


PLAN - RUNWAY 19-1



* NOTE - RUNWAY 1 ULTIMATE DEPARTURE SURFACE STARTS AT STA. 109+00 DUE TO REQUIREMENT FOR 1000' LONG X 800' WIDE RUNWAY OBJECT FREE AREA LENGTH BEYOND RUNWAY END.

HORIZONTAL SCALE 1" = 1000'
VERTICAL SCALE 1" = 100'

PROFILE - RUNWAY 19-1

RUNWAY 1 DEPARTURE SURFACE 0BSTRUCTION TABLE			
EXISTING RUNWAY 1 40:1 DEPARTURE SURFACE			
DESCRIPTION	ELEVATION - (MSL)	OBSTRUCTION	RECOMMENDATION
1. INTERSECTION OF EAST EDGE DEPARTURE SURFACE WITH 7' HIGH PERIMETER FENCE	TOP OF FENCE ELEV 460.5' 600' RT OF RWY STA 110+50	40:1 EXISTING DEPARTURE SURFACE ELEV 465.5'	5.0' CLEARANCE - NO ACTION REQUIRED
2. INTERSECTION OF EAST EDGE DEPARTURE SURFACE WITH 30' HIGH POWER LINE	TOP OF POWER LINE ELEV 487.0 880' RT OF RWY STA 121+00	40:1 EXISTING DEPARTURE SURFACE ELEV 491.8'	4.8' CLEARANCE - NO ACTION REQUIRED
3. INTERSECTION OF WEST EDGE DEPARTURE SURFACE WITH 7' HIGH PERIMETER FENCE	TOP OF FENCE ELEV 468.0' 710' LEFT OF RWY STA 115+05	40:1 EXISTING DEPARTURE SURFACE ELEV 476.9'	18.9' CLEARANCE - NO ACTION REQUIRED
4. INTERSECTION OF WEST EDGE DEPARTURE SURFACE WITH SR 95 EASTERLY NORTH BOUND LANE	446.0' ROAD ELEVATION PLUS 15.0 FT = 461.0' 750' LEFT OF RWY STA 116+50	40:1 EXISTING DEPARTURE SURFACE ELEV 480.5'	19.5' CLEARANCE - NO ACTION REQUIRED
9. INTERSECTION OF RWY CENTERLINE DEPARTURE SURFACE WITH SR 95 EASTERLY NORTH BOUND LANE	452.0' ROAD ELEVATION PLUS 15.0 FT = 467.0' RWY CENTERLINE STA 126+85	40:1 EXISTING DEPARTURE SURFACE ELEV 506.4'	39.0' CLEARANCE - NO ACTION REQUIRED
ULTIMATE RUNWAY 1 40:1 DEPARTURE SURFACE			
DESCRIPTION	ELEVATION - (MSL)	OBSTRUCTION	RECOMMENDATION
5. INTERSECTION OF EAST EDGE DEPARTURE SURFACE WITH 7' HIGH PERIMETER FENCE	TOP OF FENCE ELEV 461.0' 600' RT OF RWY STA 112+70	40:1 ULTIMATE DEPARTURE SURFACE ELEV 465.8'	4.8' CLEARANCE - NO ACTION REQUIRED
6. INTERSECTION OF EAST EDGE DEPARTURE SURFACE WITH 30' HIGH POWER LINE	TOP OF POWER LINE ELEV 486.0 865' RT OF RWY STA 122+55	40:1 ULTIMATE DEPARTURE SURFACE ELEV 490.4'	4.4' CLEARANCE - NO ACTION REQUIRED
7. INTERSECTION OF WEST EDGE DEPARTURE SURFACE WITH 7' HIGH PERIMETER FENCE	TOP OF FENCE ELEV 459.0' 672' LEFT OF RWY STA 115+55	40:1 ULTIMATE DEPARTURE SURFACE ELEV 473.0	14.0' CLEARANCE - NO ACTION REQUIRED
8. INTERSECTION OF WEST EDGE DEPARTURE SURFACE WITH SR 95 EASTERLY NORTH BOUND LANE	447.0' ROAD ELEVATION PLUS 15.0 FT = 462.0' 715' LEFT OF RWY STA 117+00	40:1 ULTIMATE DEPARTURE SURFACE ELEV 476.6'	14.6' CLEARANCE - NO ACTION REQUIRED
9. INTERSECTION OF RWY CENTERLINE DEPARTURE SURFACE WITH SR 95 EASTERLY NORTH BOUND LANE	452.0' ROAD ELEVATION PLUS 15.0 FT = 467.0' RWY CENTERLINE STA 126+85	40:1 ULTIMATE DEPARTURE SURFACE ELEV 501.2'	34.0' CLEARANCE - NO ACTION REQUIRED

NOTE:
1. ROAD ELEVATIONS RUNWAY 1 DEPARTURE SURFACE FROM AIP 3-04-0026-007 MAPPING.
2. FIFTEEN FEET ADDED TO NON INTERSTATE ROAD ELEVATIONS. SEVENTEEN FEET ADDED TO INTERSTATE ROAD ELEVATIONS. TWENTY THREE FEET ADDED TO RAILROAD TRACK ELEVATIONS. TRANSITIONAL SURFACE SLOPES ARE 7:1 UNLESS OTHERWISE INDICATED. OBSTRUCTING AREA LIMITS ARE APPROXIMATE.

LEGEND

	EXISTING
AIRFIELD PAVEMENT	
AIRPORT BOUNDARY	
OFA (OBJECT FREE AREA)	OFA
OFZ (OBSTACLE FREE ZONE)	OFZ
RPZ (RUNWAY PROTECTION ZONE)	RPZ
RSA (RUNWAY SAFETY AREA)	RSA
	ULTIMATE
AIRFIELD PAVEMENT	
AIRPORT BOUNDARY	
OFA (OBJECT FREE AREA)	OFA-U
OFZ (OBSTACLE FREE ZONE)	OFZ-U
RPZ (RUNWAY PROTECTION ZONE)	RPZ-U
RSA (RUNWAY SAFETY AREA)	RSA-U

RUNWAY 19 DEPARTURE SURFACE 0BSTRUCTION TABLE			
EXISTING RUNWAY 19 40:1 DEPARTURE SURFACE			
DESCRIPTION	ELEVATION - (MSL)	OBSTRUCTION	RECOMMENDATION
1. INTERSECTION OF WESTERLY DEPARTURE SURFACE WITH 7' HIGH PERIMETER FENCE	TOP OF FENCE ELEV 454.5' 600' LEFT OF RWY STA 36+10	40:1 EXISTING DEPARTURE SURFACE ELEV 474.5'	20.0' CLEARANCE - NO ACTION REQUIRED
2. INTERSECTION WEST EDGE DEPARTURE SURFACE WITH MOHAVE ROAD/LOCAL ROAD INTERSECTION	446.5' ROAD ELEVATION PLUS 15.0 FT = 471.5' 735' LEFT OF RWY STA 35+54	40:1 EXISTING DEPARTURE SURFACE ELEV 476.0'	4.5' CLEARANCE - NO ACTION REQUIRED
3. INTERSECTION OF WEST EDGE DEPARTURE SURFACE WITH 65' HIGH VOLTAGE POWER LINE	TOP OF POWER LINE ELEV 491.0 1040' LEFT OF RWY STA 24+35	40:1 EXISTING DEPARTURE SURFACE ELEV 504.0'	13.0' CLEARANCE - NO ACTION REQUIRED
4. INTERSECTION OF EAST EDGE DEPARTURE SURFACE WITH 7' HIGH PERIMETER FENCE	TOP OF FENCE ELEV 457.5' 600' RT OF RWY STA 40+70	40:1 EXISTING DEPARTURE SURFACE ELEV 463.1'	5.6' CLEARANCE - NO ACTION REQUIRED
5. INTERSECTION OF EAST EDGE DEPARTURE SURFACE WITH 30' TO 38' HIGH POWER LINE	TOP OF POWER POLES ELEV 482.2 870' RT OF RWY STA 30+80	40:1 EXISTING DEPARTURE SURFACE ELEV 487.8'	5.6' CLEARANCE - NO ACTION REQUIRED
6. INTERSECTION OF EAST EDGE DEPARTURE SURFACE WITH FUTURE RAILROAD SPUR	449.0' RR ELEVATION PLUS 23.0 FT = 472.0' 1,200' RT OF STA 21+55	40:1 EXISTING DEPARTURE SURFACE ELEV 510.9'	38.9' CLEARANCE - NO ACTION REQUIRED
11. INTERSECTION OF WEST EDGE DEPARTURE SURFACE WITH EXISTING AZCR RAILROAD MAINLINE	422.0' RR ELEVATION PLUS 23.0 FT = 445.0' 1,250' LEFT OF STA 18+20	40:1 EXISTING DEPARTURE SURFACE ELEV 519.3'	74.3' CLEARANCE - NO ACTION REQUIRED
ULTIMATE RUNWAY 19 40:1 DEPARTURE SURFACE			
DESCRIPTION	ELEVATION - (MSL)	OBSTRUCTION	RECOMMENDATION
7. INTERSECTION OF WEST EDGE DEPARTURE SURFACE WITH FUTURE 7' HIGH PERIMETER FENCE	TOP OF FENCE ELEV 451.0' 600' LEFT OF RWY STA 30+70	40:1 ULTIMATE DEPARTURE SURFACE ELEV 461.0'	10.0' CLEARANCE - NO ACTION REQUIRED
8. INTERSECTION OF WEST EDGE DEPARTURE SURFACE WITH 30' TO 38' HIGH POWER LINE	TOP OF POWER POLES ELEV 464.3 810' LEFT OF RWY STA 22+90	40:1 ULTIMATE DEPARTURE SURFACE ELEV 480.6'	16.3' CLEARANCE - NO ACTION REQUIRED
9. INTERSECTION OF EAST EDGE DEPARTURE SURFACE WITH 30' TO 38' HIGH POWER LINE	TOP OF POWER POLES ELEV 486.5 820' RT OF RWY STA 22+70	40:1 ULTIMATE DEPARTURE SURFACE ELEV 481.0	5.5' ENCROACHMENT - RELOCATE OR BURY POWER LINE
10. INTERSECTION OF EAST EDGE DEPARTURE SURFACE WITH FUTURE RAILROAD SPUR	442.5 RR ELEVATION PLUS 23.0 FT = 465.5' 966' RT OF RWY STA 16+43	40:1 ULTIMATE DEPARTURE SURFACE ELEV 496.7'	31.2' CLEARANCE - NO ACTION REQUIRED
12. INTERSECTION OF WEST EDGE DEPARTURE SURFACE WITH EXISTING AZCR RAILROAD MAINLINE	422.0' RR ELEVATION PLUS 23.0 FT = 445.0' 980' LEFT OF STA 16+20	40:1 ULTIMATE DEPARTURE SURFACE ELEV 497.3'	52.3' CLEARANCE - NO ACTION REQUIRED

VERIFY SCALE!

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MODIFY SCALE ACCORDINGLY!

REVISIONS				REVISIONS			
NO.	DESCRIPTION	DATE	BY	NO.	DESCRIPTION	DATE	BY
5	SW GAS LINE RELOCATED OFF AIRPORT	11/08	MMI				
4	UPDATE AIP 3-04-0026-009 & 010 CONSTRUCTION	08/07	MMI	9	AIRPORT MASTER PLAN & ALP UPDATE	12/15	MMI
3	ALP REPORT & ALP GENERAL UPDATE	12/03	MMI	8	UPDATE AIP 3-04-0026-14,16,17&19 CONSTRUCTION	09/13	MMI
2	ALP REVALIDATION	8/15/01	URS	7	UPDATE AIP 3-04-0026-011 & 012 CONSTRUCTION	08/09	MMI
1	AIRPORT MASTER PLAN UPDATE	4/28/98	URS	6	ALP REVALIDATION	5/28/09	MMI

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AVI SUQUILLA AIRPORT
AIRPORT LAYOUT PLAN
PARKER ARIZONA

RUNWAY 19 AND RUNWAY 1 DEPARTURE SURFACE DRAWING

PROJECT NUMBER 8405.005
SHEET NUMBER 09 OF 13
DRAWING NUMBER 09

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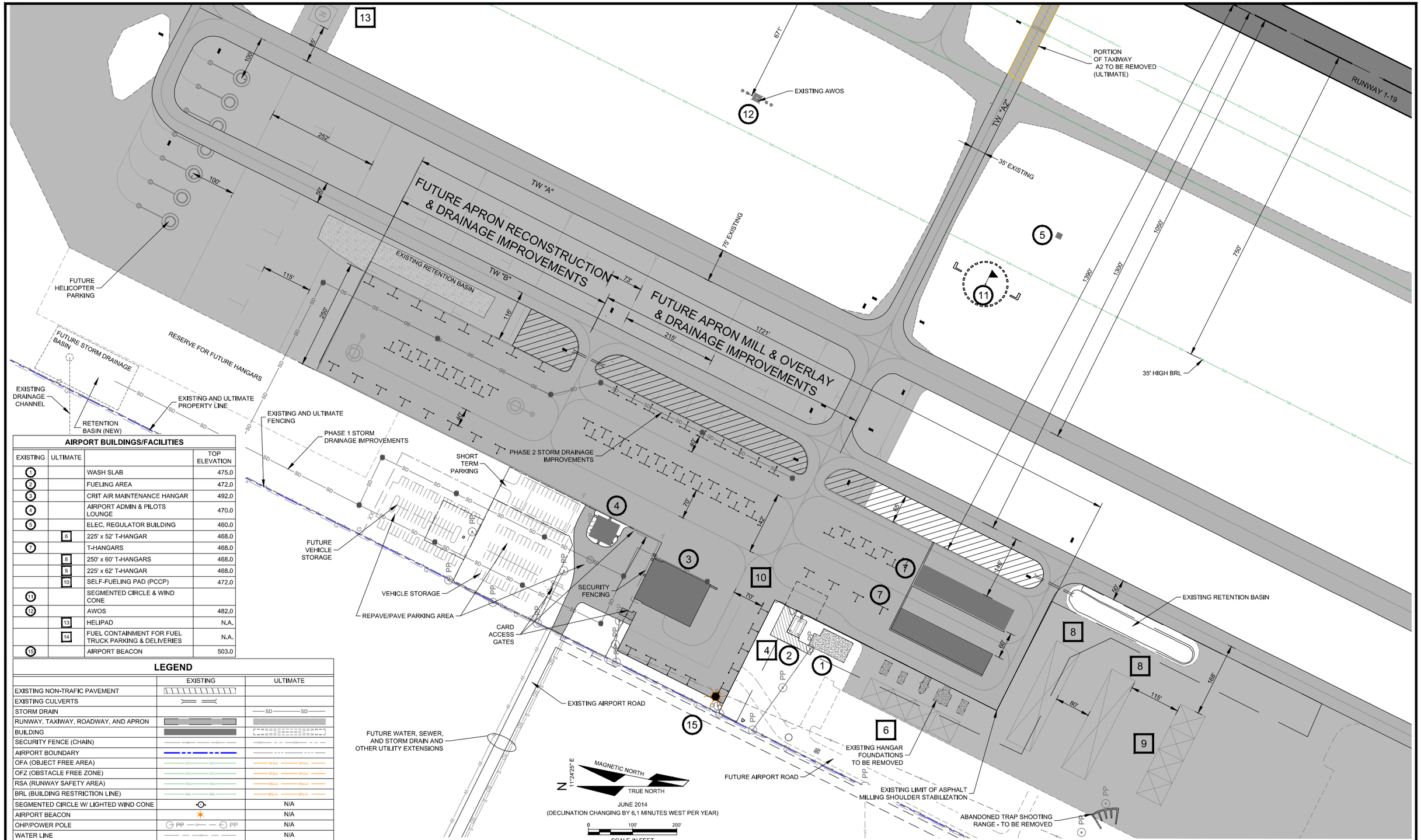

AIRPORT BUILDINGS/FACILITIES			
EXISTING	ULTIMATE		TOP ELEVATION
1		WASH SLAB	475.0
2		FUELING AREA	472.0
3		CRIT AIR MAINTENANCE HANGAR	492.0
4		AIRPORT ADMIN & PILOTS LOUNGE	470.0
5		ELEC. REGULATOR BUILDING	460.0
	6	225' x 52' T-HANGAR	468.0
7		T-HANGARS	468.0
	8	250' x 60' T-HANGARS	468.0
	9	225' x 62' T-HANGAR	468.0
	10	SELF-FUELING PAD (PCCP)	472.0
11		SEGMENTED CIRCLE & WIND CONE	
12		AWOS	482.0
	13	HELIPAD	N.A.
	14	FUEL CONTAINMENT FOR FUEL TRUCK PARKING & DELIVERIES	N.A.
15		AIRPORT BEACON	503.0

LEGEND		
	EXISTING	ULTIMATE
EXISTING NON-TRAFIC PAVEMENT		
EXISTING CULVERTS		
STORM DRAIN		SD SD
RUNWAY, TAXIWAY, ROADWAY, AND APRON		
BUILDING		
SECURITY FENCE (CHAIN)		
AIRPORT BOUNDARY		
OFA (OBJECT FREE AREA)	OFA OFA	OFA(U) OFA(U)
OFZ (OBSTACLE FREE ZONE)	OFZ OFZ	OFZ(U) OFZ(U)
RSA (RUNWAY SAFETY AREA)	RSA RSA	RSA(U) RSA(U)
BRL (BUILDING RESTRICTION LINE)	BRL BRL	BRL(U) BRL(U)
SEGMENTED CIRCLE W/ LIGHTED WIND CONE		N/A
AIRPORT BEACON		N/A
OHP/POWER POLE	PP PP	N/A
WATER LINE	W W	N/A
GAS LINE	G G	N/A

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PARKER — AVI SUQUILLA AIRPORT
AIRPORT LAYOUT PLAN — ARIZONA

TERMINAL AREA DRAWING

PROJECT NUMBER 8405.005

SHEET NUMBER 10 OF 13

DRAWING NUMBER 10

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LEGEND

	EXISTING	ULTIMATE
RUNWAY, TAXIWAY, ROADWAY, AND APRON		
BUILDING		
SECURITY FENCE (CHAIN)		
AIRPORT BOUNDARY		
RUNWAY THRESHOLD LIGHTS		
RUNWAY END IDENTIFIER LIGHTS	N/A	
OFA (OBJECT FREE AREA)		
OFZ (OBSTACLE FREE ZONE)		
RPZ (RUNWAY PROTECTION ZONE)		
RSA (RUNWAY SAFETY AREA)		
BRL (BUILDING RESTRICTION LINE)		
SEGMENTED CIRCLE W/ LIGHTED WIND CONE		N/A
LIGHTED SUPPLEMENTAL WIND CONE		
AIRPORT BEACON		N/A
AIRPORT REFERENCE POINT (ARP)		N/A
AWOS		N/A
OHP/POWER POLE		N/A
PAPI-4		
ULTIMATE MALSR		
AIR OPERATIONS		
BUSINESS PARK/LIGHT INDUSTRY		
GOVERNMENT/INSTITUTIONAL		
COMMERCIAL		
RAILROAD		

NOTES

1. NOISE CONTOURS ARE FROM 2006 ENVIRONMENTAL ASSESSMENT FOR RUNWAY 1-19 RELOCATION.
2. DNL NOISE CONTOURS ARE FOR YEAR 2025.

N 11°24'25" E
MAGNETIC NORTH
TRUE NORTH

JUNE 2014
(DECLINATION CHANGING BY 6.1 MINUTES WEST PER YEAR)

0 450' 900'
SCALE IN FEET
1"=450'

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AVI SUQUILLA AIRPORT
AIRPORT LAYOUT PLAN

PARKER ARIZONA

LAND USE DRAWING AND NOISE CONTOUR DRAWING

PROJECT NUMBER 8405.005

SHEET NUMBER 11 OF 13

DRAWING NUMBER 11

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PARCEL	ACRES	LOCATION	PRESENT/PREVIOUS OWNER	TRIBAL RESOLUTION	RESOLUTION DATE	INTEREST TYPE	FEDERAL AGREEMENT
1	255.2	SECTION 5, 6, 7 T9N, R19W; SECTION 31, 31 T10N, R19W	AVI SUQUILLA AIRPORT/CRIT	97-03	5-9-2003	DEDICATED	AIP 3-04-0026-05
2	231.8	SECTION 5, 6, 7 T9N, R19W; SECTION 32 T10N, R19W	AVI SUQUILLA AIRPORT/CRIT	97-03	5-9-2003	DEDICATED	AIP 3-04-0026-07
3	256.5	SECTION 5, 6, 7, 8 T9N, R19W; SECTION 32 T10N, R19W	AVI SUQUILLA AIRPORT/CRIT	X	X	EASEMENT	AIP 3-04-0026-10
4	41.7	SECTION 7 AND 8 T9N, R19W	CRIT	X	X	FUTURE DEDICATION	N/A

LAND INTEREST TYPE NOTES

"DEDICATED" IS TRIBAL TRUST LAND DEDICATED FOR AIRPORT PURPOSES. "EASEMENT" IS TRIBAL TRUST LAND DEDICATED TO THE AIRPORT TO PROVIDE LATERAL LAND USE RESTRICTIONS PARALLEL TO RUNWAY 1-19 AND AIRSPACE AND LAND USE RESTRICTIONS IN THE RUNWAY 19 AND RUNWAY 1 RUNWAY PROTECTION ZONES (RPZ), AS DESCRIBED ABOVE.

EXTERIOR BOUNDARY DESCRIPTIONS - AVI SUQUILLA AIRPORT

ATTACHED

PARCEL 3 RUNWAY PROTECTION ZONE (RPZ) LAND USE RESTRICTIONS - RUNWAY 19 & RUNWAY 1

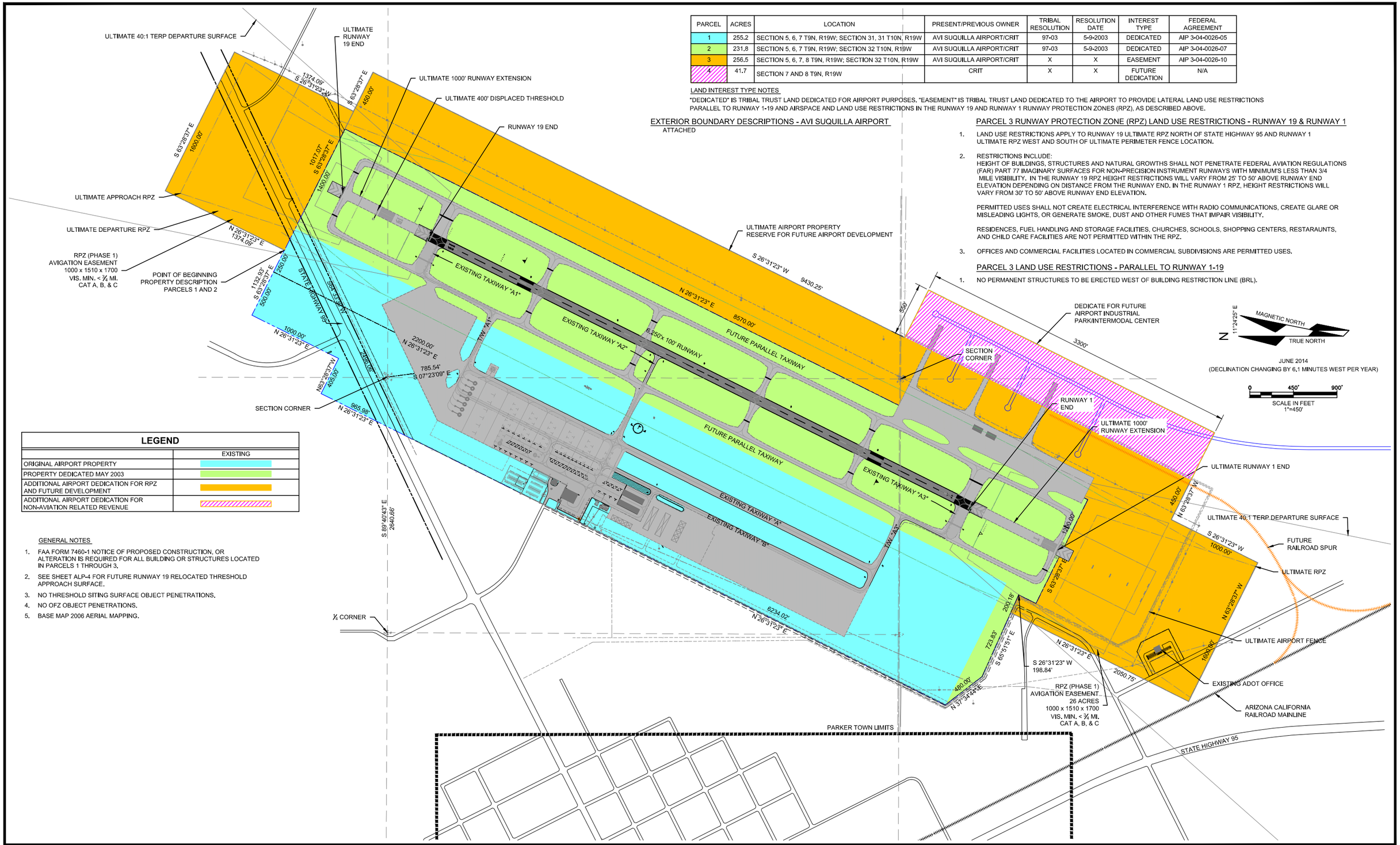
1. LAND USE RESTRICTIONS APPLY TO RUNWAY 19 ULTIMATE RPZ NORTH OF STATE HIGHWAY 95 AND RUNWAY 1 ULTIMATE RPZ WEST AND SOUTH OF ULTIMATE PERIMETER FENCE LOCATION.
2. RESTRICTIONS INCLUDE:
   HEIGHT OF BUILDINGS, STRUCTURES AND NATURAL GROWTHS SHALL NOT PENETRATE FEDERAL AVIATION REGULATIONS (FAR) PART 77 IMAGINARY SURFACES FOR NON-PRECISION INSTRUMENT RUNWAYS WITH MINIMUM'S LESS THAN 3/4 MILE VISIBILITY. IN THE RUNWAY 19 RPZ HEIGHT RESTRICTIONS WILL VARY FROM 25' TO 50' ABOVE RUNWAY END ELEVATION DEPENDING ON DISTANCE FROM THE RUNWAY END. IN THE RUNWAY 1 RPZ, HEIGHT RESTRICTIONS WILL VARY FROM 30' TO 50' ABOVE RUNWAY END ELEVATION.

   PERMITTED USES SHALL NOT CREATE ELECTRICAL INTERFERENCE WITH RADIO COMMUNICATIONS, CREATE GLARE OR MISLEADING LIGHTS, OR GENERATE SMOKE, DUST AND OTHER FUMES THAT IMPAIR VISIBILITY.

   RESIDENCES, FUEL HANDLING AND STORAGE FACILITIES, CHURCHES, SCHOOLS, SHOPPING CENTERS, RESTARAUNTS, AND CHILD CARE FACILITIES ARE NOT PERMITTED WITHIN THE RPZ.
3. OFFICES AND COMMERCIAL FACILITIES LOCATED IN COMMERCIAL SUBDIVISIONS ARE PERMITTED USES.

PARCEL 3 LAND USE RESTRICTIONS - PARALLEL TO RUNWAY 1-19

1. NO PERMANENT STRUCTURES TO BE ERECTED WEST OF BUILDING RESTRICTION LINE (BRL).



LEGEND	
	EXISTING
ORIGINAL AIRPORT PROPERTY	
PROPERTY DEDICATED MAY 2003	
ADDITIONAL AIRPORT DEDICATION FOR RPZ AND FUTURE DEVELOPMENT	
ADDITIONAL AIRPORT DEDICATION FOR NON-AVIATION RELATED REVENUE	

GENERAL NOTES

1. FAA FORM 7460-1 NOTICE OF PROPOSED CONSTRUCTION, OR ALTERATION IS REQUIRED FOR ALL BUILDING OR STRUCTURES LOCATED IN PARCELS 1 THROUGH 3.
2. SEE SHEET ALP-4 FOR FUTURE RUNWAY 19 RELOCATED THRESHOLD APPROACH SURFACE.
3. NO THRESHOLD SITING SURFACE OBJECT PENETRATIONS.
4. NO OFZ OBJECT PENETRATIONS.
5. BASE MAP 2006 AERIAL MAPPING.

VERIFY SCALE!

THESE PRINTS MAY BE REDUCED, LINE BELOW MEASURES ONE INCH ON ORIGINAL DRAWING.

MODIFY SCALE ACCORDINGLY!

REVISIONS NO.	DESCRIPTION	DATE	BY
5	SW GAS LINE RELOCATED OFF AIRPORT	11/08	MMI
4	UPDATE AIP 3-04-0026-009 & 010 CONSTRUCTION	08/07	MMI
3	ALP REPORT & ALP GENERAL UPDATE	12/03	MMI
2	ALP REVALIDATION	8/15/01	URS
1	AIRPORT MASTER PLAN UPDATE	4/28/98	URS

REVISIONS NO.	DESCRIPTION	DATE	BY
9	AIRPORT MASTER PLAN & ALP UPDATE	12/15	MMI
8	UPDATE AIP 3-04-0026-14,16,17&19 CONSTRUCTION	09/13	MMI
7	UPDATE AIP 3-04-0026-011 & 012 CONSTRUCTION	08/09	MMI
6	ALP REVALIDATION	5/28/09	MMI

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PARKER — AVI SUQUILLA AIRPORT — AIRPORT LAYOUT PLAN — ARIZONA

EXHIBIT A - AIRPORT PROPERTY MAP

PROJECT NUMBER 8405.005

SHEET NUMBER 12 OF 13

DRAWING NUMBER 12

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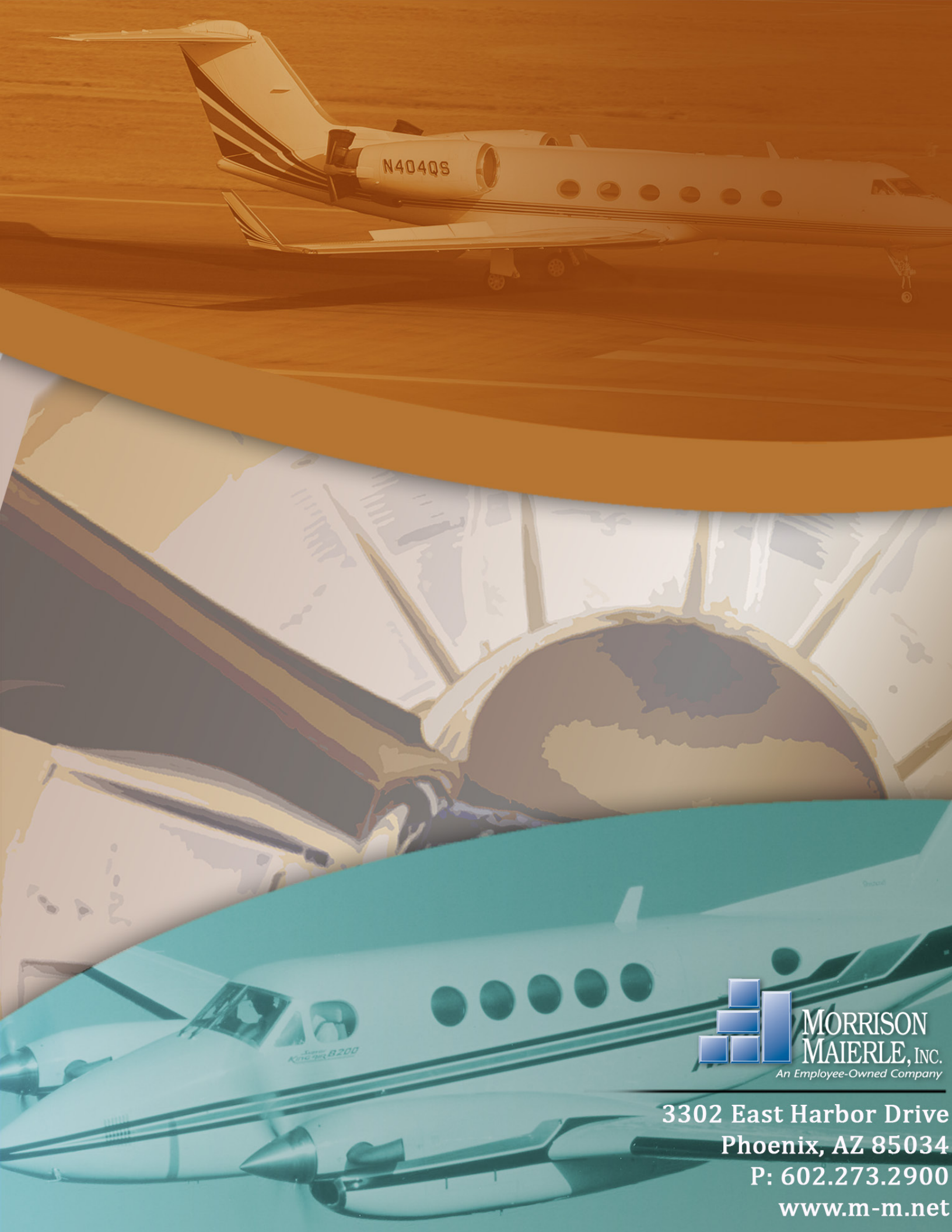

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