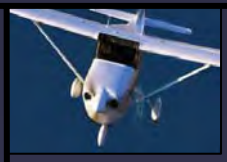

Colorado City Municipal Airport

AIRPORT MASTER PLAN

Final Report
December 15, 2008

ARMSTRONG CONSULTANTS, Inc.
airport engineering and planning services

The preparation of this document may have been supported, in part, through the Airport Improvement Program financial assistance from the Federal Aviation Administration (3-04-0038-13) as provided under Title 49 U.S.C., Section 47104. The contents do not necessarily reflect the official views or policy of the FAA. Acceptance of this report by the FAA does not in any way constitute a commitment on the part of the United States to participate in any development depicted therein nor does it indicate that the proposed development is environmentally acceptable or would have justification in accordance with the appropriate public laws.

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Introduction

Colorado City Municipal Airport
Airport Master Plan

Introduction

INTRODUCTION

The City of Colorado City, Arizona, as the Airport Sponsor, is continuing its effort to plan for future development of the Colorado City Municipal Airport. This development is designed to enhance air and ground operations, improve safety, provide better airport services and stimulate the local economy through business growth potential.

FIGURE 1 TERMINAL BUILDING AT COLORADO CITY

PURPOSE

An airport master plan document describes and depicts the overall concept for the long-term development of an airport. It presents the concepts graphically in the airport layout plan (ALP) drawing set and reports the data and logic upon on which the concept is based in the airport master plan (AMP) report. The goal of the master plan report is to provide direction for future airport development that will satisfy aviation demand in a financially feasible manner and meet the needs of the community with respect to the airport.

OBJECTIVES

The primary objectives of the airport master plan are to produce an attainable phased development plan concept that will satisfy the airport needs in a safe, efficient, economical and environmentally sound manner. The plan serves as a guide to decision makers, airport users and the general public for implementing airport development actions while considering both airport and community concerns and objectives. There are a number of objectives that Colorado City would like to achieve as a result of this master plan.

Objectives of the airport master plan include:

- Document the issues that the proposed development will address.
- Justify the proposed development through the technical, economic and environmental investigation of concepts and alternatives.
- Provide an effective graphic presentation of the development of the airport and anticipated land uses in the vicinity of the airport.
- Establish a realistic schedule for the implementation of the development proposed in the plan, particularly the short-term capital improvement program.
- Propose an achievable financial plan to support the implementation schedule.
- Provide sufficient project definition and detail for subsequent environmental evaluations that may be required before the project is approved.
- Present a plan that adequately addresses the issues and satisfies local, state and Federal regulations.
- Document policies and future aeronautical demand to support municipal or local deliberations on spending, debt, land use controls and other policies necessary to preserve the integrity of the airport and its surroundings.
- Set the stage and establish the framework for a continuing planning process that will monitor key conditions and permit changes in plan recommendations as required.

MASTER PLAN PROCESS AND SCHEDULE

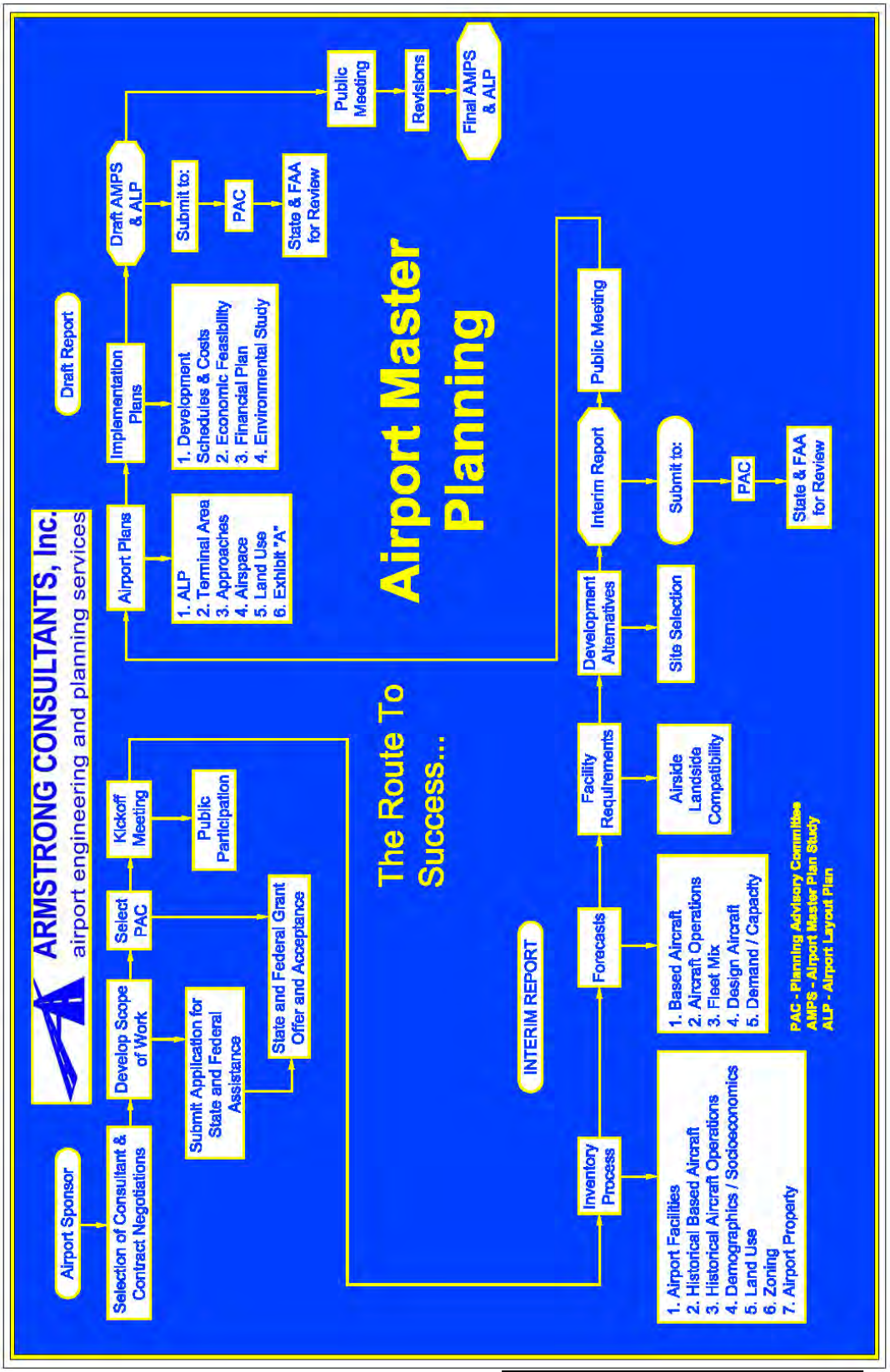


FIGURE 2 MASTER PLANNING PROCESS

Airport planning takes place at a national, state, regional and local level. These plans are formulated on the basis of overall transportation demands and are coordinated with other transportation planning and comprehensive land use planning. The National Plan of Integrated Airport Systems (NPIAS) is a ten-year plan continually updated and published by the Federal Aviation Administration (FAA). This publication lists developments at public use airports that are considered to be of national interest and thus eligible for financial assistance for airport planning and development under the Airport and Airway Improvement Act of 1982. Statewide Integrated Airport Systems Planning identifies the general location and characteristics of new airports and the general expansion needs of existing airports to meet statewide air transportation goals. This planning is performed by state transportation or aviation planning agencies. Regional Integrated Airport Systems Planning identifies airport needs for a large regional or metropolitan area. Needs are stated in general terms and incorporated into statewide systems plans. Airport Master Plans are prepared by the operators of individual airports and are usually completed with the assistance of consultants. The Town of Colorado City is completing this master plan with the assistance of Armstrong Consultants, Inc. The airport master planning process involves collecting data, forecasting demand, determining facility requirements, studying various alternatives and developing plans and schedules. The flow chart in Figure 2 depicts the steps in the master planning process. This process will take into consideration the needs and concerns of the airport sponsor, airport tenants and users, as well as the general public.

PLANNING ADVISORY COMMITTEE

The Colorado City Municipal Airport Planning Advisory Committee (PAC) consists of members representing varied interests in the airport and the community. Their involvement throughout the master planning process will help to keep interested parties informed and will foster consensus for future development actions.

PAC REPRESENTATIVES

- *Colorado City – David Darger, Town Manager*
- *Colorado City Municipal Airport – LaDell Bistline Jr.*
- *Colorado City – Terrill Johnson-Mayor*
- *Colorado City – Floyd Black*
- *Airport Advisory Board – Ron Darger*
- *Airport Advisory Board – Daniel Barlow*
- *Airport Advisory Board – Larry Johnson*
- *Airport Advisory Board – Carvel Nielson*
- *Arizona Aeronautics Division – Ken Potts*
- *Federal Aviation Administration – Jasmine Evains*
- *Bureau of Land Management – Lorraine Christian*

Chapter One
Inventory

Colorado City Municipal Airport
Airport Master Plan

Chapter One
Inventory

INTRODUCTION AND AIRPORT HISTORY

The Colorado City Municipal Airport (AZC) is a general aviation airport located in northwestern Arizona, approximately three miles southwest of Colorado City, Arizona. The airport is 29 nautical miles east-southeast of St. George, Utah.

The airport was initially constructed in the 1960's and originally consisted of compacted dirt runways. The original runways were abandoned in 1991 when the existing paved runways were developed. The land was originally leased from the Bureau of Land Management (BLM) by Benjamin G. Bistline. In 1978 the lease held by Benjamin G. Bistline was transferred to Mohave County. In 1988 the lease held by Mohave County was transferred to Colorado City. In 1991 Colorado City obtained the ownership of the airport fee simple from the BLM.

Colorado City is located in an area known as the Arizona Strip. The Arizona Strip includes more than five million acres of land and is referred to as the gateway to the North Rim of the Grand Canyon. Colorado City was founded in 1908 and incorporated in 1985. Colorado City is also located immediately south of Hildale, Utah and the two communities share many services.

AIRPORT GRANT HISTORY

The original Airport Master Plan was completed in 1982 and this Airport Master Plan replaces the 1999 Airport Master Plan Update and subsequent revisions. A federal and state grant history for the capital improvements at the Colorado City Municipal Airport is provided in Table 1-1. In Arizona, under the most recent FAA Airport Improvement Program legislation (Vision 100), capital improvement projects are typically funded at 95 percent Federal Aviation Administration (FAA), 2.5 percent State of Arizona and 2.5 percent by the sponsor.

SERVICE LEVEL

The airport service level reflects the type of public use the airport provides to the community. The service level also reflects the funding categories established by Congress to assist in airport development. The following list identifies the different types of airport service levels:

- **Commercial service** airports are public airports that enplane 2,500 or more passengers annually and receive aircraft offering scheduled passenger service. Commercial service airports are either:

  Primary- an airport that enplanes more than 10,000 passengers annually; or

  Nonprimary- an airport that enplanes between 2,500 and 10,000 passengers annually.

- **General Aviation Airports** while not specifically defined are considered to be airports not classified as commercial service. General aviation airports include:

Reliever- an airport designated by the FAA as having the function of relieving congestion at a commercial service airport and providing more general aviation access to the overall community. Privately owned airports may be identified as reliever airports.

Privately owned public-use- airports that enplane 2,500 or more passengers annually and receive scheduled passenger service are also classified as general aviation because they do not meet the criteria for commercial service.

Other General Aviation- are airports that are largely intended to serve the needs of general aviation users (users who conduct non-military operations not involving the carriage of passengers or cargo for hire or compensation.)

Colorado City Municipal Airport is listed in the NPIAS as a general aviation airport. The airport meets all of the NPIAS criteria for a general aviation airport.

AIRPORT ROLE

The Colorado City Municipal Airport provides access to the Colorado City and Arizona Strip area for a variety of users. The geographic location of the Colorado City Municipal Airport near the communities of Colorado City and Hildale allows easy access to users throughout the entire area.

The Colorado City Municipal Airport is currently an Airport Reference Code (ARC) B-II airport serving predominately single engine piston, multi-engine piston and turbo prop aircraft, with some use by light turbojet aircraft. Users include:

Air Medivac Services: Air medivac provides essential emergency medical transport in life threatening situations and patient transfers from clinics to higher level care facilities throughout the Colorado City/Hildale area. These users utilize a variety of multi-engine turboprop and turbojet aircraft.

Business/Recreational Transportation: These users desire the utility and flexibility offered by general aviation aircraft. The types of aircraft utilized for personal and business transportation varies with individual preference and resources and generally include a mix of single-engine, multi-engine and turbojet aircraft.

Flight Training: Flight schools from other airports in the state and surrounding region have students perform cross-country flights to Colorado City Municipal Airport. Flight training includes instructional flying to obtain a pilot's license or proficiency checks including biennial flight reviews. The majority of aircraft used for flight instruction include single and multi engine piston.

TABLE 1-1 GRANT HISTORY

FAA Grant No. & Year	Description of Work	Federal Amount
001-1989	Conduct Airport Master Plan Study	$36,424
002-1990	Construct Runway	$500,000
	Construct Apron	$12,064
	Construct Apron	$36,536
	Acquire Security Equipment	$94,500
	Construct Runway	$137,310
	Acquire Land for Development	$79,200
	Improve Access Road	$45,000
	Grant Total	**$686,161**
003-1991	Construct Apron	$130,257
	Install Runway Lighting	$84,677
	Install Apron Lighting	$24,147
	Grant Total	**$239,081**
004-1991	Install Runway Vertical/Visual Guidance System	$15,000
	Install Weather Reporting Equipment	$80,000
	Install Runway Vertical/Visual Guidance System	$30,000
	Grant Total	**$200,000**
005-1993	Extend Runway	$305,903
	Expand Apron	$207,000
	Grant Total	**$512,903**
006-2001	Rehabilitate Runway	$35,694
	Construct Taxiway	$120,200
	Acquire Land for Development	$9,106
	Grant Total	**$165,000**
007-2002	Construct Taxiway	$539,508
008-2003	Improve Utilities	$147,216
010-2005	Conduct Environmental Study	$57,000
011-2007	Install Apron Lighting	$50,000
	Install Perimeter Fencing	$261,386
	Grant Total	**$311,386**
012-2007	Update Airport Master Plan Study	$100,000
	TOTAL FAA AMOUNTS	**$2,958,258**
State Grant No. & Year		State Amount
N729-1997	Security Lighting, NAVAIDs, Master Plan Update	$180,000
9004-1998	Surface Runway, Taxiway, Apron, Access Road	$218,250
2F35-2001	Rehab RW 11/29, acquire 160 acres, Construct TW A and B phase I, Improve RW 11/29 RSA	$8,100
3F51-2003	Construct TW Phase II	$36,600
4F18-2003	Rehabilitate airport electrical service entrance and misc. electrical improvements	$7,363
6F63-2007	Conduct Environmental Assessment for land acquisition of 134 acres	$1,500
8F52-2007	Install perimeter fencing 2,000 linear feet, apron lighting, rotating beacon and tower (Phase II)	$8,195
8F94-2008	Update Airport Master Plan	$2,632
	TOTAL STATE AMOUNTS	**$462,640**

SOURCE: FAA AND ARIZONA DEPARTMENT OF TRANSPORTATION (ADOT)

AIRPORT LOCATION

The Colorado City Municipal Airport is located in the northwestern portion of Arizona adjacent to the Utah State border in northern Mohave County. The airport is situated in portions of Sections 11, 12, 13 and 14 Township 41 North, Range 7 West of the Gila and Salt River Meridian. Figure 1-1 provides a graphic depiction of the location of Colorado City. The airport is designated by the FAA as Site Number 00660.7A and is a public airport. The airport location is Latitude 36° 57' 36.4" North and Longitude 113° 00' 49.6" West according to FAA Form 5010-1, Airport Master Record. The airport elevation is 4,871 feet and the airport currently has a B-II Airport Reference Code.

FIGURE 1-1 LOCATION MAP

Source: Map Quest, 2007

AIRPORT PROPERTY

The existing airport property line encompasses approximately 204 acres according to the airport deeds. Colorado City is in the process of an environmental assessment to obtain additional land for approach protection. The additional land would be acquired from the BLM and private land owners.

LAND USE PLANNING

The existing land use zoning for Colorado City is shown in Figure 1-2. The airport is located adjacent to rangeland/agricultural to the north, west and south. The east side of the airport consists of some residential and commercial land uses. The airport is surrounded by land uses that are considered compatible with the airport. The FAA recommends that airport sponsors protect the areas surrounding an airport from incompatible development. Incompatible development includes those land uses which would be sensitive to aircraft noise or over flight, such as residences, schools, churches and hospitals and those uses which could attract wildlife and cause a hazard to aircraft operations such as landfills, ponds and wastewater treatment facilities. A recommended Compatible Land Use and Height Restriction Plan is included as part of this Master Plan.

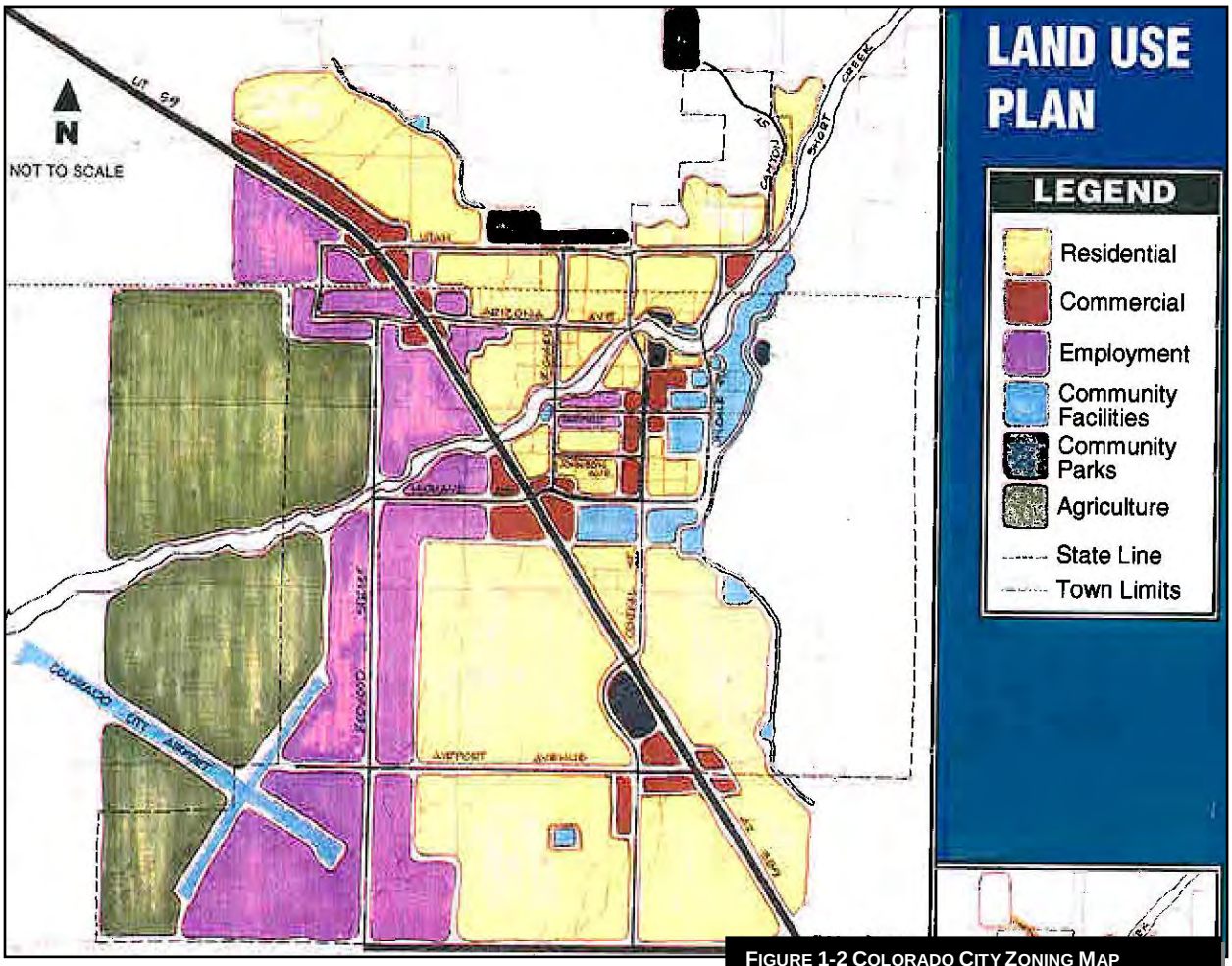


FIGURE 1-2 COLORADO CITY ZONING MAP

REGIONAL SETTING

Colorado City is located in the Arizona Strip at an elevation of approximately 4,870 feet. Colorado City is combined with a mild climate and proximity to a wealth of outdoor recreation year round. Areas of interest include House Rock Valley, Cane Beds, Pipe Springs Navajo Trail, Zion National Park and the Kaibab/Paiute Indian Reservation. The North Rim of the Grand Canyon is located about 100 miles south and the Kaibab Nation Forest with picnicking,

rock hunting, camping and hunting is less than 40 miles southeast of Colorado City. Colorado City is located 354 highway miles northwest of Phoenix.

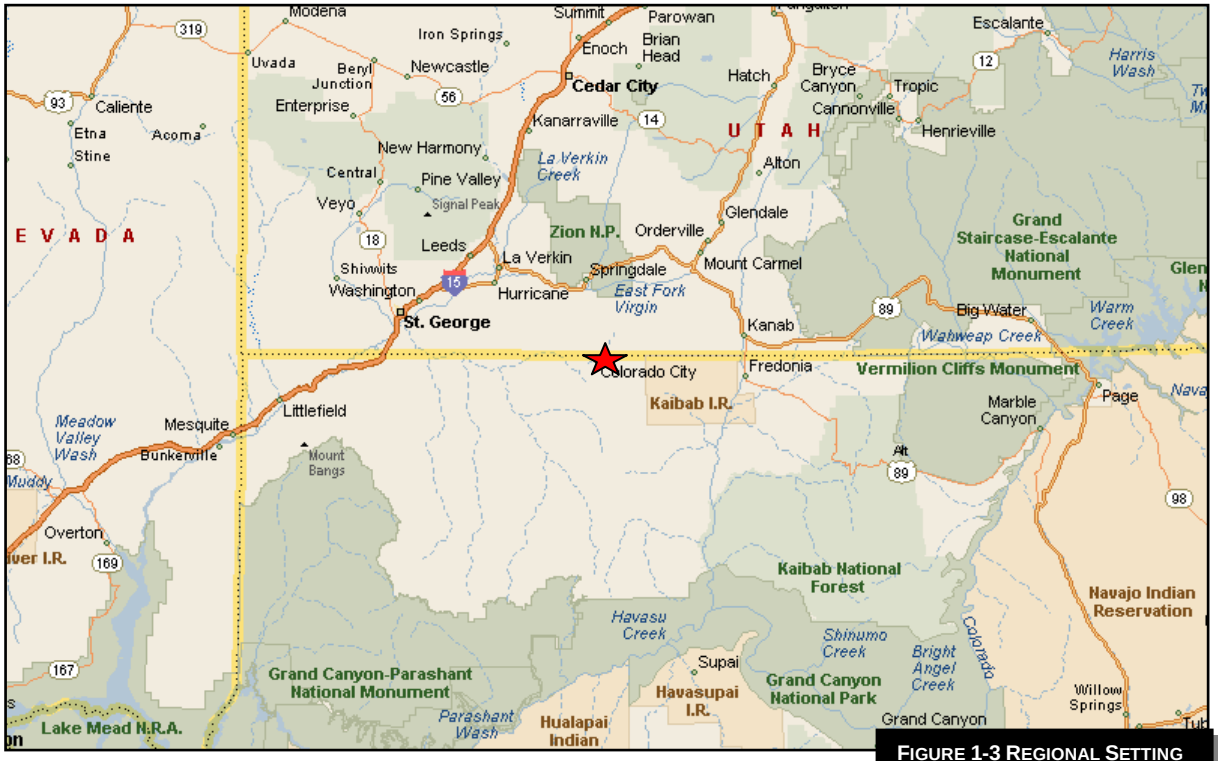


FIGURE 1-3 REGIONAL SETTING

SOCIOECONOMIC CHARACTERISTICS

Examining the specific socioeconomic characteristics of Colorado City and Mohave County will help determine the factors influencing aviation activity in the area and the extent to which aviation facility developments are needed in Colorado City. Characteristics, such as employment, demographic patterns and income, will help in establishing the potential growth rate of aviation within the city and the county. In other words, by analyzing the information in this Chapter, forecasts of aviation activity can be developed. Those forecasts are provided in Chapter 2.

LOCAL PROFILE

For many years, ranching and agriculture were the primary economic focus. Ranching and agriculture have slowly changed with growth throughout the community. The largest single employer is the school district however regional construction and manufacturing plants provide most of the jobs in the community. Hildale, Utah which neighbors Colorado City, Arizona has an active industrial park and service industries; these are an important part of the Colorado City economy. Most of the industrial activity takes place in Hildale and most commercial and retail is located in Colorado City.

POPULATION

As of the 2000 US Census, there were 3,334 people residing in Colorado City, 1,895 residing in Hildale and 155,032 residing in Mohave County. According to population estimates from the Arizona Department of Economic Security and the U.S. Census Bureau, these populations increased moderately from 2000 to 2006. Colorado City's population increased to 4,607,

Hildale's population increased to 1,950 and the population of the County increased to 193,035 residents in 2006. Table 1-2 shows this increasing population trend.

TABLE 1-2 POPULATION

	1990	2000	2006
Colorado City	2,426	3,334	4,607
Hildale	1,325	1,895	1,905
Mohave County	93,497	155,032	193,035
Arizona	3,665,228	5,130,632	6,166,318

Sources: US Census Bureau (August 2007)

The Arizona Department of Economic Security, Research Administration, Population Statistics Unit developed population projections for all Arizona communities, counties and the state in 2006. Population projections as shown in Table 1-3, indicate a 58 percent population increase for the State of Arizona from 2004 to 2025. The population of Colorado City is projected to increase to 6,894 by 2026 or a 50 percent increase from the current population.

TABLE 1-3 POPULATION PROJECTIONS

	2011	2016	2021	2026
Colorado City	4,980	5,677	6,320	6,894
Hildale	3,882	3,902	4,765	5,677
Mohave County	227,858	258,708	287,128	312,544
Arizona	7,186,070	8,093,110	8,945,447	9,744,463
Colorado City/Hildale	8,862	9,579	11,085	12,571

Source: Arizona Department of Economic Security, Research Administration Population Statistics Unit (2006) and the Utah Five County Association of Governments (2005)

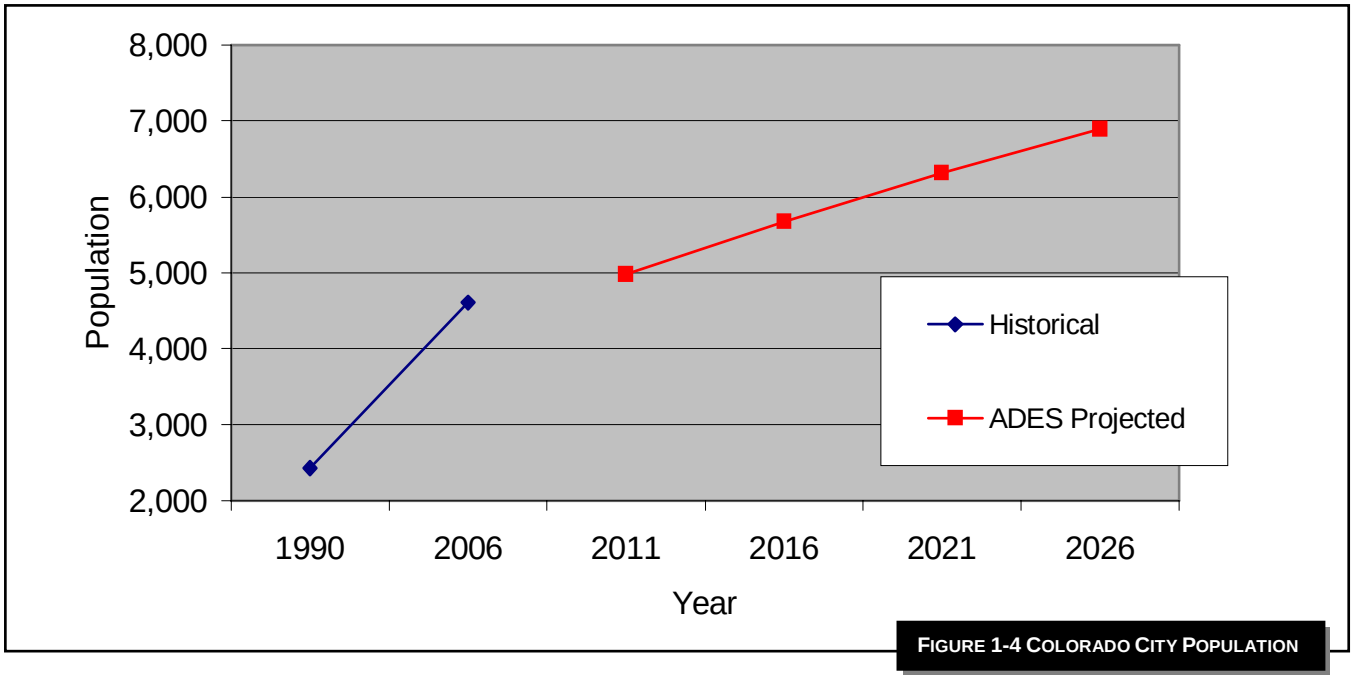


FIGURE 1-4 COLORADO CITY POPULATION

EMPLOYMENT

As stated previously, the largest employer in Colorado City is the school district according to the Arizona Department of Economic Security. The second largest employment sector in the

County is trade, transportation and utilities. Government is the third largest employment sector in the County followed by mining and construction.

According to the Arizona Department of Economic Security, the unemployment rate in Colorado City was 0.0 percent in 2000 and 2.6 percent in 2006. While the unemployment rate has increased for the community, the civilian labor force has also increased approximately 31 percent from 2000 to 2006. Employment distribution by industry for Colorado City and Hildale is shown in Table 1-4 and Figure 1-5.

TABLE 1-4 COLORADO CITY AND HILDALE EMPLOYMENT DISTRIBUTION

	Colorado City	% of Total	Hildale	% of Total
Agriculture, forestry, fishing, hunting and mining	13	1.5	9	2.0%
Construction	230	26.3	85	18.7%
Manufacturing	142	16.2	85	18.7%
Wholesale trade	13	1.5	4	0.9%
Retail trade	115	13.1	52	11.4%
Transportation, warehousing and utilities	48	5.5	19	4.2%
Information	6	0.7	2	0.4%
Finance, insurance, real estate, rental and leasing	13	1.5	14	3.1%
Professional, scientific, management, administrative and waste management services	33	3.8	17	3.7%
Educational, health and social services	141	16.1	88	19.3%
Arts, entertainment, recreation, accommodation and food services	48	5.5	21	4.6%
Other services (including public administration)	73	8.3	59	13%
Total	875	100%	455	100%

Source: U.S. Bureau of the Census, Census 2000

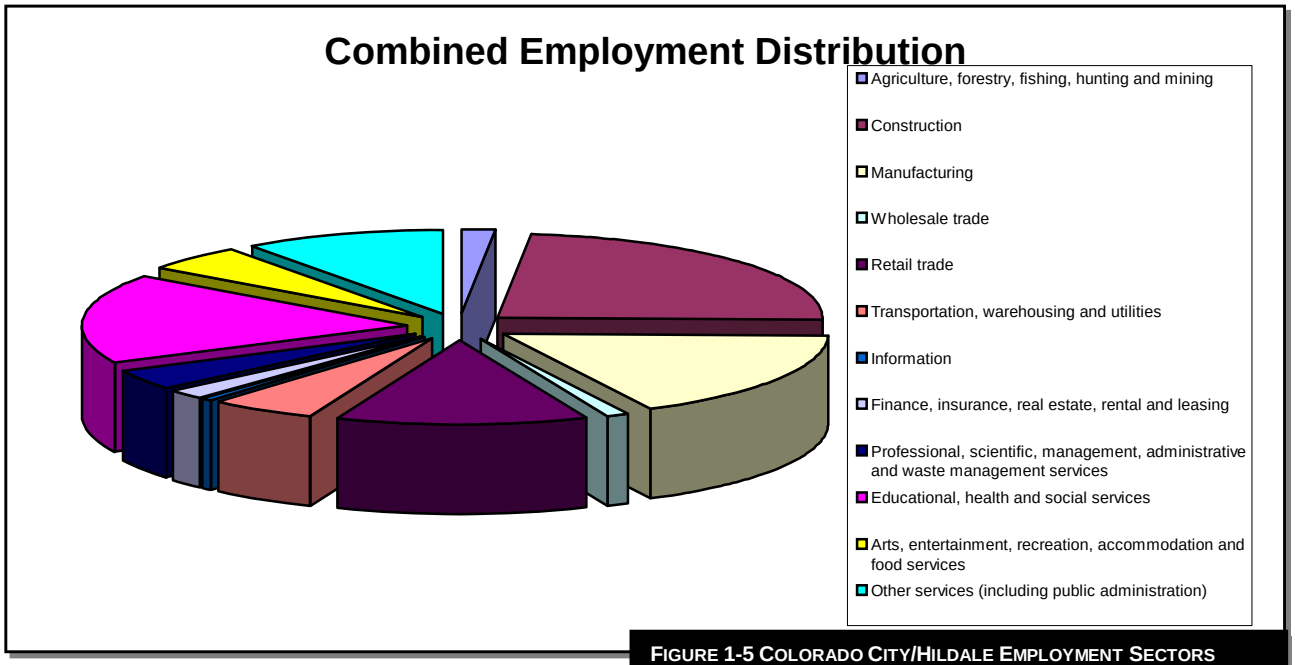


FIGURE 1-5 COLORADO CITY/HILDALE EMPLOYMENT SECTORS

INCOME

According to the 2004 US Census, the median income for a household in Mohave County was $34,126. The median household income for Colorado City was $32,826 and the median income for Hildale was $32,679. The per capita income in 1999 was $16,788 for the county, $5,293 for Colorado City and $4,782 for Hildale. The percentage of families living below the poverty line was 15.4 percent for the county, 29 percent for Colorado City and 37 percent for Hildale.

GROWTH INDICATORS

Additional growth indicators include building permits, taxable sales and net assessed valuation. Building permit data was not reported by Colorado City in 2006. According to the Arizona Tax Research Foundation, taxable sales have increased 62 percent in Colorado City from $8.6 Million in 2000 to $14 Million in 2006. Net assessed valuation of real property in Colorado City has increased from $4.5 million in 2000 to $9 million in 2006.

As shown in previous paragraphs, the socioeconomic condition of Colorado City and Hildale are strong and growing steadily. Healthy socioeconomic growth in the area will enhance the Colorado City Municipal Airport's ability to attract future aviation activity.

CERTIFICATED PILOTS AND REGISTERED AIRCRAFT

The FAA databases of certificated airmen and registered aircraft were reviewed to determine the current distribution of pilots and registered aircraft in the Colorado City/Hildale area.

TABLE 1-5 CERTIFICATED PILOTS AND REGISTERED AIRCRAFT NEAR COLORADO CITY

	Aircraft Registered	Certificated Pilots
Colorado City	3	6
Hildale	0	0

SOURCE: FAA, 2007

This data indicates that there are six certificated pilots and three aircraft registered in Colorado City, Arizona. Aircraft are not always based where they are registered, which explains why there are seven based aircraft at the Colorado City Municipal Airport.

BASED AIRCRAFT AND OPERATIONS

According to the 1999 Airport Master Plan, in 1997 there were ten based aircraft at the Colorado City Municipal Airport with an annual operations estimate of 3,000. That master plan forecasted based aircraft and operations to increase annually from these baseline numbers. However, the airport manager has been recording based aircraft and operations and reports current based aircraft and operations at approximately seven and 4,500, the based aircraft and tail numbers are listed in Appendix B. After reviewing the GCR data showing the number of instrument flight plans filed into and out of Colorado City indicated 112 operations in 2006. However this only indicates operations that were filed under instrument flight plans.

INVENTORY OF EXISTING AIRPORT FACILITIES

AREA AIRPORT/SERVICE AREA

An airport service area is defined by the communities and surrounding areas served by the airport facility. For example, factors such as the airport's surrounding topographical features (mountains, rivers, etc.), proximity to its users, quality of ground access, required driving time to the airport and the proximity of the facility to other airports that offer the same or similar services can all affect the size of a particular airport's service area. To define the service area for the

Colorado City Municipal Airport, the airports in the area and their specific services and facilities were reviewed.

The nearest public airport with a paved surface is located approximately 17 nautical miles northwest in Hurricane, Utah. Runway 18/36 at Hurricane is 3,410 feet long and 40 feet wide. Kanab Municipal Airport is located approximately 23 nautical miles east of Colorado City. St. George Municipal Airport in St. George, Utah is located approximately 29 nautical miles west of Colorado City. The primary service area includes the area within (20 miles-30 minute drive) of the Colorado City Municipal Airport.

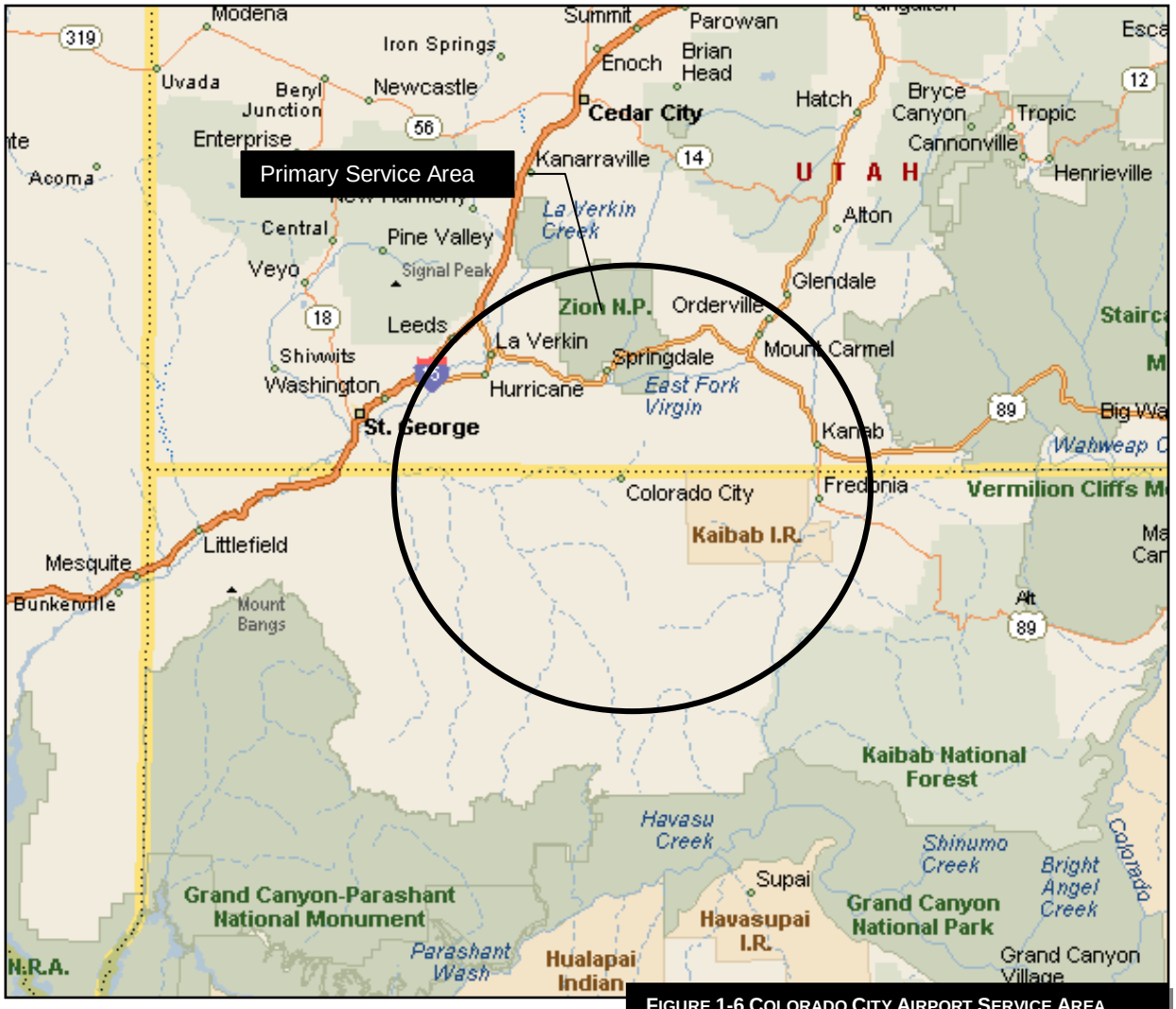


FIGURE 1-6 COLORADO CITY AIRPORT SERVICE AREA

SOURCE: MAP QUEST, 2006

TABLE 1-6 AIRPORTS SURROUNDING COLORADO CITY

	Identifier	Distance (Nautical Miles)	Distance (Highway Miles)	NPIAS Status	Runway Length(s) Width(s)	Pavement Type	Instrument Approaches	Fuel
General Dick Stout Field Airport, Hurricane, UT	1L8	17 NW	24	PVT	3,410'x40'	asphalt	None	Yes
Kanab Municipal Airport, Kanab, UT	KNB	23 E	39	GA	6,193'x75'	asphalt	GPS	Yes
St. George Municipal Airport, St. George, UT	SGU	29 W	43	OCS	6,606' x 100'	asphalt	GPS/VOR	Yes
Cedar City Regional Airport, Cedar City, UT	CDC	45 N	65	OCS	8,653'x150' 4,822'x60'	asphalt	GPS/VOR	Yes
Mesquite Airport, Mesquite, NV	67L	51 W	81	GA	5,100'x75'	asphalt	No	Yes

OCS: Other Commercial Service
GA: General Aviation
PVT: Private, not included in NPIAS
SOURCE: AIRNAV, 2007

TOPOGRAPHY AND TERRAIN

Colorado City Municipal Airport is at an elevation of 4,871 feet Mean Sea Level (MSL). Surrounding land features include the Vermilion and Shinorump Cliffs and the North Rim of the Grand Canyon. Additional land features include Zion and Bryce National Parks, Cedar Breaks National Monument, Coral Pink Sand Dunes, Utah State Park, Lake Powell, Glen Canyon and Lake Mead Recreation Areas and Historic Pipe Springs National Monument.

AIRSIDE FACILITIES

The airside facilities of an airport are described as the runway configuration, the associated taxiway system, the ramp and aircraft parking area and any visual or electronic approach navigational aids. Figure 1-7 depicts the existing airside facilities at the Colorado City Municipal Airport while Figure 1-8 shows the existing landside facilities at the airport. An overview of the Colorado City Municipal Airport facilities is provided in Table 1-8. The ADOT Aeronautics Division, in association with Applied Pavement Technology, Inc. conducted a 2006 Airport Pavement Management System Update of all airport pavements in the state of Arizona. According to the inspector comments, Runway 11/29 is in fair condition with significant quantities of longitudinal and transverse cracking identified throughout the pavement area with a PCI of 62. Runway 2/20 is in good condition with substantial amounts of longitudinal and transverse cracking observed, with a PCI of 80. Depression and patching were also recorded in an isolated area near the intersection of Runway 11/29. Taxiway B was recently constructed and is in excellent condition with a PCI of 100. The apron area is in relatively good condition with moderate amounts of longitudinal and transverse cracking along with isolated areas of depression recorded throughout the pavement area with a PCI of 81. The T-Hangar area is in relatively good condition with significant quantities of longitudinal and transverse cracking identified. Additionally, smaller amounts of alligator cracking and raveling and weathering were observed with a PCI of 76.

TABLE 1-7 PAVEMENT CONDITION INDEX (PCI)

Pavement	PCI	Rating
Runway 11/29	62	Fair
Runway 2/20	80	Good
Taxiway B	100	Excellent
Apron	81	Good
T-Hangar Area	76	Good

SOURCE: ADOT AERONAUTICS DIVISION, 2006

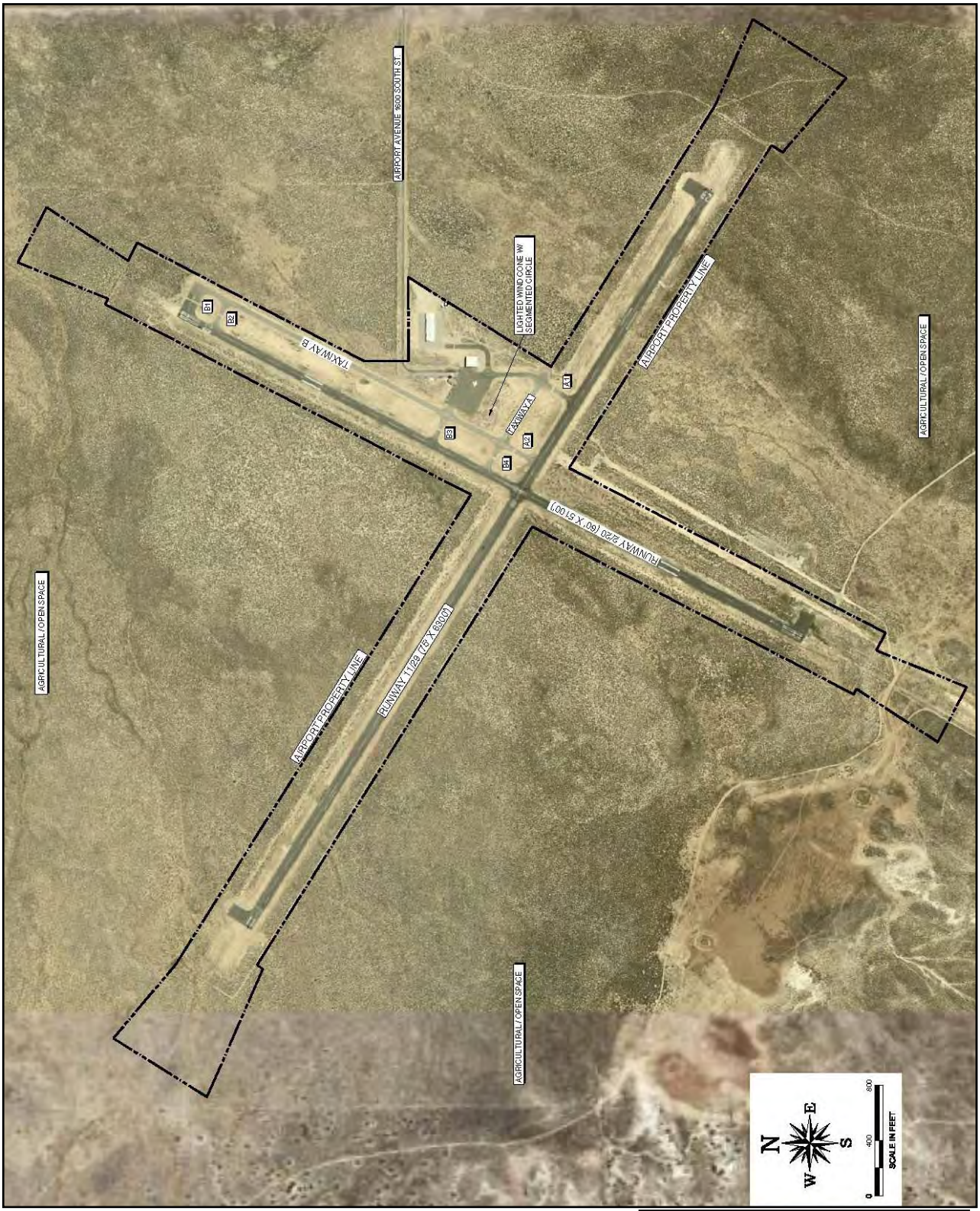


FIGURE 1-7 EXISTING AIRSIDE FACILITIES

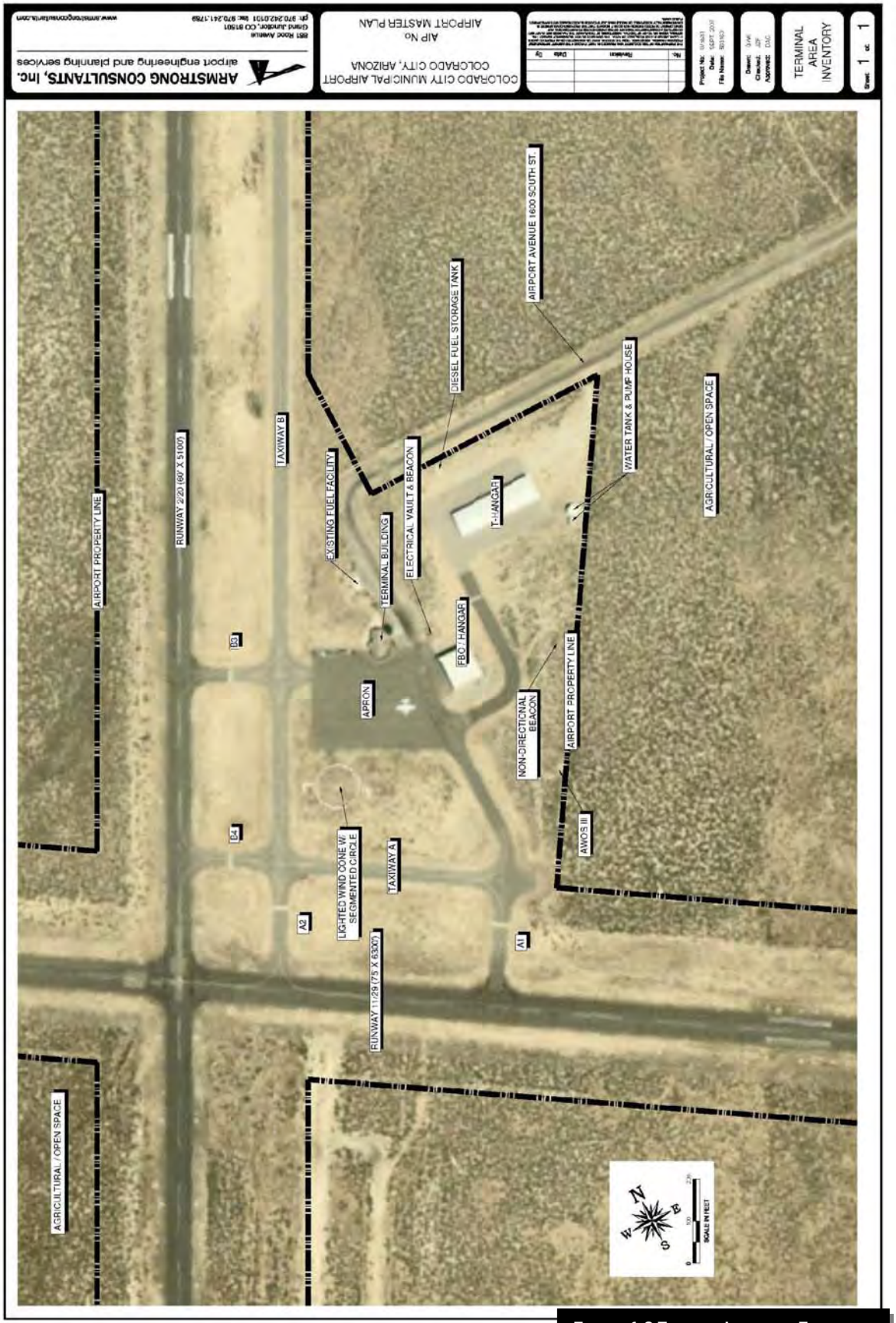


FIGURE 1-8 EXISTING LANDSIDE FACILITIES

TABLE 1-8 COLORADO CITY MUNICIPAL AIRPORT INVENTORY		
Airport Data		
Identifier	AZC	
FAA Site Number	00660.7A	
NPIAS Number	04-0076	
Airport Reference Code	B-II	
Owner/Sponsor	Colorado City	
Airport Elevation	4,871'	
Facilities		
Runway 11/29	Length: 6,300' Width: 75' Surface: Asphalt Marking: Basic visual	Pavement: Fair with longitudinal and transverse cracking Marking: Poor/Faded Right-hand Traffic: RW 11
Runway 2/20	Length: 5,100' Width: 60' Surface: Asphalt Marking: Basic visual	Pavement: Good Markings: Poor/Faded
Runway Lighting	Pilot Controlled MIRL	Direct burial
Navigational Aids	NDB/GPS Circling approach	
Approach Minimums	Visibility varies by aircraft, A=1 mile, B=1 ¼ miles C= 2 miles and D=2 ¾ miles, 829' ceiling height (lowest published – not for navigation)	
Visual Aids Runway 11/29	PAPI-2 both ends, REILs both ends, Beacon, Lighted wind cone segmented circle and traffic pattern indicators	
Visual Aids Runway 2/20	Beacon, Lighted wind cone and segmented circle	
Taxiway A	Partial Parallel to Runway 11/29	
Taxiway B	Partial Parallel to Runway 20	
Taxiway Lighting	Reflectors on Taxiway A and Taxiway B	
Aircraft Apron	8,040 SY	
Tie Downs	14	
Pavement Strength	12,500 lbs on Runway 11/29 12,500 lbs on Runway 2/20	
Landside Facilities	1 80' x 70' Maintenance Hangar 1 T-Hangar Terminal Building	Good Good Good
Automobile Parking	6,000 SY (Gravel)	Fair
Perimeter Fencing	5-Strand barbed wire	Poor
Fuel	100 LL AvGas tank and truck and Jet A Truck	AvGas Tank = 10,000 Gal. Jet A Truck = 2,500 Gal. 100 LL Truck= 1,000Gal.
Weather Equipment	AWOS III	
FBO	Westwing Aviation	
Utilities	Power, Water, Propane, Phone, Septic Tank	

RUNWAY

Colorado City Municipal Airport currently has two runways available to aviation users. Runway 11/29 is constructed of asphalt and is 6,300 feet long and 75 feet wide with a 2006 PCI Index of 62 and a published runway strength of 12,500 pounds. The pavement is experiencing moderate

transverse cracking. Runway 11/29 has basic visual markings that are in poor condition. Runway 2/20 is also constructed of asphalt and is 5,100 feet long and 60 feet wide with a 2006 PCI Index of 80 and published runway strength of 12,500 pounds SWG. Runway 2/20 has nonprecision markings that are in poor condition.

TAXIWAYS

Taxiways provide a surface for aircraft access from the parking apron to and from the runways. They expedite aircraft departures from the runway and increase operational safety and efficiency. The Colorado City Municipal Airport has a partial parallel taxiway (Taxiway B) to Runway 20 located 225 feet from the runway centerline and is constructed to the same pavement strength as Runway 2/20. Runway 11/29 has a partial parallel taxiway (Taxiway A) located mid field adjacent to the apron area 300 feet from runway centerline and is constructed to 12,500 pounds. Taxiway A is 35 feet wide and Taxiway B is 25 feet wide.

AIRCRAFT APRON

The aircraft apron provides an area for aircraft to park. The apron is typically connected to the runway via taxiways or taxilanes. The aircraft-parking apron at Colorado City Municipal Airport has approximately 8,040 square yards (SY) of area and contains approximately 14 aircraft tiedowns with Group II taxilanes. The 2006 apron PCI Index was rated at 81. The existing apron area is located within the Runway Visibility Zone (RVZ) of the two intersecting runways and therefore is considered to be a nonstandard condition.

FIGURE 1-9 AIRCRAFT APRON

AIRFIELD LIGHTING AND SIGNAGE

Guidance on airport lighting standards is provided in FAA Advisory Circular (AC) 150/5340-30C, Design and Installation Details for Airport Visual Aids. Airport lighting enhances safety during periods of inclement weather and nighttime operations by providing visual guidance to pilots in the air and on the ground.

Several common airfield lighting and visual aid features of general aviation airports include a rotating beacon (activated by photoelectric cell for dusk to dawn operations), pilot-controlled Medium Intensity Runway Lights (MIRLs) (activated by aircraft radio signal), threshold lights, Runway End Identifier Lights (REILs) which mark the runway threshold with flashing strobe lights and Precision Approach Path Indicators (PAPIs) to provide descent guidance information during an approach to the runway. Airfield lighting at Colorado City Municipal Airport consists of Medium Intensity Runway Lights (MIRL's) on Runways 11/29 and 2/20 which can be controlled by the clicks of the pilot's microphone while the radio is set on frequency 122.7 (three clicks for low intensity, five clicks for medium intensity and seven clicks for high intensity). The runway lights have white colored lenses. The airport also has a segmented circle and lighted wind cone. Taxiways A and B are marked with reflectors. The airport also has lighted runway signs showing runway and taxiway locations.

NAVIGATIONAL AIDS AND APPROACH PROCEDURES

The current approach procedures at the Colorado City Municipal Airport include a circle to land non-precision NDB/GPS instrument approach. Services include Los Angeles Air Route Traffic Control Center (ARTCC) and Prescott Flight Service Station (FSS). Enroute and radar

coverage for the Colorado City area is provided by the Los Angeles ARTCC. The altitude of radar coverage may vary as a result of the FAA navigational/radar facilities in operation, weather conditions and terrain which surround Colorado City. The Prescott FSS provides additional weather data and other pertinent weather information to pilots on the ground and enroute. There is no air traffic control tower (ATCT) at the airport.

A Navigational Aid (NAVAID) is any ground based visual or electronic device used to provide course or altitude information to pilots. NAVAIDs include Very High Omnidirectional Range (VORs), Very High Frequency Omnidirectional Range with Tactical Information (VOR-TACs), Nondirectional Beacons (NDBs) and Tactical Air Navigational Aids (TACANs), as examples. There is currently an NDB at the Colorado City Municipal Airport. The NDB or GPS approach to the Colorado City Municipal Airport is illustrated in Figure 1-10. (Note: This is for information purposes only and should not be used for navigation).

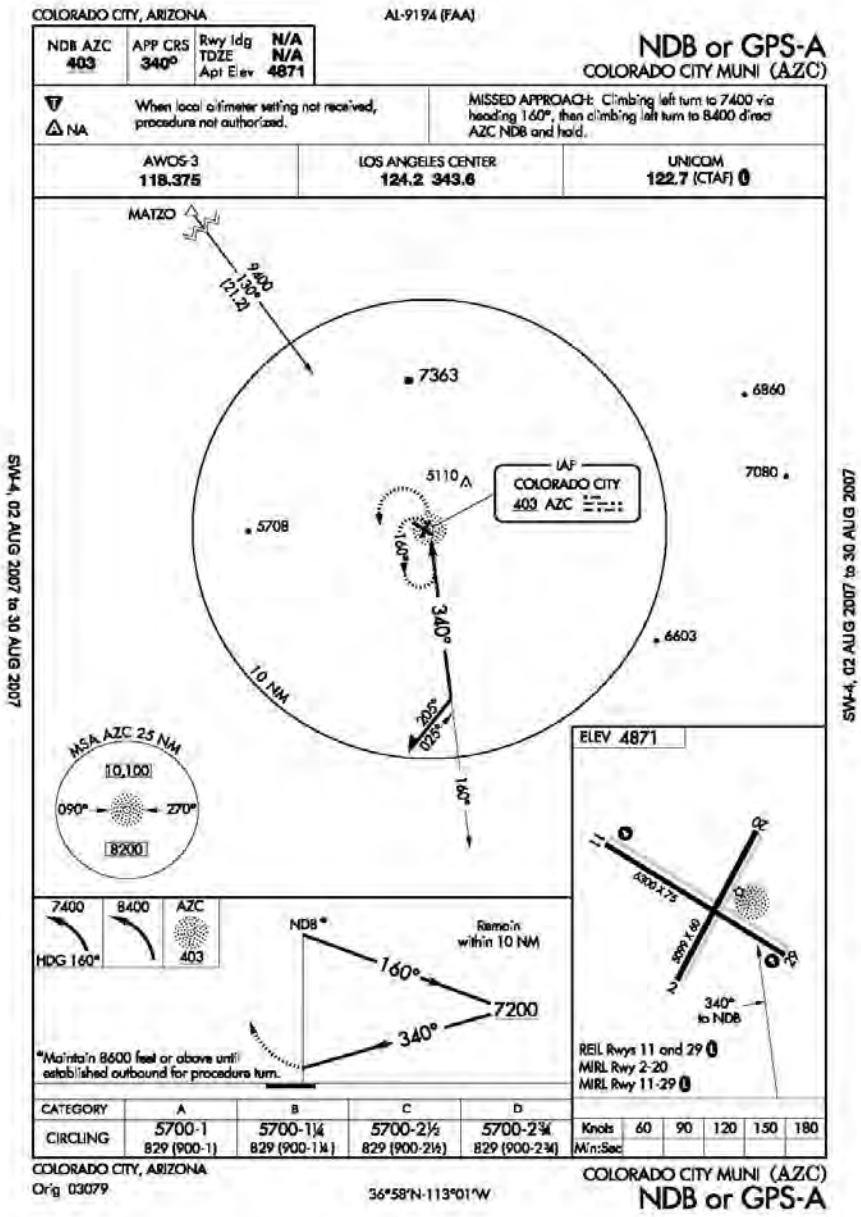


FIGURE 1-10 COLORADO CITY NDB/GPS APPROACH PROCEDURE (NOT FOR NAVIGATION)

AIRPORT SERVICES/FIXED BASE OPERATIONS

A Fixed Base Operator (FBO) is usually a private enterprise that leases land from the airport sponsor on which to provide services to based and transient aircraft. The extent of the services provided varies from airport to airport; however, these services frequently include aircraft fueling, minor maintenance and repair, aircraft rental and/or charter services, flight instruction, pilot lounge and flight planning facilities and aircraft tiedown and/or hangar storage. FBO services at the Colorado City Municipal Airport are provided by Westwing Aviation. Westwing Aviation owns and operates the fuel trucks at the airport for dispensing fuel.

FIGURE 1-11 WESTWING AVIATION FBO BUILDING

LANDSIDE FACILITIES

BUILDING AREA

The building area of a typical general aviation airport usually consists of FBO offices and/or hangars, a pilot lounge, terminal building, eating facility, additional aircraft hangars, a maintenance building and other related structures. Existing buildings at the Colorado Municipal Airport include one large conventional hangar (80 feet by 70 feet), a terminal building and one T-Hangar unit located near the apron area. The terminal building is located within the RVZ and is considered to be a nonstandard condition.

UTILITIES

Available utilities at the Colorado City Municipal Airport include power, non-potable water, propane, phone and septic tanks. Electricity is provided by Twin City Power, the airport also

has a back up generator for power supply in the event of a power disruption, telephone services are provided by South Central Utah Telephone and the water is provided by a well and pumped into a 60,000 gallon storage tank which provides non potable water for fire suppression and other uses at the airport. The tank is located adjacent to the T-hangar unit, the airport also has three separate septic tanks located on the field to dispose of waste water one for the terminal building, one for the T-Hangars and one for the FBO building.

GROUND ACCESS AND SIGNAGE

The Colorado City Municipal Airport can be reached by following State Highway 389 south from Colorado City and west on 1600 South Street (also known as Airport Avenue). Colorado City is located 354 miles northwest of Phoenix, Arizona and 43 miles east of St. George, Utah. The signage to the airport currently consists of two airport signs one for traffic traveling south on State Highway 389 and one for traffic traveling north on State Highway 389, the existing signs are considered adequate. Access to the Colorado City Municipal Airport is provided via Airport Avenue, a paved two lane road which enters from the east side of the airport.

INTERMODAL TRANSPORTATION

The ground transportation network in the vicinity of the Colorado City Municipal Airport consists of private automobile transportation only. There is no bus or rail service to Colorado City. The nearest bus and rail service is located 43 miles west in St. George, Utah.

AIRCRAFT FUEL FACILITIES

A Fixed Base Operator (FBO) or the airport sponsor often provides aircraft fuel services. Combinations of 100LL and 80 Octane Aviation Gas and/or Jet-A fuel are usually provided depending on the aircraft traffic mix. These fuels may be stored in underground storage tanks, above ground storage tanks, fuel trucks or a combination of the three.

The Colorado City Municipal Airport has one 10,000 gallon above ground fuel tank which contains 100 low lead, a 1,000 gallon 100 low lead fuel truck and 2,500 gallon jet A fuel truck. The fuel tank is owned by Colorado City and fuel is dispensed by Westwing Aviation. Only trained personnel are authorized to fuel aircraft. Emergency services are available nearby and provided by Colorado City. The fuel tank is single walled and is surrounded by a concrete secondary containment area. Colorado City has and maintains a Spill Prevention, Control and Countermeasure (SPCC) plan along with a Stormwater Management Pollution Prevention Plan (SWPPP).

FIGURE 1-12 COLORADO CITY FUEL TANK

AIRPORT FENCING AND SECURITY

The primary purpose of airport fencing is to prevent unwanted intrusions by persons or animals on to airport property. Airport fencing provides increased safety and security for the airport. It is normally installed along the perimeter of the airport property and outside any of the safety areas

defined by the Federal Aviation Administration (FAA) in Advisory Circular (AC) 150/5300-13, Airport Design and Federal Aviation Regulation (FAR) Part 77, Objects Affecting Navigable Airspace. The airport is currently fenced with 5-strand barbed wire fence along the perimeter. The terminal area is fenced with six foot chain link fencing and has an electric vehicle access gate. The existing perimeter fence is considered inadequate, as the airport manager indicated that there have been animals and unauthorized people on the runway recently.

EMERGENCY SERVICES

Emergency fire, rescue and medical services are available from the Colorado City Fire District. The closest hospital is the Kane County Hospital located in Kanab, Utah. The hospital is a 38-bed facility with 2 physicians on staff. The Colorado City Fire District provides ambulance service to the area.

TABLE 1-9 COLORADO CITY EMERGENCY SERVICES

DISTANCE FROM AIRPORT: 3 MILES	**RESPONSE TIME**: 8 MINUTES
PERSONNEL	
VOLUNTEERS: 54	36 - EMTS
	18 - PARAMEDICS
EQUIPMENT	
4 ENGINES ALL CLASS A PUMPERS	FOAM (AFFF) ON BOARD
2 LADDER TRUCKS WITH 100' AERIALS	
1 HEAVY RESCUE TRUCK	
1 WATER TENDER	5,000 GALLONS OF WATER
COMMAND VEHICLES	
5 AMBULANCE VEHICLES	

SOURCE: COLORADO CITY FIRE DISTRICT, 2007

ADDITIONAL FACILITIES

There is not currently any Airport Rescue and Fire Fighting (ARFF) equipment or personnel based at the Colorado City Municipal Airport. There are also no designated security personnel at the airport.

FAA SAFETY AND DESIGN STANDARDS

FAA AC 150/5300-13, Airport Design, establishes design standards for airports based on the Airport Reference Code (ARC) of the airport. When design standard deficiencies exist, the FAA recommends correction of such deficiencies as soon as practicable. Design standards are based on the Airport Reference Code (ARC) and approach visibility minimums of the airport. The ARC is a combination of the tail height, wingspan and approach speed of the critical aircraft operating at the airport. The current ARC for the Colorado City Municipal Airport is B-II. A more detailed discussion of ARCs is included in Chapter 3.

SAFETY AREAS

Runway and Taxiway Safety Areas (RSAs and TSAs) are defined surfaces surrounding the runway or taxiway prepared specifically to reduce the risk of damage to aircraft in the event of an undershoot, overshoot or excursion from the runway or taxiway. The Safety Areas must be:

- Cleared and graded and have no potentially hazardous surface variations;
- Drained so as to prevent water accumulation;
- Capable, under dry conditions, of supporting snow removal equipment, ARFF equipment and the occasional passage of aircraft without causing structural damage to the aircraft; and

- Free of objects, except for objects that need to be located in the runway or taxiway safety area because of their function.

The runway safety areas off the ends of all the runways at Colorado City are overgrown with brush and ruts, these conditions could affect ARFF response and could result in damage to aircraft.

OBSTACLE FREE ZONE (OFZ) AND OBJECT FREE AREA (OFA)

The Obstacle Free Zone (OFZ) is a three dimensional volume of airspace which supports the transition of ground to airborne aircraft operations. The clearing standard precludes taxiing and parked airplanes and object penetrations, except for frangible visual Navigational Aids (NAVAIDs) that need to be located in the OFZ because of their function. The OFZ is similar to the FAR Part 77 Primary Surface insofar that it represents the volume of space longitudinally centered on the runway. It extends 200 feet beyond the end of each runway. The Runway Object Free Area (ROFA) is a two-dimensional ground area surrounding the runway. The ROFA standard precludes parked airplanes, agricultural operations and objects, except for objects that need to be located in the ROFA for air navigation or aircraft ground maneuvering purposes.

THRESHOLD SITING SURFACE

According to FAA AC 150/5300-13, the runway threshold should be located at the beginning of the full-strength runway pavement or runway surface. However, displacement of the threshold may be required when an object obstructs the airspace required for landing airplanes and is beyond the airport owner's power to remove, relocate or lower. Thresholds may also be displaced for environmental considerations such as noise abatement or to provide the standard RSA and ROFA lengths.

Based on the non-precision NDB/GPS instrument approach and size of aircraft using the Colorado City Municipal Airport, in order to meet FAA design standards, no object should penetrate a surface that starts 200 feet from the threshold of Runway 11/29 at the elevation of the runway centerline at the threshold and slopes upward from the threshold at a slope of 20 feet (horizontal) to 1 foot (vertical). In the plan view, the centerline of this surface extends 10,000 feet along the extended runway centerline. This surface extends laterally 200 feet on each side of the centerline at the threshold and increases in width to 1,700 feet at a point 10,000 feet from the threshold. No object should penetrate a surface that starts at the threshold of Runway 2/20 at the elevation of the runway centerline at the threshold and slopes upward from the threshold at a slope of 20 feet (horizontal) to 1 foot (vertical). In the plan view, the centerline of this surface extends 2,250 feet along the extended runway centerline. This surface extends laterally 125 feet on each side of the centerline at the threshold and increases in width to 350 feet at a point 2,250 feet from the threshold.

RUNWAY PROTECTION ZONE (RPZ)

According to FAA AC 150/5300-13, the RPZ is trapezoidal in shape and centered about the extended runway centerline. The RPZ dimension for a particular runway end is a function of the type of aircraft and approach visibility minimum associated with that runway end. At both ends of Runways 11/29 and 2/20 the RPZ begins 200 feet from the runway threshold and extends for 1,000 feet. The RPZ is 500 feet wide at the inner end and 700 feet wide at the outer end. The land uses not recommended within the RPZ are residences and places of public assembly (churches, schools, hospitals, office buildings, shopping centers and other uses with similar concentrations of persons typify places of public assembly).

TABLE 1-10 DESIGN STANDARDS

	RW 11/29	RW 2/20
Description	B-II	B-I
RW Centerline to parallel TW centerline	240’	225’
RW Centerline to aircraft parking apron	250’	200’
RW Width	75’	60’
RW Safety Area width	150’	120’
RW Safety Area length beyond Rwy end	300’	240’
RW Object Free Area width	500’	400’
RW Object Free Area beyond Rwy end	300’	240’
RW Obstacle Free Zone width	400’	400’
RW Obstacle Free Zone length beyond Rwy end	200’	200’
RW Protection Zone	1,000’ x 500’ x 700’	1,000’ x 500’ x 700’
TW Width	35’	25’
TW Safety Area width	79’	49’
TW Object Free Area width	131’	89’
RW Centerline to aircraft hold lines	200’	200’

FAA ADVISORY CIRCULAR 150/5300-13 CHANGE 12

AIRSPACE CHARACTERISTICS

The National Airspace System consists of various classifications of airspace that are regulated by the FAA. Airspace is either controlled or uncontrolled. Pilots flying in controlled airspace are subject to Air Traffic Control (ATC) and must follow either Visual Flight Rule (VFR) or Instrument Flight Rule (IFR) requirements. These requirements include combinations of operating rules, aircraft equipment and pilot certification and vary depending on the Class of airspace and are described in Federal Aviation Regulations (FAR) Part 71, Designation of Class A, Class B, Class C, Class D and Class E Airspace Areas; Airways; Routes; and Reporting Points and FAR Part 91, General Operating and Flight Rules. Figure 1-13 below shows the different airspace classes and gives a graphical representation of them.

General definitions of the Classes of airspace are provided below:

- **Class A Airspace**: Airspace from 18,000 feet Mean Sea Level (MSL) up to and including Flight Level (FL) 600.
- **Class B Airspace**: Airspace from the surface to 10,000 feet MSL surrounding the nation’s busiest airports in terms of IFR operations or passenger enplanements.
- **Class C Airspace**: Generally, airspace from the surface to 4,000 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower, are serviced by radar approach control and that have a certain number of IFR operations or passenger enplanements. The airspace usually consists of a 5 nautical mile (nm) radius core surface area that extends from the surface up to 1,200 feet above the airport elevation and a 10 nm radius shelf area that extends from 1,200 feet up to 4,000 feet above the airport elevation.
- **Class D Airspace**: Airspace from the surface up to 2,500 feet above the airport elevation (charted in MSL) surrounding those airports with an operational control tower.
- **Class E Airspace**: Generally, controlled airspace that is not Class A, Class B, Class C or Class D.
- **Class G Airspace**: Generally, uncontrolled airspace that is not designated Class A, Class B, Class C, Class D or Class E.
- **Victor Airways:** These airways are low altitude flight paths between ground based VHF Omnidirectional Receivers (VORs).

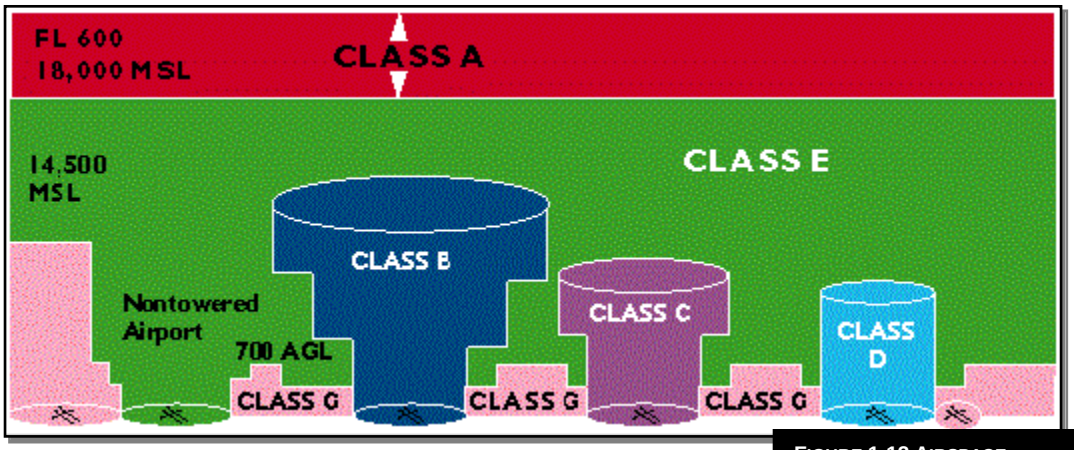


FIGURE 1-13 AIRSPACE

Figure 1-14 provides a graphical depiction of the airspace surrounding the Colorado City Municipal Airport. The airport is situated under Class E airspace starting at 700 feet above the surface. Between the surface and 700 feet, the airspace is considered Class G.

The traffic patterns to the Colorado City Municipal Airport are standard left hand traffic to all runways except Runway 11. Pilots must make right hand turns when approaching to land on Runway 11. There are no noise abatement procedures currently in place at the airport. The Colorado City Municipal Airport is also located in the vicinity of some noise sensitive national parks and wilderness areas. The Cottonwood Point Wilderness area is located approximately 3 nautical miles northeast, the Zion National Park is approximately 11 nautical miles north and the Kanab Creek Wilderness Area is approximately 30 nautical miles southeast. Airspace and land use planning are further discussed in Chapter 3.

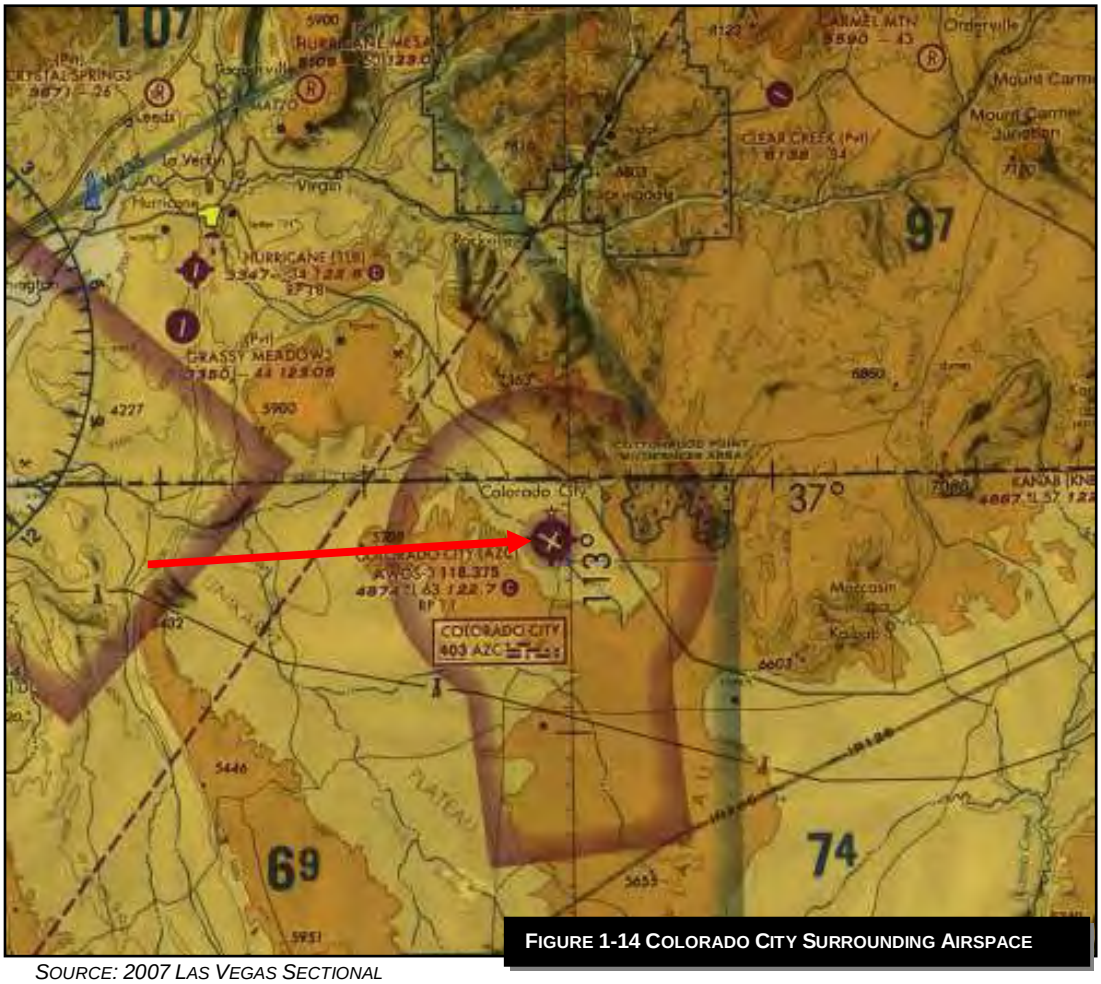


FIGURE 1-14 COLORADO CITY SURROUNDING AIRSPACE

SOURCE: 2007 LAS VEGAS SECTIONAL

AIRSPACE JURISDICTION

Colorado City is located within the jurisdiction of the Los Angeles Air Route Control Center (ARTCC) and the Prescott Flight Service Station (FSS). The altitude of radar coverage by the Los Angeles ARTCC may vary as a result of the FAA navigational/radar facilities in operation, weather conditions and surrounding terrain. The Prescott FSS provides additional weather data and other pertinent information to pilots on the ground and enroute.

AIRSPACE RESTRICTIONS

The Colorado City Municipal Airport is located north of a low-level military training route (MTRs) (see Figure 1-14). There are no Military Operation Areas (MOAs) located in the vicinity of the Colorado City Municipal Airport. MOAs and MTRs are established for the purpose of separating certain military training activities, which routinely necessitate acrobatic or abrupt flight maneuvers, from Instrument Flight Rules (IFR) traffic. IFR traffic can be cleared through an active MOA if IFR separation can be provided by Air Traffic Control (ATC), otherwise ATC will reroute or restrict the IFR traffic.

The Colorado City Municipal Airport is located approximately 56 nautical miles southeast of the Desert Military Operations Area (MOA) which is in use sunrise to sunset Monday through Saturday. The controlling agency is Los Angeles Center. The altitude of use of the Desert MOA is 100 feet AGL up to but not including flight level 180 (18,000) feet Mean Sea Level (MSL).

In addition to the MOAs, a Military Training Route (MTR) exists in the vicinity of Colorado City. The MTR program is a joint venture by the FAA and the Department of Defense (DOD). MTRs are mutually developed for use by the military to conduct low-altitude, high-speed training. Military Training Route IR-266 is located approximately 13 nautical miles southeast of Colorado City Municipal Airport. Increased vigilance is recommended for pilots operating in the vicinity of these training routes.

METEOROLOGICAL CONDITIONS

Meteorological conditions have a direct impact on the operational characteristics of an airport. These conditions determine the regulations under which operations may be conducted, the frequency of use for each operational configuration and the instrumentation required to assist aircraft in landing and departing.

LOCAL CLIMATOLOGICAL DATA

Colorado City is located in northern Mohave County in an area that receives approximately 8 to 12 inches of precipitation annually. Average annual snowfall for the Colorado City Area is 17.2 inches. The average maximum temperature of the hottest month, July, is 92.8 degrees Fahrenheit, while the average minimum temperature of the coldest month, January, is 23.6 degrees Fahrenheit. The annual average maximum temperature is 69.5 degrees Fahrenheit and the annual average minimum temperature is 41.1 degrees Fahrenheit.

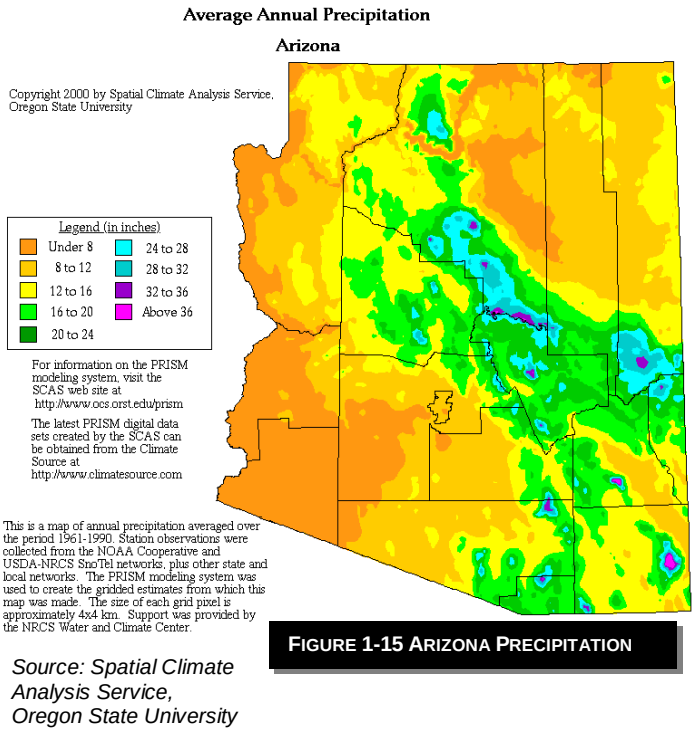


FIGURE 1-15 ARIZONA PRECIPITATION

Source: Spatial Climate Analysis Service, Oregon State University

CEILING AND VISIBILITY CONDITIONS

Ceiling and visibility conditions are important considerations since the occurrence of low ceiling and/or poor visibility conditions limit the use of the airport to instrument approach and departure operations until conditions change. Under poor visibility conditions or Instrument Meteorological Conditions (IMC), the pilot must operate under Instrument Flight Rules (IFR), rather than Visual Flight Rules (VFR). Under IFR, the pilot maneuvers the aircraft through sole reference to instruments in the aircraft and navigational aids on the ground. The airport must be closed for use when conditions are worse than the published IFR minimums for that airport. When flight conditions are visual or Visual Meteorological Conditions (VMC), the pilot can maneuver the aircraft by reference to the horizon and objects on the ground.

The Colorado City Municipal Airport currently has a circle to land non-precision NDB/GPS instrument approach. The minimums for the circling approach are 829 foot ceilings and 1-mile visibility.

RUNWAY WIND COVERAGE

Wind direction and speed determine the desired alignment and configuration of the runway system. Aircraft land and takeoff into the wind and therefore can tolerate only limited crosswind components (the percentage of wind perpendicular to the runway centerline). The ability to land and takeoff in crosswind conditions varies according to pilot proficiency and aircraft type.

TABLE 1-11 CROSSWIND COMPONENT

Allowable Crosswind in Knots	Airport Reference Code
10.5 knots	A-I & B-I
13 knots	A-II & B-II
16 knots	A-III, B-III, & C-I through D-III
20 knots	A-IV through D-VI

FAA Advisory Circular 150/5300-13, Airport Design, recommends that a runway should yield 95 percent wind coverage under stipulated crosswind components. If one runway does not meet this 95 percent coverage, then construction of an additional runway may be advisable. The crosswind component of wind direction and velocity is the resultant vector, which acts at a right angle to the runway. It is equal to the wind velocity multiplied by the trigonometric sine of the angle between the wind direction and the runway direction. The allowable crosswind component for each Airport Reference Code is shown in Table 1-11.

A wind rose was developed for the Colorado City Municipal Airport using hourly observations from the Colorado City wind monitoring station at the Colorado City sewage lagoon from February 1981 to December 1981. This wind rose is shown in Figure 1-16 and indicates combined 10.5-knot crosswind coverage of 97.7 percent and combined 13-knot crosswind coverage of 99.19 percent. Table 1-12 shows the crosswind coverage for each runway at 10.5 and 13 knots. The AWOS is currently not connected to the National Airspace Data Interchange Network (NADIN). Information from the AWOS is only available through the phone and radio.

TABLE 1-12 CROSSWIND COVERAGE

	10.5 knots	13.0 knots
Runway 2/20	81.3%	86.9%
Runway 11/29	86.3%	89.4%
Combined	95.9%	98.3%

SOURCE: COLORADO CITY SEWAGE LAGOONS FEBRUARY 1981-DECEMBER 1981

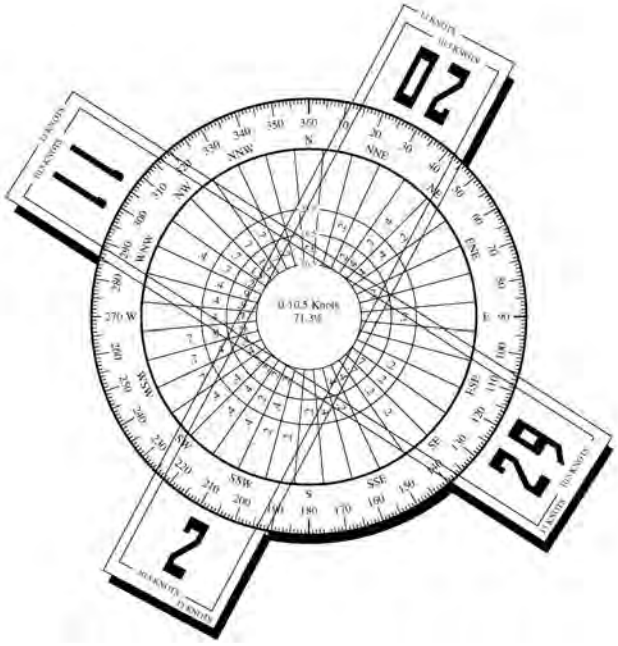


FIGURE 1-16 COLORADO CITY WIND ROSE

ENVIRONMENTAL INVENTORY

INTRODUCTION

The purpose of the environmental inventory is to identify key environmental resources that maybe affected by potential airport development. The data compiled in this section will be used later in this study in evaluating potential airport development alternatives and to identify environmental related permits that may be required for recommended development projects.

AIR QUALITY

Air quality attainment maps were obtained from the August 2007 EPA map of nonattainment areas. The project is located within an attainment area (See Figure 1-17). An attainment area is a zone within which the level of a pollutant is considered to meet National Ambient Air Quality Standards.

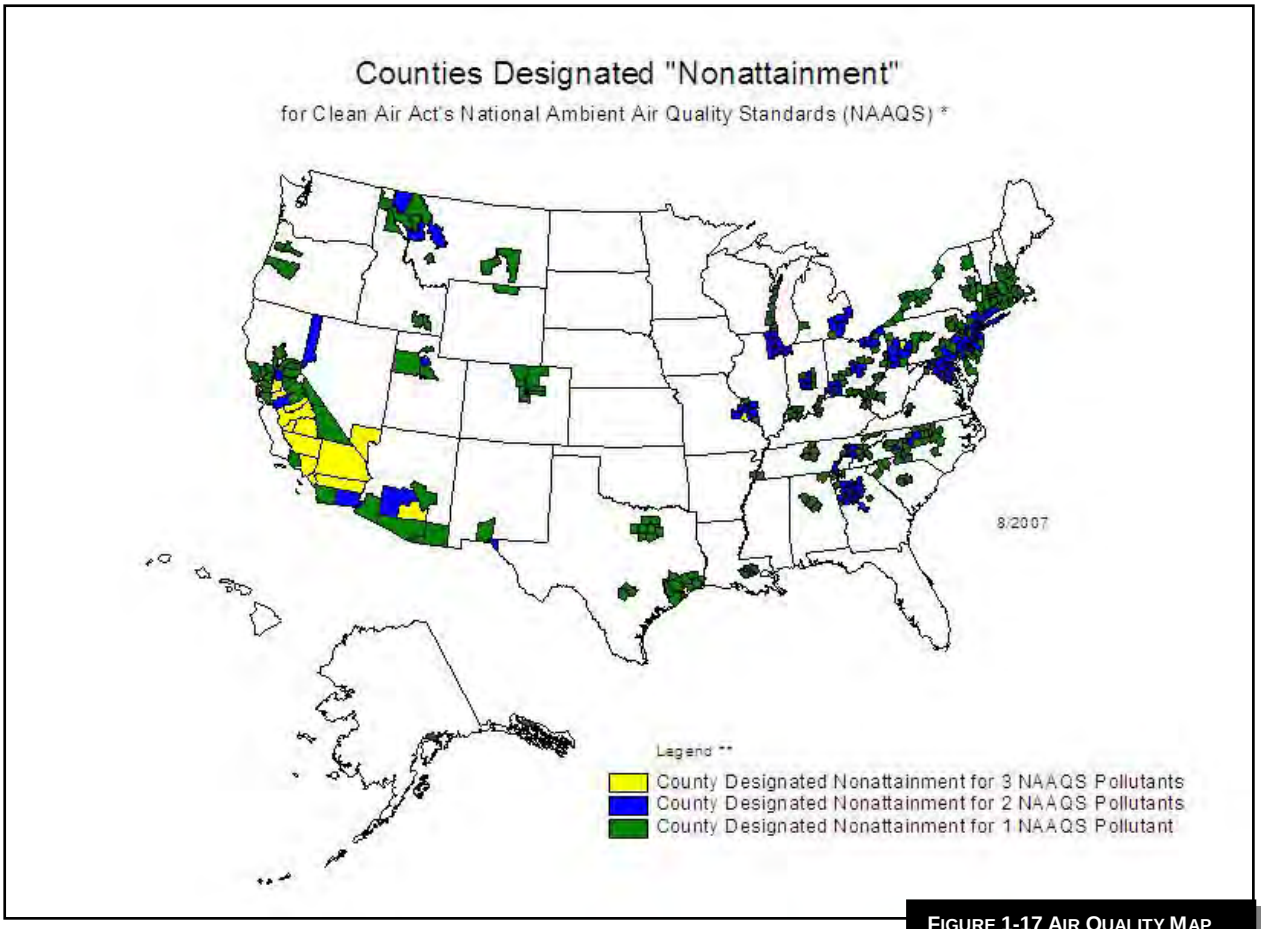


FIGURE 1-17 AIR QUALITY MAP

LAND USE COMPATIBILITY

The existing airport is located on approximately 204 acres of land. There are currently no significant environmental impacts at the airport. The surrounding land uses are considered compatible with the airport.

DEPARTMENT OF TRANSPORTATION ACT

There are currently no public parks, recreation areas or wildlife and waterfowl refuge of National, State or Local significance surrounding the airport. The nearest wilderness area is the

Cottonwood Point Wilderness Area located approximately three nautical miles northeast of the airport.

FLOODPLAINS

The area has not been mapped by FEMA however the City has indicated that the airport is not within any designated floodplain and is considered to be a non risk area.

FISH, WILDLIFE AND PLANTS

A qualified biologist performed an extensive biological assessment in March of 2006. The biological assessment revealed no evidence of threatened or endangered species or critical habitat within the area surrounding the airport.

HISTORICAL, ARCHITECTURAL, ARCHAEOLOGICAL AND CULTURAL RESOURCES

A Cultural Resource Survey of the area was accomplished by Aztlan Archaeology, Inc. in May and September 2001. The Cultural Resource Survey lists five newly identified archaeological sites, four previously recorded archaeological sites and 28 isolated occurrences within the surveyed area. Two of the sites are on privately owned land and seven of the sites are on BLM land. The sites are not impacted by existing airport operations.

WETLANDS

The U.S. Army Corps of Engineers completed a jurisdictional delineation for the area dated May 31, 2001. No wetlands were identified within the area. The area known as the Dry Lakes of Short Creek were identified as Jurisdictional Waters of the United States, these waters cover only the far edge of the Runway Protection Zone and are not currently impacted by the existing airport operations.

Chapter Two
Forecasts of Aviation Activity

Colorado City Municipal Airport
Airport Master Plan

Chapter Two
Forecast

INTRODUCTION

Forecasts of aviation activity serve as a guideline for the timing required for implementation of airport improvement programs. While such information is necessary for successful comprehensive airport planning, it is important to recognize that forecasts are only approximations of future activity, based upon historical data and viewed through present situations. They must therefore, be used with careful consideration, as they may lose their validity with the passage of time.

For this reason, an ongoing program of examination of local airport needs and national and regional trends is recommended and encouraged in order to promote the orderly development of aviation facilities at the Colorado City Municipal Airport.

At airports not served by air traffic control towers, estimates of existing aviation activity are necessary in order to form a basis for the development of realistic forecasts. Unlike towered airports, non-towered general aviation airports have historically not tracked or maintained comprehensive logs of aircraft operations. Estimates of existing aviation activity are based upon a review of based aircraft, available historical data, available local information and regional, state and national data form the baseline to which forecasted aviation activity trends are applied.

Activity projections are made based upon estimated growth rates, area demographics, industry trends and other indicators. Forecasts are prepared for the Initial-Term (0-5 years), the Intermediate-Term (6-10 years) and the Long-Term (11-20 years) time frames. Utilizing forecasts within these time frames will allow the construction of airport improvements to be timed to meet demand, but not so early as to remain idle for an unreasonable length of time.

There are four types of aircraft operations considered in the planning process. These are termed “local, based, itinerant and transient.” They are defined as follows:

Local operations are defined as aircraft movements (departures or arrivals) for the purpose of training, pilot currency or pleasure flying within the immediate area of the local airport. These operations typically consist of touch-and-go operations, practice instrument approaches, flights to and within local practice areas and pleasure flights that originate and terminate at the airport under study.

Based aircraft operations are defined as the total operations made by aircraft based (stored at the airport on a permanent, seasonal or long-term basis) at the study airport, with no attempt to classify the operations as to purpose.

Itinerant operations are defined as arrivals and departures other than local operations and generally originate or terminate at another airport. These types of operations are closely tied to local demographic indicators, such as local industry and business use of aircraft and usage of the facility for recreational purposes.

Transient operations are defined as the total operations made by aircraft other than those based at the airport under study. These operations typically consist of business or pleasure flights originating at other airports, with termination or a stopover at the study airport.

The terms transient and itinerant are sometimes erroneously used interchangeably. This study will confine analysis to local and itinerant operations.

NATIONAL AND REGIONAL TRENDS

According to factors such as aircraft production, pilot activity and hours flown, general aviation reached a peak in the late 1970s. This peak was followed by a long downturn that persisted through most of the 1980s and the early 1990s and has been attributed to high manufacturing costs associated with product liability issues as well as other factors. The General Aviation Revitalization Act (GARA) of 1994 was enacted with the goal of revitalizing the industry by limiting product liability costs. The Act established an 18-year statute of repose on liability related to the manufacture of all general aviation aircraft and their components. According to a 2001 report to Congress by the General Accounting Office (GAO), trends in general aviation since GARA was enacted suggest that liability costs have been less burdensome to manufacturers, shipments of new aircraft have increased and technological advances have been made. Indicators of general aviation activity, such as the numbers of hours flown and active pilots, have also increased in the years since GARA, but their growth has not been as substantial as the growth in manufacturing.

The unfortunate terrorist attacks of September 11, 2001 have had a substantial impact on these positive general aviation industry trends. Significant restrictions were placed on general aviation flying following September 11th which resulted in a considerable decrease in general aviation activity. Fortunately, most of these restrictions have now been lifted and the Federal Aviation Administration (FAA) is forecasting continued growth in general aviation.

The FAA annually convenes expert panels in aviation and develops forecasts for future activity in all areas of aviation, including general aviation. The FAA's 2007-2020 forecast predicts that total general aviation fleet will increase at an average annual rate of 1.4 percent during the 14-year forecast period, growing from an estimated 226,422 aircraft in 2006 to 274,914 aircraft in 2020. The fleet of jet turbine aircraft is expected to increase at a greater rate than the fleet of piston aircraft; as a result, the number of piston aircraft, while continuing to increase, is expected to represent a smaller percentage of the total general aviation fleet. Figures 2-1 and 2-2 illustrate this forecasted change to the general aviation fleet that is forecast to occur over the 14-year period.

2006

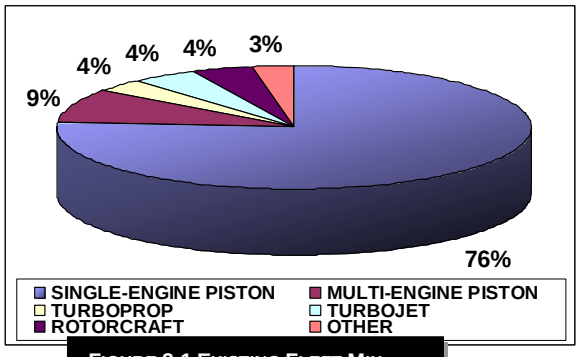


FIGURE 2-1 EXISTING FLEET MIX

2020

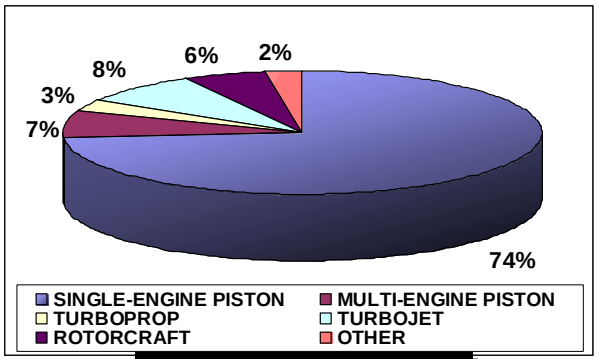


FIGURE 2-2 FUTURE FLEET MIX

Source: General Aviation & Air Taxi Activity & Avionics Survey 2005

The General Aviation Manufacturer's Association (GAMA) produces activity forecasts based on general aviation hours flown. As shown in Table 2-1, the number of turbojet (TJ) hours is forecasted to increase by 203 percent between 2006 and 2017.

Table 2-1 National General Aviation Forecast

	Hours Flown (in millions)				
Year	SE	ME	TP	TJ	Total
2006	17.0	2.4	2.0	3.2	24.6
2007	17.2	2.4	2.0	3.6	25.2
2008	17.5	2.4	2.1	4.0	26.0
2009	17.7	2.5	2.1	4.6	26.9
2010	17.9	2.5	2.1	5.2	27.7
2011	18.1	2.5	2.1	5.9	28.6
2012	18.3	2.6	2.2	6.6	29.7
2013	18.6	2.6	2.2	7.2	30.6
2014	18.8	2.6	2.2	7.9	31.5
2015	19.0	2.6	2.2	8.5	32.3
2016	19.2	2.7	2.2	9.0	33.1
2017	19.5	2.7	2.3	9.7	34.2

Source: General Aviation Manufacturer's Association 2006 statistical Databook

Another industry trend is the increasing amount of research funding for programs like the Small Aircraft Transportation System (SATS). The National Aeronautics and Space Administration (NASA), Federal Aviation Administration, States, industry and academic partners have joined forces to pursue the NASA National General Aviation Roadmap leading to a Small Aircraft Transportation System. This long-term strategic undertaking seeks to bring next-generation technologies and improved air access to small communities. The envisioned outcome is to improve travel between remote communities and transportation centers in urban areas by utilizing a new generation of single-pilot light aircraft for personal and business transportation between the nation's 5,400 public use general aviation airports. Current NASA investments in aircraft technologies are enabling industry to bring affordable, safe and easy-to-use features to the marketplace, including "Highway in the Sky" glass cockpit operating capabilities, affordable crashworthy composite airframes, more efficient IFR flight training and revolutionary aircraft engines. To facilitate this initiative, a comprehensive upgrade of public infrastructure must be planned, coordinated and implemented within the framework of the national air transportation system. State partnerships are proposed to coordinate research support in key public infrastructure areas. Ultimately, SATS may permit more than tripling aviation system throughput capacity by tapping the under-utilized general

Source: NASA Nebraska Space Grant & EPSCoR

FIGURE 2-3 SATS CONCEPTUALIZATION

aviation facilities to achieve the national goal of doorstep-to-destination travel at four times the speed of highways for the nation's suburban, rural and remote communities.

FIGURE 2-4 VLJ

The introduction of the Very Light Jet (VLJ) is a major milestone in aviation history. The small (less than 10,000 lbs.) jet can travel at speeds exceeding 400 knots at altitudes of 41,000 feet and is relatively inexpensive in the jet market. These aircraft will allow people to travel in jet aircraft to virtually any airport in the U.S due to the small size and the short length required for takeoff and landing. The demand for these aircraft is beginning to take shape. Estimates have forecasted as many as 4,500 VLJs flying by 2016. The majority of the VLJ market is expected to be business people who seek flexible traveling schedules and air taxi services. The lack of efficiency in the hub and spoke system is a major contributor to the VLJ market which will provide high-speed, low cost, convenient service to desired destinations.

The continued growth in fractional ownership arrangements is another significant industry trend. Fractional ownership arrangements allow businesses and individuals to purchase an interest in an aircraft and pay for only the time that they use the aircraft. According to the National Business Aviation Association (NBAA), in 1986, there were three owners of fractionally held aircraft. By 1993, there were 110. From 2000 to 2002, the number of companies and individuals using fractional ownership grew by 52 percent, from 3,834 to 5,827 shares; the growth from 1999 (2,607) to 2002 was 124 percent. The number of airplanes in fractional programs grew 11 percent in 2002, from 696 to 776. The shift toward turbine aircraft is likely a result of the success of fractional ownership, the introduction of new types of turbine aircraft and a transition from commercial air travel to corporate/business air travel as a result of September 11th.

AVAILABLE ACTIVITY FORECASTS

The first step in preparing aviation forecasts is to examine historical and existing activity levels and currently available forecasts from other sources. The FAA Terminal Area Forecasts (TAF) and the Arizona State Aviation Needs Study (SANS) 2000 were reviewed for the Colorado City Municipal Airport. The FAA TAF (December 2006) indicates 12 existing based aircraft for Colorado City Municipal Airport and 3,700 existing annual operations. The TAF numbers are forecast to remain constant through the year 2025. The Arizona SANS 2000 indicates 13 existing based aircraft and 4,233 existing annual operations at the Colorado City Municipal Airport. SANS 2000 includes a forecast of 19 based aircraft and 6,441 annual operations for Colorado City by the year 2020. The 1999 Colorado City Municipal Airport Master Plan projected 30 based aircraft and 13,500 operations by 2020.

FAA RECORDS OF BASED AIRCRAFT AND OPERATIONS

FAA Form 5010-1, *Airport Master Record*, is the official record kept by the Federal Aviation Administration to document airport physical conditions and other pertinent information. The record normally includes an annual estimate of aircraft activity as well as the number of based aircraft. This information is normally obtained from the airport sponsor. The accuracy of these documents varies directly with the sponsor's record keeping system. The FAA Form 5010-1 for the Colorado City Municipal Airport indicates 8-based aircraft (including one jet and one multiengine piston) and 5,390 annual aircraft operations. This form also breaks down the

Colorado City operations to 240 Air Taxi, 1,600 GA Local, 3,500 GA Itinerant and 50 Military operations. Airport management records and the inventory (August, 2007) for this Master Plan documented the seven based aircraft listed in Table 2-2.

EXISTING AVIATION ACTIVITY

According to the 2006 airport inventory and correspondence with the current airport manager, based aircraft and operations totals at the Colorado City Municipal Airport are similar to the numbers shown in the 5010.

There are currently seven aircraft based at the Colorado City Municipal Airport. The total annual operations estimate for the Colorado City Municipal Airport is approximately 4,500. For the purposes of this study, existing based aircraft and operations at the Colorado City Municipal Airport will be seven aircraft and 4,500 operations. These totals result in approximately 643 operations per based aircraft (OBPA).

The Colorado City Municipal Airport is currently an Airport Reference Code (ARC) B-II airport serving predominately single engine piston, multi-engine piston and turbo prop aircraft, with some use by light turbojet aircraft. Users include:

Air Medivac Services: Air medivac provides essential emergency medical transport in life threatening situations and patient transfers from clinics to higher level care facilities throughout the Colorado City area. These users utilize a variety of multi-engine turboprop and turbojet aircraft.

Business/Recreational Transportation: These users desire the utility and flexibility offered by general aviation aircraft. The types of aircraft utilized for personal and business transportation varies with individual preference and resources and generally include a mix of single-engine, multi-engine and turbojet aircraft. This category also includes hunting and tourism traffic. There will be an increased number of these users as the community continues to grow and the number of second homes increases.

Flight Training: Flight schools from other airports in the state and region have students perform cross-country flights to Colorado City Municipal Airport. Flight training includes instructional flying to obtain a pilot's license or proficiency checks including biennial flight reviews. The majority of aircraft used for flight instruction include single and multi engine piston.

TABLE 2-2 COLORADO CITY BASED AIRCRAFT

Type	Model	Tail Number	Type
Cessna	421	N283PT	MEP
Cessna	Citation	N47FH	TJ
Cessna	140	N76927	SEP
Cessna	172	N739MX	SEP
Cirrus	SR-22	N18DN	SEP
Cessna	182	N9024G	SEP
Piper	Super Cub	N9956T	SEP

SEP: Single-Engine Piston
TJ: Turbojet
MEP: Multi-Engine Piston

Source: Airport Management, August 2007

HISTORICAL BASED AIRCRAFT AND OPERATIONS

There is no accurate historical record of based aircraft and operations for the Colorado City Municipal Airport. According to the 1999 Airport Master Plan, there were 10 based aircraft in 1997 and approximately 3,500 annual operations. There are currently no commercial service or air cargo operations at the Colorado City Municipal Airport.

FORECASTS OF AVIATION ACTIVITY

FACTORS INFLUENCING AVIATION DEMAND

There are several factors that are influencing the aviation demand at the Colorado City Municipal Airport. These factors include the location of the community to several national monuments and parks. The economic development taking place in Colorado City and Hildale is a major factor in the demand for airport facilities. Private recreational, government and tourism flying will continue to be factors in the utilization of the airport.

BASED AIRCRAFT

A comparative analysis of based aircraft forecasts was accomplished using three methodologies to derive a preferred forecast of based aircraft for the Colorado City Municipal Airport. The first method utilized a bottom-up per capita approach that projects the number of based aircraft in direct proportion to the projected population of Colorado City and Hildale. This resulted in 14 based aircraft at Colorado City in 2026.

TABLE 2-3 PER CAPITA METHOD

Year	Population	Aircraft
2006	6,512	7
2011	8,862	10
2016	9,579	11
2021	11,085	12
2026	12,571	14

According to FAA Order 5090.3C, when forecast data is not available, a satisfactory procedure is to forecast based aircraft using the statewide growth rate from the December 2006 TAF and to develop activity statistics by estimating annual operations per based aircraft. The second forecasting method for based aircraft utilized the FAA's Terminal Area Forecast annual growth rate for the State of Arizona of 2 percent per year. This growth rate of 10 percent every five years results in approximately 12 based aircraft in Colorado City in 2026. The TAF Method has been selected as the preferred based aircraft forecast. With future improvements made to the facilities and increased landside development anticipated to take place the TAF reflected the most realistic increase in based aircraft.

TABLE 2-4 FAA TAF METHOD

Year	Based Aircraft
2006	7
2011	8
2016	9
2021	10
2026	12

*Preferred Based Aircraft Forecast

The third forecasting method for based aircraft utilized a market share analysis based on the State Aviation Needs Study (SANS 2000) forecast of based aircraft for Mohave County. The SANS 2000 based aircraft projection for Mohave County was applied to the existing demand level to estimate Colorado City's market share. This market share was then applied to the SANS 2000 aircraft projections. This resulted in 11 based aircraft in Colorado City in 2026.

TABLE 2-5 MARKET SHARE METHOD

Year	Mohave County Based Aircraft	Colorado City Market Share Aircraft
2006	501	7
2011	547	8
2016	601	8
2021	661	9
2026	773	11

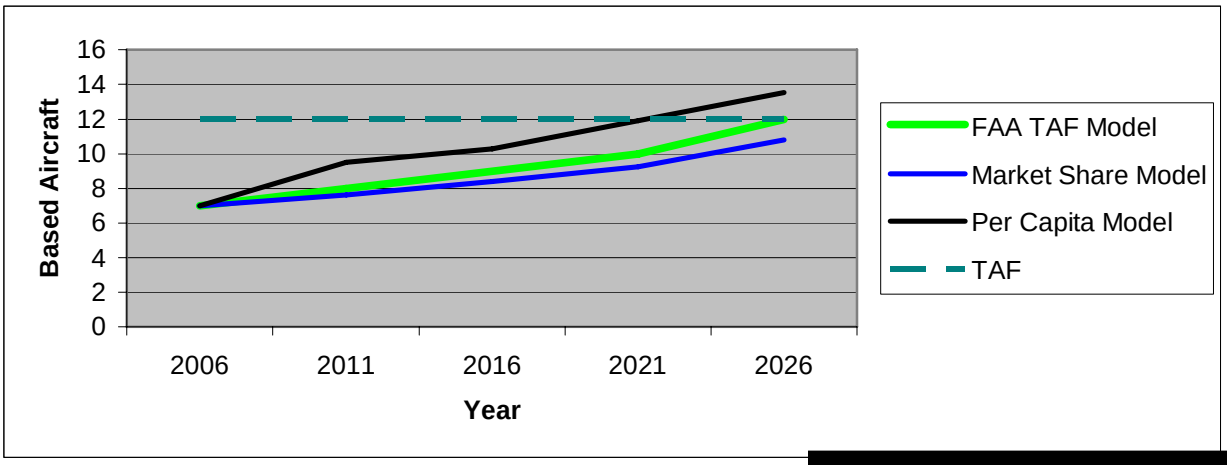


FIGURE 2-5 BASED AIRCRAFT FORECAST

ANNUAL AIRCRAFT OPERATIONS

In order to develop a preferred method of forecasting aircraft operations at the Colorado City Municipal Airport, a number of methods were analyzed. Each method utilizes the preferred based aircraft forecast of 12 based aircraft in 2026, then applies an operations per based aircraft (OPBA) to the based aircraft forecast. The methods are summarized as follows:

Method 1: Existing operations and based aircraft (643 OPBA)

Method 2: FAA Order 5090.3C (250 OPBA)

Method 3: All Arizona NPIAS GA Airports (459 OPBA)

Method 4: FAA Advisory Circular 150/5300-13 (679 OPBA)

For the first method, the base year level of operations per based aircraft of 643 was applied to the preferred based aircraft forecast. Applying 643 OPBA to the preferred based aircraft forecast (Table 2-3) results in 7,716 annual operations in 2026.

A general guideline from FAA Order 5090.3C, Field Formulation of the National Plan of Integrated Airport Systems (NPIAS) of 250 OPBA for rural general aviation airports with little itinerant traffic was applied to the based aircraft forecast for Method 2. Applying 250 OPBA to the preferred based aircraft forecast results in 3,000 forecast operations in 2026.

For the third method, the average OPBA for all Arizona general aviation airports included in the NPIAS was calculated. This average was calculated by dividing the number of based aircraft by the number of operations at each airport according to the SANS 2000 data. The average was calculated to be 459 OPBA. Applying 459 OPBA to the preferred based aircraft forecast results in 5,508 annual operations in 2026.

The fourth method, as outlined in FAA Advisory Circular 150/5300-13, applied 679 OPBA (for NPIAS Public Use Airports) to the preferred based aircraft forecast. This method results in a forecast of 8,148 operations in 2026.

These estimates provide a likely range of activity for future operations at the Colorado City Municipal Airport and are shown in Figure 2-6. Because aircraft operations are expected to continue at the same rate per based aircraft as current levels, Method 1 was determined to be

the most realistic and was therefore selected as the preferred operations forecast for the Colorado City Municipal Airport.

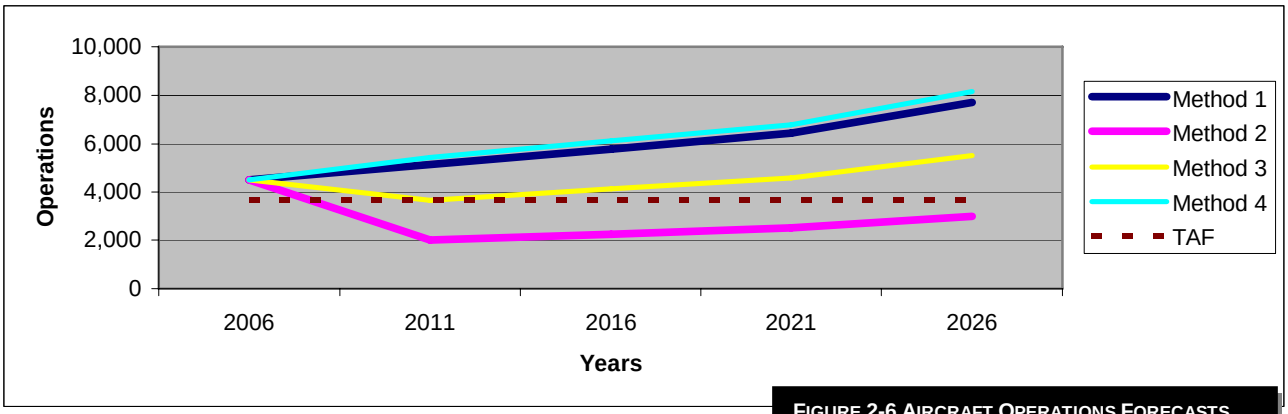


FIGURE 2-6 AIRCRAFT OPERATIONS FORECASTS

ITINERANT AND LOCAL OPERATIONS

Local operations consist primarily of training and recreational flights in the area. The remaining itinerant flights primarily consist of personal transportation, business transportation and recreational flights to and from other airports. The percentage of local versus itinerant operations is expected to trend toward the Arizona average of 58 percent itinerant and 42 percent local based on the anticipated airport users and fleet mix described in the following section. Anticipated users whose operations would likely be considered local include ranchers, aerial observation and surveying, recreation and tourism and flight training.

TABLE 2-6 PREFERRED FORECAST OF AVIATION ACTIVITY

Year	Based Aircraft	Local Operations	Itinerant Operations	Total Operations
2006	7	1,200	3,300	4,500
2011	8	1,372	3,772	5,144
2016	9	1,736	4,051	5,787
2021	10	2,315	4,115	6,430
2026	12	3,241	4,475	7,716

AIRPORT USERS AND FLEET MIX

Interviews with existing and potential users indicate the following types of operations are anticipated for the Colorado City Municipal Airport:

Ranchers: Ranching is one of the primary economic activities in this part of Arizona due to the vast expanse of ranch land. Aircraft are often used in ranching to inventory and locate livestock.

Aerial Observation and Surveying: With close proximity to the several state parks and monuments, the airport may provide a location for government agencies and private individuals to conduct environmental surveys, wildlife counts and other studies. Slow flying, single-engine aircraft are generally the preferred type of aircraft for this use.

Business Transportation: Business aviation users benefit by being able to travel to or from these business centers to conduct business activities in a single day, without requiring an overnight stay or extensive ground travel time. Local and other small businesses will generally utilize single-engine and multi-engine piston aircraft. Medium sized businesses and larger

corporations having a need to travel to the Colorado City/Hildale area would generally utilize multi-engine piston and turboprop aircraft and light to medium business jets respectively. This user category also includes state and federal agencies and travel by government officials.

Personal Transportation: These users desire the utility and flexibility offered by general aviation aircraft. The types of aircraft utilized for personal transportation vary with individual preference and resources and generally include a mix of single-engine, multi-engine and in some cases turbojet aircraft.

Recreational and Tourism: These users include transient pilots flying into the region to visit recreational and tourist attractions. These users mostly utilize single-engine piston aircraft; however, a small percentage may operate multi-engine piston aircraft. Other types of aircraft in this category include home-built, experimental aircraft, gliders and ultralights.

Air Medivac and Medical Services: Air Medivac provides essential emergency medical transport in life threatening situations. Medical services users would be physicians traveling into the airport to provide medical or dental services in the Colorado City/Hildale area. These users utilize a variety of multi-engine turboprop and turbojet aircraft such as Cessna 421's, Beech King Airs, Pilatus PC-12s and Lear Jets.

Flight Training: These users conduct local and itinerant flights in order to meet flight proficiency requirements for obtaining FAA pilot certifications. These flights include touch-and-goes, day and night local and cross-country flights and simulated approaches. Pilot certifications include Sport, Private, Instrument, Commercial, Instructor and Airline Transport ratings. Depending on the level of interest and aircraft availability, a multi-engine rating may or may not be available. A commercial rating may be accomplished with either a single-engine or multi-engine aircraft. Air transport ratings are usually obtained at larger regional FAR Part 121 certificated flight schools.

Search and Rescue: With the vast amount of land located within the Arizona Strip, local aircraft owners and pilots may be requested to assist in search and rescue efforts in the area. The Civil Air Patrol (CAP), a non-profit aviation-related organization is commonly known for providing these types of services on a volunteer basis. CAP also provides mentoring, flight instruction and in some cases aircraft rentals for members and trainees (Cadets). Generally, small single-engine aircraft are used for this purpose.

TABLE 2-7 DETAILED FORECASTS BY AIRCRAFT TYPE

		2006	2011	2016	2021	2026
Single Engine Aircraft		5	5	6	6	6
	Operations	3,700	3,894	4,287	4,730	5,766
Multi Engine Piston/Turbo Prop Aircraft		1	1	1	2	2
	Operations	300	400	500	550	600
Turbo Jet Aircraft		1	1	1	1	2
	Operations	300	400	450	500	600
Rotorcraft		0	0	0	0	0
	Operations	0	200	250	300	350
Experimental & Other		0	1	1	1	1
	Operations	200	250	300	350	400
Annual Operations		4,500	5,144	5,787	6,430	7,716

Based on these types of uses, local operations are expected to be conducted by predominately single-engine aircraft. Itinerant operations are expected to trend from primarily single engine piston aircraft towards the GAMA forecast fleet mix of 65 percent single-engine, 11 percent multi-engine, 6 percent jet, 3 percent helicopter, 15 percent experimental and other. These trends were applied to the operations forecast to derive the forecast by aircraft type shown in Table 2-7.

FIGURE 2-7 CESSNA 525 AT COLORADO CITY MUNICIPAL AIRPORT

AIRPORT SEASONAL USE DETERMINATION

A seasonal fluctuation in aircraft operations may be expected at any airport. This fluctuation is most apparent in regions with severe winter weather patterns and at non-towered general aviation airports. The fluctuation is less pronounced at major airports, with a high percentage of commercial and scheduled airline activity.

Non-towered airports generally experience a substantially higher number of operations in summer months than off-season months. The average seasonal use trend for FAA towered airports from the 1979-1984 records (total aircraft operations handled by tower facilities nationally from FAA Statistical Handbook of Aviation) was used as a baseline for determining seasonal use trends. As discussed above, the seasonal fluctuation is more pronounced at non-towered airports than towered airports. The seasonal use trend for towered airports was adjusted to approximate seasonal use trends at non-towered airports. This is presented in Table 2-8 and in Figure 2-8.

TABLE 2-8 SEASONAL USE TREND

Month	Non-towered	Towered
January	3.5%	7.2%
February	4.0%	8.2%
March	4.8%	8.6%
April	7.5%	9.0%
May	11.3%	9.1%
June	13.5%	9.4%
July	14.8%	9.1%
August	13.0%	8.7%
September	10.0%	8.7%
October	8.0%	7.8%
November	5.8%	7.1%
December	3.8%	7.1%

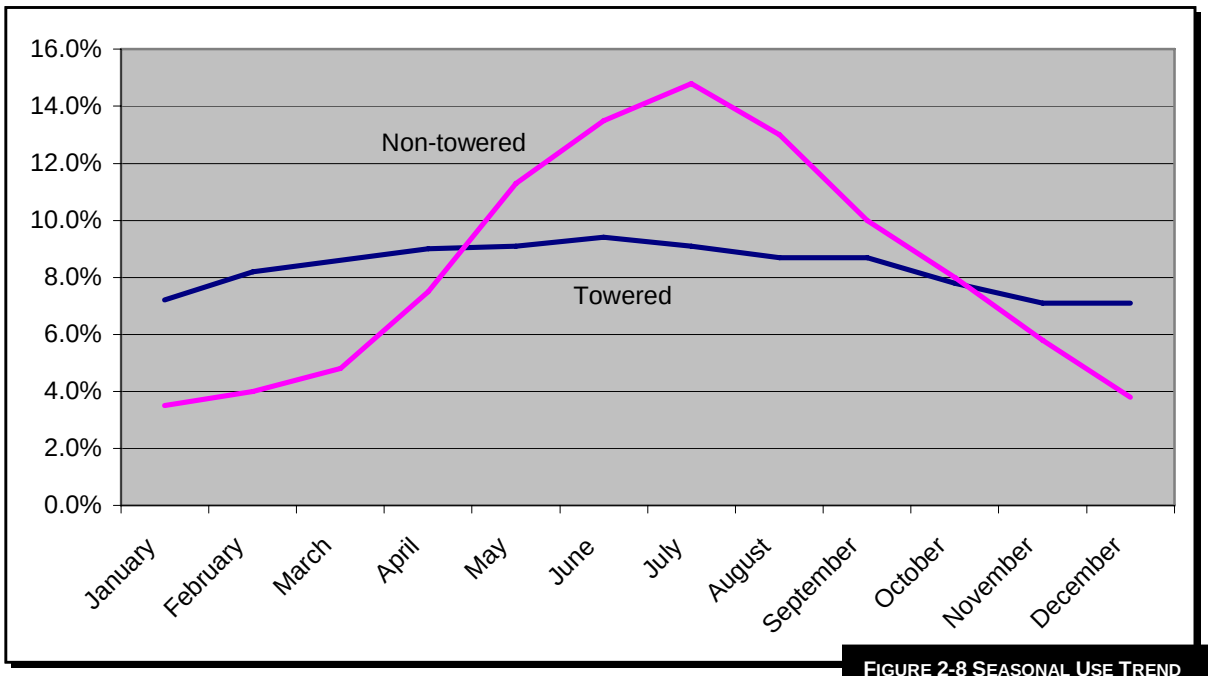


FIGURE 2-8 SEASONAL USE TREND

HOURLY DEMAND AND PEAKING TENDENCIES

In order to arrive at a reasonable estimate of demand at the airport facilities, it was necessary to develop a method to calculate the levels of activity during peak periods. The periods normally used to determine peaking characteristics are defined below:

Peak Month: The calendar month when peak enplanements or operations occur.

Design Day: The average day in the peak month derived by dividing the peak month enplanements or operations by the number of days in the month.

Busy Day: The Busy Day of a typical week in the peak month. In this case, the Busy Day is equal to the Design Day.

Design Hour: The peak hour within the Design Day. This descriptor is used in airfield demand/capacity analysis, as well as in determining terminal building, parking apron and access road requirements.

Busy Hour: The peak hour within the Busy Day. In this case, the Busy Hour is equal to the Design Hour.

The Seasonal Use Trend Curve, as presented in Figure 2-8, was used as a tool to determine the peaking characteristics for the Colorado City Municipal Airport. Using the Seasonal Use information, a formula was derived which will calculate the average daily operations in a given month, based on the percentage of the total annual operations for that month, as determined by the curve. The formula is as follows:

$$M = A (T / 100)$$
$$D = M / (365 / 12)$$

Where T = Monthly percent of use (from curve)
M = Average monthly operations
A = Total annual operations
D = Average Daily Operations in a given month

Approximately 90 percent of total daily operations will occur between the hours of 7:00 AM and 7:00 PM (12 hours) at a typical general aviation airport, meaning the maximum peak hourly occurrence may be 50 percent greater than the average of the hourly operations calculated for this time period.

The Estimated Peak Hourly Demand (P) in a given month was, consequently, determined by compressing 90 percent of the Average Daily Operations (D) in a given month into the 12-hour peak use period, reducing that number to an hourly average for the peak use period and increasing the result by 50 percent as follows:

$$P = 1.5 (0.90D / 12)$$

Where D = Average Daily Operations in a given month.
P = Peak Hourly Demand in a given month.

The calculations were made for each month of each phase of the planning period. The results of the calculations are shown in Table 2-9. As is evident in the Table, the Design Day and Design Hour peak demand in the planning year occurs under VFR weather conditions in the month of July (highlighted in bold in each Table), with 40 daily operations and approximately 4.5 operations per hour in 2026.

TABLE 2-9 ESTIMATED HOURLY DEMAND/MONTH
MONTHLY/DAILY/HOURLY DEMAND

Planning Year: 2011
Operations: 5,144

Month	% Use	Operations Monthly	Daily	Hourly
January	3.5	180	6	0.7
February	4.0	206	7	0.8
March	4.8	247	8	0.9
April	7.5	386	13	1.5
May	11.3	581	19	2.1
June	13.5	694	23	2.6
July	**14.8**	**761**	**25**	**2.8**
August	13.0	669	22	2.5
September	10.0	514	17	1.9
October	8.0	412	14	1.6
November	5.8	298	10	1.1
December	3.8	195	6	0.7

Planning Year: 2016
Operations: 5,787

Month	% Use	Operations Monthly	Daily	Hourly
January	3.5	203	7	0.8
February	4.0	231	8	0.9
March	4.8	278	9	1.0
April	7.5	434	14	1.6
May	11.3	654	22	2.5
June	13.5	781	26	2.9
July	**14.8**	**856**	**28**	**3.2**
August	13.0	752	25	2.8
September	10.0	579	19	2.1
October	8.0	463	15	1.7
November	5.8	336	11	1.2
December	3.8	220	7	0.8

Planning Year: 2021
Operations: 6,430

Month	% Use	Operations Monthly	Daily	Hourly
January	3.5	225	7	0.8
February	4.0	257	8	0.9
March	4.8	309	10	1.1
April	7.5	482	16	1.8
May	11.3	727	24	2.7
June	13.5	868	29	3.3
July	**14.8**	**952**	**31**	**3.5**
August	13.0	836	27	3.0
September	10.0	643	21	2.4
October	8.0	514	17	1.9
November	5.8	373	12	1.4
December	3.8	244	8	0.9

Planning Year: 2026
Operations: 7,716

Month	% Use	Operations Monthly	Daily	Hourly
January	3.5	270	9	1.0
February	4.0	309	10	1.1
March	4.8	370	12	1.4
April	7.5	579	19	2.1
May	11.3	872	29	3.3
June	13.5	1,042	34	3.8
July	**14.8**	**1,142**	**38**	**4.3**
August	13.0	1,003	33	3.7
September	10.0	772	25	2.8
October	8.0	617	20	2.3
November	5.8	448	15	1.7
December	3.8	293	10	1.1

INSTRUMENT OPERATIONS

According to the FAA TAF, 45 percent of the total aircraft operations in Arizona are instrument operations. This number is forecast to increase to 51 percent by 2020. Since virtually all commercial and business jet flights and most military aircraft flights are IFR, the number of instrument operations does not reflect the occurrence of instrument weather or the provision of instrument approaches at airports. At most general aviation airports with an instrument approach and no commercial service or military activity, instrument operations will comprise approximately 2.5 percent of total operations. The majority of general aviation operations are under VFR. Business transportation and air medivac/air ambulance are the most likely users of the instrument approaches at Colorado City with annual instrument operations approximately 0.2 percent of total operations. The number of instrument operations for 2006 were reviewed using GCR airport data which indicated 112 IFR filed flight plans to and from Colorado City Municipal Airport.

FORECAST SUMMARY

Multiple forecasts were prepared for the Colorado City Municipal Airport. Activity estimates were made for based aircraft operations and the ultimate fleet mix at the airport. These forecasts represent low, medium and high expected activity trends. The FAA TAF forecasts based aircraft and operations to remain constant over the 20 year planning period. However, the interest in basing aircraft at the airport shows the potential demand at the airport. This demand is currently constrained by the lack of available hangar space and the lack of a future terminal area plan at the airport. Once a terminal area plan is developed, Colorado City can begin leasing ground on the airport to allow aircraft owners to construct hangars at the airport. Another option for Colorado City is to construct hangars and lease the hangar space to these aircraft owners. This potential demand for basing aircraft and operating at the Colorado City Municipal Airport explains why the master plan preferred forecasts exceed the TAF forecasts by more than 10 percent. Table 2-10 shows the forecast summary for the Colorado City Municipal Airport Master Plan.

TABLE 2-10 FORECAST SUMMARY

	Enplanements			Itinerant Operations					Local Operations					
Year	AC	COMM	TOTAL	AC	AT & COM	GA	MIL	TOTAL	GA	MIL	TOTAL	TOT OPS	INST OPS	BASED AC
2006	0	0	0	0	100	3,200	0	3,300	1,200	0	1,200	4,500	112	7
2011	0	0	0	0	115	3,657	0	3,772	1,372	0	1,372	5,144	128	8
2016	0	0	0	0	129	4,115	0	4,244	1,543	0	1,543	5,787	144	9
2021	0	0	0	0	143	4,572	0	4,715	1,715	0	1,715	6,430	160	10
2026	0	0	0	0	171	5,487	0	5,658	2,058	0	2,058	7,716	192	12

Chapter Three
Facility Requirements

Colorado City Municipal Airport
Airport Master Plan

Chapter Three
Facility Requirements

INTRODUCTION

One of the primary objectives of this planning study is to determine the size and configuration of airport facilities needed to accommodate the types and volume of aircraft expected to utilize the airport. Data from Chapter 1 and forecasts from Chapter 2 are coupled with established planning criteria to determine what improvements are necessary to airside and landside areas. Then, having established the facility requirements, alternatives for providing these facilities are provided in Chapter 4 to determine the viability of meeting the facility needs.

The time frame for addressing development needs usually involves short-term (0-5 years), medium-term (6-10 years) and long-term (11-20 year) periods. Long range planning primarily focuses on the ultimate role of the airport and is related to development. Medium-term planning focuses on a more detailed assessment of needs, while the short-term analysis focuses on immediate action items and may include details not geared towards long-term development.

AIRPORT REFERENCE CODE

The Airport Reference Code (ARC) is a system established by the FAA that is used to relate airport design criteria to the operational and physical characteristics of the aircraft currently operating and/or intended to operate at the airport. The ARC has two components relating to the airport design aircraft. The first component, depicted by a letter, is the Aircraft Approach Category and relates to aircraft approach speed (operational characteristics). The second component, depicted by a Roman numeral, is the Aircraft Design Group and relates to aircraft wingspan and tail height (physical characteristic). Generally, aircraft approach speed applies to runway dimensional criteria and safety zones prior to and beyond the end of the runway. Aircraft wingspan is primarily associated with separation criteria involving taxiways and taxilanes. Table 3-1 has been included to provide a definition of both Aircraft Approach Categories and Aircraft Design Groups. Figure 3-1 shows examples of aircraft and their Airport Reference Codes.

TABLE 3-1 AIRPORT REFERENCE CODE

Approach Category	Approach Speed (knots)
Category A	less than 91
Category B	91 to 120
Category C	121 to 140
Category D	141 to 165
Category E	166 or more

Design Group	Wingspan (ft)	Tail Height (ft)
Group I	less than 49	Less than 20
Group II	49 to 78	20 to 29
Group III	79 to 117	30 to 44
Group IV	118 to 170	45 to 59
Group V	171 to 213	60 to 65
Group VI	214 to 261	66 to 79

AI

Primarily Single-Engine Propeller Aircraft, some light twins

Example Type: Cessna 172 Skyhawk

BI

Primarily Light Twin-Engine Propeller Aircraft

Example Type: Piper Navajo

BII

(<12,500 lbs)
Primarily Light Turboprops

Example Type: Beechcraft King Air

BII

(>12,500 lbs)
Mid-sized corporate jets and commuter airliners

Example Type: Cessna Citation II

A/BIII

Primarily large commuter-type aircraft

Example Type: De Havilland Dash 8

CI, DI

Primarily small and fast corporate jets

Example Type: Lear Jet 36

C/DII

Large corporate jets and regional-type commuter jets

Example Type: Gulfstream IV

C/DIII

Commercial airliners (approx. 100-200 seats)

Example Type: Boeing 737

C/DIV

Large commercial airliners (approx. 200-350 seats)

Example Type: Boeing 767

DV

Jumbo commercial airliners (approx. 350+ seats)

Example Type: Boeing 747

FIGURE 3-1 AIRCRAFT REFERENCE CODES

To ensure that all airport facilities are designed to accommodate the expected air traffic and to meet FAA criteria, the specific ARC for the airport must be determined. In order to designate a specific ARC for an airport, aircraft in that ARC should perform a minimum of 500 annual itinerant operations. The majority of aircraft currently using the Colorado City Municipal Airport have an ARC of A-I, B-I and B-II. Airport users and fleet mix were discussed in Chapter 2. Examples of aircraft with an ARC of A-I and B-I are listed in Table 3-2. Examples of aircraft with an ARC of A-II and B-II are listed in Table 3-3. Examples of aircraft with an ARC of C-II and D-II are listed in Table 3-4. Aircraft with an ARC of A-I through B-II are expected to utilize the airport in the short, medium and long-term time frames. A small number of operations by C-I and C-II aircraft occur at Colorado City Municipal Airport. Given the available runway length and the existing non-precision instrument approach, 500 annual operations of these types of aircraft are not anticipated to occur during the planning period.

This information indicates that fundamental development items should be based on an ARC of B-II for aircraft weighing up to 45,000 pounds. It is also anticipated that occasional operations will occur by C-I, D-I, C-II and C-III aircraft weighing up to 65,000 pounds. It is recommended that wherever feasible the airport should configure facilities, setbacks and separations to minimize constraints for a potential upgrade to an ARC of C-II in the event Category C aircraft operations exceed forecasts.

TABLE 3-2 EXAMPLE AIRCRAFT HAVING AN ARC OF A-I OR B-I

Aircraft	Approach Speed (knots)	Wingspan (feet)	Max T.O. Weight (pounds)
Beech Baron 58P	101	37.8	6,200
Beech Bonanza V35B	70	33.5	3,400
Beech King Air B100	111	45.9	11,799
Cessna 150	55	33.3	1,670
Cessna 172	60	36.0	2,200
Cessna 177	64	35.5	2,500
Cessna 182	64	36.0	2,950
Cessna 340	92	38.1	5,990
Cessna 414	94	44.1	6,750
Cessna Citation I	108	47.1	11,850
Gates Learjet 28/29	120	42.2	15,000
Mitsubishi MU-2	119	39.1	10,800
Piper Archer II	86	35.0	2,500
Piper Cheyenne	110	47.6	12,050
Rockwell Sabre 40	120	44.4	18,650
Swearingen Merlin	105	46.3	12,500
Raytheon Beechjet	105	43.5	16,100

Source: FAA AC 150/5300-13, Airport Design

TABLE 3-3 EXAMPLE AIRCRAFT HAVING AN ARC OF A-II OR B-II

Aircraft	Approach Speed (knots)	Wingspan (feet)	Max T.O. Weight (pounds)
Air Tractor 802F	105	58.0	16,000
Beech King C90-1	100	50.3	9,650
Beech Super King Air B200	103	54.5	12,500
Cessna 441	100	49.3	9,925
Cessna Citation II	108	51.6	13,300
Cessna Citation III	114	50.6	17,000
Dassault Falcon 50	113	61.9	37,480
Dassault Falcon 200	114	53.5	30,650
Dassault Falcon 900	100	63.4	45,500
DHC-6 Twin Otter	75	65.0	12,500
Grumman Gulfstream I	113	78.5	35,100
Pilatus PC-12	85	52.3	9,920

Source: FAA AC 150/5300-13, Airport Design

TABLE 3-4 EXAMPLE AIRCRAFT HAVING AN ARC OF C-II OR D-II

Aircraft	Approach Speed (knots)	Wingspan (feet)	Max T.O. Weight (pounds)
Canadair CL-600	125	61.8	41,250
Gulfstream-III	136	77.8	68,700
1329 JetStar	132	54.5	43,750
Sabre 80	128	50.4	24,500
Gulfstream-II	141	68.8	65,300
Gulfstream-IV	145	77.8	71,780
Rockwell 980	121	52.1	10,325
Cessna Citation 650	126	53.6	23,000
Cessna Citation 750 X	131	63.6	36,100
Astra 1125	126	52.5	23,500
Hawker 125-1000	130	61.9	36,000
Falcon 900 EX	126	63.5	48,300

Source: FAA AC 150/5300-13, Airport Design

AIRSIDE FACILITY REQUIREMENTS

The airside facilities of an airport are described as the runway configuration, the associated taxiway system, the ramp and aircraft parking area and any visual or electronic approach aids.

RUNWAY REQUIREMENTS

Annual Service Volume: The Annual Service Volume (ASV) is a calculated reasonable estimate of an airport's annual capacity; taking into account differences in runway utilization, weather conditions and aircraft mix that would be encountered in one year. When compared to the forecasts or existing operations of an airport, the ASV will give an indication of the adequacy of a facility in relationship to its activity level. The ASV is determined by reference to the charts contained in FAA Advisory Circular (AC) 150/5060-5, Airport Capacity and Delay.

The FAA Airport Design Program was used to calculate the ASV for a two-runway airport with the forecasted operation levels determined in Chapter 2. Annual Service Volume for the runway configuration is 230,000 operations per year. Under these conditions, the existing runway facilities will adequately meet the demand within the time frame of this study.

Runway Length: FAA Advisory Circular 150/5325-4B, Runway Length Requirements for Airport Design, provides guidance for determining runway length requirements. Furthermore, the FAA has developed a computer software program entitled "Airport Design." The program provides the user with recommended runway lengths and other facilities on an airport according to FAA design standards. The information required to execute the program for recommended runway lengths, includes airfield elevation, mean maximum temperature of the hottest month and the effective gradient for the runway. This specific information for the Colorado City Municipal Airport that was used for the purposes of this portion of the study for Runway 11/29:

Field Elevation: 4,871' MSL
Mean Maximum Temperature of Hottest Month: 92.8° F
Effective Gradient: 7 Feet

(Note: The actual difference in feet from runway end to runway end is required to run the FAA software program and is listed as the effective gradient. However, the effective gradient is usually shown as a percent.)

With this data, the Airport Design program provides several runway length recommendations for both small and large aircraft according to varying percentages of aircraft fleet and associated takeoff weights. A summary of the data provided by the program is listed in Table 3-5.

TABLE 3-5 RECOMMENDED RUNWAY LENGTH

Description	Runway Length
Existing Runway Length	6,300'
Recommended to accommodate:	
Small Aircraft (<12,500 lbs.)	
Less than 10 passenger seats	
75 percent of these small airplanes	4,590'
95 percent of these small airplanes	6,110'
100 percent of these small airplanes	6,320'
10 or more passenger seats	6,320'
Large Aircraft (>12,500 lbs., <60,000 lbs.)	
75 percent of these planes at 60 percent useful load	6,780'
75 percent of these planes at 90 percent useful load	8,670'
100 percent of these planes at 60 percent useful load	11,070'
100 percent of these planes at 90 percent useful load	11,070'

Source: FAA Computer Software Program, Airport Design Version 4.2d

Using the results of the FAA's software program, it would be fair to suggest that the runway should have a minimum length of 7,500 feet. This would accommodate 75 percent of the large aircraft fleet at 80 percent useful load. However, it is important to identify the runway length requirements for the specific aircraft that are expected to operate at the airport.

Takeoff Distance Requirements: When determining runway length requirements for any airport it is necessary to consider the types of aircraft (aircraft design group and critical aircraft) that will be using the airport and their respective takeoff distance requirements. Figure 3-2 gives examples of takeoff distance requirements for the aircraft currently using the Colorado City Municipal Airport and aircraft that are anticipated to use the airport in the future.

Based on the required runway lengths for these categories of aircraft, the existing runway length of 6,300 feet provides adequate takeoff distance for the current fleet; however, as operations by large aircraft increase an increased length to 7,500 feet is recommended.

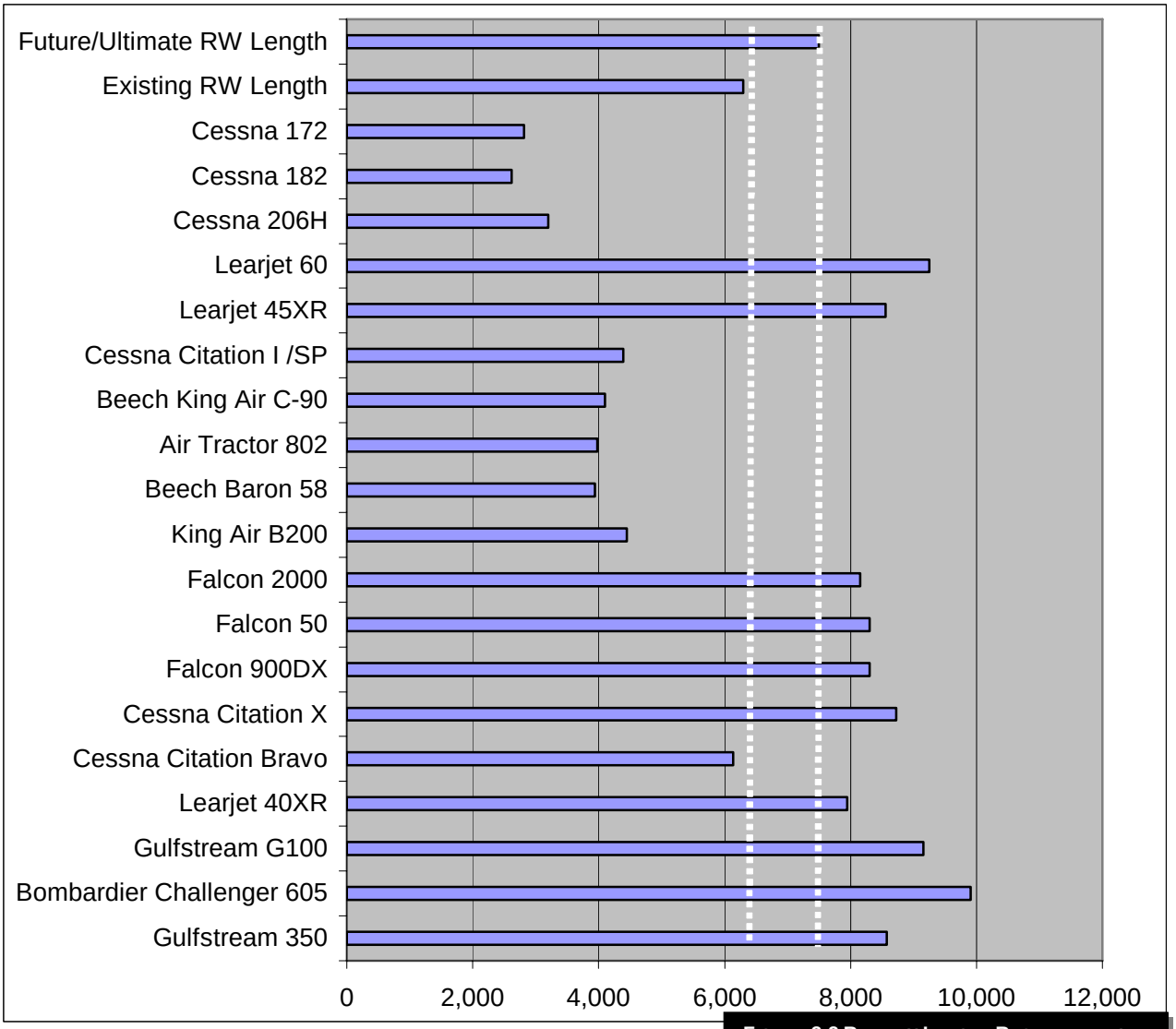


FIGURE 3-2 RUNWAY LENGTH REQUIREMENTS

SOURCE: AIRCRAFT MANUFACTURER'S DATA

**Aircraft performance data based on a mean maximum temperature of the hottest month of 92.8° F and an airport elevation of 4,871 feet mean sea level (MSL).*

Runway Strength and Width: Runway strength requirements are normally based upon the design aircraft that may be expected to use the airport on a regular basis. The existing strength of Runway 11/29 is 12,500 pounds and the existing strength of Runway 2/20 is 12,500 pounds. The existing pavement strengths are considered adequate for the planning period. Should Approach Category C operations exceed 500 annually the pavement strength should be increased to 45,000 SWG/ 68,000 DWG.

FAA design standards for runways serving aircraft having an ARC of B-II require a minimum runway width of 75 feet. The existing Runway 11/29 meets this standard. Runways serving aircraft with an ARC of C-II require a minimum width of 100 feet. A runway widening to 100 feet should be accomplished if operations by aircraft in Approach Category C exceed 500 annually on Runway 11/29.

CROSSWIND RUNWAY REQUIREMENTS

The FAA recommends that a runway's orientation provide at least 95 percent crosswind coverage. If the wind coverage of the runway does not meet this 95 percent minimum for the appropriate ARC, then a crosswind runway should be considered. Crosswind coverage for Runway 11/29 is 86.3 percent for a 10.5 knot crosswind and 89.4 percent for a 13.0 knot crosswind; therefore a B-I crosswind is justified.

The wind study analysis described in Chapter 1 indicated the combined crosswind coverage of Runways 11/29 and 2/20 at the Colorado City Municipal Airport meet the FAA standard of at least 95 percent. The existing width of the crosswind runway is 60 feet, which meets the FAA requirement for a B-I runway. The existing dimensions of the crosswind runway are considered adequate.

RUNWAY INCURSIONS

There are currently no runway incursion mitigation measures in place at the Colorado City Municipal Airport. Perimeter wildlife fencing is planned and an electric vehicle access gate has been installed to minimize the potential for wildlife and vehicle incursions. The airport has lighted holding position signs to increase awareness of runways.

TAXIWAY REQUIREMENTS

Length and Width: The primary function of a taxiway system is to provide access between runways and the terminal area. The taxiways should be located so that aircraft exiting the runway will have minimal interference with aircraft entering the runway or remaining in the traffic pattern. Taxiways expedite aircraft departures from the runway and increase operational safety and efficiency.

According to FAA Advisory Circular 150/5300-13, Airport Design, the minimum recommended runway to taxiway centerline separation for a runway with an ARC of B-II is 240 feet and the minimum recommended width is 35 feet. The minimum recommended runway to taxiway separation for an airport with an ARC of C-II or B-II with an instrument approach with visibility minimums lower than ¾-mile is 300 feet. There is currently a partial parallel taxiway for Runway 2/20, Taxiway B and a partial parallel taxiway to Runway 11/29, Taxiway A. Both taxiways are currently 35 feet wide. Taxiway B is located 225 feet from the runway centerline and Taxiway A is located 300 feet from runway centerline. It is recommended that the taxiways on both runways be extended to full length parallel taxiways. This will eliminate the need for aircraft to back taxi and enhance safety and utility of the airport.

Strength: The strength of the taxiway should be maintained at a strength equal to that of the associated runway pavement.

AIRCRAFT APRON

The apron space requirements as shown in this planning document were developed according to recommendations given in AC 150/5300-13, Airport Design. Consideration must be made in the overall apron requirements for aircraft parking and tiedown requirements, taxilanes, adjacent taxiways and proximity to all aircraft expected to use the airport, including turboprops and business jets.

Future apron square yardage should be planned for both transient and based aircraft. The existing aircraft parking apron occasionally becomes filled to capacity during peak periods in the summertime. An apron expansion is recommended to accommodate based and transient aircraft including business jets. Any future development of the apron should be done outside of

the Runway Visibility Zone (RVZ) in order to meet recommended design standards. Options for clearing the RVZ are included in the development alternatives in Chapter 4.

Tiedown Requirements: Aircraft tiedowns should be provided for those small and medium sized aircraft utilizing the airport. These aircraft risk being damaged or may cause damage or injury in sudden wind gusts if not properly secured. A number of tiedowns are required to accommodate the peak daily transient aircraft and overnight transient aircraft, plus based aircraft that are not hangared. Tiedown requirements for the 20-year planning period are listed in Table 3-6. The current tiedown layout is based on Group II taxilane OFAs. The future apron layout should be planned to provide for Group II taxilane OFAs. Typically large aircraft, including business jets, are not tied down and can usually be parked overtop multiple tiedowns.

FIGURE 3-3 AIRCRAFT APRON

Apron Requirements:
Generally speaking, an apron tiedown area should allow approximately 360 square yards per transient aircraft and 300 square yards per based aircraft. This square yardage per aircraft provides adequate space for tiedowns, circulation and fuel truck movement. Colorado City should plan for additional apron expansion and taxilane expansion to hangar development areas.

NAVIGATIONAL AIDS

A Navigational Aid (NAVAID) is any ground based visual or electronic device used to provide course or altitude information to pilots. NAVAIDs include Very High Omnidirectional Range (VORs), Very High Frequency Omnidirectional Range with Tactical Information (VOR-TACs), Nondirectional Beacons (NDBs) and Tactical Air Navigational Aids (TACANs), as examples. There is an existing NDB located at Colorado City Municipal Airport, no new ground navigational aids are recommended.

APPROACH PROCEDURES

Non-precision Global Positioning System (GPS) approaches do not require ground-based facilities on or near the airport for navigation. The GPS receiver uses satellites for navigation. Therefore, it involves little or no cost for the Airport Sponsor. GPS was developed by the United States Department of Defense for military use and is now available for civilian use. GPS approaches are rapidly being commissioned at airports across the United States, approach minimums as low as 350-foot ceilings and 1-mile visibility are typical for this type of approach. An instrument approach will increase the utility of the airport by providing for the capability to operate in inclement weather conditions. This is especially important for air medivac/air ambulance, physician transport and business flights. It is also useful for conducting training and maintaining instrument currency and proficiency requirements.

The existing approach procedure at the airport includes a non-precision instrument NDB/GPS circle-to-land approach. The minimums for this approach are 829-foot ceiling and 1-mile visibility. A future potential approach that should be considered is a Localizer Performance with

Vertical Guidance (LPV) approach procedure using the Wide Area Augmentation System (WAAS). This approach could potentially provide instrument minimums as low as 200-foot ceilings and less than ¾-mile visibility. The LPV approach with visibility minimums less than 1-mile would increase the FAR Part 77 Primary Surface from 500 feet wide to 1,000 feet wide.

AIRFIELD LIGHTING, SIGNAGE, MARKING AND VISUAL AIDS

Airport lighting enhances safety during periods of inclement weather and nighttime operations by providing visual guidance to pilots in the air and on the ground. Lighting and visual aids can consist of a variety of equipment or a combination thereof as described in Chapter 1. The airport's existing inventory of lighting and visual aids includes two-box precision approach path indicators, a rotating beacon, medium intensity runway lights (MIRLs), runway end identifier lights (REILs), 6-light runway threshold lights, visual runway markings, a segmented circle and taxiway reflectors. The airport terminal area is also equipped with area lighting. The majority of the airfield lighting and visual aids is in good condition and should be maintained in their present condition. An approach lighting system (ALS) such as ODALS, MALS, MALSF, SSALS or SALS would be necessary to obtain ¾-mile or less visibility minimums. The ALS is designed to provide earlier visual acquisition of the runway approach in visibility limiting Instrument Meteorological Conditions (IMC). The lighting of the taxiways with medium intensity taxiway lights (MITLs) is also recommended.

Runway 11/29 and Runway 2/20 are currently marked as visual runways on all ends. Runway markings on all runways are in poor condition and should be remarked as soon as possible. If the approach minimums are lowered to ¾ mile and a straight in approach were developed the change of marking on Runway 29 to precision approach markings is recommended.

LANDSIDE FACILITY REQUIREMENTS

Landside facilities are another important aspect of the airport. Landside facilities serve as the processing interface between the surrounding community and the airport operating environment. Likewise, it offers the traveler the first impression of the airport and the local area. Landside facilities house the support infrastructure for airside operations and often generate substantial revenues for the airport.

FIGURE 3-4 EXISTING TERMINAL BUILDING

TERMINAL BUILDING

The construction of a terminal building at any airport offers many amenities to passengers, local and transient pilots and airport management. Terminal buildings (often called pilot lounges at general aviation airports) most often house public restrooms, public telephones, a pilot's lounge and information regarding airport services. The terminal building includes a lobby area, restrooms, telephone, a flight planning room and airport management offices. The terminal building is well maintained and provides adequate space and amenities to accommodate existing and long term demand. It is recommended that the RVZ clear the terminal building in the future to eliminate the existing nonstandard condition.

Options for clearing the RVZ are presented in the development alternatives in Chapter 4. All future development must remain clear of the RVZ.

HANGAR FACILITIES

Hangars are typically classified as either T-hangars, small multi-unit storage complexes that usually accommodate one single engine aircraft in each unit or conventional hangars, small to very large units, which accommodate a variety of aircraft types or corporate fleets. The number of aircraft that each conventional hangar can hold varies according to the manufacturer and the specifications of the airport owner or operators. The existing hangars at the Colorado City Municipal Airport include the 80-foot by 70-foot FBO maintenance hangar and one T-hangar unit located northeast of the apron area.

FIGURE 3-5 EXISTING T-HANGAR UNIT

Based Aircraft Hangar Requirements: The facility requirements for based aircraft typically determine the number of tiedown locations, number of shaded spaces, number of T-hangars and number of conventional type hangars required for the future. Development areas will be identified on the ALP for a mix of T-hangars, box hangars and larger corporate hangars.

Transient Aircraft Hangar Requirements: Transient single-engine aircraft operators generally do not require aircraft storage facilities unless there is inclement weather expected (such as hail or snow) or if the operator is planning an extended stay. Some higher performance single-engine and multi-engine aircraft operators may desire overnight aircraft storage or a heated hangar in the winter.

General: The airport sponsor should consider providing long-term land leases to interested parties for the construction of aircraft storage hangars. Allowing the tenant to retain ownership of the hangar while leasing the ground reduces capital outlay requirements for Colorado City. The tenant ownership also enables Colorado City to collect property taxes on the hangar and other improvements. The tenant ownership also provides motivation for the tenant to maintain the hangar in good condition to maximize resale value at the end of the lease period. Legislation has made aircraft hangars an eligible cost under the Airport Improvement Program (AIP). While this creates an opportunity for airport sponsors willing to build hangars to meet existing demand, hangars are considered very a low priority. Colorado City should charge a standard annual, monthly and overnight tiedown fee for use of the open apron.

AVIATION FUEL FACILITIES

Fuel is available during normal business hours at the Colorado City Municipal Airport. Westwing Aviation offers 100-Low Lead avgas and Jet A to based and transient aircraft owners. It is recommended that a self-serve credit card reader fueling system be installed to provide 24-hour fuel access at the airport along with a 10,000 gallon Jet A tank. Fuel storage at the airport consists of one 10,000 gallon 100-Low Lead tank, one 2,500 gallon Jet A truck and one 1,000

gallon 100-Low Lead truck. The fuel tank is owned by Colorado City and operated by Westwing Aviation. The fuel trucks are owned and operated by Westwing Aviation.

AIRPORT ACCESS AND VEHICLE PARKING

The Colorado City Municipal Airport is accessed via Airport Avenue, which is a two lane, paved road. Airport Avenue enters the airport from the east side of the airport. Access to the airport is considered adequate for the planning period. There are currently approximately 15 automobile parking spaces available adjacent to the existing terminal building which is considered adequate for the short-term time frame, approximately 35 automobile parking spaces should be made available for the medium and long-term time frames to accommodate airport users and visitors.

FENCING

The Colorado City Municipal Airport is currently fenced with 5-strand barbed wire fencing that follows the existing airport property line. The terminal area is surrounded by a six-foot chain link fence with an electric vehicle access gate. The primary purpose of this fencing is to restrict inadvertent access to the airport by wildlife and persons. Recently the airport has reported that persons have been gaining access to the runway through the existing fence by cutting the existing fence and joy riding out into the airport. Therefore it is recommended that the airport be completely encompassed by wildlife fencing to prevent access to the airport by wildlife and persons and increase security at the airport. The airport management keeps a regular check of the existing fence line to ensure no breaks which would allow cattle and other animals access to the runway.

AIRPORT RESCUE AND FIRE FIGHTING (ARFF) EQUIPMENT & STORAGE BUILDING

Airport Rescue and Fire Fighting (ARFF) equipment is not required at airports that do not serve scheduled passenger service with aircraft having 10 or more passenger seats. Local municipal or volunteer fire departments typically provide fire protection to general aviation airports in their district. Mutual aid agreements may also be provided for nearby fire departments to assist in emergency situations. In any case, procedures should be in place to ensure emergency response in case of an accident or emergency at the airport. Although statistically very safe, the most likely emergency situations at general aviation airports are an aircraft accident, fuel or aircraft fire or hazardous material (fuel) spill. The level of protection recommended in FAA Advisory Circular 150/5210-6D, Aircraft Fire and Rescue Facilities and Extinguisher Agents, for small general aviation airports is 190 gallons of aqueous film forming foam (AFFF) supplemented with 300 pounds of dry chemical. Proximity suits should be utilized for fire fighter protection. Aviation rated fire extinguishers should be immediately available in the vicinity of the aircraft apron and fueling facilities. Adequate facilities should be provided to store any ARFF vehicle(s) or equipment that is acquired.

Currently, aviation fire extinguishers are available at the Colorado City Municipal Airport and the Colorado City Fire District responds to emergencies at the airport. The Colorado City Fire District has 48 volunteers, six fire trucks, a rescue truck and 5,000 gallon water tender. Estimated response time to the airport is eight minutes. It is recommended that the Colorado City Fire District meet the recommendations in FAA Advisory Circular 150/5210-6D. However, these are only recommendations as ARFF equipment is technically not required at the Colorado City Municipal Airport.

SNOW REMOVAL EQUIPMENT

Colorado City currently provides snow removal services at the airport. Colorado City has only a minimal amount of snow removal equipment therefore the airport is a low priority during snow

conditions. It is recommended that the airport obtain its own snow removal equipment (SRE) and SRE storage building.

INFRASTRUCTURE NEEDS

UTILITIES

Available utilities at the airport have been designed and sized to meet the typical needs of a general aviation airport. The existing electrical power is 3-phase 112.5 KVA line. Power is provided by Twin City Power. The airport also has a back up generator on the field to provide power in the event of any power disruptions. Gas in the area is propane and is provided by Standard Supply Company. The airport also has 3 septic tanks located on the field and a non potable water well. Telephone service is provided by South Central Utah Telephone. Water and sewer services are provided on site by a well and septic tanks. The existing utilities are considered adequate for the short to mid term planning period with the exception of the existing septic tanks. It is recommended an upgraded septic system be installed to accommodate existing and future demand in the short term and ultimately the sewer be connected to the Town of Colorado City's sewer system. During the intermediate to long term time frame it is recommended that the electrical power and the water system be upgraded to accommodate additional landside development. It is recommended that the water system be treated to provide potable water to the airport.

WEATHER REPORTING

Weather information is available to pilots through the Automated Weather Observation System (AWOS) located at the airport. AWOS uses various sensors, a voice synthesizer and a radio transmitter to provide real-time weather data. There are four types of AWOS. An AWOS-A only reports altimeter setting while an AWOS-1 also measures and reports wind speed, direction, gusts, temperature and dew point. AWOS-2 provides visibility information in addition to everything reported by an AWOS-1. The most capable system, the AWOS-3 also includes cloud and ceiling data. The Colorado City Municipal Airport AWOS is an AWOS-3. The AWOS transmits over a VHF frequency or the voice portion of a navaid. The transmission can be received within 25 nautical miles of the site or above 3,000 feet above ground level (AGL). The frequency for the AWOS is 118.375 and is published on Aeronautical charts as well as in the airport facilities directory. The AWOS is connected to the telephone service allowing pilots to check current weather conditions at the airport at (928) 875-8045. It is recommended that the Town of Colorado City connect the AWOS to the National Airspace Data Interchange Network (NADIN). This will allow national dissemination of the AWOS observations and allow the National Oceanic and Atmospheric Administration (NOAA) to digitally record the hourly observations and disseminate real-time weather information to Flight Service Stations and other sources.

No buildings/structures may be built within 100 feet of the AWOS. Structures located between 100 feet and 500 feet from the AWOS must have a maximum height no greater than 15 feet below the maximum height of the AWOS. Structures located between 500 feet and 1,000 feet from the AWOS must have a maximum height no greater than 10 feet below the maximum height of the AWOS. Objects of greater height than those referenced above may be constructed within 1,000 feet to 100 feet of the AWOS; however, they must occupy no more than a 10 degree penetration from the AWOS. If multiple objects exceed the height restrictions they must be placed at least 20 degrees apart. This will ensure the accuracy of wind and weather information provided by the AWOS.

LAND USE COMPATIBILITY AND CONTROL

AIRPORT PROPERTY

The existing airport property line encompasses 204 acres according to the airport legal description. Colorado City is the process of an environmental assessment to obtain additional land from the BLM and private land owners for approach protection.

COMPATIBILITY WITH STATE/REGIONAL PLANS

The Master Plan for the Colorado City Municipal Airport should conform to all additional state and regional transportation plans. There is not a current ADOT Highway Plan for the area. According to the ADOT Transportation Planning Division, Colorado City is included in the Grand Canyon Study Area of the Regional Transportation Profile. The Transportation Profile for the Grand Canyon Study Area began in early 2006 and is expected to conclude by December 2007. The Mohave County, Arizona General Plan states that Mohave County should promote increased industrial development in the vicinity of the Colorado City Municipal Airport, which would be considered compatible with the airport.

The Bureau of Land Management (BLM) Resource Management Plan for the Arizona Strip identifies some land surrounding the Colorado City Municipal Airport as lands identified for disposal. Therefore the development of the airport or may be considered compatible with the BLM plan.

ZONING

Development around airports can pose certain hazards to air navigation if appropriate steps are not taken to ensure that buildings and other structures do not penetrate the FAR Part 77 Airspace Surfaces (described in the following section). The FAA, therefore, recommends that all Airport Sponsors implement height restrictions in the vicinity of the airport to protect these Part 77 Surfaces. A draft height restriction zoning ordinance is included as part of this Master Plan project.

COMPATIBLE LAND USE

In addition to ensuring that obstructions to Part 77 Surfaces are avoided or appropriately marked and lighted, it is recommended that the Airport Sponsor make reasonable efforts to prevent incompatible land uses from the immediate area of the airport. For example, the FAA states in FAA Advisory Circular 150/5200-33A, Hazardous Wildlife Attractants On or Near Airports, that landfills and/or transfer stations are incompatible land uses with airports. Therefore, these types of facilities should be located at least 5,000 feet from any point on a runway that serves piston type aircraft and 10,000 feet from any point on a runway that serves turbine type aircraft. Furthermore, any facility which may attract wildlife (especially birds) such as sewage treatment ponds and wastewater treatment plants should also be located this same distance from any point on the runway. Development proposals should also be reviewed to ensure compatibility in the vicinity of the airport.

In 1995, the Town approved the Colorado City Municipal Airport Zoning Ordinance to regulate land uses and the height of objects near the airport. The ordinance established the Airport Development – Mixed Use (AD-MU) district to define appropriate land uses near the airport. The AD-MU district is shown in Figure 3-6. The AD-MU district extends for 5,000 feet from each runway. The Airport Approach (AA) Overlay District is used to define appropriate land uses for properties within the approaches to the airport. The ordinance also defines the imaginary

surfaces used to restrict the height of structures in the vicinity of the airport. An updated draft compatible land use zoning ordinance is included as part of this Airport Master Plan. The updated compatible land use zoning ordinance will include new requirements from the Arizona State Statues. It is recommended that the updated overlay be adopted to continue to protect the airport from incompatible development.

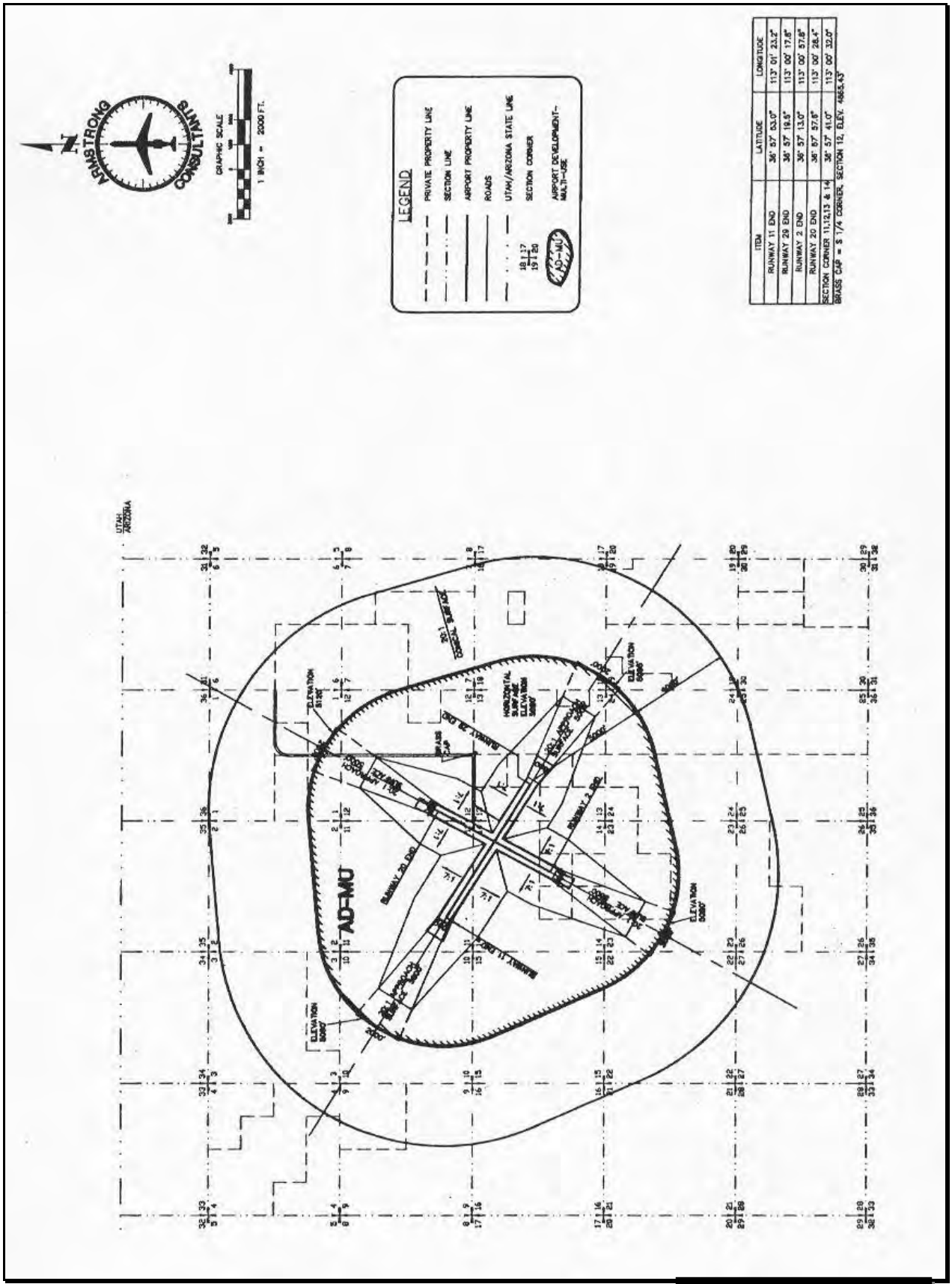


FIGURE 3-6 AD-MU DISTRICT

STATE OF ARIZONA LAND USE PLANNING

Arizona State Statutes 28-8485 and 28-8486 states that airport sponsors can develop Airport Influence Area (AIA) maps, however the State Statutes require the development of airport disclosure maps. These documents are included as part of the Airport Layout Plan portion of this study and will be sent to the Arizona Real Estate Department.

AIRPORT MANAGEMENT STRUCTURE

The management structure for the Colorado City Municipal Airport is City Council to Town Manager to Airport Manager. This management structure is considered adequate for the safe and efficient operation of the Colorado City Municipal Airport.

In order to aid the Colorado City Municipal Airport in the daily operation of the airport, an Airport Operations Manual including minimum standards, rules and regulations, standard lease agreements, an emergency plan with a crash/rescue grid map, airport self inspection procedures and an airport security plan are included in this Master Plan. Colorado City also participates in the Aeronautics Division's Pavement Management Plan program. There is currently no runway incursion program. Although a formal runway incursion plan is not deemed necessary, the installation of a wildlife fence along the airport perimeter would contribute towards incursion minimization.

SUMMARY OF FACILITY REQUIREMENTS

In summary, the facility requirements for the Colorado City Municipal Airport are based on the types and volume of aircraft expected to use the airport in the short and long-term timeframes. These facilities will enable the airport to serve its users in a safe and efficient manner. The recommended airside and landside facilities are summarized in Table 3-6.

TABLE 3-6 SUMMARY OF AIRPORT FACILITY REQUIREMENTS

Facility		Existing	Future
Runways			
11/29	Length (feet)	6,300’	7,500’
	Width (feet)	75’	75’
	Strength (pounds)	12,500 (SWG)	45,000 (SWG), 68,000 (DWG)
2/20	Length (feet)	5,100’	5,100’
	Width (feet)	60’	60’
	Strength (pounds)	12,500 (SWG)	12,500 (SWG)
Marking	Runway 29	Visual	Precision
	Runway 11	Visual	Visual
	Runway 2	Visual	Visual
	Runway 20	Visual	Visual
Taxiways			
	Parallel	Yes	Yes
	Bypass Taxiways/Turnarounds	Yes	Yes
	Width (feet)	35	35
	Strength (pounds)	12,500 (SWG)	45,000 (SWG), 68,000 (DWG)
Apron			
	Tie Downs	14	30*
NAVAID			
	Approaches	NPI (Circling)	NPI (Straight-in)
	Minimums	1-Mile	¾-mile
Lighting & Visual Aids			
	Runway Edge	MIRL	MIRL
	Taxiway/Apron Edge	Reflectors	MITL
	Threshold Lights	Yes	Yes
	REILs	Yes	Yes
	Approach Slope Indicator	PAPI-2	PAPI-2
	Segmented Circle/Wind Cone	Yes	Yes
	Rotating Beacon	Yes	Yes
	Approach Lighting System	No	No
Access & Parking			
	Automobile	15	35*
Hangar Facilities			
	T-Hangars or Small Box Hangars	6	10
	Conventional-Small	0	5
	Conventional-Medium/Large	1	2
Fuel Storage			
	100 LL (gallons)	10,000 Tank and 1,000 Truck	10,000 Tank and Truck
	Jet-A (gallons)	2,500 Truck	10,000 Tank and Truck
Other			
	AWOS	Yes (AWOS III)	Yes (AWOS III)
	Unicom	Yes	Yes
	Terminal Building	Yes	Yes

**As required based on demand*

FEDERAL AVIATION REGULATION (FAR) PART 77 AIRSPACE SURFACES

Federal Aviation Regulations (FAR) Part 77 establishes several Imaginary Surfaces that are used as a guide to provide a safe, unobstructed operating environment for aviation. These surfaces, which are typical for civilian airports, are shown in Figure 3-7. The Primary, Approach, Transitional, Horizontal and Conical Surfaces identified in FAR Part 77 are applied to each runway. For the purpose of this section, a visual/utility runway is a runway that is intended to be used by propeller driven aircraft of 12,500 pound maximum gross weight and less. A non-precision instrument/utility runway is a runway that is intended to be used by aircraft of 12,500 pounds maximum gross weight and less with a straight-in instrument approach procedure and instrument designation indicated on an FAA approved airport layout plan, a military service approved military airport layout plan or by any planning document submitted to the FAA by competent authority. A non-precision instrument/larger-than-utility runway is a runway intended for the operation of aircraft weighing more than 12,500 pounds that also has a straight-in instrument approach procedure.

As described previously, the Colorado City Municipal Airport currently has a non-precision instrument circle-to-land approach to the airport. Runway 11/29 is utility runway since the pavement strength is 12,500 pounds. Runway 2/20 is a utility runway since the pavement strength is 12,500 pounds. The FAR Part 77 Airspace Surfaces for these classifications are described in the following paragraphs. While it is desirable to eliminate penetrations of FAR Part 77 airspace surfaces, in some cases, penetrations (also known as obstructions) may be mitigated with appropriate marking and/or lighting. The surfaces are described below and the dimensions are listed in Table 3-7.

PRIMARY SURFACE

The Primary Surface is an imaginary surface of specific width longitudinally centered on a runway. Primary Surfaces extend 200 feet beyond each end of the paved surface of runways, but do not extend past the end of non-paved runways. 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 the Primary Surface varies from 250, 500 or 1,000 feet depending on the type of approach and approach visibility minimums.

The current primary surface width for Runway 11/29 is 250 feet. This will increase to 1,000 feet if the approach minimums are lowered to ¾-mile and the pavement is strengthened. Although the wider primary surface would likely result in primary and transitional surface penetrations, the OFZ would remain clear. Marking and lighting of all Part 77 obstructions is recommended.

APPROACH SURFACE

The Approach Surface is a surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the Primary Surface. An Approach Surface is applied to each end of the runway based upon the type of approach available or planned for that runway, either 20:1, 34:1 or 50:1. The inner edge of the surface is the same width as the Primary Surface. It expands uniformly to a width corresponding to the FAR Part 77 runway classification criteria.

TRANSITIONAL SURFACE

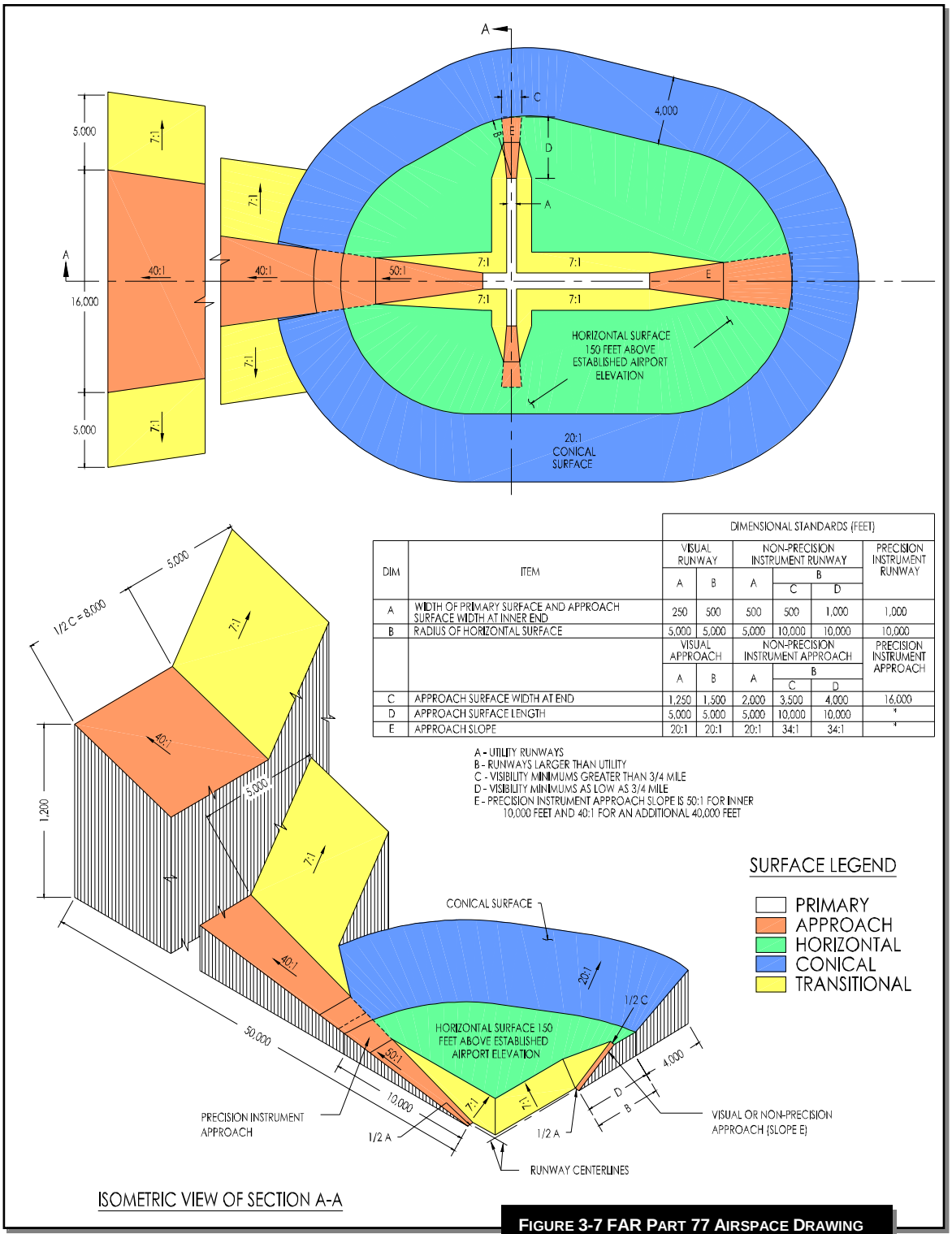
The Transitional Surfaces extend outward and upward at right angles to the runway centerlines from the sides of the Primary and Approach Surfaces at a slope of 7:1 and end at the Horizontal Surface.

HORIZONTAL SURFACE

The Horizontal Surface is considered necessary for the safe and efficient operation of aircraft in the vicinity of an airport. As specified in FAR Part 77, the Horizontal Surface is a horizontal plane 150 feet above the established airport elevation. The airport elevation is defined as the highest point of an airport's useable runways, measured in feet above mean sea level. The perimeter is constructed by arcs of specified radius from the center of each end of the Primary Surface of each runway. The radius of each arc is 5,000 feet for runways designated as utility or visual and 10,000 feet for all other runways.

CONICAL SURFACE

The Conical Surface extends outward and upward from the periphery of the Horizontal Surface at a slope of 20:1 for a horizontal distance of 4,000 feet.



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

A - UTILITY RUNWAYS
B - RUNWAYS LARGER THAN UTILITY
C - VISIBILITY MINIMUMS GREATER THAN 3/4 MILE
D - VISIBILITY MINIMUMS AS LOW AS 3/4 MILE
E - PRECISION INSTRUMENT APPROACH SLOPE IS 50:1 FOR INNER 10,000 FEET AND 40:1 FOR AN ADDITIONAL 40,000 FEET

FIGURE 3-7 FAR PART 77 AIRSPACE DRAWING

SOURCE: FAR PART 77

SUMMARY OF DESIGN STANDARDS

Table 3-7 summarizes the FAA design standards (described in Chapter 1) for the recommended airport facilities.

TABLE 3-7 SUMMARY OF DIMENSIONAL CRITERIA

Design Criteria	Existing	Future	Post-Planning Potential
Airport Reference Code	B-II	B-II	C-II
Approach Type	Visual (Circling) Utility, 1-mile visibility minimums	NPI >Utility, ¾ mile visibility minimums	NPI >Utility, ¾ mile visibility minimums
FAA Airport Design Standards (AC 150/5300-13 Change 11)			
Runway centerline to parallel taxiway centerline	240' (300' actual)	240' (300' planned)	300'
Runway centerline to edge of aircraft parking apron	250' (590' actual)	250' (500' planned)	500'
Runway width	75'	75'	100'
Runway shoulder width	10'	10'	10'
Runway Safety Area width	150'	150'	500'
Runway Safety Area length beyond runway end	300'	300'	1,000'
Runway Object Free Area width	500'	500'	800'
Runway Object Free Area length beyond runway end	300'	300'	1,000
Runway Obstacle Free Zone width	400'	400'	400'
Runway Obstacle Free Zone length beyond runway end	200'	200'	250'
Runway Protection Zone	1,000'x500'x700'	1,700'x1,000'x1,510'	1,700'x1,000'x1,510'
Taxiway width	35'	35'	35'
Taxiway Safety Area width	79'	79'	79'
Taxiway Object Free Area width	131'	131'	131'
Taxilane Object Free Area width	115'	115'	115'
Runway centerline to aircraft hold lines	200'	200'	200'
Airspace Surfaces (Part 77)			
Primary Surface width	250'	1,000'	1,000'
Primary Surface length beyond runway ends	200'	200'	200'
Approach Surface dimensions RW 11	250'x1,250'x5,000'	1,000'x3,500'x10,000'	1,000'x3,500'x10,000'
Approach Surface dimensions RW 29	250'x1,250'x5,000'	1,000'x4,000'x10,000'	1,000'x4,000'x10,000'
Approach Surface dimensions RW 2	250'x1,250'x5,000'	250'x1,250'x5,000'	250'x1,250'x5,000'
Approach Surface dimensions RW 20	250'x1,250'x5,000'	250'x1,250'x5,000'	250'x1,250'x5,000'
Approach Surface slope RW 11	20:1	20:1	20:1
Approach Surface slope RW 29	20:1	34:1	34:1
Approach Surface slope RW 2	20:1	20:1	20:1
Approach Surface slope RW 20	20:1	20:1	20:1
Transitional Surface slope	7:1	7:1	7:1
Horizontal Surface radius from runway	5,000'	10,000'	10,000'
Conical Surface width	4,000'	4,000'	4,000'

SOURCE: FAA AC 150/5300, AIRPORT DESIGN; FAR PART 77, OBJECTS AFFECTING NAVIGABLE AIRSPACE

Chapter Four
Development Alternatives

Colorado City Municipal Airport
Airport Master Plan

Chapter Four
Development Alternatives

INTRODUCTION

The preceding discussion of facility requirements provides the basis for formulating alternative development concepts. Chapter 3 provided recommended development items for the airport. In some situations, multiple options exist for implementing facility requirements. In other cases, the selection of a favored project can result from a straightforward and logical discussion of the options at hand.

The Facility Requirements Chapter provided recommended development to accommodate existing and future demand at the Colorado City Municipal Airport with a B-II Airport Reference Code (ARC). The airside alternatives focus on correcting the nonstandard Runway Visibility Zone (RVZ) condition and the landside alternatives focus on selecting preferred locations for siting various sectors of aeronautical users. The goal of future development will be to place landside development facilities outside of the RVZ, to meet aviation demand in an efficient and cost effective manner and to configure facilities for the maximum potential for future upgrade or expansion.

AIRSIDE ALTERNATIVES

Fundamentally, the airside airport configuration meets the facility requirements for existing and future demand with a B-II airport reference code and ¾-mile instrument approach minimums. There are several logical improvements, such as strengthening the airfield pavements and constructing a 480 foot extension to Runway 11/29, which do not require an extensive alternatives analysis. For example, the potential environmental impacts (including cultural resources and jurisdictional waters) and increased RVZ penetrations result in significant obstacles to extending the runway to the southeast. Therefore, the logical action is to extend the runway to the northwest where there are fewer obstacles. On the other hand, there are multiple variations and options to correcting the nonstandard RVZ conditions which warrant further analysis of each alternative to develop a preferred solution. The RVZ alternative analysis is detailed below. The advantages and disadvantages of each alternative are listed in order to conduct an overall comparative analysis. Each alternative is also shown graphically in the drawings at the end of this Chapter.

Alternative 1 Relocate Terminal and Apron
This alternative would include relocating the existing terminal building and apron outside of the RVZ.

The major advantages to this alternative are:

- Requires no shifting of Runways
- Moves the terminal building and apron outside the RVZ
- Does not reduce the length of existing runways
- No significant environmental impacts

The major disadvantages to this alternative are:

- Requires the relocation of existing facilities, because the terminal building is a sponsor-owned facility the FAA eligible costs include demolition and removal but not relocation, however new general aviation terminals are eligible to receive nonprimary entitlement funding.

- Costs associated with relocating the facilities
- Requires land acquisition for future landside development

Alternative 2 Shorten Runway 20
This alternative would include removing 2,047 feet from the northeast end of Runway 2/20, which would move the RVZ outside of the terminal building and apron. This alternative would reduce the length of Runway 2/20 to 3,053 feet.

The major advantages to this alternative are:
- Moves terminal building and apron out of the RVZ
- No land acquisition required
- No significant environmental impacts

The major disadvantages to this alternative are:
- Reduces the length of Runway 2/20 by 2,047 feet to 3,053 feet
- Does not meet the FAA recommended crosswind runway length
- Removes partial parallel taxiway on the crosswind runway
- Does not meet the local planning objectives of the Town of Colorado City

Alternative 3 Shift Runway 11/29
This alternative would include removing 1,804 feet from the southeast end of Runway 11/29 and adding 2,100 feet of runway to the northwest end of Runway 11/29, this would move the terminal building and the apron out of the RVZ.

The major advantages to this alternative are:
- Moves the apron and terminal building out of the RVZ
- Does not require the relocation of the terminal building and aircraft parking apron
- No impacts to wetlands/jurisdictional waters

The major disadvantages to this alternative are:
- Requires additional land acquisition
- Potential impacts to historical and archaeological resources

Alternative 4 Shift Runway 2/20
This alternative would include removing 2,047 feet from the northeast end of Runway 2/20 and adding the 2,047 feet to the southwest end of Runway 2/20, this would move the terminal building and the apron out of the RVZ.

The major advantages to this alternative are:
- Moves the apron and terminal building out of the RVZ
- Does not require the relocation of the terminal building and aircraft parking apron

The major disadvantages to this alternative are:
- Requires additional land acquisition
- Removes a portion of parallel taxiway on Runway 2/20
- Potential impact to wetlands/jurisdictional waters
- Potential impact to historical and archaeological resources

Alternative 5 Shift Runways 11/29 and 2/20
This alternative would include shifting a combination of Runway 11/29 and 2/20, Runway 11/29 would be shifted 1,000 feet to the northwest and Runway 2/20 would be shifted 1,000 feet to the southwest, this would move the terminal building and the apron out of the RVZ.

The major advantages to this alternative are:

- Moves the apron and terminal building out of the RVZ
- Does not require the relocation of the terminal building and aircraft parking apron

The major disadvantages to this alternative are:

- Requires shifting of both runways
- Requires additional land acquisition
- Removes a portion of parallel taxiway on Runway 2/20
- Potential impacts to wetlands
- Potential impacts to historical and archaeological resources

AIRSIDE ALTERNATIVES CONCLUSIONS AND RECOMMENDATIONS

As a result of the potential impacts on wetlands and archaeological resources and no apparent operational or economical benefit Alternatives 4 and 5 have been eliminated from further evaluation. Alternative 2 has also been eliminated from further evaluation because it does not meet the planning objectives of the local community and does not meet the recommendations of the FAA on crosswind runway length. Further review of Alternatives 1 and 3 costs in Tables 4-1 and 4-2 indicate Alternative 1 is significantly less costly than Alternative 3. It is recommended the project be undertaken near the end of the useful life of the apron and terminal building. At that time the existing apron could be pulverized and used as base course in the new apron and the new/replacement general aviation terminal building would be FAA eligible using nonprimary entitlement funds.

TABLE 4-1 ALTERNATIVE 1 ESTIMATED COST

Project	Total Cost	FAA Share	State Share	Local Share
Remove Existing Terminal Building	$45,000	$42,750	$1,125	$1,125
Construct New General Aviation Terminal Building	$450,000	$427,500	$11,250	$11,250
Construct New Apron (230'x300')	$500,000	$475,000	$12,500	$12,500
TOTAL COST	**$995,000**	**$945,250**	**$24,875**	**$24,875**

TABLE 4-2 ALTERNATIVE 3 ESTIMATED COST

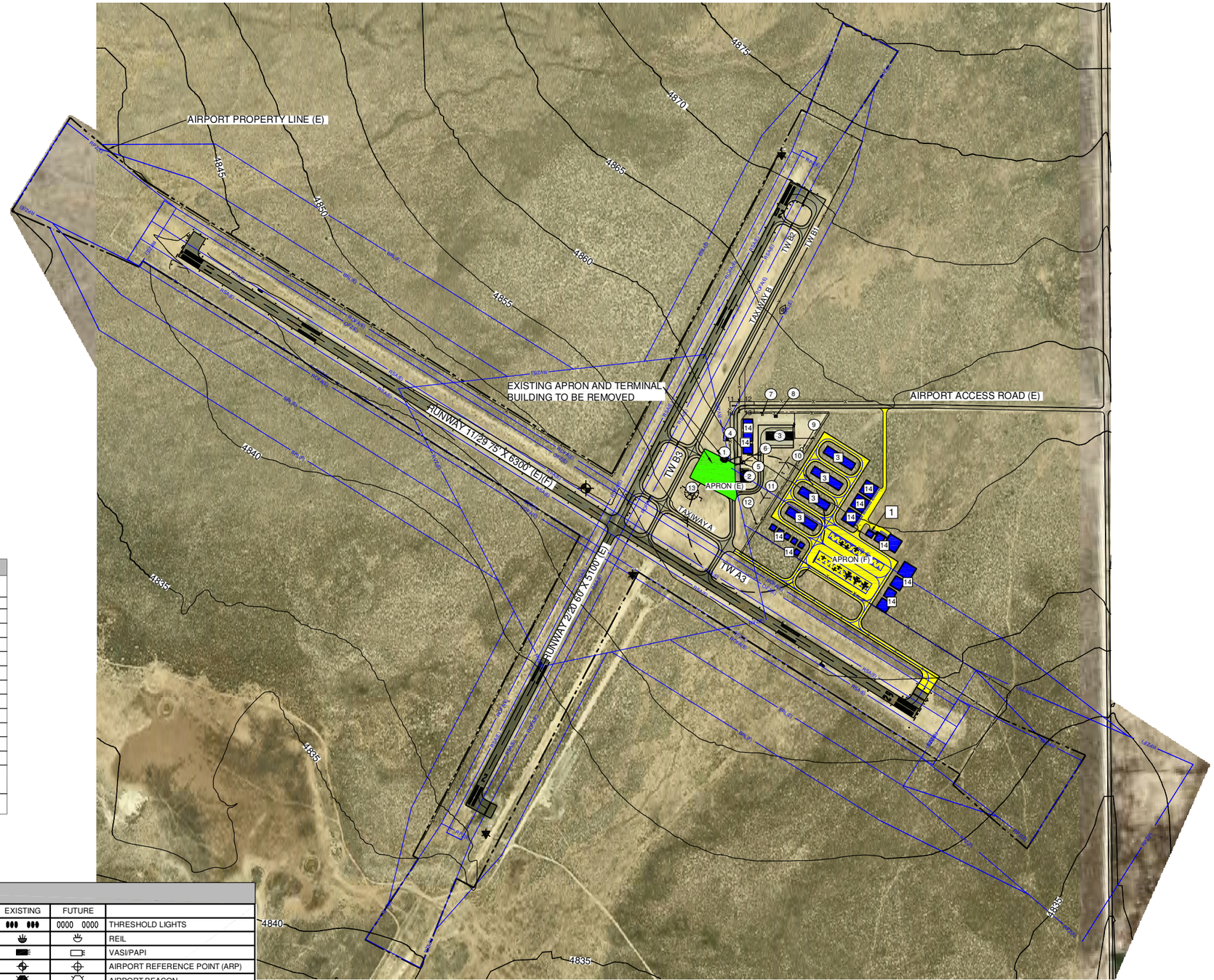
Project	Total Cost	FAA Share	State Share	Local Share
Remove 1,804' of Runway	$100,000	$95,000	$2,500	$2,500
Construct 2,100' of Runway	$1,490,000	$1,415,500	$37,250	$37,250
Fencing	$40,000	$38,000	$1,000	$1,000
Visual Aids	$65,000	$61,750	$1,625	$1,625
Lighting	$110,000	$104,500	$2,750	$2,750
Marking	$50,000	$47,500	$1,250	$1,250
Environmental Assessment	$150,000	$142,500	$3,750	$3,750
Land Acquisition (±36 acres)	$54,000	$51,300	$1,350	$1,350
TOTAL	**$2,059,000**	**$1,956,050**	**$51,475**	**$51,475**

NO DEVELOPMENT ALTERNATIVE

The Town of Colorado City also considered a no development alternative. However, because the airport is in need of development to correct existing design standard deficiencies and accommodate demand, this alternative was not pursued further.

SELECTION OF THE PREFERRED ALTERNATIVE

These alternatives were presented during a planning committee meeting to obtain feedback and comments along with the determination of the preferred alternative. The recommended development alternative is Alternative 1. This alternative provides the most cost effective solution, the least amount of potential environmental impacts and adequate landside development area for future demand. Figure 4-6 shows the recommended development projects at the Colorado City Municipal Airport.



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SCALE IN FEET

AIRPORT FACILITIES LIST		
EXISTING	FUTURE	FACILITY DESCRIPTION
1	1	FBO
2		MAINTANCE HANGAR
3	3	T- HANGAR
4		FUEL STORAGE TANK
5		ELECTRICAL VAULT
6		BEACON
7		ELECTRICAL TRANSFORMER
8		DIESEL FUEL STORAGE TANK
9		WATER STORAGE TANK
10		PUMP HOUSE
11		NON-DIRECTIONAL BEACON
12		AWOS III
13		SEGMENTED CIRCLE W/LIGHTED WIND CONE
	14	BOX HANGARS

LEGEND

EXISTING	FUTURE/ULTIMATE	DESCRIPTION	EXISTING	FUTURE	
		AIRFIELD DEVELOPMENT (ASPHALT)		0000 0000	THRESHOLD LIGHTS
		STRUCTURE/FACILITIES (BUILDING)			REIL
		AIRPORT PROPERTY LINE (APL)			VASI/PAPI
RSA(E)	RSA(F)(U)	RUNWAY SAFETY AREA (RSA)			AIRPORT REFERENCE POINT (ARP)
OFZ(E)	OFZ(F)(U)	OBSTACLE FREE ZONE (OFZ)			AIRPORT BEACON
ROFA(E)	ROFA(F)(U)	RUNWAY OBJECT FREE AREA (ROFA)			WIND CONE & SEGMENTED CIRCLE
RPZ(E)	RPZ(F)(U)	RUNWAY PROTECTION ZONE (RPZ)		N/A	SECTION CORNER
RVZ(E)	RVZ(F)(U)	RUNWAY VISIBILITY ZONE (RVZ)			AWOS
BRL(E)	BRL(F)(U)	BUILDING RESTRICTION LINE (BRL)			DRAINAGE/ CULVERT
TSA(E)	TSA(F)(U)	TAXIWAY SAFETY AREA (TSA)	4125	N/A	CONTOURS
TOFA(E)	TOFA(F)(U)	TAXIWAY OBJECT FREE AREA (TOFA)			ROADS
		FENCING			MARKINGS
		TO BE REMOVED			

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COLORADO CITY MUNICIPAL AIRPORT
COLORADO CITY, ARIZONA

AIP No.

AIRPORT MASTER PLAN

No.	Revision	Date	By

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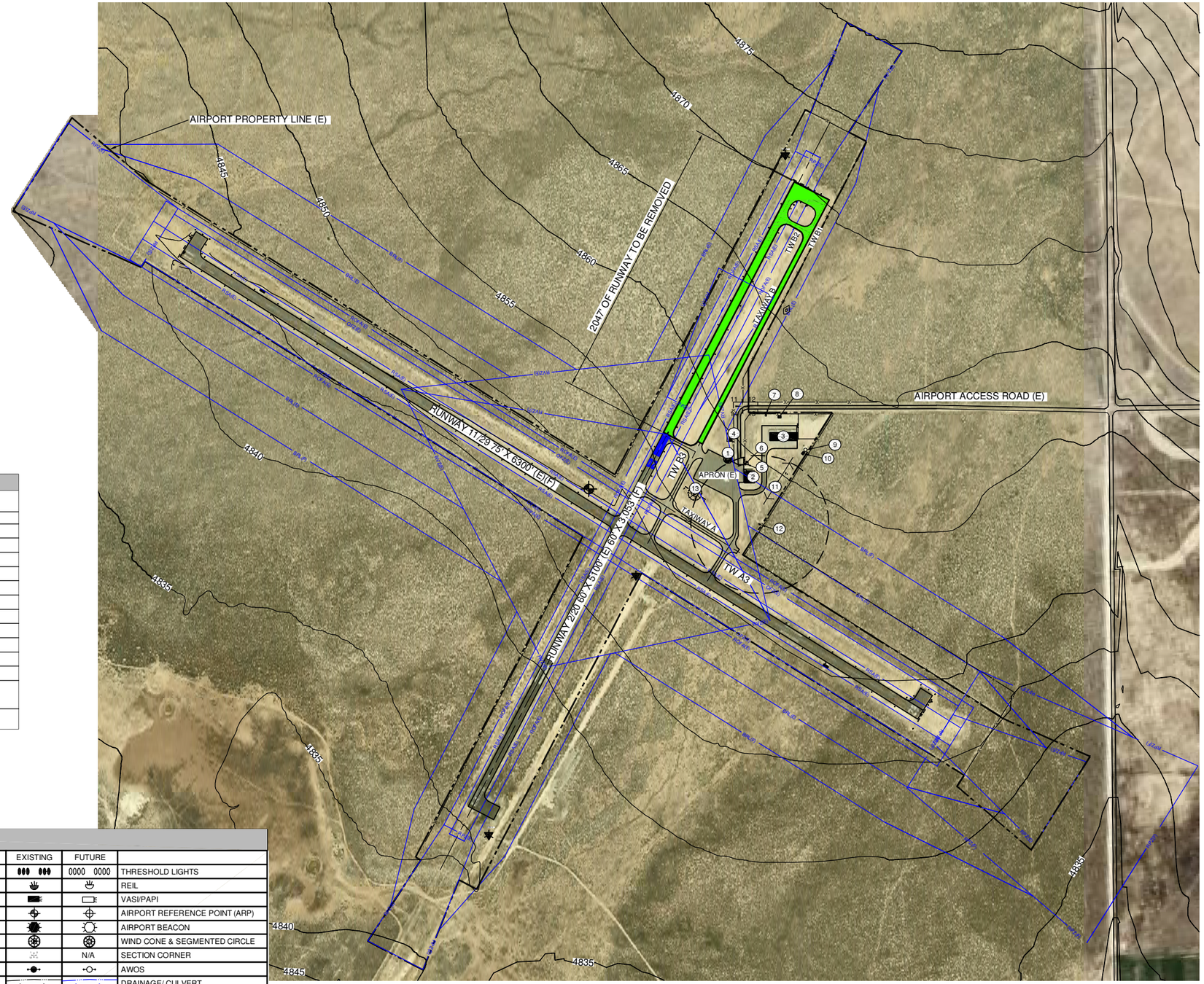
Project No: 075831
Date: OCT. 2007
File Name: 5831100 ALT

Drawn: GWK
Checked: JZP
Approved: DAC

ALTERNATIVE 1
RELOCATE TERMINAL AND APRON

FIGURE 4-1



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SCALE IN FEET

AIRPORT FACILITIES LIST		
EXISTING	FUTURE	FACILITY DESCRIPTION
1	1	FBO
2		MAINTANCE HANGAR
3	3	T- HANGAR
4		FUEL STORAGE TANK
5		ELECTRICAL VAULT
6		BEACON
7		ELECTRICAL TRANSFORMER
8		DIESEL FUEL STORAGE TANK
9		WATER STORAGE TANK
10		PUMP HOUSE
11		NON-DIRECTIONAL BEACON
12		AWOS III
13		SEGMENTED CIRCLE W/LIGHTED WIND CONE
	14	BOX HANGARS

LEGEND					
EXISTING	FUTURE/ULTIMATE	DESCRIPTION	EXISTING	FUTURE	
		AIRFIELD DEVELOPMENT (ASPHALT)			THRESHOLD LIGHTS
		STRUCTURE/FACILITIES (BUILDING)			REIL
		AIRPORT PROPERTY LINE (APL)			VASI/PAPI
RSA(E)	RSA(F)(U)	RUNWAY SAFETY AREA (RSA)			AIRPORT REFERENCE POINT (ARP)
OFZ(E)	OFZ(F)(U)	OBSTACLE FREE ZONE (OFZ)			AIRPORT BEACON
ROFA(E)	ROFA(F)(U)	RUNWAY OBJECT FREE AREA (ROFA)			WIND CONE & SEGMENTED CIRCLE
RPZ(E)	RPZ(F)(U)	RUNWAY PROTECTION ZONE (RPZ)		N/A	SECTION CORNER
RVZ(E)	RVZ(F)(U)	RUNWAY VISIBILITY ZONE (RVZ)			AWOS
BRL(E)	BRL(F)(U)	BUILDING RESTRICTION LINE (BRL)			DRAINAGE/ CULVERT
TSA(E)	TSA(F)(U)	TAXIWAY SAFETY AREA (TSA)	4125	N/A	CONTOURS
TOFA(E)	TOFA(F)(U)	TAXIWAY OBJECT FREE AREA (TOFA)			ROADS
FENCING					MARKINGS
		TO BE REMOVED			

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COLORADO CITY MUNICIPAL AIRPORT
COLORADO CITY, ARIZONA

AIP No.
AIRPORT MASTER PLAN

No.	Revision	Date	By

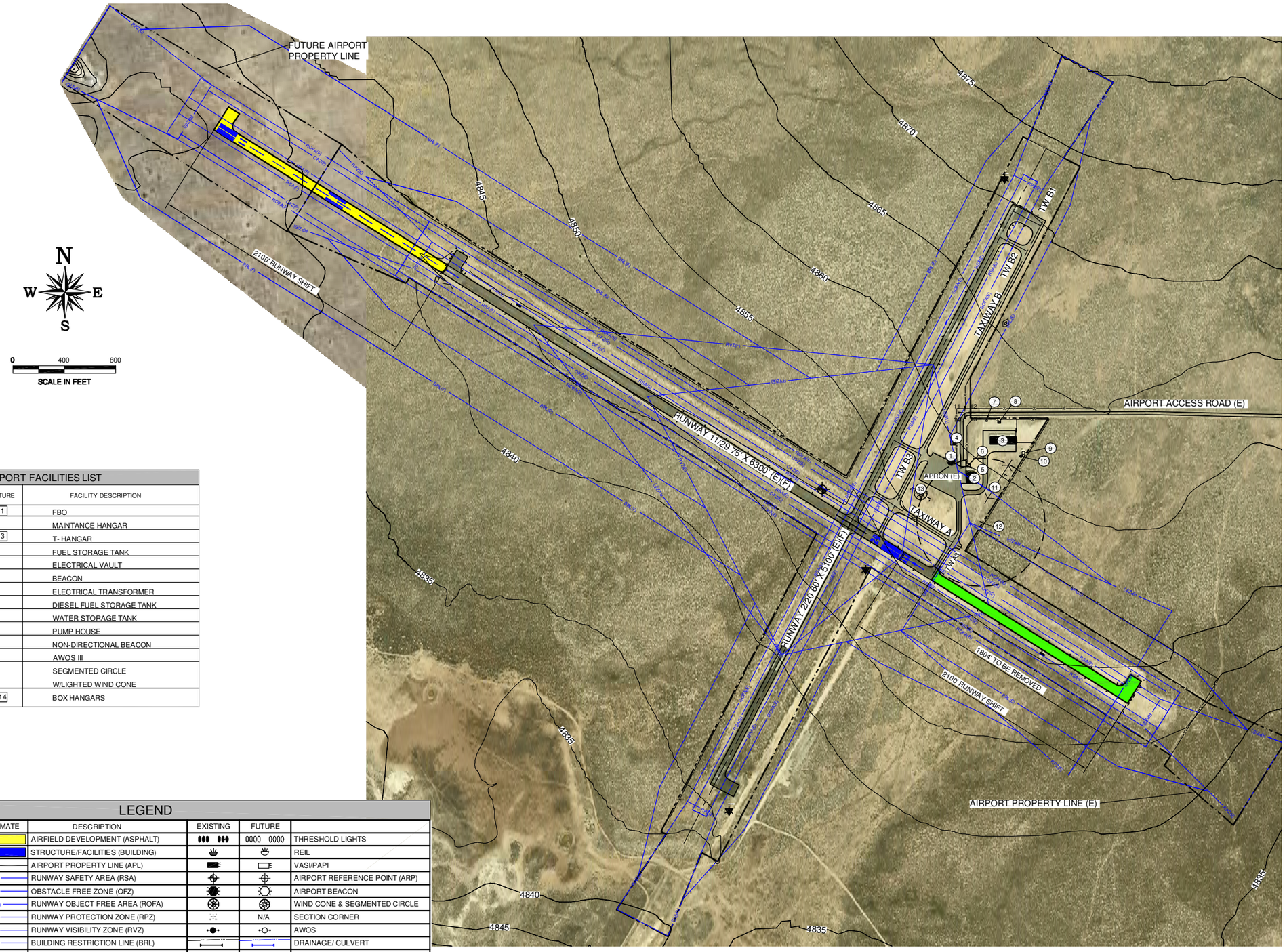
THE PREPARATION OF THIS DOCUMENT WAS FINANCED IN PART THROUGH THE AIRPORT IMPROVEMENT PROGRAM OF THE FEDERAL AVIATION ADMINISTRATION. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE F.A.A. AND DO NOT CONSTITUTE A STANDARD, SPECIFICATION OR REGULATION. ACCEPTANCE OF THIS PLAN 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 THEREIN NOR DOES IT ASSURE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH PUBLIC LAWS. ALL PROJECTS MUST BE EVALUATED ON THEIR OWN MERITS IN CONFORMANCE WITH APPROPRIATE PUBLIC LAWS.

Project No: 075831
Date: OCT. 2007
File Name: 5831100 ALT

Drawn: GWK
Checked: JZP
Approved: DAC

ALTERNATIVE 2
SHORTEN RUNWAY 20

FIGURE 4-2



AIRPORT FACILITIES LIST		
EXISTING	FUTURE	FACILITY DESCRIPTION
1	1	FBO
2		MAINTANCE HANGAR
3	3	T- HANGAR
4		FUEL STORAGE TANK
5		ELECTRICAL VAULT
6		BEACON
7		ELECTRICAL TRANSFORMER
8		DIESEL FUEL STORAGE TANK
9		WATER STORAGE TANK
10		PUMP HOUSE
11		NON-DIRECTIONAL BEACON
12		AWOS III
13		SEGMENTED CIRCLE W/LIGHTED WIND CONE
	14	BOX HANGARS

LEGEND					
EXISTING	FUTURE/ULTIMATE	DESCRIPTION	EXISTING	FUTURE	
		AIRFIELD DEVELOPMENT (ASPHALT)			THRESHOLD LIGHTS
		STRUCTURE/FACILITIES (BUILDING)			REIL
		AIRPORT PROPERTY LINE (APL)			VASI/PAPI
RSA(E)	RSA(F)(U)	RUNWAY SAFETY AREA (RSA)			AIRPORT REFERENCE POINT (ARP)
OFZ(E)	OFZ(F)(U)	OBSTACLE FREE ZONE (OFZ)			AIRPORT BEACON
ROFA(E)	ROFA(F)(U)	RUNWAY OBJECT FREE AREA (ROFA)			WIND CONE & SEGMENTED CIRCLE
RPZ(E)	RPZ(F)(U)	RUNWAY PROTECTION ZONE (RPZ)		N/A	SECTION CORNER
RVZ(E)	RVZ(F)(U)	RUNWAY VISIBILITY ZONE (RVZ)			AWOS
BRL(E)	BRL(F)(U)	BUILDING RESTRICTION LINE (BRL)			DRAINAGE/ CULVERT
TSA(E)	TSA(F)(U)	TAXIWAY SAFETY AREA (TSA)	4125	N/A	CONTOURS
TOFA(E)	TOFA(F)(U)	TAXIWAY OBJECT FREE AREA (TOFA)			ROADS
x x	xx xx	FENCING			MARKINGS
		TO BE REMOVED			

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COLORADO CITY MUNICIPAL AIRPORT
COLORADO CITY, ARIZONA

AIP No.
AIRPORT MASTER PLAN

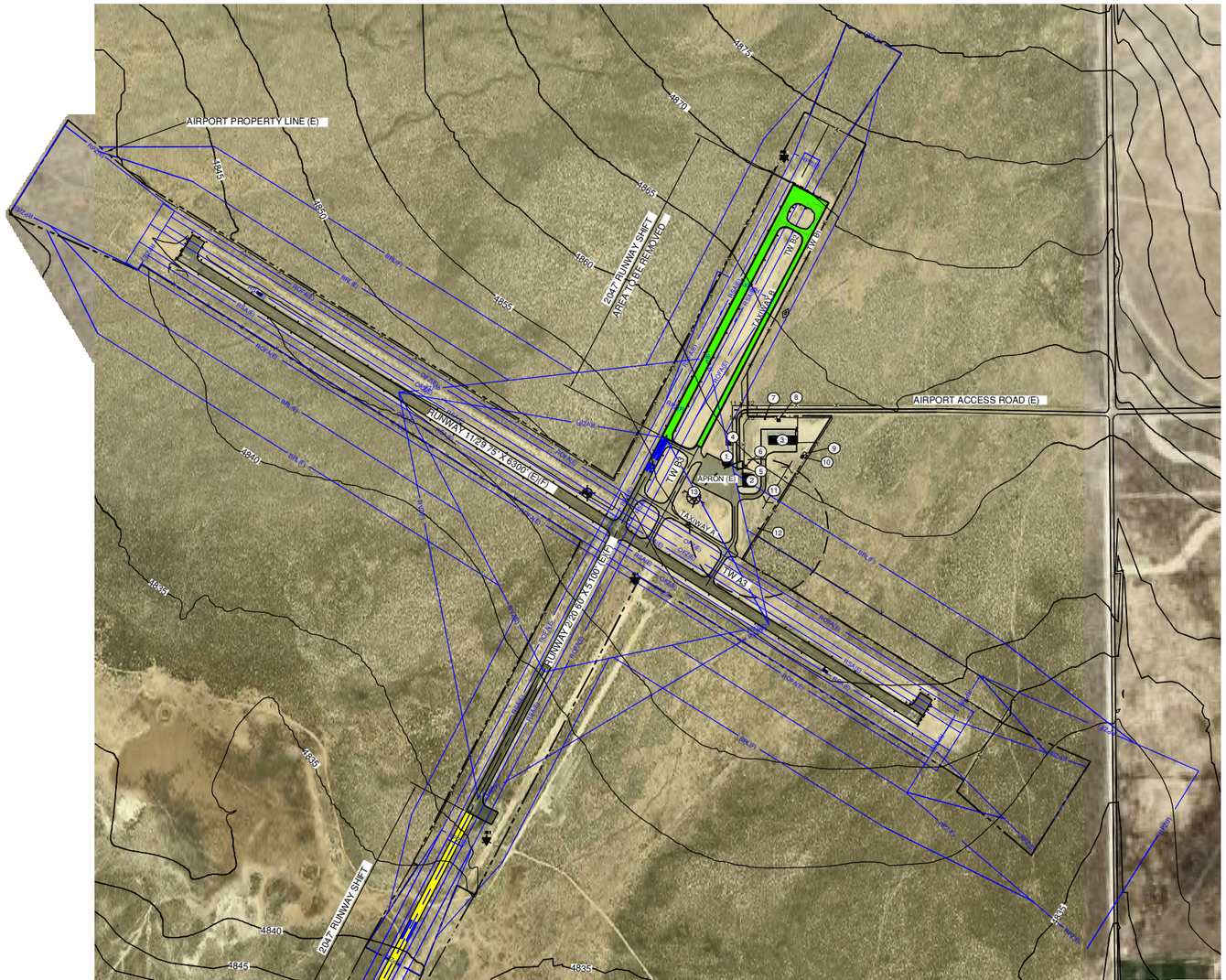
No.	Revision	Date	By

Project No: 075831
Date: OCT. 2007
File Name: 5831100 ALT.

Drawn: GWK
Checked: JZP
Approved: DAC

ALTERNATIVE
3
SHIFT
RUNWAY 11 / 29

FIGURE 4-3



N

W E

S

0 500 1000

SCALE IN FEET

AIRPORT FACILITIES LIST		
EXISTING	FUTURE	FACILITY DESCRIPTION
1		FBO
2		MAINTANCE HANGAR
3		T- HANGAR
4		FUEL STORAGE TANK
5		ELECTRICAL VAULT
6		BEACON
7		ELECTRICAL TRANSFORMER
8		DIESEL FUEL STORAGE TANK
9		WATER STORAGE TANK
10		PUMP HOUSE
11		NON-DIRECTIONAL BEACON
12		AWOS III
13		SEGMENTED CIRCLE W/LIGHTED WIND CONE

LEGEND					
EXISTING	FUTURE/ULTIMATE	DESCRIPTION	EXISTING	FUTURE	
		AIRFIELD DEVELOPMENT (ASPHALT)		0000 0000	THRESHOLD LIGHTS
		STRUCTURE/FACILITIES (BUILDING)			REIL
		AIRPORT PROPERTY LINE (APL)			VASI/PAPI
RSA(E)	RSA(F)(U)	RUNWAY SAFETY AREA (RSA)			AIRPORT REFERENCE POINT (ARP)
OFZ(E)	OFZ(F)(U)	OBSTACLE FREE ZONE (OFZ)			AIRPORT BEACON
ROFA(E)	ROFA(F)(U)	RUNWAY OBJECT FREE AREA (ROFA)			WIND CONE & SEGMENTED CIRCLE
RPZ(E)	RPZ(F)(U)	RUNWAY PROTECTION ZONE (RPZ)		N/A	SECTION CORNER
RVZ(E)	RVZ(F)(U)	RUNWAY VISIBILITY ZONE (RVZ)			AWOS
BRL(E)	BRL(F)(U)	BUILDING RESTRICTION LINE (BRL)			DRAINAGE/ CULVERT
TSA(E)	TSA(F)(U)	TAXIWAY SAFETY AREA (TSA)	4125	N/A	CONTOURS
TOFA(E)	TOFA(F)(U)	TAXIWAY OBJECT FREE AREA (TOFA)			ROADS
X X	XX XX	FENCING			MARKINGS
		TO BE REMOVED			

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Checked: JZP
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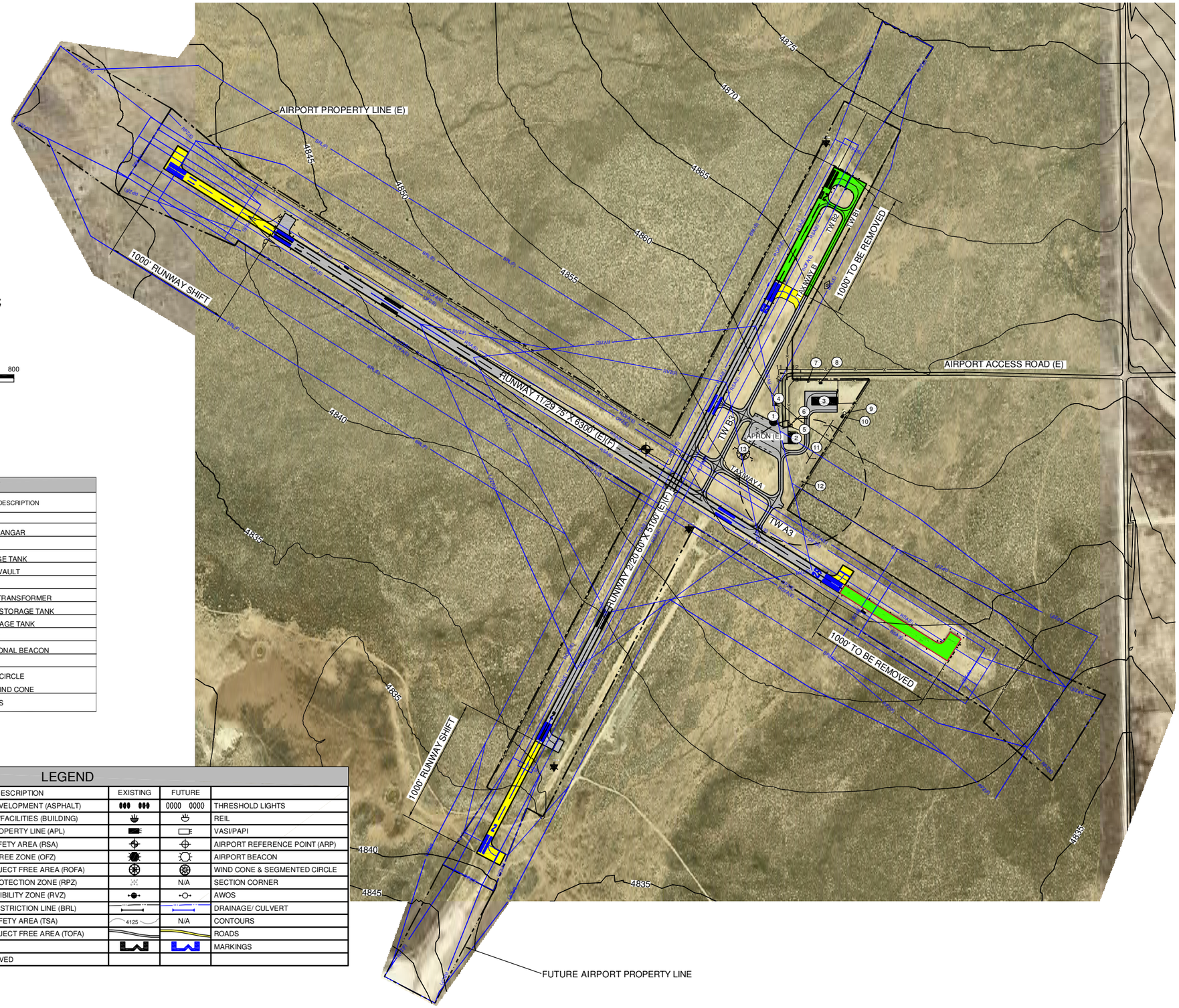
ALTERNATIVE 4
SHIFT RUNWAY 2 / 20

FIGURE 4-4



AIRPORT FACILITIES LIST		
EXISTING	FUTURE	FACILITY DESCRIPTION
1	1	FBO
2		MAINTANCE HANGAR
3	3	T- HANGAR
4		FUEL STORAGE TANK
5		ELECTRICAL VAULT
6		BEACON
7		ELECTRICAL TRANSFORMER
8		DIESEL FUEL STORAGE TANK
9		WATER STORAGE TANK
10		PUMP HOUSE
11		NON-DIRECTIONAL BEACON
12		AWOS III
13		SEGMENTED CIRCLE W/LIGHTED WIND CONE
	14	BOX HANGARS

LEGEND

EXISTING	FUTURE/ULTIMATE	DESCRIPTION	EXISTING	FUTURE	
		AIRFIELD DEVELOPMENT (ASPHALT)		0000 0000	THRESHOLD LIGHTS
		STRUCTURE/FACILITIES (BUILDING)			REIL
		AIRPORT PROPERTY LINE (APL)			VASI/PAPI
RSA(E)	RSA(F)(U)	RUNWAY SAFETY AREA (RSA)			AIRPORT REFERENCE POINT (ARP)
OFZ(E)	OFZ(F)(U)	OBSTACLE FREE ZONE (OFZ)			AIRPORT BEACON
ROFA(E)	ROFA(F)(U)	RUNWAY OBJECT FREE AREA (ROFA)			WIND CONE & SEGMENTED CIRCLE
RPZ(E)	RPZ(F)(U)	RUNWAY PROTECTION ZONE (RPZ)		N/A	SECTION CORNER
RVZ(E)	RVZ(F)(U)	RUNWAY VISIBILITY ZONE (RVZ)			AWOS
BRL(E)	BRL(F)(U)	BUILDING RESTRICTION LINE (BRL)			DRAINAGE/ CULVERT
TSA(E)	TSA(F)(U)	TAXIWAY SAFETY AREA (TSA)	4125	N/A	CONTOURS
TOFA(E)	TOFA(F)(U)	TAXIWAY OBJECT FREE AREA (TOFA)			ROADS
x x	x x	FENCING			MARKINGS
		TO BE REMOVED			

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COLORADO CITY MUNICIPAL AIRPORT
COLORADO CITY, ARIZONA

AIP No.
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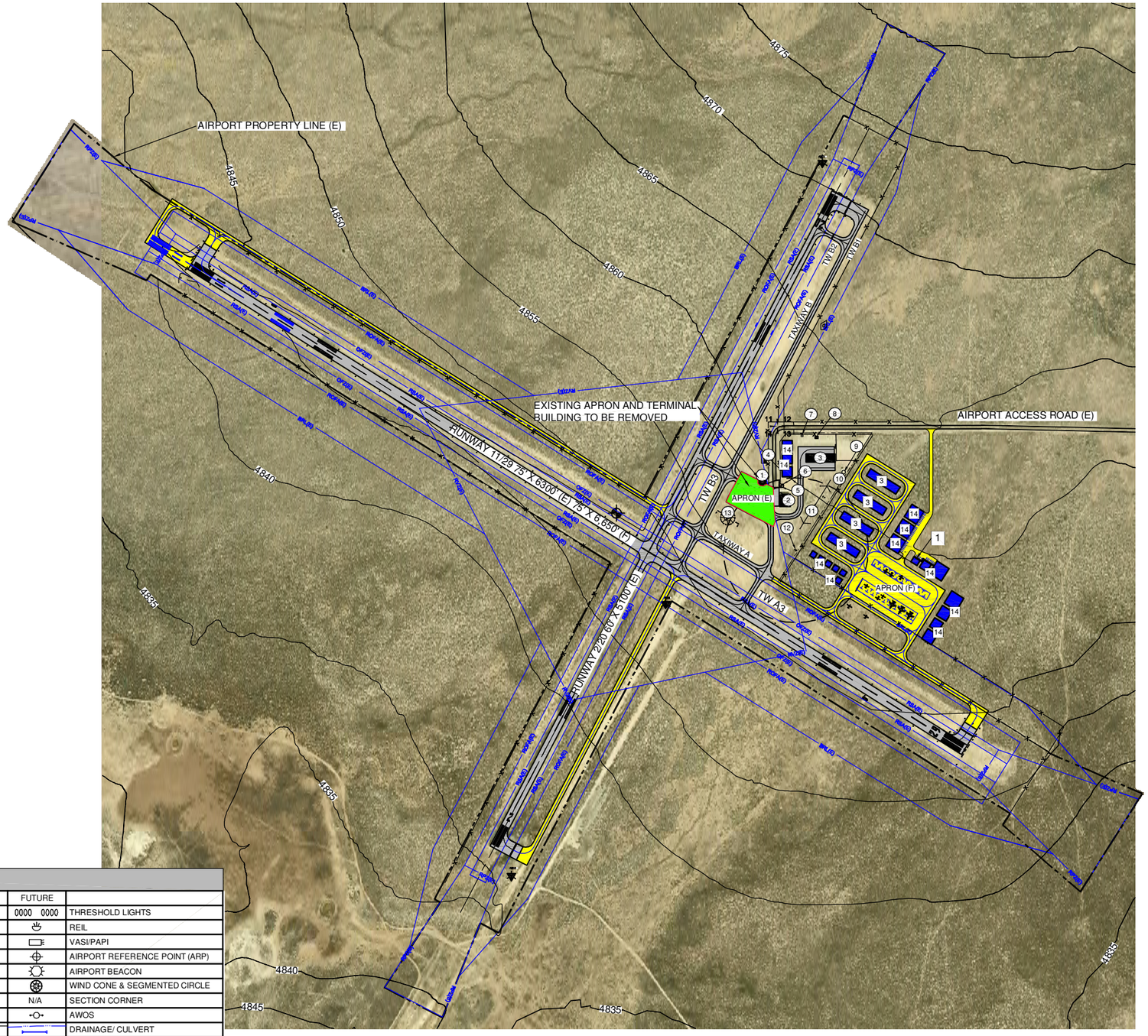
Drawn: GWK
Checked: JZP
Approved: DAC

ALTERNATIVE
5
SHIFT
RUNWAYS 11 / 29
& 2 / 20

FIGURE 4-5



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SCALE IN FEET

AIRPORT FACILITIES LIST

EXISTING	FUTURE	FACILITY DESCRIPTION
1	1	FBO
2		MAINTANCE HANGAR
3	3	T- HANGAR
4		FUEL STORAGE TANK
5		ELECTRICAL VAULT
6		BEACON
7		ELECTRICAL TRANSFORMER
8		DIESEL FUEL STORAGE TANK
9		WATER STORAGE TANK
10		PUMP HOUSE
11		NON-DIRECTIONAL BEACON
12		AWOS III
13		SEGMENTED CIRCLE W/LIGHTED WIND CONE
	14	BOX HANGARS

LEGEND

EXISTING	FUTURE/ULTIMATE	DESCRIPTION	EXISTING	FUTURE	
		AIRFIELD DEVELOPMENT (ASPHALT)			THRESHOLD LIGHTS
		STRUCTURE/FACILITIES (BUILDING)			REIL
		AIRPORT PROPERTY LINE (APL)			VASI/PAPI
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OFZ(E)	OFZ(F)(U)	OBSTACLE FREE ZONE (OFZ)			AIRPORT BEACON
ROFA(E)	ROFA(F)(U)	RUNWAY OBJECT FREE AREA (ROFA)			WIND CONE & SEGMENTED CIRCLE
RPZ(E)	RPZ(F)(U)	RUNWAY PROTECTION ZONE (RPZ)		N/A	SECTION CORNER
RVZ(E)	RVZ(F)(U)	RUNWAY VISIBILITY ZONE (RVZ)			AWOS
BRL(E)	BRL(F)(U)	BUILDING RESTRICTION LINE (BRL)			DRAINAGE/ CULVERT
TSA(E)	TSA(F)(U)	TAXIWAY SAFETY AREA (TSA)	4125	N/A	CONTOURS
TOFA(E)	TOFA(F)(U)	TAXIWAY OBJECT FREE AREA (TOFA)			ROADS
		FENCING			MARKINGS
		TO BE REMOVED			

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COLORADO CITY MUNICIPAL AIRPORT
COLORADO CITY, ARIZONA

AIP No.

AIRPORT MASTER PLAN

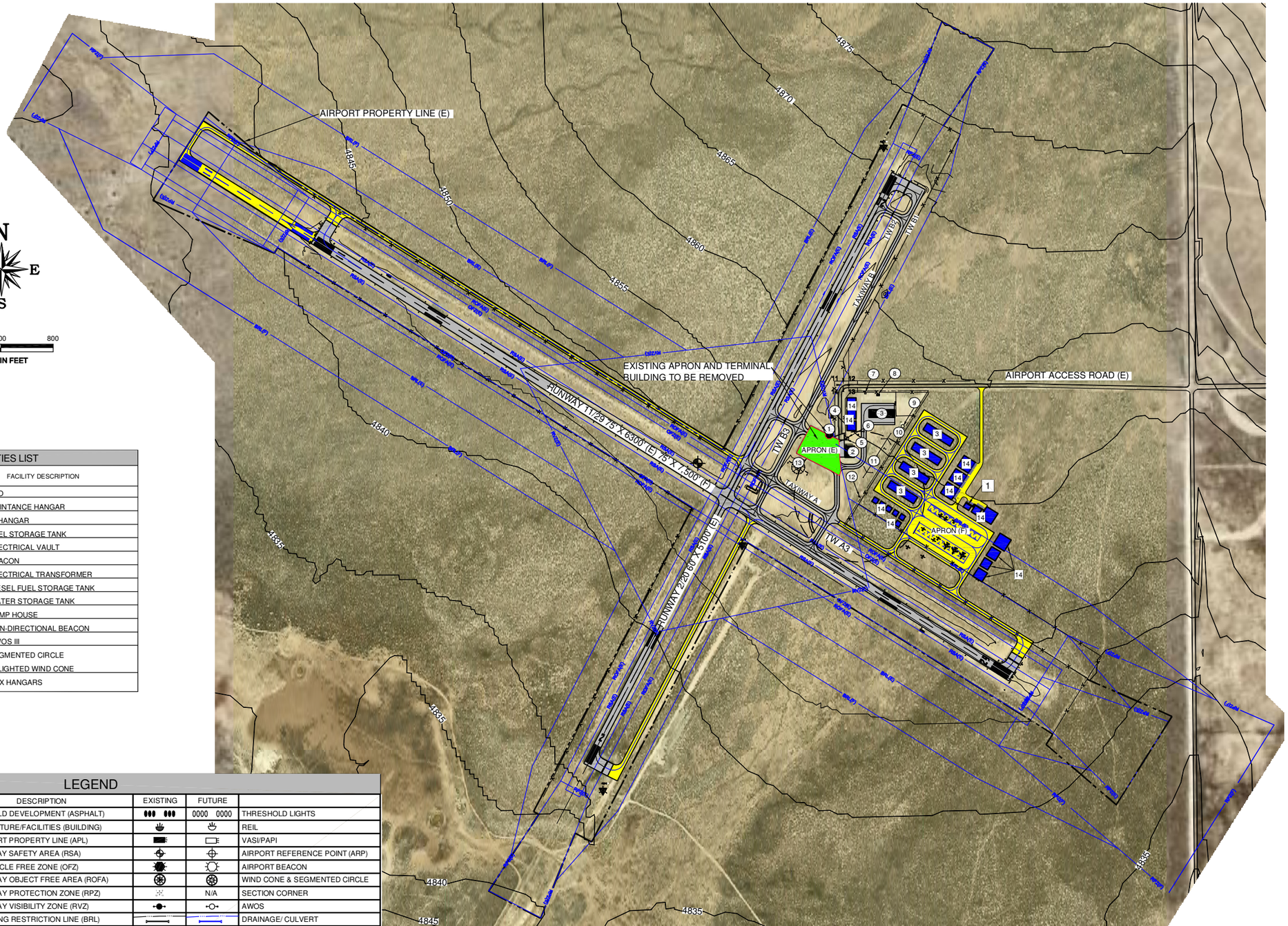
No.	Revision	Date	By

Project No: 075831
Date: OCT. 2007
File Name: 5831100 ALT

Drawn: GWK
Checked: JZP
Approved: DAC

RECOMMENDED DEVELOPMENT OPTION II

FIGURE 4-6



AIRPORT FACILITIES LIST		
EXISTING	FUTURE	FACILITY DESCRIPTION
1	1	FBO
2		MAINTANCE HANGAR
3	3	T- HANGAR
4		FUEL STORAGE TANK
5		ELECTRICAL VAULT
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9		WATER STORAGE TANK
10		PUMP HOUSE
11		NON-DIRECTIONAL BEACON
12		AWOS III
13		SEGMENTED CIRCLE W/LIGHTED WIND CONE
	14	BOX HANGARS

LEGEND

EXISTING	FUTURE/ULTIMATE	DESCRIPTION	EXISTING	FUTURE	
		AIRFIELD DEVELOPMENT (ASPHALT)			THRESHOLD LIGHTS
		STRUCTURE/FACILITIES (BUILDING)			REIL
		AIRPORT PROPERTY LINE (APL)			VASI/PAPI
RSA(E)	RSA(F)(U)	RUNWAY SAFETY AREA (RSA)			AIRPORT REFERENCE POINT (ARP)
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BRL(E)	BRL(F)(U)	BUILDING RESTRICTION LINE (BRL)			DRAINAGE/ CULVERT
TSA(E)	TSA(F)(U)	TAXIWAY SAFETY AREA (TSA)	4125	N/A	CONTOURS
TOFA(E)	TOFA(F)(U)	TAXIWAY OBJECT FREE AREA (TOFA)			ROADS
FENCING					MARKINGS
		TO BE REMOVED			

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COLORADO CITY MUNICIPAL AIRPORT
COLORADO CITY, ARIZONA

AIP No.
AIRPORT MASTER PLAN

No.	Revision	Date	By

THE PREPARATION OF THIS DOCUMENT WAS FINANCED IN PART THROUGH AIRPORT IMPROVEMENT PROGRAM GRANTS FROM THE FEDERAL AVIATION ADMINISTRATION AS PROVIDED BY THE AIRPORT AND AIRWAY IMPROVEMENT ACT OF 1982, AS AMENDED. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THIS PLAN BY THE FAA DOES NOT IN ANY WAY COMMIT THE FAA TO FINANCIAL ASSISTANCE OF PROJECTS THAT MAY BE PROPOSED OR UNDERTAKEN AS A DEVELOPMENT DEPICTED HEREIN OR INCLUDE IT PROJECTS FOR THE PROPOSED DEVELOPMENT IS SUBJECT TO ENVIRONMENTAL ASSESSMENT OR OTHER REVIEW AS REQUIRED BY LAW. ALL PROJECTS MUST CONFORM WITH FEDERAL AVIATION ADMINISTRATION STANDARDS IN EFFECT WHEN FEDERAL FUNDS ARE REQUESTED FOR A PROJECT. THE FAA RESERVES THE RIGHT TO REVISE OR WITHDRAW ITS APPROVAL OF THE PLAN OR ANY PART OF IT AT ANY TIME IT DEEMS SUCH ACTION NECESSARY.

Project No: 075831
Date: OCT. 2007
File Name: 5831100 ALT

Drawn: GWK
Checked: JZP
Approved: DAC

RECOMMENDED DEVELOPMENT

FIGURE 4-6

Chapter Five
Airport Plans

Colorado City Municipal Airport
Airport Master Plan

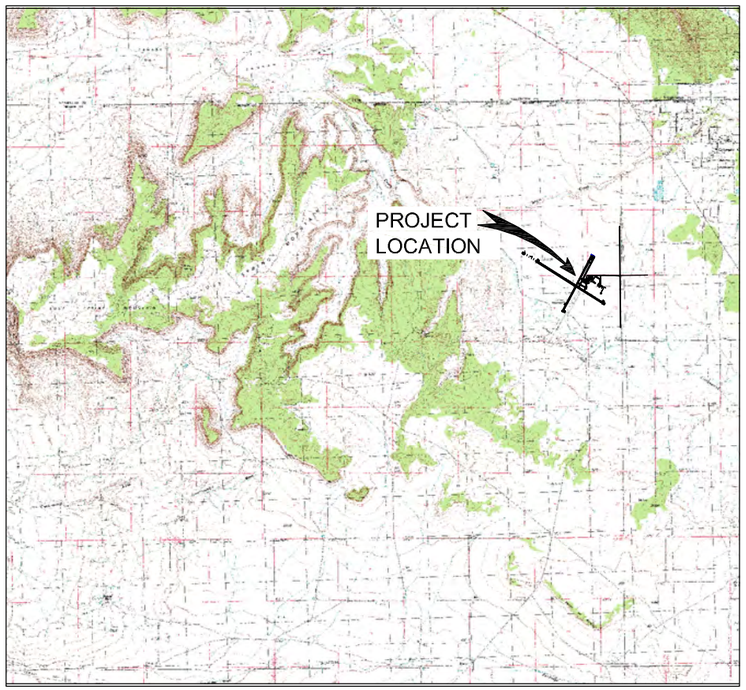
COLORADO CITY MUNICIPAL AIRPORT
COLORADO CITY, ARIZONA

AIRPORT LAYOUT PLANS

PREPARED BY:

ARMSTRONG CONSULTANTS, INC.

A.I.P. NO. 3-04-0076-12
A.C.I. PROJECT NO. 075831
DATE: DECEMBER 15, 2008



VICINITY MAP

INDEX TO SHEETS

(E = EXISTING, F = FUTURE)

5831501

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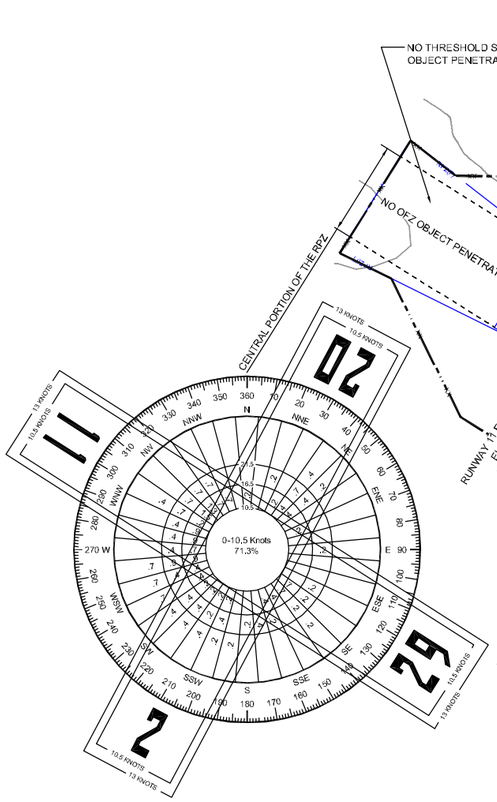
SPONSOR APPROVAL

MAYOR, COLORADO CITY DATE

FAA APPROVAL



ALL WEATHER WIND ROSE

RUNWAY	10.5 KT/12 MPH	13 KT/15 MPH
2/20	81.3%	86.9%
11/29	86.3%	89.4%
COMB.	95.9%	98.3%

SOURCE: COLORADO CITY SEWAGE LAGOONS
3 MILES NORTHWEST OF THE AIRPORT
COLORADO CITY, ARIZONA
FEBRUARY 1981 - DECEMBER 1981
7,900 OBSERVATIONS

AIRPORT FACILITIES LIST

EXISTING	FUTURE	FACILITY DESCRIPTION	TOP ELEVATION MSL
1	1	TERMINAL BUILDING	4862'
2	2	FBO MAINTENANCE / BOX HANGAR	4865'
3	3	T- HANGAR	4879'
4	4	FUEL STORAGE TANK	4857'
5		ELECTRICAL VAULT	4870'
6		BEACON	4878'
7		ELECTRICAL TRANSFORMER	----
8		DIESEL FUEL STORAGE TANK	4867'
9		WATER STORAGE TANK	4880'
10		PUMP HOUSE	4874'
11		NON-DIRECTIONAL BEACON (NDB)	4920'
12		AWOS III	4888'
13	13	SEGMENTED CIRCLE W/LIGHTED WIND CONE	4878'
	14	SNOW REMOVAL EQUIPMENT STORAGE BUILDING	

NOTE: TOP ELEVATIONS ARE ESTIMATED

LEGEND

EXISTING	FUTURE/ULTIMATE	DESCRIPTION	EXISTING	FUTURE/ULTIMATE	DESCRIPTION
		AIRFIELD DEVELOPMENT (ASPHALT)		0000 0000	THRESHOLD LIGHTS
		STRUCTURE/FACILITIES (BUILDING)			REIL
		AIRPORT PROPERTY LINE (APL)			VASI/PAPI
RSA(E)	RSA(F)(U)	RUNWAY SAFETY AREA (RSA)		N/A	AIRPORT BEACON
OFZ(E)	OFZ(F)(U)	OBSTACLE FREE ZONE (OFZ)		N/A	WIND CONE & SEGMENTED CIRCLE
ROFA(E)	ROFA(F)(U)	RUNWAY OBJECT FREE AREA (ROFA)		N/A	AWOS
RPZ(E)	RPZ(F)(U)	RUNWAY PROTECTION ZONE (RPZ)			LIGHTED WINDCONE
BRL(E)	BRL(F)(U)	BUILDING RESTRICTION LINE (BRL)		N/A	SECTION CORNER
TSA(E)	TSA(F)(U)	TAXIWAY SAFETY AREA (TSA)			DRAINAGE/CULVERT
TOFA(E)	TOFA(F)(U)	TAXIWAY OBJECT FREE AREA (TOFA)	4125	N/A	CONTOURS
		AIRPORT REFERENCE POINT			ROADS
N/A	N/A	PACS/SACS MONUMENT			MARKINGS
N/A	N/A	SECTION LINES	X	XX	FENCING
					RUNWAY LIGHTS

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COLORADO CITY MUNICIPAL AIRPORT
COLORADO CITY, ARIZONA

AIRPORT LAYOUT PLANS

No.	Revision	Date	By
1	REVISED ACI (015667)	7.04	KLA
2	REVISED ACI (015667)	9.05	RF

Project No: 075831
Date: 12.15.08
File Name: 5831502

Drawn: GWK
Checked: JZP
Approved: DAC

AIRPORT LAYOUT PLAN

Sheet: 2 of: 13

RUNWAY DATA

	RUNWAY 11/29	RUNWAY 11/29	RUNWAY 2/20	RUNWAY 2/20
ITEM	EXISTING	FUTURE	EXISTING	FUTURE
APPROACH VIS. MIN./TYPE APPROACH VIS. MIN./TYPE	RW 11 NP, 1 - MILE UTILITY RW 29 NP, 1 - MILE UTILITY	RW 11 NP, 1 - MILE >UTILITY RW 29 APV, 3/4 - MILE >UTILITY	RW 2 VISUAL, UTILITY RW 20 VISUAL, UTILITY	RW 2 VISUAL, UTILITY RW 20 VISUAL, UTILITY
FAR PART 77 APPROACH SLOPE	RW 11 20:1 RW 29 20:1	RW 11 20:1 RW 29 34:1	RW 2 20:1 RW 20 20:1	RW 2 20:1 RW 20 20:1
RUNWAY LENGTH	6,300'	7,500'	5,100'	5,100'
RUNWAY WIDTH	75'	75'	60'	60'
RUNWAY & TAXIWAY PAVEMENT	ASPHALT	ASPHALT	ASPHALT	ASPHALT
PAVEMENT STRENGTH (LBS)	12,000 SWG	45,000 SWG 68,000 DWG	12,500 SWG	12,500 SWG
RUNWAY LIGHTING	MIRL	MIRL	MIRL	MIRL
RUNWAY MARKING	RW 11 NP RW 29 NP	RW 11 NP RW 29 PRECISION	RW 2 NP RW 20 NP	RW 2 NP RW 20 NP
% EFFECTIVE GRADIENT	0.11%	0.11%	0.66%	0.66%
% MAXIMUM GRADE	0.11%	0.18%	0.81%	0.81%
LINE OF SIGHT REQUIREMENTS MET	YES	YES	YES	YES
% WIND COVERAGE 12 MPH/10.5 KNOTS 15 MPH/13.0 KNOTS 18 MPH/16.0 KNOTS	 86.3% 89.4% ---	 86.3% 89.4% ---	 81.3% 86.9% ---	 81.3% 86.9% ---
VISUAL APPROACH AIDS	RW 11: PAPI-2, REIL RW 29: PAPI-2, REIL	RW 11: PAPI-2, REIL RW 29: PAPI-2, REIL	RW 2: NONE RW 20: NONE	RW 2: PAPI-2, REIL RW 20: PAPI-2, REIL
NAVAIDS	GPS, NDB	GPS, NDB	NONE	NONE
DESIGN AIRCRAFT WINGSPAN APPROACH SPEED MGTOW UNDERCARRIAGE WIDTH TAIL HEIGHT	KING AIR B-200 54.5' 103 kts. 12,500 lbs. 13' 15'	FALCON 900 63.4' 100 kts. 45,500 lbs. 13' 24.8'	CESSNA 172 35.1' 65 kts. 2,300 lbs. 7'2" 27'	CESSNA 172 35.1' 65 kts. 2,300 lbs. 7'2" 27'
AIRPORT REFERENCE CODE	B-II	B-II	B-I (SMALL AIRCRAFT ONLY)	B-I (SMALL AIRCRAFT ONLY)
RUNWAY SAFETY AREA (RSA) WIDTH LENGTH BEYOND RWY END	 150' 300'	 150' 300'	 120' 240'	 120' 240'
RUNWAY OBJECT FREE AREA (ROFA) WIDTH LENGTH BEYOND RWY END	 500' 300'	 500' 300'	 250' 240'	 250' 240'
OBSTACLE FREE ZONE (OFZ) WIDTH LENGTH BEYOND RWY END	 400' 200' NO OFZ OBJECT PENETRATIONS	 400' 200' NO OFZ OBJECT PENETRATIONS	 120' 200' NO OFZ OBJECT PENETRATIONS	 120' 200' NO OFZ OBJECT PENETRATIONS
RUNWAY ELEVATIONS (NAVD88)	RW 11 RW 29	RW 11 RW 29	RW 2 RW 20	RW 2 RW 20
RUNWAY END	4,847.1' 4,854.2'	4,845.0' 4,854.2'	4,839.9' 4,873.6'	4,839.9' 4,873.6'
HIGH POINT	4,854.2'	4,854.2'	4,873.6'	4,873.6'
LOW POINT	4,847.1'	4,845.0'	4,839.9'	4,839.9'
TDZE	N/A	4,854.2'	N/A	N/A
RUNWAY INTERSECTION ELEV.	4,852.9'	4,852.9'	4,852.9'	4,852.9'
RUNWAY CENTERLINE TO HOLD BARS & SIGNS	200' (300' ACTUAL)	200' (300' ACTUAL)	125' (240' ACTUAL)	125' (240' ACTUAL)
RUNWAY CENTERLINE TO PARALLEL TAXIWAY CENTERLINE	240'	240'	150'	150'
TAXIWAY OFA WIDTH	131'	131'	89'	89'
TAXIWAY SAFETY AREA WIDTH	79'	79'	49'	49'
TAXIWAY WINGTIP CLEARANCE	26'	26'	20'	20'
TAXIWAY CENTERLINE TO FIXED OR MOVABLE OBJECT	83'	83'	44.5'	44.5'
TAXIWAY WIDTH	35'	35'	25' (35' ACTUAL)	25' (35' ACTUAL)
RUNWAY PROTECTION ZONE (RPZ)	RW 11 (1,000' X 500' X 700') RW 29 (1,000' X 500' X 700')	RW 11 (1,000' X 500' X 700') RW 29 (1,000' X 1,500' X 1,700')	RW 2 (1,000' X 250' X 450') RW 20 (1,000' X 250' X 450')	RW 2 (1,000' X 250' X 450') RW 20 (1,000' X 250' X 450')

AIRPORT DATA

ITEM	EXISTING	FUTURE
AIRPORT ELEVATION (MSL) (NAVD88)	4873.6'	4873.6'
AIRPORT REFERENCE POINT (NAD '83) LATITUDE LONGITUDE	36°57'35.76" N 113°00'49.97" W	36°57'37.69" N 113°00'53.99" W
NAVAIDS	NDB, GPS	NDB, GPS (WAAS)
MEAN MAXIMUM TEMPERATURE HOTTEST MONTH	90.1°F (JULY)	90.1°F (JULY)
COMBINED WIND COVERAGE 12 MPH/10.5 KNOTS 15 MPH/13.0 KNOTS 18 MPH/16.0 KNOTS	 95.90% 98.30% ----	
MAGNETIC VARIATION & DATE	12°17' E CHANGING BY 0°6' W/YEAR	
AIRPORT REFERENCE CODE	B-II	B-II
NPIAS SERVICE LEVEL	GA	GA
TAXIWAY LIGHTING	RETRO-REFLECTORS	MITL
TAXIWAY MARKING	CENTERLINE	CENTERLINE
GPS AT AIRPORT	YES	YES

RUNWAY END COORDINATES (NAD 83)

RUNWAY		EXISTING	FUTURE
RW 11	LATITUDE: LONGITUDE:	36°57'52.93" N 113°01'26.00" W	36°57'59.32" N 113°01'38.46" W
RW 29	LATITUDE: LONGITUDE:	36°57'19.42" N 113°00'20.59" W	36°57'19.42" N 113°00'20.59" W
RW 2	LATITUDE: LONGITUDE:	36°57'12.98" N 113°01'00.61" W	36°57'12.98" N 113°01'00.61" W
RW 20	LATITUDE: LONGITUDE:	36°57'57.49" N 113°00'31.13" W	36°57'57.49" N 113°00'31.13" W

NOTES

RUNWAY END COORDINATES AND ELEVATIONS WERE TAKEN FROM THE FAA AVN DATA SHEETS.

NO THRESHOLD SITING SURFACE OBJECT PENETRATIONS

NO OFZ OBJECT PENETRATIONS

PACS MONUMENT AZC A
IS THE TOP CENTER OF A STAINLESS STEEL ROD DRIVEN TO REFUSAL AT A DEPTH OF 20.60 M (67.59 FT) RECESSED 12 CM BELOW GROUND LEVEL IN A 2.5 CM DIA. GREASE FILLED FINNED PLASTIC SLEEVE 90 CM LONG ENCASED IN A 12.7 CM DIA. PVC PIPE WITH NGS LOGO CAP SURROUNDED BY CONCRETE. THE LOGO CAP AND CONCRETE ARE SET FLUSH WITH THE GROUND.

SACS MONUMENT AZC B
IS THE CENTER OF A 5 CM SURVEY DISK SET INTO THE TOP OF A 1.0 M (3.3 FT.) LONG FENO PIPE, RECESSED 11 CM BELOW GROUND LEVEL AND ENCASED IN A 12.7 CM DIA. PVC PIPE WITH NGS LOGO CAP SURROUNDED BY CONCRETE. THE LOGO CAP AND CONCRETE ARE SET FLUSH THE GROUND. THREE CIRCULAR ANCHOR PRONES EXTEND FROM THE BOTTOM OF THE PIPE.

SACS MONUMENT AZC C
IS THE CENTER OF A 5 CM SURVEY DISK SET INTO THE TOP OF A 1.0 M (3.3 FT.) LONG FENO PIPE, RECESSED 11 CM BELOW GROUND LEVEL AND ENCASED IN A 12.7 CM DIA. PVC PIPE WITH NGS LOGO CAP SURROUNDED BY CONCRETE. THE LOGO CAP AND CONCRETE ARE SET FLUSH THE GROUND. THREE CIRCULAR ANCHOR PRONES EXTEND FROM THE BOTTOM OF THE PIPE.

RVZ
TERMINAL BUILDING AND APRON TO BE REMOVED AT END OF USEFUL LIFE.

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COLORADO CITY MUNICIPAL AIRPORT
COLORADO CITY, ARIZONA

AIRPORT LAYOUT PLANS

No.	Revision	Date	By

Project No: 075831
Date: 12.15.08
File Name: 5831502

Drawn: GWK
Checked: JZP
Approved: DAC

AIRPORT DATA SHEET

Sheet: 3 of: 13

AIRPORT FACILITIES LIST

EXISTING	FUTURE	FACILITY DESCRIPTION	TOP ELEVATION
1	1	TERMINAL BUILDING	4862'
2	2	FBO MAINTANCE / BOX HANGAR	4865'
3	3	T- HANGAR	4879'
4	4	FUEL STORAGE TANK	4857'
5		ELECTRICAL VAULT	4870'
6		BEACON	4878'
7		ELECTRICAL TRANSFORMER	----
8		DIESEL FUEL STORAGE TANK	4867'
9		WATER STORAGE TANK	4880'
10		PUMP HOUSE	4874'
11		NON-DIRECTIONAL BEACON (NDB)	4920'
12		AWOS III	4888'
13		SEGMENTED CIRCLE W/LIGHTED WIND CONE	4878'
	14	SNOW REMOVAL EQUIPMENT STORAGE BUILDING	

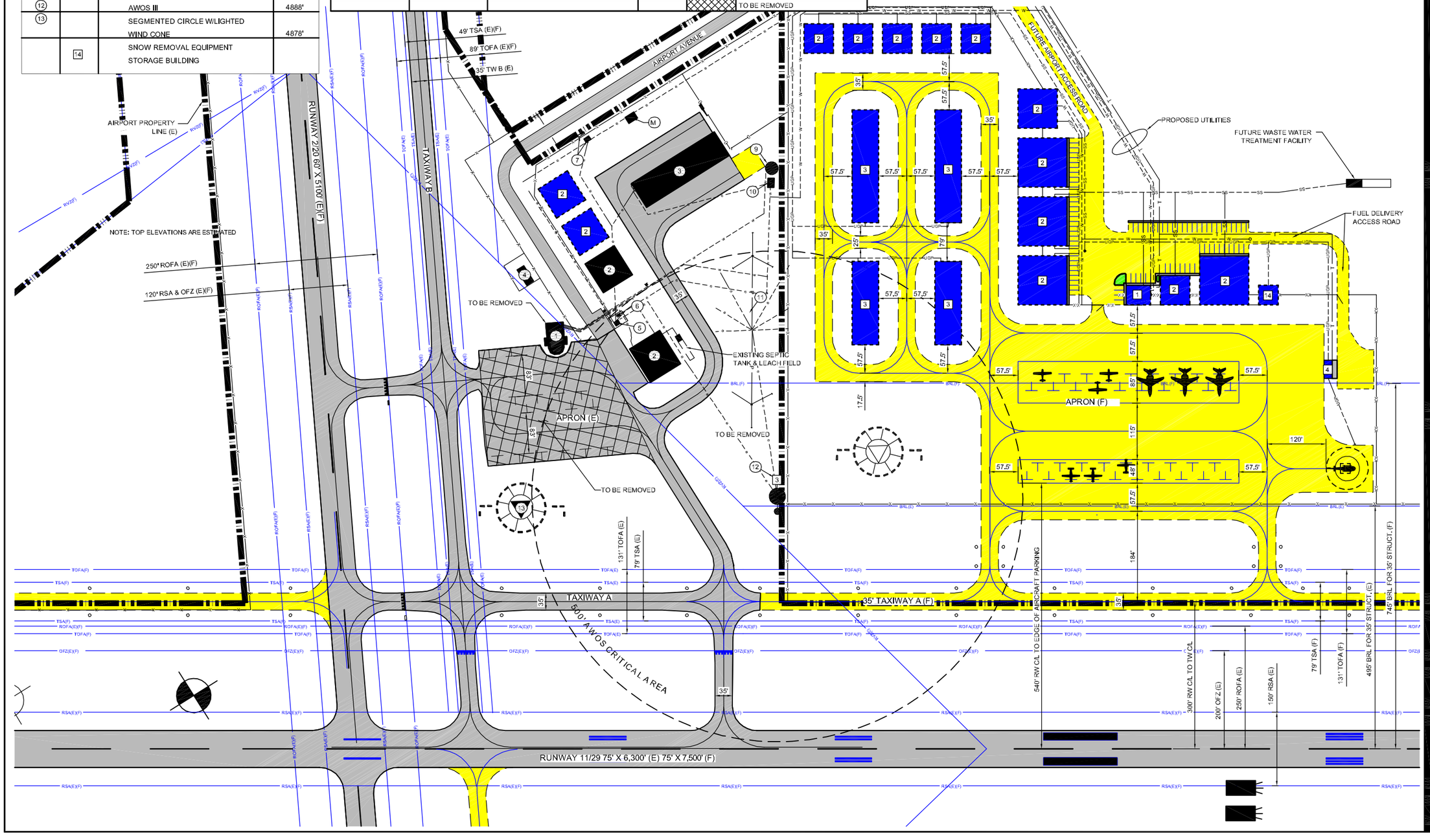
LEGEND

EXISTING	FUTURE/ULTIMATE	DESCRIPTION	EXISTING	FUTURE	
		AIRFIELD DEVELOPMENT (ASPHALT)			THRESHOLD LIGHTS
		STRUCTURE/FACILITIES (BUILDING)			REIL
		AIRPORT PROPERTY LINE (APL)			VASI/PAPI
RSA(E)	RSA(F)	RUNWAY SAFETY AREA (RSA)			AIRPORT REFERENCE POINT (ARP)
OFZ(E)	OFZ(F)	OBSTACLE FREE ZONE (OFZ)			AIRPORT BEACON
ROFA(E)	ROFA(F)	RUNWAY OBJECT FREE AREA (ROFA)			WIND CONE & SEGMENTED CIRCLE
RPZ(E)	RPZ(F)	RUNWAY PROTECTION ZONE (RPZ)		N/A	SECTION CORNER
RVZ(E)	RVZ(F)	RUNWAY VISIBILITY ZONE (RVZ)			AWOS
BRL(E)	BRL(F)	BUILDING RESTRICTION LINE (BRL)			DRAINAGE/ CULVERT
TSA(E)	TSA(F)	TAXIWAY SAFETY AREA (TSA)	4125	N/A	CONTOURS
TOFA(E)	TOFA(F)	TAXIWAY OBJECT FREE AREA (TOFA)			ROADS
X X	XX XX	FENCING	W	W	MARKINGS
					TO BE REMOVED

UTILITIES LEGEND

EXISTING	FUTURE/ULTIMATE	DESCRIPTION
e e	UGP UGP	AIRPORT POWER
w	W W	AIRPORT WATER
ss ss	SS	SANITARY SEWER / WASTE WATER

0 100 200
SCALE IN FEET



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COLORADO CITY MUNICIPAL AIRPORT
COLORADO CITY, ARIZONA

AIRPORT LAYOUT PLANS

No.	Revision	Date	By

Project No: 075831
Date: 12.15.08
File Name: 5831503

Drawn: GWK
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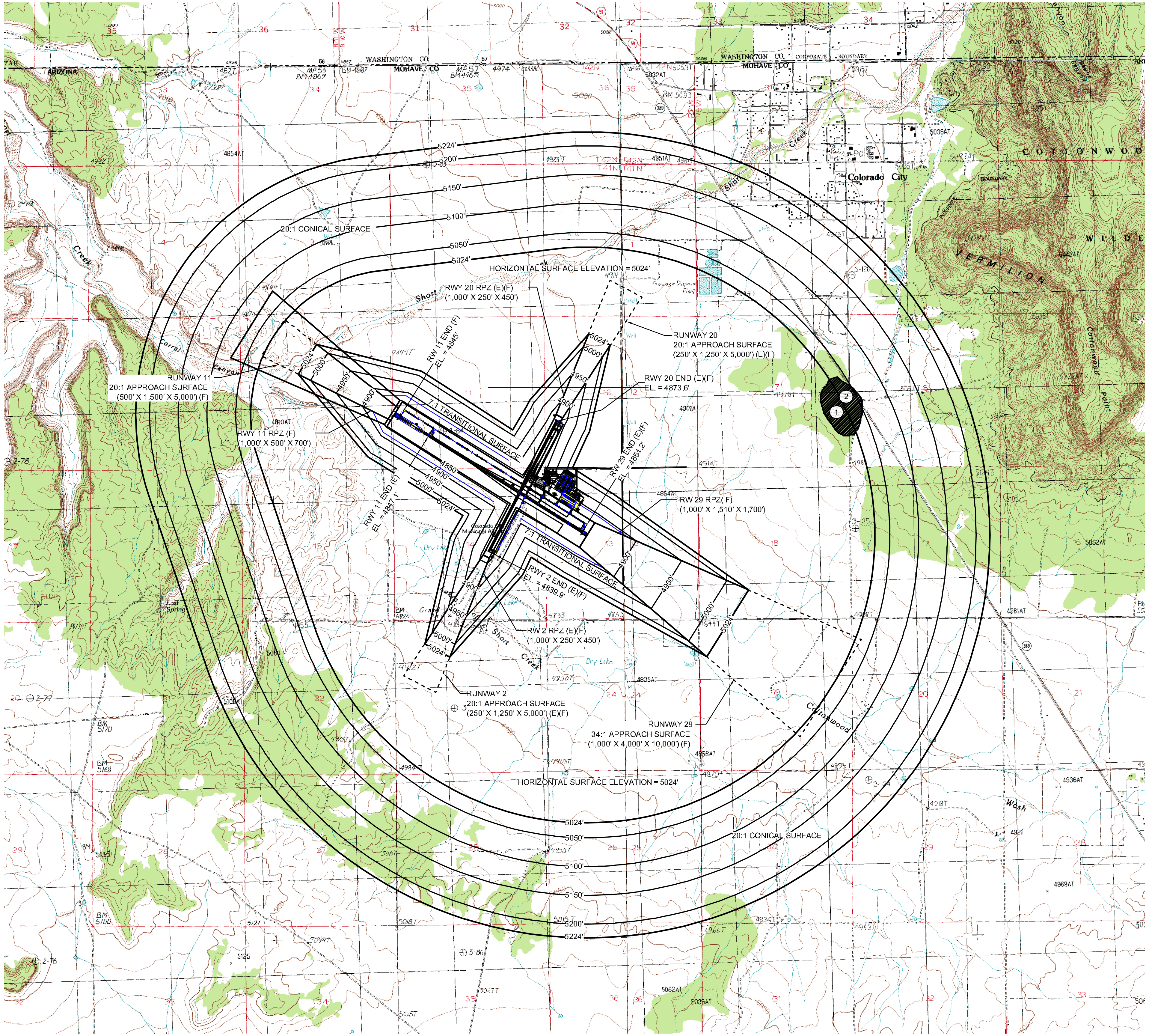
TERMINAL AREA PLAN (E)

Sheet: 4 of: 13



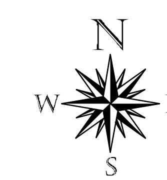
OBSTRUCTION CHART				
SURFACE	DESCRIPTION	TOP ELEVATION	PENETRATION	REMARKS
PRIMARY	NONE	--	--	NONE
TRANSITIONAL	NONE	--	--	NONE
HORIZONTAL	(1) TERRAIN	5100'	76'	NONE
CONICAL	(2) TERRAIN	5100'	70'	NONE
DEPARTURE SURFACE	NONE	--	--	NONE
THRESHOLD SITING SURFACE	NONE	--	--	NONE

NOTES

a) HEIGHT RESTRICTION ZONING IS CURRENTLY IN EFFECT

b) REFER TO "INNER PORTION OF THE APPROACH SURFACE" DRAWING FOR DETAILS ON ANY CLOSE-IN APPROACH OBSTRUCTIONS.

c) APPROACH SURFACES BASED ON ULTIMATE CONDITION



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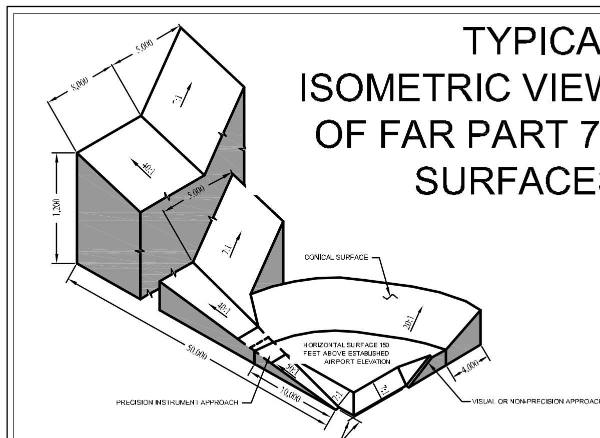
SCALE IN FEET



TYPICAL ISOMETRIC VIEW OF FAR PART 77 SURFACES

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COLORADO CITY MUNICIPAL AIRPORT
COLORADO CITY, ARIZONA

AIRPORT LAYOUT PLANS

No.	Revision	Date	By

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Project No: 075831
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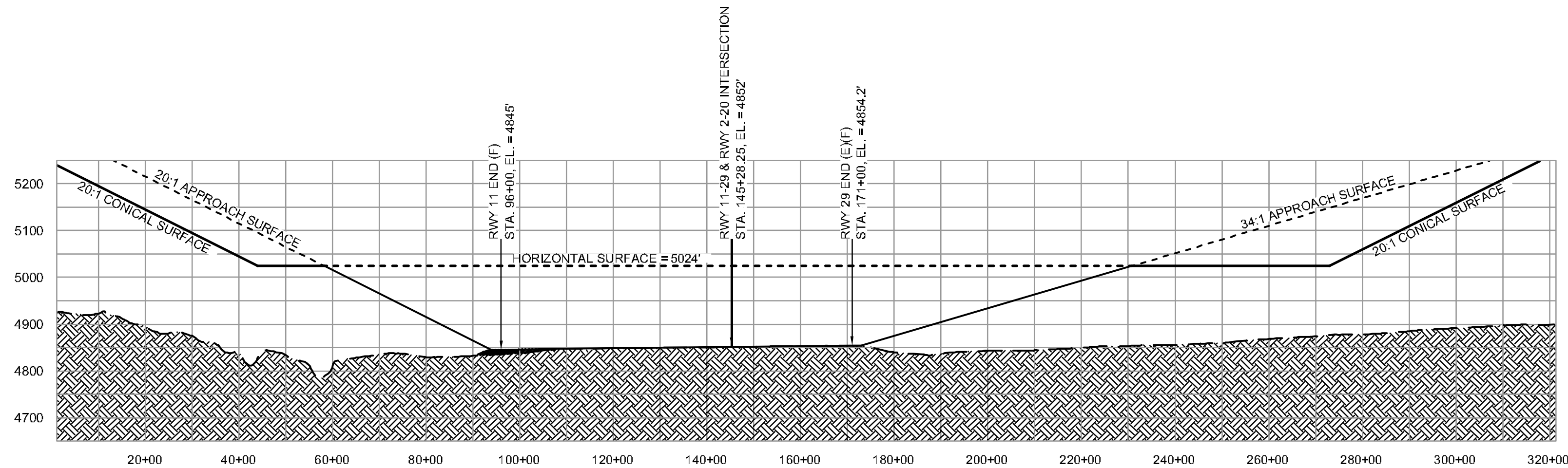
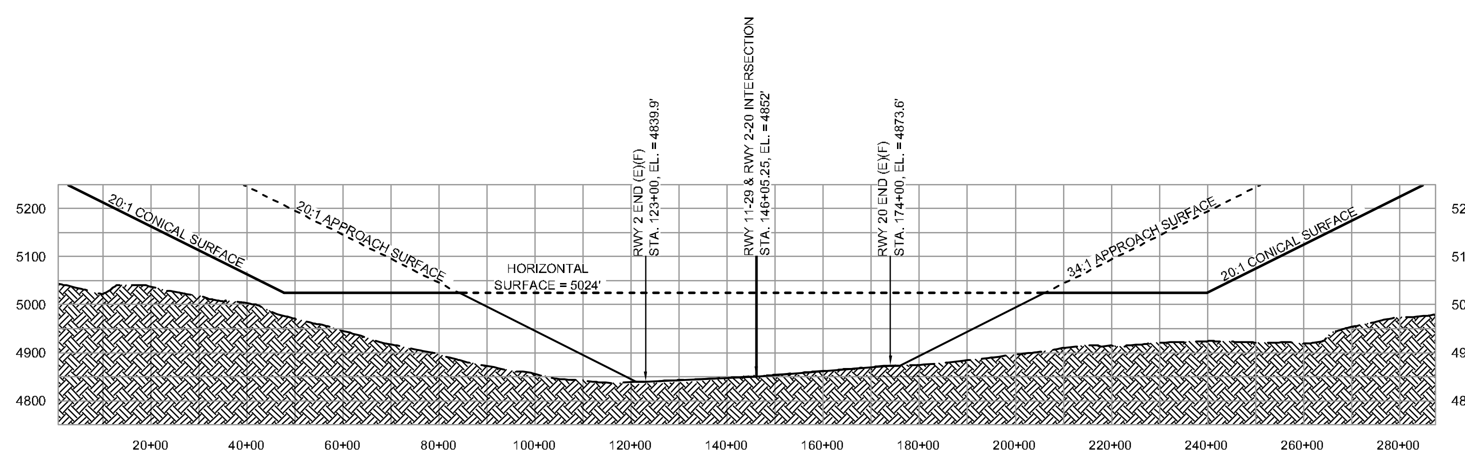
Approved: DAC

PART "77" AIRSPACE DRAWING



RWY 11/29 FUTURE

SCALE: PER GRID



RWY 2/20 FUTURE

SCALE: PER GRID

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COLORADO CITY MUNICIPAL AIRPORT
COLORADO CITY, ARIZONA

AIRPORT LAYOUT PLANS

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Project No: 075831
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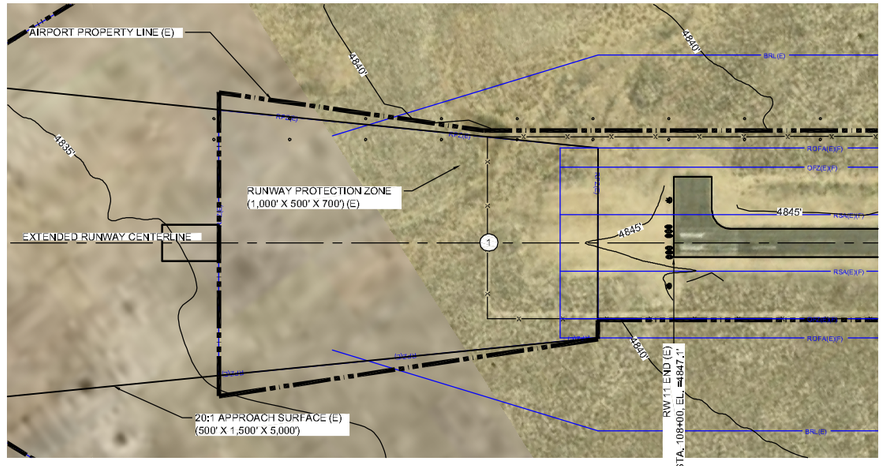
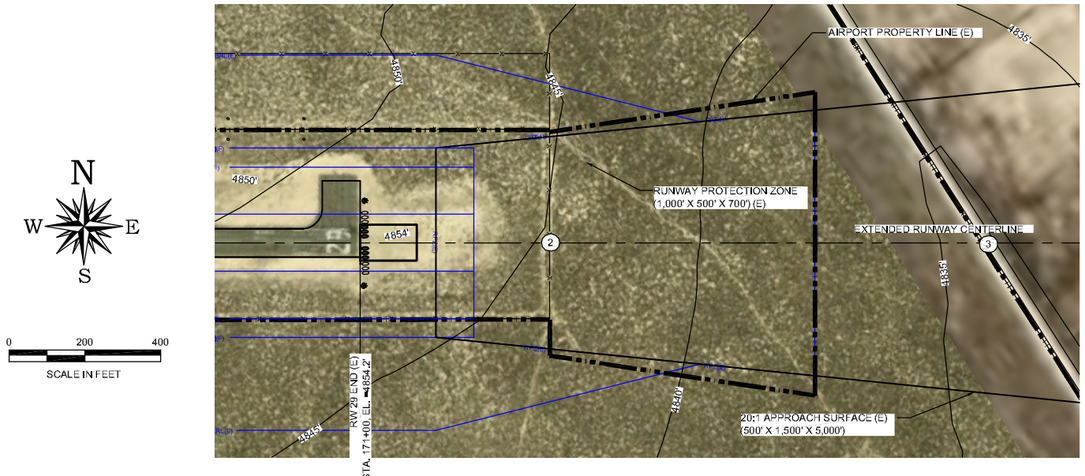
PART "77"
AIRSPACE
DRAWING

Sheet: 6 of: 13





N
W E
S

0 200 400
SCALE IN FEET

RUNWAY 11 PLAN (E)
SCALE: PER BARSCALE

RUNWAY 29 PLAN (E)
SCALE: PER BARSCALE

RUNWAY 11 PROFILE (E)
SCALE: PER GRID

RUNWAY 29 PROFILE (E)
SCALE: PER GRID

OBJECTS WITHIN INNER APPROACH SURFACE

NO.	SURFACE	OBJECT	TOP ELEVATION	PENETRATION (E)	PROPOSED ACTION
1	APPROACH (E)	FENCE	4844'	-16.4'	NONE

NOTE: OBJECT ELEVATIONS IN FEET MSL (VERTICAL DATUM NAVD88).
THERE ARE NO INNER APPROACH SURFACES PENETRATIONS.

LEGEND

EXISTING	FUTURE/ULTIMATE	DESCRIPTION	EXISTING	FUTURE	
		AIRFIELD DEVELOPMENT (ASPHALT)	●●● ●●●	0000 0000	THRESHOLD LIGHTS
		STRUCTURE/FACILITIES (BUILDING)			REIL
		AIRPORT PROPERTY LINE (APL)			VASI/PAPI
RSA(E)	RSA(F)	RUNWAY SAFETY AREA (RSA)			AIRPORT REFERENCE POINT (ARP)
OFZ(E)	OFZ(F)	OBSTACLE FREE ZONE (OFZ)			AIRPORT BEACON
ROFA(E)	ROFA(F)	RUNWAY OBJECT FREE AREA (ROFA)			WIND CONE & SEGMENTED CIRCLE
RPZ(E)	RPZ(F)	RUNWAY PROTECTION ZONE (RPZ)		N/A	SECTION CORNER
RVZ(E)	RVZ(F)	RUNWAY VISIBILITY ZONE (RVZ)			AWOS
BRL(E)	BRL(F)	BUILDING RESTRICTION LINE (BRL)			DRAINAGE/ CULVERT
TSA(E)	TSA(F)	TAXIWAY SAFETY AREA (TSA)	4125	N/A	CONTOURS
TOFA(E)	TOFA(F)	TAXIWAY OBJECT FREE AREA (TOFA)			ROADS
		FENCING			MARKINGS
					CUT / EXCAVATION
					FILL / EMBANKMENT

*PACS = PRIMARY AIRPORT CONTROL STATION
SACS = SECONDARY AIRPORT CONTROL STATION

OBJECTS WITHIN INNER APPROACH SURFACE

NO.	SURFACE	OBJECT	TOP ELEVATION	PENETRATION (E)	PROPOSED ACTION
2	APPROACH (E)	FENCE	4851'	-17.9'	NONE
3	APPROACH (E)	ROAD	4848'	-78.6'	NONE

NOTE: OBJECT ELEVATIONS IN FEET MSL (VERTICAL DATUM NAVD88).
THERE ARE NO INNER APPROACH SURFACES PENETRATIONS.

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COLORADO CITY MUNICIPAL AIRPORT
COLORADO CITY, ARIZONA

AIRPORT LAYOUT PLANS

No.	Revision	Date	By

Project No: 075831
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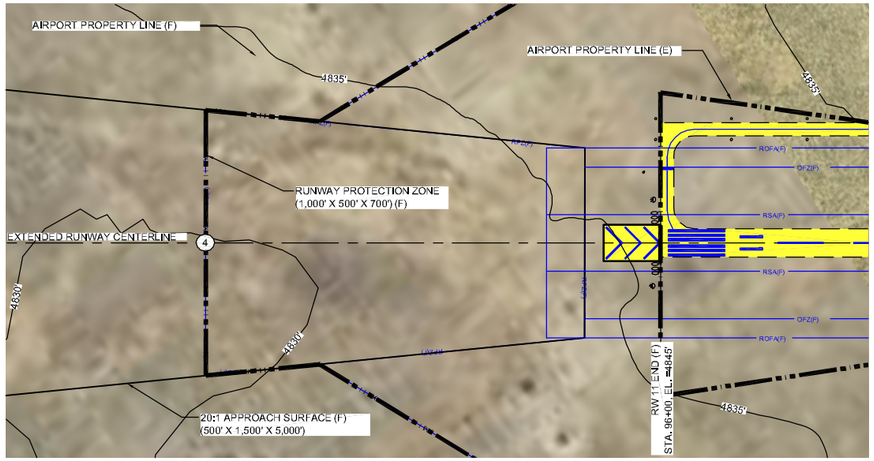
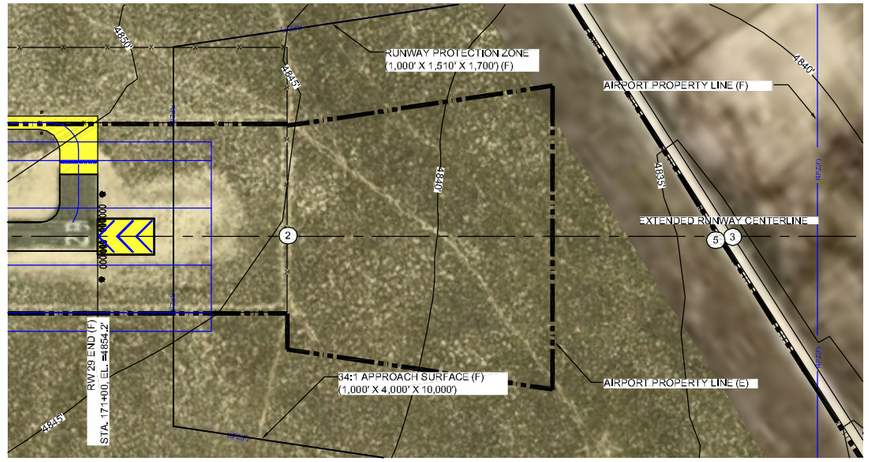
(E) INNER APPROACH DRAWING

Sheet: 7 of: 13





RUNWAY 11 PLAN (F)

SCALE: PER BARSCALE

RUNWAY 29 PLAN (F)

SCALE: PER BARSCALE

RUNWAY 11 PROFILE (F)

SCALE: PER GRID

RUNWAY 29 PROFILE (F)

SCALE: PER GRID

OBJECTS WITHIN INNER APPROACH SURFACE

NO.	SURFACE	OBJECT	TOP ELEVATION	PENETRATION (F)	PROPOSED ACTION
4	APPROACH (F)	FUTURE FENCE	4833'	-62.1'	NONE

NOTE: OBJECT ELEVATIONS IN FEET MSL (VERTICAL DATUM NAVD88).

THERE ARE NO INNER APPROACH SURFACES PENETRATIONS.

LEGEND

EXISTING	FUTURE/ULTIMATE	DESCRIPTION	EXISTING	FUTURE	
		AIRFIELD DEVELOPMENT (ASPHALT)		0000 0000	THRESHOLD LIGHTS
		STRUCTURE/FACILITIES (BUILDING)			REIL
		AIRPORT PROPERTY LINE (APL)			VASI/PAPI
RSA(E)	RSA(F)	RUNWAY SAFETY AREA (RSA)			AIRPORT REFERENCE POINT (ARP)
OFZ(E)	OFZ(F)	OBSTACLE FREE ZONE (OFZ)			AIRPORT BEACON
ROFA(E)	ROFA(F)	RUNWAY OBJECT FREE AREA (ROFA)			WIND CONE & SEGMENTED CIRCLE
RPZ(E)	RPZ(F)	RUNWAY PROTECTION ZONE (RPZ)		N/A	SECTION CORNER
RVZ(E)	RVZ(F)	RUNWAY VISIBILITY ZONE (RVZ)			AWOS
BRL(E)	BRL(F)	BUILDING RESTRICTION LINE (BRL)			DRAINAGE/ CULVERT
TSA(E)	TSA(F)	TAXIWAY SAFETY AREA (TSA)	4125	N/A	CONTOURS
TOFA(E)	TOFA(F)	TAXIWAY OBJECT FREE AREA (TOFA)			ROADS
		FENCING			MARKINGS
					CUT / EXCAVATION
					FILL / EMBANKMENT

*PACS = PRIMARY AIRPORT CONTROL STATION
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OBJECTS WITHIN INNER APPROACH SURFACE

NO.	SURFACE	OBJECT	TOP ELEVATION	PENETRATION (F)(U)	PROPOSED ACTION
2	APPROACH (F)	FENCE	4851'	-11.8'	NONE
3	APPROACH (F)	ROAD	4848'	-48.7'	NONE
5	APPROACH (F)	FUTURE FENCE	4848'	-60.1'	NONE

NOTE: OBJECT ELEVATIONS IN FEET MSL (VERTICAL DATUM NAVD88).

THERE ARE NO INNER APPROACH SURFACES PENETRATIONS.

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COLORADO CITY MUNICIPAL AIRPORT
COLORADO CITY, ARIZONA

AIRPORT LAYOUT PLANS

No.	Revision	Date	By

Project No: 075831
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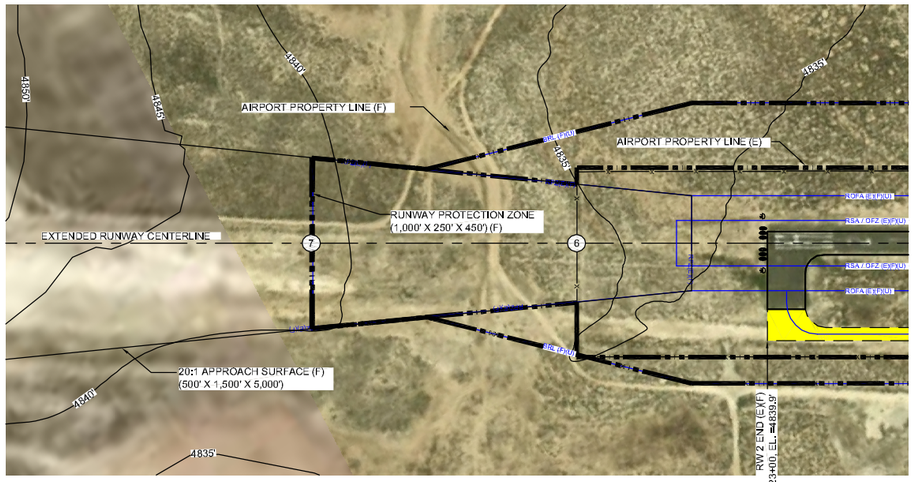
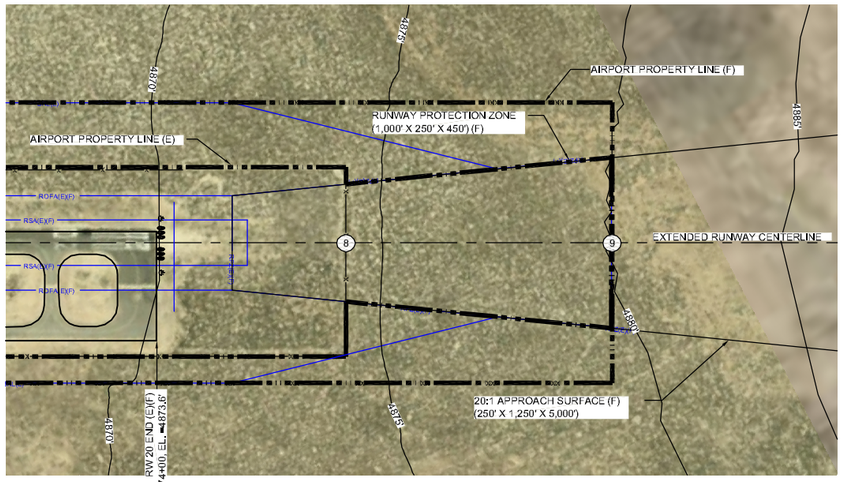
(F) INNER APPROACH DRAWING

Sheet: 8 of: 13





RUNWAY 2 PLAN (E)(F)

SCALE: PER BARSCALE

RUNWAY 20 PLAN (E)(F)

SCALE: PER BARSCALE

RUNWAY 2 PROFILE (E)(F)

SCALE: PER GRID

RUNWAY 20 PROFILE (E)(F)

SCALE: PER GRID

OBJECTS WITHIN INNER APPROACH SURFACE

NO.	SURFACE	OBJECT	TOP ELEVATION	PENETRATION (E)(F)	PROPOSED ACTION
6	APPROACH	EXISTING FENCE	4843'	-15.2'	NONE
7	APPROACH	FUTURE FENCE	4847'	-45.8'	NONE

NOTE: OBJECT ELEVATIONS IN FEET MSL (VERTICAL DATUM NAVD88).
THERE ARE NO INNER APPROACH SURFACES PENETRATIONS.

LEGEND

EXISTING	FUTURE/ULTIMATE	DESCRIPTION	EXISTING	FUTURE	
		AIRFIELD DEVELOPMENT (ASPHALT)			THRESHOLD LIGHTS
		STRUCTURE/FACILITIES (BUILDING)			REIL
		AIRPORT PROPERTY LINE (APL)			VASI/PAPI
RSA(E)	RSA(F)	RUNWAY SAFETY AREA (RSA)			AIRPORT REFERENCE POINT (ARP)
OFZ(E)	OFZ(F)	OBSTACLE FREE ZONE (OFZ)			AIRPORT BEACON
ROFA(E)	ROFA(F)	RUNWAY OBJECT FREE AREA (ROFA)			WIND CONE & SEGMENTED CIRCLE
RPZ(E)	RPZ(F)	RUNWAY PROTECTION ZONE (RPZ)		N/A	SECTION CORNER
RVZ(E)	RVZ(F)	RUNWAY VISIBILITY ZONE (RVZ)			AWOS
BRL(E)	BRL(F)	BUILDING RESTRICTION LINE (BRL)			DRAINAGE/ CULVERT
TSA(E)	TSA(F)	TAXIWAY SAFETY AREA (TSA)	4125	N/A	CONTOURS
TOFA(E)	TOFA(F)	TAXIWAY OBJECT FREE AREA (TOFA)			ROADS
		FENCING			MARKINGS
					CUT / EXCAVATION
					FILL / EMBANKMENT

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OBJECTS WITHIN INNER APPROACH SURFACE

	SURFACE	OBJECT	TOP ELEVATION	PENETRATION (E)(F)	PROPOSED ACTION
8	APPROACH	EXISTING FENCE	4878'	-10.8'	NONE
9	APPROACH (F)	FUTURE FENCE	4883'	-40.6'	NONE

NOTE: OBJECT ELEVATIONS IN FEET MSL (VERTICAL DATUM NAVD88).
THERE ARE NO INNER APPROACH SURFACES PENETRATIONS.

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COLORADO CITY MUNICIPAL AIRPORT
COLORADO CITY, ARIZONA

AIRPORT LAYOUT PLANS

No.	Revision	Date	By

Project No: 075831
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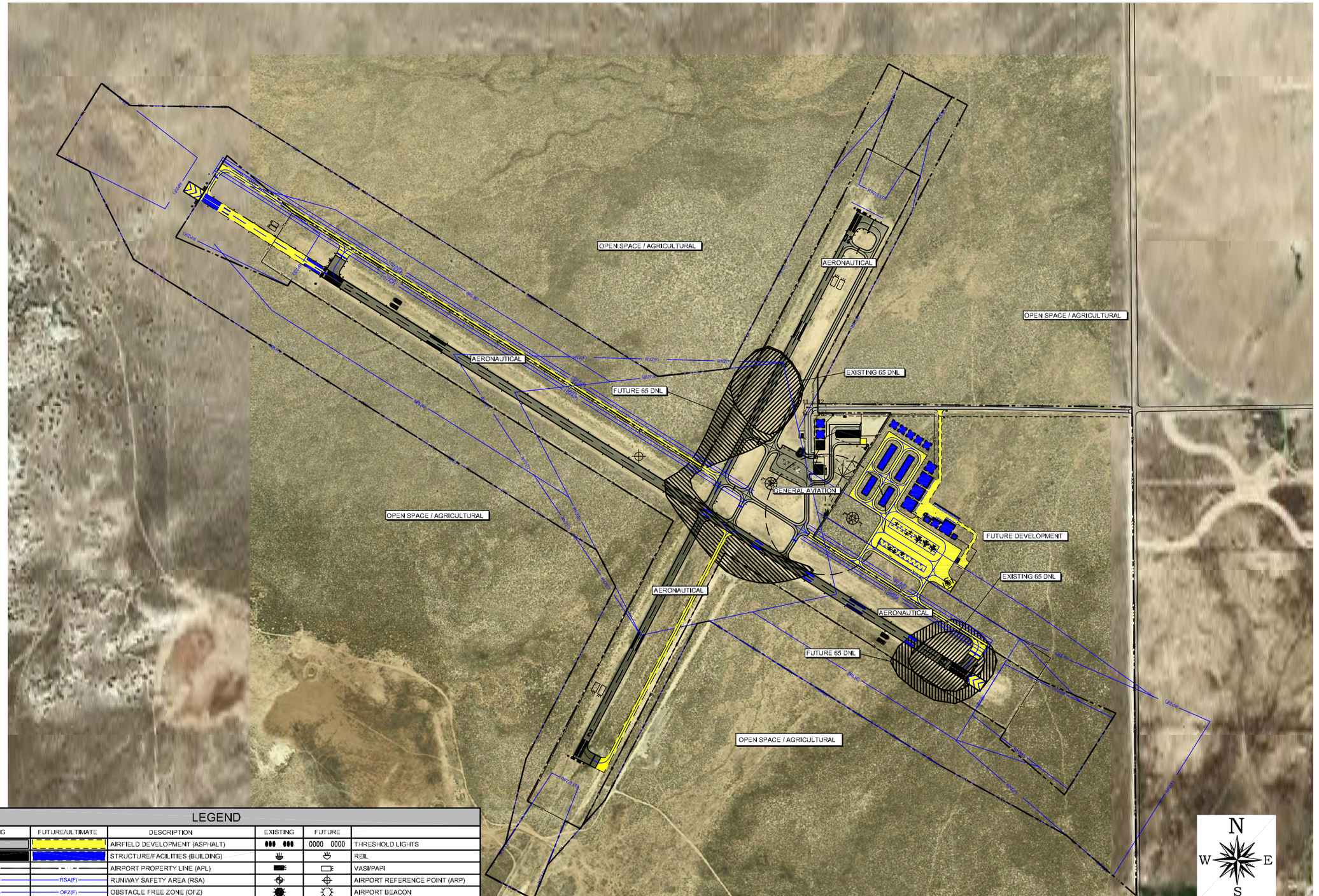
(F) INNER APPROACH DRAWING

Sheet: 9 of: 13



LEGEND

EXISTING	FUTURE/ULTIMATE	DESCRIPTION	EXISTING	FUTURE	
		AIRFIELD DEVELOPMENT (ASPHALT)			THRESHOLD LIGHTS
		STRUCTURE/FACILITIES (BUILDING)			REIL
		AIRPORT PROPERTY LINE (APL)			VASI/PAPI
RSA(E)	RSA(F)	RUNWAY SAFETY AREA (RSA)			AIRPORT REFERENCE POINT (ARP)
OFZ(E)	OFZ(F)	OBSTACLE FREE ZONE (OFZ)			AIRPORT BEACON
ROFA(E)	ROFA(F)	RUNWAY OBJECT FREE AREA (ROFA)			WIND CONE & SEGMENTED CIRCLE
RPZ(E)	RPZ(F)	RUNWAY PROTECTION ZONE (RPZ)		N/A	SECTION CORNER
RVZ(E)	RVZ(F)	RUNWAY VISIBILITY ZONE (RVZ)			AWOS
BRL(E)	BRL(F)	BUILDING RESTRICTION LINE (BRL)			DRAINAGE/ CULVERT
TSA(E)	TSA(F)	TAXIWAY SAFETY AREA (TSA)	4125	N/A	CONTOURS
TOFA(E)	TOFA(F)	TAXIWAY OBJECT FREE AREA (TOFA)			ROADS
X	X	FENCING			MARKINGS

EXISTING 65 DNL CONTOUR

FUTURE 65 DNL CONTOUR

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COLORADO CITY MUNICIPAL AIRPORT
COLORADO CITY, ARIZONA

AIRPORT LAYOUT PLANS

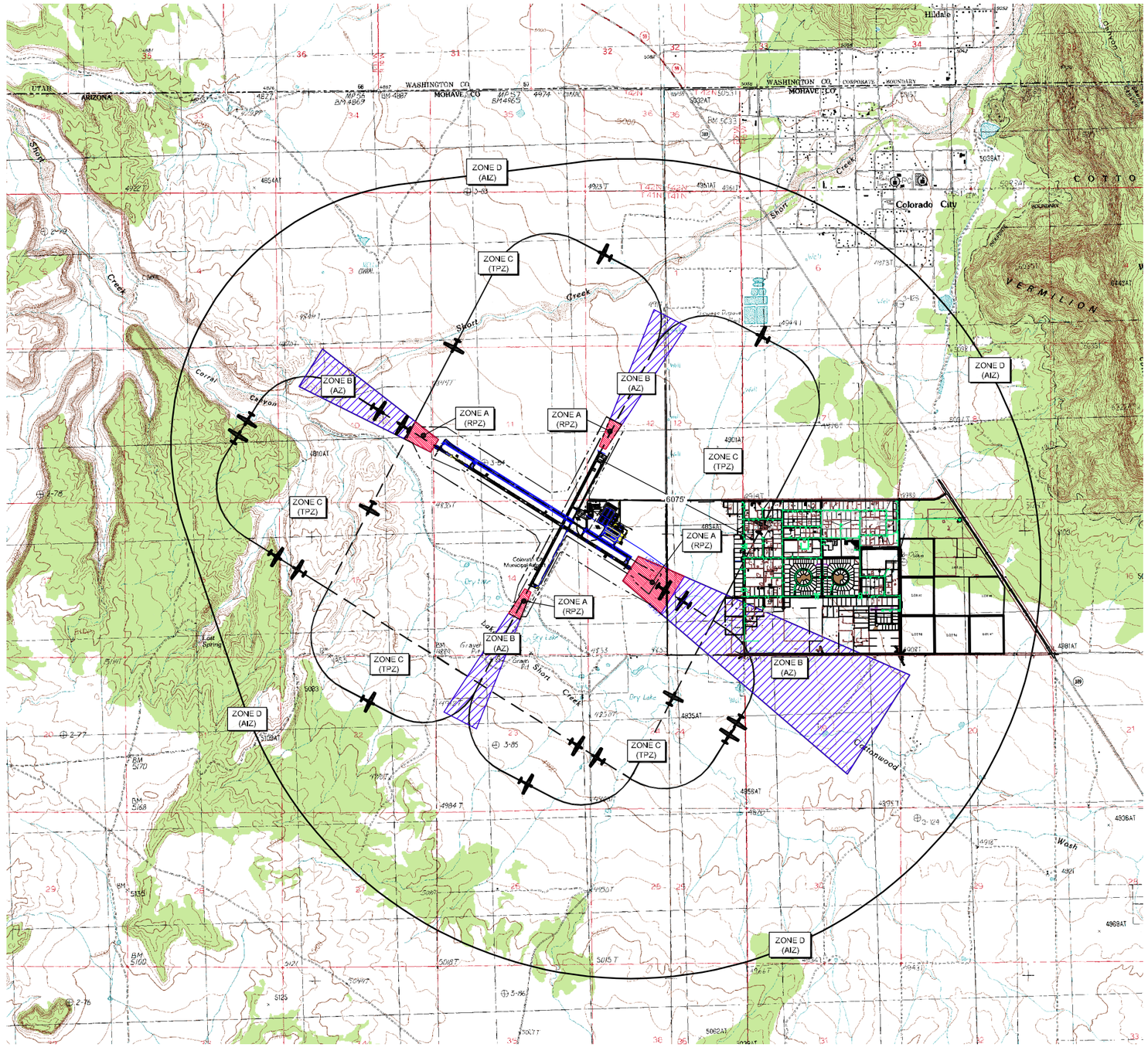
No.	Revision	Date	By

Project No: 075831
Date: 12.15.08
File Name: 5831506

Drawn: GWK
Checked: JZP
Approved: DAC

ON-AIRPORT LAND USE

Sheet: 10 of: 13



LAND USE COMPATIBILITY GUIDELINES

Land Use Category	ZONE D Airport Influence (AIZ)	ZONE C Traffic Pattern (TPZ)	ZONE B Approach (AZ)	ZONE A Runway Protection (RPZ)
Residential				
single-family, nursing homes, mobile homes, multi-family, apartments, condominiums	+	- (1,3)	- (1,3)	--
transient lodging, hotel, motel	+	o (1,3)	- (1,3)	--
Public				
schools, libraries, hospitals	+	o (3)	- (3)	--
churches, auditoriums, concert halls	+	o (3)	- (3)	--
transportation, parking, cemeteries	++	++	++	- (2,5)
Commercial and Industrial				
offices, retail trade, service commercial, wholesale trade, warehousing, light industrial, general manufacturing, utilities, extractive industry	++	+	o (3)	--
Agricultural and Recreational				
cropland	++	++	++	++
livestock breeding	++	++	++	- (2)
parks, playgrounds, zoos, golf courses, riding stables, water recreation	++	++	++	- (2)
outdoor spectator sports	++	+	- (3)	--
amphitheaters	o	- (4)	--	--
open space	++	++	++	++

NOTE: DEVELOPMENT PROJECTS WHICH ARE WILDLIFE ATTRACTANT, INCLUDING SEWERAGE PONDS AND LANDFILLS, WITHIN 10,000 FEET OF THE AIRPORT ARE UNACCEPTABLE. (REF.: FAA AC 150/5200-33)

(1) If allowed, avigation easements and disclosure must be required as a condition of development.
(2) Any structures associated with uses allowed in the RPZ must be located outside the RPZ.
(3) If no reasonable alternative exists, use should be located as far from extended centerline as possible.
(4) If no reasonable alternative exists, use should be located as far from extended runway centerline and traffic patterns as possible.
(5) Transportation facilities in the RPZ (i.e. roads, railroads, waterways) must be configured to comply with Part 77 requirements.

CRITERIA

Land Use Availability	Interpretation/Comments
++ Clearly Acceptable	The activities associated with the specified land use will experience little or no impact due to airport operations. Disclosure of airport proximity should be required as a condition of development.
+ Normally Acceptable	The specified land use is acceptable in this zone or area. Impact may be perceived by some residents. Disclosure of airport proximity should be required as a condition of development. Dedication of avigation easements may also be advisable.
o Conditionally Acceptable	If appropriate disclosure is made and avigation easements put in place, residential uses and uses involving indoor public assemblies are acceptable.
- Normally Unacceptable	Specified use should be allowed only if no reasonable alternative exists. Disclosure of airport proximity and avigation easements must be required as a condition of development.
- - Clearly Unacceptable	Specified use must not be allowed. Potential safety or overflight nuisance impacts are likely in this area.

EXISTING ZONING ORDINANCES

Compatible land use and height restriction zoning is currently existing.

NOTICE OF PROPOSED CONSTRUCTION

An FAA Form 7460-1, "Notice of Proposed Construction or Alteration" must be submitted for any construction or alteration (including hangars and other on-airport and off-airport structures, towers, etc.) within 20,000 horizontal feet of the airport greater in height than an imaginary surface extending outward and upward from the runway at a slope of 100 to 1 or greater in height than 200 feet above ground level.

LEGEND

- CHURCH
- SCHOOL
- HOSPITAL
- PARK

RUNWAY PROTECTION ZONE (RPZ) AS DIMENSIONED ON SHEET 2 OF AIRPORT LAYOUT PLAN.

APPROACH SURFACE AS DESCRIBED ON THE FAR PART 77 DRAWING OF THE AIRPORT LAYOUT PLAN.

STANDARD 1-MILE TRAFFIC PATTERNS.

AIRPORT PROPERTY LINE

TYPICAL TRAFFIC PATTERN DIRECTION AND FLIGHT TRACK AREA.

N W E S

0 2000 4000
SCALE IN FEET

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COLORADO CITY MUNICIPAL AIRPORT
COLORADO CITY, ARIZONA

AIRPORT LAYOUT PLANS

No.	Revision	Date	By

Project No: 075831
Date: 12.15.08
File Name: 5831507

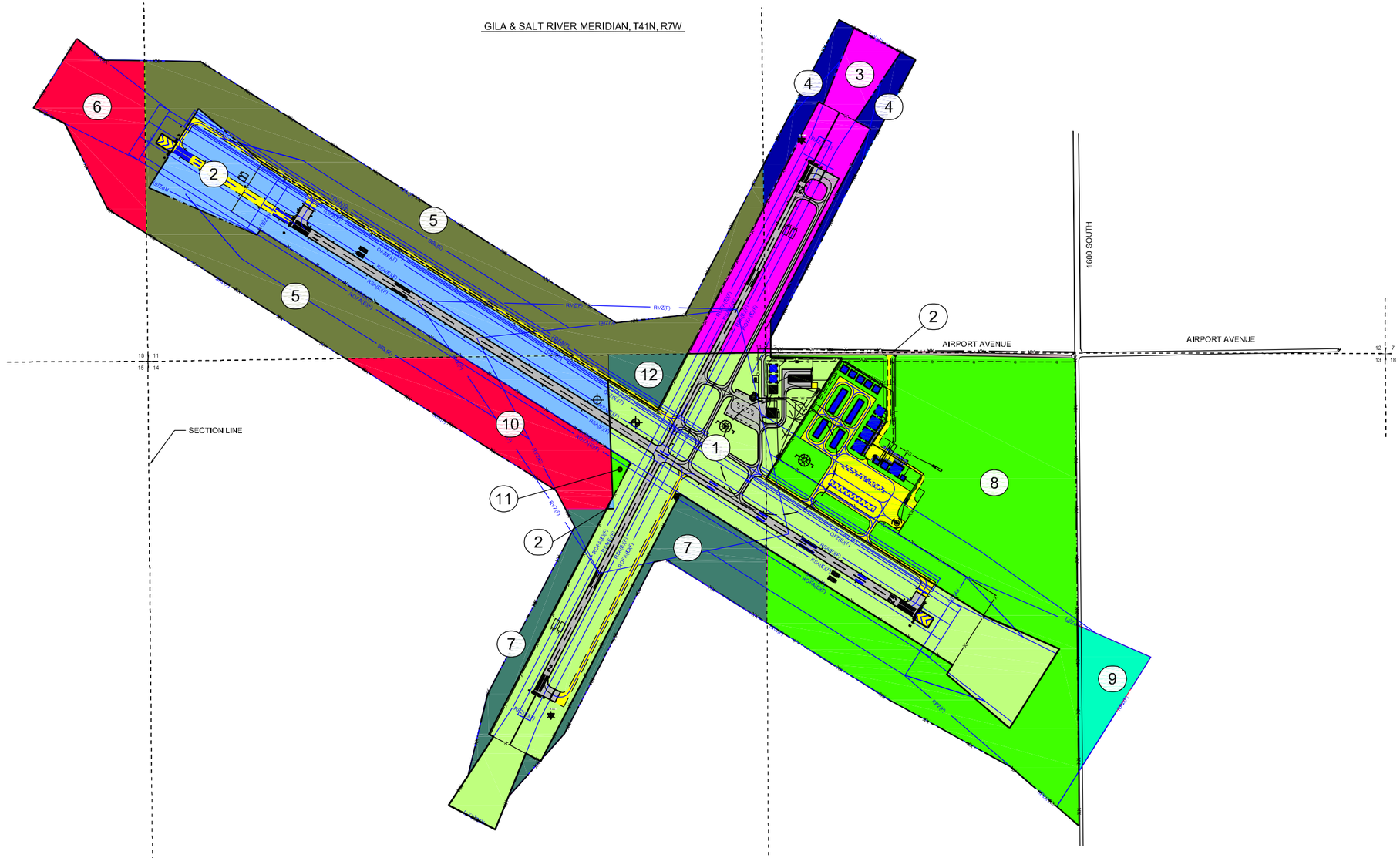
Drawn: GWK
Checked: JZP
Approved: DAC

OFF AIRPORT LAND USE

Sheet: 11 of: 13

EXISTING AIRPORT PROPERTY

TRACT	CURRENT OWNER	INTEREST	DATE	BOOK/PAGE	ACREAGE	PURPOSE	TOWNSHIP / RANGE / SECTION
1	COLORADO CITY, ARIZONA	BLM/DEPT. OF INTERIOR PATENT NO. 02-940015	JUNE 2, 1994	2469/pgs. 195-206	111.89	AERONAUTICAL	T41N, R7W SECTIONS 14&13
2	COLORADO CITY, ARIZONA	FEE SIMPLE / AIP NO. 3-04-0076-02	–	1862/pgs. 124-126	56.85	AERONAUTICAL	T41N, R7W SECTIONS 11,12&14
3	COLORADO CITY, ARIZONA	FEE SIMPLE INTEREST	–	1862/pgs. 124-126	34.89	AERONAUTICAL	T41N, R7W SECTIONS 11&12



LEGEND

EXISTING	FUTURE/ULTIMATE	DESCRIPTION	EXISTING	FUTURE	
		AIRFIELD DEVELOPMENT (ASPHALT)		0000 0000	THRESHOLD LIGHTS
		STRUCTURE/FACILITIES (BUILDING)			REIL
		AIRPORT PROPERTY LINE (APL)			VASI/PAPI
RSA(E)	RSA(F)	RUNWAY SAFETY AREA (RSA)			AIRPORT REFERENCE POINT (ARP)
OFZ(E)	OFZ(F)	OBSTACLE FREE ZONE (OFZ)			AIRPORT BEACON
ROFA(E)	ROFA(F)	RUNWAY OBJECT FREE AREA (ROFA)			WIND CONE & SEGMENTED CIRCLE
RPZ(E)	RPZ(F)	RUNWAY PROTECTION ZONE (RPZ)		N/A	SECTION CORNER
RVZ(E)	RVZ(F)	RUNWAY VISIBILITY ZONE (RVZ)			AWOS
BRL(E)	BRL(F)	BUILDING RESTRICTION LINE (BRL)			DRAINAGE/ CULVERT
TSA(E)	TSA(F)	TAXIWAY SAFETY AREA (TSA)	4125	N/A	CONTOURS
TOFA(E)	TOFA(F)	TAXIWAY OBJECT FREE AREA (TOFA)			ROADS
X	X	FENCING	LW	LW	MARKINGS

PROPERTY TO BE ACQUIRED

PARCEL	CURRENT OWNER	INTEREST	PARCEL NO.	ACREAGE	PURPOSE	SECTION NUMBER	TOWNSHIP & RANGE
4	ESPLIN CATTLE CO.	FEE SIMPLE	404-27-043	12.2	AERONAUTICAL / APPROACH PROTECTION	12	T 41 N, R 7 W
5	ESPLIN CATTLE CO.	FEE SIMPLE	404-27-042	89.2	AERONAUTICAL / APPROACH PROTECTION	11 & 14	T 41 N, R 7 W
6	UNITED STATES OF AMERICA / BLM	PATENT	404-27-058	20.4	APPROACH PROTECTION	10	T 41 N, R 7 W
7	UNITED STATES OF AMERICA / BLM	PATENT	404-44-005	25.4	AERONAUTICAL / APPROACH PROTECTION	14	T 41 N, R 7 W
8	UNITED STATES OF AMERICA / BLM	PATENT	404-27-044	146.9	AERONAUTICAL / APPROACH PROTECTION	13	T 41 N, R 7 W
9	WORK OF JESUS CHRIST / TIMPSON JOHN C/O	EASEMENT	404-27-077	9.1	APPROACH PROTECTION	13	T 41 N, R 7 W
10	ESPLIN CATTLE CO.	FEE SIMPLE	404-27-042	25.9	AERONAUTICAL	14	T 41 N, R 7 W
11	UNITED STATES OF AMERICA / BLM	PATENT	404-44-004	.80	AERONAUTICAL	14	T 41 N, R 7 W
12	UNITED STATES OF AMERICA / BLM	PATENT	404-44-003	4.7	AERONAUTICAL	14	T 41 N, R 7 W

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COLORADO CITY MUNICIPAL AIRPORT
COLORADO CITY, ARIZONA

AIRPORT MASTER PLAN

No.	Revision	Date	By

Project No: 075831
Date: 12.15.08
File Name: 5831508

Drawn: GWK
Checked: JZP
Approved: DAC

EXHIBIT A
PROPERTY MAP

Sheet: 12 of: 13

PHOTOGRAPHED IN 2005

Sheet: 13 of 13

AERIAL PHOTOGRAPH

Drawn: GWK
Checked: JZP
Approved: DAC

Project No: 075831
Date: 12.15.08
File Name: 583169

No.	Revision	Date	By

COLORADO CITY MUNICIPAL AIRPORT
COLORADO CITY, ARIZONA

AIRPORT LAYOUT PLANS

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Chapter Six
Environmental Overview

Colorado City Municipal Airport
Airport Master Plan

Chapter Six
Environmental Overview

INTRODUCTION

This environmental overview examines the potential environmental impacts associated with the proposed airport improvements listed in the Financial Plan in the following Chapter. The proposed improvements most likely to result in environmental impacts include the extension of Runway 11/29 and the landside development. All other improvements occur on existing airport property. This Chapter is intended to provide an overview of the potential impacts and identify additional environmental documentation that may be required as a prerequisite to development.

AIR QUALITY

The Clean Air Act of 1970 was enacted to reduce emissions of specific pollutants via uniform Federal standards. These standards include the National Ambient Air Quality Standards (NAAQS) which set maximum allowable ambient concentrations of ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), carbon monoxide (CO), lead (Pb) and particulate matter 10 microns or smaller (PM_{10}). Section 176(c) of the Act, in part, states that no Federal agency shall engage in, support in any way or provide financial assistance for, license or permit or approve any activity that does not conform to the State Implementation Plan.

Federal Aviation Administration Orders 5050.4B and 1050.1E require air quality analysis for projects in areas not in compliance with the Environmental Protection Agency (EPA) approved State Implementation Plan (SIP). Because the entire area is considered in attainment with the SIP, no further air quality analysis is required.

Construction emissions, specifically dust, are not a long-term factor. These emissions are described in the "Construction Impacts" section of this Chapter. The necessary permits will be obtained before construction begins and construction projects will conform to FAA Advisory Circular (AC) 150/5370-10C, Standards for Specifying Construction of Airports.

The following best management practices are recommended to minimize construction emissions:

I. Site Preparation
   A. Minimize land disturbance;
   B. Use watering trucks to minimize dust;
   C. Cover trucks when hauling dirt or debris;
   D. Stabilize the surface of dirt piles and any disturbed areas;
   E. Use windbreaks to prevent any accidental dust pollution; and
   F. Segregate storm water drainage from construction sites and material piles.

II. Construction Phase
   A. Cover trucks when transferring materials; and
   B. Minimize unnecessary vehicular and machinery activities.

III. Completion Phase
   A. Revegetate any disturbed land not used;
   B. Remove unused material and dirt piles; and

Temporary air pollution may occur as a result of the proposed action. The design and construction of the proposed improvements will incorporate Best Management Practices (BMP) to reduce air quality impacts, including minimizing land disturbance, wetting down, using water trucks, dust suppressant, covering trucks when hauling soil and the use of wind breaks. These practices will be selected based on the site's characteristics. No significant air quality impacts are anticipated as a result of the proposed development.

COASTAL RESOURCES

There are no coastal zones associated with the proposed development. Therefore, compliance with the Coastal Zone Management Act of 1972 and the Coastal Barriers Resources Act of 1982 is not a factor.

COMPATIBLE LAND USE

Land use compatibility considerations include safety, height hazards and noise exposure. Although extremely rare, most aircraft accidents occur within 5,000 feet of a runway. Therefore, the ability of the pilot to bring the aircraft down in a manner that minimizes the severity of an accident is dependent upon the type of land uses within the vicinity of the airport. Land uses are reviewed in three zones surrounding the airport: the Runway Protection Zone (RPZ), the Approach Zone, Airport Influence Zone and the Traffic Pattern Zone. The RPZ is a trapezoidal area extending 1,200 feet beyond the ends of the runway and is typically included within the airport property boundary. Residential and other uses that result in congregations of people are not recommended within the runway protection zone. The approach zone generally falls within the FAR Part 77 Approach Surface area. Within the approach zone, public land uses, such as schools, libraries, hospitals and churches should be avoided. New residential developments should include avigation easements and disclosure statements. The Traffic Pattern Zone is generally the area within one mile of the airport. Within the Traffic Pattern Zone, avigation easements should be considered for residential and public uses within this area and disclosure statements should be included. The Airport Influence Zone is the area where aircraft are transitioning to or from enroute altitude or airport over-flight altitude to or from the standard traffic pattern altitude of 800 to 1,000 feet above airport elevation.

The closest populated areas to the Colorado City Municipal Airport are located east and north of the airport. The airport has implemented a nonstandard right hand traffic pattern to Runway 11, which reduces the amount of traffic flying over the Town of Colorado City.

Federal Aviation Regulation (FAR) Part 77, Objects Affecting Navigable Airspace, provides imaginary surfaces surrounding an airport that should be protected from penetration by objects. These include the approach surface, horizontal surface and conical surface. These surfaces were described in Chapter 4. Proposed structures in the vicinity of the airport should be reviewed against the Part 77 criteria to ensure hazards to air navigation are not created. Because the terrain off the end of the runways is lower than the runway elevation, no penetrations to the approach surface currently exist. Objects penetrating these surfaces could result in a hazard to air navigation.

The Town of Colorado City has implemented an Airport Overlay Zoning Ordinance, including Compatible Land Use Overlay and Height Restriction drawings. If enforced, this ordinance and drawings will protect the airport from future incompatible land uses and any objects that may be considered hazards to air navigation. An updated ordinance and drawings have been included

as part of this Master Plan to coincide with the planned airport configuration airspace and design standards and should be adopted by the Town of Colorado City. A copy of the proposed ordinance and zoning maps are included in Appendix F.

CONSTRUCTION IMPACTS

Local, State and Federal ordinances and regulations address the impacts of construction activities, including dust and noise from heavy equipment traffic, disposal of construction debris and air and water pollution.

Construction operations for the proposed development will cause specific impacts resulting solely from and limited exclusively to the construction project. Construction impacts are distinct in that they are temporary in duration and the degree of adverse impacts decreases as work is concluded. The following construction impacts can be expected:

- A temporary increase in particulate and gaseous air pollution levels as a result of dust generated by construction activity and by vehicle emissions from equipment and worker's automobiles;
- Increases in solid and sanitary wastes from the workers at the site;
- Traffic volumes that would increase in the airport vicinity due to construction activity (workers arriving and departing, delivery of materials, etc.);
- Increase in noise levels at the airport during operation of heavy equipment; and
- Temporary erosion, scarring of land surfaces and loss of vegetation in areas that are excavated or otherwise disturbed to carry out future developments.

Construction projects will comply with guidelines set forth in FAA Advisory Circular 150/5370-10C, Standards for Specifying the Construction of Airports. The contractor will obtain the required construction permits. The contractor will also prepare Storm Water Pollution Prevention and Fugitive Dust Control Plans for construction. These requirements will be specified in the contract documents for the construction of the proposed improvements.

DOT ACT – SECTION 4(F)

Section 303c of Title 49, U.S.C., formerly Section 4(f) of DOT Act of 1966, provides that the Secretary of Transportation shall not approve any program or project that requires the use of any publicly owned land from a public park, recreation area or wildlife or waterfowl refuge of National, State or Local significance or land from an historic site of National, State or Local significance, as determined by the officials having jurisdiction thereof, unless there is no feasible and prudent alternative to the use of such land and such project includes all possible planning to minimize impacts. The proposed improvements will not require land from any public park, recreation area or wildlife or waterfowl refuge.

The Colorado City Municipal Airport is located in the vicinity of several noise sensitive national parks and wilderness areas. The Cottonwood Point Wilderness area is located approximately 3 nautical miles northeast, the Zion National Park is approximately 11 nautical miles north and the Kanab Creek Wilderness Area is approximately 30 nautical miles southeast. Pilots are requested to remain at least 2,000 feet Above Ground Level (AGL) over all wilderness areas. Figure 6-1 shows the airport in proximity to the designated wilderness/national parks. Prior to any runway extension noise and flight track analysis will be needed as part of the Environmental Assessment for the runway extension.

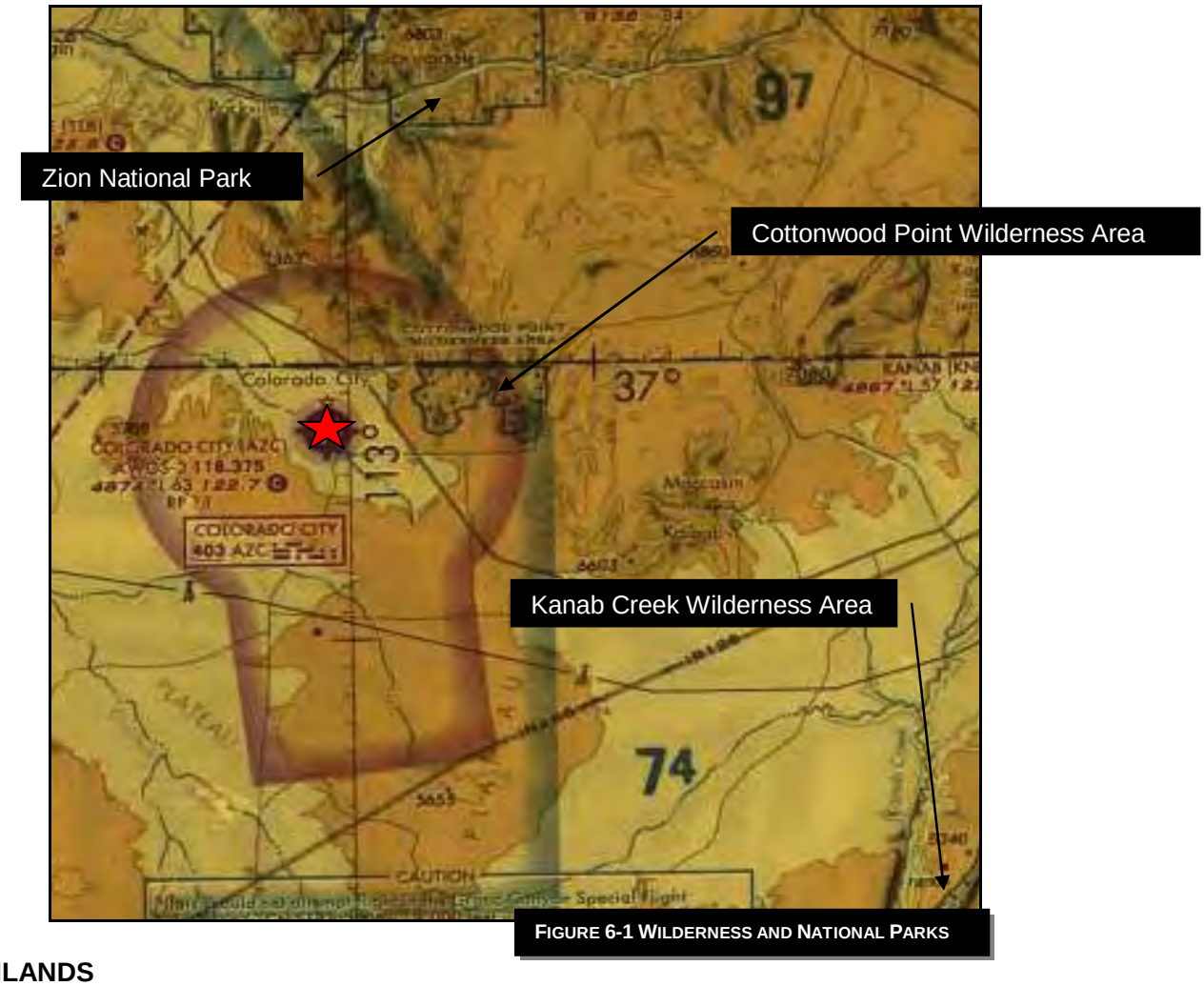


FIGURE 6-1 WILDERNESS AND NATIONAL PARKS

FARMLANDS

The Farmland Protection Policy Act (FPPA) authorizes the Department of Agriculture to develop criteria for identifying the effects of Federal programs upon the conversion of farmland to uses other than agriculture.

Conversion of "Prime or Unique" farmland may be considered a significant impact. Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed or fiber without intolerable soil erosion as determined by the Secretary of Agriculture. Unique farmland is land other than prime farmland which is used to produce specific high value food and fiber crops, such as citrus, tree nuts, olives, cranberries, fruits and vegetables.

Figure 6-2 shows the high quality farmland in the State of Arizona in Red and Green. As shown, there is no high quality farmland in Mohave County.

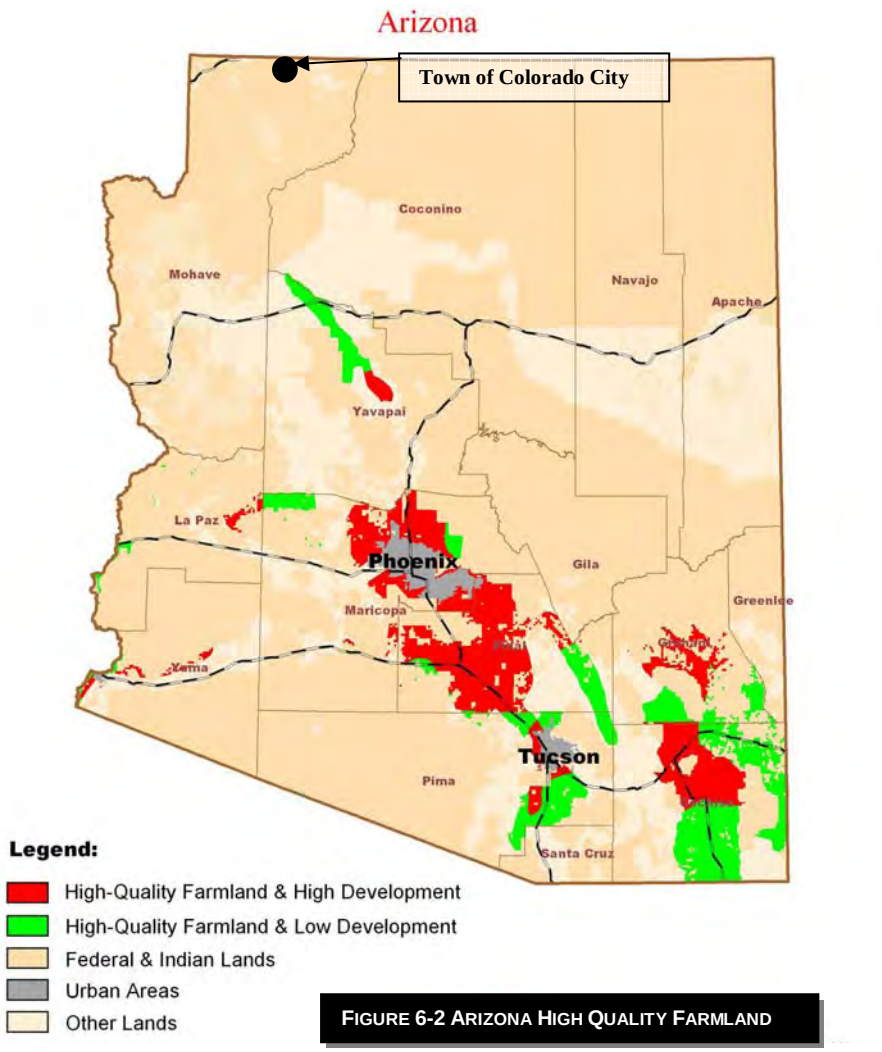


FIGURE 6-2 ARIZONA HIGH QUALITY FARMLAND

FISH, WILDLIFE AND PLANTS

This category concerns potential impacts to existing wildlife habitat and threatened and endangered species. Examining both the area of land to be altered or removed and its relationship to surrounding habitat quantify the significance of the impacts in this category. For example, removal of a few acres of habitat which represents a small percentage of the area's total similar habitat or which supports a limited variety of common species would not be considered significant. However, removal of a sizeable percentage of the area's similar habitat or habitat which is known to support rare species would be considered significant impact. Improvements to the Colorado City Municipal Airport would remove approximately 21 acres of habitat. The surrounding area offers an abundance of similar habitat and the proposed improvements are not considered to be a significant habitat loss.

Section 7 of the Endangered Species Act, as amended, requires each Federal agency to insure that "any action authorized, funded or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of critical habitat of such species . . .".

An Endangered Species is defined as any member of the animal or plant kingdoms determined to be in danger of extinction throughout all or a significant portion of its range. A Threatened Species is defined as any member of the plant or animal kingdoms that is likely to become endangered in the foreseeable future.

The following species are currently listed for Mohave County, but do not necessarily occur in the vicinity of Colorado City or within the project areas.

Endangered
Arizona cliff-rose, Purshia subintegra
Bonytail chub, Gila elegans
Brown pelican, Pelecanus occidentalis
California condor, Gymnogyps californianus
Holmgren milk vetch, Astragalus holmgreniorum
Hualapai mexican vole, Microtus mexicanus hualpaiensis
Humpback chub, Gila cypha
Razorback sucker, Xrauchen texanus
Southwestern willow flycatcher, Empidonax traillii
Virgin river chub, Gila seminude
Yuma clapper rail, Rallus longirostris yumanensis

Threatened
Bald eagle, Haliaeetus leucocephalus
Desert tortoise, Gopherus agassiziii
Jones cycladenia, Cycladenia jonesii
Mexican spotted owl, Strix occidentalis lucida
Siler pincushion cactus, Echinocactus Utahia sileri

Candidate
Fickeisen plains cactus, Pediocactus peeblesianus fickeiseniae
Relict leopard frog, Rana onca
Yellow-billed cuckoo, Coccyzus americanus

A biological assessment was conducted for the airport during an environmental assessment in March of 2006. The biological assessment/threatened and endangered species survey should be updated for previously undisturbed areas underlying the runway extension footprint. This is typically accomplished as part of an Environmental Assessment process.

FLOODPLAINS

Floodplains are defined by Executive Order 11988, Floodplain Management, as the lowland and relatively flat areas adjoining coastal water . . . including at a minimum, that area subject to a one percent or greater chance of flooding in any given year . . . ", that is, an area which would be inundated by a 100-year flood. If a proposed action involves a 100-year floodplain, mitigating measures must be investigated in order to avoid significant changes to the drainage system.

As described in FAA Order 5050.4B, an airport development project would be a significant impact pursuant to NEPA if it results in notable adverse impacts on natural and beneficial floodplain values. Mitigation measures for base floodplain encroachments may include committing to special flood related design criteria, elevating facilities above base flood level,

locating nonconforming structures and facilities out of the floodplain or minimizing fill placed in floodplains. The area has not been mapped by FEMA however the Town of Colorado City has indicated that the airport is not located within any designated floodplains and is considered to be a non risk area. Therefore the proposed action would not result in any impacts on floodplains.

HAZARDOUS MATERIALS, POLLUTION PREVENTION AND SOLID WASTE

Four primary laws have been passed governing the handling and disposal of hazardous materials, chemicals, substances and wastes. The two statutes of most importance to the FAA in proposing actions to construct and operate facilities and navigational aids are the Resource Conservation and Recovery Act (RCRA) (as amended by the Federal Facilities Compliance Act of 1992) and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA or Superfund) and the Community Environmental Response Facilitation Act of 1992. RCRA governs the generation, treatment, storage and disposal of hazardous wastes. CERCLA provides for consultation with natural resources trustees and cleanup of any release of a hazardous substance (excluding petroleum) into the environment.

The area surrounding the Colorado City Municipal Airport is currently used for ranching purposes. There is no reason to believe that the proposed improvements will be constructed in an area that contains hazardous waste.

Airport development actions that relate only to construction or expansion of runways, taxiways and related facilities do not normally include any direct relationship to solid waste collection, control or disposal other than that associated with the construction itself. The nature of the proposed airport meets these criteria and will not significantly increase net waste output for the Town.

Any solid waste disposal facility (i.e. sanitary landfill) which is located within 5,000 feet of all runways planned to be used by piston-powered aircraft or within 10,000 feet of all runways planned to be used by turbine aircraft, is considered by the FAA to be an incompatible land use because of the potential for conflicts between birds and low-flying aircraft. This determination is found in FAA Advisory Circular 150/5200-33, Hazardous Wildlife Attractants On or Near Airports. There are no solid waste disposal facilities within 10,000 feet of the airport. Any planned solid waste disposal facilities should be located at least 10,000 feet from the runway.

HISTORICAL, ARCHITECTURAL, ARCHAEOLOGICAL AND CULTURAL RESOURCES

The National Historic Preservation Act of 1966 requires that an initial review be made in order to determine if any properties in or eligible for inclusion in the National Register of Historic Places are within the area of a proposed action's potential environmental impact (the area within which direct and indirect impacts could occur and thus cause a change in historic, architectural, archaeological or cultural properties).

The Archaeological and Historic Preservation Act of 1974 provides for the survey, recovery and preservation of significant scientific, prehistorical, historical, archaeological or paleontological data when such data may be destroyed or irreparably lost due to a federal, federally funded or federally licensed project.

A Cultural Resource Survey of the project area was accomplished by Aztlan Archaeology, Inc. in 2001. As a result of the survey several sites were identified containing cultural resources.

The future development projects included in this Airport Master Plan will avoid the sites. Any other development affecting the sites will require State Historic Preservation Office (SHPO) consultation.

LIGHT EMISSIONS AND VISUAL IMPACTS

Airfield lighting is the main source of light emissions from an airport. Rotating airport beacons are provided so pilots can identify the location of an airport at night or in reduced visibility conditions. Rotating beacons consist of alternating white and green lights rotating at six rotations per minute. Beacons are typically mounted on a tower or on top of a hangar or other building. Specifications for spotting airport beacons allow the beam to be angled from 2^o to 12^o above the horizon. The standard setting is 6^o. If necessary, the beacon can be shielded to reduce visibility of the beacon from below the horizon line. Medium Intensity Runway Edge Lights (MIRLs) are single white or yellow lights mounted on 14-30 inch posts spaced at 200 foot intervals along both edges of the runway. They define the boundaries of the runway surface usable for takeoff and landing. Precision Approach Path Indicators (PAPIs) are used for visual descent guidance and consist of two or four light units located to the left of the runway and perpendicular to the runway centerline. The lights are directed at a glide path angle of 3^o above the runway. If the aircraft is above the glide path, the pilot will see all white lights. If the pilot is on the proper glide path, the light unit closest to the runway will be red and the unit farthest from the runway will be white. When the pilot is below the glide path the light units will be red. PAPIs have an effective visual range from the air of approximately five miles during the day and up to twenty miles at night. These visual aids are extremely useful and enhance safety in situations where there are few visual references surrounding the airport. Runway End Identifier Lights (REILs) are synchronized flashing lights located laterally on each side of the runway threshold. They are angled upward and outward from the runway and provide rapid and positive identification of the threshold of a runway. This is especially useful in metropolitan and densely developed areas where lights in the vicinity of the airport make it difficult to identify the runway. Proposed improvements will primarily replace existing lighting and will not substantially increase light emission impacts at the Colorado City Municipal Airport.

NATURAL RESOURCES, ENERGY SUPPLY AND SUSTAINABLE DESIGN

Executive Order 13123, Greening the Government Through Efficient Energy Management (64FR 30851, June 8, 1999), encourages each Federal agency to expand the use of renewable energy within its facilities and in its activities. E.O. 13123 also requires each Federal agency to reduce petroleum use, total energy use and associated air emissions and water consumption in its facilities.

It is also the policy of the FAA, consistent with NEPA and the CEQ regulations, to encourage the development of sustainability. All elements of the transportation system should be designed with a view to their aesthetic impact, conservation of resources such as energy, pollution prevention, harmonization with the community environment and sensitivity to the concerns of the traveling public.

Energy requirements associated with airport improvements generally fall into two categories: 1) changed demand for stationary facilities (i.e. airfield lighting and terminal building heating) and 2) those that involve the movement of air and ground vehicles (i.e. fuel consumption). The use of natural resources includes primarily construction materials and water.

Energy requirements are not expected to significantly increase as a result of the proposed improvements.

Demand for aircraft fuel is expected to increase. Aircraft fuel should be stored in above ground tanks at the airport that conform to EPA regulations. Significant increases in ground vehicle fuel consumption are not anticipated.

NOISE

Noise analysis considerations include whether the Federal thresholds of noise exposure are exceeded, whether the 65 day-night level (DNL) noise contour extends beyond airport property and if there are any residences, churches, schools or hospitals within the 65 DNL noise contour.

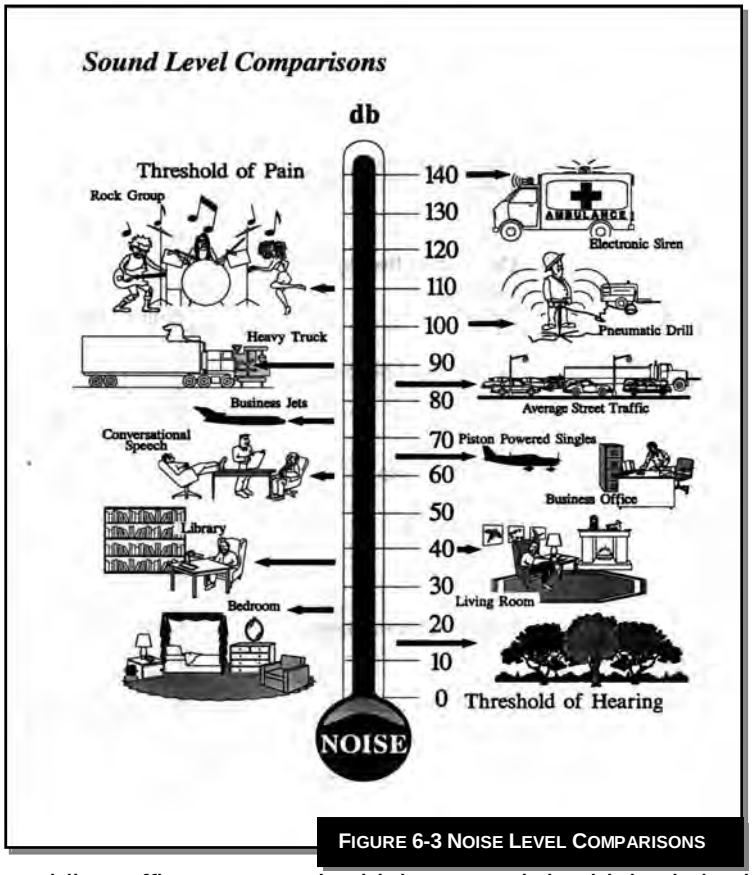


FIGURE 6-3 NOISE LEVEL COMPARISONS

The basic measure of noise is the sound pressure level that is recorded in decibels (dBA). The important point to understand when considering the impact of noise on communities is that equal levels of sound pressure can be measured for both high and low frequency sounds. Generally, people are less sensitive to sounds of low frequency than they are to high frequencies. An example of this might be the difference between the rumble of automobile traffic on a nearby highway and the high-pitched whine of jet aircraft passing overhead. At any location, over a period of time, sound pressure fluctuates considerably between high and low frequencies. Figure 6-3 depicts a Sound Level Comparison of different noise sources.

The identification of airport generated noise impacts and implementation of noise abatement measures is a joint responsibility of airport operators and users. FAA Order 5050.4B states that "no noise analysis is needed for proposals involving Design Group I and II airplanes operating at airports whose forecast operations in the period covered by the EA do not exceed 90,000 annual adjusted propeller operations or 700 annual adjusted jet operations . . .". Noise analysis is not required for the Colorado City Municipal Airport since operations are forecasted to be 7,716 in 2026. Noise contours were generated for the existing and future operations at the airport. The future noise contour is shown in Figure 6-4.

VOLUNTARY NOISE ABATEMENT PROGRAM

Although the noise exposure levels will not exceed 65 DNL over any noise sensitive area, several voluntary measures can be applied to minimize noise exposure to surrounding areas. Several of these measures are listed below. It is recommended that a voluntary noise abatement program be implemented for the airport and publicized to all based and transient pilots.

Pilots:

- Be aware of noise sensitive areas, particularly residential areas near the airport and avoid low flight over these areas.
- Fly traffic patterns tight and high, keeping the aircraft as close to the field as possible.
- In constant-speed-propeller aircraft, do not use high RPM settings in the pattern. Propeller noise from high-performance singles and twins increases drastically at high RPM settings.
- On takeoff, reduce to climb power as soon as safe and practical.
- Climb after liftoff at best-angle-of-climb speed until crossing the airport boundary, then climb at best rate.
- Depart from the start of the runway rather than intersections, for the highest possible altitude when leaving the airport vicinity.
- Avoid prolonged run-ups and do them inside the airport area, rather than at its perimeter.
- Try low-power approaches and always avoid the low, dragged-in approach.

Instructors:

- Teach noise abatement procedures to all students, including pilots you take up for flight reviews.
- Know noise-sensitive areas and point them out to students.
- Assure students fly at or above the recommended pattern altitude.
- Practice maneuvers over unpopulated areas and vary practice areas so that the same locale is not constantly subjected to aircraft operations.
- During practice of ground-reference maneuvers, be particularly aware of houses or businesses in your flight path.
- Stress that high RPM propeller settings are reserved for takeoff and for short final but not for flying in the pattern. Pushing the propeller to high RPM results in significantly higher levels of noise.

Fixed Base Operators (FBOs):

- Identify noise-sensitive areas and work with customers to create voluntary noise abatement procedures.
- Post any noise abatement procedures in a prominently visible area and remind pilots of the importance of adhering to them.
- Call for the use of the least noise sensitive runway whenever wind conditions permit.
- Initiate pilot education programs to teach and explain the rationale for noise abatement procedures and positive community relations.

Airport Owner and Surrounding Jurisdictions:

- Maintain appropriate zoning in the vicinity of the airport and see that noise sensitive land uses are not authorized within pattern, approach and departure paths.
- Disclose the existence of the airport and the airport influence area to real estate purchasers.
- Publish voluntary noise procedures on the Internet.
- Publish voluntary calm runway use procedures.

Source: Aircraft Owners and Pilots Association (AOPA)

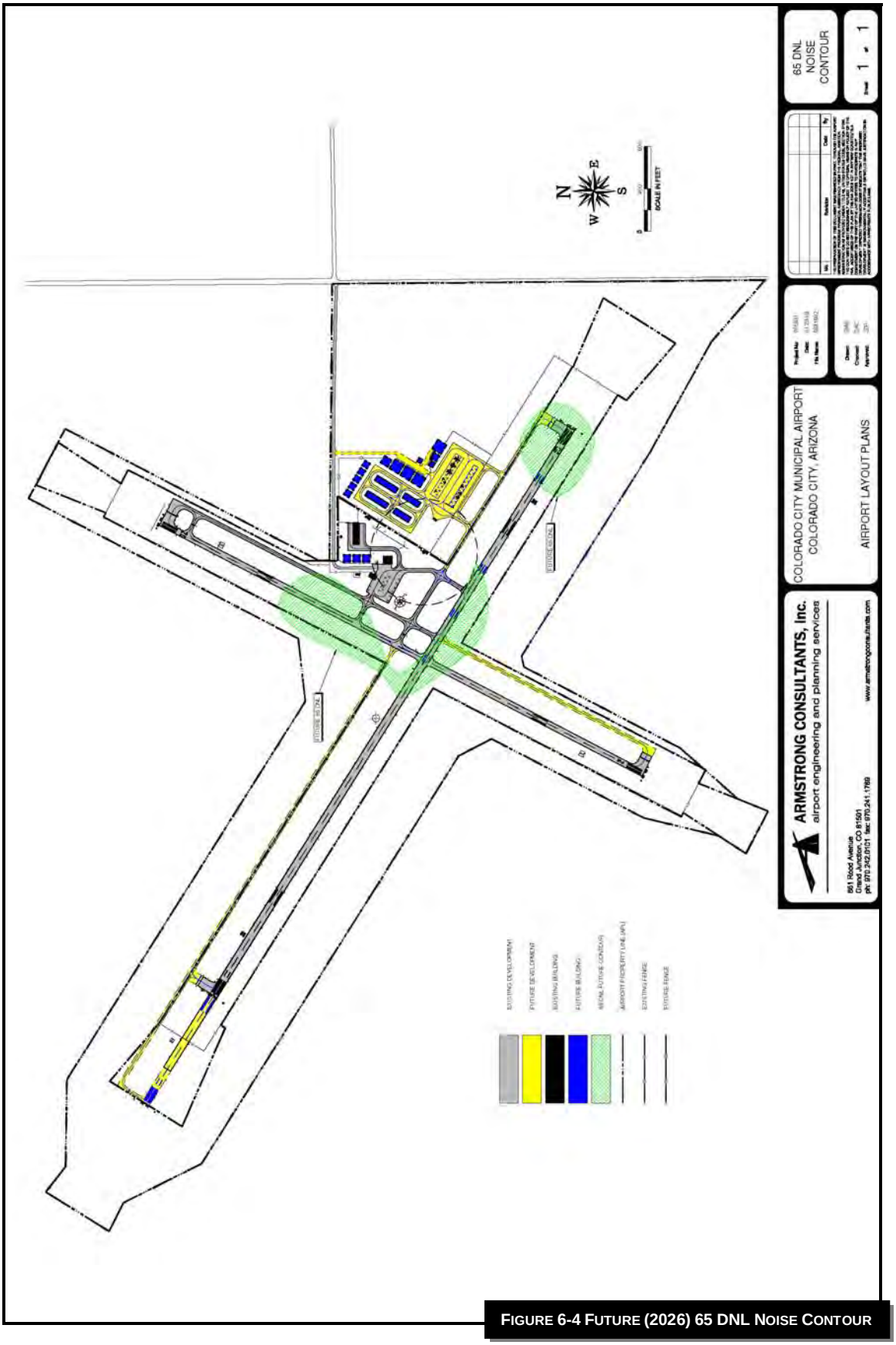


FIGURE 6-4 FUTURE (2026) 65 DNL NOISE CONTOUR

SECONDARY (INDUCED) IMPACTS

These secondary or induced impacts involve major shifts in population, changes in economic climate or shifts in levels of public service demand. The effects are directly proportional to the scope of the project under consideration. Assessment of induced socioeconomic impacts is usually only associated with major development at large air carrier airports, which involve major terminal building development or roadway alignments and similar work. The extent of the indirect socioeconomic impacts of the proposed development is not of the magnitude that would normally be considered significant; however, positive impacts can be foreseen in the form of direct, indirect and induced economic benefits generated from the airport.

SOCIOECONOMIC IMPACTS, ENVIRONMENTAL JUSTICE AND CHILDREN'S ENVIRONMENTAL HEALTH AND SAFETY RISKS

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, the accompanying Presidential Memorandum and Order DOT 5610.2, Environmental Justice, require the FAA to provide for meaningful public involvement by minority and low-income populations and analysis, including demographic analysis that identifies and addresses potential impacts on these populations that may be disproportionately high and adverse. Included in this process is the disclosure of the effects on subsistence patterns of consumption of fish, vegetation or wildlife and effective public participation and access to this information. The Presidential Memorandum that accompanied E.O. 12898, as well as the CEQ and EPA Guidance, encourage consideration of environmental justice impacts in EA's especially to determine whether a disproportionately high and adverse impact may occur. Environmental Justice is examined during evaluation of other impact categories, such as noise, air quality, water, hazardous materials and cultural resources.

SOCIOECONOMIC IMPACTS

Induced socioeconomic impacts are usually only associated with major development at large air carrier airports. The socioeconomic impacts produced as a result of the proposed improvements to the Colorado City Municipal Airport are expected to be positive in nature and would include direct, indirect and induced economic benefits to the local area. These airport improvements are expected to attract additional users and in turn to encourage tourism, industry and to enhance the future growth and expansion of the community's economic base.

If acquisition of real property or displacement of persons is involved, 49 CFR part 24 (implementing the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970), as amended must be met for Federal projects and projects involving Federal funding. Otherwise, the FAA, to the fullest extent possible, observes all local and State laws, regulations and ordinances concerning zoning, transportation, economic development, housing, etc. when planning, assessing or implementing the proposed action.

ENVIRONMENTAL JUSTICE

The focus of the Environmental Justice evaluation is to determine whether the proposed action results in an inequitable distribution of negative effects to special population groups, as compared to negative effects on other population groups. These special population groups include minority or otherwise special ethnicity or low-income neighborhoods.

The proposed action is not expected to result in any significant negative impacts to any population groups and therefore, would not result in disproportionate negative impacts to any

special population group. Socioeconomic and induced economic impacts are expected to be positive in nature and are expected to benefit all population groups in the area.

CHILDREN'S ENVIRONMENTAL HEALTH AND SAFETY RISKS

Pursuant to Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks, Federal agencies are directed, as appropriate and consistent with the agency's mission, to make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children. Agencies are encouraged to participate in implementation of the Order by ensuring that their policies, programs, activities and standards address disproportionate risks to children that result from environmental health risks or safety risks. The proposed improvements are not expected to result in any environmental health risks or safety risks on children.

WATER QUALITY

Water quality considerations related to airport development often include increased surface runoff and erosion and pollution from fuel, oil, solvents and deicing fluids. Potential pollution could come from petroleum products spilled on the surface and carried through drainage channels off of the airport. State and Federal laws and regulations have been established to safeguard these facilities. These regulations include standards for above ground and underground storage tanks, leak detection and overflow protection. An effective Storm Water Pollution Prevention Plan (SWPPP) identifies storm water discharge points on the airport, describes measures and controls to minimize discharges and details spill prevention and response procedures. The Town of Colorado City maintains a SWPPP that identifies the direction of flow for a fuel spill and outlining procedures for responding to such an incident. In July of 2002, the EPA amended the Oil Pollution Prevention Regulation at Title 40 of the Code of Federal Regulations, Part 112 (40 CFR Part 112). Subparts A through C of this regulation are often referred to as the “SPCC rule” because they describe requirements for certain facilities (including airports) to prepare and implement Spill Prevention Control and Countermeasure (SPCC) Plans.

In accordance with Section 402(p) of the Clean Water Act, a National Pollution Discharge Elimination System (NPDES) General Permit is required from the Environmental Protection Agency for construction projects that disturb one or more acres of land. Applicable contractors will be required to comply with the requirement and procedures of the NPDES General Permit, including the preparation of a Notice of Intent and a Storm Water Pollution Prevention Plan, prior to the initiation of construction activities.

Recommendations established in FAA Advisory Circular 150/5370-10C, Standards for Specifying Construction of Airports, Item P-156, Temporary Air and Water Pollution, Soil Erosion and Siltation Control, will be incorporated into the project design and specifications. The design and construction of the proposed improvements will incorporate Best Management Practices (BMP) to reduce erosion, minimize sedimentation, control non-storm water discharges and to protect the quality of surface water features potentially effected. These practices will be selected based on the site’s characteristics and those factors within the contractor’s control and may include: construction scheduling, limiting exposed areas, runoff velocity reduction, sediment trapping and good housekeeping practices.

Future fuel storage and dispensing facilities should be designed, constructed, operated and maintained in accordance with Federal, State and Local regulations. Waste fluids, including

oils, coolants, degreasers and aircraft wash facility wastewater will be managed and disposed of in accordance with applicable Federal, State and Local regulations.

WETLANDS

Wetlands are defined in Executive Order 11990, Protection of Wetlands, as "those areas that are inundated by surface or ground water 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. Wetlands generally include swamps, marshes, bogs and similar areas such as sloughs, potholes, wet meadows, river overflows and natural ponds. Jurisdictional Waters of the United States may also include drainage channels, washes, ditches, arroyos or other waterways that are tributaries to Navigable Water of the United States or other waters where the degradation or destruction of which could affect interstate or foreign commerce.

During the biological assessment conducted during the environmental assessment in March of 2006 wetland areas were identified and inventoried. The biological assessment should be updated for previously undisturbed areas underlying the runway extension footprint. This would be included as part of the environmental assessment for the runway extension.

WILD AND SCENIC RIVERS

The Wild and Scenic Rivers Act (PL 90-542) describes those river areas eligible for protection from development. As a general rule, these rivers possess outstanding scenic, recreational, geological, fish and wildlife, historical, cultural or other similar value.

The Wild and Scenic River list from the National Park Service indicated one Wild and Scenic River listed in Arizona. The Verde River is located in Yavapai County in western Arizona, more than 175 miles from Colorado City and would not be affected by the proposed improvements.

MEANS TO MITIGATE AND/OR MINIMIZE ADVERSE ENVIRONMENTAL IMPACTS

Where appropriate, the mitigation or minimization of environmental impacts was noted in the discussion of impacts. These actions are summarized below:

- Maintain compatible land uses in the vicinity of the airport;
- Acquire land for the runway extension and landside development;
- Utilize pilot controlled lighting on all airfield lighting and visual aids. Utilize timers or motion sensors for apron and automobile parking area lights;
- Adhere to FAA AC 150/5370-10C, Standards for Specifying the Construction of Airports and best management practices to minimize or eliminate impacts to water quality and air quality during construction;

SUMMARY AND CONCLUSIONS OF ENVIRONMENTAL IMPACTS

Table 6-1 provides a summary of the analysis ratings for the eighteen environmental impact categories with respect to the proposed airport improvements. While some categories indicate a potential impact, they are all estimated to be below the threshold of significance as described in FAA Order 5050.4B. The selected alternatives for the development, offer the least overall environmental impact of all the potential development alternatives evaluated.

TABLE 6-1 POTENTIAL ENVIRONMENTAL IMPACTS

Impact Category	Impact Level	Description
Air Quality	Minor	Short-term dust and exhaust
Coastal Resources	None	
Compatible Land Use	None	
Construction Impacts	Minor	Short-term dust, exhaust erosion
DOT Act Section 4(F)	None	
Farmlands	None	
Fish, Wildlife and Plants	None	
Floodplains	None	
Hazardous Material, Pollution Prevention and Cultural Resources	None	
Historical, Architectural, Archaeological and Cultural Resources	None	
Light Emissions and Visual Impacts	None	
Natural Resources and Energy Supply	None	
Noise	Minor	
Secondary (Induced) Impacts	Minor Positive	Economic benefit from airport
Socioeconomic Impacts, Environmental Justice and Children's Environmental Health	Minor Positive	Increased employment
Water Quality	Minor	Storm water runoff
Wetlands	None	
Wild and Scenic Rivers	None	

Based on this evaluation no significant environmental impacts are expected from the projects included in the Airport Development Plan. Although no significant environmental impacts are anticipated, FAA policy may dictate that an Environmental Assessment be prepared for the major projects including the runway extension and runway strengthening. Categorical Exclusion determinations would be appropriate for the remaining projects.

Chapter Seven
Airport Development and Financial Plan

Colorado City Municipal Airport
Airport Master Plan

Chapter Seven
Airport Development and Financial Plan

INTRODUCTION

A program of recommended airport development for the Colorado City Municipal Airport has been formulated to guide the sponsor in the systematic development of the airport and to aid the Federal Aviation Administration, Arizona Department of Transportation Aeronautics Division and the Town in allocating funding over the planning period. In Arizona, projects eligible for Airport Improvement Program (AIP) participation are normally funded at 95 percent by the FAA, 2.5 percent by the State and 2.5 percent by the Sponsor. The grant eligible items typically include airfield and aeronautical related facilities such as runways, taxiways, aprons, lighting and visual aids as well as land acquisition and environmental tasks needed to accomplish the improvements. The public use (non-revenue generating) portions of passenger terminals are also grant eligible. In addition, recent AIP legislation has made fuel systems and hangars eligible, however, these items are considered a low priority for FAA funding.

AIRPORT DEVELOPMENT PLAN

Future airport development at the Colorado City Municipal Airport, as included in this study, covers a twenty-year period. Development items are grouped into three phases. Phase I is short-term (1-5 years), Phase II is medium-term (6-10 years) and Phase III is long-term (11-20 years). Estimated development costs are based on the proposed improvements (as shown on the airport layout plan) and are included for each item in the financial development plan. Proposed improvements are based on the recommended facility requirements discussed in Chapter 3. The phasing of projects assists the airport sponsor in budgetary planning for construction projects. A drawing showing the phasing of each project is included at the end of this Chapter. The sequence in which the projects are completed is important as the ultimate configuration of the airport will require numerous projects.

Phase I (1-5 Years)
Land Acquisition for Approach Protection
Upgrade AWOS
Conduct 405 Survey
Wildlife Fencing
Reconstruct Runway 11/29
Construct Apron
Install Utilities to Future Apron Area
Remove Terminal Building
Construct Replacement Terminal Building
Parallel Taxiway Runway 11/29
Upgrade Septic System

Phase II (6-10 Years)
Snow Removal Equipment and Storage Building
Runway Strengthening
Install Taxiway Lighting
Apron Expansion

Phase III (11-20 Years)
Replace Runway Lighting
Extend Runway 11/29
Construct Taxilanes
PAPIs and REILs for Runway 2/20
Connect to Town Sewer System
Partial Parallel Taxiway Runway 2

TABLE 7-1 20-YEAR FINANCIAL DEVELOPMENT PLAN				
Phase I, Short-Term Development Items	TOTAL	FAA	STATE	LOCAL
A1 Land Acquisition for Approach Protection ±143 acres	$360,000	$342,000	$9,000	$9,000
A2 Upgrade AWOS	$240,000	$228,000	$6,000	$6,000
A3 Conduct 405 Survey	$100,000	$95,000	$2,500	$2,500
A4 Wildlife Fencing	$600,000	$570,000	$15,000	$15,000
A5 Reconstruct RW 11/29	$2,300,000	$2,185,000	$57,500	$57,500
A6 Construct Apron	$1,000,000	$950,000	$25,000	$25,000
A7 Install Utilities to Apron Area	$360,000	$342,000	$9,000	$9,000
A8 Remove Terminal Building	$40,000	$38,000	$1,000	$1,000
A9 Construct Replacement Terminal Building	$450,000	$427,500	$11,250	$11,250
A10 Construct Full Length Parallel Taxiway RW 11/29	$1,200,000	$1,140,000	$30,000	$30,000
A11 Construct Taxilanes	$350,000	$332,500	$8,750	$8,750
A12 Pavement Maintenance	$100,000	$95,000	$2,500	$2,500
A13 Upgrade Septic System	$40,000	$38,000	$1,000	$1,000
A14 Update Airport Layout Plan	$100,000	$95,000	$2,500	$2,500
Total Short Term Cost	**$7,240,000**	**$6,878,000**	**$181,000**	**$181,000**
Phase II, Medium-Term Development Items	TOTAL	FAA	STATE	LOCAL
B1 Snow Removal Equipment and Storage Building	$600,000	$570,000	$15,000	$15,000
B2 Runway Strengthening	$1,200,000	$1,140,000	$30,000	$30,000
B3 Install Taxiway Lighting	$450,000	$427,500	$11,250	$11,250
B4 Apron Expansion	$1,000,000	$950,000	$25,000	$25,000
Total Medium-Term Cost	**$3,250,000**	**$3,087,500**	**$81,250**	**$81,250**
Phase III, Long-Term Development Items	TOTAL	FAA	STATE	LOCAL
C1 Replace RW Lighting	$300,000	$285,000	$7,500	$7,500
C2 Environmental Assessment for RW Extension	$125,000	$118,750	$3,125	$3,125
C3 Extend RW 11/29	$500,000	$475,000	$12,500	$12,500
C4 Construct Taxilanes	$300,000	$285,000	$7,500	$7,500
C5 PAPIs and REILs RW 2/20	$150,000	$142,500	$3,750	$3,750
C6 Connect to Town Sewer System	$300,000	-	-	$300,000
C7 Construct Full Length Parallel Taxiway RW 2	$400,000	$380,000	$10,000	$10,000
Total Long-Term Cost	**$2,075,000**	**$1,686,250**	**$44,375**	**$344,375**
TOTAL	**$12,565,000**	**$11,651,750**	**$306,625**	**$606,625**

Cost estimates in 2007 dollars

CAPITAL DEVELOPMENT

Federal Grant Assistance: The phasing of projects assists the airport sponsor in budgetary planning for construction improvements that are needed to provide safe and functional facilities for aviation demands. Phased development schedules also assist the airport sponsor in contingencies and construction. Table 7-1 assumes that the Federal Aviation Administration will participate with funding from the Airport Improvement Program (AIP) of 95 percent of eligible items and the Arizona Department of Transportation Aeronautics Division will contribute 2.5 percent towards capital improvements. The Town of Colorado City would then be responsible for providing 2.5 percent matching funds for grant eligible projects. The Town may meet its local share requirements through cash, in-kind service, force-account, donations or private/third party participation.

The Airport and Airways Act of 1982 created and authorized the Airport Improvement Program (AIP) to assist in the development of a nationwide system of public-use airports adequate to meet the current projected growth of civil aviation. The Act provides funding for airport planning and development projects at airports included in the National Plan of Integrated Airport Systems (NPIAS).

State Assistance: The Arizona Department of Transportation's (ADOT) Aeronautics Division participates in funding airport development and maintenance projects in the State of Arizona. ADOT normally contributes 90 percent to projects without Federal participation and contributes 2.5 percent matching funds to the FAA's 95 percent funding of Federally eligible capital improvement projects. The resulting local share is generally 2.5 percent for FAA and State funded projects and 10 percent for State only funded projects.

Funding The Local Share: The airport sponsor has several methods available for funding the capital required to meet the local share of airport development costs. The most common methods involve cash, debt financing which amortize the debt over the useful life of the project, force accounts, in-kind service, third-party support and donations.

Bank Financing: Some airport sponsors use bank financing as a means of funding airport development. Generally, two conditions are required. First, the sponsor must show the ability to repay the loan plus interest and second, capital improvements must be less than the value of the present facility or some other collateral used to secure the loan. These are standard conditions which are applied to almost all bank loan transactions.

General Obligation Bonds: General Obligation bonds (GO) are a common form of municipal bonds whose payment is secured by the full faith credit and taxing authority of the issuing agency. GO bonds are instruments of credit and because of the community guarantee, reduce the available debt level of the sponsoring community. This type of bond uses tax revenues to retire debt and the key element becomes the approval of the voters to a tax levy to support airport development. If approved, GO bonds are typically issued at a lower interest rate than other types of bonds.

Self-liquidating General Obligation Bonds: As with General Obligation bonds, Self-liquidating General Obligation Bonds are secured by the issuing government agency. They are retired, however, by cash flow from the operation of the facility. Providing the state court determines that the project is self-sustaining, the debt may be legally excluded from the community's debt limit. Since the credit of the local government bears the ultimate risk of default, the bond issue is still considered, for the purpose of financial analysis, as part of the debt burden of the community. Therefore, this method of financing may mean a higher rate of interest on all bonds sold by the community. The amount of increase in the interest rate depends, in part, upon the degree of risk of the bond. Exposure risk occurs when there is insufficient net airport operating income to cover the level of service plus coverage requirements, thus forcing the community to absorb the residual.

Revenue Bonds: Revenue Bonds are payable solely from the revenues of a particular project or from operating income of the borrowing agency, such as an airport commission which lacks taxing power. Generally, they fall outside of constitutional and statutory limitations and in many cases do not require voter approval. Because of the limitations on the other public bonds, airport sponsors are increasingly turning to revenue bonds whenever possible. However, revenue bonds normally carry a higher rate of interest because they lack the guarantees of municipal bonds. It should also be noted that the general public would usually be wary of the

risk involved with a revenue bond issue for a general aviation airport. Therefore, the sale of such bonds could be more difficult than other types of bonds.

Combined Revenue/General Obligation Bonds: These bonds, also known as "Double-Barrel Bonds", are secured by a pledge of back-up tax revenues to cover principal and interest payments in cases where airport revenues are insufficient. The combined Revenue/General Obligation Bond interest rates are usually lower than Revenue Bonds, due to their back-up tax provisions.

Force Accounts, In-kind Service, Donations: Depending on the capabilities of the Sponsor, the use of force accounts, in-kind service, or donations may be approved by the FAA and the State for the Sponsor to provide their share of the eligible project costs. An example of force accounts would be the use of heavy machinery and operators for earthmoving and site preparation of runways or taxiways; the installation of fencing; or the construction of improvements to access roads. In-kind service may include surveying, engineering or other services. Donations may include land or materials such as gravel or water needed for the project. The values of these items must be verified and approved by the FAA prior to initiation of the project.

Third-Party Support: Several types of funding fall into this category. For example, individuals or interested organizations may contribute portions of the required development funds (Pilot Associations, Economic Development Associations, Chambers of Commerce, etc.). Although not a common means of airport financing, the role of private financial contributions not only increases the financial support of the project, but also stimulates moral support to airport development from local communities. Because of the potential for hangar development, private developers may be persuaded to invest in hangar development. A suggestion would be that the Town authorize long-term leases to individuals interested in constructing a hangar on airport property. This arrangement generates revenue from the airport, stimulates airport activity, and minimizes the sponsor's capital investment requirements. Another method of third-party support involves permitting the fixed base operator (FBO) to construct and monitor facilities on property leased from the airport. Terms of the lease generally include a fixed amount plus a percentage of revenues and a fuel flowage fee. The advantage to this arrangement is that it lowers the sponsor's development costs, a large portion of which is building construction and maintenance.

FINANCIAL PLAN

The ultimate goal of any airport should be the capability to support is own operation and development through airport generated revenues. Unfortunately, few airports similar in size to the Colorado City Municipal Airport are able to do this. For example, it is difficult to break even when the fees received from hangar rentals and fuel sales will not adequately amortize the cost of construction projects. Yet the effort to become self-sufficient will generate a more positive perception of the airport by the community.

However, while most airports the size of Colorado City are not able to become self-sustaining, the intrinsic value of such a well-maintained airport for the community or region exceeds the day-to-day operational and maintenance costs of the airport. In other words, the dollars spent in the community or the region by individuals or businesses that use the airport exceeds the expenses that are incurred as a result of operation of the airport. Furthermore, the Colorado City Municipal Airport provides access for valuable services to the Towns of Colorado City and Hildale.

PROJECTED REVENUES AND EXPENDITURES

Expenditures: Airport operating expenditures typically include insurance, utilities, maintenance and management costs. Insurance costs include liability insurance for the airport and property insurance for any real property on the airport owned by the Town of Colorado City. Utility expenses primarily consist of power costs to operate airfield lighting and visual aids and water for public use areas. Pavement maintenance consists of crack sealing on an annual basis and seal coating and remarking the pavements every five years. Facility maintenance consists of mowing, snow removal and repair and replacement of parts and equipment such as light bulbs, light fixtures, fences, etc. Management costs may include an airport manager or contract services provided by a third party or an FBO. Currently at the Colorado City Municipal Airport, the airport manager oversees and administers the day-to-day details for the airport.

Revenues: Airport revenues generally consist of land leases, user fees and property taxes generated from on-airport improvements. Table 7-2 also shows the current rates and charges at the Colorado City Municipal Airport.

TABLE 7-2 EXISTING AIRPORT RATES CHARGES

	Current Rates
Land Leases	$.18/sq.ft/year
Hangar Leases Monthly	$.11/sq.ft/month
Hangar Rental Fee Overnight	$10/night
Tie-Down Fees Monthly	-
Transient Overnight Tie-Down Fees	-
Through-the-Fence Fees	-
Fuel Flowage Fees	-
Airport Usage Fee (Charter Aircraft)	-
Call Out Fee	-
Vehicle Storage Fee Monthly	-
Commercial Activity Fees	-

Land Leases: Property on the airport that is not devoted to airfield use, vehicle parking or contained within areas required to be cleared of structures may be leased to individual airport users or aviation related businesses. Typically, the individual is provided a long-term lease on which to construct a hangar, business or others facility. At the termination of the lease, the lessee has the option to renew the lease, sell or lease the buildings or to remove the buildings.

Hangar Leases: Hangars on the airport owned by the airport sponsor can be leased to private aircraft operators or businesses. Typically, as with land leases, the individual or business is provided a long-term lease of the hangar. At the termination of the lease, the lessee has the option to renew the lease or cease use of the hangar.

Hangar Rental: The FBO Hangar is available for monthly or nightly rental. The fees are usually established on a nightly rate for transient aircraft or monthly rate for based aircraft.

Tie-Down Fees: A fee is typically established for the use of fixed ramp tiedowns on paved apron areas. The fees are usually established on a monthly or annual basis for based aircraft and on an overnight basis for transient aircraft. There are no existing tiedown fees for the airport.

Through-the-Fence Fees: A fee is typically charged to adjacent landowners who are provided access directly from their private parcel to the public use airport facilities. This fee ensures that the level of rates and charges assessed to on-airport users is equitable to off-airport users and that there is not an unfair economic advantage to operating "through-the-fence". Additionally, through-the-fence operators are required to maintain a secure airport perimeter with fencing and/or gates and to construct paved access taxiways to the airport operating areas. However, the FAA generally discourages through-the-fence operations. Therefore, it is anticipated that all aircraft operations will be conducted from on airport and therefore will not generate through-the-fence fees. In lieu of through-the-fence fees, these aircraft would generate tie-down fees or land lease revenue from hangars. The airport has no existing through the fence operations.

Fuel Flowage Fee: This fee is typically imposed on all aircraft fuels delivered to the airport and would include all fuels used by aircraft including AvGas, Jet-A, and MoGas. The fee would apply to fixed base operators, self-fueling (if authorized) and through-the-fence operators who conduct self-fueling. There are currently no fuel flowage fees at the Colorado City Municipal Airport.

Airport Usage Fee: This fee is imposed on all charter aircraft and can be waived if the operator purchases a minimum of 50 gallons of fuel. The airport has no usage fee.

Commercial Activity Fee: This fee is imposed on commercial activities operating "for profit" at the airport. Typical commercial activities may include fixed base operators, maintenance services, air taxi or charter services, automobile rental, restaurants, retail or other goods and services which may be provided at the airport. The Colorado City Municipal Airport has no existing commercial activity fee.

TABLE 7-3 ANNUAL AIRPORT REVENUES AND EXPENSES

		PROJECTED[1]		
	2005-2006	Phase I	Phase II	Phase III
Operating Revenues				
Hangar Rental	$9,850	$10,000	$10,000	$10,000
Land and apron Lease	$1,193	$2,500	$4,500	$6,500
Total Operating Revenues	**$11,043**	**$12,500**	**$14,500**	**$16,500**
Electricity	$9,000	$9,000	$9,000	$9,000
Telephone	$440	$440	$440	$440
Maintenance/Management	$60,000	$60,000	$60,000	$60,000
Payment for T-Hangar	$17,600	17,600	-	-
Total Operating Expenses	**$87,040**	**$87,040**	**$69,440**	**$69,440**
Net Operating Revenue and Expenses	**-$75,997**	**-$74,540**	**-$54,940**	**-$52,940**

[1] *Projections based on last year of each time period (in 2007 dollars)*

RECOMMENDATIONS

A review of airport revenues indicates that the level of rates and charges at the Colorado City Municipal Airport are adequate compared with other similar sized airports. The most effective means of increasing revenue at the Colorado City Municipal Airport is to accommodate existing unmet demand and to continue to attract new and additional users.

Increasing aircraft storage hangars at the airport would result in not only increased direct revenues generated through property leases, but would also produce indirect revenue through increased use of airport services and facilities, such as increased fuel purchases. Locations for additional nested T-hangars and individual box hangars have been identified on the Terminal Area Drawing (TAD) included in Chapter 5. Business/corporate tenants are typically flight departments for local businesses and provide employment in the local community. They generally operate multi-engine turboprop or business jet aircraft. Their land lease parcels are usually large, the aircraft are typically operated two to three times per week and fuel purchases are typically larger than other general aviation user (several hundred gallons per fueling).

Whether the improved Colorado City Municipal Airport operates at an annual surplus or subsidy depends greatly on the amount of activity and facilities that are constructed at the airport. Existing demand is currently constrained by the lack of aircraft storage facilities. The most efficient way for the Town to accommodate this demand is to construct taxilanes and provide land leases for hangars (a sample Land Lease for hangars has been provided in the Airport Standards Manual). If demand for basing aircraft at the Colorado City Municipal Airport continues in the long-term, the Town should consider constructing multi-unit T-hangars and/or box hangars. If federal funding is approved to construct these hangars and vacancy rates are low, the Town could potentially increase revenues to the point where they meet or exceed expenditures.

COMMUNITY SUPPORT

While it would certainly be advantageous for an airport to support itself, the indirect and intangible benefits of the airport to the community's economy and growth must be considered. People are directly or indirectly employed on the airport by the Town, the FBO and individual businesses. As airport activity increases, it is probable that employment on the airport will also grow throughout the planning period. The local construction industry will also benefit directly from implementation of the development programs. Other community benefits involve business growth and development that is enhanced by the availability of air transportation including corporate and private aviation. Clients and suppliers of area businesses will also benefit from the future improvement to the airfield.

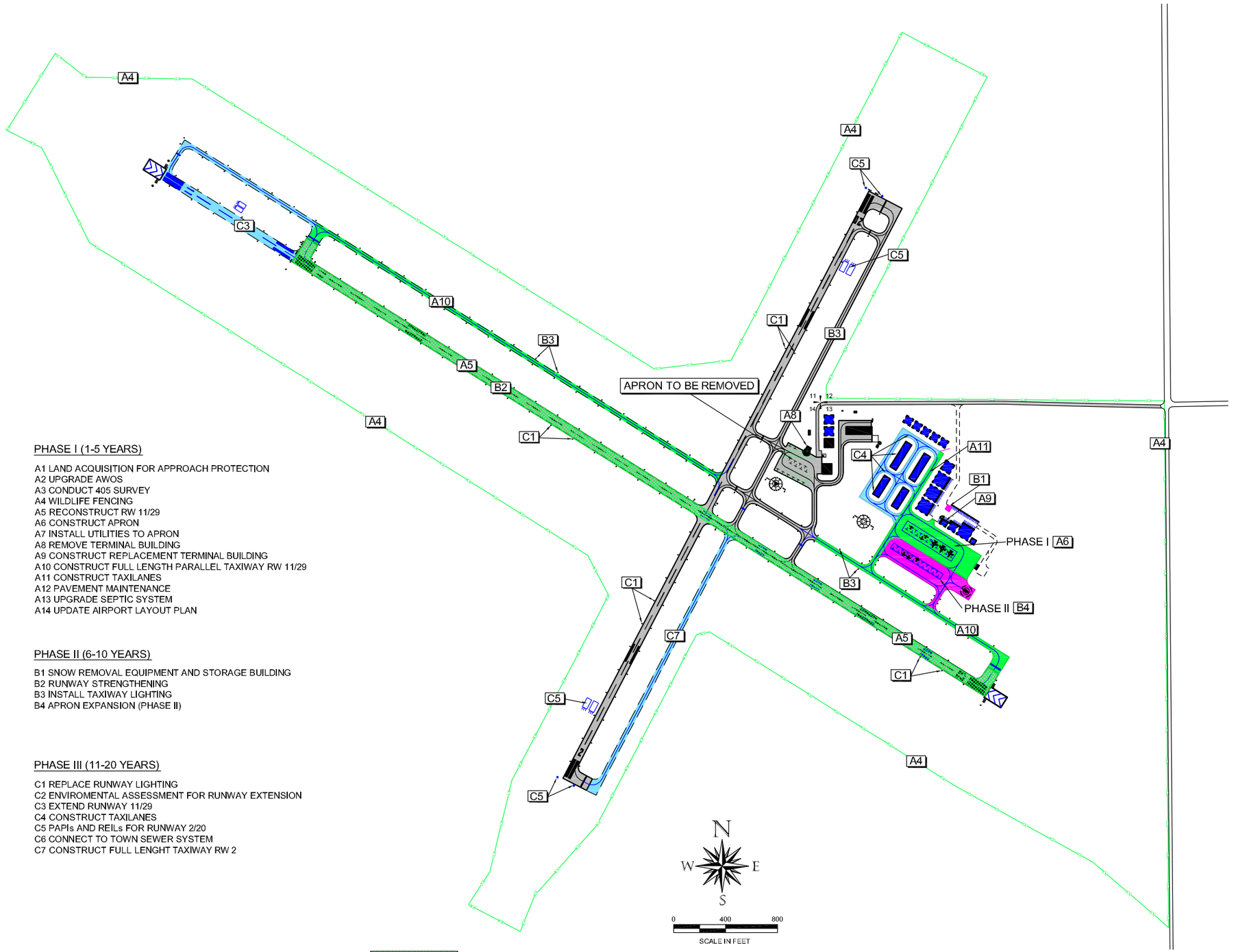
The use of corporate and business aircraft is an increasing trend across the United States. The movement of American industry from large metropolitan areas to smaller communities that offer lower taxes and labor costs and a better working environment has influenced this trend. Time is money in the business environment and corporate aircraft are answering the need for quick and convenient access to and from these new locations for both executives and management personnel. The ability of a community to provide convenient access to corporate aircraft will be reflected not only in benefits to existing businesses and industries but will be a strong factor in attracting new industry. The events of September 11, 2001, have also resulted in increased corporate and business aviation activity as companies are looking to avoid delays inconveniences associated with commercial airline travel.

These factors place the Colorado City Municipal Airport in a prime position to capitalize on the trends in the general aviation industry and to maximize the benefits the airport provides to the community. According to the Economic Impact of Airports in Arizona conducted by the Arizona Department of Transportation in 2003 it is estimated that 1.3 million dollars in economic activity and 18 jobs were attributable to the Colorado City Municipal Airport.

CONTINUOUS PLANNING PROCESS

Airport planning is a continuous process that does not end with the completion of a major project. The fundamental issues upon which this master plan are based are expected to remain valid for several years; however, several variables, such as based aircraft, annual aircraft operations, and socioeconomic conditions are likely to change over time. The continuous planning process necessitates that the Town of Colorado City consistently monitor the progress of the airport in terms of growth in based aircraft and annual operations, as this growth is critical to the exact timing and need for new airport facilities. The information obtained from this monitoring process will provide the data necessary to determine if the development schedule should be accelerated, decelerated or maintained as scheduled.

Periodic updates of the Airport Layout Plan, Capital Improvement Plan, and Airport Master Plan are recommended to document physical changes to the airport, review changes in aviation activity and to update improvement plans for the airport. The primary goal of this Airport Master Planning effort is to develop a safe and efficient airport that will meet the demands of its aviation users and stimulate economic development for the Town of Colorado City. The continuous airport planning process is a valuable tool in achieving that goal.



PHASE I (1-5 YEARS)

A1 LAND ACQUISITION FOR APPROACH PROTECTION
A2 UPGRADE AWOS
A3 CONDUCT 405 SURVEY
A4 WILDLIFE FENCING
A5 RECONSTRUCT RW 11/29
A6 CONSTRUCT APRON
A7 INSTALL UTILITIES TO APRON
A8 REMOVE TERMINAL BUILDING
A9 CONSTRUCT REPLACEMENT TERMINAL BUILDING
A10 CONSTRUCT FULL LENGTH PARALLEL TAXIWAY RW 11/29
A11 CONSTRUCT TAXILANES
A12 PAVEMENT MAINTENANCE
A13 UPGRADE SEPTIC SYSTEM
A14 UPDATE AIRPORT LAYOUT PLAN

PHASE II (6-10 YEARS)

B1 SNOW REMOVAL EQUIPMENT AND STORAGE BUILDING
B2 RUNWAY STRENGTHENING
B3 INSTALL TAXIWAY LIGHTING
B4 APRON EXPANSION (PHASE II)

PHASE III (11-20 YEARS)

C1 REPLACE RUNWAY LIGHTING
C2 ENVIROMENTAL ASSESSMENT FOR RUNWAY EXTENSION
C3 EXTEND RUNWAY 11/29
C4 CONSTRUCT TAXILANES
C5 PAPIs AND REILs FOR RUNWAY 2/20
C6 CONNECT TO TOWN SEWER SYSTEM
C7 CONSTRUCT FULL LENGHT TAXIWAY RW 2

EXISTING APRON TO BE REMOVED

RUNWAY RECONSTRUCTION

ARMSTRONG CONSULTANTS, Inc.
airport engineering and planning services
861 Rood Avenue
Grand Junction, CO 81501
ph: 970.242.0101 fax: 970.241.1769
www.armstrongconsultants.com

COLORADO CITY MUNICIPAL AIRPORT
COLORADO CITY, ARIZONA

AIRPORT LAYOUT PLANS

No.	Revision	Date	By

Project No: 075831
Date: DEC. 2007
File Name: 5831-CIP

Drawn: GWK
Checked: JZP
Approved: DAC

FINANCIAL PLAN DRAWING

FIG. 7-1

Appendix A
Design Standards Inventory

Colorado City Municipal Airport
Airport Master Plan

Airside Inventory Checklist

Airport	Colorado City Municipal	ARC	B-II
City	Colorado City, Arizona	Approach Type	NPI>Utility, 1-Mile Vis
Contact	LaDell Bistline	Date Inventoried	August 13, 2007
Phone No.	928 875-2871	Inspected By	JZP/DAC

Runway 11/29 Inventory	**Published**	**Required**	**Actual**
Distance To:			
Hold lines from centerline	-	200'	200'
Parallel taxiway from centerline	-	240'	300'
Aircraft parking from centerline	-	250'	590'
Runway width	75'	75'	75'
Runway length	6,300'	-	6,300'
RSA width	-	150'	150'
ROFA width	-	500'	500'
Primary/transitional surface penetrations	-	Clear	None
Longitudinal grade - site distance problems	-	2%, RVZ Clear	RVZ Penetrations
OFZ	-	400'	400'
Pavement marking type	Basic	Basic	Basic
Pavement marking condition	Poor	-	Poor
Pavement strength	30,000	-	12,500
Pavement condition	Good	-	Fair, Longitudinal Cracking
Runway 11 End Inventory			
RSA beyond runway end	-	300'	300'
ROFA beyond runway end	-	300'	300'
Approach obstructions	-	-	
Runway end elevation	4845.0'	-	-
RPZ	Owned in Fee	Owned in Fee	Owned in Fee
Runway 29 End Inventory			
RSA beyond runway end	-	300'	300'
ROFA beyond runway end	-	300'	300'
Approach obstructions	-	-	
Runway end elevation	4852.0'	-	-
RPZ	Owned in Fee	Owned in Fee	Owned in Fee
Runway Lighting Inventory			
Distance from pavement edge	-	10' Max	OK
Maximum distance between lights	-	200' Max	OK
Type	MIRL	Optional	MIRL/ Direct Burial
Condition	-	-	Good
Color	-	White	White
Runway 11 Threshold			
Distance from pavement edge	-	10' Max	10'
Maximum distance between lights	-	Varies	10'
Color/Number of Lights	-	Red/Green/6	Red/Green/6
Runway 29 Threshold			
Distance from pavement edge	-	10' Max	10'
Maximum distance between lights	-	Varies	10'
Color/Number of Lights	-	Red/Green/6	Red/Green/6

COMMENTS *Brush growing in the Runway Safety Area off both ends of the runway.

Airside Inventory Checklist

Airport	Colorado City Municipal	ARC	B-II
City	Colorado City, Arizona	Approach Type	Basic Visual
Contact	LaDell Bistline	Date Inventoried	August 13, 2007
Phone No.	928 875-2871	Inspected By	JZP/DAC

Runway 2/20 Inventory	Published	Required	Actual
Distance To:			
Hold lines from centerline	-	125'	125'
Parallel taxiway from centerline	-	225'	240'
Aircraft parking from centerline	-	200'	900'
Runway width	60'	60'	60'
Runway length	5100'	-	5100'
RSA width	-	120'	120'
ROFA width	-	250'	250'
Primary/transitional surface penetrations	-	Clear	None
Longitudinal grade - site distance proble	-	2%, RVZ Clear	RVZ Penetrations
OFZ	-	250'	250'
Pavement marking type	Basic	Basic	Basic
Pavement marking condition	Good	-	Good
Pavement strength	12,500 K	-	12,500 K
Pavement condition	-	-	Good
Runway 2 End Inventory			
RSA beyond runway end	-	120'	120'
ROFA beyond runway end	-	240'	240'
Approach obstructions	-	-	None
Runway end elevation	7029.9	-	-
RPZ	Owned in Fee	Owned in Fee	Owned in Fee
Runway 20 End Inventory			
RSA beyond runway end	-	120'	120'
ROFA beyond runway end	-	240'	240'
Approach obstructions	-	-	None
Runway end elevation	7029.9	-	-
RPZ	Owned in Fee	Owned in Fee	Owned in Fee
Runway Lighting Inventory			
Distance from pavement edge	-	10' Max	OK
Maximum distance between lights	-	200' Max	OK
Type	MIRL	Optional	MIRL
Condition	-	-	Good
Color	-	White	White
Runway 2 Threshold			
Distance from pavement edge	-	10' Max	10'
Maximum distance between lights	-	Varies	10'
Color/Number of Lights	-	Red/Green/6	Red/Green/6
Runway 20 Threshold			
Distance from pavement edge	-	10' Max	10'
Maximum distance between lights	-	Varies	10'
Color/Number of Lights	-	Red/Green/6	Red/Green/6

COMMENTS Brush growing in the Runway Safety Area off both ends.

Airside Inventory Checklist

Airport	Colorado City Municipal	ARC	B-II
City	Colorado City, Arizona	Approach Type	NPI>Utility, 1-Mile Vis
Contact	LaDell Bistline	Date Inventoried	August 13, 2007
Phone No.	928 875-2871	Inspected By	JZP/DAC

Taxiway A Inventory	Published	Required	Actual
Taixway width	-	35'	35'
TSA width	-	79'	79'
TOFA width	-	131'	131'
Dist. from centerline to fixed or movable obj	-	65.5'	65.5'
Pavement marking type	-	Centerline	Centerline
Pavement marking condition	-	-	Good
Pavement strength	30,000	-	12,500
Pavement condition	-	-	Fair
Taxiway Lighting Inventory			
Distance from pavement edge	-	10'	10'
Maximum distance between lights	-	100'	Varies
Type	-	-	Reflectors
Condition	-	-	
Color	-	Blue	Blue
Miscellaneous			
Type of beacon	-	Yes	Standard
Size of beacon	-	-	L-801, class 2, 150 watt minimum
Visual Aids (i.e. PAPI, VASI, REIL, etc.)	-	-	RW 11 PAPI-2 - Good RW 11 REIL - Good RW 29 PAPI-2 -Good RW 29 REIL -
Windcone (condition & compliance)	-	Yes	
Segmented circle (condition & compliance)	-	Yes	Good
Traffic Pattern Indicator	Yes	Yes	Yes
Fencing	-	Perimeter	Yes
Signs (type, condition, placement)	-	Yes	Yes

COMMENTS Only a midfield partial parallel no parallel to Runway 11 or Runway 29.

Airside Inventory Checklist

Airport	Colorado City Municipal	ARC	B-II
City	Colorado City, Arizona	Approach Type	NPI>Utility, 1-Mile Vis
Contact	LaDell Bistline	Date Inventoried	August 13, 2007
Phone No.	928 875-2871	Inspected By	JZP/DAC

Taxiway B Inventory	Published	Required	Actual
Taixway width	-	25'	35'
TSA width	-	49'	49'
TOFA width	-	89'	89'
Dist. from centerline to fixed or movable ol	-	44.5'	480'
Pavement marking type	-	Centerline	Centerline
Pavement marking condition	-	-	Good
Pavement strength	-	12,500	12,500
Pavement condition	-	-	Good
Taxiway Lighting Inventory			
Distance from pavement edge	-	10'	
Maximum distance between lights	-	100'	
Type	-	-	Reflectors
Condition	-	-	
Color	-	Blue	

COMMENTS Only partial parallel to Runway 20, no parallel to Runway 2

Landside Inventory Checklist

Airport	Colorado City Municipal	ARC	B-II
City	Colorado City, Arizona	Approach Type	NPI>Utility, 1-Mile Vis
Contact	LaDell Bistline	Date Inventoried	August 13, 2007
Phone No.	928 875-2871	Inspected By	JZP/DAC

Facilities	Existing	Notes
Tie-downs	14	
T-hangars	8	
Box hangars	1	
Apron		
Size	380' x 320'	
Pavement strength	30	
Pavement condition	Good	
Pavement marking	Tiedowns	
Pavement marking condition	Good	
Automobile parking	15 spots	
Weather equipment	Yes	AWOS
Fuel storage	Yes	10,000G AvGas
Fuel type available	Jet A and AvGas	2,500 Jet A Truck 1,000 AvGas Truck
FBO/Terminal building	Yes	Located with RVZ

COMMENTS

Appendix B
Based Aircraft Tail Numbers

Colorado City Municipal Airport
Airport Master Plan

Colorado City Municipal Airport Based Aircraft

Type	Model	Tail Number	Type
Cessna	421	N283PT	MEP
Cessna	Citation	N47FH	TJ
Cessna	140	N76927	SEP
Cessna	172	N739MX	SEP
Cirrus	SR-22	N18DN	SEP
Cessna	182	N9024G	SEP
Piper	Super Cub	N9956T	SEP

SEP: Single-engine piston
MEP: Multi-engine piston
TJ: Turbojet

Source: Airport Management (August, 2007)

Appendix C
Acronyms

Colorado City Municipal Airport
Airport Master Plan

COMMONLY USED ACRONYMS

AC	Advisory Circular
AD	Airport Design
ADG	Airplane Design Group
AGL	Above Ground Level
AIP	Airport Improvement Program
ALP	Airport Layout Plan
ALS	Approach Lighting System
ARC	Airport Reference Code
ARP	Airport Reference Point
ARTCC	Air Route Traffic Control Center
ASDA	Accelerate Stop Distance
ASDE	Airport Surface Detection Equipment
ASR	Airport Surveillance Radar
ASV	Annual Service Volume
ATC	Air Traffic Control
ATCT	Airport Traffic Control Tower
AWOS	Automated Weather Observation system
BRL	Building Restriction Line
CAT	Category
CFR	Code of Federal Regulations
CWY	Clearway
CY	Calendar Year
DME	Distance Measuring Equipment
EL	Elevation
EMT	Emergency Medical Technician
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
FBO	Fixed Base Operator
FSS	Flight Service System
FY	Fiscal Year
GA	General Aviation
GPS	Global Positioning System
HIRL	High Intensity Runway Lights
IEMT	Intermediate Emergency Medical Technician
IFR	Instrument Flight Rules
ILS	Instrument Landing System
IMC	Instrument Meteorological Conditions
LDA	Landing Distance Available
LOC	Localizer
MALS	Medium Intensity Approach Lighting System
MALSF	Medium Intensity Approach Lighting System
MALSR	Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights
ME	Multi-Engine
MIRL	Medium Intensity Runway Lights
MITL	Medium Intensity Taxiway Lights
MLS	Microwave Landing System
MOA	Military Operating Area
MSL	Mean Sea Level
NAVAID	Navigational Aid
NDB	Nondirectional Beacon
NM	Nautical Mile
NPIAS	National Plan of Integrated Airport Systems
ODALS	Onmnidirectional Approach Lighting System
OFA	Object Free Area
OFZ	Obstacle Free Zone
PAPI	Precision Approach Path Indicator
PAR	Precision Approach Radar
RAIL	Runway Alignment Indicator Lights
REIL	Runway End Identifier Lights
ROFA	Runway Object Free Area
RPZ	Runway Protection Zone
RSA	Runway Safety Area
RVR	Runway Visual Range
RW	Runway
SWY	Stopway
TERPS	Terminal Instrument Procedures
TH	Threshold
TL	Taxilane
TODA	Takeoff Distance Available
TOFA	Taxiway Object Free Area
TORA	Takeoff Run Available
TSA	Taxiway Safety Area
TVOR	Very High Frequency Omnirange on an Airport
TW	Taxiway
USGS	United States Geological Society
VASI	Visual Approach Slope Indicator
VFR	Visual Flight Rules
VOR	Very High Frequency Omnirange
WAAS	Wide Area Augmentation System

Appendix D
Glossary of Terms

Colorado City Municipal Airport
Airport Master Plan

GLOSSARY OF TERMS

Above Ground Level (AGL)	A height above ground as opposed to MSL (height above Mean Sea Level).
Advisory Circular (AC)	Publications issued by the FAA to provide a systematic means of providing non-regulator guidance and information in a variety of subject areas.
Airport Improvement Program (AIP)	The AIP of the Airport and Airways Improvement Act of 1982 as amended. Under this program, the FAA provide funding assistance for the design and development of airports and airport facilities.
Aircraft Mix	The number of aircraft movements categorized by capacity group or operational group and specified as a percentage of the total aircraft movements.
Aircraft Operation	An aircraft takeoff or landing.
Airport	An area of land or water used or intended to be used for landing and takeoff of aircraft, includes buildings and facilities, if any.
Airport Elevation	The highest point of an airport's useable runways, measured in feet above mean sea level.
Airport Hazard	Any structural or natural object located on or near a public airport, or any use of land near such airport, that obstructs the airspace required for flight of aircraft on approach, landing, takeoff, departure, or taxiing at the airport.
Airport Land Use Regulations	Are designed to preserve existing and/or establish new compatible land uses around airports, to allow land use not associated with high population concentration, to minimize exposure of residential uses to critical aircraft noise areas, to avoid danger from aircraft crashes, to discourage traffic congestion and encourage compatibility with non-motorized traffic from development around airports, to discourage expansion of demand for governmental services beyond reasonable capacity to provide services and regulate the area around the airport to minimize danger to public health, safety, or property from the operation of the airport, to prevent obstruction to air navigation and to aid in realizing the policies of a County Comprehensive Plan and Airport Master Plan.
Airport Layout Plan (ALP)	A graphic presentation, to scale, of existing and proposed airport facilities, their location on the airport and the pertinent applicable standards. To be eligible for AIP funding assistance, an airport must have an FAA-approved ALP.

Airport Master Record, Form 5010	The official FAA document, which lists basic airport data for reference and inspection purposes.
Airport Reference Code (ARC)	The ARC is a coding system used to relate airport design criteria to the operational and physical characteristics of the airplanes intended to operate at the airport.
Airport Reference Point (ARP)	The latitude and longitude of the approximate center of the airport.
Airspace	Space above the ground in which aircraft travel; divided into corridors, routes and restricted zones.
Air Traffic	Aircraft operating in the air or on an airport surface, excluding loading ramps and parking areas.
Approach Surface	A surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the primary surface. An approach surface is applied to each end of each runway based upon the type of approach available or planned for that runway end.
Automated Weather Observing System (AWOS)	This equipment automatically gathers weather data from various locations on the airport and transmits the information directly to pilots by means of computer generated voice messages over a discrete frequency.
Based aircraft	An aircraft permanently stationed at an airport.
Building Restriction Line	A line, which identifies suitable building area locations on airports.
Ceiling	The height above the earth's surface of the lowest layer of clouds or other phenomena which obscure vision.
Conical Surfaces	A surface extending outward and upward form the periphery of the horizontal surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet.
Controlled Airspace	Airspace in which some or all aircraft may be subject to air traffic control to promote safe and expeditious flow of air traffic.
Critical/Design Aircraft	In airport design, the aircraft which controls one or more design items such as runway length, pavement strength, lateral separation, etc., for a particular airport. The same aircraft need not be critical for all design items.

Day Night Level (DNL)	24-hour average sound level, including a 10 decibel penalty for sound occurring between 10:00 PM and 7:00 AM
Decibel	Measuring unit for sound based on the pressure level.
Design Type	The design type classification for an airport refers to the type of runway that the airport has based upon runway dimensions and pavement strength.
Federal Aviation Administration (FAA)	The federal agency responsible for the safety and efficiency of the national airspace and air transportation system.
FAR Part 77	A definition of the protected airspace required for the safe navigation of aircraft.
Fixed Base Operator (FBO)	An individual or company located at an airport and providing commercial general aviation services.
Fuel Flowage Fees	A fee charged by the airport owner based upon the gallons of fuel either delivered to the airport or pump at the airport.
General Aviation (GA)	All aviation activity in the United States, which is neither military nor conducted by major, national or regional airlines.
Glider	A heavier-than-air aircraft that is supported in flight by the dynamic reaction of the air against its lifting surfaces and whose free flight does not depend principally on an engine (FAR Part 1),
Global Positioning System (GPS)	The global positioning system is a space based navigation system, which has the capability to provide highly accurate three-dimensional position, velocity and time to an infinite number of equipped users anywhere on or near the Earth. The typical GPS integrated system will provide: position, velocity, time, altitude, groundspeed and ground track error, heading and variation. The GPS measures distance, which it uses to fix position, by timing a radio signal that starts at the satellite and ends at the GPS receiver. The signal carries with it, data that discloses satellite position and time of transmission and synchronizes the aircraft GPS system with satellite clocks.
Hazard to Air Navigation	An object which, as a result of an aeronautical study, the FAA determines will have a substantial adverse effect upon the safe and efficient use of navigable airspace by aircraft, operation of air navigation facilities or existing or potential airport capacity.
Horizontal Surface	A horizontal plane 150 feet above the established airport elevation, the perimeter which is constructed by swinging arcs of specified radii form the center of each end of the primary surface of each runway of each airport and connecting the adjacent arcs by lines tangent to those arcs.

Imaginary Surfaces	Surfaces established in relation to the end of each runway or designated takeoff and landing areas, as defined in paragraphs 77.25, 77.28 and 77.29 of FAR Part 77, *Objects Affecting Navigable Airspace*. Such surfaces include the approach, horizontal, conical, transitional, primary and other surfaces.
Itinerant Operations	All operations at an airport, which are not local operations.
Jet Noise	The noise generated externally to a jet engine in the turbulent jet exhaust.
Knots	Nautical miles per hour, equal 1.15 statute miles per hour.
Large Airplane	An airplane of more than 12,500 pounds maximum certified takeoff weight.
Local Operations	Operations by aircraft flying in the traffic pattern or within sight of the control tower, aircraft known to be arriving or departing from flight in local practice areas, or aircraft executing practice instrument approaches at the airport.
Location Identifier	A three-letter or other code, suggesting where practicable, the location name that it represents.
Maneuvering Area	That part of an airport to be used for the takeoff and landing of aircraft and for the movement of aircraft associated with takeoff and landing, excluding aprons.
Master Plan	A planning document prepared for an airport, which outlines directions and developments in detail for 5 years and less specifically for 20 years. The primary component of which is the Airport Layout Plan.
Mean/Maximum Temperature	The average of all the maximum temperatures usually for a given period of time.
Mean Sea Level (MSL)	Height above sea level.
Medium Intensity Runway Lights (MIRL)	For use on VFR runways or runway showing a nonprecision instrument flight rule (IFR) procedure for either circling or straight-in approach.
Minimum Altitude	That designated altitude below which an IFR pilot is not allowed to fly unless arriving or departing an airport or for specific allowable flight operations.

National Airspace System	The common network of United States airspace, navigation aids, communications facilities and equipment, air traffic control equipment and facilities, aeronautical charts and information, rules, regulations, procedures, technical information and FAA manpower and material.
National Plan of Integrated Airport Systems (NPIAS)	A plan prepared annually by the FAA which identifies, for the public, the composition of a national system of airports together with the airport development necessary to anticipate and meet the present and future needs of civil aeronautics, to meet requirements in support of the national defense and to meet the special needs of the Postal Service. The plan includes both new and qualitative improvements to existing airports to increase their capacity, safety, technological capability, etc.
NAVAID	A ground based visual or electronic device used to provide course or altitude information to pilots.
Noise	Defined subjectively as unwanted sound. The measurement of noise involve understanding three characteristics of sound: intensity, frequency and duration.
Noise Contours	Lines drawn about a noise source indicating constant energy levels of noise exposure. DNL is the measure used to describe community exposure to noise.
Noise Exposure Level	The integrated value, over a given period of time of a number of different events of equal or different noise levels and durations.
Non-Precision Instrument	A runway having an existing instrument approach procedure utilizing air navigation facilities with only horizontal guidance for which a straight-in nonprecision instrument approach procedure has been approved.
Notice to Airmen (NOTAM)	A notice containing information (not known sufficiently in advance to publicize by other means concerning the establishment, condition or change in any component (facility, service, or procedure) of or hazard in the National Airspace System, the timely knowledge of which is essential to personnel concerned with flight operations.
Object	Includes, but is not limited to, above ground structures, NAVAIDs, people, equipment, vehicles, natural growth, terrain and parked aircraft.
Object Free Area (OFA)	A two-dimensional ground area-surrounding runways, taxiways and taxilanes which is clear of objects except for object whose location is fixed by function.

Obstacle Free Zone (OFZ)	The airspace defined by the runway OFZ and, as appropriate, the inner-approach OFZ and the inner-transitional OFZ, which is clear of object penetrations other than frangible NAVAIDs.
Obstruction	An object which penetrates an imaginary surface described in the FAA's Federal Aviation Regulations (FAR), Part 77.
Parking Apron	An apron intended to accommodate parked aircraft.
Pattern	The configuration or form of a flight path flown by an aircraft or prescribed to be flown, as in making an approach to a landing
Precision Approach Path Indicators (PAPI)	The visual approach slope indicator system furnishes the pilot visual slope information to provide safe descent guidance. It provides vertical visual guidance to aircraft during approach and landing by radiating a directional pattern of high intensity red and white focused light beams which indicate to the pilot that they are "on path" if they see red/white, "above path" if they see white/white and "below path" if they see red/red.
Primary Surface	A surface longitudinally centered on a runway. When the runway has a specially prepared hard surface, the primary surface extends 200 feet beyond each end of that runway, but when the runway has no specially prepared hard surface, or planned hard surface, the primary surface ends at each end of that runway.
Rotating Beacon	A visual navaid operated at many airports. At civil airports, alternating white and green flashes indicate the location of the airport.
Runway	A defined rectangular surface on an airport prepared or suitable for the landing or takeoff of airplanes.
Runway End Identifier Lights (REIL)	REILs are flashing strobe lights which aid the pilot in identifying the runway end at night or in bad weather conditions.
Runway Gradient	The average gradient consisting of the difference in elevation of the two ends of the runway divided by the runway length may be used provided that no intervening point on the runway profile lies more than five feet above or below a straight line joining the two ends of the runway. In excess of five feet the runway profile will be segmented and aircraft data will be applied for each segment separately.
Runway Lighting System	A system of lights running the length of a system that may be either high intensity (HIRL), medium intensity (MIRL), or low intensity (LIRL).
Runway Orientation	The magnetic bearing of the centerline of the runway.

Runway Protection Zone (RPZ)	An area off the runway end used to enhance the protection of people and property on the ground.
Runway Safety Area (RSA)	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 form the runway.
Segmented Circle	A basic marking device used to aid pilots in locating airports and which provides a central location for such indicators and signal devices as may be required.
Small Aircraft	An airplane of 12,500 pounds or less maximum certified takeoff weight.
Taxiway	A defined path established for the taxiing of aircraft from one part of an airport to another.
Terminal Area	The area used or intended to be used for such facilities as terminal and cargo buildings, gates, hangars, shops and other service buildings, automobile parking, airport motels, restaurants, garages and automobile services and a specific geographical area within which control of air traffic is exercised.
Threshold	The beginning of that portion of the runway available for landing.
Touch and Go Operations	Practice flight performed by a landing touch down and continuous takeoff without stopping.
Traffic Pattern	The traffic flow that is prescribed for aircraft landing at, taxiing on or taking off form an airport. The usual components are the departure, crosswind, downwind, and base legs; and the final approach.
Transitional Surface	These surfaces extend outward and upward at right angles to runway centerline extended at a slope of 7 to 1 from the sides of the primary surface and from the sides of the approach surfaces.
Universal Communications (UNICOM)	A private aeronautical advisory communications facility for purpose other than air traffic control. Only one such station is authorized in any landing area. Service available are advisory in nature primarily concerning the airport services and airport utilization. Locations and frequencies of UNICOMs are listed on aeronautical charts and publications.
Visual Flight Rules (VFR)	Rules that govern flight procedures under visual conditions.
Visual Runway	A runway intended for visual approaches only with no straight-in instrument approach procedure either existing or planned for that runway.

Appendix E
Public Involvement

Colorado City Municipal Airport
Airport Master Plan

Colorado City Municipal Airport Meeting Summary
August 13, 2007 1:00 PM Airport Terminal Building

A Kickoff meeting was held on August 13, 2007 to present the Airport Master Planning process to the Airport Board, City Staff and interested community members. Attendance at the meeting comprised of 16 individuals, including representatives from the Federal Aviation Administration (FAA), Arizona Department of Transportation (ADOT) Aeronautics Division, Airport Board Members and City Staff.

The goals of the airport master plan were presented along with the role of the airport planning advisory committee. The airport master plan will ensure that the needs of airport users and the local community are met. The planning advisory committee will be included in all aspects of the airport master plan process including the review of working papers, draft reports and drawings.

An introduction was given on the status of the airport and the impact the airport has on the local economy. The types and volumes of activity that are currently taking place were discussed which includes business, pleasure, search and rescue operations, students performing cross-country flights from St. George, as well as itinerant general aviation aircraft for fuel. The airport manager stated that there are seven based aircraft at the airport including one multiengine piston and one multiengine jet.

Airport Reference Codes (ARCs) were described and the existing airport reference code was discussed. The possibility of the airport upgrading the airport reference code was presented. The design standards were briefly covered and included impacts associated with an ARC upgrade. The future instrument approach minimums were discussed which included the possibility of implementing a GPS approach with WAAS to obtain lower minimums, allowing aircraft the ability to operate during poor visibility. The existing NDB approach was discussed including its usefulness and the maintenance required in keeping it operational.

The Runway Visibility Zone (RVZ) was described. The existing terminal building and apron area are currently located within the RVZ. There are several options available for correcting the RVZ obstruction of which includes shifting runway(s) or relocating the building and apron outside of RVZ. The airport master plan will evaluate the alternatives available along with the advantages and disadvantages of each alternative.

A question regarding land use compatibility surrounding the airport was raised. Land use compatibility will be addressed as part of the airport master plan. An airport overlay zone will be developed and a zoning ordinance for potential adoption by the City and County will be provided.

The City indicated that they would like to include the airport minimum standards, rules and regulations and airport land and facility lease agreements as part of the airport master plan which would be funded 90 percent by ADOT and 10 percent locally.

The next step will be to develop the Inventory Chapter, Forecast Chapter and Facility Requirements Chapters for the Airport Master Plan. This information will be distributed in a working paper to participating parties for review and comment.

Meeting Sign-In Sheet

Project:	Colorado City Municipal Airport Kickoff Meeting	Meeting Date:	8/13/07

Name	Title	Company	Phone	Fax	E-Mail
Dennis Corsi	Director of Planning	Armstrong Consultants, Inc.	(970) 242-0101	(970) 241-1769	dennis@armstrongconsultants.com
Justin Pietz	Airport Planner	Armstrong Consultants, Inc.	(970) 242-0101	(970) 241-1769	justin@armstrongconsultants.com
Carol L.	Airport Mgr.		928-875-7811		
RON DARGER	Member	Airport Committee	435-467-5235	928-875-2220	
LaDell Bistline	Airport Manager	Colorado City	435-616-2871	928.875.2824	westavi@gmail.com
Daniel Barlow, Jr	Airport Committee Member	Colorado City	928-875-2281		
Terrill	Mayor C. C. A.	Colorado City	928 875 2646		
David Darger	Town Manager	Town of Colorado City	928-875-2646	928-875-2778	davidd @ tocc.us
DENNIS CORSI					
Floyd ED	lack town	Colorado City	928 875 9164		floyd@domelabes.com
John Klodnicki		TENANT HANGER #2	435-668-3832		JohnKlod@aol.com
Darrell Fo	Kersey Hurricane City Airport Board		435-680-9366	W.C.F @ InFowest.Com	
Clint Hicklin	AEROSPACE ENGINEER, HURRICANE, UT.		435-635-2471		

Meeting Sign-In Sheet

Project:	Colorado City Municipal Airport Kickoff Meeting	Meeting Date:	8/13/07

Name	Title	Company	Phone	Fax	E-Mail
Jasmine Evains	Environmental Protection Spec.	FAA	310-725-3680		jasmine.evains@faa.gov
George Bailey	Program Mgr	"	310-725-3771		george.bailey@faa.gov
MATTHEW SMITH	Airport Projects Mgr.	ADOT	602-294-9144	602-294-9141	mvsmith@azdot.gov
KENNETH POTTS	Airport Planning Proj.	ADOT - AERO	602 294 9144	602 794 9141	KPotts@azdot.gov

Colorado City Municipal Airport Master Plan
Planning Advisory Committee Meeting Minutes
November 13, 2007; 10:00 a.m. Airport Terminal Building

Attendees: Attendees included representatives from the Town Council and Staff, Airport Advisory Board, Bureau of Land Management, Armstrong Consultants, Airport Users, and Interested Citizens. The FAA and ADOT were unable to attend due to travel budget constraints.

See attached Attendance Roster attendees.

Meeting Summary: A Planning Advisory Committee (PAC) meeting was held on November 13, 2007 to present the proposed alternatives for Colorado City Municipal Airport to the Town of Colorado City, Airport Advisory Committee, Bureau of Land Management and interested parties.

Armstrong Consultants began with a review of the status of the Environmental Assessment (EA) for the conveyance of BLM land and acquisition of private land to meet Runway Visibility Zone and Building Restriction Line standards. The Revised Draft EA has been prepared and was distributed at the meeting. The Revised Draft includes the "cadastral survey" alternative for the land acquisition boundary that will follow the fence lines rather than aliquot parcel descriptions. The BLM indicated they will have the estimated cost recovery account deposit requirement completed shortly. It is anticipated it will include the costs for the environmental review effort, cadastral survey and processing of the land conveyance patent and that it is likely the deposit can be made in those three phases as the administrative costs are incurred by the BLM. The BLM will begin their review process of the EA document as soon as the administrative cost recovery account is in place.

Armstrong Consultants provided a brief review of the Airport Master Plan Working Paper #1 and moved into detailed discussions of the development alternatives, focusing on the options for correcting the RVZ deficiencies. The concepts, advantages and disadvantages of Alternatives #1 through #5 were discussed. Alternative 2 was eliminated due the limited remaining runway length remaining. Alternatives 3 and 5 were eliminated as it would further encroach into jurisdictional waters of the United States. Alternatives 1 and 4 were further discussed with Alternative 1 being selected as the preferred alternative by the group based on the lesser cost and timeframe for completing the improvements.

The options of extending the runway 480' to 6,780' or 1,200' to 7,500' were discussed. A runway length of 6,780' accommodates 75% of large airplanes at 60% useful load and a runway length of 7,500' accommodates 75% of large airplanes at 80% useful load. Although the extension is not anticipated until the 10 to 20-year time frame, planning for the longer length will allow for the long-term compatible land use planning to protect the airport from encroachment and for the airport to achieve the highest utility level. The consensus of the PAC was to depict the longer ultimate runway length of 7,500' on the ALP and in the Master Plan.

The Draft Airport Layout Plan drawing set will be prepared based on the airfield configuration shown in Alternative 1, including the recommended runway extension to 7,500'

Landside discussions included the need for improved utilities and hangar development. The next PAC meeting will include discussions of the draft Terminal Area Layout including hangars, apron, terminal area, and utilities. Options for providing improved utility service, including septic or sewer, and water will be evaluated to be included in the 20-year Capital Improvement Program (CIP).

The next PAC meeting will be scheduled near the completion of the preliminary draft Airport Layout Plans.

Meeting Sign-In Sheet

Project:	**Colorado City Municipal Airport Meeting**	**Meeting Date:**	**11/13/07**

Name	Title	Company	Phone	Fax	E-Mail
Dennis Corsi	Vice President	Armstrong Consultants, Inc.	(970) 242-0101	(970) 241-1769	dennis@armstrongconsultants.com
Dan Barlow Jr.	Airport Committee Member	Colorado City	875-2281		
Brian Zitting	Principal	Canaan Peaks Eng.	435.467.1069		brianz@canaanpeaks.com
RICHARD SPOTTS	ENVIRONMENTAL COORDINATOR	BLM - ASDO	435 688-3207		Richard_Spotts@blm.gov
LaurieFord	Team Lead, Lands & Minerals	BLM - AS FO	435-688-3271	435-688-3258	laurie_ford@blm.gov
Lorraine Christian	Field Manager, AZ Strip BLM	BLM - AZ Strip FO	435-688-3323	↓	Lorraine_Christian@blm.gov
Freeman Barlow	Building Inspector CCA	CCA	928-875-2646		Fpeemanb@tocc.us
Dean Cooke	Public Works	Colorado City	928-875-8015		deanc@tocc.us
Floyd Black	Colorado City town	Colorado city	928-875-8104		floyd@Domelabels.com
BYGNAL DUTSON	COUNCIL MEMBER Colo. City	Colo City	435-467-2334	—	—
Terrill Johnson	mayor pro tem C.C.	Colo City	435 467-2554		
David Darger	Town Manager	Colo. City	928-875-2153 435-467-2153	928-875-2778	davidd@tocc.us
Ron Darger	Airport Advisory Committee	Colorado City	435-467-5235	928 875-2220	Rdarger@gmail.com

Meeting Sign-In Sheet

Project:	Colorado City Municipal Airport Meeting	Meeting Date:	11/13/07

Name	Title	Company	Phone	Fax	E-Mail
[illegible]		Airport Board	435-[illegible]7-[illegible]		
LaDell Bistline	Airport Manager		435-616-2871		wcstavi@gmail.com

Colorado City Municipal Airport Master Plan
Planning Advisory Committee Meeting Minutes
February 19; 2008 11:00 a.m. Airport Terminal Building

Attendees: Attendees included representatives from the Town Council and Staff, Airport Advisory Board, ADOT Aeronautics Division, Armstrong Consultants, Airport Users and Interested Citizens. The FAA was unable to attend due to travel budget constraints.

See attached Attendance Roster attendees.

Meeting Summary: A Planning Advisory Committee (PAC) meeting was held on February 19, 2008 to present the third working paper for Colorado City Municipal Airport to the Town of Colorado City, Airport Advisory Committee, ADOT and interested parties.

Armstrong Consultants began with a review of the status of the Airport Master Plan. The topics included the Airport Layout Plan, Environmental Overview and Financial Development.

Armstrong Consultants provided a brief review of the airport development goals and the Airport Master Plan deliverables. The working papers have all been sent out for review and comment. The Draft Airport Layout Plans have also been sent out for review and comment. The next deliverables for the Airport Master Plan project will include the Draft Airport Master Plan Report, compatible land use zoning ordinance, Final Airport Layout Plan drawing set, Final Airport Master Plan Report and the Executive Summary.

The Draft Airport Layout Plan was presented which included the layout determined to be the most suitable during the Development Alternatives Chapter and meeting. The layout includes removing the existing landside development out of the Runway Visibility Zone (RVZ). The plan also shows a future runway extension on Runway 11/29 to the northwest to provide an ultimate runway length of 7,500 feet. There are also full length parallel taxiways shown for both runways to enhance safety at the airport.

The Draft Terminal Area Drawing was discussed including the changes to the hangar layout to prevent future north facing hangars. The airport has indicated a problem in the past with north facing doors in the winter freezing shut. The layout includes hangars facing east, west and south. Concerns were raised regarding the location shown for the future snow removal equipment building. It was determined the moving the building down to the apron area would be more suitable. A question about helicopter parking was also raised. The attendees agreed that it would be good to show a future helicopter parking area. The Town also requested that additional automobile parking be shown adjacent to the future terminal building and that a road to the fuel tanks be added to prevent fuel delivery trucks from driving on the apron to deliver fuel to the airport. The Town requested that we show the future sewer line ultimately connecting into the City sewer. These comments/recommendations will be incorporated into the Final Airport Layout Plan drawing set.

The Environmental Overview was briefly discussed, it was stated that no significant environmental impacts were identified during the review. The majority of the future airport development shown on the Airport Layout Plan drawing would not require an Environmental Assessment with the exception of the runway extension.

The Financial Development Plan was the last item of discussion. The items sequence and preliminary cost estimates were presented. The Town requested that we add AWOS upgrade and a 405 survey for a future WAAS approach to the short term. The town also indicated that they thought the cost for the wildlife fence was low. The items will be added to the Financial Chapter of the Draft Report.

The next step will include releasing the Draft Airport Master Plan Report for comment and review.

Meeting Sign-In Sheet

Project:	**Colorado City Municipal Airport PAC Meeting**	**Meeting Date:**	**2/19/08**

Name	Title	Company	Phone	Fax	E-Mail
Keith Koler	President	Armstrong Consultants, Inc.	(970) 242-0101	(970) 241-1769	keith@armstrongconsultants.com
Justin Pietz	Airport Planner	Armstrong Consultants, Inc.	(970) 242-0101	(970) 241-1769	justin@armstrongconsultants.com
KENNOTH POTTS	Airport Projects Planning Manager	ADOT - Aeronautics	(602) 294-9144	(602) 294-9141	KPOTTS@AZdot.GOV
David Darger	Town Manager	Town of Colo. City	928.875-2646	928-875-2778	davidd @ tocc.US
Ron Darger	Airport Committee	Colorado City	435.467.5235	928.875.2220	rdarger@gmail.com
Carl Nielsen	Airport Comm	Airport Comm.			carvelsn@gmail.com
Daniel Barlow Jr.	Airport Committee member	Colorado City	875-2281		
Jerril Johnson	mayor	Town of Colorado City	875,2568		
Jake Barlow	PLANNING + ZONING	TOWN of Colorado City	928.875.2153	928.875.2778	Jakeb@tocc.us
Vergel Steed	Councilman	Town of Colorado City	435-618-6932		
Victor Jessop	Utilities	Town of Colorado City	435-874-1160		
John Stewart	Utilities	Town of Colo. City	928-875-2350	—	—
Lorin Fischer	Manager Twin City Power	Town of Colorado City	435-467-0501	435-874-2603	lorindee@hildalecity.com

Appendix F
Overlay Zoning Ordinance

Colorado City Municipal Airport
Airport Master Plan

DRAFT

COLORADO CITY, ARIZONA
COLORADO CITY MUNICIPAL AIRPORT
OVERLAY ZONING ORDINANCE

An ordinance regulating and restricting the height of structures and objects of natural growth, and otherwise regulating the use of property, in the vicinity of Colorado City Municipal Airport by creating the appropriate zones and establishing the boundaries thereof; providing for changes in the restrictions and boundaries of such zones; defining certain terms used herein, referring to Colorado City Municipal Airport FAR Part 77 Airspace Drawing and Off Airport Land Use Drawing which are incorporated in and made a part of this ordinance; providing for enforcement; establishing a board of adjustment; and imposing penalties.

It is hereby found that an obstruction has the potential for endangering the lives and property of users of the Colorado City Municipal Airport and property or occupants of land in its vicinity; that an obstruction may affect existing and future instrument approach minimums at the Colorado City Municipal Airport; and that an obstruction may reduce the size of areas available for the landing, takeoff and maneuvering of aircraft, thus tending to destroy or impair the utility of the Colorado City Municipal Airport and the public investment therein. Accordingly, it is declared:

1. That the creation or establishment of an obstruction has the potential of being a public nuisance and may injure the region served by the Colorado City Municipal Airport.

2. That the encroachment of noise sensitive or otherwise incompatible land uses within certain areas as set forth herein below may endanger the health, safety and welfare of the owners, occupants or users of the land; and

3. That it is necessary in the interest of the public health, public safety and general welfare that the creation or establishment of obstructions that are a hazard to air navigation be prevented; and

4. That the prevention of these obstructions should be accomplished, to the extent legally possible, by the exercise of the police power without compensation; and

5. That the Colorado City Municipal Airport fulfills an essential community purpose.

It is further declared that the prevention of the creation of establishment of hazards to air navigation, the elimination, removal, alteration or mitigation of hazards to air navigation, or the marking and lighting of construction are public purposes for which a political subdivision may raise and expend public funds and acquire land or interests in land.

It is hereby ordained by the Town of Colorado City as follows:

SECTION I
SHORT TITLE

This Ordinance shall be known and may be cited as the Colorado City Municipal Airport Overlay Zoning Ordinance.

SECTION II
DEFINITIONS

As used in this Ordinance, unless the context otherwise requires:

1. AIRPORT – Colorado City Municipal Airport.

2. AIRPORT ELEVATION - The highest point of an airport's usable landing area measured in feet above mean sea level.

3. APPROACH SURFACE - A surface longitudinally centered on the extended runway centerline, extending outward and upward from the end of the primary surface and at the same slope as the approach zone height limitation slope set forth in Section IV of this Ordinance. In plan the perimeter of the approach surface coincides with the perimeter of the approach zone.

4. APPROACH, TRANSITIONAL, HORIZONTAL AND CONICAL ZONES - These zones are set forth in Section III of this Ordinance.

5. BOARD OF ADJUSTMENT - A Board consisting of _____#_____ members appointed by the Colorado City Town Council.

6. CONICAL SURFACE - A surface extending outward and upward from the periphery of the horizontal surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet.

7. HAZARD TO AIR NAVIGATION - An obstruction determined to have a substantial adverse effect on the safe and efficient utilization of the navigable airspace.

8. HEIGHT - For the purpose of determining the height limits in all zones set forth in this Ordinance and shown on the zoning map, the datum shall be mean sea level elevation unless otherwise specified.

9. HELIPORT PRIMARY SURFACE - The primary surface coincides in size and shape with the designated takeoff and landing area of a heliport. This surface is a horizontal plane at the elevation of the established heliport elevation.

10. HORIZONTAL SURFACE - A horizontal plane 150 feet above the established airport elevation, the perimeter of which in plan coincides with the perimeter of the horizontal zone.

11. LARGER THAN UTILITY RUNWAY - A runway that is constructed for and intended to be used by propeller driven aircraft of greater than 12,500 pounds maximum gross weight and jet powered aircraft.

12. NAVD 88 - North American Vertical Datum 1988. All elevations in this ordinance are referenced to the 1988 North American Vertical Datum.

13. NONCONFORMING USE - Any pre-existing structure, object of natural growth, or use of and which is inconsistent with the provisions of this Ordinance or an amendment thereto.

14. NONPRECISION INSTRUMENT RUNWAY - A runway having an existing instrument approach procedure utilizing air navigation facilities with only

horizontal guidance, or area type navigation equipment, for which a straight-in nonprecision instrument approach procedure has been approved or planned. It also means a runway for which a nonprecision approach system is planned and is so indicated on an approved Airport Layout Plan or any other planning document.

15. OBSTRUCTION - Any structure, growth or other object, including a mobile object, which exceeds a limiting height set forth in Section IV of this Ordinance.

16. PERSON - An individual, firm, partnership, corporation, company, association, joint stock association or governmental entity; includes a trustee, a receiver, an assignee or a similar representative of any of them.

17. PRECISION INSTRUMENT RUNWAY - A runway having an existing instrument approach procedure utilizing an Instrument Landing System (ILS), a Precision Approach Radar (PAR) or a Global Positioning System (GPS). It also means a runway for which a precision approach system is planned and is so indicated on an approved airport layout plan or any other planning document.

18. PRIMARY SURFACE - A surface longitudinally centered on a runway. When the runway has a specially prepared hard surface, the primary surface extends 200 feet beyond each end of that runway; for military runways or when the runway has no specially prepared hard surface or planned hard surface, the primary surface ends at each end of that runway. The width of the primary surface is set forth in Section III of this Ordinance. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline.

19. RUNWAY - A defined area on an airport prepared for landing and takeoff of aircraft along its length.

20. STRUCTURE - An object, including mobile object, constructed or installed by man, including but without limitation, buildings, towers, cranes, smokestacks, earth formation and overhead transmission lines.

21. TRANSITIONAL SURFACES - These surfaces extend outward at 90 degree angles to the runway centerline and the runway centerline extended at a slope of seven (7) feet horizontally for each foot vertically from the sides of the primary and approach surfaces to where they intersect the horizontal and conical surfaces. Transitional surfaces for those portions of the precision approach surfaces, which project through and beyond the limits of the conical surface, extend a distance of 5,000 feet measured horizontally from the edge of the approach surface and at 90 degree angles to the extended runway centerline.

22. TREE - Any object of natural growth.

23. UTILITY RUNWAY - A runway that is constructed for and intended to be used by propeller driven aircraft of 12,500 pounds maximum gross weight and less.

24. VISUAL RUNWAY - A runway intended solely for the operation of aircraft using visual approach procedures.

SECTION III
AIRPORT HEIGHT RESTRICTION ZONES

In order to carry out the provisions of this ordinance, there are hereby created and established certain zones which include all of the land lying beneath the approach surfaces, transitional surfaces, horizontal surfaces and conical surfaces as they apply to the Colorado City Municipal Airport. Such zones are shown on the Colorado City Municipal Airport Federal Aviation Regulation (FAR) Part 77 Airspace Drawing. Three (3) original, official, and identical copies of the FAR Part 77 Airspace Drawing reflecting the boundaries of the airport height restriction overlay zoning districts of the Town of Colorado City, Arizona are hereby adopted, and the Commissioner and Colorado City Town Clerk are hereby authorized to sign and attest each map as the official Colorado City Municipal Airport FAR Part 77 Airspace Drawing of the Town of Colorado City, Arizona, and such maps shall be filed and maintained as follows:

1. One (1) copy shall be filed for permanent record in the office of the Colorado City Town Clerk and shall be designated as Exhibit 1. This copy shall not be changed in any manner.

2. One (1) copy shall be filed in the office of the Director of Planning and shall be designated as Exhibit 2. This copy shall be maintained by the Planning Department by posting thereon all subsequent changes and amendments.

3. One (1) copy shall be filed in the office of the Airport Manager and shall be designated as Exhibit 3. This copy shall be maintained by the Planning Department by posting thereon all subsequent changes and amendments.

Each portion of an area located in more than one (1) of the following zones shall be evaluated independently according to the zone in which it is located. The various zones are hereby established and defined as follows:

1. PRECISION INSTRUMENT RUNWAY APPROACH ZONE (LARGER THAN UTILITY RUNWAY) – The inner edge of this approach zone coincides with the width of the primary surface and is 1,000 feet wide. The approach zone expands outward uniformly to a width of 16,000 feet at a horizontal distance of 50,000 feet. Its centerline is the continuation of the centerline of the runway.

2. NONPRECISION INSTRUMENT RUNWAY APPROACH ZONE (LARGER THAN UTILITY RUNWAY) - The inner edge of this approach zone coincides with the width of the primary surface and is 500 feet wide. The approach zone expands outward uniformly to a width of 3,500 feet at a horizontal distance 10,000 feet from the primary surface. Its centerline is the continuation of the centerline of the runway.

3. NONPRECISION INSTRUMENT RUNWAY APPROACH ZONE (UTILITY AIRCRAFT) – The inner edge of this approach zone coincides with the width of the primary surface and is 500 feet wide. The approach zone expands outward uniformly to a width of 2,000 feet at a horizontal distance 5,000 feet from the primary surface. Its centerline is the continuation of the centerline of the runway.

4. VISUAL RUNWAY APPROACH ZONE (LARGER THAN UTILITY RUNWAY) – The inner edge of this approach zone coincides with the width of the primary surface and is 500 feet wide. The approach surface expands uniformly to a width of 1,500 feet at a horizontal distance 5,000 feet from the primary surface. Its centerline is the continuation of the centerline of the runway.

5. VISUAL RUNWAY APPROACH ZONE (UTILITY AIRCRAFT) - The inner edge of this approach zone coincides with the width of the primary surface and is 250 feet wide. The approach surface expands uniformly to a width of 1,250 feet at a horizontal distance of 5,000 feet from the primary surface. The centerline of the approach zone is a continuation of the centerline of the runway.

6. TRANSITIONAL ZONE - The transitional zones are the areas beneath the transitional surfaces.

7. HORIZONTAL ZONE - The horizontal zone is established by swinging arcs of 5,000 or 10,000 feet radii from the center of each end of the primary surface of the primary runway and connecting the adjacent arcs by drawing lines tangent to those arcs. The horizontal zone does not include the approach and transitional zones. The horizontal zone was constructed with 10,000 feet radii.

8. CONICAL ZONE - The conical zone is established as the area that commences at the periphery of the horizontal zone and extends outward there from a horizontal distance of 4,000 feet.

SECTION IV
AIRPORT ZONE HEIGHT LIMITATIONS

Except as otherwise provided in this ordinance, no structure shall be erected, altered, or maintained, and no tree shall be allowed to grow in any zone created by this ordinance to a height in excess of the applicable height limit herein established for such zone. Such applicable height limitations are hereby established for each of the zones in question as follows:

1. PRECISION INSTRUMENT RUNWAY APPROACH ZONE – Slopes fifty (50) feet outward for each foot upward beginning at the end of and at the same elevation as the primary surface and extending to a horizontal distance of 10,000 feet along the extended runway centerline. Then slopes forty (40) feet outward for each foot upward beginning at the end of and at the same elevation as the first 10,000 feet and extending to a horizontal distance of 40,000 feet along the extended runway centerline.

2. NONPRECISION INSTRUMENT RUNWAY APPROACH ZONE (LARGER THAN UTILITY RUNWAY) - Slopes thirty-four (34) feet outward for each foot upward beginning at the end of and at the same elevation as the primary surface and extending to a horizontal distance of 10,000 feet along the extended runway centerline.

3. NONPRECISION INSTRUMENT RUNWAY APPROACH ZONE (UTILITY AIRCRAFT) – Slopes twenty (20) feet outward for each foot upward beginning at the end of and at the same elevation as the primary surface and extending to a horizontal distance of 5,000 feet along the extended runway centerline.

4. VISUAL RUNWAY APPROACH ZONE - Slopes twenty (20) feet outward for each foot upward beginning at the end of and at the same elevation as the primary surface and extending to a horizontal distance of 5,000 feet along the extended runway centerline.

5. TRANSITIONAL ZONE - Slopes seven (7) feet outward for each foot upward beginning at the sides of and at the same elevation as the primary surface and the approach surface, and extending to a height of 150 feet above the airport elevation. In addition to the foregoing, there are established height limits sloping seven (7) feet outward for each foot upward beginning at the sides of and at the same elevation as the approach surface, and extending to where they intersect the conical surface. Where the precision instrument runway approach zone projects beyond the conical zone, there are established height limits sloping seven (7) feet outward for each foot upward beginning at the sides of and at the same elevation as the approach surface, and extending a horizontal distance of 5,000 feet measured at 90 degree angles to the extended runway centerline.

6. HORIZONTAL ZONE - Established at 150 feet above the airport elevation.

7. CONICAL ZONE - Slopes twenty (20) feet outward for each foot upward beginning at the periphery of the horizontal zone and at 150 feet above the airport elevation and extending to a height of 350 feet above the airport elevation.

SECTION V
COMPATIBLE LAND USE REGULATIONS

1. AIRPORT COMPATIBLE LAND USE OVERLAY ZONING DISTRICTS - For the purpose of regulating the development of noise sensitive land uses to promote compatibility between the Airport and the surrounding land uses, to protect the Airport from incompatible development and to promote the health, safety and general welfare of property users, the controlled area of Colorado City Municipal Airport is divided into Airport Compatible Land Use Overlay Zoning districts. The Airport Compatible Land Use Overlay Zoning districts established herein shall be known as:

Off Airport Land Use Zone Number	Zoning District Name
D	Airport Influence Zone (AIZ)
C	Traffic Pattern Zone (TPZ)
B	Approach Zone (AZ)
A	Runway Protection Zone (RPZ)

2. OFF AIRPORT LAND USE DRAWING

A. The boundaries of the Airport Compatible Land Use Overlay Zoning Districts set out herein are delineated upon the Colorado City Municipal Airport Off Airport Land Use Drawing of the Town of Colorado City, Arizona, said Off Airport Land Use Drawing being adopted by reference and made a part of this chapter as fully as if the same were set forth herein in detail.

B. Three (3) original, official, and identical copies of the Off Airport Land Use Drawing reflecting the boundaries of the Airport Compatible Land Use Overlay Zoning districts of the Town of Colorado City, Arizona are hereby adopted, and the Commissioner and the Colorado City Town Clerk are hereby authorized to sign and attest each map as the official Off Airport Land Use Drawing of the Town of Colorado City, Arizona, and such maps shall be filed and maintained as follows:

1) One (1) copy shall be filed for permanent record in the office of the Colorado City Town Clerk and shall be designated as Exhibit 1. This copy shall not be changed in any manner.

2) One (1) copy shall be filed in the office of the Director of Planning and shall be designated as Exhibit 2. This copy shall be maintained by the Planning Department by posting thereon all subsequent changes and amendments.

3) One (1) copy shall be filed in the office of the Airport Manager and shall be designated as Exhibit 3. This copy shall be maintained by the Planning Department by posting thereon all subsequent changes and amendments.

3. AIRPORT COMPATIBLE LAND USE OVERLAY ZONING DISTRICT BOUNDARIES

A. The Airport Compatible Land Use Overlay Zoning District boundary lines shown on the official Off Airport Land Use Drawing shall be located and delineated along contour lines established for the Colorado City Municipal Airport. Where uncertainty exists as to the boundaries of the Airport Compatible Land Use Overlay Zoning Districts as shown on the official Map, the following rules shall apply:

1) Boundaries shall be scaled from the nearest runway end shown on the map.

2) Boundaries shall be scaled from the nearest physical feature shown on the map.

3) Boundaries may be scaled from the nearest platted lot line as shown on the map.

4) Distances not specifically indicated on the original Off Airport Land Use Drawing shall be determined by a scaled measurement on the map.

B. Where physical features on the ground differ from the information shown on the official Off Airport Land Use Drawing or when there arises a question as to how or where a parcel of property is zoned and such questions cannot be resolved by the application of Section V-3A, the property shall be considered to be classified as the most restrictive Airport Compatible Land Use Overlay Zoning District.

C. Where a parcel of land lies within more than one (1) Airport Compatible Land Use Overlay Zoning District, the zone within which each portion of the property is located shall apply individually to each portion of the development.

4. USE OF LAND AND BUILDINGS

A. Within the Airport Compatible Land Use Overlay Zoning Districts as defined herein, no land shall hereafter be used and no structure or other object shall hereafter be erected, altered, converted or modified other than for those compatible land uses permitted by underlying comprehensive zoning districts, as specified in the Town of Colorado City Land Use Code. Additional land uses are prohibited in the Airport Compatible Land Use Overlay Zoning Districts, regardless of underlying zoning, as set forth in the Land Use Compatibility Table included in Attachment A.

B. Where any use of prohibited land and buildings set forth in Section V-4A conflicts with any use of land and buildings set forth in the Town of Colorado Land Use Code, as an allowed use on the Zoning District Map, this chapter shall apply.

C. Section V-4 does not apply to property within the official boundaries of the airport.

D. Where specified on the Airport Compatible Land Use Table, the property owner shall dedicate, in advance of receiving a building permit, an aviation clear zone easement to the Town of Colorado City, Arizona. The purpose of this easement shall be to establish a maximum height restriction on the use of property and to hold the public harmless for any damages caused by noise, vibration, fumes, dust, fuel, fuel particles, or other effects that may be caused by the operation of aircraft landing at, taking off from, or operating on, or at, public airport facilities.

5. ADDITIONAL LAND USE REGULATIONS

A. Within the Town of Colorado City, Arizona the more restrictive of the Town of Colorado City Land Use Code or Section V-4A, shall apply to the development of all property covered by the Off Airport Land Use Drawing.

B. On property within the Off Airport Land Use Drawing jurisdiction, but outside the jurisdictional limits of the Town of Colorado City, Arizona, Section V-4A shall apply to formulate land use recommendations or responses to land use comment requests from other jurisdictions.

C. When a provision of this section conflicts with any airport height hazard restrictions, the most restrictive provision shall apply.

D. Notwithstanding any other provisions of this chapter or other chapter of the Town of Colorado City Land Use Code, no use may be made of land, water, or structures within any zone established by this chapter in such a manner as to create electrical interference with navigational signals or radio communication between the airport and aircraft, make it difficult for pilots to distinguish between airport lights and others, or result in glare in the eyes of pilots using the airport; impair visibility in the vicinity of the airport; create bird strike hazards, or otherwise in any way endanger or interfere with the landing, taking off or flight operations of aircraft utilizing the airport.

E. When a subdivision plat is required for any property within an Airport Compatible Land Use Overlay Zoning District or within an area shown on the FAR Part 77 Airspace Drawing for the Colorado City Municipal Airport, the property owner shall dedicate an aviation hazard easement to the Town of Colorado City over and across that property. This easement shall establish a height restriction on the use of the property and hold the public harmless from any damages caused by noise, vibration, fumes, dust, fuel, fuel particles, or other effects that may be caused by the operation of aircraft taking off, landing, or operating on or near the Colorado City Municipal Airport.

SECTION VI
NONCONFORMING USES

1. REGULATIONS NOT RETROACTIVE - The regulations prescribed by this ordinance shall not be construed to require the removal, lowering, or other change or alteration of any

structure or tree not conforming to the regulations as of the effective date of this ordinance, or otherwise interfere with the continuance of nonconforming use. Nothing contained herein shall require any change in the construction, alteration, or intended use of any structure, the construction or alteration of which was begun prior to the effective date of this ordinance, and is diligently prosecuted. Nonconforming land uses existing as of the effective date of this ordinance may be modified such that 1) only existing structures may be enlarged or expanded; 2) that they do not result in any greater violation of height restrictions; and 3) a variance in accordance with Section VII-4 is obtained.

2. MARKING AND LIGHTING - Notwithstanding the preceding provision of this section, the owner of any existing nonconforming structure or tree is hereby required to permit the installation, operation, and maintenance thereon of such markers and lights as shall be deemed necessary by the Town of Colorado City to indicate to the operators of aircraft in the vicinity of the airport the presence of such airport obstruction. Such markers and lights shall be installed, operated and maintained at the expense of the Colorado City Municipal Airport.

SECTION VII
PERMITS

1. FUTURE USES - Except as specifically provided in A and B hereunder, no material change shall be made in the use of land, no structure shall be erected or otherwise established, and no tree shall be planted in any zone hereby created unless a permit therefore shall have been applied for and granted. Each application for a permit shall indicate the purpose for which the permit is desired, with sufficient particularity to permit it to be determined whether the regulating use, structure, or tree would conform to the regulations herein prescribed. An FAA Form 7460-1, *Notice of Proposed Construction or Alteration*, shall accompany each application. If such determination is in the affirmative, the permit shall be granted. No permit for a use inconsistent with the provisions of this ordinance shall be granted unless a variance has been approved in accordance with Section VII, 4.

   A. In the area lying within the limits of the approach zone, transition zone, horizontal zone, and conical zone, no permit shall be required by this ordinance for any tree or structure less than 200 feet above ground level which is also lower than an imaginary surface extending outward and upward at a slope of 100 feet horizontal for each 1 foot vertical beginning at the closest point of the closest runway.

   B. Nothing contained in any of the foregoing exceptions shall be construed as permitting or intending to permit any construction or alteration of any structure, or growth of any tree in excess of any of the height limits established by this ordinance.

2. EXISTING USES - No permit shall be granted that would allow the establishment or creation of any obstruction or permit a nonconforming use, structure, or tree to become a greater hazard to air navigation than it was on the effective date of this ordinance or any amendments thereto or than it is when the application for a permit is made. Except as indicated, all applications for such a permit shall be granted.

3. NONCONFORMING USES ABANDONED OR DESTROYED - Whenever the Town of Colorado City determines that a nonconforming tree or structure has been abandoned or more than 80 percent torn down, physically deteriorated or decayed, no permit shall be granted that would allow such structure or tree to exceed the applicable height limit or otherwise deviate from the zoning regulations.

4. VARIANCES - Any person desiring to erect or increase the height of any structure, or permit the growth of any tree, or use property, not in accordance with the regulations prescribed in this ordinance, may apply to the Board of Adjustment for a variance from such regulations. The application for variance shall be accompanied by a determination from the Federal Aviation Administration as to the effect of a proposal on the operation of air navigation facilities and the safe, efficient use of navigable airspace. Such variances shall be allowed where it is duly found that a literal application or enforcement of the regulations will result in unnecessary hardship and relief granted, will not be contrary to the public interest, will not create a hazard to air navigation, will do substantial justice, and will be in accordance with the spirit of this ordinance.

   Additionally, no application for variance to the requirements of this ordinance may be considered by the Board of Adjustment unless a copy of the application has been furnished to the Town of Colorado City for advice as to the aeronautical effects of the variance. If the Town of Colorado City does not respond to the application within fifteen (15) days after receipt, the Board of Adjustment may act on its own to grant or deny said application.

5. OBSTRUCTION MARKING AND LIGHTING - Any permit or variance granted may, if such action is deemed advisable to effectuate the purpose of this ordinance and be reasonable in the circumstances, be so conditioned as to require the owner of the structure or tree in question to install, operate, and maintain, at the owner's expense, such markings and lights as condition may require in accordance with FAA provisions.

SECTION VIII
ENFORCEMENT

It shall be the duty of the Town of Colorado City to administer and enforce the regulations prescribed herein. Applications for permits and variances shall be made to the Town of Colorado City upon a form published for that purpose. Applications required by this ordinance to be submitted to the Town of Colorado City shall be promptly considered and granted or denied. Application for action by the Board of Adjustment shall be forthwith transmitted by the Town of Colorado City.

SECTION IX
BOARD OF ADJUSTMENT

1. There is hereby created a Board of Adjustment to have and exercise the following powers: (1) to hear and decide appeals from any order, requirements, decision, or determination made by the Town of Colorado City in the enforcement of this ordinance; (2) to hear and decide special exceptions to the terms of this ordinance upon which such Board of Adjustment under such regulations may be required to pass; and (3) to hear and decide specific variances.

2. The Board of Adjustment shall consist of members appointed by the Town of Colorado City and each shall serve for a term of __#__ years until a successor is duly appointed and qualified. Of the members first appointed one shall be appointed for a term of __#__ years. Members shall be removable by the appointing authority for cause, upon written charges, after a public hearing.

3. The Board of Adjustment shall adopt rules for its governance and in harmony with the provisions of this ordinance. Meetings of the Board of adjustment shall be held at the call of the chairperson and at such other times as the Board of Adjustment may determine. The chairperson or, in the absence of the chairperson, the acting chairperson may

administer oaths and compel the attendance of witnesses. All hearings of the Board of Adjustment shall be public. The Board of Adjustment shall keep minutes of its proceedings showing the vote of each member upon each questions; or if absent or failing to vote, indicating such fact, and shall keep records of its examinations and other official actions all of which shall immediately be filed in the office of the Town of Colorado City Planning and Zoning Department and on due cause shown.

4. The Board of Adjustment shall make written findings of facts and conclusions of law giving the facts upon which it acted and its legal conclusions from such facts in reversing, affirming, or modifying any order requirement, decision or determination which comes before it under the provisions of this ordinance.

5. The concurring vote of a majority of the members of the Board of Adjustment shall be sufficient to reverse any order, requirement, decision or determination of the Town of Colorado City or decide in favor of the application on any matter upon which it is required to pass under this ordinance, or to effect variation to this ordinance.

SECTION X
APPEALS

1. Any person aggrieved, or any taxpayer affected, by any decision of the Town of Colorado City made in the administration of the ordinance, may appeal to the Board of Adjustment.

2. All appeals hereunder must be taken within a reasonable time as provided by the rules of the Board of Adjustment, by filing with the Town of Colorado City a notice of appeal specifying the grounds thereof. The Town of Colorado City shall forthwith transmit to the Board of Adjustment all the papers constituting the record upon which the action appealed from was taken.

3. An appeal shall stay all proceedings in furtherance of the action appealed from unless the Town of Colorado City certifies to the Board of Adjustment, after the notice of appeal has been filed with it, that by reason of the facts stated in the certificate a stay would in the opinion of the Town of Colorado City cause imminent peril to life or property. In such case, proceedings shall not be stayed except by the order of the Board of Adjustment on notice to the Town of Colorado and on due cause shown.

4. The Board of Adjustment shall fix a reasonable time for hearing appeals, give public notice and due notice to the parties in interest, and decide the same within a reasonable time. Upon the hearing, any party may appear in person or by agent or by attorney.

5. The Board of Adjustment may, in conformity with the provisions of this ordinance, reverse or affirm, in whole or in part, or modify the order, requirement, decision or determination appealed form and may make such order, requirement, decision or determination as may be appropriate under the circumstances.

SECTION XI
JUDICIAL REVIEW

Any person aggrieved, or any taxpayer affected, by any decision of the Board of Adjustment, may appeal to the Court of _____ a provided in Section _____ of Chapter _____ of the Public Laws of _____.

SECTION XII
PENALTIES

Each violation of this ordinance or of any regulations, order, or ruling promulgated hereunder shall constitute a misdemeanor and shall be punishable by a fine of not more than _____ dollars or imprisonment for not more than _____ days or both; and each day a violation continues to exist shall constitute a separate offense.

SECTION XIII
CONFLICTING REGULATIONS

Where there exists a conflict between any of the regulations or limitations prescribed in this ordinance and any other regulations applicable to the same area, whether the conflict be with respect to the height of structures or trees, and the use of land, or any other matter, the more stringent limitation or requirements shall govern and prevail.

SECTION XIV
SEVERABILITY

If any of the provisions of this ordinance or the application thereof to any person or circumstances are held invalid, such invalidity shall not affect other provisions or applications of the ordinance which can be given effect without the invalid provision or application, and to this end, the provisions of this ordinance are declared to be severable.

SECTION XV
EFFECTIVE DATE

WHEREAS, the immediate operation of the provisions of this ordinance is necessary for the preservation of the public health, public safety, and general welfare, and emergency is hereby declared to exist, and this ordinance shall be in full force and effect from and after its passage by the Town of Colorado City and publication and posting as required by law. Adopted by this _____ day of _____, 20____.

ATTACHMENT A

LAND USE COMPATIBILITY TABLE

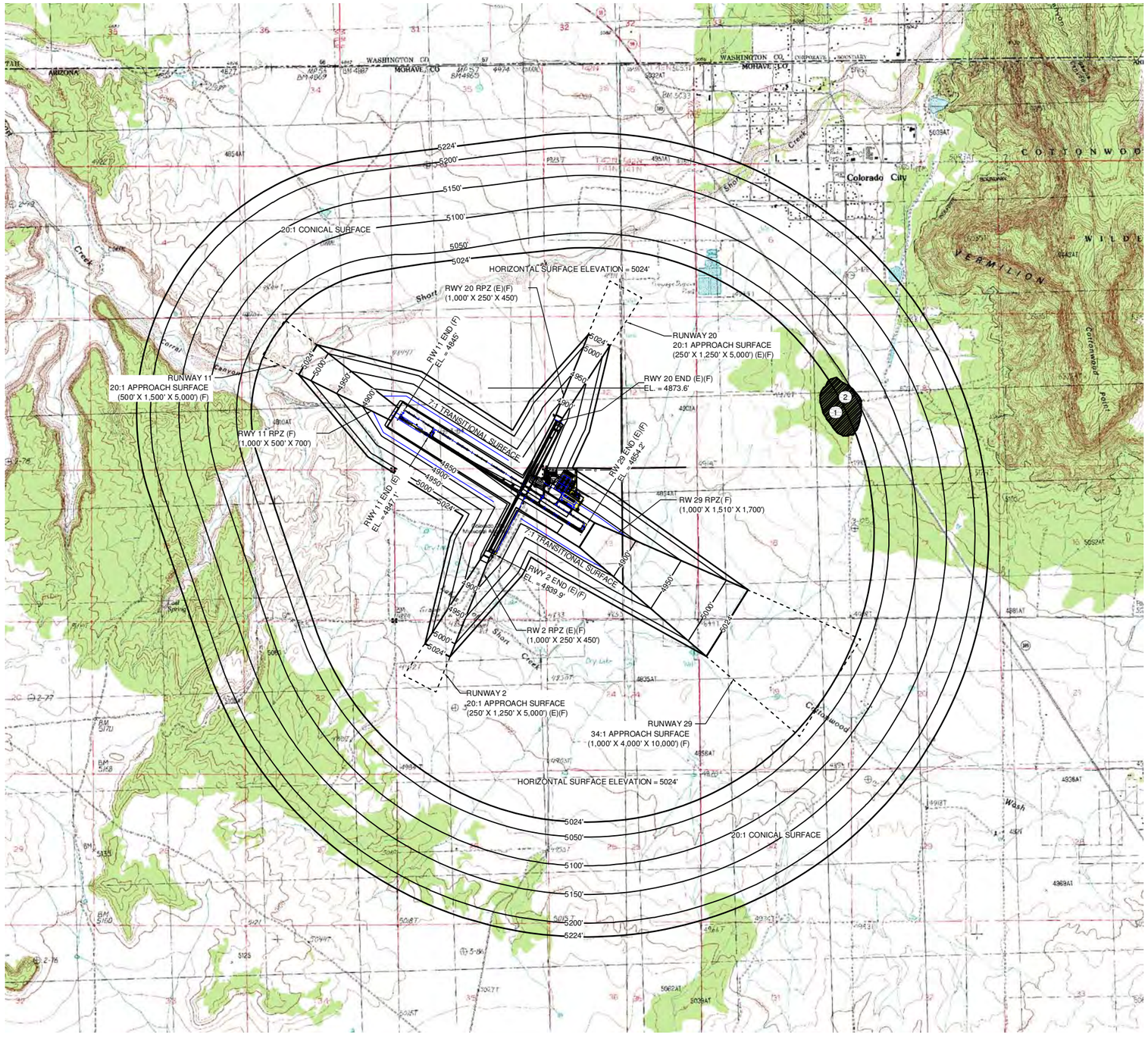
LAND USE CATEGORY	AIRPORT INFLUENCE ZONE (AIZ)	TRAFFIC PATTERN ZONE (TPZ)	APPROACH ZONE (AZ)	RUNWAY PROTECTION ZONE (RPZ)
RESIDENTIAL				
Single-Family, Nursing Homes, Mobile Homes, Multi-Family, Apartments, condominiums	+	o(3)	-(1,3)	--
			-(1,3)	
PUBLIC				
Schools, Libraries, Hospitals	+	o(3)	-(3)	--
Churches, Auditoriums, Concert Halls	+	o(3)	-(3)	--
Transportation, Parking, Cemeteries	++	++	++	-(2,5)
COMMERCIAL & INDUSTRIAL				
Offices, Retail Trade	++	+	o(3)	--
Service Commercial, Wholesale Trade, Warehousing, Light Industrial	++	+	o(3)	--
General Manufacturing, Utilities, Extractive industry	++	++	o(3)	--
AGRICULTURAL & RECREATIONAL				
Cropland	++	++	++	++
Livestock Breeding	++	++	++	-(2)
Parks, Playgrounds, Zoos, Golf Courses, Riding Stables, Water Recreation	++	++	++	-(2)
Outdoor Spectator Sports,	++	+	-(3)	--
Amphitheaters	o	-(4)	--	--
Open Space	++	++	++	++

++ Clearly Acceptable + Normally Acceptable o Marginally Acceptable - Normally Unacceptable - - Clearly Unacceptable

Note: Development projects which are wildlife attractant, including sewerage ponds and landfills, within 10,000 feet of the airport are unacceptable. (Ref.: FAA AC 150/5200-33)

Conditions:

(1) If allowed, avigation easements and disclosure must be required as a condition of development.
(2) Any structures associated with uses allowed in the RPZ must be located outside the RPZ.
(3) If no reasonable alternative exists, use should be located as far from extended centerline as possible.
(4) If no reasonable alternative exists, use should be located as far form extended runway centerline and traffic patterns as possible.
(5) Transportation facilities in the RPZ (i.e. roads, railroads, waterways) must be configured to comply with Part 77 requirements.



OBSTRUCTION CHART				
SURFACE	DESCRIPTION	TOP ELEVATION	PENETRATION	REMARKS
PRIMARY	NONE	--	--	NONE
TRANSITIONAL	NONE	--	--	NONE
HORIZONTAL	(1) TERRAIN	5100'	76'	NONE
CONICAL	(2) TERRAIN	5100'	70'	NONE
DEPARTURE SURFACE	NONE	--	--	NONE
THRESHOLD SITING SURFACE	NONE	--	--	NONE

NOTES

a) HEIGHT RESTRICTION ZONING IS CURRENTLY IN EFFECT

b) REFER TO "INNER PORTION OF THE APPROACH SURFACE" DRAWING FOR DETAILS ON ANY CLOSE-IN APPROACH OBSTRUCTIONS.

c) APPROACH SURFACES BASED ON ULTIMATE CONDITION

N
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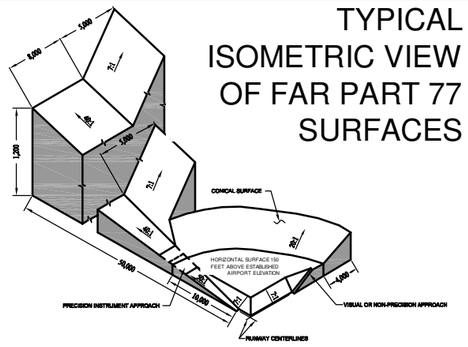
0 2000 4000
SCALE IN FEET

TYPICAL ISOMETRIC VIEW OF FAR PART 77 SURFACES



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COLORADO CITY MUNICIPAL AIRPORT
COLORADO CITY, ARIZONA

AIRPORT LAYOUT PLANS

No.	Revision	Date	By

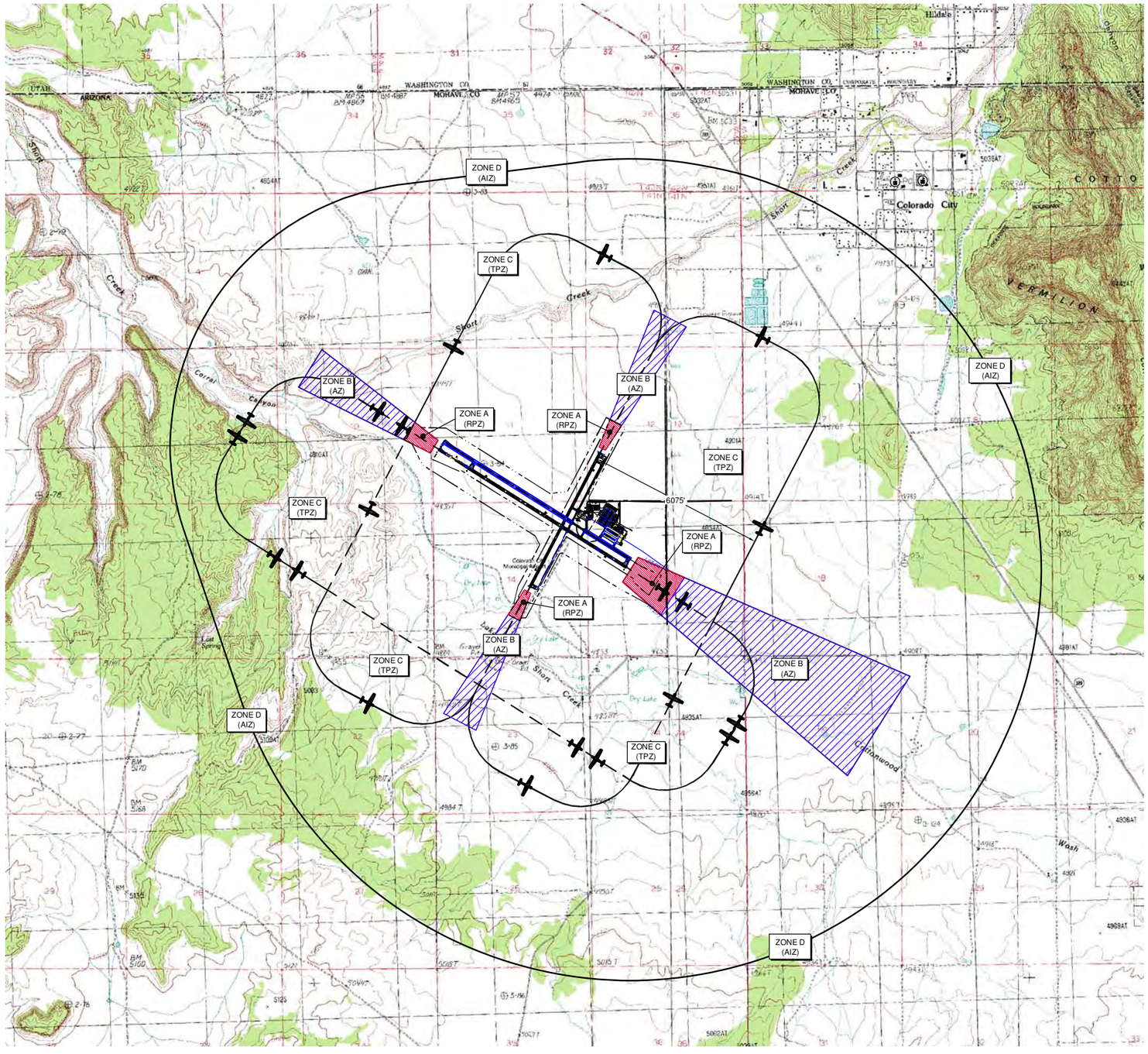
THIS PRINT/HARDCOPY THIS DOCUMENT WAS PRODUCED IN PART, THROUGH THE USE OF AIRPORT IMPROVEMENT PROGRAM (AIP) FUNDS AND IS SUBJECT TO THE PROPRIETARY RIGHTS AND LIMITATIONS NOTED HEREIN. THE OFFICIAL VERSION OF THIS DOCUMENT IS THE ELECTRONIC FILE OF RECORD MAINTAINED BY THE OWNER. ANY OTHER VERSION OF THIS DOCUMENT IS UNOFFICIAL AND SHALL NOT BE USED FOR ANY PURPOSE. THE USE OF THIS UNOFFICIAL VERSION OF THIS DOCUMENT IS AT THE SOLE RISK OF THE USER AND THE OWNER AND THE DEVELOPER EXPRESSLY DISCLAIM ANY AND ALL RESPONSIBILITY AND LIABILITY FOR ANY USE OF THIS DOCUMENT. IF A PRINT/HARDCOPY OF THIS DOCUMENT IS MADE, THE PROPRIETARY RIGHTS AND LIMITATIONS NOTED HEREIN SHALL CONTINUE TO APPLY. ANY ALTERATION OF THIS DOCUMENT, INCLUDING REMOVAL OF THIS NOTICE, IS EXPRESSLY PROHIBITED. THE OWNER AND THE DEVELOPER RESERVE ALL RIGHTS, INCLUDING COPYRIGHT, IN THIS DOCUMENT. ANY ALTERATION OF THIS DOCUMENT IS UNAUTHORIZED AND IMPROPER AND MAY BE ILLEGAL. ANY USE OF THIS DOCUMENT IN VIOLATION OF THESE RESTRICTIONS IS PROHIBITED AND MAY BE ILLEGAL. ANY USE OF THIS DOCUMENT IN VIOLATION OF THESE RESTRICTIONS IS UNAUTHORIZED WITH APPROPRIATE PUBLIC USE.

Project No: 075831
Date: 02.27.08
File Name: 5831504

Drawn: GWK
Checked: JZP
Approved: DAC

PART "77" AIRSPACE DRAWING

Sheet: 5 **of:** 13



RUNWAY PROTECTION ZONE (RPZ) AS DIMENSIONED ON SHEET 2 OF AIRPORT LAYOUT PLAN.

APPROACH SURFACE AS DESCRIBED ON THE FAR PART 77 DRAWING OF THE AIRPORT LAYOUT PLAN.

STANDARD 1-MILE TRAFFIC PATTERNS.

AIRPORT PROPERTY LINE

TYPICAL TRAFFIC PATTERN DIRECTION AND FLIGHT TRACK AREA.

N
W E
S

0 2000 4000
SCALE IN FEET

LAND USE COMPATIBILITY GUIDELINES

Land Use Category	ZONE D Airport Influence (AIZ)	ZONE C Traffic Pattern (TPZ)	ZONE B Approach (AZ)	ZONE A Runway Protection (RPZ)
Residential				
single-family, nursing homes, mobile homes, multi-family, apartments, condominiums	+	o (3)	- (1,3)	- -
transient lodging, hotel, motel	+	o (3)	- (1,3)	- -
Public				
schools, libraries, hospitals	+	o (3)	- (3)	- -
churches, auditoriums, concert halls	+	o (3)	- (3)	- -
transportation, parking, cemeteries	++	++	++	- (2,5)
Commercial and Industrial				
offices, retail trade, service commercial, wholesale trade, warehousing, light industrial, general manufacturing, utilities, extractive industry	++	+	o (3)	- -
Agricultural and Recreational				
cropland	++	++	++	++
livestock breeding	++	++	++	- (2)
parks, playgrounds, zoos, golf courses, riding stables, water recreation	++	++	++	- (2)
outdoor spectator sports	++	+	- (3)	- -
amphitheaters	o	- (4)	- -	- -
open space	++	++	++	++

NOTE: DEVELOPMENT PROJECTS WHICH ARE WILDLIFE ATTRACTANT, INCLUDING SEWERAGE PONDS AND LANDFILLS, WITHIN 10,000 FEET OF THE AIRPORT ARE UNACCEPTABLE. (REF.: FAA AC 150/5200-33)
(1) If allowed, avigation easements and disclosure must be required as a condition of development.
(2) Any structures associated with uses allowed in the RPZ must be located outside the RPZ.
(3) If no reasonable alternative exists, use should be located as far from extended centerline as possible.
(4) If no reasonable alternative exists, use should be located as far from extended runway centerline and traffic patterns as possible.
(5) Transportation facilities in the RPZ (i.e. roads, railroads, waterways) must be configured to comply with Part 77 requirements.

CRITERIA

Land Use Availability	Interpretation/Comments
++ Clearly Acceptable	The activities associated with the specified land use will experience little or no impact due to airport operations. Disclosure of airport proximity should be required as a condition of development.
+ Normally Acceptable	The specified land use is acceptable in this zone or area. Impact may be perceived by some residents. Disclosure of airport proximity should be required as a condition of development. Dedication of avigation easements may also be advisable.
o Marginally Acceptable	An impact will be perceived as a result of allowing the specified use in this zone or area. Disclosure of airport proximity and avigation easements should be required as a condition of development.
- Normally Unacceptable	Specified use should be allowed only if no reasonable alternative exists. Disclosure of airport proximity and avigation easements must be required as a condition of development.
- - Clearly Unacceptable	Specified use must not be allowed. Potential safety or overflight nuisance impacts are likely in this area.

EXISTING ZONING ORDINANCES

Compatible land use and height restriction zoning is currently existing.

NOTICE OF PROPOSED CONSTRUCTION

An FAA Form 7460-1, "Notice of Proposed Construction or Alteration" must be submitted for any construction or alteration (including hangars and other on-airport and off-airport structures, towers, etc.) within 20,000 horizontal feet of the airport greater in height than an imaginary surface extending outward and upward from the runway at a slope of 100 to 1 or greater in height than 200 feet above ground level.

LEGEND

- CHURCH
- SCHOOL
- H HOSPITAL
- P PARK

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COLORADO CITY MUNICIPAL AIRPORT
COLORADO CITY, ARIZONA

AIRPORT LAYOUT PLANS

No.	Revision	Date	By

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Project No: 075831
Date: 02.27.08
File Name: 5831507

Drawn: GWK
Checked: JZP
Approved: DAC

OFF AIRPORT LAND USE

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