Appendix 16
Airport Master Plan

Table of Contents

1.0 Introduction 1-1

1.1 Study Goals 1-1

1.2 Local Information/History 1-1

1.3 Airport Location 1-3

1.4 Management and Ownership Structure 1-3

1.5 Airport History and Activity 1-4

1.6 Economic Impact 1-7

2.0 Inventory 2-1

2.1 Code of Federal Regulations Title 14, Part 139 2-2

2.2 Advisory Circular 150/5300-13A, *Airport Design* 2-3

2.3 Airfield Design Standards 2-6

2.4 Airfield/Airspace 2-7

2.5 Commercial Passenger Facilities 2-20

2.6 General Aviation (GA) Facilities 2-30

2.7 Airport Equipment 2-36

2.8 Support Facilities 2-37

2.9 Access, Circulation, and Parking 2-39

2.10 Utilities 2-42

2.11 Meteorological Data 2-43

2.12 Airport Property 2-48

2.13 Regional Setting and Land use 2-50

2.14 Environmental Overview 2-56

2.15 Airport User Surveys 2-83

3.0 Aviation Activity Forecasts 3-1

3.1 Data Sources 3-1

3.2 Demographic and Economic Factors 3-3

3.3 National Aviation Outlook 3-6

3.4 Forecasting Methodologies 3-7

3.5 Forecasting Aviation Activity Measures and Metrics 3-8

3.6 Review of Historical and Existing Forecasts 3-10

3.7 DRO Commercial Activity 3-13

3.8 Passenger Enplanement Forecast 3-15

3.9 Peaking Characteristics 3-25

3.10 Aircraft Operations Forecast 3-27

3.11 Projections of GA Based Aircraft & Based Aircraft Fleet Mix 3-29

3.12 Cargo 3-38

3.13 Critical Aircraft 3-38

3.14 Comparison to Existing FAA TAF 3-41

3.15 Factors That May Create Changes in the Forecast 3-42

3.16 Summary of Preferred Forecasts 3-42

4.0 Facility Requirements and Demand/Capacity Analysis 4-1

4.1 Regional Airport System Role 4-1

4.2 Airside Requirements 4-1

4.3 Landside Requirements 4-19

4.4 Terminal Requirements 4-20

4.5 General Aviation (GA) 4-42

4.6 Aviation Support Equipment & Facilities 4-48

5.0 Alternatives Analysis 5-1

5.1 Overview and Process 5-1

5.2 Evaluation Factors 5-2

5.3 Alternative Development – Alternatives Considered 5-6

5.4 Analysis of Terminal Alternatives 5-11

5.5 Selection of the Preferred Alternative 5-36

5.6 Secondary Development 5-40

5.7 Summary 5-40

6.0 Airport Plans 6-1

6.1 Cover Sheet 6-2

6.2 Airport Layout Plan (ALP) 6-2

6.3 Terminal Area Plans 6-4

6.4 Airspace Plan – Part 77 6-13

6.5 Inner Approach Plans and Profiles 6-19

6.6 Departure Plans and Profiles 6-19

6.7 Land Use 6-25

6.8 Exhibit A Property Map 6-25

7.0 Capital Improvement Program & Financial Implementation 7-1

7.1 Capital Improvement Program (CIP) 7-1

7.2 Phase I – 2015 through 2020 7-2

7.3 Phase II – 2021 through 2025 7-6

7.4 Phase III – 2026 through 2035 7-8

7.5 Capital Improvement Program 7-12

7.6 Financial Implementation Analysis 7-12

7.7 Financial Analysis Schedules 7-24

Appendices

Appendix A. Glossary ..... A

Appendix B. Instrument Approach Charts & Departure Procedures ..... B

Appendix C. Biological Resource Review C

Appendix D. Phase I: Environmental Site Assessment ..... D

Appendix E. Noise Analysis ..... E

Appendix F. Wetlands Report ..... F

Appendix G. User Surveys ..... G

Appendix H. FAA Traffic Flow Management System Counts ..... H

Appendix I. FAA Terminal Area Forecast I

Appendix J. Traffic Analysis Report ..... J

Appendix K. Water and Wastewater Master Plan ..... K

Appendix L. Airport Recycling, Reuse, and Waste Reduction Plan L

Appendix M. Alternative Evaluation Matrix ..... M

Appendix N. Open House Comments and Responses ..... N

1.0 INTRODUCTION

The purpose of this study is to update the Durango-La Plata County Airport (DRO or Airport) Master Plan, Airport Layout Plan (ALP), and to determine the extent, type, and schedule of development needed to not only maintain current service levels but to grow the Airport in a healthy and feasible way. The Airport has experienced a significant increase in passenger enplanements since the last official Master Plan was completed in 2005. This study will serve to update both the Master Plan and the ALP.

1.1 STUDY GOALS

The overall goal is to develop a plan that prepares DRO to serve as the preferred gateway and economic catalyst for the Four Corners region. In order to accomplish this goal, the following main objectives have been identified:

- Determine the current condition of existing facilities and their efficiencies.
- Provide a planning document for the next 20 years that is technically accurate, realistically executable, and financially feasible and achieves financial and environmental sustainability.
- Prepare forecasts of aviation activity to include commercial passenger enplanements and aircraft operations.
- Prepare a financial plan that considers the operating budget, revenue, expenses, and potential FAA grant funding.
- Incorporate public involvement throughout the process to ensure that the future of the Airport aligns with the values and vision of the community.

1.2 LOCAL INFORMATION/HISTORY

La Plata County lies in the southwest corner of Colorado, in the Four Corners region. This region includes the southwestern corner of Colorado, the northwestern corner of New Mexico, the northeastern corner of Arizona, and the southeastern corner of Utah (see **Figure 1-1**). The county, named for the La Plata River and the La Plata Mountains, has a land area of approximately 1,700 square miles. "La Plata" is the Spanish word for silver, the basis for settlement in the area in the late 1800s, with the County founded in 1894.

FIGURE 1-1 – LOCATION MAP

Note: Not to scale
Source: Jviation

La Plata County's population was 43,941 in 2000, and grew to 51,334 by 2010, a 16.8-percent increase. The estimated population for 2012 was 52,419, representing a 2.1-percent increase over the two-year period.[1]

Durango is the county seat of La Plata County. The city, founded in 1880 by the Denver and Rio Grande Railroad to serve the San Juan mining district[2], was named after Durango, Mexico. It is perched at 6,512 feet above sea level, making it one of the most beautiful areas in the Four Corners region. The city is best known for the Historic Durango & Silverton Narrow Gauge Railroad, being the home of Fort Lewis College, and for its proximity to Mesa Verde National Park. It is a popular year-round tourist destination as well as a growing business, government, and education center.[3]

---

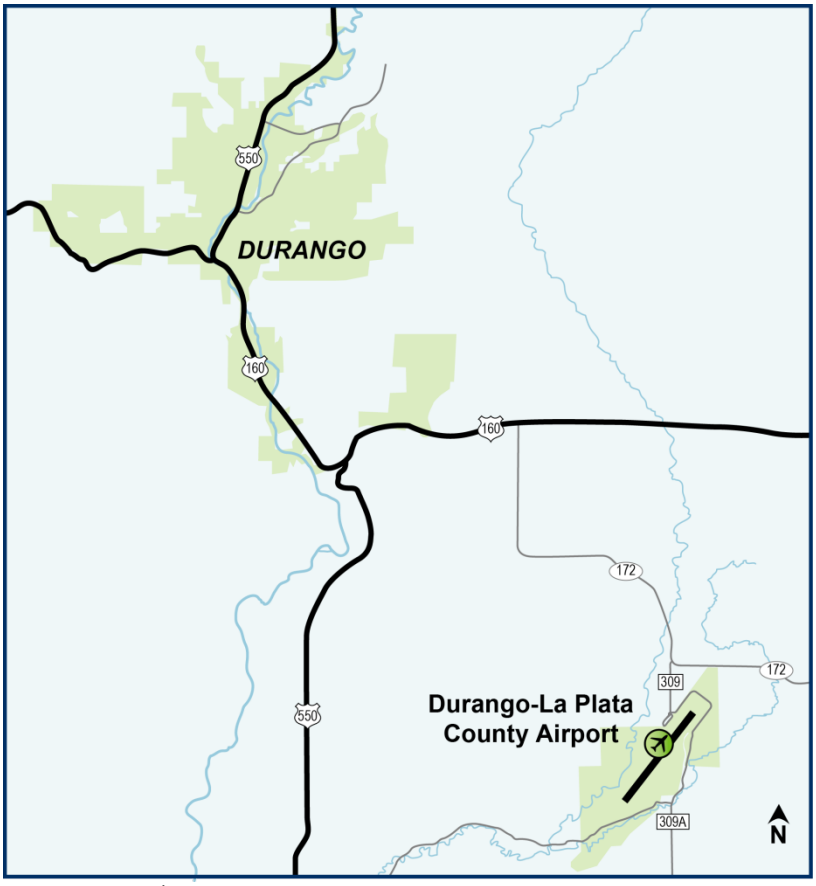
[1] U.S. Census QuickFacts, http://quickfacts.census.gov, accessed June 2014
[2] City of Durango Colorado, www.durangogov.org, accessed June 2014
[3] Ibid.

Durango's 2010 population was 16,887, growing 15 percent from its 2000 population of 14,687. The estimated population for 2012 was 17,216, representing a 1.9-percent increase over the two-year period, similar to the county's growth rate for the same period.

1.3 Airport Location

The Durango-La Plata County Airport is located approximately 14 miles southeast of the Central Business District (CBD) of Durango. The Airport sits at an elevation of 6,689 feet above mean sea level (MSL). State Highway 172 to 309 (Airport Road) provides access to DRO. **Figure 1-2** illustrates DRO's location relative to Durango.

FIGURE 1-2 – VICINITY MAP



Note: Not to scale
Source: Jviation

1.4 Management and Ownership Structure

The Airport is co-owned by the City of Durango and La Plata County. Through an intergovernmental agreement (IGA), the Airport functions as a city department with direct oversight by the City of Durango. Pursuant to the IGA, the Airport Commission (Commission) serves in an advisory capacity with its

members appointed by the city and county. The seven board members serve a three-year term and regularly meet the third Thursday of every month in the airport conference room. The purpose of the Commission is to advise the Director of Aviation on operations, budgets, and policy issues. The City and County jointly own and maintain the airport facilities, and function as the airport sponsor for Federal Aviation Administration (FAA) grant funding purposes. The Director of Aviation oversees the day-to-day operations and development of DRO. Airport staff is responsible for terminal operations, airfield operations, aircraft rescue and fire fighting, and administration. However, the City and County have ultimate responsibility for all airport policy considerations, FAA grant assurances, as well as compliance with federal, state, and local regulations.

1.5 Airport History and Activity

Approximately 257 acres of land on the Southern Ute Reservation was purchased for the Durango-La Plata County Airport in 1947. Additional land was not purchased until 1959 with dollars from the Federal-Aid Airport Program (FAAP). The Airport continued to expand over time with both sponsor- and FAA-funded land purchases.

The passenger terminal was constructed in 1987 and opened in February 1988. However, DRO has benefitted from air service since 1978, from a number of carriers serving non-stop destinations. **Table 1-1** details the Airport's air service history (current as of July 2014).

Durango is a destination for many aircraft throughout the United States. The destinations for instrument flight rules (IFR) flight plans[4] filed from Durango over the course of one year are depicted in **Figure 1-3** (each route shown represents a destination, not the number of flight plans filed with FAA). This broad reach is a significant asset for the viability and economic health of the city and county as well as neighboring towns in the Four Corners region.

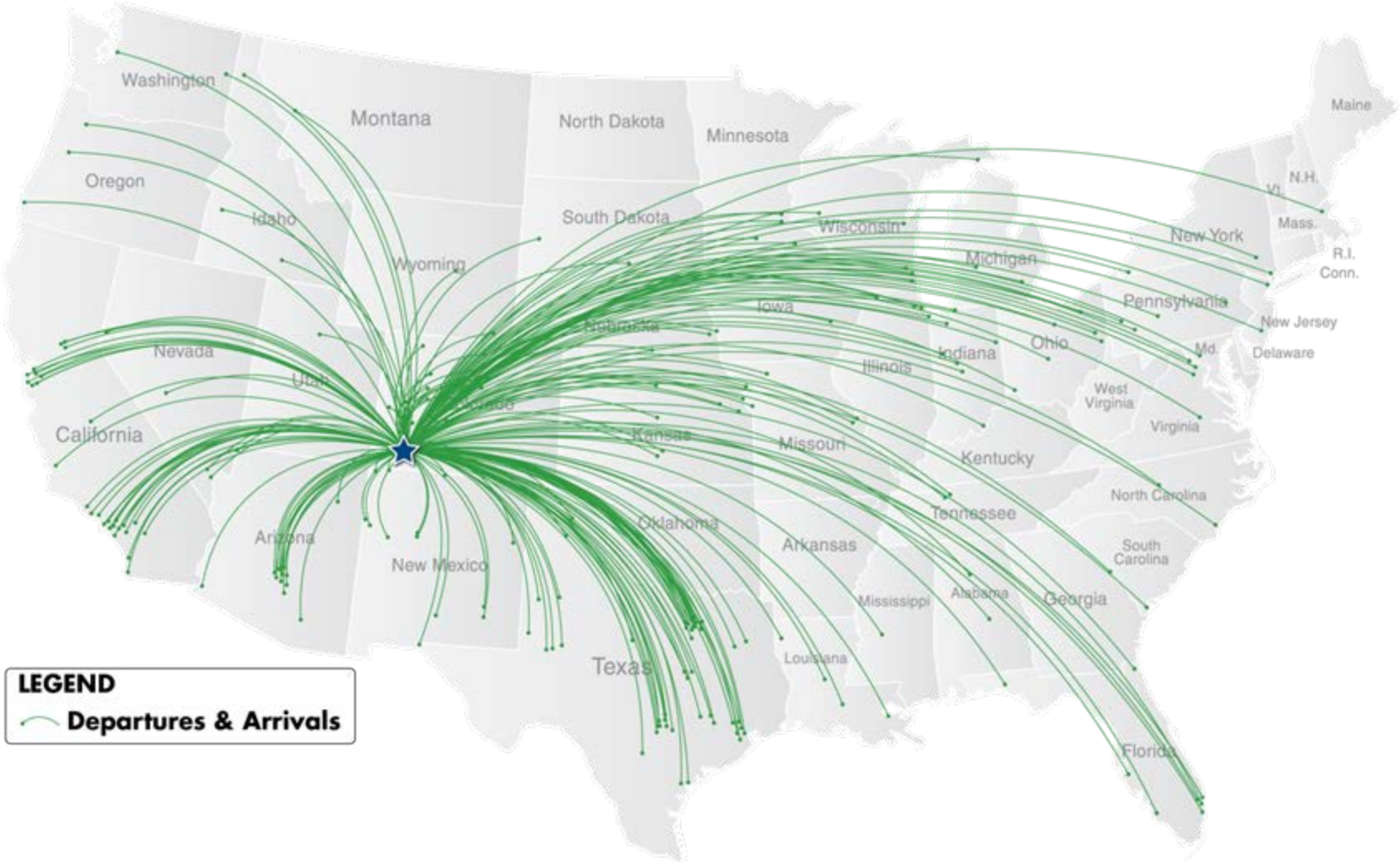
[4] During certain meteorological conditions, the FAA requires pilots to file a flight plan and follow instrument flight rules, which require pilots to comply with more restrictive weather requirements and certain air traffic control procedures. IFR flight plans are required for air carrier operations and typically filed by the business segment of general aviation (GA) that uses turboprop and business jet aircraft (rather than the pleasure fliers).

TABLE 1-1 – AIR SERVICE HISTORY

Between DRO and:	Carrier	Service Period	
		From	To
Albuquerque	Mesa Air Group	May 1997	May 2010
	Rio Grande Air	October 2002	December 2002
	Reno Air	December 1996	March 1997
	Aspen Airways	December 1989	March 1990
	America West Airlines	October 1984	October 1985
Colorado Springs	United Express	July 1989	August 2002
	Frontier Airlines	May 1979	September 1983
Dallas/Ft. Worth	American/American Eagle	December 1994	September 2002
	Frontier Airlines	December 1983	April 1985
	American/American Eagle	June 2011	Current
Denver	Frontier Airlines	April 2008	Current
	United Express	July 1995	Current
	Aspen Airways	January 1985	April 1990
	Frontier Airlines	January 1978	September 1984
Farmington	Mesa Air Group	July 1995	January 2005
	Aspen Airways	January 1985	February 1990
	Frontier Airlines	January 1978	September 1984
Grand Junction	Air 21	June 1996	October 1996
	America West Airlines	March 1985	July 1991
	Frontier Airlines	January 1978	September 1984
Houston	Continental / ExpressJet	December 2001	March 2003
Phoenix	US Airways Express / America West	June 1984	Current
Salt Lake City	Delta Connection/Sky West	July 2006	September 2008

Source: Durango-La Plata County Airport Terminal Area Master Plan, February 2012

FIGURE 1-3 – IFR FLIGHT PLANS (SEPTEMBER 2012 - SEPTEMBER 2013)



Note: Not to scale
Source: Jviation

1.6 ECONOMIC IMPACT

The Colorado Department of Transportation (CDOT) Division of Aeronautics completed an Economic Impact Study (Study) in 2013 to determine how Colorado commercial and general aviation (GA) airports support the state and local economies. Estimated impacts were developed for jobs supported, annual payroll, and total annual economic output.

The jobs supported element is defined by those jobs that the operation and development of airports support through off-airport visitor spending and by off-airport companies that rely on air cargo services to ship their goods. Annual payroll is defined as that which is associated with aviation supported jobs. Total annual economic activity is comparable to the spending required to purchase goods and services to support operations for all activities considered. **Table 1-2** depicts the top ten airports, a mix of commercial and GA, with highest total economic output. As shown, DRO ranked ninth out of the 86 airports reviewed.

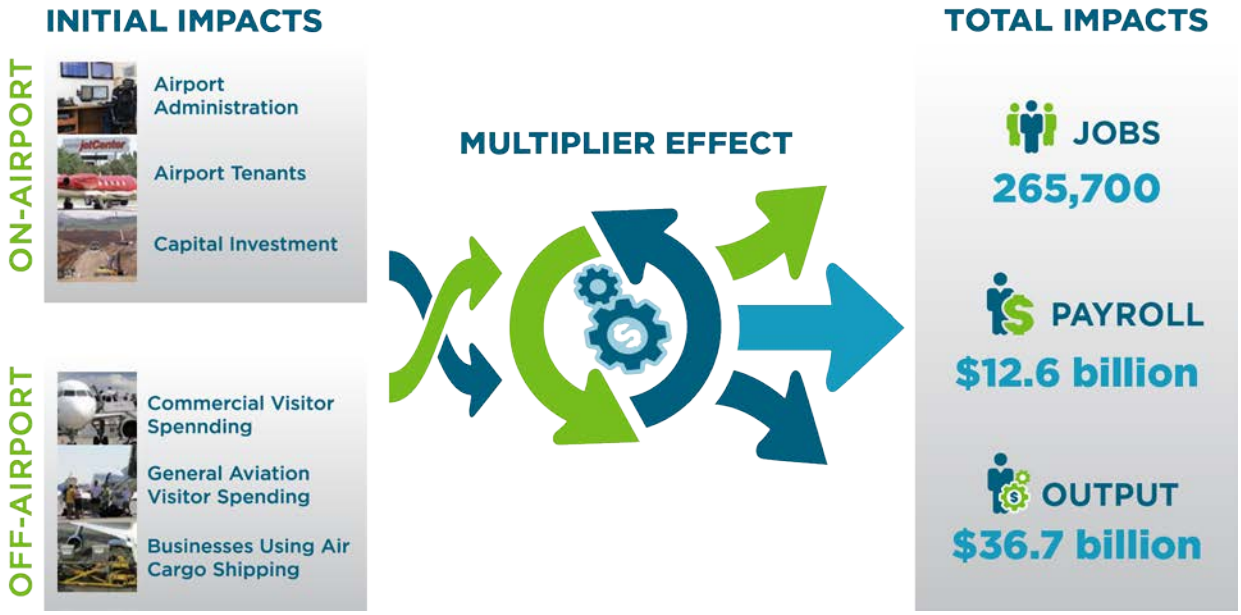
TABLE 1-2 – TOP TEN COLORADO AIRPORTS BY ECONOMIC OUTPUT

Airport	City	Service Category	Total Employment	Total Payroll	Total Output
DEN	Denver	Commercial	188,338	$8,624,024,963	$26,279,909,001
COS	Colorado Springs	Commercial	27,721	$1,753,550,417	$3,692,057,477
APA	Centennial	General Aviation	6,792	$404,921,753	$1,322,113,315
ASE	Aspen	Commercial	8,310	$283,004,101	$841,142,866
EGE	Eagle	Commercial	6,294	$217,511,273	$635,901,268
BJC	Broomfield	General Aviation	2,670	$153,902,452	$460,506,178
GJT	Grand Junction	Commercial	2,871	$130,775,972	$380,039,796
HDN	Hayden	Commercial	3,034	$104,934,790	$299,330,000
DRO	*Durango*	*Commercial*	*2,646*	*$94,483,704*	*$282,256,287*
GUC	Gunnison	Commercial	938	$34,743,998	$98,532,461

Source: CDOT, Division of Aeronautics, Economic Impact Study, 2013

Methodology for the study included all 86 airports providing assistance with data collection. Airport operators provided information for economic activities related to airport operations, tenants, capital investments, and visitor estimates. Initial economic impacts enter the economy and re-circulate, generating successive rounds of spending, employment, payroll, and output in other economy sectors. The impacts generated through recirculation are classified in this study as "multiplier" effects, illustrated in **Figure 1-4**. The Study used six regions to establish appropriate multipliers for each airport. State-level multipliers were used to calculate total statewide aviation-related economic impacts. As a higher percentage of all initial economic impacts are retained within the state's economy, statewide economic impacts are greater than the sum of the individiual airport impacts.

FIGURE 1-4 – MULTIPLIER EFFECTS



Sources: CDOT, Division of Aeronautics, Economic Impact Study, 2013 and Jviation, Inc.

Table 1-3 shows the initial impacts, impacts after a multiplier was applied, and total impacts of employment, payroll, and output for DRO.

TABLE 1-3 – STATE OF COLORADO: ON- AND OFF-AIRPORT IMPACTS ON TOTAL EMPLOYMENT, PAYROLL, AND WAGES

Impact Category	Employment			Payroll			Output		
	Initial	Multiplier	Total	Initial	Multiplier	Total	Initial	Multiplier	Total
Airport Administration, Tenants, & Capital Investment	218	192	410	$16,871,000	$7,723,000	$24,594,000	$49,428,000	$24,633,000	$74,060,000
Commercial Airline Visitor Spending	1,518	537	2,055	$44,447,000	$19,843,000	$64,290,000	$127,769,000	$63,890,000	$191,659,000
General Aviation Visitor Spending	134	47	181	$3,869,000	$1,731,000	$5,600,000	$10,968,000	$5,569,000	$16,537,000

Source: CDOT, Division of Aeronautics, Economic Impact Study, 2013

2.0 INVENTORY

This chapter documents the type and general condition of the existing facilities at the Durango-La Plata County Airport (DRO or Airport) as of July 2014. It is meant to capture a snapshot in time and it is possible that some items referenced here may change by the completion of the Master Plan. The inventory is a complete compilation of all facilities and systems of the Airport, including airfield, terminal area, navigational aids (NAVAIDs), ground access, parking, pavement conditions, utilities, and other characteristics.

Table 2-1 and **Table 2-2** summarize DRO's major landside and airside components. Key items will be discussed in greater detail throughout this chapter.

TABLE 2-1 – AIRFIELD PAVEMENT INVENTORY

Item	Description
Runway 3/21	– 9,201 feet by 150 feet – 25-foot Paved Shoulders – Consists of Dense Graded Grooved Asphalt – Published Strength: 95,000-lb Single Wheel Gear (SWG), 150,000-lb Dual Wheel Gear (DWG), 210,000-lb Dual Tandem Wheel Gear (DTG)
Taxiways	– Parallel Taxiway A – Connector Taxiways A1 through A9 and C
Aprons	– Commercial: 25,168 square yards – General Aviation (GA) / Fixed Base Operator (FBO): 53,724 square yards – North GA: 25,263 square yards – U.S. Forest Service: 21,780 square yards

Source: Jviation

TABLE 2-2 – AIRPORT FACILITIES INVENTORY

Item	Description
Navigational Aids (NAVAIDs)	– Instrument Landing System (ILS) - Runway 3 – VHF Omnidirectional Range (VOR)/Distance Measuring Equipment (DME) – Area Navigation (RNAV)
Visual Aids	– High Intensity Runway Lights (HIRL) – Precision Markings (3 and 21) – Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR) – Runway 3 – Precision Approach Path Indicators (PAPI) – Runway 3 – Visual Approach Slope Indicators (VASI) – Runway 21 – Runway End Identifier Lights (REIL) – Runway 21 – Airport Rotating Beacon – Runway & Taxiway Edge Lights – Runway Distance Remaining Signs (RDR) – Runway & Taxiway Guidance Signs – Segmented Circle / Wind Cone (lighted)
Fixed-Based Operator (FBO) (AvFlight) Hangars	– Hangars (3) – 32,400 square feet – Apron – 53,724 square yards (includes south GA apron)
Terminal Building	– 41,500 square feet (includes temporary departure lounge)
Parking	– Employee – 60 spaces – Credit Card Lot - 267 Spaces – Main Lot – 385 Spaces – Rental Car – 219 Spaces – Overflow Lots -- 342

Source: Jviation

2.1 Code of Federal Regulations Title 14, Part 139

CFR Title 14, Part 139, *Certification of Airports* (Part 139) requires the FAA to issue airport operating certificates to airports serving certain commercial passenger operations to ensure safety in air transportation. Part 139 sets forth regulations for the certification and operation of land airports that serve any *scheduled* passenger operations conducted in aircraft with more than nine passenger seats or *unscheduled* passenger operations conducted in aircraft with more than 30 seats. To obtain a certificate, an airport operator must agree to comply with certain operational and safety standard requirements. These requirements vary depending on whether the airport serves scheduled and/or unscheduled passenger operations and the size of aircraft used for these operations. As DRO serves both scheduled and unscheduled operations, it must comply with all Part 139 requirements as listed in Table 2-3.

TABLE 2-3 – PART 139 CONTENTS

Subpart D – Operations	
139.301	Records
139.303	Personnel
139.305	Paved areas
139.307	Unpaved areas
139.309	Safety areas
139.311	Marking, signs, and lighting
139.313	Snow and ice control
139.315	Aircraft rescue and fire fighting: Index determination
139.317	Aircraft rescue and fire fighting: Equipment and agents
139.319	Aircraft rescue and fire fighting: Operational requirements
139.321	Handling and storing of hazardous substances and materials
139.323	Traffic and wind direction indicators
139.325	Airport emergency plan
139.327	Self-inspection program
139.329	Pedestrian and Ground vehicles
139.331	Obstructions
139.333	Protection of NAVAIDs
139.335	Public protection
139.337	Wildlife hazard management
139.339	Airport condition reporting
139.341	Identifying, marking, and reporting construction and other unserviceable areas
139.343	Non-complying conditions

Source: 14 CFR Part 139

2.2 ADVISORY CIRCULAR 150/5300-13A, *AIRPORT DESIGN*[1]

In October 2012, the FAA released the first comprehensive update of Advisory Circular (AC) 150/5300-13A, *Airport Design* since 1989, replacing the previous *Airport Design* AC in its entirety. This new airport design guidance is used to assess DRO's facilities in **Chapter 4**, **Facility Requirements**.

The most significant changes from the previous *Airport Design* AC include the new standards and technical requirements of the Runway Design Code (RDC) and Taxiway Design Group (TDG). The AC still uses a design aircraft[2]; however, in most cases the design aircraft is a composite aircraft representing a collection of aircraft classified by three parameters: Aircraft Approach Category (AAC), Airplane Design Group (ADG), and TDG. The FAA notes that the critical design aircraft must generate a minimum of 500 operations (takeoffs and landings) per year in order to be classified as the critical aircraft. Occasional operations by

[1] FAA Advisory Circular 150/5300-13A, *Airport Design*

[2] The design aircraft is the aircraft type that is the most demanding on airport facilities that regularly uses the airport (at least 500 annual operations). Based on wing span and approach speeds, the design aircraft determines what design standards must be used, including pavement widths, lengths, and strengths, and separation distances between runways and taxiways.

larger aircraft occur at DRO, including D-IV charter and military aircraft, but they do not meet the threshold of activity identified by FAA.

The AAC and ADG are combined to form the RDC. The TDG relates to the undercarriage dimension of the aircraft. Taxiway width and fillet standards, and in some instances runway to taxiway and taxiway/taxilane separation standards, are still determined by the ADG. AC 150/5300-13A requires selection of the RDC(s), then the most demanding meteorological conditions for desired/planned levels of service for each runway, and then applying the airport design criteria associated with the RDC and designated or planned approach visibility minimums. The associated taxiways are then designed accordingly for the designated TDG.

2.2.1 Runway Design Code

The FAA classifies airport runway facilities with a coding system known as the RDC. This classification helps apply design criteria appropriate to operational and physical characteristics of various aircraft types operating at an airport. As mentioned previously, the RDC of a runway is made up of three components: the AAC, the ADG, and approach visibility minimums.

The AAC is an *alphabetical* classification of an aircraft based upon 1.3 times the stall speed in a landing configuration at its maximum certified landing weight. The approach category for an airport is determined by the approach speed of the fastest aircraft that has at least 500 operations annually, with Category A having the slowest approach speed and Category E the fastest. The categories are:

Category A: Approach speed is less than 91 knots

Category B: Approach speed is 91 knots or more but less than 121 knots

Category C: Approach speed is 121 knots or more but less than 141 knots

Category D: Approach speed is 141 knots or more but less than 166 knots

Category E: Approach speed is 166 knots or more

The ADG is a *numerical* classification of aircraft based on wingspan or tail height. If an airplane's wingspan and tail height are in two categories, the most demanding category is used. Similar to the approach category, the ADG for an airport is determined by the largest aircraft operating at least 500 times per year at the facility. Also, for airports with multiple runways, the published RDC is based on the most demanding aircraft for each runway specifically. ADG details are identified in **Table 2-4.** Examples of RDC aircraft types are shown in **Figure 2-1**.

TABLE 2-4 – AIRPLANE DESIGN GROUP (ADG)

Group	Tail Height (feet)	Wingspan (feet)
I	<20	<49
II	20 ≤ 30	49 ≤ 79
III	30 ≤ 45	79 ≤ 118
IV	45 ≤ 60	118 ≤ 171
V	60 ≤ 66	171 ≤ 214
VI	66 ≤ 80	214 ≤ 262

Source: FAA AC 150/5300-13A

FIGURE 2-1 – RDC AIRCRAFT TYPES
AIRPORT REFERENCE CODE (ARC)

Source: Jviation

The RDC of a runway determines the runway width, shoulder width, runway separation distances from other runways and taxiways, runway safety area (RSA) dimensions, object free area (OFA), obstacle free zone (OFZ), and the width and length of the runway protection zone (RPZ).

2.2.2 Taxiway Design Group

Previously, taxiway design was determined solely on the ADG of a runway complex. An ADG is based exclusively on the wingspan and tail height of the design aircraft, not the dimension of the aircraft undercarriage. With the release of AC 150/5300-13A, taxiway design standards are now based on the TDG and the ADG of a taxiway complex. The TDG of a taxiway complex is determined by the undercarriage dimensions, overall Main Gear Width (MGW), and the Cockpit to Main Gear (CMG) distance of the most demanding aircraft. Taxiway/taxilane width, shoulder width, and fillet standards, *and in some instances*, runway to taxiway and taxiway/taxilane separation requirements, are governed by the TDG. TDG improves the design of taxiways fillets and radii, enabling safe and efficient taxiing by airplanes while minimizing excess pavement.

The ADG of a taxiway complex determines the taxiway separations from other taxiways/taxilanes, the taxiway safety area, the taxiway/taxilane object free area, and wingtip clearances.

DRO meets ADG 5 for taxiway widths but not all fillets currently meet TDG 5 criteria; see **Section 2.4.2** for further detail.

2.3 Airfield Design Standards

The standards established by the FAA are the primary consideration for runway and taxiway design. These standards are based upon the critical aircraft. Runway dimensional design standards define the widths and clearances required to optimize safe operations in the landing and takeoff area. These dimensional standards vary depending upon the RDC for the runway and the type of approach. The most demanding or critical aircraft currently using DRO are C-III.

In accordance with previous FAA airport design standards, DRO was designated with an Airport Reference Code (ARC) of D-IV and currently meets D-IV design standards. Under new design standards, DRO has an RDC of C-III due to the fact that the most demanding aircraft are C-III, as noted previously. The current runway design standards for DRO, as well as C-III design standards, are shown in **Table 2-5**.

TABLE 2-5 – RDC C-III (RW 3/21) FAA RUNWAY DESIGN STANDARDS

Standard	Current Conditions (D-IV)	C-III Design Standards
Runway Width	150′	150′
Runway Shoulder Width	25′	N/A
Runway Safety Area (RSA) Width	500′	500′
RSA Beyond Runway End	1,000′	1,000′
Runway Object Free Area (ROFA) Width	800′	800′
ROFA Beyond Runway End	1,000′	1,000′
Runway Centerline to Parallel Taxiway Centerline	400′	400′
Runway Centerline to Aircraft Parking	500′	500′
Runway Holding Position Markings	317′/a/	250′

Note: /a/C-III and D-IV standard is 250′, however, per FAA AC 150/5300-13A, *Airport Design*, the distance is increased by one foot for each 100 feet above sea level for categories C/D/E-III through VI.
Source: FAA AC 150/5300-13A

2.4 AIRFIELD/AIRSPACE

2.4.1 Runways

DRO's airfield configuration consists of one active runway, designated as Runway 3/21, as depicted on **Figure 2-2**. Runway 3/21 is positioned northeast/southwest, and is 9,201 feet long by 150 feet wide with 25-foot-wide paved shoulders on each side of the runway.

Runway 3/21 is constructed to support a weight-bearing capacity of no greater than 95,000 pounds for Single-Wheel Gear (SWG) equipped aircraft; 150,000 pounds for Dual-Wheel (DWG) equipped aircraft; and 210,000 pounds for Dual Tandem-Wheel Gear (DTWG) equipped aircraft. The runway is constructed with grooved graded asphalt.

The current Airport Reference Point (ARP) is located at Latitude 37°09'05.47"N and Longitude 107°45'13.57"W. The ARP is the latitude and longitude of the approximate center of the runway. The established airport elevation, defined as the highest point along an airport's runway(s), is 6,689' above Mean Sea Level (MSL), and is located at the end of Runway 21.[3]

Aircraft compasses and runway identifiers utilize magnetic north for directional guidance. For this reason, it is important to evaluate an airport's runway numerals every few years to ensure that the numbers painted on the runway truly represent the magnetic heading of the runway. The magnetic forces across the planet are constantly shifting, and therefore a declination must be applied to a compass to arrive at a true north

[3] Geospatial information compiled by Woolpert, Inc. in May 2015.

heading. Although the true bearing of the runway will not change over time, the magnetic bearing will change as the location of magnetic north shifts.

According to the National Geophysical Data Center, as of June 10, 2014, the current declination for DRO is 9˚35'7" east and is changing by 7.3' west annually. The current true bearing for Runway 3 is 37˚22'22.0" and for Runway 21 it is 217˚23'3.7". Applying the declination of 9˚35'7" verifies that the current runway designations are correct in accordance with the FAA. The magnetic heading for the runway should be revaluated every year.

Runway pavement condition and strength are discussed in **Section 2.4.4**.

2.4.2 Taxiways

The taxiway system at DRO is constructed of asphalt and consists of one full-length parallel taxiway (Taxiway A) on the west side of Runway 3/21 and 10 connector taxiways (A1-A9 and C). Refer to **Table 2-6** and **Figure 2-2** for an overview of the existing taxiways and for the taxiway layout. Taxiway A and connectors A1 through A9 are 75 feet or greater in width, thus accommodating TDG 5; however, not all fillets currently meet TDG 5 criteria. **Chapter 4**, **Facility Requirements**, evaluates compliance with the *Airport Design* AC.

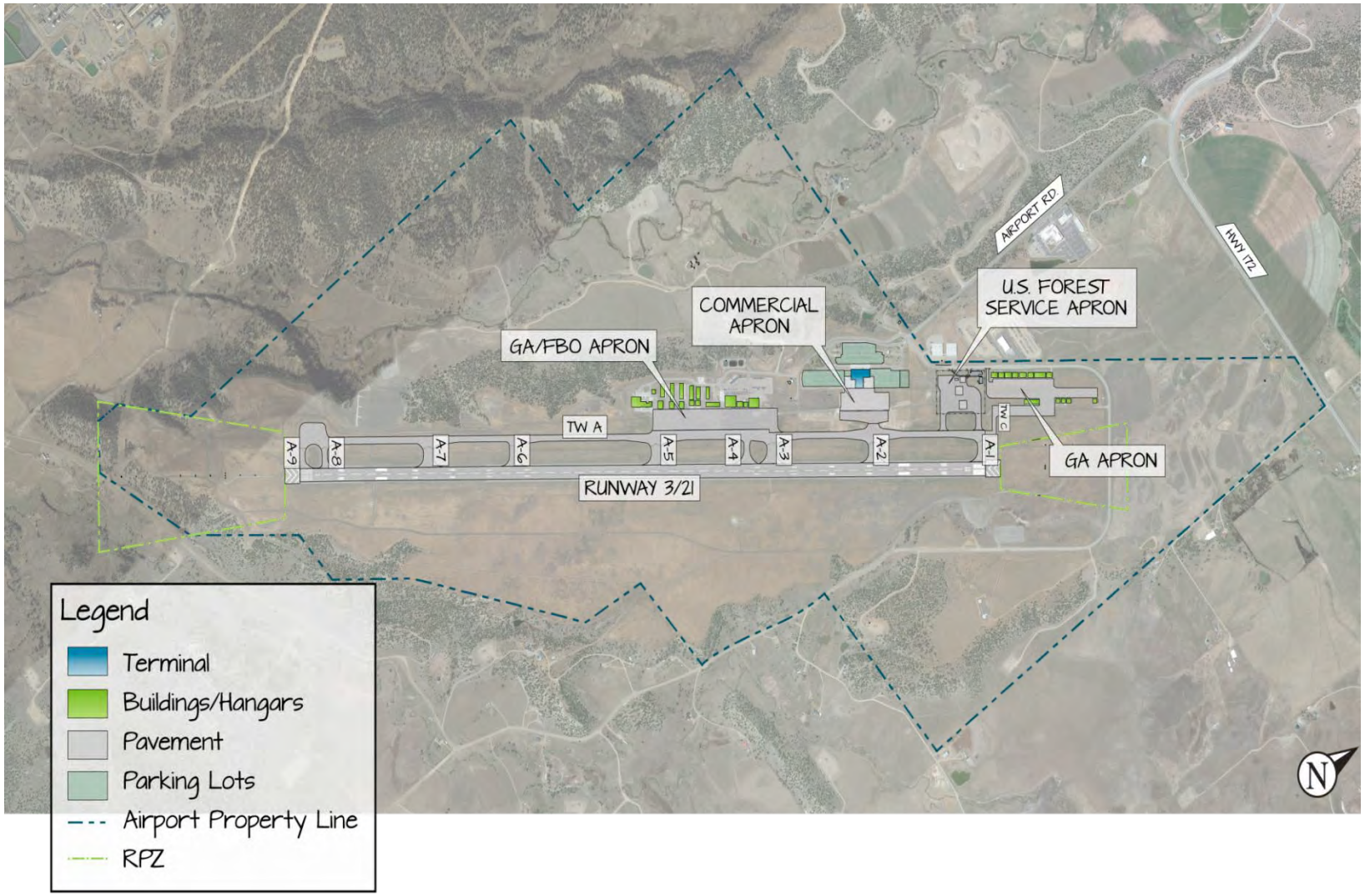
Taxiway pavement condition and strength are discussed in **Section 2.4.4**.

TABLE 2-6 – TAXIWAY SYSTEM

Taxiway	Description	Width (feet)
A	Full length parallel taxiway on the west side of Runway 3/21	75
A1	Taxiway connector from parallel Taxiway A to the threshold of Runway 21	102.5
A2	Taxiway connector from parallel Taxiway A to both Runway 21 and the commercial apron	130
A3	Taxiway connector from parallel Taxiway A to both Runway 3/21 and the FBO apron	130
A4	Taxiway connector from parallel Taxiway A to both Runway 3/21 and the FBO apron	100
A5	Taxiway connector from parallel Taxiway A to the GA apron and the midpoint of Runway 3/21	130
A6	Taxiway connector from parallel Taxiway A to Runway 3/21	100
A7	Taxiway connector from parallel Taxiway A to Runway 3/21	130
A8	Taxiway connector from parallel Taxiway A to the threshold of Runway 21	130
A9	Taxiway connector from parallel Taxiway A to the Runway 3 end	102.5
C	Taxiway connector from parallel Taxiway A to the GA hangar area	40

Source: Jviation

FIGURE 2-2 – AIRFIELD LAYOUT



Note: Not to scale
Source: Jviation

2.4.3 Aprons

There are several aprons serving different needs at DRO, as depicted on **Figure 2-2**. All aprons are located west of the runway. The total apron area is approximately 100,672 square yards and is a mix of concrete and asphalt, as detailed in **Table 2-7**.

TABLE 2-7 – APRON TYPE, SIZE, AND MATERIAL

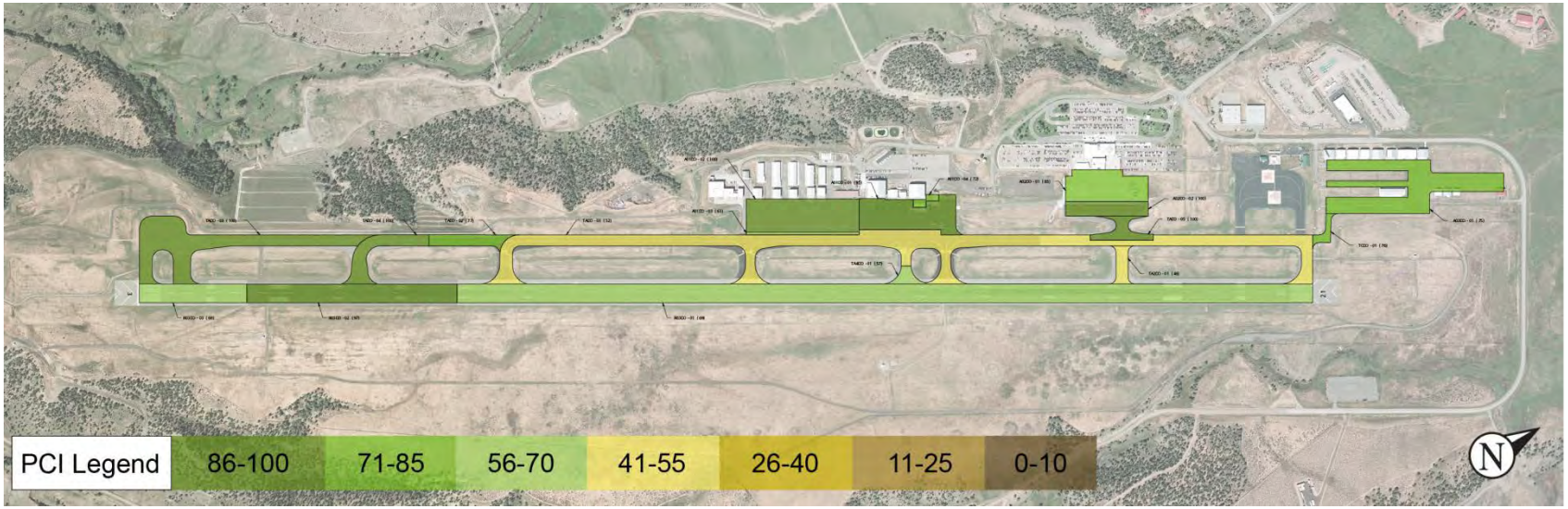
Apron	Size (square yards)	Material
Commercial	25,168	Concrete & Asphalt
GA / FBO	88,987	Asphalt
U.S. Forest Service	21,780	Asphalt with concrete hardstands

Source: Jviation

2.4.4 Pavement Condition and Strength

The FAA recommends in AC 150/5380-6b, *Guidelines and Procedures for Maintenance of Airport Pavements,* that a detailed pavement inspection be conducted that follows the American Society for Testing and Materials (ASTM) D 5340, *Standard Test Method for Airport Pavement Condition Index Surveys*. This method employs a visual rating system for pavement distress known as the Pavement Condition Index (PCI). The PCI scale ranges from a value of zero (representing a pavement in a failed condition) to a value of 100 (representing a pavement in excellent condition). The last major PCI study performed by the CDOT Division of Aeronautics for DRO was completed in 2012. Runway 3/21 was rehabilitated in 2003, and a portion below Taxiway A7 was rehabilitated in 2009. Overall, the surfaces at DRO range from a PCI of 46 to 100 as shown on **Figure 2-3**. **Figure 2-4** depicts the existing pavement strengths at DRO.

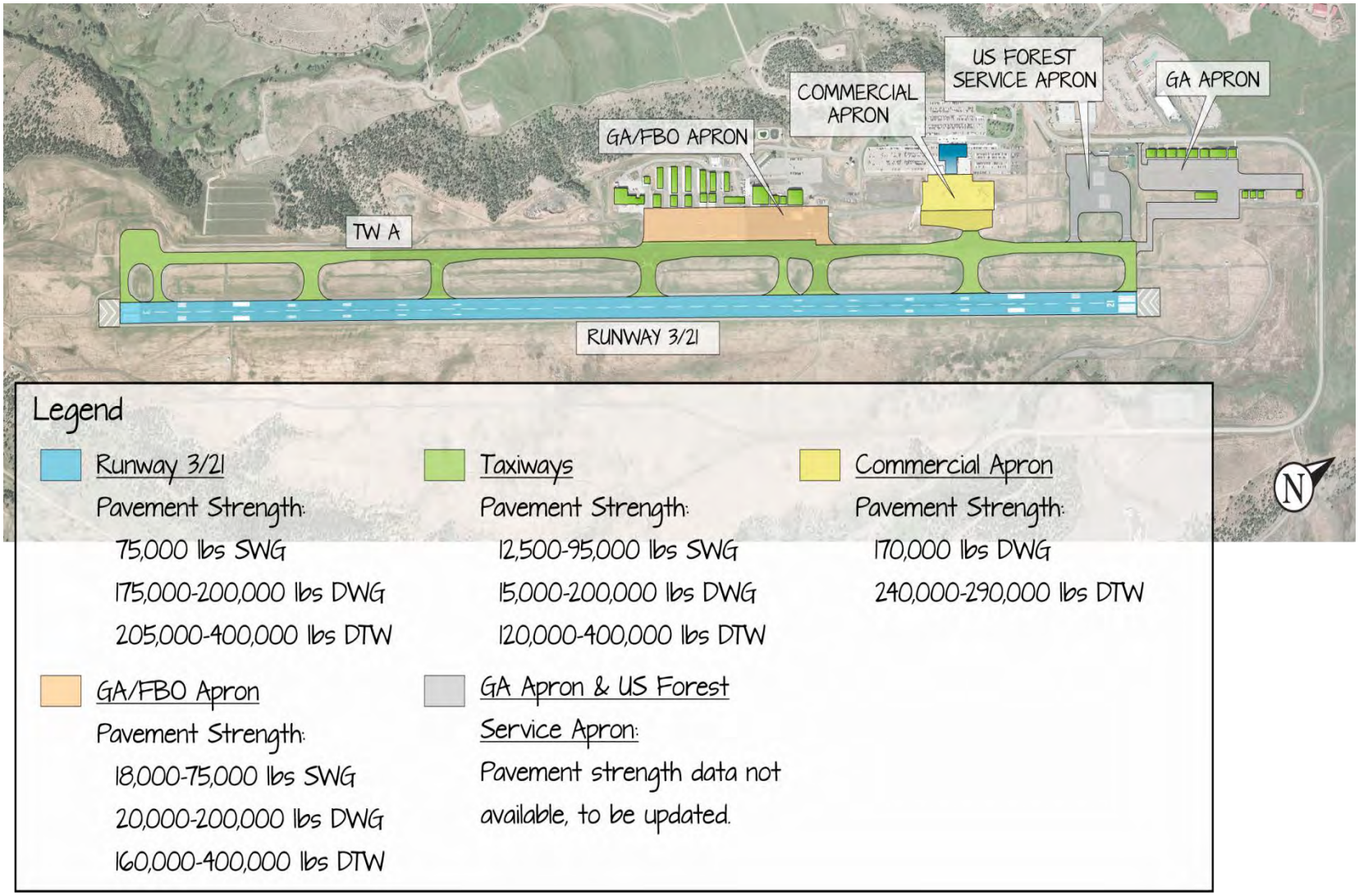
FIGURE 2-3 – EXISTING PAVEMENT CONDITION



Note: Not to scale

Source: CDOT 2013 System Update, Pavement Evaluations and Management

FIGURE 2-4 – EXISTING PAVEMENT STRENGTHS



Note: Not to scale
Source: Jviation

2.4.5 Lighting, Markings, and Signage of Runways, Taxiways, and Aprons

DRO's airfield lighting meets FAA standards for lighting of precision approaches. However, the runway pavement markings—centerline, edge stripes, aiming points, threshold, and touchdown zone markings—do not all meet current FAA specifications found in AC 150/5340-1L, *Standards for Airport Markings*, and are in poor condition. The threshold markings, touchdown zone markings, and aiming point markings are one foot too close to the Runway 21 threshold. Also, there are 200-foot-long runway blast pads at each runway end that are painted with chevrons every 100 feet. Since the blast pad is less than 250 feet long, these chevrons should be painted every 50 feet. Runway 3/21 is equipped with a high-intensity runway lighting (HIRL) system. The HIRLs were installed in 1987 and have been maintained since that time. The HIRL system is operational and in fair condition. The runway has runway distance remaining (RDR) signage that was installed in 2002 and is in good condition.

All taxiways are equipped with Medium Intensity Taxiway Lighting (MITL). The MITLs were rehabilitated in 1989 and are operational and in fair condition. However, the MITLs on the newer portion of Taxiway A and connectors A7, A8, and A9 were installed in 2009 and are in good condition. Taxiway edge reflectors were replaced in May 2014 to meet current standards.

The commercial service apron is illuminated by High Intensity Discharge (HID) pole-mounted lights that provide adequate light for the area and are in good condition. The GA and FBO (AvFlight) apron has two pole-mounted lights, one next to the Airport Rescue and Firefighting (ARFF) building and the other adjacent to the AvFlight hangar.

The Airport is equipped with standard airfield signage which is in fair condition and complies with FAA signage standards. Airfield signage provides essential location and direction information used by pilots and vehicle operators, including instruction, location, direction, destination, and information signs.

2.4.6 Visual and Navigational Airport Aids

The Airport has numerous visual and navigational aids (NAVAIDs), summarized in **Table 2-8**.

TABLE 2-8 – DRO VISUAL AND NAVAIDS SUMMARY TABLE

General	Runway 3/21
Rotating Beacon	HIRL [c]
Lighted Wind Cone and Segmented Circle	PAPI [d]
ASOS[a]	VASI [e] – Runway 21
VOR/DME[b]	REILs[f] – Runway 21
UNICOM	MALSR[g] – Runway 3
	ILS[h] – Runway 3

Notes:
[a] Automated Surface Observation System
[b] Very High Frequency Omni-directional Radio-range/Distance Measuring Equipment
[c] High Intensity Runway Lighting
[d] Precision Approach Path Indicator
[e] Visual Approach Slope Indicator
[f] Runway End Identifier Lights
[g] Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights
[h] Instrument Landing System
Source: Jviation

Runway 3 is equipped with a Precision Approach Path Indicator (PAPI) and Runway 21 with a Visual Approach Slope Indicator (VASI), providing a three-degree glide slope to arriving aircraft. Both provide visual descent guidance and are typically located on the left side of the runway, as is the case at DRO. VASI and PAPI lights are visible up to five miles during the day and up to 20 miles at night. The PAPI is owned and maintained by DRO and the VASI by the FAA; both are in good condition.

Runway 3 has a Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR) which aids pilots in the transition from instrument flying to a visual approach and landing. A MALSR is installed in airport runway approach zones along the extended runway centerline. The MALSR consists of a combination of threshold lamps and steady burning light bars and flashers that provide visual information to pilots to transition from instrument flight to visual flight for landing, including runway alignment, height perception, horizontal references, and roll guidance. The MALSR is owned and maintained by the FAA and is in good condition.

Runway 3 is also equipped with an Instrument Landing System (ILS). The ILS is a ground-based system that provides horizontal and vertical guidance to approaching aircraft using radio signals. The localizer provides the horizontal position of an aircraft relative to the runway centerline, and a glide slope provides vertical guidance to the touchdown point on the runway. The localizer is located 1,000 feet from the departure end of Runway 21 and the glide slope is located east of the Runway 3 threshold. The ILS is owned and maintained by the FAA and is in good condition.

Runway 21 is equipped with Runway End Identifier Lights (REILs). These flashing lights are on both sides of the runway threshold and indicate the beginning of the usable runway for approaching aircraft. The REILs are in good condition and are owned and maintained by the FAA.

DRO's Very High Frequency Omni-directional Radio-range/Distance Measuring Equipment (VOR/DME) is located east of the runway, across from the GA apron and adjacent to the windsock and segmented circle. The VOR/DME transmits radio signals to aircraft, enabling pilots to determine their location and distance from the equipment. DRO's VOR/DME is only used in the precision and non-precision approaches for Runway 3 (radio frequency of 108.2 MHz[4]) and does not mark any airways.

DRO has an Automated Surface Observation System (ASOS) located opposite the Runway 3 PAPI, adjacent to the glide slope. An ASOS is an automated sensor that transmits weather reports via radio frequency 120.625 MHz (via telephone at 970.259.3579). The ASOS is served by the FAA's Denver Flight Service Station (FSS), frequency 122.35 MHz. The ASOS provides pilots with up-to-date airport weather information such as temperature and dew point in degrees Celsius, wind speed and direction, visibility, cloud coverage and ceiling up to 12,000 feet, freezing rain, thunderstorm (lightning), and altimeter setting; this weather information is required for safe aviation operations.

DRO has a segmented circle marker/wind direction indicator to mark the center of the landing area and provide wind direction information to the pilot. It is located on the east side of the runway across from the GA apron. The airfield also has a standard green and white rotating beacon located on the east side of the runway, across from Taxiway A2. The beacon provides the location of the airport at night and during low visibility conditions.

Additional NAVAIDs within the vicinity of DRO include a VHF Omnidirectional Range with Tactical Air Navigation (VORTAC) in Farmington, New Mexico, approximately 29 nautical miles southwest of DRO. The VORTAC is another type of VOR that provides pilots distance and location information. The Farmington VORTAC can be accessed on frequency 115.3 MHz.

2.4.7 Air Traffic Service Areas and Aviation Communications

FAA air traffic controllers stationed in FAA's Denver Air Route Traffic Control Center (ARTCC), provide air traffic control to pilots flying to and from DRO. The Denver ARTCC, based in Longmont, CO, provides air traffic services to pilots operating in Colorado airspace and sections of Kansas, Nebraska, Wyoming, Utah, Arizona, and New Mexico. The Denver ARTCC is on frequency 118.575.

[4] MHz – MegaHertz: one MHz is one million cycles per second; used to measure wave frequencies.

As there is no airport traffic control tower at DRO, pilots communicate their intentions and obtain airport/traffic information using the Common Traffic Advisory Frequency (CTAF) on frequency 122.8, which is also the frequency used by pilots to activate the runway and taxiway lights, PAPI, VASI, REILs, and MALSR.

As discussed in **Section 2.4.6**, pilots can access weather information from DRO's ASOS on frequency 120.625 MHz and the FSS, via the Remote Communications Outlet (RCO), on frequency 122.35 MHz.

2.4.8 Instrument Approach Procedures

An instrument approach procedure is a sequence of maneuvers to guide aircraft operating under FAA's Instrument Flight Rules (IFR) from the beginning of the initial approach to a runway to landing. Currently, the FAA recognizes three instrument approach types: precision, approach with vertical guidance, and non-precision. FAA's definitions of these approach types are as follows.

Precision Approach - An instrument approach procedure providing course and vertical path guidance conforming to FAA Order 8260.3B, *U.S. Standard for Terminal Instrument Procedures (TERPS)* requirements. Instrument Landing System (ILS), Precision Approach Radar, and Microwave Landing System (MLS) are examples of precision approaches and are commonly referred to in the context of conventional approach technologies via the use of ground-based NAVAIDs.

Approach Procedure with Vertical Guidance (APV) - An instrument approach based on a navigation system that is not required to meet the precision approach standards of TERPS but provides course (horizontal) and glidepath (vertical) deviation information. Examples of APV approaches include Localizer Directional Aid (LDA) with glidepath, lateral navigation (LNAV)/vertical navigation (VNAV), and Localizer Performance with Vertical Guidance (LPV). Guidance provided for APV approaches via GPS do not require the use of ground-based NAVAIDs.

Non-precision Approach - An instrument approach based on a navigation system which provides course deviation (horizontal) information, but no glidepath deviation (vertical) information. Examples of non-precision approaches include VOR, Non-directional Beacon (NDB), LNAV, and circling minima. Guidance provided for non-precision approaches via GPS do not require the use of ground-based NAVAIDs.

ILS precision approaches are divided into three categories: CAT I, CAT II, and CAT III, based on minimum altitudes an aircraft is capable of descending, as well as minimum visibility. CAT I systems are the most common ILS found at airports, including DRO. CAT II and CAT III systems allow for lower minimum altitudes and lower visibility, therefore requiring increased airport investments in equipment and obstacle clearance in order to protect larger imaginary surfaces and meet additional airport design standards.

It is important to point out that use of these ILS approaches is subject to aircraft being properly equipped and certified, and having a properly trained aircrew.

GPS satellite-based instrument approaches follow the same basic guidelines as ground-based systems: the lowest possible minimums for approaches with horizontal-only guidance is 300 feet above threshold and at least one mile of visibility (300-1). With the addition of vertical guidance through Wide Area Augmentation System (WAAS) or Ground Bases Augmentation System (GBAS), the lowest minimums are generally 200-½ when an approach lighting system is installed.

DRO has three published instrument approach procedures: one precision and two non-precision for Runway 3 as noted in **Table 2-9**; Runway 21 does not have any existing published approaches. The table also includes the lowest minimums and decision height or minimum descent altitudes. Two approaches provide standard CAT I ILS minimums of 200-½, which enhance airline and corporate aircraft operations by minimizing the time they either divert to another airport in poor weather or make a missed approach. Minimum descent altitude is associated with non-precision approaches and is the lowest altitude an aircraft can fly until the pilot sees the airport environment. If the pilot has not seen the airport environment by the designated Missed Approach Point (MAP), a missed approach is initiated. Decision Height (DH) is associated with precision approaches and the aircraft is continually descending on final approach. When the aircraft reaches the DH, the pilot must make a decision to land or execute the missed approach procedure. The current instrument approach charts and departure procedures are included in **Appendix B**.

Section 2.4.6 details the equipment associated with these procedures.

TABLE 2-9 – INSTRUMENT APPROACH PROCEDURES

Approach	Lowest Minimums (MSL)[a]	Decision Height or Minimum Descent Altitude (feet – AGL)[b]
ILS or LOC/DME – Runway 3	6,838- ½ mile	200 feet
RNAV (GPS) – Runway 3	6,838 – ½ mile	200 feet
VOR/DME – Runway 3	7,080 – ¾ mile	400 feet

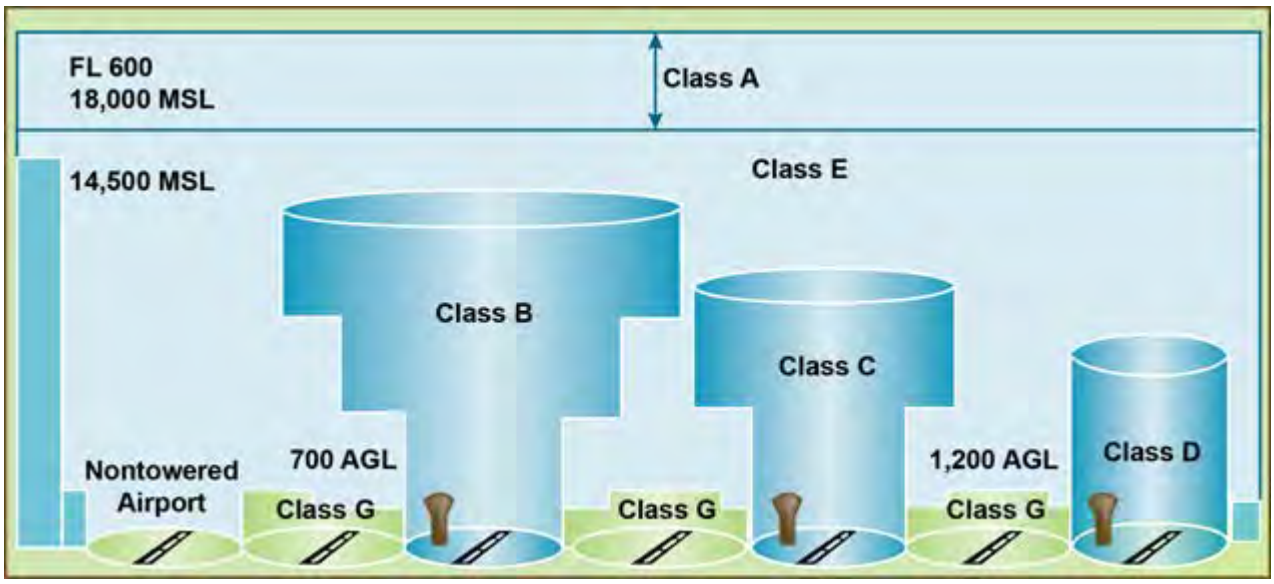
Notes:
[a]MSL – Mean Sea Level
[b]AGL – Above Ground Level
Source: Jviation

2.4.9 Airport Airspace Usage

The FAA designates the airspace surrounding airports using a letter classification ranging from A to E, as depicted in **Figure 2-5**. The most restrictive of these airspaces is Class A airspace. It exists between 18,000 and 60,000 feet above MSL. Class A is controlled airspace applicable during the enroute part of a flight. Classifications are based on the level and type of aircraft operations for a specific airport. Airspace surrounding the nation's busiest airports, like Denver International Airport, is designated as Class B, and is

strictly controlled by air traffic control. Other towered airports are surrounded by Class C and D airspace. For airports such as DRO that have no tower, the surrounding airspace is designated as Class E. Airspace that has not been designated within these classes is classified as Class G (uncontrolled) airspace. This airspace extends from the surface to 1,200 feet above ground level, as described in FAA Order JO 7400.2K, *Procedures for Handling Airspace Matters*.

FIGURE 2-5 – AIRSPACE CLASSIFICATIONS

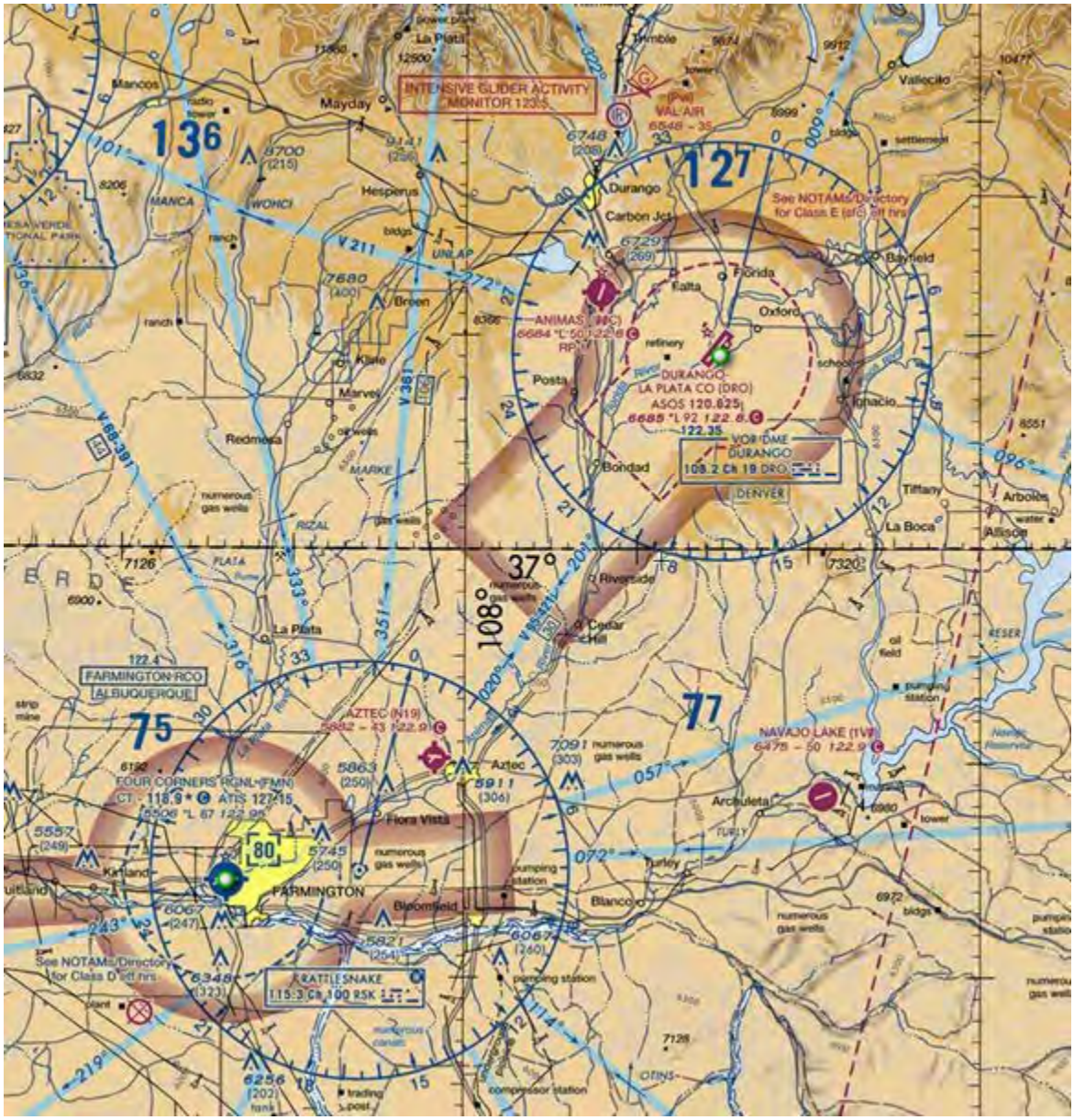


Source: Federal Aviation Administration

As previously mentioned, the Denver ARTCC provides air traffic control for DRO. The airspace surrounding DRO is designated as Class E airspace, with a secondary designation as a surface area. This secondary designation expands the airspace to surround all instrument approach procedures to the extent practicable[5]. This classification protects a 10-mile radius of airspace surrounding DRO, along with the airspace used for the ILS approach to Runway 3. Airspace classified as Class E is subject to less restrictive air traffic control than that of Classes A through D. The primary restrictions to this airspace are maintaining separation from other aircraft and minimum weather requirements of flight visibility of three statute miles, and remaining clear of clouds by 1,000 feet above, 500 feet below, and 2,000 feet horizontally. **Figure 2-6** depicts the airspace surrounding DRO.

[5] Federal Aviation Administration, (2014), Order JO 7400.2K, *Procedures for Handling Airspace Matters*, "Chapter 18. Class E Airspace," Section 1, Paragraph b, 18-1-1.

FIGURE 2-6 – AERONAUTICAL CHART



Note: Not to scale

Source: Denver Aeronautical Sectional Chart, 90th edition - January 9, 2014

2.4.10 Obstructions to Air Navigation

Obstructions are defined as any object of natural growth, terrain, permanent or temporary construction equipment, or permanent or temporary man-made structures that penetrate an imaginary/protected surface, as specified in 14 CFR Part 77, *Safe, Efficient Use, and Preservation of the Navigable Airspace* (Part 77).

Woolpert, Inc. completed a survey of all objects in the vicinity of DRO. The survey was done in compliance with FAA AC 150/5300-16A, *General Guidance Specifications of Aeronautical Surveys:*

Establishment of Geodetic Control and Submission to the National Geodetic Survey; 150/5300-17C, *Standards for Using Remote Sensing Technologies in Airport Surveys*; and 150-5300-18B, *General Guidance and Specifications for Submission of Aeronautical Surveys to NGS: Field Data Collection and Geographic Information System (GIS) Standards*.

The survey revealed numerous obstructions including roads, a tree, a building, and terrain as detailed in **Table 2-10**. Several light poles located in the FBO area are obstructions to the transitional surface; however, each has an obstruction light.

TABLE 2-10 – EXISTING OBSTRUCTIONS

Obstruction	14 CFR Part 77 Surface	14 CFR Part 77 Penetration (feet)	Location
County Road 309A	Approach	1.5 – 4	~1,650 feet from Runway 21 end; west of centerline
Tree	Primary	5	~500 feet southeast of Runway 21 threshold
AvFlight Hangar	Transitional	3.5	~730 feet west of runway centerline
Terrain	Primary	<1	Between runway and taxiway at GA/FBO apron
Service Road	Primary	7.6 - 9	Directly off Runway 3 (west side) and Runway 21 (east side)

Sources: Jviation and Woolpert, Inc.

2.5 Commercial Passenger Facilities

2.5.1 Passenger Service

DRO received service from four airlines in 2014. United provides access via its hub operation at Denver International Airport (DEN), Frontier via flights to its connecting operation at DEN (seasonally in 2014), American Airlines to Dallas/Fort Worth International Airport (DFW), and US Airways to its hub operation at Phoenix Sky Harbor International Airport (PHX). It is important to note that American Airlines and US Airways merged in December 2013 to form American Airlines Group, Inc. The airlines' hub structure was combined, yet the locations preserve the system importance demonstrated by the two separate carriers. The impacts of the merger, e.g. the consolidation of services by both airlines, is not complete. However, once complete, the new American Airlines will offer a consolidated service at DRO. The number of flights offered by the American Airlines Group, Inc. is not anticipated to change. DRO has limited competition in its region as there are only two other airports with commercial service in the Four Corners region. Cortez, Colorado (CEZ) and Farmington, New Mexico (FMN) are served by 19-seat aircraft. CEZ is served under the US DOT Essential Air Service (EAS) program, and scheduled flights at

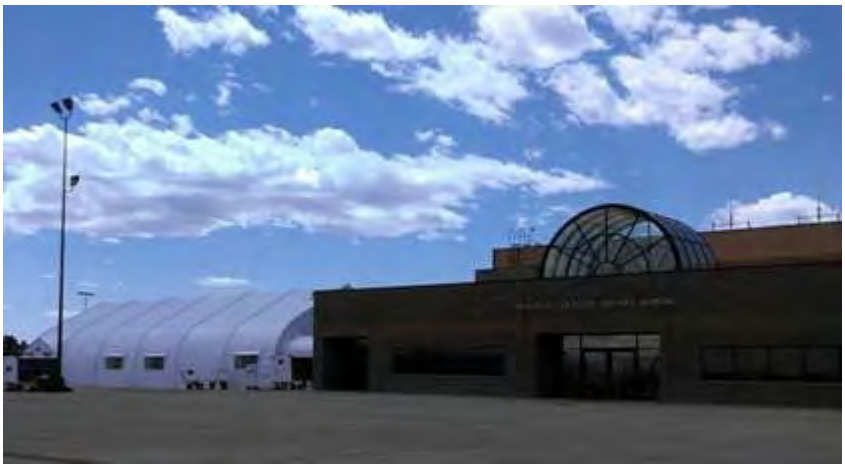
the airport are limited. FMN destinations include DEN, PHX, Alamosa (ALS), and Show Low (SOW), while CEZ's only destination is DEN. The other alternatives for airline service are Albuquerque International Sunport Airport (ABQ), New Mexico, a three-and-a-half-hour drive, and DEN, a six-hour drive.

2.5.2 Terminal Building Overview

The passenger terminal building serves as the focal point of DRO for both the public and airport staff. The terminal was constructed in 1987 and opened in February 1988. A temporary addition to the terminal was constructed in 2013 to accommodate increased enplanements and expansion of the Transportation Security Administration's (TSA) security checkpoint.

As noted previously, four[6] airlines operate from the terminal building as well as five rental car companies, a privately-owned restaurant, and a privately-owned gift shop. The building also includes public spaces for waiting, check-in and ticketing, vending, a departure lounge, baggage claim, and restrooms. Airport administration and TSA offices are located on a partial second level. **Figure 2-7** depicts the terminal from the commercial apron, **Figure 2-8** identifies the concourses, and **Figure 2-9** illustrates the interior layout of the terminal.

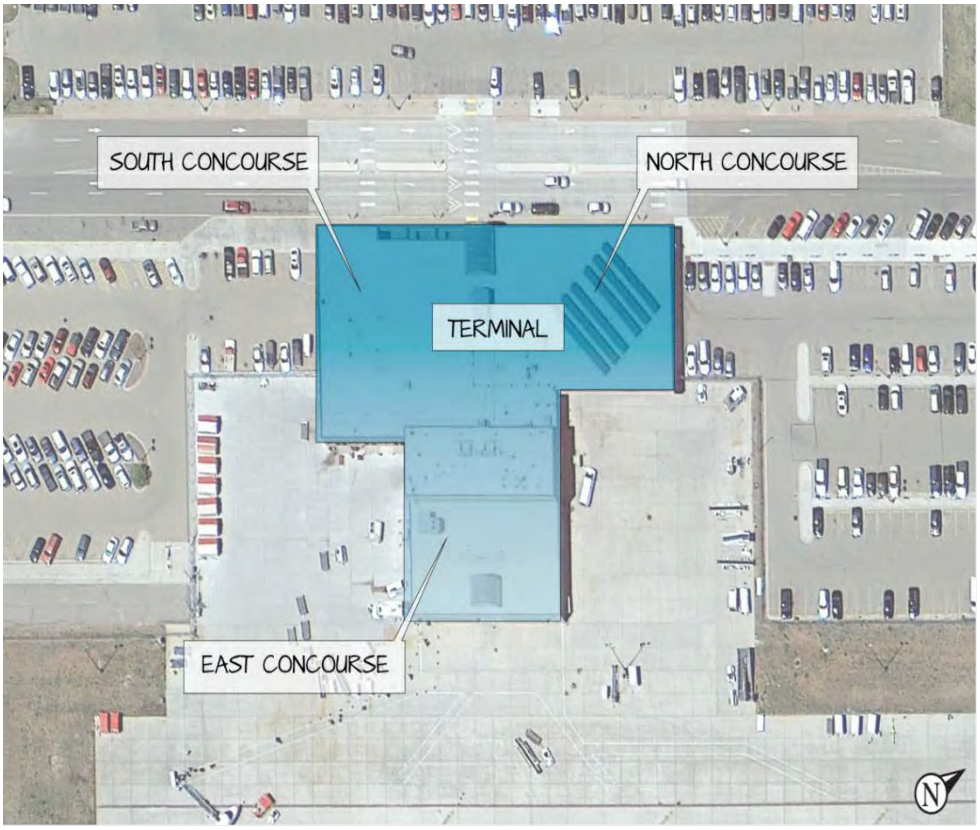
FIGURE 2-7 – PASSENGER TERMINAL



Source: Jviation

[6] The merger of American Airlines and US Airways will reduce the number of airlines that service DRO to three once consolidation of the two companies is complete.

FIGURE 2-8 – TERMINAL CONCOURSES



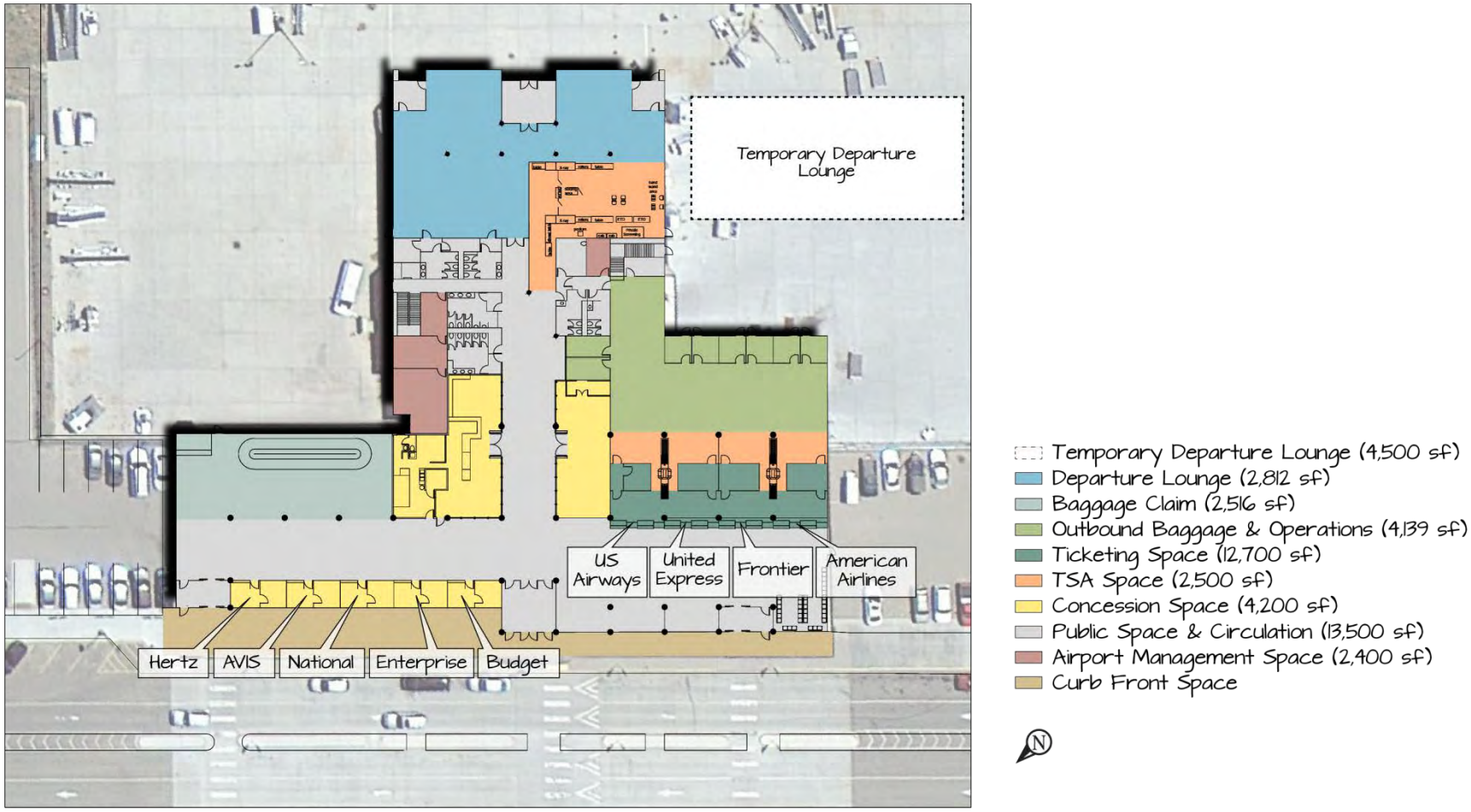
South Concourse
- Ticketing Lobby
- Airline Ticket Offices
- Outbound Baggage/Screening
- Concession Space

North Concourse
- Baggage Claim
- Ground Transportation
- Concession Space

East Concourse
- Departure Lounge
- Passenger Screening

Note: Not to scale
Source: Jviation

FIGURE 2-9 – PASSENGER TERMINAL LAYOUT



Note: Not to scale

Source: Jviation

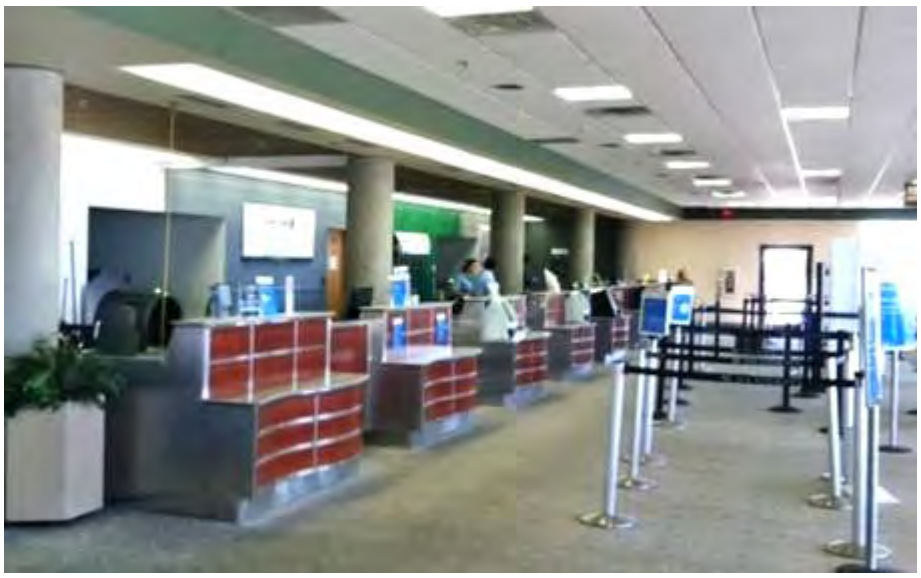
2.5.3 Curbside

The terminal curbside is located on the west side of the terminal and is accessed by four 12-foot-wide, one-way lanes from the south. A central median divides the lanes, with two on each side. The lanes exit to Airport Road to the north. Two sidewalks from the main parking area cut through the concrete median to access the curbside. Each pair of lanes consists of a west drive-through lane and an east drop-off/pick-up lane. Curbside check-in is not currently available.

2.5.4 Ticket Counters

Ticket counters for each of the four airlines are located in the south concourse. The four ticket counter spaces each contain two six-foot-long ticket counters, equipped for a stand-alone agent position (see **Figure 2-10**). Each space has a baggage scale and walkway between the airline ticketing area and the queuing area. Separately located self-check-in kiosks are not currently available.

FIGURE 2-10 – TICKET COUNTERS



Source: Jviation

2.5.5 Airline Ticketing Offices (ATO)

A workspace is behind each of the four ticketing counters, as well as an office. In addition, the airlines occupy six offices at the east side of the baggage area. The airlines also share two baggage imaging areas.

2.5.6 Ticketing Lobby and Circulation

The ticketing lobby and circulation area offers space for passenger queuing, waiting, and circulation. Two designated waiting areas, northern and southern, divided by an entry, are located on the west wall, with windows facing the curbside and main parking lot (see **Figure 2-11**).

FIGURE 2-11 – WAITING AREAS

Source: Jviation

Passenger queuing and circulation space is shared as no division between the two areas exists. Consequently, when the queuing expands, circulation decreases.

2.5.7 Baggage Claim

The baggage claim lobby is located in the north concourse, adjacent to the rental car offices. Passengers can claim their baggage from two devices: a straight conveyor belt or a large bag drop, depicted in **Figure 2-12**.

FIGURE 2-12 – BAGGAGE CLAIM

Source: Jviation

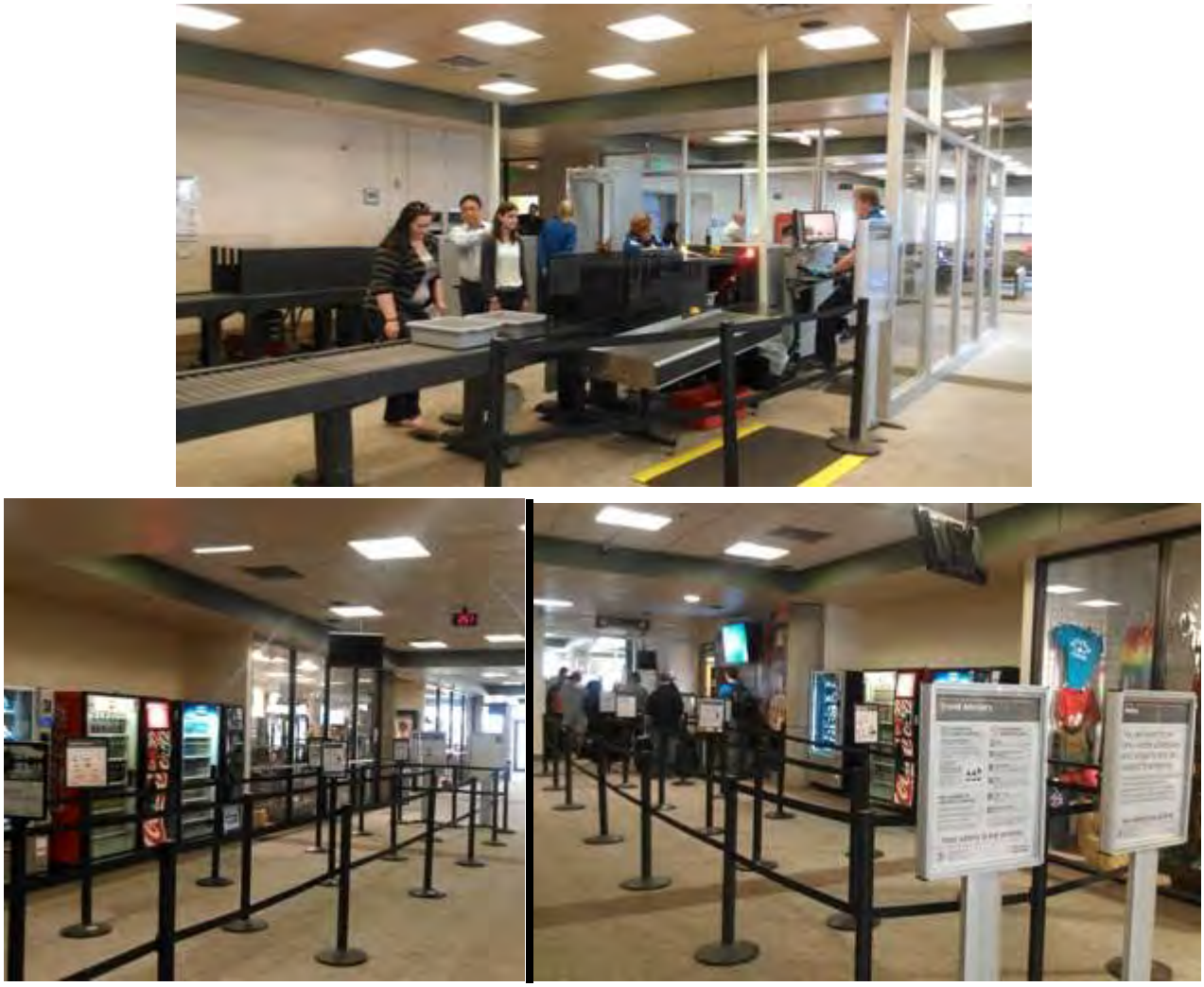
2.5.8 Passenger and Baggage Screening (TSA Facilities)

The TSA occupies three main areas at DRO: passenger screening, baggage screening, and administrative space. The passenger screening area occupies the main central corridor and a large portion of the departure lounge. It is equipped with two checkpoint x-ray scanners and one magnetometer (depicted in **Figure 2-13**).

Two baggage screening areas with two Reveal CT-80 explosive detection systems (EDS) are located between the airline ticketing counters and the outbound baggage make-up area, discussed in **Section 2.5.9**.

The administrative space is located on the second level of the terminal and includes three offices, a staff break room, and a training room.

FIGURE 2-13 – PASSENGER SCREENING



Source: Jviation

2.5.9 Outbound Baggage Make-up Area

The outbound baggage make-up area is located east of the ticketing area. Access is provided directly from the airline offices and baggage imaging areas. Baggage from the imaging machines is moved on manually operated roller tables through an overhead door into the baggage make-up area. The baggage is then loaded onto carts pulled by tugs to the outbound aircraft. The area is also used for storage, but is currently inadequate. Six wood storage sheds were constructed south of the baggage area for each of the airlines, the airport's janitorial storage, and the advertiser's storage. Ground equipment is also stored in this area during the winter.

2.5.10 Restrooms

Restrooms are located on both the unsecure (public) and secure sides of the terminal. The east concourse has three public restrooms: a special-needs restroom that is in good condition, as well as one women's and one men's that were upgraded within the past five years and are in good condition.

Restrooms located in the terminal's secure area are comparable to those in the public area with one women's and one men's. The number of fixtures is adequate but the overall size of the restrooms is well below current industry standards and leads to congestion. Mobile restrooms were added in 2013 as part of the temporary departure lounge, discussed in **Section 2.5.11**.

All restrooms are handicap accessible, with grab rails and wheelchair accessible stalls.

2.5.11 Departure Lounges (Hold Rooms)

The terminal departure lounges are 2,812 square feet and are reserved for scheduled outgoing passengers waiting to access their aircraft through one of four gates. As this area was too small to accommodate existing passengers, a temporary hold room and mobile restrooms were added in 2013 in response to rapid growth and TSA expansion into the departure lounge. **Figure 2-14** depicts the interior of the temporary hold room.

FIGURE 2-14 – TEMPORARY HOLD ROOM

Source: Jviation

2.5.12 Concessions

The Airport has two concession areas in the north and south concourses. Concessions include a news/gift shop, a small café, and vending. The café is located in the north concourse and the news/gift shop is located

in the south concourse, directly across from the café. Vending machines are located along the outside wall of the gift shop.

No concessions, other than a few vending machines, exist in the departure lounges after going through passenger screening.

2.5.13 Rental Car Facilities / Ground Transportation

Five rental car companies are located within the terminal: Avis, Budget, Enterprise, Hertz, and National. Each company has a counter area and small office located directly across from the baggage claim area. The rental car lot is located off the north end of the north concourse.

Currently, DRO does not have any ground transportation services with designated office space located within the terminal. However, several private companies provide taxi, limousine, and shuttle service to and from DRO. All companies operate on an on-demand basis.

Passengers are picked up and dropped off at the north end of the north concourse, currently the only area for bus loading.

2.5.14 Aircraft Parking and Gates

Commercial aircraft parking is reserved on the commercial apron east of the east concourse. Four parking positions are reserved for commercial aircraft and are located directly in front of the terminal building. **Figure 2-15** depicts an aircraft parked outside the terminal. The concourse does not have any passenger loading bridges (PLB). Passengers use four gates, specific to each airline, that provide ground access to the aircraft on the apron. Access to the aircraft is by air stairs from the apron.

FIGURE 2-15 – COMMERCIAL AIRCRAFT PARKING

Source: Jviation

2.5.15 Airport Administrative and TSA Offices

The terminal has a partial second level that houses the airport administrative offices, including a conference room, small break room, and restrooms (men's and women's). Access to the second floor is from a corridor north of the east concourse via an elevator or staircase. A second staircase is located at the south end of the second level but is for egress purposes only (exits directly outside).

The second level has nine offices, four of which are used by airport personnel and the other five by TSA, as previously discussed in Section 2.5.8. The administrative offices are located directly at the top of the north staircase. The conference room used by the Airport Commission is adjacent to the administrative offices and can be accessed via the break room or hallway. A janitor's office is also located on the second level.

The restrooms are shared by airport administration and TSA; neither are handicap accessible.

2.6 General Aviation (GA) Facilities

GA facilities provide services to GA operators at an airport. GA facilities include the FBO, hangars, and aircraft apron parking and tie-down space.

2.6.1 Fixed-Base Operator (FBO)

An FBO is an aviation-related business that provides services for non-air-carrier pilots, aircraft, and passengers. However, some FBOs fuel air carrier aircraft and provide deicing and light maintenance. FBO services range from GA aircraft fueling, ground servicing, aircraft maintenance and repair, in-flight catering, flight training, and aircraft rental. FBOs may also serve as a terminal for passengers boarding GA aircraft and may include a lobby, restrooms, vending, and rental car services. Pilot lounges, flight planning rooms, weather computers, and pilot shops are also typical in FBOs.

Currently, DRO is served by one FBO, AvFlight Corporation. AvFlight occupies three hangars at DRO, totaling 32,400 square feet, which are located on the north end of the GA apron. AvFlight is open from 7AM or sunrise, whichever is earlier, to 8PM or sunset, whichever is later. On-call fuel services are provided during non-operational hours. The following key services are provided during normal operational hours:

- Fueling (Jet A and AvGas)
- Cargo loading/unloading
- Charter handling
- Pilot lounge / flight planning
- Hangars/storage
- Maintenance (subcontracted)
- De and anti-icing
- Ground-power unit

2.6.2 Airport Hangars

Hangars are enclosed structures for the parking, servicing, and maintenance of aircraft, and are designed to protect aircraft from environmental elements such as wind, snow, hail, ice, and rain. The majority of hangars are either box-style or T-style designs. Box-style hangars, also known as conventional hangars, have a box-shaped or rectangular footprint and range in size from holding one or two single-engine aircraft up to accommodating several corporate jet aircraft. T-style hangars, known at T-hangars, are a series of interconnected aircraft hangars with footprints in the shape of a "T." T-hangars generally store one single- or multi-engine aircraft each.

DRO has both T-hangars and conventional hangars for aircraft storage. **Table 2-11** details hangar size, number of units, condition, and utilities for each. **Figure 2-16** and **Figure 2-17** depict hangar locations.

TABLE 2-11 – EXISTING HANGARS

PRIVATE HANGARS

Legend #	Units	Area (sf)	Condition	Utilities[/a/]
1	3	7,500	Good	W, E, G
2	8	11,000	Good	E
3	6	9,000	Good	E, G
4	4	9,075	Good	W, E, G
5	3	7,000	Good	W, E, G
6	3	6,075	Good	W, E, G
7	1	4,900	Good	W, E, G
8	1	3,600	Good	W, E, G
9	1	3,600	Good	W, E, G
10	1	3,600	Good	W, E, G
11	1	3,600	Good	W, E, G
12	4	8,100	Fair	None
13	0	1,750	Good	W, S, E, G
14	1	4,800	Good	W, S, E, G
15	1	3,900	Good	W, S, E, G
16	1	4,800	Good	W, S, E, G
17	1	3,900	Good	W, S, E, G
18	1	4,800	Good	W, S, E, G
19	1	3,900	Good	W, S, E, G
20	1	8,400	Good	W, S, E, G
21	1	4,320	Good	W, S, E, G
22	8	9,500	Good	W, S, E, G
23	1	2,500	Good	W, S, E, G
24	1	2,500	Good	W, S, E, G
25	1	2,500	Good	E, G
26	1	3,000	Good	W, S, E, G
Total	**56**	**137,620**		

FBO (AVFLIGHT) HANGARS

Legend #	# Based AC	Area (sf)	Condition	Utilities
A	9	16,800	Good	W, S, E, G
B	1	3,600	Fair	W, S, E, G
D	5	12,000	Good	W, S, E, G
Total	**15**	**32,400**		

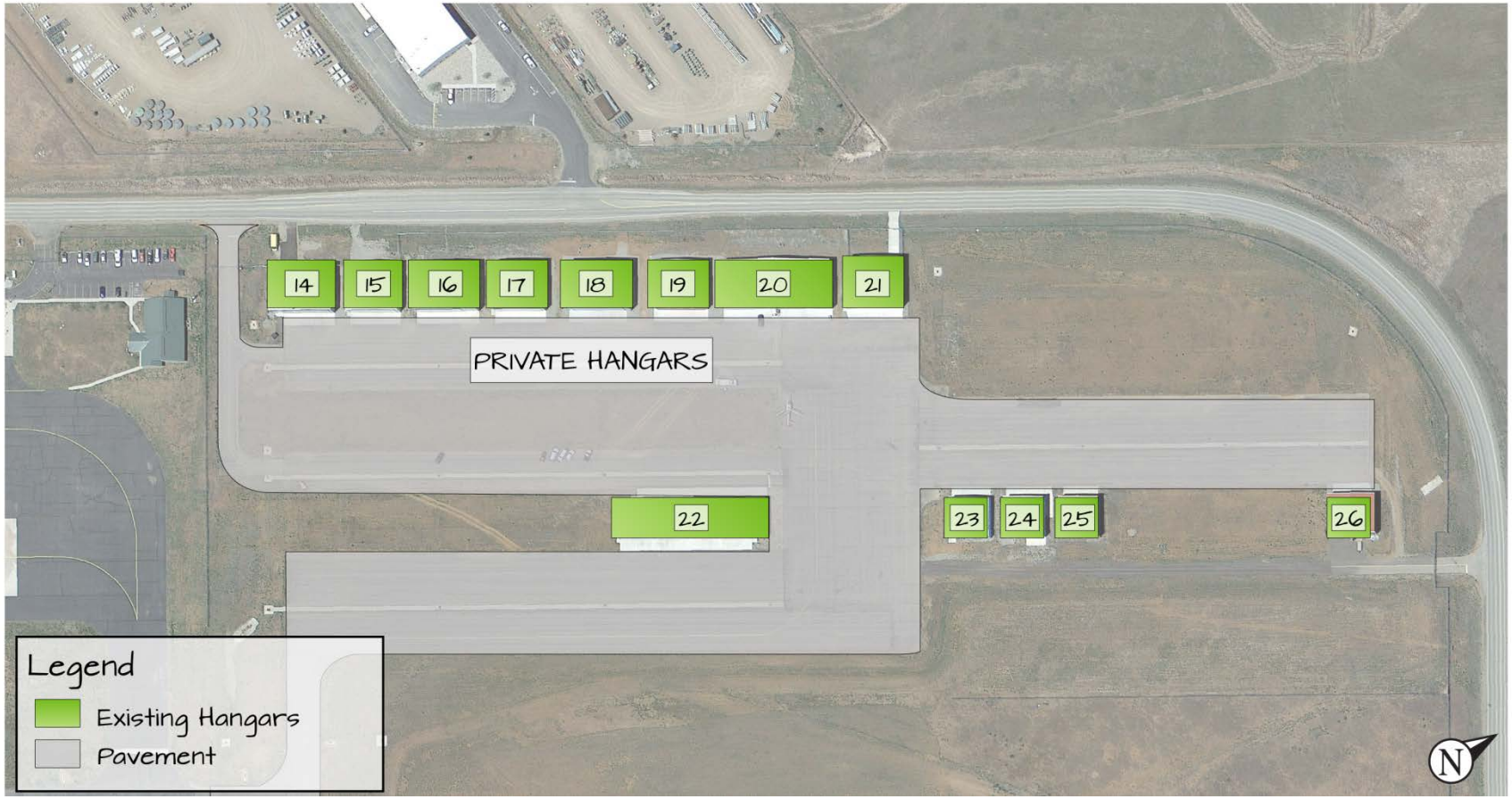
Note: [/a/] Water (W), Sewer (S), Electric (E), Gas (G)

Source: DRO Airport Management Records

FIGURE 2-16 – HANGAR LOCATIONS: SOUTH

Note: Not to scale
Sources: Airport Administration, 2014 and Jviation

FIGURE 2-17 – HANGER LOCATIONS: NORTH



Note: Not to scale

Sources: Airport Administration, 2014 and Jviation

2.6.3 Based Aircraft

DRO has a total of 70 based aircraft that are mostly stored in hangars. There is currently a waiting list for hangars. **Table 2-12** is a breakdown of based aircraft by type.

TABLE 2-12 – BASED AIRCRAFT

Aircraft Type	Number
Single-engine	61
Multi-engine	8
Jet	0
Glider	0
Helicopter	1

Source: Airport Administration, 2014

2.6.4 Based and Transient Aircraft Parking Aprons and Tie-downs

Aircraft parking aprons, also known as ramps, are large paved surfaces designed for parking and servicing aircraft. Aprons provide access to terminals, hangars, and FBO facilities; locations to transfer passengers and cargo from aircraft; and areas for aircraft fueling and maintenance. An apron's size and pavement strength varies greatly at different airports and even at the same airport. Factors contributing to size and strength include: aircraft type, available space, special aircraft needs, and the configuration of terminals, hangars, and FBOs. Another factor that can greatly impact an apron's parking capacity is whether aircraft power-in/power-out to parking positions, or if tugs are used to pull in/push out the aircraft.

DRO has four primary aprons that serve the terminal, FBO, and the various corporate and private hangars located on the airfield. The terminal apron (commercial) is approximately 25,168 square yards and is located east of the terminal building. It is intended to serve commercial aircraft exclusively, including passenger and luggage transfer and aircraft servicing, fueling, and deicing. Typically one to two regional jets and a B-737/A-319 size aircraft are parked on the terminal apron at the same time.

The GA/FBO apron is approximately 53,724 square yards and is located on AvFlight's facility, south of the main terminal area. The apron has 56 tie-downs to park based GA aircraft and additional apron for transient aircraft. A second 25,263-square-yard GA apron is north of the terminal.

The fourth apron area is approximately 21,780 square yards and is used exclusively by the U.S. Forest Service.

Pavement type and condition are discussed in **Section 2.4.3** and **Section 2.4.4**, respectively.

2.7 AIRPORT EQUIPMENT

DRO owns and operates several pieces of large equipment to perform maintenance, snow removal, and Aircraft Rescue and Fire Fighting (ARFF). ARFF and Snow Removal Equipment (SRE) are eligible for FAA funding, and most other maintenance equipment is eligible for CDOT Aeronautics funding.

2.7.1 ARFF Equipment

ARFF is a special category of fire fighting on airports for response, evacuation, and possible rescue of aircraft passengers and crew. 14 CFR Part 139 specifies ARFF requirements and assigns an ARFF index to each certificated airport based on the largest commercial aircraft with five or more daily flights serving the facility, shown in **Table 2-13**. The ARFF index determines the type and quantity of fire fighting equipment and type of extinguishing agent a certificated airport must provide. In compliance with Part 139, DRO is required to provide ARFF services during air carrier operations, including 15 minutes prior to the arrival and 15 minutes after the departure of an air carrier aircraft.

TABLE 2-13 – ARFF INDEX DETERMINATION

ARFF Index	Aircraft Length (Feet)
A	<90
B	>90 ≤126
C	>126 ≤159
D	>159 ≤200
E	>200

Source: 14 CFR Part 139.315

Because the longest aircraft with more than five daily flights is a mix of aircraft with lengths greater than 90 and less than or equal to 126 feet, FAA certifies DRO under Part 139 as a Class I, ARFF Index B airport. Class I airports can accommodate all commercial aircraft with more than 30 passenger seats; however, ARFF Index B limits commercial aircraft operating at DRO to aircraft between 90 feet and 126 feet in length. That includes the majority of DRO's regularly scheduled airline fleet including the Bombardier Q400, Canadair CRJ700 and CRJ 900 series, and the Airbus A-319/320. In compliance with ARFF requirements, DRO has two ARFF vehicles: a 2002 Oshkosh TI-1500 and a 1985 Oshkosh T-1500--both are in good condition. Also, to comply with Part 139 requirements to have ARFF on-site during air carrier operations, DRO has an on-site fire station that is dedicated to the Airport and houses ARFF personnel and equipment, as discussed in **Section 2.8.1**. Currently, DRO has seven dedicated ARFF personnel.

2.7.2 Snow Removal Equipment (SRE)

Airport snow removal is also regulated under 14 CFR Part 139, and requires DRO to have a snow removal plan that demonstrates to FAA how it will comply with snow removal requirements. Unlike ARFF requirements, Part 139 does not specify the type and quantity of equipment needed for snow removal.

Instead, airport operators must develop and comply with a snow removal plan that ensures snow is removed and stored in a manner that ensures airfield safety, and that snow removal and pavement friction conditions are communicated with air carriers. DRO's Snow and Ice Control Plan was last updated on March 8, 2005.

Table 2-14 details DRO's SRE equipment.

TABLE 2-14 – SNOW REMOVAL EQUIPMENT

Year	Model	Use	Condition
2001	Oshkosh H Series	Broom	Good
1998	Oshkosh H Series	Broom	Good
2012	Oshkosh H Series	Blower	Good
1989	Snowblast MP-3000	Blower	Good
1983	Oshkosh W700015R	Blower	Good
1999	Oshkosh H-2723	Plow Truck	Good
1986	Oshkosh P Series	Plow Truck	Good
1985	Oshkosh P Series	Plow Truck	Good
2010	Volvo 150F	Loader	Good
2001	John Deere 624H	Loader	Good

Source: Airport Administration, 2014

2.8 Support Facilities

2.8.1 Aircraft Rescue and Fire Fighting (ARFF) Station, SRE Storage Building, and Maintenance

The ARFF and SRE building, constructed in 1993, is located on the south corner of the GA apron, south of the terminal building. It is approximately 26,120 square feet. The building includes a 14,400-square-foot SRE area, three central bays for maintenance and repair of equipment totaling 2,603 square feet, and two bays at the north end for fire fighting equipment that total 2,645 square feet. The center of the building has a second level with a weight room, an office, an alarm room, and storage room. The weight room, office, and alarm room total 955 square feet. The 1,808-square-foot storage room has access to a utility room, the south SRE bay, and the roof.

A concrete apron at the front of the building (east side) connects all seven bays, the building's front entrance, and Taxiway A. The west side (back) of the building has concrete driveways connecting the building to Airport Road.

2.8.2 Aircraft Fuel Storage and Use

Aircraft typically use two fuel types: AvGas or Jet A. AvGas, or Aviation Gasoline, is used by aircraft with reciprocating piston engines. The most common grade of AvGas is 100 low lead (LL). Jet A is an unleaded,

kerosene-type fuel used for powering jet and turbo-prop engine aircraft. Aviation fuel is currently stored south of the terminal building in the fuel farm that is accessible from Airport Road. The fuel farm has five above-ground storage tanks (AST) that are double-walled with fuel containment. All are owned and maintained by the FBO, AvFlight, and are in excellent condition. A diesel storage tank located adjacent to the ARFF building provides fuel for DRO's diesel vehicles and equipment. **Table 2-15** details the sizes and type of fuel in each.

TABLE 2-15 – FUEL STORAGE

Location	Tank Type	Capacity (gallons)	Fuel Type	Condition
Fuel Farm	AST – double-walled	12,000	Jet A	Excellent
Fuel Farm	AST – double-walled	12,000	Jet A	Excellent
Fuel Farm	AST – double-walled	12,000	Jet A	Excellent
Fuel Farm	AST – double-walled	12,000	100 LL	Excellent
Fuel Farm	AST – double-walled	12,000	Gasoline	Excellent
ARFF Building	AST – double-walled	2,000	Diesel	Good

Source: Jviation

Fuel flowage at DRO has steadily increased from 2003 to 2013, with peak usage in 2011 and 2012. **Table 2-16** details the fuel pumped by type from 2003 through 2013.

TABLE 2-16 – FUEL FLOWAGE

Year	Total Jet A Fuel Pumped (gallons)		Total AvGas Pumped (gallons)	Total Fuel (Jet A & AvGas) Pumped (gallons)
	Jet A Air Carrier	Jet A Private		
2003	640,695	469,063	161,621	1,271,379
2004	769,445	503,069	151,845	1,424,359
2005	858,091	416,418	108,042	1,382,551
2006	974,187	382,484	82,329	1,439,000
2007	1,056,509	449,677	75,017	1,581,203
2008	992,859	338,576	59,767	1,391,202
2009	916,306	348,855	48,012	1,313,173
2010	1,046,179	333,209	58,903	1,438,291
2011	1,185,026	369,827	56,194	1,611,047
2012	1,206,558	418,442	62,298	1,687,298
2013	895,316	422,645	63,700	1,381,661

Source: Airport Administration, 2014

2.8.3 Airport Equipment Storage Hangar

The storage hangar is located off the northwest corner of the ARFF building. The building was an aircraft hangar but is now used to store some ground maintenance equipment as well as temporary airfield lights and signs used during construction, including illuminated "X" fixtures used to indicate a closed runway. The building is approximately 2,000 square feet and is generally in good condition.

2.8.4 U.S. Forest Service Fire Fighting Facility

The U.S. Forest Service (USFS) opened a facility at DRO in 2003 based upon a contract signed with La Plata County in 1966 to lease property for a fire fighting facility. The facility serves as a staging area for fighting forest fires in the region, and is able to replenish fire suppressing agent in two tankers at once. The facility is only open during forest fire season, mid-May through September.

Based on a conversation with the DRO USFS base on July 9, 2014, the USFS is in the process of transitioning from legacy aircraft similar to the Lockheed P-2 Neptune to more modern jet aircraft.

It is anticipated that the following aircraft will be used in upcoming seasons: Lockheed C-130J Super Hercules (C130J), McDonnel Douglas MD-87 (MD-87), British Aerospace (BAe) Avro RJ85, and the BAe 146; all of these are jet aircraft with exception of the C130J. A Single-Engine Air Tanker (SEAT) is typically at DRO during the fire season and other aircraft are called in if needed for a larger event.

The facility has a fire suppressant reloading area, a storage warehouse, and an office building. It is located north of the terminal, across from the Runway 21 end. The reloading area includes two 20,000-gallon water tanks that are filled by a water hauling company. There are also four 10,000-gallon tanks for concentrated fire suppressant, which is mixed with water before being pumped onto the tanker planes.

The office building has room for two full-time government employees, as well as contract employees, pilot quarters, and a dispatch room. Currently, no USFS planes are based at DRO, however in the event of high fire danger, i.e. red flag days, the USFS attempts to park a plane at the facility in preparation of a fire.

Airside access to the facility is from Taxiway A via two connector taxiways to the facility's apron, and landside access is via Airport Road to an access road at the western corner of the apron.

2.9 Access, Circulation, and Parking

Adequate vehicular access to DRO, as well as parking facilities, is necessary for effective operation. Due to site limitations, access, circulation, and parking are constrained. The following summarizes DRO's existing road and parking conditions.

2.9.1 Airport Access Road & Circulation Network

The main access network for DRO is via State Highway 172, which connects to County Road 309, also known as Airport Road. Airport Road is a two-lane road that extends from State Highway 172 to the intersection of County Road 309A, just south of the airport boundary. At that point, Airport Road splits into two two-lane roads divided by a landscaped median (see **Section 2.5.3** for terminal curbside details). The two eastern lanes are one-way southbound and route traffic to DRO's main parking lot. The two western lanes are a two-way service road that continues past the parking lots to the terminal building, FBO, GA hangars, and ARFF building. Signs along Airport Road direct traffic to various parking lots and the terminal.

A secondary access point is from County Road 309A from the south, which connects to Airport Road. This access is rarely used by airport visitors, as the area it connects to is sparsely populated and most of the road is unpaved.

2.9.2 Auto Parking

DRO has six parking lots for various uses. **Table 2-17** details the different lots by use and number of spaces, and **Figure 2-18** depicts the location of each.

TABLE 2-17 – PARKING LOTS AND SPACES

Lot	Number of Spaces
Main Lot	
Long-term	323
30-minute	52
Handicap	10
Credit Card Lot	
Long-term	247
Administrative	16
Handicap	4
North Overflow Lot	210
South Overflow Lot	132
Rental Car Lot	219
North Employee	60
TOTAL	**1,273**

Source: Jviation

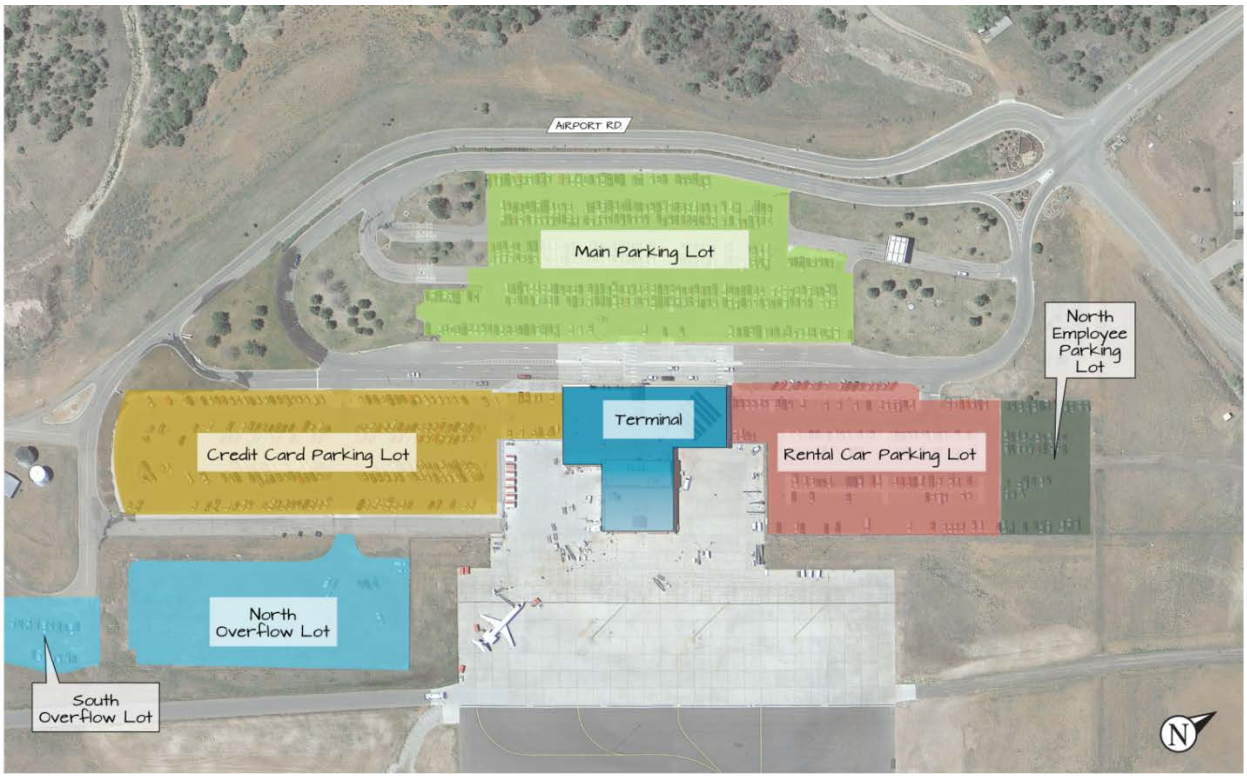
The main parking lot is for public use and is accessible from Airport Road; of the 385 parking spaces, 52 are designated as 30-minute parking (short-term) and are nearest the terminal building. Two entry gates allow access to the lot at the south end, and a ticket booth provides two exit routes from the north end of the parking lot. One exit has a person in the booth and can accept cash or credit card; the other exit has only a credit card machine. Currently, the lot does not have signage to assist users in locating rows or aisles.

The credit card lot is located further south on Airport Road, past the main parking lot gates. Visitors enter and exit the lot through gates, which require a credit card. Row and aisle signage is not provided. The north overflow lot is east of the credit card lot and accessed via the credit card lot. This lot is not currently paved but is covered with roto-milled asphalt. A second gravel lot, the south overflow lot, is located just south of the north overflow lot and is accessed via Airport Road.

The rental car lot is north of the terminal. The lot is paved and has assigned signage for each of the rental car companies.

Employee parking is located in two locations. The south parking area is located on the north end of the credit card lot, closest to the terminal building. The north lot is located north of the rental car lot and is an unpaved lot covered with roto-milled asphalt.

FIGURE 2-18 – PARKING LOTS



Note: Not to scale
Source: Jviation

2.10 Utilities

DRO has a variety of public and private utilities. Public utilities include natural gas, phone service, and electrical service; private utilities include a domestic water distribution system and a sanitary sewer system.

2.10.1 Natural Gas

Natural gas is supplied by Source Gas. A high-pressure gas line owned by Xcel Energy runs roughly north-south along the west side of the terminal building. The gas line tap is located near the intersection of County Roads 309 (Airport Road) and 309A. A steel line runs from the tap past the terminal building to the north development area, as well as south to supply the commercial apron and south development area.

2.10.2 Electricity

Electricity is supplied by La Plata Electric Association. DRO receives power from a junction box located near the intersection of Airport Road and County Road 309A.

2.10.3 Water Supply

DRO's onsite water system consists of a raw water holding tank, a water treatment system, and two treated water holding tanks. The system, operated and maintained by airport staff, provides approximately 12,000 to 15,000 gallons of water per day to the Airport, with the capacity to provide up to 30,000 gallons per day.

The two water sources are a natural spring and surface runoff water. DRO also has rights to water from the East Tyner ditch, which it purchased in the 1980s. The rights currently allow DRO a one-half cubic foot per minute (CFM) share. Additionally, a one-quarter CFM share is available from the Florida River but a collection structure has not been built to take advantage of this source.

The water is stored in a 10,000-gallon raw water tank that is in fair condition and undersized. Once the water is treated, it is stored in one of two 72,000-gallon treated water tanks.[7]

2.10.4 Waste Water Treatment System

DRO's staff also operates and maintains the waste water treatment system, which consists of three lagoons with a 25,000 gallon per day treatment capacity. The lagoons have a chlorination discharge located southwest of the terminal building. DRO holds a permit to discharge to the Florida River.

A lavatory dump station for aircraft is located on the southwest corner of the terminal apron. The current system works but is inefficient to meet current demand.

[7] Durango-La Plata County Airport Terminal Area Master Plan, February 2012

2.10.5 Fiber Optics and Communications

CenturyLink and Brainstorm Internet provide phone and data services to the Airport. CenturyLink is currently used by several of the airlines and lessees. DRO uses Brainstorm Internet for wireless internet service as well as phone service.

2.11 METEOROLOGICAL DATA

Environmental elements play a significant role in an airport's layout and design. Temperatures impact runway length, and prevailing winds are one of the most important environmental elements as it dictates runway orientation.

2.11.1 Wind Coverage

Each aircraft has an acceptable crosswind component for landing and takeoff, making wind conditions particularly important for runway use. The crosswind component is a calculation of the speed of wind at a right angle to the runway centerline. When the acceptable crosswind component of an aircraft is exceeded, the aircraft must divert to another runway or a different airport.

Per FAA AC 150/5300-13A, *Airport Design*, when the current runway(s) provide less than 95 percent wind coverage for any aircraft that use the airport on a regular basis, a crosswind(s) runway should be considered. The crosswind components of 10.5, 13, 16, and 20 knots were used for this analysis to look at the allowable crosswind component for different sized aircraft. Allowable crosswind component is tied to an airport's RDC and ranges from smaller GA aircraft limited to a 10.5-knot crosswind component up to a 20-knot crosswind component for large jets such as a Boeing 767.

The weather observations taken at DRO from 2000 to 2009 were obtained from the National Climatic Data Center (NCDC). According to the FAA, the desirable wind coverage for an airport is 95 percent during all weather conditions, which means that runways should be oriented so that the maximum crosswind component is not exceeded more than five percent of the time. As shown in **Table 2-18**, Runway 3/21's orientation provides 94.49 percent coverage for a 10.5-knot crosswind, which is too low to meet the FAA crosswind component requirement of 95 percent. "All Weather" includes data on the winds observed for all types of weather conditions during the observation period. The data collected indicates that during Instrument Flight Rules (IFR) conditions, the existing combined runway orientations provide 96.60 percent coverage for a 10.5- knot crosswind, which exceeds the FAA recommendation. The FAA All Weather and IFR weather wind roses are depicted in **Figure 2-19** and **Figure 2-20**.

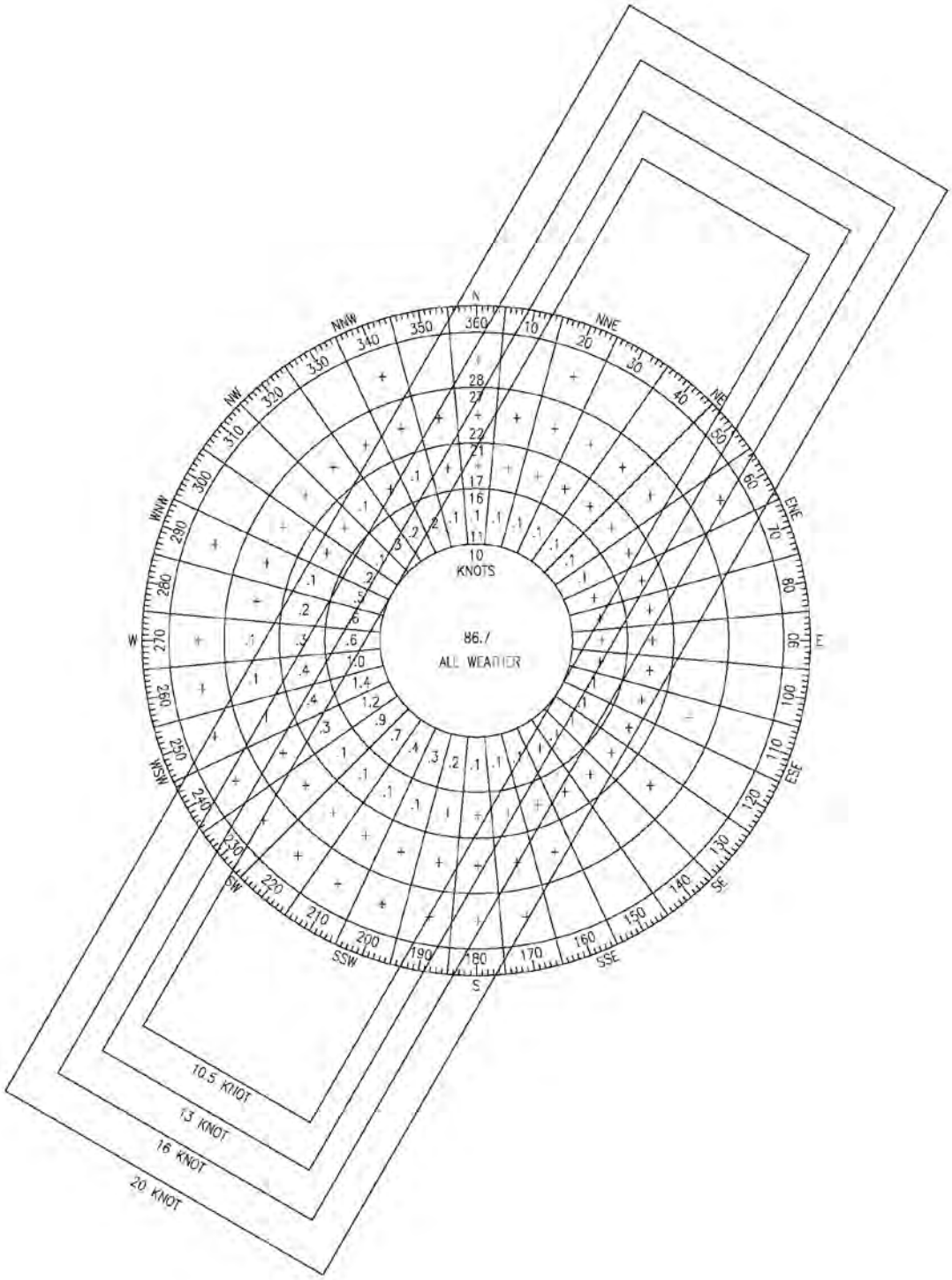
TABLE 2-18 – DRO WIND COVERAGE

All Weather	10.5 Knots	13 Knots	16 Knots	20 Knots
Runway 3	77.62%	78.62%	79.65%	80.00%
Runway 21	82.74%	84.88%	86.64%	87.39%
Runway 3/21	94.49%	96.93%	98.90%	99.75%

IFR	10.5 Knots	13 Knots	16 Knots	20 Knots
Runway 3	81.67%	82.08%	82.42%	82.56%
Runway 21	87.65%	88.88%	89.85%	90.42%
Runway 3/21	96.60%	98.03%	99.13%	99.75%

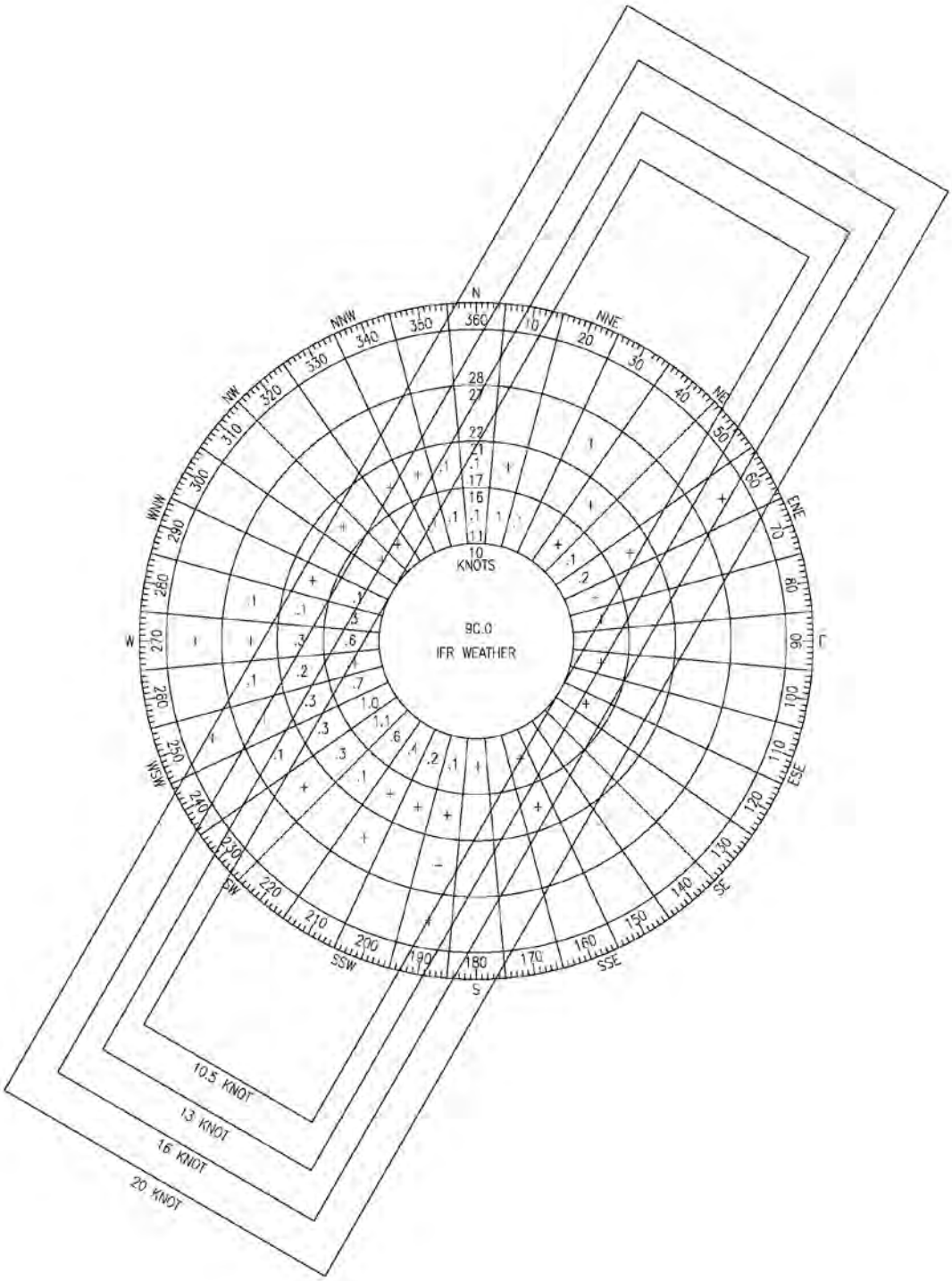
Sources: NCDC and FAA AGIS Wind Rose Form,
https://airports-gis.faa.gov/airportsgis/publicToolbox/windroseForm.jsp

FIGURE 2-19 – ALL WEATHER WIND ROSE



Source: National Oceanic and Atmospheric Administration, National Climatic Data Center, Station #72462 – Durango, Colorado. Period of record – 2000-2009

FIGURE 2-20 – IFR WIND ROSE



Source: National Oceanic and Atmospheric Administration, National Climatic Data Center, Station #72462 – Durango, Colorado. Period of record – 2000-2009

2.11.2 Temperature

Durango enjoys a four-season climate with relatively moderate temperatures year-round. The mean maximum temperature of the hottest month, also known as the airport reference temperature, occurs in July with a temperature of 88.9 ºF. The average temperature in January is 26.7ºF, and in June is 65.1ºF. These temperatures are recorded by the Western Region Climate Center. [8]

2.11.3 Precipitation

August is typically the rainiest month in Durango, and the total precipitation averages 19.1 inches per year. Snowfall for the city averages 68.8 inches per year, with most of the snowfall occurring in December, January, and February.[9] Periodically, March can also have significant snowfall.

2.11.4 Instrument Meteorological Conditions (IMC)

From the information provided by NCDC, Instrument Meteorological Conditions (IMC) occur 2.7% of the time at DRO. IMC is defined as a period when the cloud ceiling is less than 1,000 feet above ground and/or visibility is less than three miles. Instrument Flight Rules (IFR) apply when IMC occurs. A review of the data indicates that periods of IFR mostly occur between December and March, depicted in **Table 2-19**.

TABLE 2-19 – PERCENT OF IMC OCCURRENCES PER MONTH

Month	IMC %
January	7.7%
February	5.8%
March	3.8%
April	1.6%
May	0.5%
June	1.2%
July	1.2%
August	0.5%
September	0.6%
October	1.1%
November	2.7%
December	5.6%
Annual	**2.7%**

Source: National Climatic Data Center

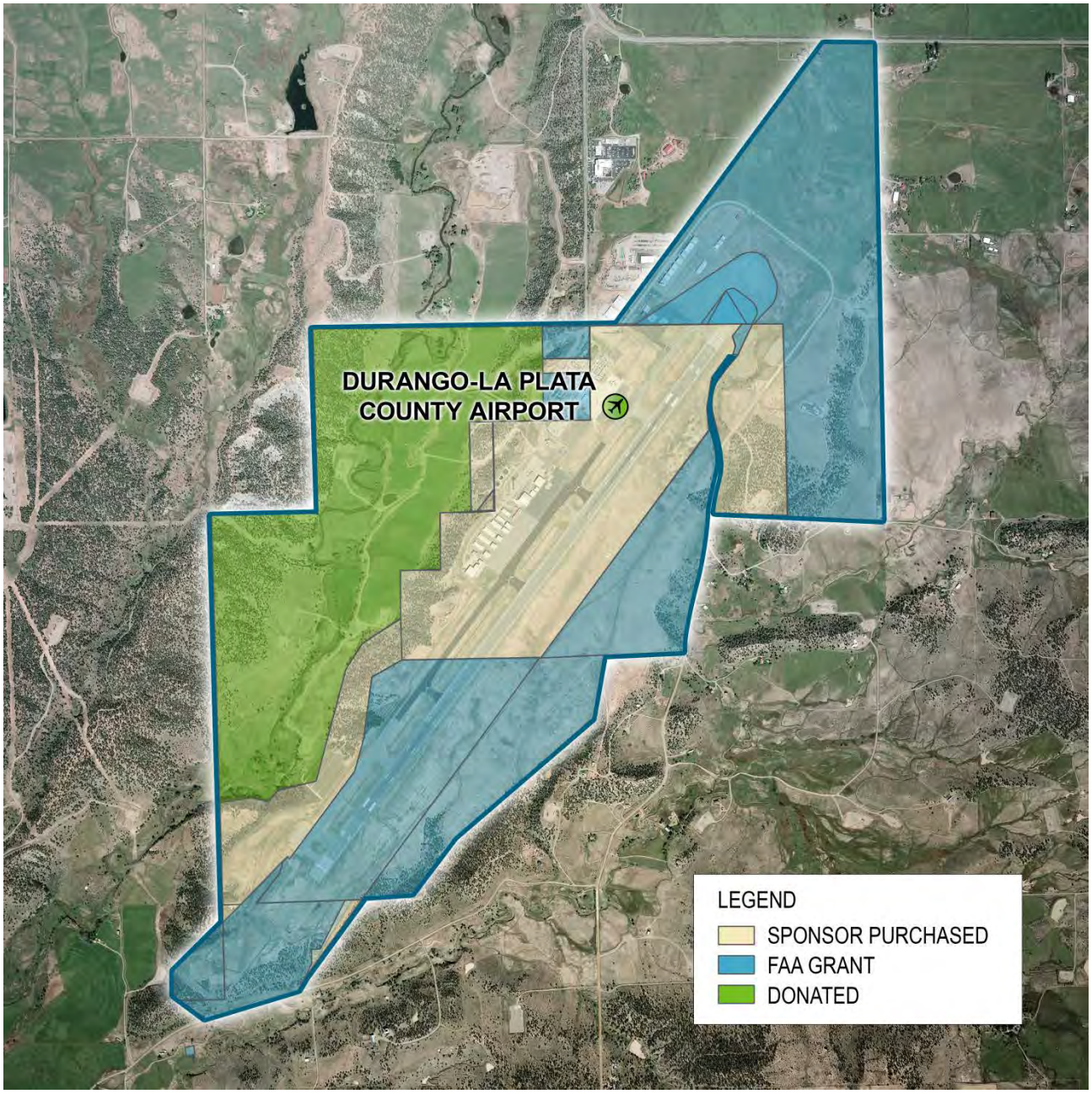
[8] Western Region Climate Center, Colorado Climate Summaries. http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?co2432, accessed June 2014.
[9] Ibid.

2.12 Airport Property

The Airport property is approximately 1,382 acres. The original 257 acres were purchased in 1947, and the remaining 1,125 acres purchased between 1959 and 1992. FAA grant funding was used to purchase a little less than half (45 percent) of the total land. The remaining property was purchased independently by Durango and La Plata County, and 368 acres were donated by a private land owner. The donated property, per records, is to be used only for agricultural purposes without the right to construct improvements. This land is generally well below the airfield elevation and is not suitable for aeronautical use.

The land depicted as the airport on the Exhibit A Property Map must be used in accordance with the Airport Layout Plan. Exhibit A is an inventory of the parcels that comprise dedicated airport property and indicates how the land was acquired and the funding source. Property designated for aeronautical use cannot be used for non-aeronautical purposes except under limited circumstances or with FAA approval. **Figure 2-21** depicts the current airport property broken out by funding source. The existing Exhibit A will be modified as part of the Airport Layout Plan (ALP) set to be developed as part of this Master Plan.

FIGURE 2-21 – AIRPORT PROPERTY BY FUNDING SOURCE



Note: Not to scale
Source: Jviation

2.13 Regional Setting and Land use

The Airport is located approximately 14 miles southeast of Durango (see **Figure 1-2**) and is outside the city's zoning limits. DRO is jointly owned and operated by the City of Durango and La Plata County. **Figure 2-22** and its legend in **Figure 2-23** depicts the City of Durango's zoning.

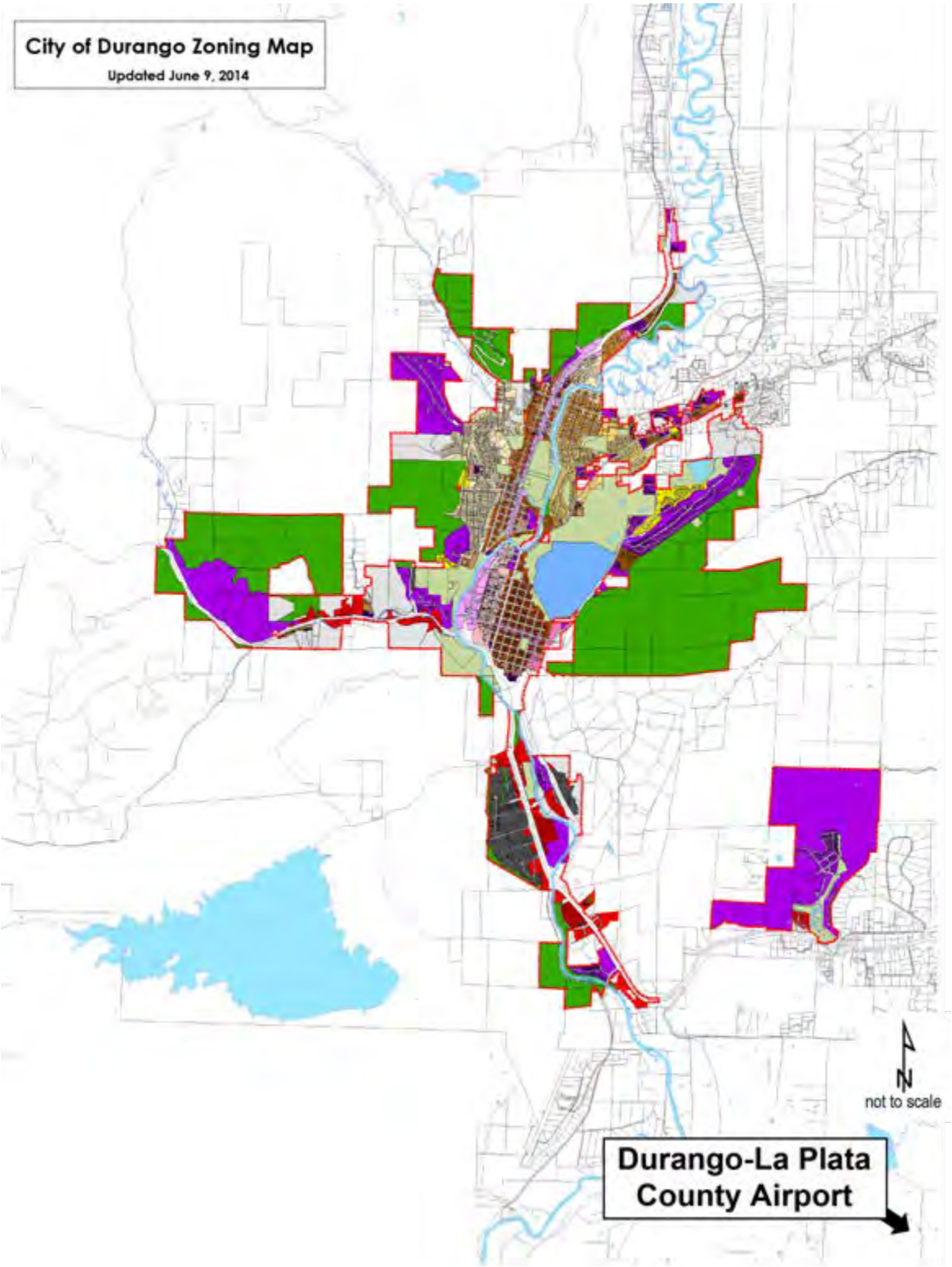
The County is divided into 13 planning districts as shown on **Figure 2-24**. The Airport falls within the eastern edge of the Florida Mesa District, with one small southeastern section in the Southeast La Plata District. **Figure 2-25** depicts the land use classifications for the Florida Mesa District. As shown, DRO is classified as a Public and Community Facility land use. The land areas surrounding DRO are classified as Office/Light Industrial to the north and northwest, and Ag Rural Residential to the west. Small pockets of industrial are to the west and southwest and tribal to the north and northwest. Descriptions of these classifications are:

- **Public and Community Facilities** - Public and quasi-public uses, such as schools, government facilities, cemeteries, hospitals and churches, trail heads, recreation facilities
- **Ag Rural Residential** – Private Land that can be developed at a density of one unit per 10 to 20 acres and are typically served by individual wells and septic systems.
- **Office and Light Industrial** – Commercial, office, and light industrial uses
- **Industrial** - Permits gas refineries, gas compressors, concrete batch plants and manufacturing uses with outdoor
- **Tribal Lands** – Southern Ute Tribal lands

Land use classifications in the neighboring Southeast La Plata District do not exist within this District Plan.[10] However, as shown in **Figure 2-26**, existing land uses adjacent to DRO and within the Southeast La Plata District are generally open land. Compatible land uses around an airport increase safety and aid in minimizing the effects of aircraft noise and environmental impacts. Incompatible land uses such as residential, schools, and churches are not located around DRO.

[10] La Plata County, www.co.laplate.co.us, accessed June 2014.

FIGURE 2-22 – DURANGO ZONING MAP



Notes: Not to scale

Source: City of Durango, www.durangogov.org, accessed June 2014

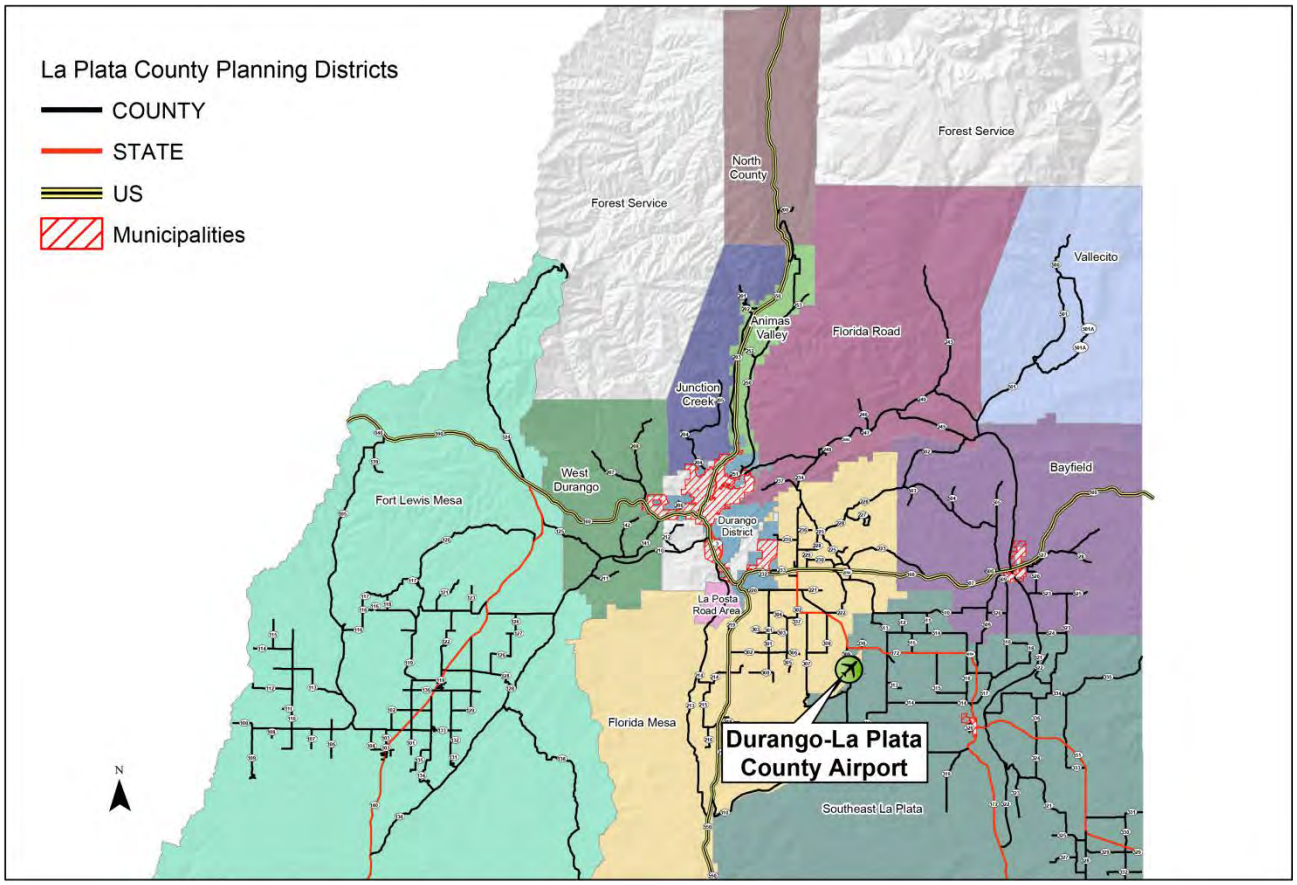
FIGURE 2-23 – DURANGO ZONING MAP LEGEND

Zone Districts

City Limits	
BP	Business Park - Provide for campus-like environments for colleges, universities, business parks, hospitals, etc
CB	Central Business - Provide a robust mixed-use center that is a source of community identity and pride.
CG	Commercial General - Provide for community and neighborhood-scale retail, restaurant, and service uses, and for general and medical office.
CR	Commercial Regional - Provide for regional scale retail uses.
MU-A	Mixed Use Arterial - Provide for community and neighborhood-scale mixed-use and commercial development along arterial corridors.
MU-N	Mixed Use Neighborhood - Provide for mixed-use areas or non-arterial corridors with small-scale residential and mixed-use development, and adaptive re-use of existing residential buildings for mixed-use or commercial purposes.
IL	Industrial Light - Provide for light industrial, flex-park, rail, and storage uses.
PB	Public - Provide for public uses.
OS	Open Space - Provide for the preservation of natural areas under conservation easements and public open space.
RA	Rural / Agriculture - Provide for the establishment or continuation of agricultural uses and services that support agricultural uses, and for very low density development in ecologically sensitive or geologically hazardous areas. May be used as a holding zone for property that is annexed without a zoning designation.
RL	Residential Low - Provide for development of housing in a park-like setting, where buildings, landscaping, and paved areas are roughly equal elements of the visual landscape. This district is the least dense residential district for new development.
RM	Residential Medium - Provide for general residential development of a variety of housing types. Development in the RM district is more intense than that in the RL district.
RH	Residential High - Provide for urban residential development of a variety of housing types. This district is the most intense residential district. Buildings and formal landscaping along the street are dominant visual elements.
EN-MF	Established Neighborhood Multifamily - Protect and encourage investments in existing multifamily properties, including those bounded by other EN districts.
EN-1	Established Neighborhood 1 - Protect the character and functional integrity of the Old Durango neighborhood.
EN-2	Established Neighborhood 2 - Protect the character and functional integrity of the neighborhoods of West Second and Third Avenues.
EN-3	Established Neighborhood 3 - Protect the character and functional integrity of the East Animas City neighborhood.
EN-4	Established Neighborhood 4 - Protect the character and functional integrity of the Crestview and Needham neighborhoods.
EN-5	Established Neighborhood 5 - Protect the character and functional integrity of the Riverview neighborhood.
EN-6	Established Neighborhood 6 -Protect the character and function of Hillcrest and other single-family neighborhoods which were established before the effective date.
PD	Planned Development - Provide for the continuation of existing Planned Development approvals and the approval of new planned developments when it is demonstrated that the development is exceptional and could not

Source: City of Durango, www.durangogov.org, accessed June 2014

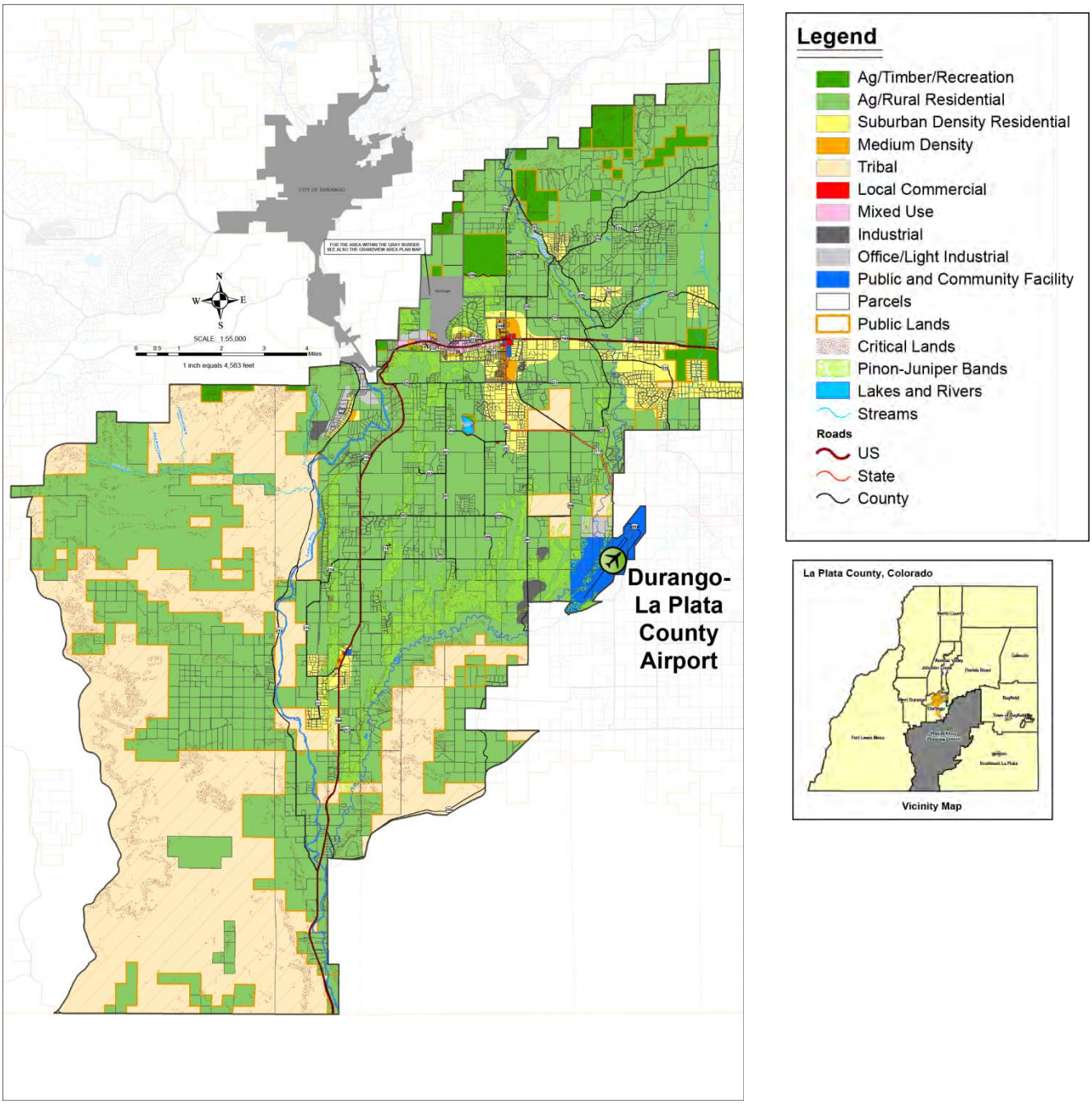
FIGURE 2-24 – LA PLATA COUNTY PLANNING DISTRICTS



Note: Not to scale

Source: La Plata County, www.co.laplata.co.us, accessed June 2014

FIGURE 2-25 – FLORIDA MESA DISTRICT LAND USE CLASSIFICATIONS



Note: Not to scale

Source: La Plata County, www.co.laplata.co.us, accessed June 2014

FIGURE 2-26 – EXISTING LAND USE SURROUNDING DRO

Note: Not to scale
Source: Jviation

Figure 2-25 illustrates a significant amount of tribal land in the Florida Mesa Planning District. The Southern Ute Indian Tribe people are the oldest dwellers of Colorado and the surrounding mountains. Their bands have traveled across the state, residing among mountain ranges and river systems, and specialize in knowledge of the land. Such wisdom and respect for the land comes with great culture and

history. Ute bands harvested only what was required to sustain their units. They were skilled hunters of large and small game, and proficient in basket weaving, gathering, and herbal medicine. Traditions are deeply rooted in their heritage and are accompanied by a rich culture.[12]

Travel routes established by the Ute across the front range have been used by many others, including Spanish explorers in the fifteenth century. The Southern Ute way of life was significantly impacted by European and Spanish quests for land.

Today, Southern Ute tribal land consists of a 1,125-square-mile reservation. The east is predominately timberland on high mountains, while the west is flat arid mesas. A seven-member Tribal Council governs the Southern Ute. The governing body was established by the Indian Reorganization Act by Congress (the Wheeler-Howard Act) in 1934. Their Constitution—approved on November 4, 1936, with the latest amendment made August 27, 1991—authorizes the Southern Ute Indian Tribal Council as the Tribe's governing body.

The Tribe is committed to a comprehensive range of business endeavors and investments. These activities generate millions of dollars for La Plata and Archuleta Counties, and the Tribe is La Plata's largest employer.[11] Predominate influence is provided through support of non-profit organizations in the region, as well as the independent non-profit Southern Ute Community Action Programs, Inc. (SUCAP) corporation and KSUT Public Radio broadcast.

2.14 Environmental Overview

FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, and Order 5050.4B, *National Environmental Policy Act: Implementation Instruction for Airport Actions*, address specific environmental categories that are to be evaluated in environmental documents in accordance with the National Environmental Policy Act (NEPA). This section inventories the applicable environmental categories and their existence at DRO. The following environmental categories are not discussed as they are not relevant to DRO and/or they relate to impacts from a specific project.

- Coastal Resources
- Construction Impacts
- Secondary Impacts
- Socioeconomic Impacts
- Environmental Justice
- Children's Health and Safety Risks

[11] https://www.southernute-nsn.gov/business/ accessed September, 2014.

2.14.1 Air Quality

Air quality analysis for federally-funded projects must be prepared in accordance with applicable air quality statutes and regulations that include the Clean Air Act of 1970[12], the 1977 Clean Air Act Amendments[13], the 1990 Clean Air Act Amendments[14], and the National Ambient Air Quality Standards[15] (NAAQS). In particular, the air pollutants of concern in the assessment of impacts from airport-related sources include six "criteria pollutants:" carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM-10 and PM-2.5), and sulfur dioxide (SO_2).

DRO is within the exterior boundaries of the Southern Ute Indian Reservation (Reservation). The Tribe has an Air Quality Program dedicated to monitoring and ensuring that tribal air remains clear and safe. The Tribe maintains air quality monitoring stations as a part of a monitoring program designed to be responsive to the needs of the Reservation while simultaneously adhering to U.S. Environmental Protection Agency (EPA) guidelines[16].

La Plata County is designated by the EPA as being in attainment status for all parts of the county in all criteria[17].

2.14.2 Department of Transportation Act: Section 4(f)

The Department of Transportation (DOT) Act, Section 4(f)[18] provides that the Secretary of Transportation will not approve any program or project that requires the use of any publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance or land from an historic site of national, state, or local significance unless there is no feasible and prudent alternative and the program or project includes all possible planning to minimize harm resulting from the use.

The FAA adopted the regulations the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) issued in March 2008 (23 CFR Part 774)[19] to address project-related effects on Section 4(f) resources.

For Section 4(f) purposes, a proposed action would eliminate a resource's use in one of two ways.

---

[12] U.S. Code. The Clean Air Act of 1970. U.S. Congress, Public Law 91-604, 42 U.S.C. §7401
[13] U.S. Code. The 1977 Clean Air Act Amendments, U.S. Congress, Public Law 95-95, 42 U.S.C. §7401
[14] U.S. Code. The 1990 Clean Air Act Amendments, U.S. Congress, Public Law 101-549, 42 U.S.C. §7401
[15] 40 CFR Part 50, Section 121, National Ambient Air Quality Standard
[16] Southern Ute Indian Tribe, http://www.southernute-nsn.gov/environmental-programs/air-quality/, accessed August 2014.
[17] U.S. Environmental Protection Agency, Green Book – Nonattainment Status for Each County by Year, www.epa.gov/airquality/greenbook/astate.html, accessed July 2014
[18] U.S. Department of Transportation Act, Section 4(f), recodified and renumbered as § 303(c) of 49 U.S.C.
[19] Vol. 73 Federal Register, page 13395, Mar. 2008.

- **Physical use**. Here, the action physically occupies and directly uses the Section 4(f) resource. Here an action's occupancy or direct control (via purchase) causes a change in the use of the Section 4(f) resources. For example, building a runway safety area across a fairway of a publicly-owned golf course is a physical taking because the transportation facility physically used the course by eliminating the fairway.
- **Constructive use**. Here, the action indirectly uses a Section 4(f) resource by substantially impairing the resource's intended use, features, or attributes. For example, a constructive use of an overnight camping area would occur when project-related aircraft noise eliminates the camping area's solitude. Although not physically occupying the area, the project indirectly uses the area by substantially impairing the features and attributes (i.e., solitude) that are necessary for the area to be used as an overnight camping area.[20]

The City of Durango has 33 park and recreation areas; however, none are located adjacent to or near the Airport.[21]

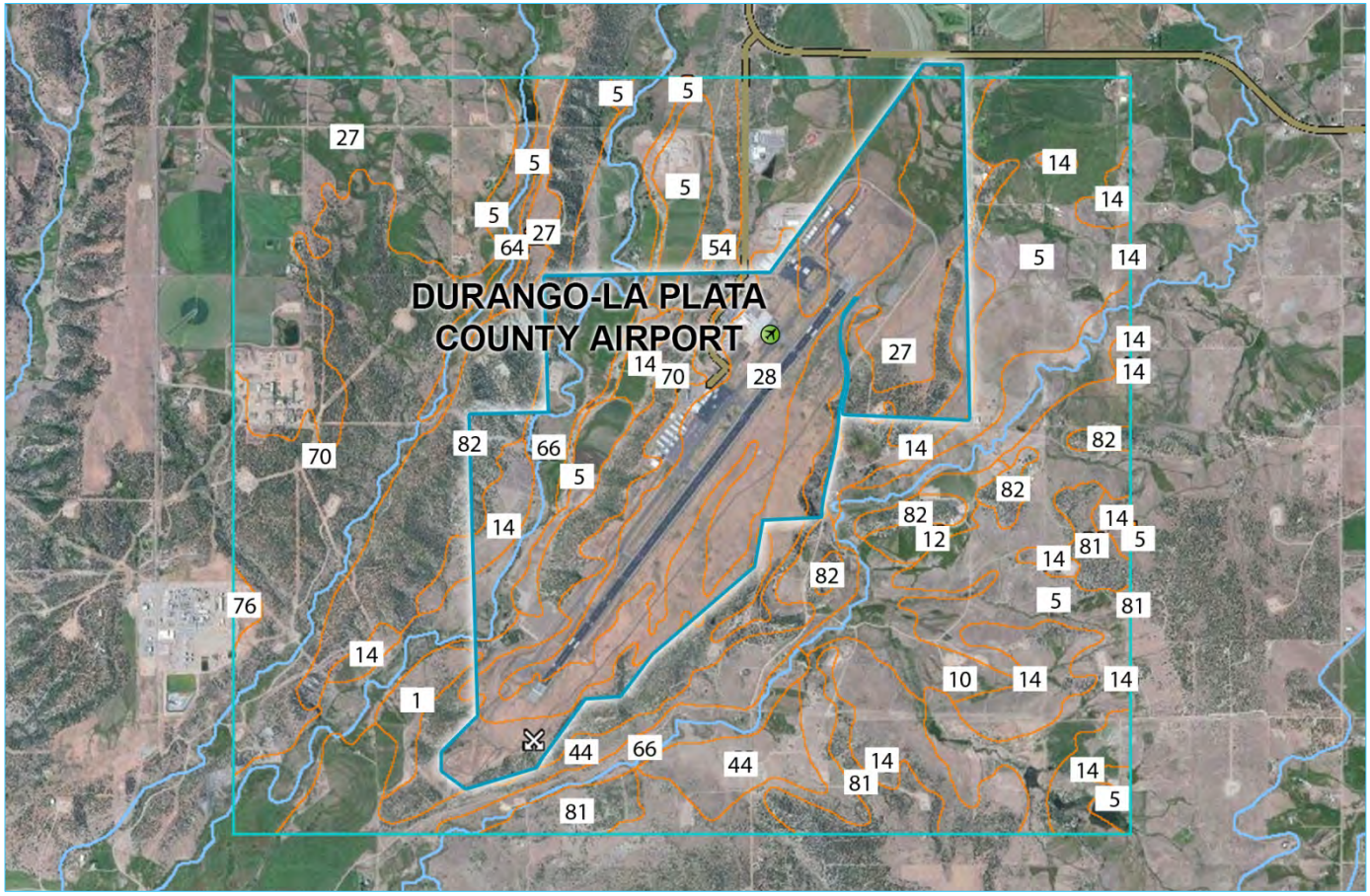
2.14.3 Farmlands

The Farmland Protection Policy Act (FPPA) regulates federal actions that may impact or convert farmland to a non-agricultural use. FPPA defines farmland as "prime or unique land as determined by the participating state or unit of local government and considered to be of statewide or local importance."

The Natural Resources Conservation Service (NRCS) Web Soil Survey was used to review soils on and around DRO. **Figure 2-27** depicts the map unit symbols of the soil types, and **Table 2-20** details the soil types on Airport property; only three are classified as prime farmland (1, 26, and 66). However, the FPPA excludes land dedicated to urban use (including aviation) prior to 1982. Map unit symbols 1 and 26 were dedicated prior to 1982 and are therefore excluded. The area that includes map unit symbol 66, although within the Airport boundary, is dedicated for agricultural use.

[20] A de minimis use cannot occur if a project constructively uses a Section 4(f) property. This is because the substantial impairment associated with a constructive use is more severe than the minor effects to which de minimis provisions apply.
[21] City of Durango Colorado, www.durangogov.org, accessed July 2014

FIGURE 2-27 – NRCS SOILS



Note: Not to scale

Source: Natural Resource Conservation Service, Web Soil Survey, www.websoilsurvey.nrcs.usda.gov, accessed July 2014

TABLE 2-20 – ON AIRPORT SOIL CLASSIFICATIONS

Map Unit Symbol	Map Unit Name	Farmland Classification
1	Agua Fria Loam	Prime (if irrigated)
5	Arboles clay, 3-12 percent slopes	Not prime
14	Bodot clay, 3-10 percent slopes	Not prime
26	Falfa clay loam, 1-3 percent slopes	Prime (if irrigated)
27	Falfa clay loam, 3-8 percent slopes	Not prime
66	Tefton loam	Prime farmland (if irrigated and either protected from flooding or not frequently flooded during growing season)
70	Ustic Torriorthents-Ustollic Haplargids complex, 12 to 60 percent slopes	Not prime
82	Zyme-Rock outcrop complex, 12-65 percent slopes	Not prime

Source: Natural Resource Conservation Service, Web Soil Survey, www.websoilsurvey.nrcs.usda.gov, accessed July 2014

2.14.4 Fish, Wildlife, and Plants

Requirements have been set forth by The Endangered Species Act[22], The Sikes Act[23], The Fish and Wildlife Coordination Act[24], The Fish and Wildlife Conservation Act[25], and the Migratory Bird Treaty Act[26] for the protection of fish, wildlife, and plants of local and national significance. A Biological Resource Review was conducted for Airport property by Ecosphere Environmental Services (see **Appendix C**). The review includes both a desktop and field review.

Although 12 federal- and 31 state-listed plant, animal, and insect species are known to occur in La Plata County as described in the report, only three have the potential to occur within the survey boundary (Airport property) based upon the results of the desktop and field reviews, as listed in **Table 2-21**. The remaining listed species were eliminated from further review due to lack of habitat in the survey area or because their known range was outside the survey area.

[22] Endangered Species Act of 1973, U.S. Congress, Public Law 93-205, 16 U.S.C §1531-1544
[23] Sikes Act, Amendments of 1974, U.S. Congress, Public Law 93-452
[24] Fish and Wildlife Coordination Act of 1958, U.S. Congress, Public Law 85-624, 16 U.S.C §661-666c
[25] Fish and Wildlife Conservation Act of 1980, U.S. Congress, Public Law 96-366, 16 U.S.C §2901-2912
[26] Migratory Bird Treaty Act of 1981, 16 U.S.C §703-712

TABLE 2-21 – FEDERAL AND STATE LISTED ENDANGERED AND THREATENED SPECIES

Species	Scientific Name	Federal Status	State Status	Habitat Description
Southwestern willow flycatcher	*Empidonax traillii extimus*	Endangered	Endangered	Breeds in dense, shrubby riparian habitats, usually in close proximity to surface water or saturated soil.
New Mexico meadow jumping mouse	*Zapus hudsonius luteus*	Endangered	N/A	Herbaceous emergent wetlands, especially dominated by sedges and broad-leaved forbs. Also may utilize riparian communities containing scrub-shrub wetlands along perennial streams.
Burrowing Owl	*Athene cunicularia*	N/A	Threatened	Dry, open, short-grass plains, usually associated with prairie dog towns.

Source: Ecosphere Environmental Services, Biological Resource Review, October 2014

The southwestern willow flycatcher was listed as an endangered species by the U.S. Fish and Wildlife Service (USFWS) on March 29, 1995. The willow flycatcher is also listed by the State of Colorado. An area of approximately half an acre on the eastern side of the Airport boundary meets the size and density of habitat needed for willow flycatchers. However, because the area is small, narrow, and disconnected from other willow habitat, the habitat may be used during migration and less likely for breeding.[27]

The New Mexico meadow jumping mouse was listed by the USFWS June 10, 2014. Three areas within the Airport boundary were found to be suitable habitat for the mouse:

- Valley west of the airfield in along the Florida River
- East side of Airport along wetlands and a tributary that flows into Salt Creek
- Large wetland area, north of the Runway 21 end

Burrowing owls are listed as threatened by Colorado but are not federally listed. Burrowing owls occur infrequently in La Plata County yet they have been confirmed nesting. No burrowing owls have been detected in the survey area during past wildlife surveys.[28] In the survey area, prairie dog colonies are active on and around the runway and terminal, the irrigated fields north of County Road 309A, and the valley adjacent to the Florida River.

Migratory birds were also reviewed due to their protection by the Migratory Bird Treaty Act. The Airport is within Bird Conservation Region (BCR) 16, Southern Rocky Mountains/Colorado Plateau. Of the 24 Birds of Conservation Concern (BCC), five are known to occur within the survey area and six have the

[27] Ecosphere Environmental Services, Biological Resource Review, October 2014.
[28] Ibid.

potential to occur, detailed in **Table 2-22**. Two of the five known to occur, the bald and golden eagles, are also protected under the Bald and Golden Eagle Protection Act.

A golden eagle nest is located in the southwestern section of the survey area in a tree on the slope between the mesa top and the Florida River. This golden eagle territory was first documented in 2006 and has been noted as active in several subsequent years. Airport staff observed golden eagles in the vicinity of the Airport in 2014; a biologist from Ecosphere monitored the nest in early 2014 and determined it was inactive. Ecosphere observed the nest in poor condition during the field review in August 2014.

Colorado Parks and Wildlife (CPW) identifies the survey area as bald eagle winter concentration with winter roost sites straddling CR 309A. A winter concentration area is defined by CPW as areas within an existing winter range where eagles concentrate between November 15 and April 1. These areas may be associated with roost sites. Roost sites are defined as individual trees or groups of trees that provide diurnal and/or nocturnal perches for less than 15 wintering bald eagles, and includes a buffer zone extending one-quarter of a mile around these sites.[29]

While conducting surveys of potential wildlife hazards as part of the Wildlife Hazard Assessment (WHA), Ecosphere documented bald eagles roosting in three tree snags in the area in 2011 and 2012.[30] Airport staff have since removed the trees closest to the runway; however, a group of three partially dead cottonwood trees are present in the northeastern portion of the airfield. These trees possess the large, open-branch structure preferred for roosting and are likely to attract eagles. No bald eagle nests are known to occur in the survey area; however, good nesting trees are present along the Florida River in the valley below DRO.[31]

The Airport area also has several other unique wildlife habitats, including a winter range for both elk and mule deer.[32,33] An elk highway crossing, where elk movements traditionally cross roads and present potential animal-vehicle collisions, is also identified near the Airport entrance.[34]

---

[29] Ibid.
[30] Wildlife Hazard Assessment, Ecosphere Environmental Services, 2013.
[31] Ecosphere Environmental Services, Biological Resource Review, October 2014.
[32] Colorado Parks and Wildlife, 2013
[33] Severe winter range is defined as that part of the range where 90 percent of the individuals are located when the annual snowpack is at its maximum and/or temperatures are at a minimum in the two worst winters out of ten.
[34] Colorado Parks and Wildlife, 2013

TABLE 2-22 – USFWS BIRDS OF CONSERVATION CONCERN – KNOWN OR POTENTIAL TO OCCUR WITHIN AIRPORT BOUNDARY (SURVEY AREA)

Species	Scientific Name	Habitat Description	Potential to Occur/Known to Occur
American bittern	*Botaurus lentiginosus*	Cattails, rushes, grasses, or sedges of wet meadows or marshes.	Potential to occur. Northeastern, past irrigated fields contains dense and tall marshy habitat.
Bald Eagle	*Haliaeetus leucocephalus*	Found around lakes, reservoirs, and rivers. Large branched trees used for nesting, roosting, and foraging.	Known to occur. Survey area within CPW[/a/]defined bald eagle winter concentration area and a known winter roost. Individuals regularly observed in roost trees north of survey area during 2012 surveys conducted for the WHA.[/b/]
Brewer's sparrow	*Spizella breweri*	Sagebrush shrublands, sagebrush obligate species.	Potential to occur. Sagebrush is present east of the runway.
Cassin's finch	*Haemorhous cassinii*	Conifer forests of the high country (8,000 to 11,000 feet), but also will use pinon-juniper woodlands.	Potential to occur. Pinon-juniper woodlands provide habitat.
Ferruginous hawk	*Buteo regalis*	Flat or rolling terrain in grassland, shrub-steppe, and desert habitats.	Potential to occur. Grassland, shrub-steppe, or desert habitats occur in survey area. Prairie dog towns provide prey base.
Golden eagle	*Aquila chrysaetos*	Open habitat with grasslands, shrublands, and farmland for foraging. Nests on cliffs or in trees.	Known to occur. Nest occurs in survey area and prairie dog towns provide foraging.
Grace's warbler	*Setophaga graciae*	Ponderosa pine forest with a scrub oak understory.	Potential to occur. Some ponderosa pine present on the southwestern slopes, but not extensive.
Gray vireo	*Vireo vicinior*	Pinon-juniper woodlands with an open, grassy understory.	Potential to occur. Slopes to the mesa contain pinion-juniper woodlands.
Juniper titmouse	*Baeolophus ridgwayi*	Pinon-juniper woodlands.	Known to occur. Southwestern survey area.
Lewis's woodpecker	*Melanerpes lewis*	Open pine forests, areas with abundant snags and stumps, riparian areas with cottonwoods, and pinon-juniper woodlands.	Known to occur. Northeastern survey area.
Pinon jay	*Gymnorhinus cyanocephalus*	Pinon-juniper woodlands.	Known to occur. Southwestern survey area.

Notes: [/a/] CPW = Colorado Parks and Wildlife
[/b/] WHA = Wildlife Hazard Assessment
Source: Ecosphere Environmental Services, Biological Resource Review, October 2014

Three ponds were observed in the fields northeast of the runway and across CR 309A. These ponds provide habitat for migratory waterfowl and amphibians, and a potential food source for bald and golden eagles. The irrigated fields northeast of the runway provide suitable nesting habitat for marsh-birds such as the American bittern.[35]

A suspected stick raptor nest was observed in a cottonwood tree in the southeast survey area on August 29, 2014. Raptors commonly re-use nests year to year.

Figure 2-28 depicts the CPW wildlife habitats in and around the Airport and **Figure 2-29** depicts unique wildlife habitats observed during the field review.

Due to the numerous species known to occur or with the potential to occur, as well as the unique habitats found within and adjacent to the Airport boundary, the following recommendations were made by Ecosphere.

> "Potential breeding habitat for southwestern willow flycatcher occurs along CR 309A; therefore, Ecosphere suggests the following:
>
> - Conduct USFWS protocol surveys by a permitted biologist to determine the presence or absence of any southwestern willow flycatcher.
> - Initiate discussions with the USFWS to determine the extent of survey requirements: surveys are only valid for one year.
>
> Potential habitat for New Mexico meadow jumping mouse occurs at three locations within the survey area and was documented on the Florida River in 2007 (Frey 2008). Therefore, to determine presence or absence of the species in those areas Ecosphere suggests the following:
>
> - Conduct USFWS protocol survey for Mexico meadow jumping mouse by a permitted biologist.
> - Contact USFWS for "Interim Survey Guidelines for the New Mexico Meadow Jumping Mouse," which are currently in preparation.
>
> In 2009, a golden eagle nest in the survey area blew down presumably from natural causes. A pair of golden eagle was observed in 2010; in 2011 the nest was rebuilt and a nesting attempt was made, but failed. In 2012 the nest was again successful. Therefore, even though the nest was inactive in 2014 and the nest is in somewhat dilapidated condition, the pair have demonstrated they could repair the nest and successfully breed again in the future. Golden

[35] Ecosphere Environmental Services, Biological Resource Review, October 2014.

eagles typically maintain more than one nest in a territory so an alternate golden eagle nest may also occur in vicinity of the airport.

Consequently, Ecosphere suggests the following:

- Monitor the known golden eagle nest beginning this breeding season (January/February).
- Pedestrian surveys to locate alternate golden eagle nests within the known territory.

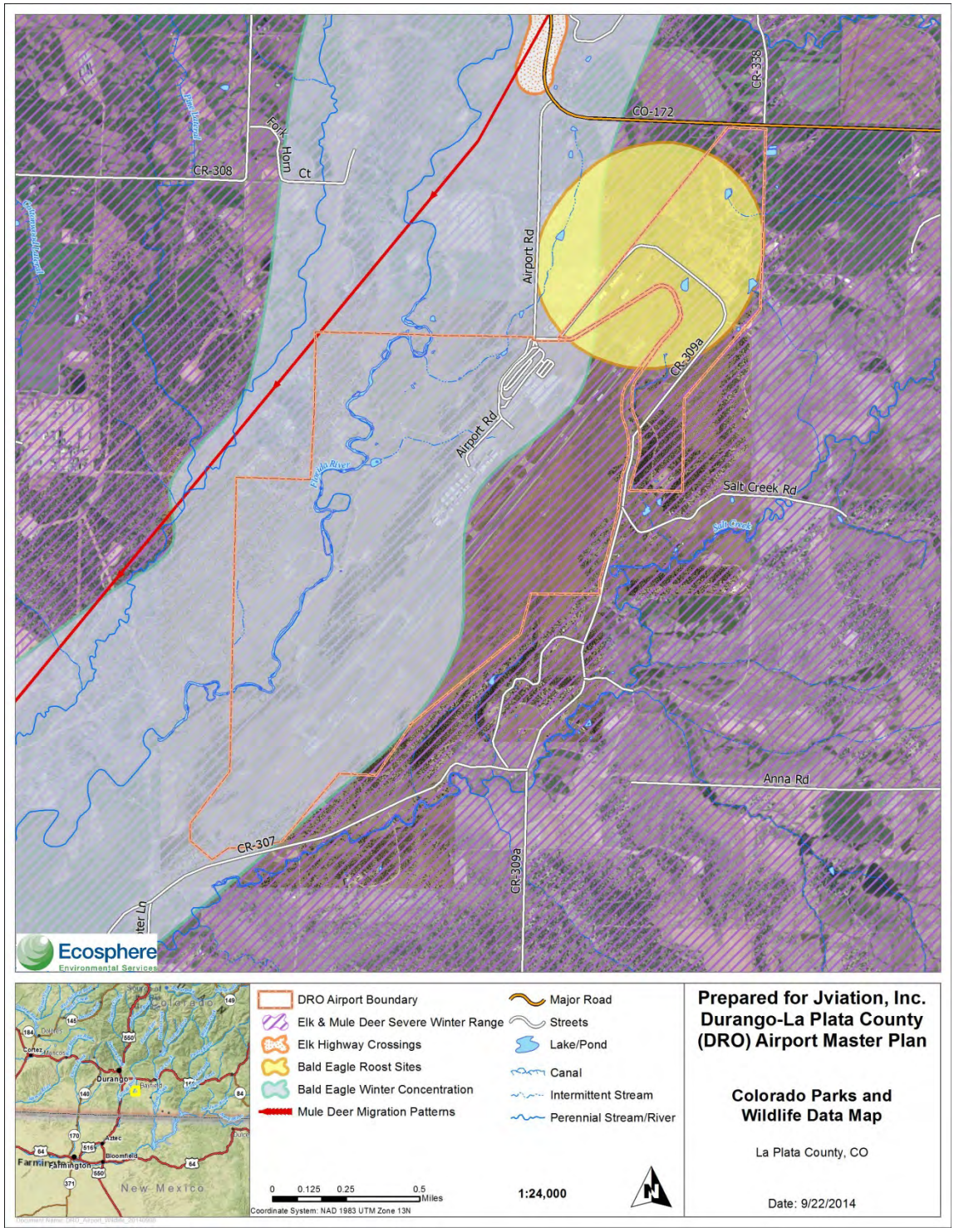
To avoid the potential for bald eagles to roost near the project during construction and avoid seasonal restrictions on construction activity, Ecosphere suggests the following:

- Remove the two cottonwood trees that are potential bald eagle winter roosts. It is appropriate to do this only outside the bald eagle roosting period from March 16 to November 14.

For other raptors, including burrowing owls and breeding birds all protected by the Migratory Bird Treaty Act, Ecosphere suggests the following to avoid non-compliance:

- Conduct a nesting raptor survey the year of construction to determine active nests (including burrowing owls). Surveys should begin in April to capture the most raptors.
- Avoid ground disturbance or vegetation clearing during the breeding bird season, from approximately May 1 through August 1.
- If ground disturbance/vegetation clearing cannot be avoided in the May 1 to August 1 timeframe, use a qualified biologist to conduct a nest clearance survey of the project area no more than 5 days prior to construction. If active nests are found, options are available to avoid impacts to migratory birds while allowing activities to continue; however, agency coordination may be required."

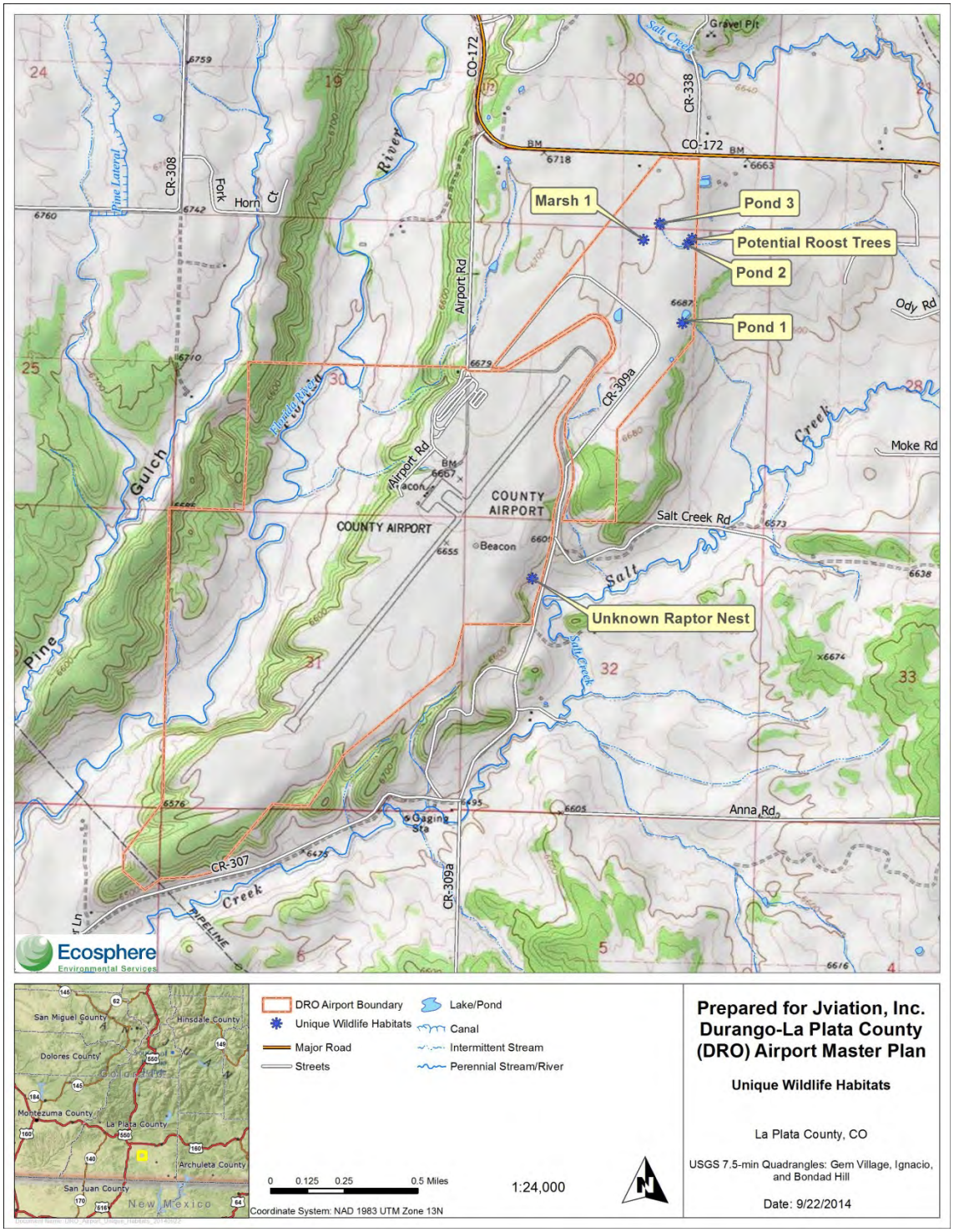
FIGURE 2-28 – COLORADO PARKS AND WILDLIFE DATA MAP



Note: Not to scale

Source: Ecosphere Environmental Services, Biological Resource Review, October 2014

FIGURE 2-29 – DRO UNIQUE WILDLIFE HABITATS



Note: Not to scale

Source: Ecosphere Environmental Services, Biological Resource Review, October 2014

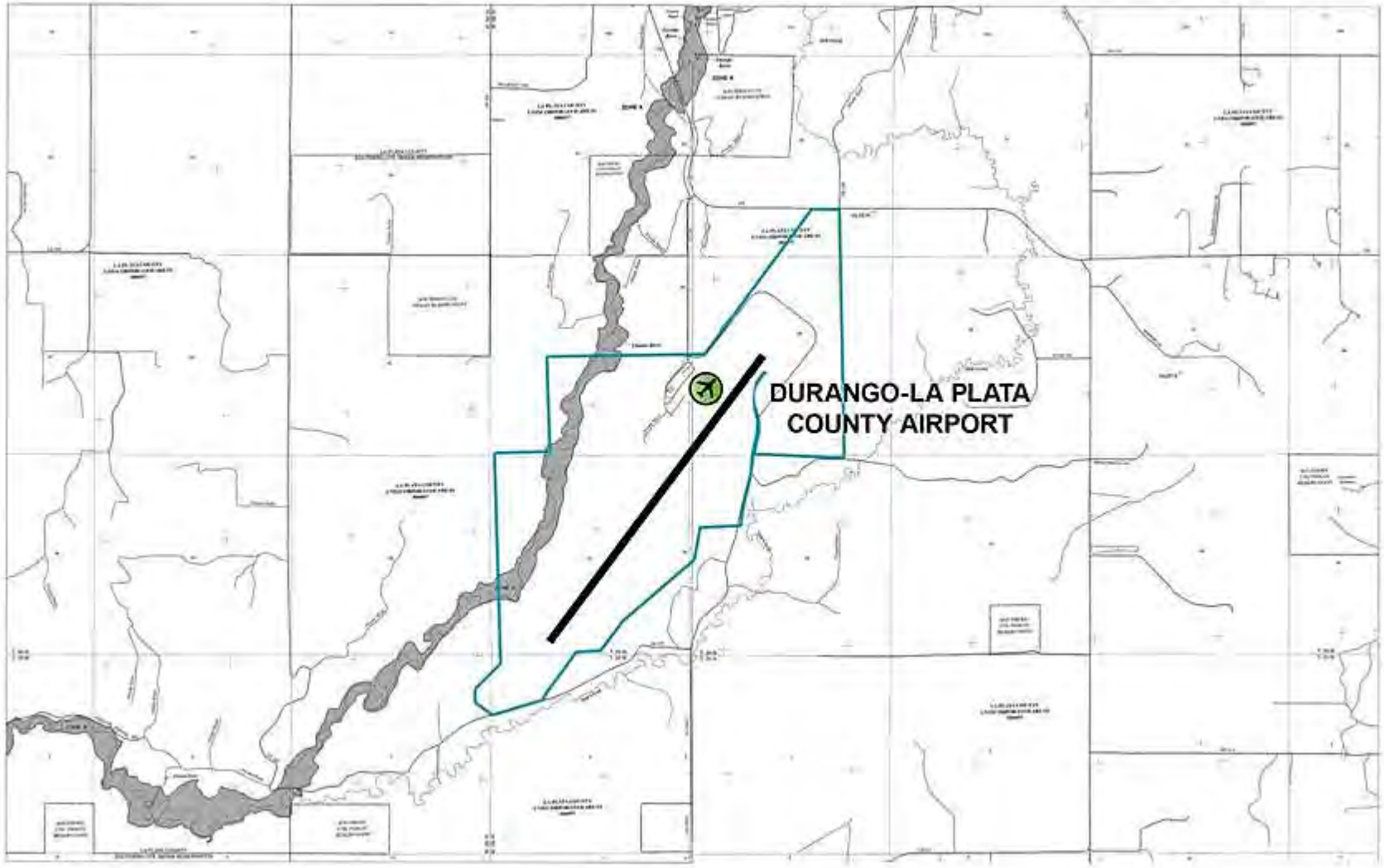
2.14.5 Floodplains

Executive Order 11988, *Floodplain Management*[36] directs federal agencies to "avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative."

The Airport falls on two Flood Insurance Rate Map (FIRM) Panels, 08067C0720F and 08067C0740F, both with effective dates of August 19, 2010. The majority of Airport property is not within a flood hazard area; however, the western most portion of the property is located in Zone A (no base flood elevations determined), a Special Flood Hazard Area (SFHAS) subject to inundation by the one percent annual flood, as shown on **Figure 2-30**.

[36] Executive Order 11988, *Floodplain Management*, 1977

FIGURE 2-30 – FLOOD INSURANCE RATE MAP



Note: Not to scale

Source: FEMA, Flood Insurance Rate Map, Panels 08067C0720F and 08067C0740F, August 19, 2010

2.14.6 Hazardous Materials, Pollution Prevention, and Solid Waste

The Resource Conservation and Recovery Act (RCRA)[37], Comprehensive Environmental Response, Compensations, and Liability Act (CERCLA)[38], Superfund Amendments and Reauthorization Act (Superfund)[39], and the Community Environmental Response Facilitation Act (CERFA)[40] are the four predominant laws regulating actions related to the use, storage, transportation, or disposal of hazardous materials, chemicals, substances, and wastes. Federal actions that pertain to the funding or approval of airport projects require the analysis of the potential for environmental impacts per the regulating laws. Furthermore, property listed or considered for the National Priority List (NPL) should be evaluated in relation to the Airport's location. According to the NPL, no sites are located near the Airport.

A Phase I Environmental Site Assessment (ESA) was completed by Ecosphere Environmental Services in October 2014 (see **Appendix D**). The ESA concluded that the Airport has a low environmental risk from potential contamination associated with hazardous substances or petroleum hydrocarbons. The basis for the assigned low-risk level is summarized below:

- Environmental records in the general vicinity did not contain records of active industrial facilities, active remediation, or spills with the ASTM[41] radius of the Airport.
- Current land uses in the general vicinity of the Airport represent a low risk for potential contamination to the property.
- All fuel storage tanks at the Airport are within appropriate secondary containment, and are regularly monitored for spills and leaks. The Airport has emergency response staff and equipment to provide immediate and appropriate response to any spills or releases that may occur.

2.14.7 Historical, Architectural, Archaeological, and Cultural Resources

The National Historic Preservation Act[42] and the Archaeological and Historical Preservation Act[43] regulate the preservation of historical, architectural, archaeological and cultural resources. Federal actions and undertakings are required to evaluate the impact on these resources.

For purposes of this Master Plan Update, historic, archaeological and cultural resources are districts, sites, buildings, structures, objects, landscapes, and Native American Traditional Cultural Properties (TCPs) that

[37] U.S. Code, 1976, Resource Conservation and Recovery Act, 42 USC, §6901
[38] U.S. Code 1980, Comprehensive Environmental Response, Compensation and Liability Act, 42 USC, §9601-9628
[39] U.S. Code 1986, Superfund Amendments and Reauthorization Act, 42 USC
[40] U.S. Code 1992, Community Environmental Response Facilitation Act, Public Law 102-426
[41] American Society for Testing Materials
[42] U.S. Code, 1966, National Historic Preservation Act of 1966, Public Law 89-665
[43] U.S. Code, 1974, Archaeological and Historical Preservation Act of 1974, 16 USC 469

are on or eligible for listing on the National Register of Historic Places (NRHP) will be discussed. The NRHP currently lists five districts and eight properties for Durango as noted in **Table 2-23** and **Table 2-24**, respectively.

TABLE 2-23 – NATIONAL REGISTER OF HISTORIC PLACES – DISTRICTS IN LA PLATA COUNTY

District Name	Location	Size/Description	Year Added to Registry	Distance from Airport
Durango-Silverton Narrow-Gauge Railroad	Right-of-way between Durango and Silverton	0 acres, 5 buildings, 1 structure	1966	n/a
East Third Avenue Historic Residential District	East Third Avenue between 5th and 15th streets	380 acres, 98 buildings	1984	~15 miles northwest
Main Avenue Historic District	Main Avenue, Durango	340 acres, 86 buildings	1980	~15 miles northwest
Ute Mountain Ute Mancos Canyon Historic District	Address Restricted, Durango	2,080,000 acres	1972	n/a
Spring Creek Archaeological District (Zabel Canyon Indian Ruins)	Address Restricted, Bayfield	33,600 acres	1983	~16 miles northeast

Source: National Register of Historic Places, www.nationalregisterofhistoricplaces.com, accessed July 2014

TABLE 2-24 – NATIONAL REGISTER OF HISTORIC PLACES – PROPERTIES IN LA PLATA COUNTY

Property Name	Location	Year Added to Registry	Distance from Airport
Colorado Ute Power Plan	14th Street & Animas River, Durango	1983	~15 miles northwest
Denver and Rio Grande Western Railroad Locomotive No. 315	479 Main Avenue, Durango	2008	~15 miles northwest
Durango High School	201 E. 12th Street, Durango	2001	~15 miles northwest
Durango Rock Shelters Archaeology Site	Address Restricted	1985	n/a
Newman Block	801-813 Main Avenue, Durango	1979	~15 miles northwest
Ochsner Hospital	805 5th Avenue, Durango	1995	~14 miles northwest
Rochester Hotel	726 E. Second Avenue, Durango	1996	~15 miles northwest
Smiley Junior High School	1309 E 3rd Avenue, Durango	2002	~15 miles northwest

Source: National Register of Historic Places, www.nationalregisterofhistoricplaces.com, accessed July 2014

A Phase I Cultural Resource Survey by Stratified Environmental and Archaeological Services, LLC was completed. The survey documented 14 newly recorded archaeological sites and 28 isolated finds. Historic building documentation was not a part of the study as DRO was constructed in 1973 and no other standing historic structures were within the survey area (DRO boundaries). The survey concluded that none of the isolated finds are eligible for inclusion on the NRHP due to their small size, lack of cultural

context, and lack of archaeological depth, or further information potential. The study did find seven potentially eligible sites. Additional survey work will be required to determine eligibility. The report is not included as part of this document as public release of potentially eligible archaeological sites is not allowed per federal regulations.

2.14.8 Light Emissions and Visual Impacts

Federal regulations do not specifically regulate airport light emissions; however, the FAA does consider airport light emissions on communities and properties in the vicinity of airports. A significant portion of light emissions at airports are a result of safety and security equipment and facilities. The Airport has six primary sources of light:

- **Runway/Taxiway Lighting**: lights outlining the runway and taxiways; classified by the intensity or brightness the lights are capable of producing.
- **REILs**: two synchronized flashing lights located one on each corner of the runway landing threshold.
- **PAPIs/VASIs**: system of lights on the side of an airport runway threshold that provides visual descent guidance information during approach.
- **MALSR**: a combination of threshold lamps, steady burning light bars and flashers (that provide visual information to pilots on runway alignment), height perception, role guidance, and horizontal references.
- **Airport Beacon**: a rotating light used to locate the airport.
- **Apron/Parking Lights**: pole lighting on aprons and parking areas.

All sources of light aid in the safety of operations at the airport and produce an insignificant amount of light on the surrounding area.

2.14.9 Noise

Aircraft noise and noise surrounding airports are two of the most notorious issues related to the environment at airports. The FAA examines actions and development that may change runway configurations, airport/aircraft operation and/or movements, aircraft types, and flight patterns, all of which could ultimately alter the noise impacts on the communities in the vicinity of the airport.

The extent of noise as a result of aircraft operations at DRO was determined using the FAA-approved computer simulation model *Integrated Noise Model (INM-Version 7.0d)*. The INM produces Day-Night Average Sound Level (DNL) contours (i.e., lines of equal noise exposure). **Appendix E** provides an overview of the DNL metric and the INM input data used to prepare the DNL contours for DRO.

Table 2-25 presents DRO's 2013 aircraft operational activity by category while Table 2-26 and Table 2-27 provide the 2013 local aircraft and aircraft fleet of itinerant operations, respectively, by time of day.

TABLE 2-25 – 2013 ANNUAL AIRCRAFT OPERATIONS

Year	Commercial	GA Itinerant	GA Local	Military	Total
2013	7,128	6,902	13,398	500	27,928

Source: Jviation

TABLE 2-26 – 2013 AVERAGE DAY LOCAL OPERATIONS

Aircraft Category	Aircraft Types	INM Aircraft	Daytime Operations	Nighttime Operations	Total Operations
ME Piston	Beech Baron 55/58 Cessna 401/402/414/421	BEC58P	9.94	1.10	11.04
SE Piston	Piper P-46 Malibu/Beech 33/Mooney M20K/M20L/M20J/Cirrus SR-22	GASEPV	16.55	1.84	18.39
	Cessna 180/185/206/210	CNA206	3.98	0.44	4.42
	Cessna 182	CNA182	1.70	0.19	1.88
	Cessna 172/177	CNA172	0.58	0.06	0.65
	AA5A Grumman Cheetah	GASEPF	0.29	0.03	0.32
	Total Local Operations[a]		33.04	3.67	36.71

Note: [a]Numbers may not sum due to rounding

Source: FAA Traffic Flow Management System Count, KB Environmental Sciences, Inc., INM 7.0d

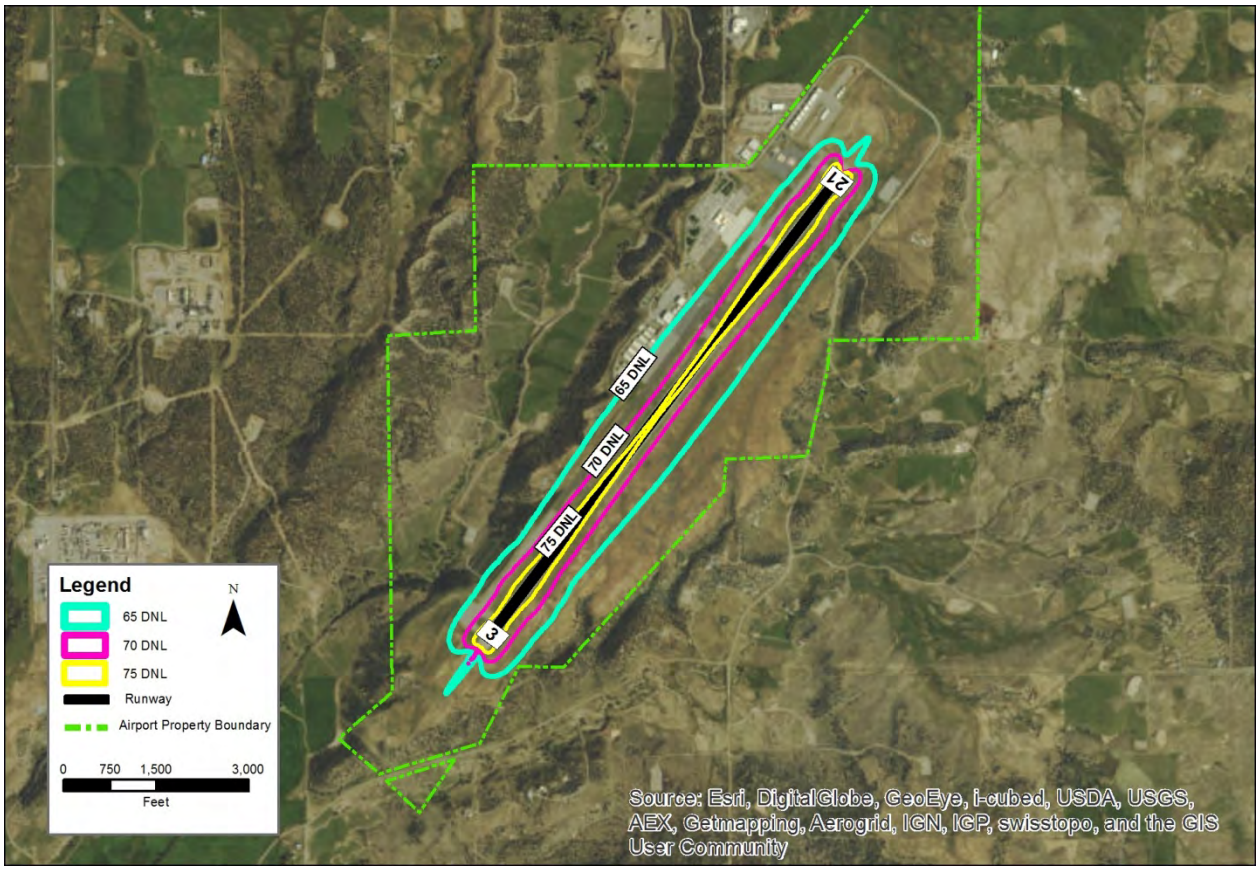
TABLE 2-27 – 2013 AVERAGE DAY ITINERANT OPERATIONS

Aircraft Category	Aircraft Types	INM Aircraft	Daytime Operations	Nighttime Operations	Total Operations
Commercial	Bombardier Q-400	DHC830	6.92	1.73	8.65
	Bombardier CRJ	CL601	4.48	1.12	5.61
	Embraer Regional Jet 135/145	EMB145	2.26	0.57	2.83
	Airbus A-319	A319-131	1.09	0.27	1.37
	Embraer Regional Jet 145 EX	EMB14L	0.73	0.18	0.92
	Embraer 190	EMB190	0.12	0.03	0.16
Jet	Bombardier Learjet 35/45/55	LEAR35	1.05	0.26	1.32
	Cessna Citation II/Bravo	CNA55B	0.34	0.08	0.42
	Mitsubishi Diamond I	MU3001	0.29	0.07	0.36
	Cessna Citation CJ2/3	CIT3	0.28	0.07	0.35
	Bombardier Challenger 600/601	CL600	0.25	0.06	0.31
	Cessna Citation Ultra/Encore	CNA560E	0.51	0.13	0.64
	Eclipse 500	ECLIPSE500	0.24	0.06	0.30
	Cessna Citation Sovereign	CNA680	0.16	0.04	0.20
	Cessna 500/Citation I	CNA500	0.14	0.03	0.17
	Cessna Citation X	CNA750	0.12	0.03	0.15
	Dassault Falcon 900	F10062	0.11	0.03	0.13
	Cessna Citation Jet/CJ1	CNA525C	0.10	0.03	0.13
	IAI Astra 1125	IA1125	0.07	0.02	0.08
	Bombardier Global Express	GV	0.06	0.02	0.08
	Gulfstream IV	GIV	0.06	0.01	0.07
	Cessna Citation Mustang	CNA510	0.04	0.01	0.05
	Gulfstream II/III	GIIB	0.01	0.00	0.02
	Learjet 25	LEAR25	0.00	0.00	0.01
Turboprop	Cessna 208 Caravan/Pilatus PC-12	CNA208	2.64	0.66	3.30
	Cessna 441/Super King Air 200/300	CNA441	3.83	0.96	4.79
	Dash-6/Swearingen Merlin IV	DHC6	1.22	0.30	1.52
	Shorts 330	SD330	0.06	0.02	0.08
ME Piston	Beech Baron 55/58; Cessna 401/402/414/421	BEC58P	1.07	0.27	1.34
SE Piston	Piper P-46 Malibu/Beech; 33/Mooney; M20K/M20L/M20J/Cirrus SR-22	GASEPV	1.79	0.45	2.23
	Cessna 180/185/206/210	CNA206	0.43	0.11	0.54
	Cessna 182	CNA182	0.18	0.05	0.23
	Cessna 172/177	CNA172	0.06	0.02	0.08
	AA5A Grumman Cheetah	GASEPF	0.03	0.01	0.04
Military	C-130	C130E	1.10	0.27	0.04
	Total Itinerant Operations		31.85	7.96	39.81

Source: FAA Traffic Flow Management System Count, KB Environmental Sciences, Inc., INM 7.0d

The 2013 65 DNL contour remains primarily within the DRO property boundary. **Figure 2-31** shows that no residences or other noise sensitive land uses are within the 65 DNL.

FIGURE 2-31 – 2013 65-75 DNL CONTOURS



Note: Not to scale
Source: KB Environmental Sciences, Inc.

2.14.10 Water Quality

The Clean Water Act[44] provides the federal government the "authority to establish water quality standards, control discharges, develop waste treatment management plans and practices, prevent or minimize the loss of wetlands, location with regard to an aquifer or sensitive ecological area such as a wetland area, and regulate other issues concerning water quality."

Three major watersheds exist around DRO: Upper San Juan, Animas, and Middle San Juan. As discussed in **Section 2.10.3**, the Airport's water supply is obtained onsite via a natural spring and runoff.

Water quality permits are coordinated and issued by both the EPA and Colorado Department of Public Health and Environment, Water Quality Control Division.

[44] U.S. Code, 1977 The Clean Water Act, 33 U.S.C. §1251-1387

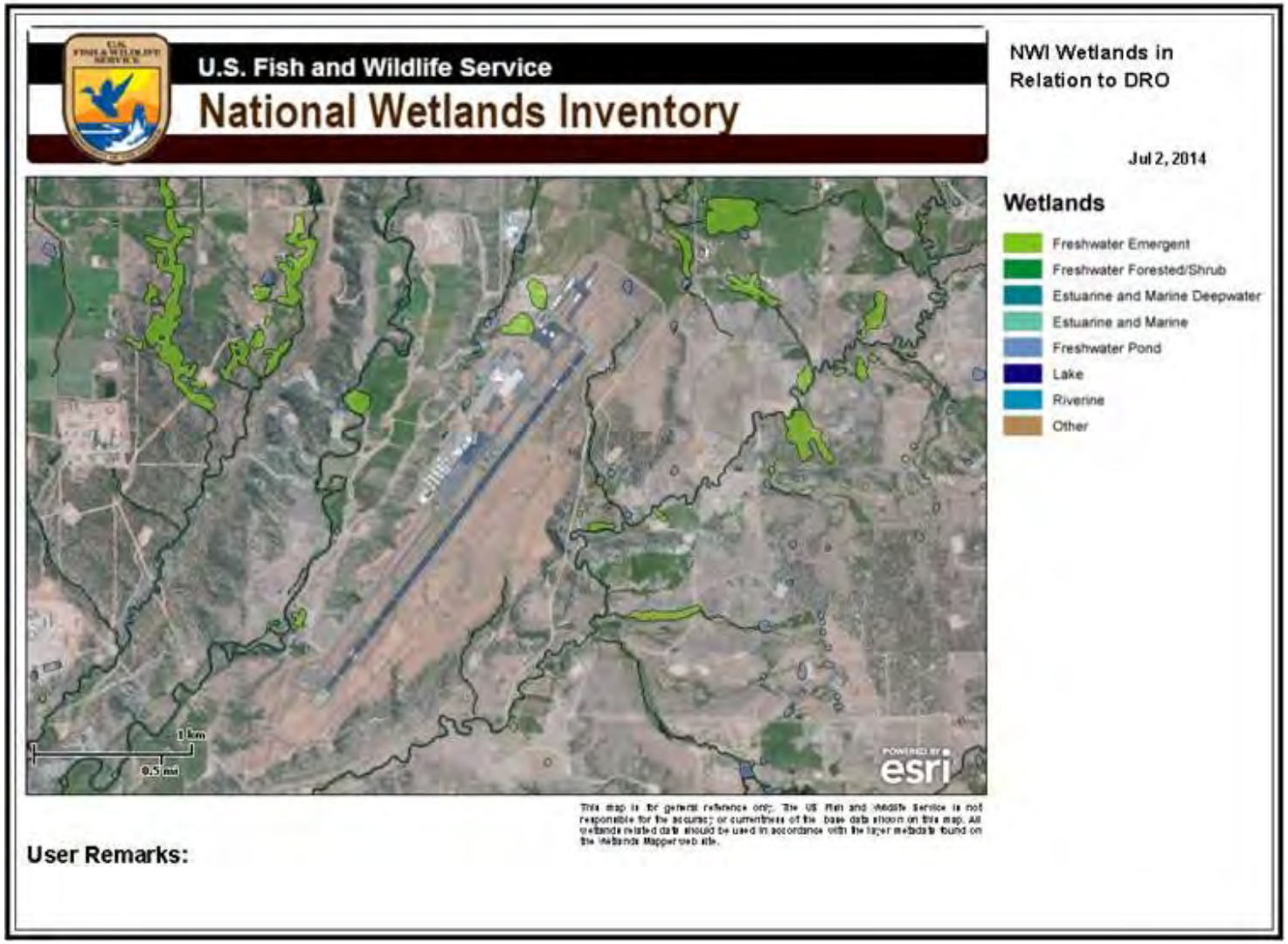
2.14.11 Wetlands

Executive Order 11990, Protection of Wetlands, defines wetlands as "those areas that are inundated by surface or groundwater with a frequency sufficient to support and under normal circumstances does or would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction." Federal agencies are required to minimize the destruction, loss, or degradation of wetlands.

According to the National Wetlands Inventory (NWI), wetlands exist both around and on Airport property. **Figure 2-32** illustrates wetlands as identified in the NWI. A wetland delineation, on Airport property, was conducted by Ecosphere Environmental Services. The Wetland and Waters of the U.S. Preliminary Jurisdictional Delineation Report is in **Appendix F**. A total of six wetland verification areas were delineated as depicted on **Figure 2-33**. Other wetlands within the study area, totaling approximately 37 acres, were identified using the NWI classification method[45]. In total, approximately 57 acres of potentially jurisdictional wetlands were delineated and mapped in the study area.

[45] See **Appendix F**, Wetland and Waters of the U.S. Preliminary Jurisdictional Delineation Report, Section 3. Methodology, page 4, October 2014.

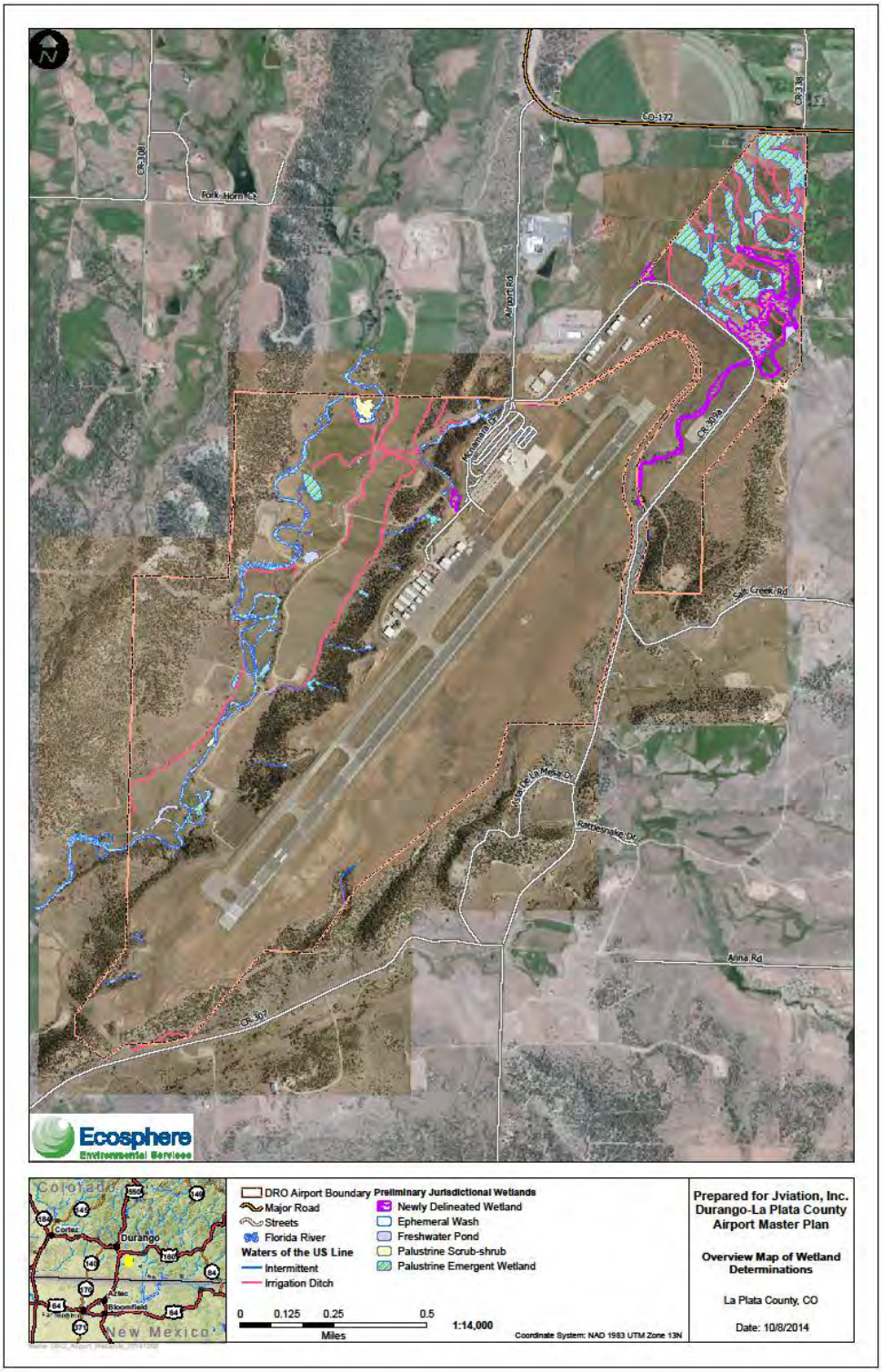
FIGURE 2-32 – NATIONAL WETLAND INVENTORY MAP



Note: Not to scale

Source: U.S. Fish and Wildlife Service, National Wetlands Inventory, Wetlands Mapper, www.fws.gov/wetlands/Data/Mapper.html

FIGURE 2-33 - WETLANDS



Note: Not to scale
Source: Ecosphere Environmental Sciences, 2014

2.14.12 Wild and Scenic Rivers

The Wild and Scenic Rivers Act of 1968, as amended[46], describes those river segments designated as, or eligible to be included in, the Wild and Scenic Rivers System. Impacts to designated rivers should be avoided or minimized to the extent possible. In addition, the President's 1979 *Environmental Message Directive* on Wild and Scenic Rivers[47] directs federal agencies to avoid or mitigate adverse effects on rivers identified in the Nationwide Rivers Inventory as having potential for designation under the Wild and Scenic Rivers Act.

Rivers are classified as wild, scenic, or recreational. **Table 2-28** describes each classification. However, regardless of classification, each river in the National System is administered with the goal of protecting and enhancing the values that caused it to be designated. A designated river is neither prohibited from development nor does it give the federal government control over private property. Protection of the river is provided through voluntary stewardship by landowners and river users and through regulation and programs of federal, state, local, or tribal governments. In most cases not all land within boundaries is, or will be, publicly owned, and the Act limits how much land the federal government is allowed to acquire from willing sellers.[48]

As of July 2011, the National System protects 12,598 miles of 203 rivers in 38 states and the Commonwealth of Puerto Rico; this is less than one-quarter of one percent of the nation's rivers.[49]

TABLE 2-28 – WILD & SCENIC RIVER CLASSIFICATIONS

Classification	Description
Wild	Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.
Scenic	Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.
Recreational	Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

Source: National Wild and Scenic Rivers System, www.rivers.gov, accessed July 2014

[46] U.S. Code, The Wild and Scenic Rivers Act of 1968, 16 USC 1271-1287, 1977
[47] Office of Environmental Policy, 1979, *Policy Guidelines for Wild and Scenic Rivers*, 1980
[48] National Wild and Scenic Rivers System, www.rivers.gov, accessed July 2014
[49] Ibid.

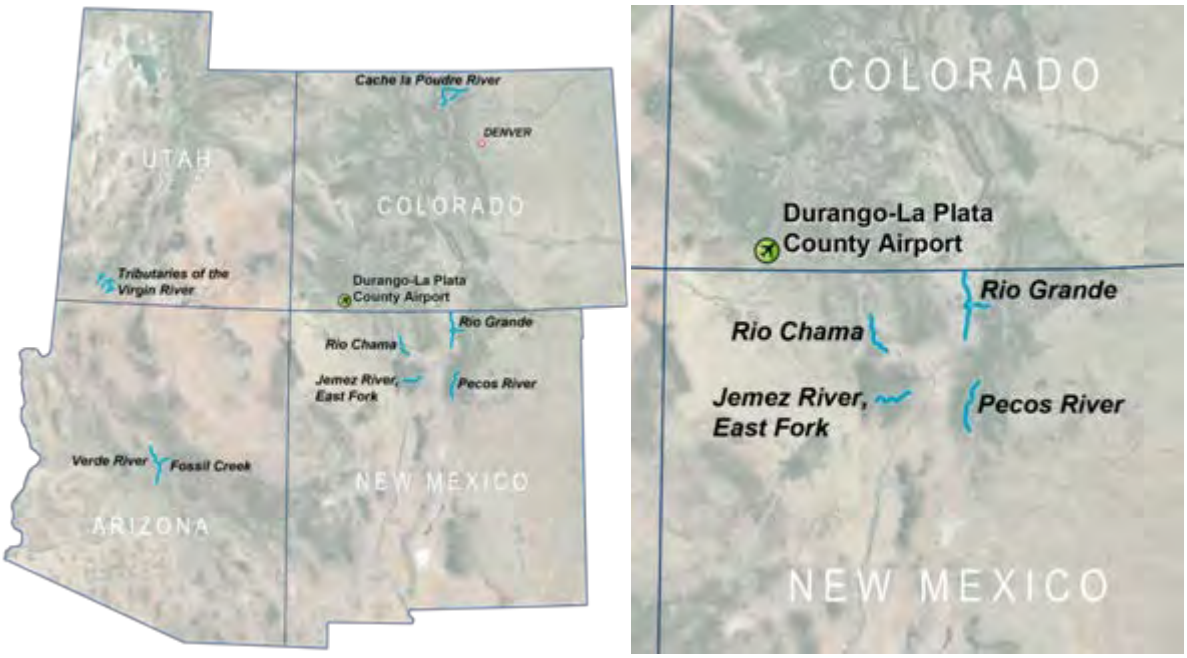
As DRO is located in the Four Corners Region, the locations of wild and scenic rivers in Colorado, Utah, New Mexico, and Arizona were reviewed. **Table 2-29** lists the four nearest wild and scenic rivers to DRO. **Figure 2-34** depicts designated rivers in the four states and those closest to DRO.

TABLE 2-29 – WILD AND SCENIC RIVERS

River	State	Miles Designated	Nautical Miles from DRO
Rio Chama	NM	24.6 (21.6 wild; 3.0 scenic)	~73
Jemez River, East Fork	NM	11.0 (4.0 wild; 5.0 scenic; 2.0 recreational)	~100
Rio Grande[/a/]	NM	68.2 (54.9 wild; 12.5 scenic; 0.8 recreational	~108
Pecos River	NM	20.5 (13.5 wild; 7.0 recreational)	~122

Note: [/a/]Portion of designated river is located in southern Texas
Source: National Wild and Scenic Rivers System, www.rivers.gov, accessed July 2014

FIGURE 2-34 – WILD AND SCENIC RIVER LOCATIONS IN RELATION TO DRO



Note: Not to scale
Source: National Wild and Scenic Rivers System, www.rivers.gov, accessed July 2014

2.14.13 Sustainability Initiatives

Sustainability can be defined as "meeting the needs of the present without sacrificing the ability of future generations to meet their own needs." The aviation industry has developed numerous sustainable initiatives that are utilized throughout the country. These initiatives can be federal, state, or local mandates; however, they are more effective when an airport independently realizes sustainability makes good business sense. A few of the various benefits airports can gain from embracing sustainability are:

- Reduced capital asset life cycle costs
- Reduced operating costs
- Better customer service and satisfaction
- Enhanced relationships with the community

For the purpose of Master Plans, sustainability is the ideas, actions, and processes implemented to reduce the overall impact an airport has on the environment. An airport can reduce its impact on the environment by using water, energy, land, and materials efficiently; protecting the health and improving the productivity of the employees and passengers; and by reducing waste and pollution.

2.14.13.1 Local Sustainability Initiatives

Both La Plata County and the City of Durango have sustainability programs. The County's missions is to "promote and incorporate social, environmental, and economic sustainable best practices, concepts and technologies into the workings of La Plata County government that are socially practical, environmentally sound, and economically feasible." Together, the County and City have four programs:

- Household Hazardous Waste Collection[50]
- Energy Savings and Resource Conservation Initiatives[51]
- Computer and Electronics Recycling[52]
- Commercial and Large Quantities[53]

Durango's Sustainability Division assists with enhancing the County programs by holding events designed to enhance the city's energy efficiency and waste reduction efforts. The Division serves as point of contact for the community on the City's recycling event, the household hazardous waste collection event, and other community sustainability events and activities.

---

[50] County program sponsored by both the City and County.
[51] La Plata County Colorado, Sustainability Programs, www.co.laplata.co.us, accessed July 2014.
[52] City program only.
[53] Ibid.

Durango recently implemented single-stream recycling as part of its garbage collection services. The new program allows all recyclables except glass to be recycled in one container. Non-city residents are able to recycle at the Durango Recycle Center.

2.14.13.2 Airport Sustainability Initiatives

The Airport has a number of existing sustainable initiatives including recycling and energy conservation initiatives. In July 2010, DRO entered into an Energy Performance Contract (EPC) with Ameresco to install Energy Conservation Measures (ECMs) designed to reduce energy consumption in the terminal and ARFF facility. The ECMs included:

- A lighting retrofit utilizing high-efficiency T8 and LED fixtures with occupancy sensors was performed.
- Boilers in the terminal were replaced with high-efficiency condensing boilers.
- The 7.5-ton condensing unit in the terminal was replaced with a new model with a higher Energy Efficiency Ratio (EER).
- The 15-ton rooftop unit at the ARFF building was replaced with a high-efficiency 12.5-ton unit.
- Existing system optimization was performed at the terminal.
- Split-system air conditioning was installed at the ARFF building.
- A 20-kW solar photovoltaic system was installed in the terminal.
- Window coatings were applied to the terminal windows to reduce solar heat gain.
- Direct Digital Control (DDC) building automation systems were installed in the terminal and ARFF facility.
- Garage door switches were installed in the ARFF building to lock out heaters while the doors are open.
- Walk-through doors were installed in the ARFF building garage doors, enabling personnel to enter or exit without opening the main garage door.

The EPC guaranteed a total annual utility cost savings of $22,287; however, each of the past three years has exceeded the guaranteed savings; 2013 had a verified costs savings of $42,459.[54]

[54] Durango La Plata County Airport Energy Performance Contract, Reconciliation Report, Year 3, June 1, 2013 – May 31, 2014

2.14.13.3 Airport Solid Waste and Recycling

The Airport currently collects co-mingled recyclables (glass, mixed paper, corrugated cardboard, plastic, aluminum) throughout the terminal. Recycling is picked-up on site by the City.

Solid waste at DRO is collected by Waste Management, a national company.

2.15 Airport User Surveys

To further assess the adequacy of the airport facilities and desired improvements, surveys were sent to local aircraft owners and pilots, corporate businesses that have operated at DRO in the past year, the car rental and ground transportation companies at DRO, passengers, and the airlines. The surveys are in Appendix G.

3.0 AVIATION ACTIVITY FORECASTS

Aviation activity forecasts are essential for airport master plans because they project future demand activity levels. In the master planning process, forecasts are the second element of the investigation phase of a master plan. Once developed, aviation activity forecasts are used to determine the need for new or improved airport facilities. Per FAA Advisory Circular (AC) 150/5070-6B: *Airport Master Plans*, aviation forecasts should be realistic, based upon the latest available data, reflect current airport conditions, and provide adequate justification for airport planning and development. Additionally, forecasts must be prepared for short- (0-5 year), medium- (6-10 year), and long-term (10-20 year) periods, and specify the existing and future critical aircraft.

While forecasting is essential for a successful master plan, it only serves as an approximation of future activity based on historical data and present conditions. There are many unforeseen factors that can influence forecasts, both positively and negatively, as time progresses. Forecasts and the projects that they justify should be revisited periodically for this reason. The Master Plan will examine the facility requirements based on anticipated aviation demand for the 20-year planning period, concluding the investigation phase of the Master Plan, and initiating the solutions phase to accommodate future aviation demand on airport facilities.

The projections of aviation demand documented in this chapter were prepared during a period of sustained growth in commercial airline passenger enplanements. Within the last eight years DRO was handling just half of the traffic now traveling through the airport. This occurred during a period dubbed the Great Recession, when airlines were slashing capacity in response to softening demand for air travel and high fuel prices. While it may not be certain that this growth trend will continue at current levels, it is reasonable to project that by the end of the forecast period in 2035, between 300,000 and 400,000 passengers will be boarding flights out of terminal facilities at DRO. The following sections provide detail on the forecast analysis, methodologies employed, and the conclusions that led to the selection of the preferred forecast.

3.1 DATA SOURCES

The following sources of data and guidance were used in the development of the aviation activity forecasts.

3.1.1 FAA Terminal Area Forecast (TAF), Published February 2014[1]

The TAF is updated annually and is used by the FAA to determine budget and staffing needs and serves as a resource for airport operators, the general public, and other interested parties. The TAF methodology

[1] FAA Terminal Area Forecast, http://aspm.faa.gov/main/taf.asp

employs a top-down approach to determine forecasts in order to maintain a nationwide perspective. The TAF provides a framework for developing forecasts, and is utilized for comparison of scenario-driven forecasts with forecasts developed by the FAA. Comparison of the two forecasts serves as a general requirement for FAA's approval of an airports master plan forecast. [2]

3.1.2 FAA Advisory Circular 150/5070-6B, *Airport Master Plans*

This document establishes the framework for forecasts that are prepared as part of master plans. AC 150/5070-6B provides a flexible approach to master planning that aims guidance towards critical issues for consideration and resource utilization. It contains key guidance that explains the steps required for the development of a master plan, including the preparation of aviation activity forecasts and what elements should be forecasted.

3.1.3 Airport Cooperative Research Program Report (ACRP): *Counting Aircraft Operations at Non-Towered Airports* [3]

This 2007 report was prepared for the Airport Cooperative Research Program, a research branch of the Transportation Research Board of the National Academies. This report describes methodologies used across the country to estimate operations at airports without an airport traffic control tower (ATCT).

3.1.4 ACRP Report: *Airport Aviation Activity Forecasting* [4]

This 2007 report was also prepared by the ACRP. It discusses methods, including different forecast modeling, and practices for aviation activity forecasting. This report identifies ways to evaluate forecast, particularly uncertainty and accuracy in forecasts. The ACRP report also identifies common aviation metrics, issues in data collection and preparation, and data sources.

3.1.5 Forecasting Aviation Activity by Airport [5]

Written by GRA, Inc. under contract to the FAA, this 2001 document provides guidance to individuals, as well as the FAA, when preparing airport activity forecasts as well as those who review the forecasts. Further, the FAA utilizes this guidance when developing the TAF.

---

[2] FAA AC 150/5070-6B, *Airport Master Plans*, http://www.faa.gov/documentLibrary/media/advisory_circular/150-5070-6B/150_5070_6b_chg1.pdf

[3] Airport Cooperative Research Program Synthesis 4, *Counting Aircraft Operations at Non-Towered Airports*, http://onlinepubs.trb.org/onlinepubs/acrp/acrp_syn_004.pdf

[4] Airport Cooperative Research Program Synthesis 1, *Airport Aviation Activity Forecasting*, http://onlinepubs.trb.org/onlinepubs/acrp/acrp_syn_002.pdf

[5] FAA Aviation Data & Statistics, http://www.faa.gov/data_research/aviation_data_statistics/index.cfm?print=go

3.1.6 FAA Form 5010-1, Airport Master Record

Form 5010-01 provides historical, operational, and enplanement data for DRO, as compiled by the FAA, and is utilized primarily to cross-reference other data sources.

3.1.7 FAA Aerospace Forecasts, Fiscal Years 2014-2034[6]

The FAA annually prepares this document to explain current economic and aviation outlooks, as well as macro level forecasts of aviation activity and the U.S. aircraft fleet.

3.1.8 Woods & Poole Economics[7]

Historical and forecast socioeconomic data for Durango and La Plata County (and surrounding areas) was obtained from Woods & Poole Economics of Washington, D.C. Use of this data source is recommended by the FAA in the document "Forecasting Aviation Activity by Airports." Woods & Poole data includes historical economic data for the Farmington Metropolitan Statistical Area and the Durango Micropolitan Statistical Area. The Farmington, NM Economic Area includes: Archuleta, CO; Dolores, CO; Hinsdale, CO; La Plata, CO; Montezuma, CO; San Juan, CO; and San Juan, NM.[8] Data is provided from year 1970 forward, with forecasted economic data up to year 2040.

3.1.9 Colorado Department of Transportation, Aviation System Plan, 2011

Additional information was obtained from the Colorado Department of Transportation Aviation System Plan, 2011 to support the data needs described throughout this chapter.

3.2 Demographic and Economic Factors

Aviation demand is largely a function of demographic and economic activity, provided there is a causal relationship. Planners should consider socioeconomic data, demographics, disposable income, and geographic attributes when preparing forecasts. As mentioned in Section 3.1.8, socioeconomic data was collected from Woods & Poole Economics, an independent firm that specializes in long-term economic and demographic projections. Woods & Poole maintains a current database for every U.S. county, with forecasts through 2040, using more than 900 variables.

---

[6] FAA Aerospace Forecasts FY 2014-2034, http://www.faa.gov/about/office_org/headquarters_offices/apl/aviation_forecasts/aerospace_forecasts
[7] Woods & Poole Economics: 2013 Data Pamphlet. http://www.woodsandpoole.com/
[8] Woods & Poole Economics: 2013 Data Pamphlet, Appendix 6. http://www.woodsandpoole.com/

3.2.1 Local and Regional Socioeconomic Characteristics

In order to support Woods & Poole data with other specific industry sectors for additional trends and correlation, an analysis of local and regional socioeconomic data in an airport's forecast for future aviation demand. Socioeconomic data was also collected from the U.S. Census Bureau and the Bureau of Labor Statistics. Oil and gas activity was also reviewed due to its favorable impact on the economy. Although Woods & Poole data is used in the forecast analysis, the following sections highlight the existing economic characteristics of La Plata County, as indicated by the U.S. Census Bureau, the Bureau of Labor Statistics.

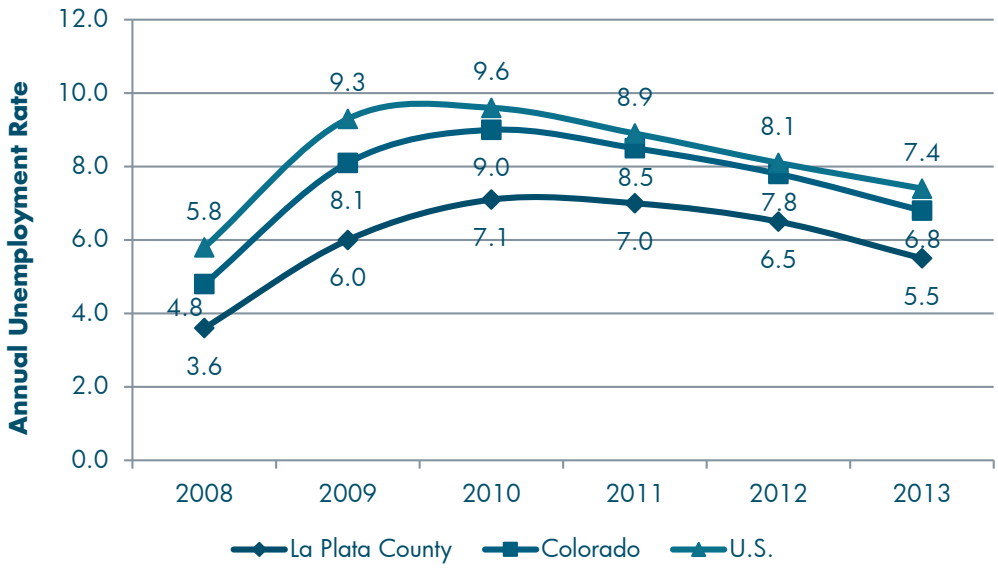
3.2.1.1 Employment

The five-year (2008-2012) estimate for the number of civilians employed in La Plata County was approximately 27,400, which is roughly 52 percent of the population in 2012. The top five industries include:

- Educational services, and health care and social assistance (19 percent)
- Arts, entertainment, and recreation, and accommodation and food services (14 percent)
- Retail trade (12 percent)
- Construction (11 percent)
- Professional, scientific, and management, and administrative and waste management services (11 percent)

The Bureau of Labor Statistics reports that La Plata County's unemployment rate has historically been lower than that of Colorado and the nation. The most recently reported (2013) unemployment rate for La Plata County was 5.5 percent, a significant decrease from 2010, when the County's unemployment rate peaked at 7.1 percent. The County's current unemployment rate remains below Colorado's and the U.S. unemployment rates, as depicted in **Figure 3-1**.

FIGURE 3-1 – 5-YEAR HISTORICAL UNEMPLOYMENT RATES



Source: U.S. Bureau of Labor Statistics

3.2.1.2 Community Socioeconomic Overview

According to Woods & Poole data, the Western region, consisting of the Southwest, Rocky Mountain (including Colorado), and the West regions will experience the most growth of any region in the nation for the next 30 years. The population in the Western region is forecast to increase by 43.9 million people between 2011 and 2040. By the year 2040, 36 percent of all Americans are expected to reside in the West; this is up from 24 percent in 1970 and 33 percent in 2011. It is also expected to generate 32.5 million jobs from 2010 to 2040, with a projected total U.S. job gain of 39 percent. Moreover, Woods & Poole predicts that the population of La Plata County, Colorado, specifically, will grow between 1.01 percent and 1.30 percent annually through 2040.

3.2.1.3 Oil and Gas Activity

La Plata County has approximately 3,000 producing oil and gas wells operated by 33 companies[9]. The region's economy receives support from annual tax revenues generated by this oil and gas activity. Oil and gas accounted for 37 percent of taxable dollars in 2013, and its value of property taxes accounted for over $683.9 million in assessed values.[10] The prior two years yielded higher taxable dollars at 48.4 percent for 2011 and 45.9 percent in 2012, with its value of property taxes over one billion for both years. Overall, the

[9] Drilling Edge, www.drillingedge.com/colorado/la-plata-county, accessed September 2014.
[10] Colorado Department of Local Affairs (DOLA), Colorado Assessed Values 1999-2013, www.colorado,gov/cs/Satellite/DOLA-Main/CBON/1251594648177

oil and gas industry has averaged over 40 percent of property taxes from 1998 through 2013 and continues to economically impact the region.

3.3 National Aviation Outlook

3.3.1 FAA Aviation Forecasts[11]

Each year the FAA prepares a national aviation forecast to project estimated commercial and GA activity levels. The FAA references the data to determine funding needs for its various operational arms. The current forecast document is for Fiscal Years 2014-2034. The major forecasting trends and conclusions are provided in this section to set the overall framework for the aviation industry and contain some concepts, acronyms, and categories that have not yet been defined in this chapter. The reader is encouraged to refer to the table of contents and the glossary to identify sections of the forecast where they are thoroughly discussed.

The commercial air industry endured several major events since the year 2000. They include September 11, a spike in fuel prices, debt restructuring in the U.S. and Europe, and a global recession. The Great Recession reversed a trend of sustained growth for the commercial airline industry. In spite of that, airlines adapted and long-term forecasts for the aviation industry remain positive. To manage extreme instability, airlines have streamlined their business models by lowering operating costs, eliminating unprofitable routes, grounding older and less fuel-efficient aircraft, and introducing (ancillary) charges for services that were traditionally bundled with the price of a ticket. Industry improvements and movement toward rapidly developing markets have resulted in more capacity management and consolidation since 2010.

In its Aerospace Forecast for Fiscal Years 2014-2034, the FAA predicts overall system capacity to increase modestly (up 1.5 percent) in 2014. In the domestic commercial carrier market, the mainline carrier capacity growth is projected to expand 8.0 percent in 2014, while regional carriers are expected to post a 2.2 percent increase, its first increase since FY 2011. Overall domestic commercial carrier capacity for the entire forecast period (2014-2034) is projected to increase at an average annual rate of 2.1 percent, which is slower than economic growth. Regional carriers are to grow faster than mainline carriers at 2.3 percent and 2.0 percent, respectively. Enplanements are forecasted to grow by 0.6 percent in 2014 whereas domestic, mainline, and regional carrier enplanements are predicted to grow by an annual average of 1.9 percent through 2034.

However, for GA growth, the FAA appears cautiously optimistic that demand for business jet aircraft will remain attractive relative to commercial air travel due to reliability, safety, and security concerns. The FAA

[11] FAA Aerospace Forecast Fiscal Years 2014-2034.
http://www.faa.gov/about/office_org/headquarters_offices/apl/aviation_forecasts/aerospace_forecasts

forecasts strong growth for business aviation demand over the long-term driven by higher corporate profits and worldwide GDP growth. The FAA predicts that GA aircraft used for business purposes will increase faster than GA aircraft used for personal or recreational use. The active GA fleet is projected to grow by an average of 0.5 percent each year through 2034. More expensive and sophisticated turbine-powered fleets are projected to grow by 2.6 percent annually, with the turbine jet fleet growing at 3.0 percent annually until 2034.

The number of piston-powered aircraft in the GA market are forecasted to decrease from 141,325 in 2013 to 131,615 by 2034. The smaller category of piston-powered rotorcraft is growing at 1.7 percent annually. Single-engine fixed-wing are projected to decline at a rate of 0.4 percent, similar to multi-engine fixed wing aircraft which post a 0.5 percent decline each year. The number of GA hours flown is anticipated to increase by 1.4 percent yearly through 2034, reflecting strong growth in rotorcraft and turbine jet fleets in the medium term.[12]

3.4 Forecasting Methodologies

There are several types of methodologies that can be used when developing aviation forecasts. Each forecast methodology must show short- (5 years), medium- (10 years), and long-term (beyond 10 years) periods, while keeping in mind that a forecast prepared through the use of mathematical relationships must ultimately withstand the test of rationality/judgment. These methodologies were used in developing forecasts for DRO passenger enplanements, commercial and GA aircraft operations, and based aircraft operations. The different methodologies are briefly described below.

3.4.1 Time Series Analysis

A Time Series Analysis, also known as a Trend or Linear Analysis, uses historic patterns of activity and projects this trend into the future. The time series analysis is a regression analysis with time as the independent variable. The linear extrapolation uses the least squares method to fit a straight line between the historical points and projects that line into the future. This type of forecasting is widely used and is highly valuable because it is relatively simple to apply. However, its limitation is that it simply uses past historical data and variables that are not present in past data, such as change in fuel prices and the economic downturn, are not considered in the result.

3.4.2 Regression Analysis

Regression Analysis is a statistical technique that ties aviation demand (dependent variable), such as aircraft operations, to economic measures (independent variables), such as population or income. The independent

[12] FAA Aerospace Forecast Fiscal Years 2014-2034.
http://www.faa.gov/about/office_org/headquarters_offices/apl/aviation_forecasts/aerospace_forecasts

variable is considered the explanatory variable because it "explains" the projected estimated value. The explanatory power of this approach is measured by the R^2 statistic (called the correlation coefficient or the coefficient of determination). An R^2 helps determine if there is a correlation between the dependent and the independent variables; R^2 of 0 means there is no statistical relationship between changes of the variable, while a R^2 of 1.0 means there is a very strong statistical relationship. Regression Analysis should be restricted to relatively simple models with independent variables for which reliable forecast are available. Most regression models for aviation use gross economic measures like income, population, or employment to forecast activity levels.

The Regression Analysis measures used in this forecast study include population, employment, total earnings, total personal income, and total retail sales in Durango and the Farmington MSA, as reported by Woods & Poole.

3.4.3 Market Share Analysis

Market Share Analysis assumes a top-down model. It uses a relationship between national, regional, and local forecasts to predict the trends at the Airport. This approach uses the forecast of large aggregates, such as the entire nation, which is used to derive forecasts for a smaller area (e.g. airport). One example is to determine an airport's percentage (market share) of the national enplanements and then forecast the Airport's growth rate based on the national forecast growth rate. The market share analysis approach to forecasting is not without weaknesses. National forecasts are composed of airports that are growing fast, growing slowly, and not growing. Since this analysis is based upon a regional or larger aggregate, the planner must take into account historical trends, as well as local airport judgment, to better estimate the forecast.

For this forecast study, the market share analysis used DRO's market share within both the FAA Northwest Mountain Region (ANM) (which includes Colorado, Utah, Wyoming, Idaho, Montana, Washington, and Oregon), and the Airport's market share within the entire state of Colorado as reported by the TAF. Air carrier and commuter operations forecasts apply DRO's historical market share within Colorado and the ANM as the independent variable to forecast future growth, while GA operations and based aircraft market share variables utilize the TAF's predicted 20-year growth for ANM and CO from 2015-2025.

3.5 Forecasting Aviation Activity Measures and Metrics

Forecasting parameters are determined by the level and type of aviation activity expected at DRO. As a commercial service airport, the forecast for DRO focuses on commercial passenger enplanements, as well as GA aircraft operations, and based aircraft activity levels. Demand for aviation is primarily a function of demographic and economic activity, not only in the region that the airport is located, but also regions

where the airport is the destination. Data sources for these metrics are fully identified in Sections 3.1.8 and 3.1.9.

3.5.1 Commercial Aviation

Commercial aviation consists of all scheduled and unscheduled air service where passengers are flown on commercial aircraft for fare or for hire. Unscheduled air service flights, such as air taxi/charter, operate on an on-demand basis. Commercial aviation activity is measured by passenger enplanements and aircraft operations.

3.5.1.1 Passenger Enplanements

An important activity measurement at airports served by commercial air carriers is the number of passenger enplanements. A passenger enplanement is the act of a passenger boarding a plane that is departing. A deplanement is the opposite, when a passenger exits an airplane arriving at an airport. At most airports, including DRO, enplanements and deplanements are equal since most passengers have round trip itineraries. For the purposes of this forecast, only enplanements are considered when forecasting. Enplanements are important for forecasting at a commercial service airport because they help determine terminal size and the number of gates needed. Deplaning passengers are also considered for various calculations in terminal facilities. They are assumed to be equal to enplanements. Annual forecasts are also supplemented with peak demand forecasts that are used in determining needs to meet peak hourly demand for various airport facilities.

3.5.1.2 Commercial Aircraft Operations (Takeoffs or Landings)

Commercial activity is measured by the amount of commercial aircraft operations conducted annually. Commercial operations include air carrier and air taxi/commuter operations. Air carrier operations are conducted by certificated air carrier operators as either a large air carrier aircraft, designed to accommodate 31 or more passenger seats, or a small air carrier aircraft, designed to accommodate between nine and 31 passenger seats.[13] Air carrier capacity is also measured by passenger load factors. The commercial aircraft operations forecast also determines fleet mix by size and type of commercial aircraft used, as well as annual and peak month.

3.5.2 General Aviation

General Aviation (GA) consists of aircraft activity that is not considered commercial or military. Forecasting metrics of GA activity normally consist of aircraft operations and the number of based aircraft.

[13] FAA Part 139 Airport Certification, http://www.faa.gov/airports/airport_safety/part139_cert/?p1=definitions

3.5.2.1 Aircraft Operations

A GA aircraft operation is defined as the take-off or the landing of a GA aircraft. Taken all together, the projection of an airport's aircraft operations also identify critical aircraft and how adequate the airfield is to serve such aircraft and those aircraft with similar characteristics. The critical aircraft for an airport is defined by the largest, heaviest aircraft in the fleet mix that conducts at least 500 operations annually. The projected critical aircraft is used to define future airfield design requirements as well as other facilities used by various aircraft on a regular basis.

It is difficult to obtain an exact count of DRO's current total aircraft operations since it is a non-towered airport (not serviced by an Airport Traffic Control Tower). Data from the 2013-2035 TAF was therefore used as a baseline for operational counts.

3.5.2.2 Based Aircraft

Based aircraft forecasts identify how many aircraft are to be stored at DRO. The data is used to calculate need for specific hangar types and space requirements of aircraft parking aprons. The 2013-2035 FAA Terminal Area Forecast was used to confirm the Airport's estimate that 70 aircraft were based at DRO in the base forecast year of 2013.

3.6 Review of Historical and Existing Forecasts

Several existing forecasts for DRO were examined. Each of the existing forecasts examined is discussed in the following text.

3.6.1 2004 Master Plan Forecast

The purpose of presenting the 2004 Aviation Activity Demand Forecast is to provide a ten-year historical review of the direction of aviation demand at DRO. The passenger enplanements, total operations, and based aircraft, as indicated in the 2004 Master Plan Update are presented in **Table 3-1**.

TABLE 3-1 – 2004 AVIATION ACTIVITY DEMAND FORECAST

	2000	2006	2011	2016	2021
Enplanements	90,556	108,129	125,351	145,316	168,461
Commercial Operations	9,986	9.930	10,380	11,310	11,510
Total Operations	48,106	52,001	56,063	60,922	65,397
Based Aircraft	53	58	65	75	82

Source: 2004 Master Plan Update

Upon review of the historical forecasts, the existing passenger enplanements (192,797) and commercial operations (11,854), as indicated by the TAF and FAA audited enplanement records, exceed the 2004 Master Plan's projected enplanements and commercial operations for 2016. However, the 2004 Master

Plan's base year forecasts for total operations (48,106) exceeds the Airport's existing 47,068 operations, as indicated in the 2013 TAF. The existing number of based aircraft (70) is below the forecast of the 2004 Master Plan, as DRO was forecasted to have 75 based aircraft by 2016.

3.6.2 CDOT Aviation Forecast

In 2011, the Colorado Department of Transportation (CDOT) Aeronautics Division completed the Colorado Aviation System Plan. This study was conducted to provide CDOT Aeronautics with an updated performance-based airport system plan forecasts for the 76 public-use airports in Colorado. **Table 3-2** shows the forecasts for DRO as part of this study.

TABLE 3-2 – CDOT STATEWIDE AVIATION FORECAST UPDATE FOR DRO

	2010	2015	2020	2030
Enplanements	163,600	198,700	228,800	279,300
Commercial Operations	8,410	9,000	9,800	11,070
Total Operations	29,020	30,320	31,860	34,690
Based Aircraft	70	70	71	72

Source: 2011 CDOT Aviation System Plan

3.6.3 2012 Terminal Area Master Plan

In 2012, a Terminal Area Master Plan (TAMP) was completed for DRO in support of an effort to add capacity to terminal facilities due to the observed strong growth in enplanements. As shown in **Table 3-3** enplanements for 2013 were projected to be 175,400, with a 2.7-percent growth rate over the forecast period through 2030. However, by 2013 enplanements reached 192,797, which exceeded the 2012 Terminal Area Master Plan's forecast for 2015 (184,200). Airlines continue to view Durango as a growth market and additional flights and larger aircraft indicate that this trend will continue.

TABLE 3-3 – 2012 TERMINAL AREA MASTER PLAN FORECAST

Year	Enplanements
2013	175,400
2014	179,800
2015	184,200
2020	206,300
2025	228,500
2030	250,700

Source: DRO Terminal Area Master Plan (2012)

Potential factors that led to the deviation in the TAMP forecast from the actual demand in the subsequent four years between 2010 and 2013 were examined. In the TAMP forecast, the methodology chosen was multiple regression where a correlation between the historical population in La Plata County and DRO enplanements demonstrated the strongest relationship. The R-squared value was 0.95 which suggested a

very strong correlation. The forecast then adopted the projected growth rate for the population in La Plata County furnished by Woods & Poole to establish the preferred enplanement forecast for the TAMP.

However, as noted, the observed demand quickly outpaced the preferred forecast. The likely reason is that the correlation is not with the growth rates themselves. In fact, the growth rates are dissimilar as the enplanement growth is significantly larger than the population growth rate over the same period, a trend that continues at least through 2013. The phenomenon is captured in the ratio of DRO enplanements to La Plata County population which rose from 2.13 enplanements per resident in 2005 to 3.04 enplanements per resident in 2010, an increase of nearly 7.4 percent. The TAMP notes this increase but disregards it in the preferred forecast. By simply adopting the population forecast rate, the implied assumption is that the historical increase in the ratio of enplanements to population will freeze at the current level through 2030. In other words, the assumption is that the annual growth in that ratio would drop from 7.4 percent to zero and never increase. However, the ratio between DRO enplanements and population continued to increase at nearly 6.0 percent from 2010 through 2013, a continuing trend that caused the TAMP growth rate to underperform actual demand.

3.6.4 FAA Terminal Area Forecast

The FAA prepares an annual TAF for each airport in the NPIAS. It identifies all U.S. airports that are considered significant to the national aviation infrastructure network. The TAF that was used for DRO was published February 2014, and is presented in Table 3-4. The TAF indicates that airports the size of DRO will have marginal growth. However, these forecasts are not always site-specific, and the FAA traditionally uses a conservative approach when site-specific data cannot be obtained.

TABLE 3-4 – FAA TAF FORECAST SUMMARY - DRO

	2013 Base Year	2015	2020	2025	2030	2035	CAGR[/a/]
Commercial Enplanements							
Total Enplanements	199,381	208,476	231,186	253,344	277,797	304,784	1.9%
Itinerant Operations							
Air Carrier	8,615	8,632	8,962	9,414	9,889	10,388	
Air Taxi & Commuter	3,239	3,265	3,330	3,397	3,468	3,543	
GA	13,265	13,445	13,907	14,389	14,889	15,404	
Military	500	500	500	500	500	500	
Total Itinerant	25,619	25,842	26,699	27,700	28,746	29,835	
Local Operations							
GA	21,449	21,754	22,537	23,347	24,185	25,053	
Total Local GA	21,449	21,754	22,537	23,347	24,185	25,053	
Total Operations	47,068	47,596	49,236	51,047	52,931	54,888	0.7%
Total Based Aircraft	70	71	75	80	85	90	1.2%

Note: [/a/]Compound Annual Growth Rate

Source: FAA Terminal Area Forecast 2013-2035, published 2014

3.7 DRO Commercial Activity

3.7.1 Scheduled Airline Service

Currently, DRO is served by four airlines[14]. Service to Denver is provided by United Airlines and Frontier airlines, while direct Phoenix service is provided by US Airways, as detailed in **Section 2.5.1**. American Airlines offers flights from DRO direct to Dallas-Fort Worth. **Table 3-5** and **Table 3-6** show the scheduled airline departures and arrivals at DRO, including aircraft types and frequencies.

[14] The merger of American Airlines and US Airways will reduce the number of airlines that service DRO to three once consolidation of the two companies is complete.

TABLE 3-5 – DRO SCHEDULED AIRLINE DEPARTURES - WEEKDAYS

To	Airline	Time	Aircraft Type
Denver	United Express-SkyWest	5:45a	Bombardier Q400
Phoenix	US Airways	6:15a	CRJ-200, CRJ-900
Denver	Frontier[/a/]	7:02a	Airbus A-319
Denver	United Express-Republic	7:50a	Bombardier Q400
Denver	United Express-Republic	10:15a	Bombardier Q400
Denver	United Express-Republic	11:48a	Bombardier Q400
Dallas	American Eagle	12:20p	Embraer ERJ-140
Phoenix	US Airways	12:30p	CRJ-200, CRJ-900
Dallas	American Eagle	3:00p	Embraer ERJ-140
Phoenix	US Airways	3:25p	CRJ-200, CRJ-900
Denver	United Express-Republic	3:47p	Bombardier Q400
Denver	United Express-Republic	5:38p	Bombardier Q400

Note: Schedules and aircraft at time of publication may vary from actual airline schedules; check airline schedules for use.
Not all months furnished schedules at time data was obtained, November 2014.
[/a/]Service is seasonal
Source: DRO Airport Management Records, July 2014

TABLE 3-6 – DRO SCHEDULED AIRLINE ARRIVALS - WEEKDAYS

From	Airline	Time	Aircraft Type
Denver	United Express-Republic	9:36	Canadair CRJ-200
Denver	United Express-Republic	11:13	Bombardier Q400
Phoenix	US Airways	11:19	CRJ-200, CRJ-900
Dallas	American Eagle	11:53	Embraer ERJ-140
Phoenix	US Airways	2:33	CRJ-200, CRJ-900
Dallas	American Eagle	2:33	Embraer ERJ-140
Denver	United Express-Republic	3:12	Bombardier Q400
Denver	United Express-Republic	5:00	Bombardier Q400
Phoenix	US Airways	5:36	CRJ-200, CRJ-900
Denver	United Express-Republic	8:22	Bombardier Q400
Denver	Frontier[/a/]	10:25	Airbus A-319
Denver	United Express-Republic	11:20	Bombardier Q400

Note: Schedules and aircraft at time of publication may vary from actual airline schedules; check airline schedules for use.
Not all months furnished schedules at time data was obtained, November 2014.
[/a/]Service is seasonal
Source: DRO Airport Management Records, July 2014

Figure 3-2 graphically depicts the top 25 origin and destination markets from Durango, with the number of passengers enplaned in 2013.

FIGURE 3-2 – TOP 25 ORIGIN & DESTINATION MARKETS FROM DRO

Rank	Market	Passengers
1	Denver, CO (DEN)	65,467
2	Ft. Worth, TX (DFW)	26,191
3	Houston, TX (IAH)	24,210
4	Phoenix, AZ (PHX)	17,318
5	Chicago, IL (ORD)	10,262
6	Austin, TX (AUS)	10,076
7	San Francisco, CA (SFO)	8,756
8	Seattle, WA (SEA)	8,727
9	Minneapolis, MN (MSP)	8,370
10	Atlanta, GA (ATL)	8,124

Sources: Passenger Demand Analysis, Boyd Group International, Durango-La Plata County Airport, November 2013, and Jviation

3.8 Passenger Enplanement Forecast

Projections of commercial passenger enplanements are an important part of the forecasting task. In particular, forecasts of commercial enplaned passengers are a critical input for identifying future requirements for the Airport's terminal building and other facilities in the terminal area.

For this Master Plan Update, the process to develop a projection for this demand component started with reviewing the Airport's historical enplanements.

Between 2000 and 2013, enplaned commercial passengers at DRO grew from 85,738 to 192,797. This was an average annual rate of growth of 6.4 percent for the 13-year period. This rate of growth for passenger enplanements at DRO was significantly above the average for all commercial airports in the FAA's ANM for the same time frame. The average annual rate of growth for commercial enplanements for all commercial airports in the Region was just 1.4 percent and for the state of Colorado was 2.2 percent over the same period.

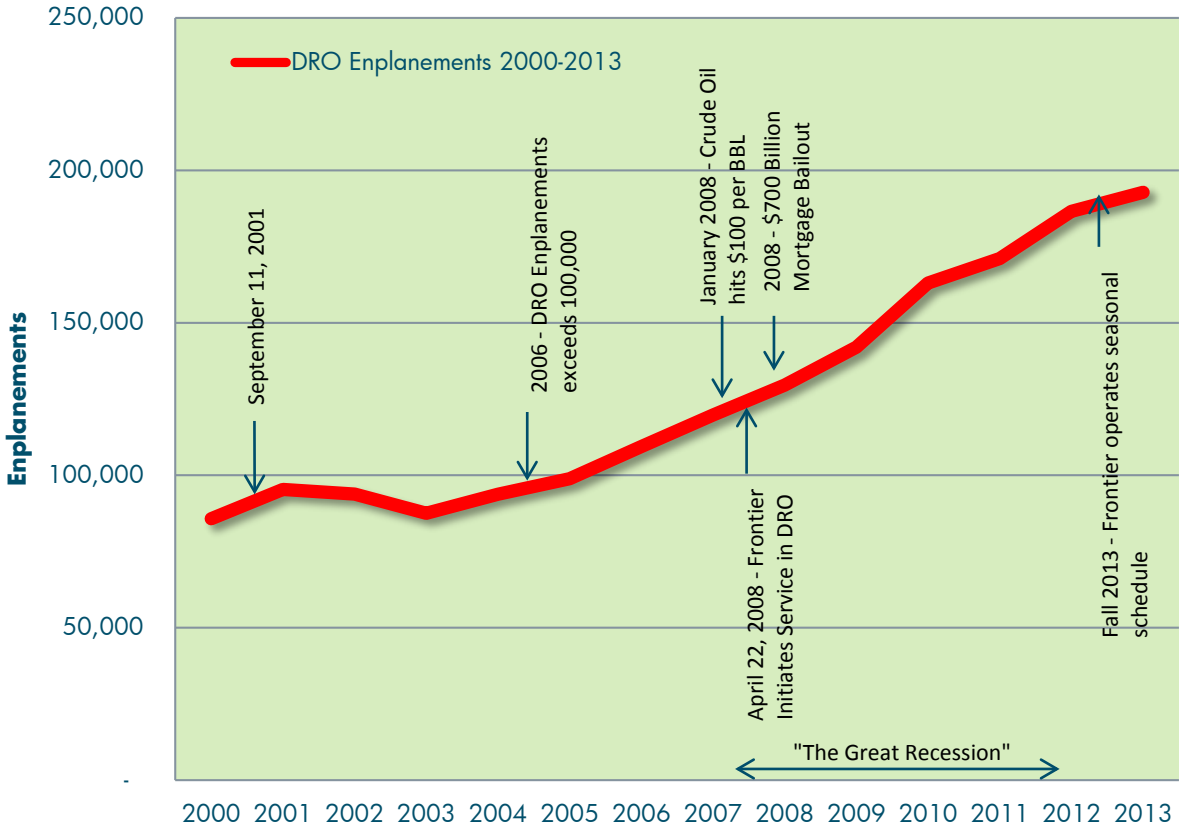
Over the most recent five-year timeframe, DRO's enplanements have increased even more rapidly (129,584 to 192,797), growing at average annual rate of 8.3 percent. Historic enplanements for the Durango-La Plata County Airport and combined enplanements for all commercial airports in the Northwest Mountain Region are presented in **Table 3-7**. Clearly, DRO's actual growth in commercial enplanements has far exceeded what has been experienced for most commercial airports in the Region. **Figure 3-3** shows DRO's historic growth in enplaned commercial passengers between 2000 and 2013.

TABLE 3-7 – HISTORICAL DRO AND ANM ENPLANEMENTS 2000-2013

Year	DRO	ANM[a]	CO
2000	85,738	57,090,075	20,350,167
2001	95,341	56,349,274	20,157,745
2002	93,837	51,983,741	18,493,568
2003	87,548	53,387,198	19,332,432
2004	93,775	57,352,050	21,950,311
2005	98,858	60,896,618	22,664,012
2006	109,413	63,436,986	24,497,749
2007	119,730	66,185,320	25,781,438
2008	129,584	67,655,054	26,499,159
2009	142,008	64,247,237	25,844,543
2010	163,052	65,451,243	26,774,067
2011	171,067	67,510,844	27,604,652
2012	186,567	67,852,291	27,575,845
2013[b]	192,797	68,154,544	27,132,377
CAGR[c]	6.4%	1.4%	2.2%

Notes: [a] FAA Northwest Mountain Region Includes: CO, ID, MT, OR, UT, WA, and WY
[b] FAA Air Carrier Activity Information System (ACAIS) audited enplanements, CY 2013
[a] Compound Annual Growth Rate
Source: FAA TAF, published February 2014

FIGURE 3-3 – DRO HISTORIC AIRPORT ENPLANEMENTS



Note: FAA Air Carrier Activity Information System (ACAIS) audited enplanements, CY 2013
Source: FAA TAF, published February 2014

3.8.1 Potential Causes for Growth

As discussed at length in the 2012 Terminal Area Master Plan (TAMP), many factors are in play when considering what has caused the sustained growth rate in passenger enplanements at DRO. It is very likely a combination of several or all of the following factors:

- Increased competition and choice of direct destinations
- A "low fare" airline offering A319 service to Denver
- Other airports losing market share to DRO
- Isolation – the time and distance by road to competing airports like Denver or Albuquerque
- Growth in tourism and other industry sectors
- Increased capacity by airlines, increasing seats per departure, and use of jets

And just as there is no single factor that explains the increase, it is less likely as the growth continues that any one factor would cause a reversal of the growth. That said, continued sustained growth over the planning period at the 8.4-percent rate that has been observed over the past five years is unreasonable. The task for this analysis is to examine the past data for relationships that can best forecast the enplanement demand for the next twenty years.

3.8.2 The FAA Terminal Area Forecast

The process to develop a projection for enplanements started with a review of FAA's TAF for DRO. As shown in **Table 3-4**, the FAA projected enplanements increasing to 304,784 by the end of the forecast period. This growth has an implied average annual rate of increase of 1.9 percent. Over the forecast period, 2015 to 2035, FAA expects that enplanements for all airports in the Northwest Mountain Region will increase from approximately 68 million to 105 million, an average annual rate of growth of 2.0 percent. So despite the fact that growth in enplanements at the Airport has clearly outpaced growth in enplanements at all commercial airports in the Region, the FAA's collective rate of anticipated growth for enplanements is higher in the Region than it is for DRO. Given the Airport's actual growth between 2000 and 2013, and even higher growth in the most recent five-year period, the TAF projection of enplanements for DRO appears to be too conservative. As a result, other means to develop a projection of enplanements that considers the Airport's actual historic growth were investigated.

3.8.3 Linear Trend Analysis

For commercial enplanements, linear trend analyses were considered as a projection technique. As noted, between 2000 and 2013, the Airport's commercial enplanements increased at an annual rate of growth of 6.4 percent. Between 2008 and 2013, enplanements increased at an annual average rate of 8.3 percent. If the Airport's enplanements continued to grow at 6.4 percent over the forecast period, they would reach approximately 754,770 by 2035; if enplanements continued to grow at 8.3 percent, they would reach 1.1 million by 2035. Clearly, these future demand scenarios are very aggressive. Despite the fact that the Airport has experienced significant enplanement increases in recent years, it is not reasonable to project that growth will continue at these rates over the next 20 years. Therefore, these linear projections were discarded from further consideration.

3.8.4 Multiple Regression Analysis

For this method of forecasting, various socio-economic and demographic characteristics for the Durango area were reviewed, as were anticipated growth rates for these indicators. **Table 3-8** presents economic/demographic indicators for the Durango Micropolitan Statistical Area, and **Table 3-9**

presents the same data for the Farmington MSA. Durango and its socioeconomic data is included in the Farmington MSA as well as the more narrowly focused Micropolitan Statistical Area (MpSA). Data presented in these two tables are from Woods and Poole Economics, (also see **Section 3.1.8**). In addition to showing historic growth for various socio-economic and demographic indicators, **Table 3-8** and **Table 3-9** also show historic and projected average annual rates of growth. Projected rates of growth for various indicators included in these tables were used to support the development of various enplanement projections for DRO discussed in this section.

TABLE 3-8 – DURANGO MICROPOLITAN STATISTICAL AREA
HISTORICAL & PROJECTED ECONOMIC GROWTH

Year	Total Population (in thousands)	Total Employment (in thousands of jobs)	Total Earnings (in millions of 2005 dollars)	Total Personal Income (in millions of 2005 dollars)	Total Retail Sales, Including Eating and Drinking Places Sales (in millions of 2005 dollars)
2000	44.23	31.26	980.736	1390.906	676.511
2005	47.58	35.35	1244.540	1672.235	790.184
2010	51.44	37.10	1362.848	1974.466	785.703
2015	59.22	40.68	1608.475	2330.445	995.224
2020	68.66	48.09	2041.315	2961.157	1204.921
2025	78.36	56.61	2577.835	3772.225	1438.099
2030	88.22	66.34	3237.904	4788.003	1697.103
2035	98.18	77.35	4043.852	6045.025	1984.553
Historic Average Annual Rate of Growth 2000-2013	1.77%	1.51%	3.11%	3.36%	2.37%
Projected Average Annual Rate of Growth 2015-2035	2.56%	3.27%	4.72%	4.88%	3.51%

Source: Woods & Poole Economics, 2013 Data Pamphlet - Durango Micropolitan Statistical Area (MpSA)

TABLE 3-9 – FARMINGTON METROPOLITAN STATISTICAL AREA
HISTORIC & PROJECTED ECONOMIC GROWTH

Year	Total Population (in thousands)	Total Employment (in thousands of jobs)	Total Earnings (in millions of 2005 dollars)	Total Personal Income (in millions of 2005 dollars)	Total Retail Sales, Including Eating and Drinking Places Sales (in millions of 2005 dollars)
2000	114.13	54.432	1,951.782	2,430.091	1,444.808
2005	124.80	62.147	2,426.692	3,043.813	1,701.524
2010	130.18	62.508	2,608.549	3,449.736	1,657.858
2015	135.97	66.188	2,884.333	3,829.708	1,903.941
2020	145.79	70.503	3,250.69	4,384.720	2,129.608
2025	155.56	74.85	3,648.813	5,043.848	2,374.553
2030	165.17	79.227	4,079.866	5,806.929	2,641.133
2035	174.60	83.637	4,545.297	6,683.385	2,931.814
Historic Average Annual Rate of Growth 2000-2013	1.13%	1.31%	2.66%	3.18%	1.79%
Projected Average Annual Rate of Growth 2015-2035	1.26%	1.18%	2.30%	2.82%	2.18%

Sources: Woods & Poole Economics, 2013 Data Pamphlet; Farmington MSA

3.8.5 Market Share Analysis

Market share approaches were also considered to develop enplanement projections for the Airport. The Airport's historical market share of total enplanements for all commercial airports in the ANM and its share of total enplanements for all commercial airports in Colorado were calculated. Total historical and projected enplanements for all commercial airports in the Region and Colorado were obtained from the TAF. Based on historical market shares, the Airport's anticipated market share of total enplanements for the Region is 0.29 percent, and its anticipated market share for all Colorado enplanements is 0.76 percent.

Table 3-10 provides a summary of all enplanement projections developed using anticipated growth rates for socio-economic and demographic factors. In addition, enplanement projections developed using the Airport's market share of regional and state enplanements are also shown in Table 3-10. As shown on this table, the various projections produced enplanements in 2035 ranging from a high of 550,117 to a low of 211,000. A straight average of these high and low projections results in enplanements for the Airport in the high 300,000s, approaching 400,000 enplanements by the 2035.

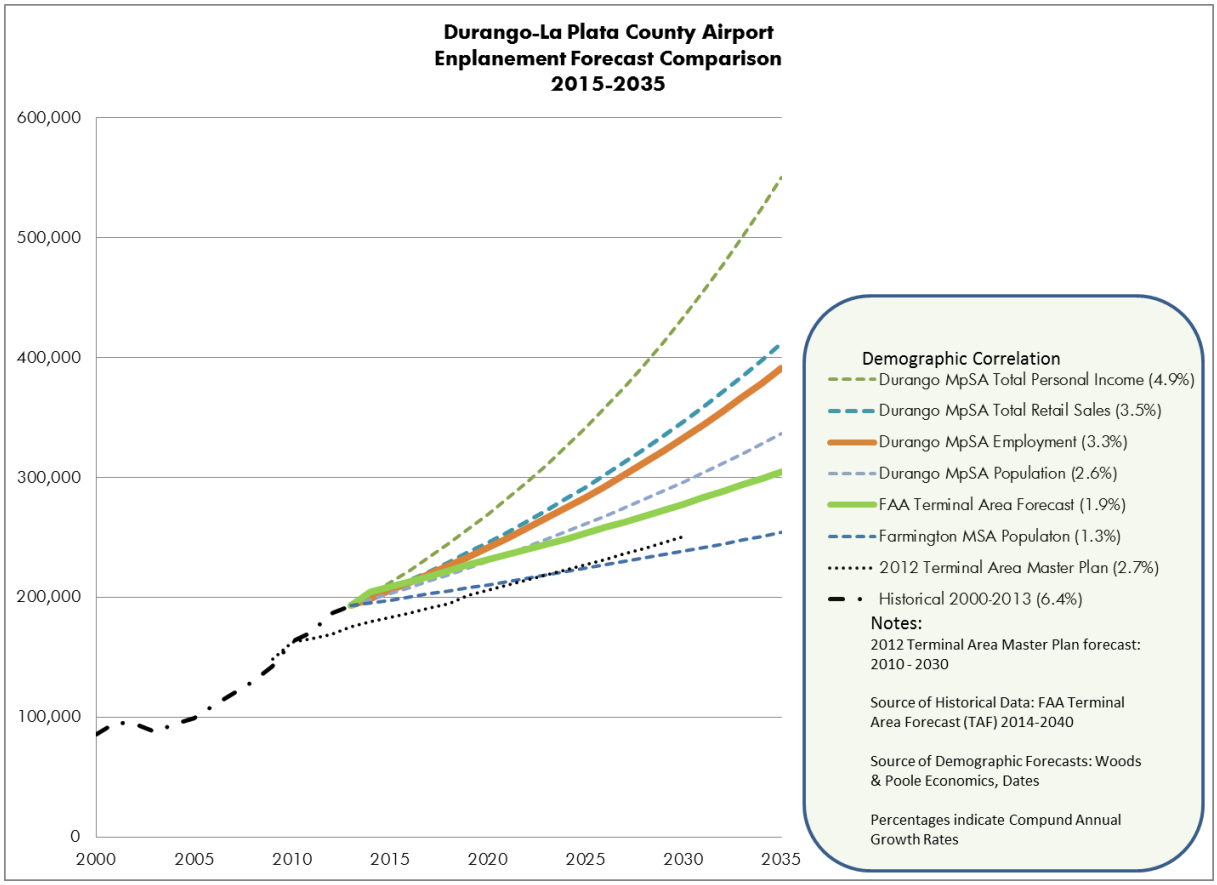
Figure 3-4 provides a graphic representation of all potential enplanement forecasts. If the Airport's enplaned commercial passengers increase a rate that is about half of what has been experienced over the past 13 years and the past five years, an average annual rate of growth of about 3.6 percent could be expected. The two projections (see **Table 3-10**) that come closest to this rate of growth are the enplanement projection developed using the anticipated rate of growth for employment (3.27 percent) in the Durango area and the projection developed using the anticipated rate of growth for retails sales (3.51 percent) for the area.

TABLE 3-10 – DRO ENPLANEMENT FORECAST COMPARISON

Year	Durango MpSA Population (2.56%)	Farmington MSA Population (1.26%)	Durango MpSA Employment (3.3%)	Durango MpSA Total Personal Income (4.9%)	Durango MpSA Total Retail Sales (3.5%)	FAA Terminal Area Forecast (1.9%)
2013 (Base Year)	192,797	192,797	192,797	192,797	192,797	192,797
2015	202,795	197,679	205,594	212,078	206,573	208,476
2020	230,118	210,431	241,427	269,145	245,477	231,186
2025	261,122	224,006	283,505	341,567	291,706	253,344
2030	296,303	238,456	332,917	433,477	346,642	277,797
2035	336,224	253,839	390,941	550,117	411,923	304,784

Sources: Jviation; Woods and Poole Economics, 2013 – Durango Micropolitan Statistical Area (MpSA), Farmington MSA; FAA TAF

FIGURE 3-4 – DRO (FY) ENPLANEMENT FORECASTS



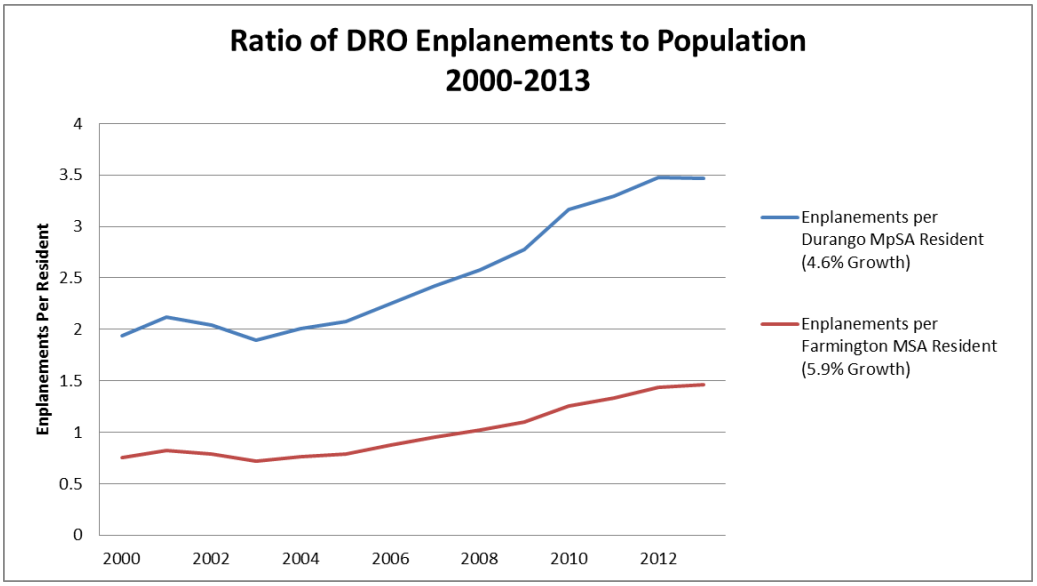
Sources: Jviation; Woods and Poole Economics, 2013 – Durango Micropolitan Statistical Area (MpSA); FAA TAF

3.8.6 Preferred Enplanement Forecast

Selecting a preferred enplanement forecast from the models identified above is extremely challenging. Typically, a master plan forecast is able to identify a causal relationship and associated growth rate that is able to track along with the historical enplanement data. However, the activity at DRO has far outpaced any of the demographic trends, the Terminal Area Forecast, and any other related data set normally associated with airport activity.

As was found in the TAMP forecast analysis, this analysis also found that there is a strong (R^2 = 0.93) correlation between Durango Micropolitan Statistical Area (MpSA) population and DRO enplanements. However, there is also an increasing ratio of enplanements to population; **Figure 3-5** shows this trend. Use of population as a model to forecast enplanements will need to account for this increase in enplanements on a per-resident basis or the forecast will risk undershooting actual demand as was already seen in the TAMP.

FIGURE 3-5 – RATIO OF ENPLANEMENTS TO POPULATION



Sources: Jviation; Woods and Poole Economics, 2013; Durango MpSA; Farmington MSA; FAA TAF

The conclusion to this line of reasoning is that although there is a strong correlation to population growth behavior, the increase in enplanements per resident suggests that the actual demand will grow at a higher rate than the respective growth rates of the Farmington MSA (1.3%) or the Durango Micropolitan Statistical Area (2.6%) population forecasts.

To explore this further, the growth trends in Enplanements per Resident were applied to the broader Farmington MSA population forecast to see the resulting enplanement forecast.

As **Table 3-11** shows, adding just over one enplanement per Farmington MSA resident by the end of the forecast period could result in over 444,000 enplanements by 2035, a growth rate of more than 4.1 percent.

TABLE 3-11 – ENPLANEMENTS VS POPULATION GROWTH
WITH GROWTH IN ENPLANEMENTS PER FARMINGTON MSA RESIDENT

Year	Farmington MSA Population	Linear Extrapolation Enplanements/Resident	Resulting Enplanement Forecast
2015	135,978	1.45	197,679
2020	145,791	1.73	251,680
2025	155,565	2.00	310,953
2030	165,175	2.27	375,181
2035	174,609	2.54	444,200
CAGR[a]	1.26%	2.9%	4.1%

Note: [a]Compound Annual Growth Rate

Sources: Jviation; Woods and Poole Economics, 2013 – Durango Micropolitan Statistical Area; FAA TAF

Another way to attempt to identify a reasonable forecast is by examining the supply of airline capacity. The airlines that serve Durango are opting to retire smaller regional aircraft and replace them over time with aircraft with higher seating capacity. Thus with the existing flight schedule, even without any additional destinations or frequency, an increase in total annual airline seats in the Durango market is a reasonable assumption. As shown in **Table 3-6**, based on simply airline conversions alone, there could potentially be an additional 617 daily airline seats in Durango by 2035.

FIGURE 3-6 – SAMPLE DAILY DEPARTURES

2015-2019				2035			
To	Aircraft	Seats	ENP	To	Aircraft	Seats	ENP
DEN	CRJ-200	50	40	DEN	CRJ-900	76	61
DEN	CRJ-200	50	40	DEN	CRJ-900	76	61
DEN	CRJ-200	50	40	DEN	EMB-175	80	64
DEN	Q400	76	61	DEN	EMB-175	80	64
DEN	Q400	76	61	DEN	EMB-175	80	64
DEN	Q400	76	61	DEN	EMB-175	80	64
DEN	Q400	76	61	DEN	A319	138	111
DEN	A319	138	111	DEN	A319	138	111
PHX	CRJ-900	76	61	PHX	ERJ-190-E2	97	78
PHX	CRJ-200	50	40	PHX	ERJ-190-E2	97	78
PHX	CRJ-200	50	40	PHX	ERJ-190-E2	97	78
DFW	ERJ-140	44	36	DFW	ERJ-190-E2	97	78
DFW	ERJ-140	44	36	DFW	ERJ-190-E2	97	78
				HOU	737-800	150	120
				LAX	CRJ-900	90	72
Daily Seats-Pax		**856**	**688**	Daily Seats-Pax		**1,473**	**1,182**
Per Departure		71.33	57.33	Per Departure		98.20	78.80
Monthly		25,680		Monthly		44,190	
Annual		312,440	251,120	Annual		537,645	431,430

Note: Not a forecast; for illustration purposes only showing relationships between daily airline activity , equipment changes, and annual enplanement levels over time.
Source: Jviation

However, there should be an expectation within the community that growth through additional destinations and/or additional frequency to existing destinations is likely to occur within 20 years. As an example of this phenomenon (for illustration purposes only, not representing the proposed forecast), the tables on the right show a potential flight schedule in 2035. Augmenting the increase in airline capacity through fleet replacement described in the preceding paragraph with just one daily departure to Houston using a 737-800 and one daily departure to Chicago using a CRJ-900 yields an additional 200 seats each day. Each of these cities is a top-ten market to/from DRO. Annually that equates to over 537,000 seats per year in 2035. At a conservative load factor of 80 percent the potential annual enplanements could easily exceed 400,000, a Compound Annual Growth Rate over 3.5 percent.

Tourism is also important to the Durango economy. While both local employment and retail sales are influenced by visitor spending, there is an assumed relationship between visitors and retail spending and enplanement growth at the Airport, although this relationship does not rely on the airport as visitors can arrive by other modes as well. The projected growth rate in total retail sales for the Durango Micropolitan Statistical Area is 3.51 percent per year, however considering the weaker relationship between this growth and DRO activity another forecast will be sought.

Combining these analyses, the reasonable range of forecasts should be greater than the 1.3 percent growth rate of the Farmington MSA population forecast and no greater than the 4.1 percent growth rate when applying the trend in enplanements per Farmington MSA resident as shown in Table 3-X. Further, nearly 3.5 percent growth through 2035 can be achieved through just two additional flights and through the natural conversion of existing airline fleets.

The best fit for socioeconomic forecasts within this range is Employment in the Durango MpSA at 3.3 percent annually. This will be selected as the preferred forecast growth rate. In addition, a low forecast will also be selected to establish a range of expected enplanement activity through 2035. This low forecast will be the Terminal Area Forecast enplanement projection of 1.9 percent annually.

The Airport's preferred projection for commercial passenger enplanements is as shown in **Table 3-12**.

TABLE 3-12 – DRO ENPLANEMENT FORECAST COMPARISON

Year	High Scenario (Preferred) 3.3% CAGR[/a/]	Low Scenario 1.9% CAGR[/a/]
2013	192,797	192,797
2015	205,594	208,476
2020	241,427	231,186
2025	283,505	253,344
2030	332,917	277,797
2035	390,041	304,784
CAGR[/a/]	3.3%	1.9%

Note: [/a/]Compound Annual Growth Rate

Sources: Jviation and FAA TAF

The preferred enplanement projection will be the primary input for developing the projection of commercial aircraft operations discussed in the next section of this chapter.

3.9 PEAKING CHARACTERISTICS

Forecasts of aviation activity on an annual basis are limited when it comes to sizing facilities that have peak activity within a season, a month, or even within the day. This is especially true for terminal facilities that have fluctuations throughout the day as passengers arrive and depart on specific flights that may be

operating within the same hour of one or more other flights. For that reason, forecasts are also broken out to identify peak activity.

When considering the peaking characteristics in planning, there are a number of approaches that can be used. At very large airports the analysis can involve extensive modeling to evaluate a future flight schedule to see the various banks of passenger activity flow through the airport. At smaller facilities like DRO, assumptions are made about the activity experienced on the average day in the busiest month of the year.

For this analysis, a combination of approaches was used to validate the results of each. The first approach involves calculating the Peak Hour Enplaned Passenger level for the base year, 2013. This relationship is expressed as the percentage of the total enplanements on the Average Day of the Peak Month. For DRO in 2013, the peak month was July and the total was 19,875 enplaned passengers. With 31 days in July the average day is calculated as 641 enplaned passengers. Consulting the flight schedule for actual seats and average load factor, the peak hour represented 41.0% of the average day's enplanements.

In 2013, DRO's peak hour contained a departing flight by Frontier to Denver in the Airbus A319 with 138 seats[15]. The departure was moved to the early morning, outside the original peak hour. Several other flights also depart early and thus the peak hour has moved to a morning departure bank. This phenomenon is expected to continue to grow over time as the average size of aircraft increases and as additional early morning departing flights could be scheduled.

As enplanement levels grow, the peak month activity will account for less of the annual total as enplanements in the off-peak months continue to increase proportionally, which is expected as seasonal airline emphasis tapers in favor of continuous year round service. The current ratio of the peak month to the annual enplanements in 2013 was 10.3% and this is projected to decrease over time.

Table 3-13 shows the relationships between the numbers discussed in this section. Peak Hour Enplaned Passengers are forecasted to rise from 263 in 2015, to 340 in 2025, and to 425 in 2035. It is important to point out that there may be fluctuations in annual enplanement levels without a corresponding effect on peaking activity if the actual flight schedule in the busy hour does not change. These relationships are determined here only as a means to plan for future activity levels. They are directly linked to actual flight schedules as they are adjusted by airlines on a continual basis and without regard to this planning forecast.

[15] Jviation will provide updates to major passenger airline schedule changes for the final report.

TABLE 3-13 – DRO PEAK HOUR ENPLANED PASSENGERS

Year	Annual Enplanements	Ratio Peak Month to Annual	Peak Month	Average Day Peak Month	Ratio PHEP to ADPM	Peak Hour Enplaned Passengers
2013	192,797	10.3%	19,875	641	41.0%	263
2015	*205,594*	10.3%	21,194	684	38.5%	263
2025	*283,505*	9.7%	27,377	883	38.5%	340
2035	*390,941*	8.8%	34,221	1,104	38.5%	425

Source: Jviation

For terminal planning purposes, Planning Activity Levels (PALs) have been established to quickly describe a level of activity that is to be accommodated with passenger processing facilities such as the terminal building. Once these levels are correlated to facilities that will be needed to accommodate these activity levels, the PALs will describe those required facilities as well. This will be further described in the next chapter as these facilities are identified. For simplicity, the PALs are evenly divided into 10-year intervals for 2025 and 2035. Thus PAL 1 corresponds to the activity projected for 2025 and PAL 2 corresponds to the activity projected for 2035, as shown in **Table 3-14**.

TABLE 3-14 – PLANNING ACTIVITY LEVELS (PALS)

	Year	Annual Enplanements	Peak Hour Enplaned Passengers
Current Level	2013	192,797	263
PAL 1	*2025*	*283,505*	*340*
PAL 2	*2035*	*390,941*	*425*

Source: Jviation

3.10 Aircraft Operations Forecast

3.10.1 Commercial Airline Operations

Unlike many of the demand components discussed in this chapter, commercial airline operations have little, if any, relationship to a market area's socio-economic and demographic characteristics. Commercial aircraft operations, however, do have a direct correlation to an airport's level of annual enplanements.

Table 3-15 provides information that shows historic commercial operations for the Airport. The source of the information presented in the table comes from the Air Carrier Activity Information System (ACAIS) database that receives official reports submitted directly by airlines. Information shown correlates the preferred enplanement forecast to the aircraft that carry the passengers. Rather than express this relationship using specific aircraft, the information is aggregated to yield annual averages that are shown to grow

continuously. In reality, changes will be magnified as larger aircraft or new flights are added in and the market adjusts to the new levels.

Annual commercial airline operations at DRO have actually fallen. While enplanements increased at a healthy average annual rate of growth, over this same time frame, commercial airline operations decreased.

In the domestic commercial airline environment, it is fairly typical to see airports with increasing levels of enplanements and corresponding decreasing levels of commercial airline operations. There are two factors that account for this. Over time, the size (seating capacity) of commercial aircraft serving most communities has continued to increase. For the data shown in **Table 3-15**, carriers began transitioning from commercial planes that had a seating capacity for 19 or 30 passengers in favor of larger aircraft reducing frequency to match actual demand and attain a profitable yield. In the base year 2013, DRO is primarily served by commercial planes seating 66 to 138 passengers.

In addition to aircraft with higher seating capacities, carriers have also found that to be profitable on the routes they serve, their load factor (ratio of passengers to available seats) needs to be upwards of 80 percent. During years where carriers in the U.S. were losing money, their load factors were often not high enough to cover their operating costs. DRO has seen the Average Load Factor rise above 80% over the past several years, a level that airlines find to provide good yields.

Larger commercial aircraft, in terms of seating capacity and higher passenger load factors, have contributed to decreasing levels of commercial airline operations at the Airport, despite the fact that enplanements have experienced significant growth. Over time, DRO can expect the size (seating capacity) of the aircraft serving the airport to increase and for the load factor on these planes to also continue to rise.

3.10.2 Commercial Operations Forecast

As noted in the previous section, the preferred enplanement projection for the Airport calls for enplanements to reach an estimated 390,941 in 2035. Relating that growth to the type and frequency of airline flights will result in the Commercial Operations Forecast. Because the size of airline aircraft is expected in increase, the rate of growth in operations will be substantially smaller over the same period.

A review of the Terminal Area Forecast shows a discrepancy between the historical operations data between 2000 and 2013 when compared to the operations reported by the airlines. The TAF reported 11,854 commercial operations for 2013. This equates to 5,927 airline departures and 5,927 airline arrivals. However, the ACAIS reported 7,128 commercial operations or 3,564 airline departures for the same year. After consulting with FAA, this forecast will utilize the ACAIS data because it reflects documented airline flights.

Table 3-15 provides historical data from 2008-2013 along with the preferred Commercial Operations Forecast for 2015-2035. The data shows the gradual increase in the number of seats per departure during the forecast period. The data also shows that there has been an increasing historical trend in Load Factor, which is the percent on average that total available seats that are filled by fare-paying passengers. This will certainly fluctuate above and below 80% over the forecast period but is considered to represent the trend within this healthy airline market. By 2035 commercial departures are projected to be 5,090 per year, which is an increase over the 2015 activity level by approximately three daily departures.

TABLE 3-15 – FORECAST OF COMMERCIAL AIRLINE OPERATIONS
INCLUDES AIR CARRIER AND COMMUTER

	Year	Enplanements	Average Seats per Departure	Average Load Factor	Commercial Departures	Commercial Operations
Historical	2008	129,584	47.7	63%	4,322	8,644
	2009	142,008	48.0	69%	4,270	8,540
	2010	163,052	53.9	72%	4,203	8,406
	2011	171,067	52.4	74%	4,402	8,804
	2012	186,567	60.3	78%	3,972	7,944
Base Year	2013	192,797	60.0	83%	3,564	7,128
Forecast	*2015*	*205,594*	*62.4*	*81%*	*3,982*	*7,965*
	2020	*241,427*	*68.9*	*83%*	*4,236*	*8,471*
	2025	*283,505*	*76.1*	*83%*	*4,505*	*9,010*
	2030	*332,917*	*84.0*	*83%*	*4,792*	*9,583*
	2035	*390,041*	*92.8*	*83%*	*5,096*	*10,192*

Sources: FAA Air Carrier Activity Information System (ACAIS), 2014; Airport Records, and Jviation

3.11 Projections of GA Based Aircraft & Based Aircraft Fleet Mix

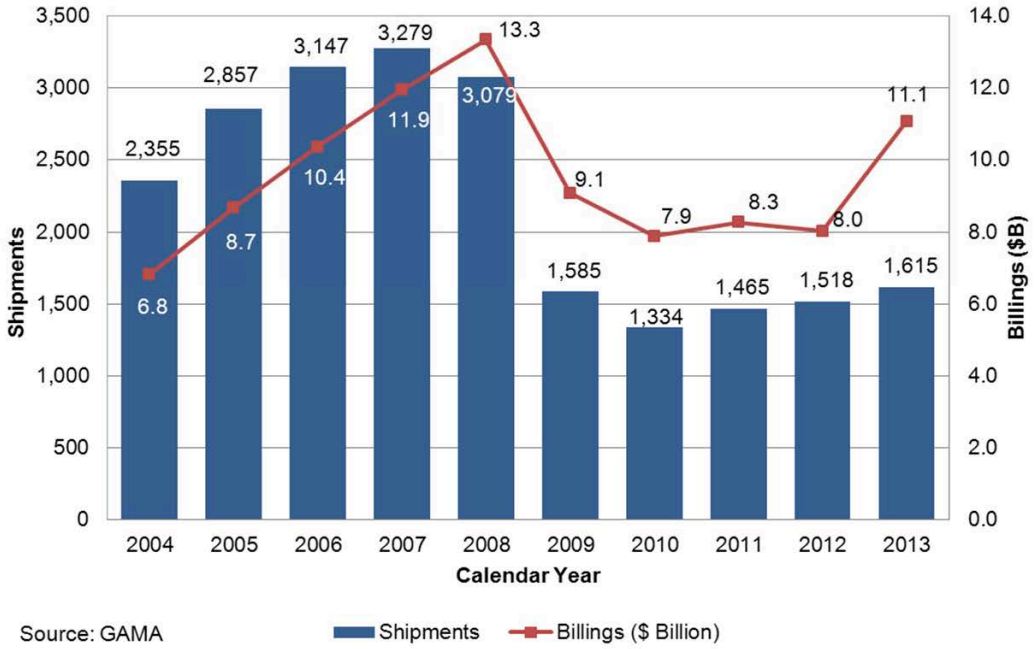
3.11.1 Projections of Based Aircraft

Based aircraft are GA planes that are permanently stored at an airport. Based aircraft may either be stored in various types of hangars or, in areas that have more moderate climates, based aircraft may also be permanently stored or "tied-down" on apron areas. Having estimates of future based aircraft is important to the master planning process because it helps an airport to identify its need for either or both additional hangar storage facilities or tie-down (apron) areas.

In recent years, GA has been characterized as being generally stable to showing slight improvement. There are, however, national statistics that show fewer individuals own and operate GA aircraft, although use of GA aircraft to improve business efficiency has grown. In addition, fewer individuals are pursuing a license to fly as a private pilot; and the average age of private pilots in the U.S. is now over 44.

Perhaps the most telling statistic related to GA is shipments of GA planes by U.S. manufacturers. **Figure 3-7** summarizes information from the General Aviation Aircraft Manufacturers Association (GAMA) on GA aircraft units that have shipped and the cost of these units.

FIGURE 3-7 – GENERAL AVIATION AIRCRAFT MANUFACTURING SHIPMENTS AND BILLINGS IN THE U.S.



Source: FAA Aerospace Forecasts, 2014-2034

The number of GA aircraft manufactured in the U.S. increased from 2,355 in 2004 to 3,079 in 2008. The number of GA planes manufactured in the U.S. in 2009 experienced a precipitous drop to 1,589 units. In 2011, 1,465 GA aircraft were shipped by U.S. manufacturers, less than 47 percent of the number reported in 2008. Between 2011 and 2012, GA manufacturing experienced a modest rebound, with the number of units shipped increasing from 1,465 to 1,514.

Shipments for GA aircraft have increased in all categories, piston and turbine, with a higher rate of decrease reported for single and twin-engine aircraft in the piston category. This information helps to set the context for what the Airport might anticipate in terms of future based GA aircraft.

Table 3-16 provides information that shows changes in DRO's based GA aircraft between 2000 and 2013. As shown, there was reported growth in DRO's number of based aircraft between 2000 and 2006. After 2006 based aircraft remained constant for a few years and then decreased slightly. Over the entire 13-year historic period, based aircraft at the Airport increased at an average annual rate of 2.2 percent. Over this same time frame, for all airports with FAA TAF projections in the Northwest Mountain Region, based aircraft increased at an average annual rate of 0.5 percent. For all airports included in the TAF in Colorado,

between 2000 and 2013, based aircraft increased at a rate of 0.9 percent. Even with the downturn in based aircraft growth in recent years, the Airport's historic growth in based GA aircraft has been more robust than it has been for TAF airports in the FAA's Northwest Region or for TAF airports in Colorado.

TABLE 3-16 – DRO HISTORIC BASED AIRCRAFT

Year	Based Aircraft
2000	53
2001	59
2002	65
2003	65
2004	63
2005	65
2006	73
2007	73
2008	73
2009	73
2010	73
2011	70
2012	70
2013	70

Source: FAA TAF, published February 2014

According to FAA data from their *2013 National Aerospace Forecasts,* between 2000 and 2012 all active GA aircraft in the U.S. increased at an average annual rate of growth of only 0.1 percent. During this time frame, the number of piston GA aircraft in the U.S. fleet actually decreased at an average annual rate of -0.9 percent. Turbine GA aircraft in the U.S. feet increased at an average annual rate of 4.3 percent between 2000 and 2012. It was primarily this increase that resulted in the reported growth the total U.S. GA fleet.

Single-engine and multi-engine piston aircraft, the largest segment of the GA fleet in the U.S., are expected, over this timeframe, to actually decrease at an average annual rate of -0.6 percent. Aircraft in the sport classification are expected to increase at an average annual rate of 2.0 percent, and aircraft in the experimental classification are expected to grow at an average annual rate of about 1.0 percent. Both of these two groups, however, account for a relatively small percentage of the total active GA fleet. Turbine powered aircraft are expected to increase at an average annual rate of 2.8 percent over the next 20-years. It is essentially growth in this segment of the GA fleet that accounts for the overall positive rate of growth of 0.5 percent for all GA aircraft in the U.S. over the next twenty years. Almost all of the Airport's current based GA aircraft are classified within the piston category. Given conditions for the GA industry in the U.S., it is not likely that over the 20-year forecast period that based aircraft at the Airport will continue to

grow at an average annual rate similar to what the Airport experienced historically (estimated at 2.2 percent average annual growth).

There is often a positive correlation between one or more socio-economic and demographic indicators and an airport's based GA aircraft. Recognizing this relationship, a series of based aircraft projections were developed using economic and demographic data for the market area that was presented earlier in this chapter of the report. Among those examined, the best correlation of the based aircraft data set was to the Farmington Metropolitan Statistical Area Employment. Woods & Poole projects 1.2 percent growth annually for Farmington MSA employment. Applying that to the based aircraft, DRO would see an additional 20 aircraft by 2035. This projection exactly mirrors the FAA Terminal Area Forecast over the same period. By contrast, the Colorado Aviation System Plan projects a much smaller rise through 2030, adding just two aircraft between 2010 and 2030. The final methodology presented shows a rise in based aircraft proportionate to the total increase in based aircraft for the entire state of Colorado as projected in the Colorado Aviation System Plan. In other words, the share of the state's increase in based aircraft would be maintained through the planning period.

TABLE 3-17 – SUMMARY OF TOTAL BASED AIRCRAFT FORECASTS

	Methodology			
Year	**Farmington MSA Employment Projection (Preferred)**	**FAA Terminal Area Forecast**	**Colorado Aviation System Plan**	**Market Share of Colorado Commercial Airports**
2013	70	70	70	70
2015	*72*	*71*	*70*	*70*
2020	*77*	*75*	*71*	*72*
2025	*82*	*80*	*71*	*74*
2030	*87*	*85*	*72*	*75*
2035	*93*	*90*	*(not forecasted)*	*(not forecasted)*
CAGR[a]	1.3%	1.2%	0.19%	0.50%

Note: [a]Compound Annual Growth Rate

Sources: Jviation; Woods and Poole Economics, 2013 – Farmington MSA; Colorado Aviation System Plan, 2012

The TAF projection for the Airport indicates based aircraft will increase to 93 in 2035. The Compound Annual Growth Rate for based aircraft in the Total Based Aircraft projection is 1.3 percent. This growth rate is supported by the expected growth in employment in the Farmington MSA. While this rate of growth is below what the Airport supported historically, it still is above the rate of growth expected for all GA aircraft in the U.S. Therefore this projection of based aircraft for DRO was selected as the preferred demand component for this sector of demand.

3.11.2 Based Aircraft Fleet Mix

Fleet mix refers to specific types of aircraft. There are currently 70 GA aircraft based at the airport. Information on GA aircraft currently based at the Airport for 2013 along with the projected fleet mix throughout the planning period is shown in **Table 3-18**.

The preferred projection of based aircraft for the Airport indicates that over the planning period, the Airport can expect to attract 21 additional based aircraft.

TABLE 3-18 – BASED AIRCRAFT FLEET MIX FORECAST SUMMARY

Year	Single	Jet	Multi-Engine	Helicopter	Other	Total
2013	61	0	8	1	0	70
2015	63	0	8	1	0	72
2020	67	0	9	1	0	77
2025	71	1	9	1	0	82
2030	75	2	9	1	0	87
2035	79	3	10	1	0	93

Source: Jviation

The FAA's National Aerospace Forecast projects not only total active GA aircraft for the U.S., but also projects how individual components of the GA fleet are expected to grow. The FAA's National Aerospace Forecast indicates that the single-engine and multi-engine piston aircraft categories will actually experience a negative average annual rate of growth over the next 20-years. On the other hand, turbine turboprop and jet aircraft, collectively, are expected, according to the FAA, to increase over the next 20 years. Aircraft in the experimental and sport categories are also expected to have positive rates of growth.

FAA's anticipated average annual rates of growth for various components of the national GA fleet were considered when developing a projected based aircraft GA fleet mix for the Airport. The projected based GA fleet mix for the Durango-La Plata County Airport for 2035 is shown in **Table 3-18.**

It is anticipated that the number of single-engine piston aircraft based at the Airport as a percent of total based aircraft will decrease over the 20-year forecast period. Multi-engine aircraft are expected to remain at 11 percent of total based aircraft.

The majority of the change in the Airport's based fleet mix will be in jet aircraft. It is expected that over the 20-year forecast period three out of the 20 additional based aircraft that the Airport will attract will be in the jet category. This Master Plan Update has included jet aircraft in the Airport's based GA fleet based on consideration of all of the following:

- This change is consistent with trends implied in the FAA's most recent National Aerospace Forecast.

- Other comparable airports in Colorado such as Montrose, Eagle, and Grand Junction have based jets in their fleet.
- There is a direct correlation between income indicators and the propensity to own and operate GA business jets; for the study area, total earnings for residents of the study area are expected to increase at an average annual rate of 4.72 percent and total person income is expected to grow at an average annual rate of 4.8 percent. These robust rates of growth indicate that is very likely that the Airport will see the introduction of business jets into its fleet of based GA aircraft over the next 20 years.

3.11.3 General Aviation Operations

GA operations are conducted by aircraft that are based at an airport, corporate and privately-owned aircraft that visit an airport (transient operators), and charter aircraft that operate under 14 FAR Part 135 including fractional ownership providers such as NetJets and Flexjet. Since the Airport does not have an ATCT, reported annual takeoffs and landings by all GA planes are DRO's "best estimate" of this activity. **Table 3-19** provides information on DRO's historic total annual GA operations as reported by the 2014 TAF.

TABLE 3-19 – HISTORIC TOTAL ANNUAL GENERAL AVIATION OPERATIONS

Year	GA Operations
2000	36,179
2001	35,725
2002	35,996
2003	36,268
2004	36,538
2005	36,810
2006	37,068
2007	37,327
2008	34,000
2009	34,000
2010	34,000
2011	34,237
2012	34,714
2013	34,959

Source: FAA TAF, published February 2014

As this information indicates, total annual GA operations (landings and takeoffs) have been reported as showing a slight decline in recent years. Reported total annual GA operations at the Airport, however, have remained fairly consistent, ranging from 34,000 annual operations to over 37,000 annual operations.

By contrast, the 2012 Colorado Aviation System Plan reports a much smaller number of GA operations for that report's base year, showing only 20,100 GA operations for 2010. Both forecasts are shown in **Table 3-20.**

TABLE 3-20 – GA OPERATIONS EXISTING FORECAST COMPARISON

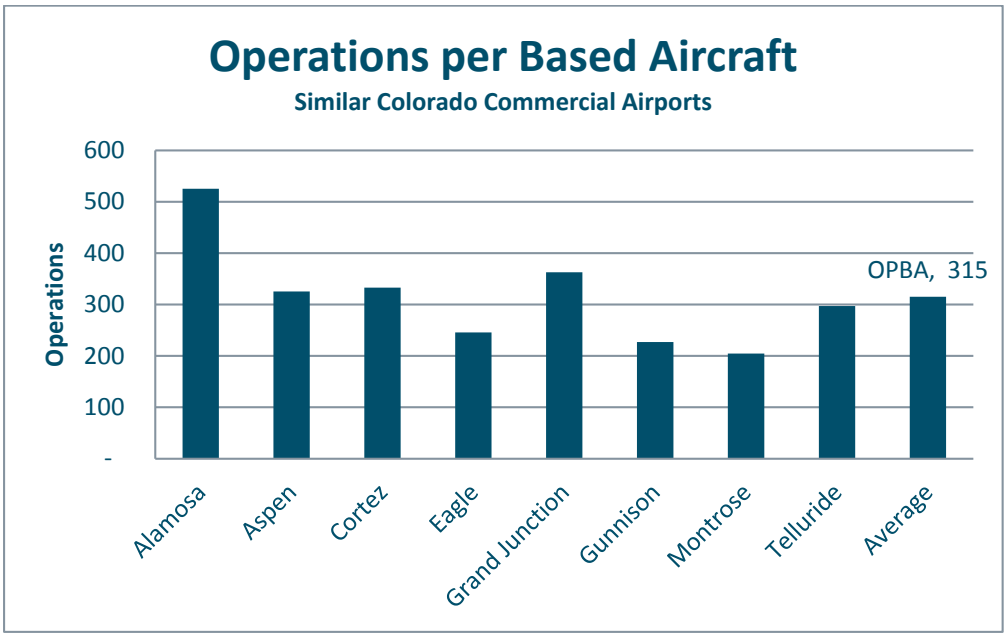
Year	FAA TAF (0.7%)	Colorado Aviation System Plan
2010	34,000	20,110
2013	34,714	(Not Forecasted)
2015	35,199	20,820
2020	36,444	21,560
2025	37,736	(Not Forecasted)
2030	39,074	23,120
2035	40,457	(Not Forecasted)

Sources: FAA Terminal Area Forecast, 2014; Colorado Aviation System Plan, 2012

According to the technical report for the System Plan, the reasonableness of the forecasts for airports like DRO where the number of annual operations is estimated were tested using another methodology. The reasonableness of reported total annual GA operations was established by determining the Operations Per Based Aircraft ratio (OPBA) and benchmarking it against other airports in the state. **Figure 3-8** provides this comparison to similar airports on Colorado utilizing the System Plan's data for each airport.

With 70 based aircraft at the Airport in 2013, the 2013 OPBA when using the TAF projection is 495 operations for each based aircraft at DRO. This ratio reflects operations by both based and visiting aircraft. However the same analysis using the adjusted 2010 operations shown in the System Plan yields an OPBA of 287.

FIGURE 3-8 – OPERATIONS PER BASED AIRCRAFT AT SIMILAR COMMERCIAL AIRPORTS



Sources: Colorado Aviation System Plan, 2012; Jviation

An airport's total annual GA operations are influenced by many factors. These factors include the following:

- Presence or absence of active flight schools or pilot training programs at the airport or nearby airports
- Frequency at which aircraft based at the airport are flown
- Local attractions or businesses that attract visiting GA planes

Based on the benchmarking analysis and that there is not a flight school at DRO and a nearby airport that accommodates GA operations, it seems reasonable to choose an OPBA that places DRO closer to the average OPBA. Thus, the System Plan's adjusted 2010 operations level of 20,100 total annual GA operations was selected for this forecast.

To develop a projection for the Airport's future GA operations, the projection for this demand component was first examined. The System Plan's base year for total annual GA operations at the Airport was calculated. As shown in **Table 3-21**, the GA Operations projection indicates that total annual GA operations will increase to 29,297 by 2035. With 93 based aircraft in 2035, this would increase DRO's OPBA from the current level of 287 to the benchmarked average of 315.

TABLE 3-21 – GA OPERATIONS FORECAST 2015-2035

Year	GA Operations (Preferred)	Based Aircraft (Preferred)	OPBA
2010	20,110	70	287
2013	20,300	70	290
2015	20,975	72	292
2020	22, 987	77	300
2025	24,929	82	305
2030	27,028	87	310
2035	29,297	93	315

Source: Jviation

The growth shown in **Table 3-21** is primarily driven by an expanding business aviation market. The strength of the DRO economy indicates that growth in GA operations will be primarily in the business aviation segment, which is largely flown by business jets and turboprops aircraft. The piston aircraft segment at DRO will likely grow at a smaller rate, especially due to the fact that nearby airports such as Animas Airpark also offer services to the piston GA pilot.

3.11.4 Itinerant and Local GA Operations

Aside from projecting total annual GA operations, it is also important to identify the portion of this activity that is "local" versus what portion of the activity is "itinerant." For reporting purposes, an aircraft operation

is one take-off and one landing. On an annual basis, GA aircraft operations are divided into three categories: local, itinerant, and total, with total being the combination of annual local and itinerant operations. FAA's Air Traffic Control Handbook defines a local operation as one that operates generally within sight of the airfield. In most instances, local operations are training operations which are also often referred to as touch-and-goes. Itinerant operations are all others; itinerant operations can be associated with aircraft based at an airport or with visiting aircraft.

For planning purposes it is important to project annual GA operations that are local versus those that are itinerant. The distinction between the two categories of operations is important to determine apron/ramp areas at the Airport that are needed to serve both based and visiting aircraft.

Information from the FAA's 5010-1, *Airport Master Record*[16] for the Airport shows that the current split in total annual GA operations is 34 percent itinerant and 66 percent local. Because the business aviation segment, which is largely itinerant operations, will be growing at a faster rate than the local flying, over time the split will change to where itinerant operations account for 70% of GA operations. Based on this assumption, **Table 3-22** provides the preferred projection for local and itinerant GA operations.

TABLE 3-22 – ITINERANT AND LOCAL GA OPERATIONS FORECAST

Year	Preferred GA Operations Forecast (1.3%)	Itinerant	Local	Percent Local
2013	20,300	6,902	13,398	66%
2015	20,975	7,132	13,844	66%
2020	22,987	8,045	14,942	65%
2025	24,929	8,974	15,955	64%
2030	27,028	10,271	16,757	62%
2035	29,297	11,719	17,578	60%

Source: Jviation

3.11.5 Military Operations

Historically, military operations have not significantly contributed to the number of operations at DRO. Military operations are not dependent on the same stimuli as GA or commercial activity. Airport management records reported that military operations at DRO are unpredictable and have significantly fluctuated from year to year. The TAF indicates that military operations will remain constant with 500 total operations throughout the 20-year planning period. Due to the fluctuation and unpredictability of

[16] The FAA Form 5010-1 itinerant and local general aviation operations ratio was selected over the FAA TAF's ratio, which showed an itinerant/local split of 38% and 62%. The 5010's operations ratio more accurately reflects actual conditions at DRO, with a greater percentage of local operations.

military operations, for the purposes of this study, it is projected that military operations will remain constant at 500 operations annually throughout the forecast period.

3.12 Cargo

Currently, FedEx is the primary cargo carrier operating out of DRO and UPS the secondary. Freight is also commonly carried on passenger flights. The Bureau of Transportation Statistics indicated that freight coming in and leaving DRO has increased over the past five years. In 2013, approximately 2,208,000 pounds of freight were flown through DRO, while in 2008, approximately 2,153,000 pounds were handled. This is an increase of 2.6 percent over the last five years.

Based on the method that the cargo carriers employ to handle the cargo and the fact that the aircraft are small and the carriers are not requesting to lease a building for their operations, this growth is expected to remain minimal throughout the planning period. This activity should be monitored going forward in order to anticipate any large change in cargo facility needs at DRO.

3.13 Critical Aircraft

DRO accommodates a wide variety of commercial, GA, military, and special activity aircraft, including U.S. Forest Service (USFS) fire fighting aircraft. DRO's current airfield facilities meet the design standards to accommodate FAA's Airport Reference Code (ARC) D-IV aircraft such as the B-757-200, DC-10-10, and Lockheed C-130 (L-100). The prior airport master plan had determined that ARC D-IV was the appropriate standard for DRO airfield facilities based on the fleet mix operating at the airport.

The FAA's airport design criteria are largely based on the critical design aircraft using the airport. The FAA states that the critical design aircraft can either be an individual airplane, or a 'family grouping of aircraft' with similar characteristics.

FAA Advisory Circular 150/5325-4B, *Runway Length Requirements for Airports*, states that aircraft must generate a minimum number of takeoffs and landings per year (i.e. substantial use threshold) in order to qualify as critical design airplanes:

> "**Substantial Use Threshold**. Federally funded projects require that critical design airplanes have at least 500 or more annual itinerant operations at the airport (landings and takeoffs are considered as separate operations) for an individual airplane or a family grouping of airplanes. Under unusual circumstances, adjustments may be made to the 500 total annual itinerant operations threshold after considering the circumstances of a particular airport. Two examples are airports with demonstrated seasonal traffic variations, or airports situated in isolated or remote areas that have special needs."

At non-towered airports such as DRO there are relatively few activity counts by specific types of aircraft. The FAA tracks aircraft arrivals and departures by type at specific airports based on instrument flight plans filed with and clearances issued by FAA Air Traffic Control (ATC). FAA tracks that data through their Traffic Flow Management System Counts (TFMSC). The TFMSC activity records for DRO for CY 2013 are included in the **Appendix H**. ARC/RDC C-III aircraft are highlighted in light brown, and ARC/RDC C-II aircraft are highlighted in light green.

FAA TFMSC records indicate that Airport Reference Code (ARC) and Runway Design Code (RDC) C-III aircraft generated more than 500 operations per year. C-III aircraft include the Airbus A-319, A-320, Bombardier CRJ-900, Embraer ERJ-190, and Gulfstream G-V. There were also 4,102 operations by ARC/RDC C-II aircraft, which included numerous corporate jets, as well as the ERJ-145.

However, FAA's TFMSC data does not capture visual (VFR) aircraft – those that did not file flight IFR plans nor received FAA ATC clearances. As a result, the FAA's data does not capture all (or even most) of the activity at DRO, although it provides actual data on certain users at non-towered airports.

ARC C-III and C-II aircraft typically file IFR flight plans and are in contact with FAA ATC, particularly when compared to smaller piston engine airplanes that operate predominantly under visual flight rules (VFR). As a result, FAA's TFMSC data likely captures a high percentage of C-III and C-II aircraft operations at DRO.

It should be noted, however, that a variety of aircraft larger than C-III operate to/from DRO, including fire fighting, charter, and military aircraft. Charter aircraft at DRO have included the B-757-200 (ARC=C-IV), and the DC-10 (ARC = D-IV).

The U.S. Forest Service (USFS) bases a number of aircraft at DRO in response to fire fighting needs, including C-130s (ARC = C-IV). Most of the USFS aircraft operations are conducted under VFR, and are therefore not captured by FAA TFMSC. As noted in a press release issued by the USFS on May 20, 2014:

> "In the face of what is shaping up to be a catastrophic fire season in the Southwest, the U.S. Forest Service is adding four additional aircraft to its next-generation fire fighting fleet, bringing the total amount of aircraft to 21 large air tankers (with opportunities to add additional aircraft, if needed) and more than 100 helicopters. The new aircraft will enter service in the coming weeks and support over 10,000 fire fighters for the 2014 wildfire season.
>
> The Forest Service is bringing into duty the first time this fire season a second DC10, and three BAe-146s. The DC10 cruises at 430 mph and can carry up to 11,600 gallons of retardant. Both the BAe-146 and a C130 originally brought on last fall cruise at roughly 350

mph and can carry more than 3,000 gallons of retardant. Eight C130s equipped with Modular Airborne Fire Fighting Systems (MAFFS) are also now completing their recertification and training for this season. The Forest Service will also bring additional large air tankers in from Canada if needed. Air tankers drop fire retardant that reduces the intensity and rate of spread of wildfires so that fire fighters can construct fire lines safely."

Based on FAA TFMSC data, there are more ARC C-II and C-III aircraft operations at DRO than D-IV activity, but FAA data does not capture all activity at DRO. It is recommended that D-IV remain as the existing and future ARC for the following reasons:

- ***DRO has a single runway that accommodates a wide variety of aircraft.*** Maintaining airfield facilities that meet ARC D-IV design standards provides additional safety margins during crosswind and low visibility conditions. While the need for a crosswind runway is not justified by statistical analysis, this extra margin can be very beneficial during the infrequent periods when crosswinds are strong. The runway at Animas Airpark to the west of DRO is aligned in a very similar direction and thus there is no nearby alternate airport that may offer reduced crosswinds.
- **There are no other airports in the Four Corners region that meet ARC D-IV design standards**. Airports that have the ability to safely accommodate ARC D-IV aircraft are not commonly found in the Four Corners region. This capability provides a critical safety benefit for ARC D-IV aircraft that may urgently need an airfield capable of safely meeting their requirements.
- **The Boeing 757-200 (ARC C-IV) is used regularly to serve airports throughout Colorado.** It is still widely used by both scheduled air carriers as well as charter operators. The ability for DRO to also receive Boeing 757-200 scheduled or charter service or to provide a critical alternate destination for aircraft intending to land at other Colorado mountain airports is an important capability within the state's system of airports.
- **USFS is increasing their fleet of large fire fighting aircraft**, including DC-10, and working closely with the USAF to use the Lockheed C-130J. Although the USFS does not generate enough large aircraft activity to achieve "substantial use" on an annual basis, the fleet of aircraft that fire fighting contractors are deploying to the various regions to respond to wild fire events are changing. Some of these aircraft are large enough to require the existing DRO airfield capability to safely execute their missions. Western states and the federal government are increasing their fire fighting budgets in response to climate warming and larger wild fires, which may result in additional large fire fighting aircraft operations at DRO and other USFS bases.

3.14 Comparison to Existing FAA TAF

The FAA requires that study-related forecasts be consistent with the TAF or include sufficient documentation to explain the difference.

Table 3-24 summarizes the forecast comparison to the TAF as recommended in **Appendix I** of the FAA document, *Forecasting Aviation Activity by Airport*. A forecast is considered to be consistent with the FAA TAF if it:

- Differs by less than 10 percent in the 5-year forecast and 15 percent in the 10-year forecast, or
- Does not affect the timing or scale of an airport project, or
- Does not affect the role of the airport as defined in the current version of FAA Order 5090.3, *Field Formulation of the National Plan of Integrated Airport Systems*.

3.14.1 Passenger Enplanement Forecast

The FAA TAF projects enplanements at a Compound Annual Growth Rate (CAGR) of 1.92 percent, with an enplanement forecast of 304,784 in 2035. For this Master Plan, the recommended 20-year forecast results in 390,941 enplanements in 2035, and is based on the moderate annual growth rate of 3.3% projected for Employment in the Durango Micropolitan Statistical Area. At the request of the Planning Advisory Committee, a low forecast scenario was also adopted, matches the TAF forecasted annual growth rate of 1.9%.

The recommended enplanement forecast differs from the five-year forecast by 4.4 percent, the 10-year forecast by 11.9 percent, and the 20-year forecast by 28.3 percent. A primary factor driving forecasted passenger enplanement growth is the continued trend in larger regional aircraft that will serve markets such as DRO, the conversion of existing seasonal frequency in favor of year round service, plus the probable addition of one or more new destinations and additional frequency to existing destinations in the future.

3.14.2 Aircraft Total Operations Forecast

Currently FAA forecasts show low to moderate growth in total operations for DRO, with an operations forecast of 47,596 from 2015 to 54,888 in 2035 (CAGR of 0.72 percent). For the purposes of this Master Plan Update, the recommended 20-year forecast results in 61,566 operations in 2035, and is based on the different growth rates for commercial operations and GA operations. The recommended operations forecast differs from the five-year forecast by 1.0 percent, the 10-year forecast by 6.4 percent, and the 20-year forecast by 12.2 percent. This difference is primarily due to the FAA TAF showing a low growth rate for GA operations (0.7 percent) and no growth for military operations, whereas the recommended growth rate for GA operations is 1.4 percent.

TABLE 3-23 – DRO TOTAL OPERATIONS FORECAST

Year	Itinerant Commercial	Itinerant GA	Itinerant Military	GA Local	GA Total	Total Operations
2013	7,128	6,902	500	13,398	20,300	27,928
2015	7,965	7,132	500	13,844	20,976	29,441
2020	8,471	8,045	500	14,942	22,987	31,958
2025	9,010	8,974	500	15,955	24,929	34,439
2030	9,583	10,271	500	16,757	27,028	37,111
2035	10,192	11,719	500	17,578	29,297	39,989

Source: Jviation

3.14.3 Based Aircraft Forecast

The FAA TAF predicts 90 based aircraft at DRO by 2035. The preferred forecast projects 93 aircraft by 2035, which is slightly higher. This forecast was selected to match the strongly correlated growth projected for employment in the Farmington Metropolitan Statistical Area of 1.3 percent average annual growth through 2035.

3.15 Factors That May Create Changes in the Forecast

A forecast of aviation activity attempts to predict the future based on known factors and conditions. Numerous factors, on a local and/or national scale, can greatly affect the future of the airport and are unknown at this time. Oil prices, local economic activity, disposable income, costs of aircraft owner's insurance, and the potential for national GA user fees are just a few items that are beyond that airport's control that may change future activity dramatically. For this reason, implementation of development outlined in this report must be validated with the current conditions prior to the commencement of any further action.

3.16 Summary of Preferred Forecasts

Appendix B of the FAA document *Forecasting Aviation Activity by Airport* recommends formatting the preferred forecast data into a particular tabular format for ease of readability, as shown in **Table 3-24**.

Airport activity is affected and determined by many factors. Strong markets in today's airline environment are experiencing the retirement of equipment with fewer than 50 seats. New models in delivery and development indicate that manufacturers are phasing out jets in the 50-70 seat category as they reach life cycle limits by 2025. These changes to the airline fleet serving DRO over the forecast period have the potential to generate a growth rate of nearly 3.0 percent as average seats per departure increase even just assuming small increases to DRO's current flight schedule. As introduced in **Section 3.0**, the Airport's growth is indicative of a strong regional market. Its demonstrated success over the decade leading up to 2015 suggests retention and possible development of its existing tier of airlines.

Realizing additional airline service strongly supports airport growth. Addition of a once-daily flight to another market could further increase the growth curve to 3.3 percent. Such service by 2035 assumes a 90-seat regional jet at 83 percent load factor. Based upon industry trends, it is reasonable to deduce that if there is any future reduction in frequency for the DRO market, it will occur on larger regional and mainline jets during the forecast period. Any lower growth rate does not detract from airline operations competing for a preferred flight schedule with other airlines. Such competition is advantageous to DRO and generates peak hour activity that must be met by an adequate terminal facility.

TABLE 3-24 – DRO FORECAST COMPARISON TO TAF

	Year	DRO Forecast	TAF	AF/TAF (% Difference)
Passenger Enplanements				
	2013	192,797	192,797	0.0%
Base year	2015	205,594	205,594	0.0%
Base year + 5 years	2020	241,427	231,186	4.4%
Base year + 10 years	2025	283,505	253,344	11.9%
Base year + 15 years	2030	332,917	277,797	19.8%
Base year + 20 years	2035	390,941	304,784	28.3%
Commercial Operations				
	2013	7,128	11,854	-39.9%
Base year	2015	7,965	11,825	-32.6%
Base year + 5 years	2020	8,471	11,897	-28.8%
Base year + 10 years	2025	9,010	12,292	-26.7%
Base year + 15 years	2030	9,583	12,811	-25.2%
Base year + 20 years	2035	10,192	13,357	-23.7%
Total Operations				
	2013	27,928	47,068	-40.7%
Base year	2015	29,441	47,596	-38.1%
Base year + 5 years	2020	31,958	49,236	-35.1%
Base year + 10 years	2025	34,439	51,047	-32.5%
Base year + 15 years	2030	37,111	52,931	-29.9%
Base year + 20 years	2035	39,989	54,888	-27.1%
Based Aircraft				
	2013	70	70	0.0%
Base year	2015	72	71	1.4%
Base year + 5 years	2020	77	75	2.7%
Base year + 10 years	2025	82	80	2.5%
Base year + 15 years	2030	87	85	2.4%
Base year + 20 years	2035	93	90	3.3%

Notes: TAF data is on a U.S. Government fiscal year basis (October through September)
AF/TAF (% Difference) column has embedded formulas
Source: Jviation and FAA Template

4.0 FACILITY REQUIREMENTS AND DEMAND/CAPACITY ANALYSIS

This chapter details the ability of the Durango-La Plata County Airport (DRO) and associated airside and landside elements to meet the demand forecast as described in **Chapter 3**, **Aviation Activity Forecasts**. Current facilities were examined to determine if they meet the existing demands of the Airport. The extent of improvements required to meet the demand, or to replace items that will exceed their useful life during the planning period, or are needed to support a defined strategic initiative, will be determined and documented with appropriate calculations during this task. Certain items identified in this chapter may have multiple solutions that need to be examined and vetted with local and federal officials. These items will be explored in **Chapter 5**, **Alternatives Analysis**.

FAA Advisory Circulars (AC) 150/5300-13A, *Airport Design*, 150/5060-5, *Airport Capacity and Delay,* and 150/5360-13, *Planning and Design Guidelines for Airport Terminal Facilities* will be used as guidance during this task. In addition, the International Air Transport Association, *Airport Development Reference Manual*, and additional guidance and consultant experience will be sourced.

4.1 REGIONAL AIRPORT SYSTEM ROLE

In 2011, the Colorado Department of Transportation (CDOT) Aeronautics Division published the Colorado Aviation System Plan (Plan). The Plan evaluated and measured the performance of the Colorado system of publicly-owned airports and assigned each airport to one of three functional categories: Major, Intermediate, or Minor. The Plan classifies DRO as a Major Commercial Service airport. CDOT evaluated the Airport's current facilities against the Plan's objectives and identified facilities and services that need improvement. It was found that DRO meets the airport-specific objectives identified in the 2011 System Plan.

4.2 AIRSIDE REQUIREMENTS

The airside components evaluated include the runway, taxiways, FAA safety standards, navigational and landing aids, airspace requirements, and obstructions.

4.2.1 Runway and Taxiways

The ability of a runway to meet user requirements is one of the most critical components to the success of an airport. The runway must have the capacity, length, strength, and proper orientation to the wind to meet the demands of its users. This section examines several key factors used to determine the adequacy of the runway system.

4.2.1.1 FAA Airport Design Criteria

DRO's runway and taxiway system meets current FAA design standards for Airport Reference Code (ARC) D-IV and Taxiway Design Group (TDG) 5, illustrated in **Table 4-1**. The FAA's airport design standards for ARC D-IV facilities are shown in **Table 4-2**. DRO has a precision Instrument Landing System (ILS) to Runway 3 with less than ¾ mile visibility.

The runway and taxiway system can accommodate up to Boeing 757-200 (B-757) and Lockheed C-130 (L-100) aircraft. However, the majority of existing and forecasted aircraft operations at DRO fall within FAA's ARC A-I to C-III design categories, that accommodate single-engine piston airplanes up to the Airbus A-320 and Boeing 737-700.

TABLE 4-1 – DURANGO-LA PLATA COUNTY AIRPORT – FAA DESIGN CRITERIA

Criteria	Standard
Aircraft Approach Category	D
Airplane Design Group (ADG)	IV
Visibility Minimums (RVR)	2,400
Airport Reference Code (ARC)	D-IV
Runway Design Code (RDC)	D-IV / 2400
Taxiway Design Group (TDG)	TDG-5
Lowest instrument approach minimums (ILS Runway 3)	200' - ½ mile

Source: Jviation

TABLE 4-2 – RUNWAY DESIGN STANDARDS MATRIX

Table 3-8. Runway design standards matrix

Aircraft Approach Category (AAC) and Airplane Design Group (ADG): *(select from pull-down menu at right)*		D – IV			
		Visibility Minimums			
ITEM	**DIM[1]**	Visual	Not Lower than 1 mile	Not Lower than 3/4 mile	Lower than 3/4 mile
Runway Design					
Runway Length	A	*Refer to paragraphs 302 and 304*			
Runway Width	B	150 ft	150 ft	150 ft	150 ft
Shoulder Width		25 ft	25 ft	25 ft	25 ft
Blast Pad Width		200 ft	200 ft	200 ft	200 ft
Blast Pad Length		200 ft	200 ft	200 ft	200 ft
Crosswind Component		20 knots	20 knots	20 knots	20 knots
Runway Protection					
Runway Safety Area (RSA)					
Length beyond departure end [10, 11]	R	1000 ft	1000 ft	1000 ft	1000 ft
Length prior to threshold [12]	P	600 ft	600 ft	600 ft	600 ft
Width	C	500 ft	500 ft	500 ft	500 ft
Runway Object Free Area (ROFA)					
Length beyond runway end	R	1000 ft	1000 ft	1000 ft	1000 ft
Length prior to threshold [12]	P	600 ft	600 ft	600 ft	600 ft
Width	Q	800 ft	800 ft	800 ft	800 ft
Runway Obstacle Free Zone (ROFZ)					
Length		*Refer to paragraph 308*			
Width		*Refer to paragraph 308*			
Precision Obstacle Free Zone (POFZ)					
Length		N/A	N/A	N/A	200 ft
Width		N/A	N/A	N/A	800 ft
Approach Runway Protection Zone (RPZ)					
Length	L	1700 ft	1700 ft	1700 ft	2500 ft
Inner Width	U	500 ft	500 ft	1000 ft	1000 ft
Outer Width	V	1010 ft	1010 ft	1510 ft	1750 ft
Acres		29.465	29.465	48.978	78.914
Departure Runway Protection Zone (RPZ)					
Length	L	1700 ft	1700 ft	1700 ft	1700 ft
Inner Width	U	500 ft	500 ft	500 ft	500 ft
Outer Width	V	1010 ft	1010 ft	1010 ft	1010 ft
Acres		29.465	29.465	29.465	29.465
Runway Separation					
Runway centerline to:					
Parallel runway centerline	H	*Refer to paragraph 316*			
Holding position [8, 9]		250 ft	250 ft	250 ft	250 ft
Parallel Taxiway/Taxilane centerline [2]	D	400 ft	400 ft	400 ft	400 ft
Aircraft parking area	G	500 ft	500 ft	500 ft	500 ft
Helicopter touchdown pad		Refer to AC 150/5390-2			

Notes:

- Appendix 7 contains non-interactive tables for all RDCs.
- Values in the table are rounded to the nearest foot. 1 foot = 0.305 meters.

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

The B-757 has a maximum gross takeoff weight of 255,000 pounds, which exceeds the rated weight bearing capacity of Runway 3/21 (**Table 4-3**). However, B-757s rarely depart or land at maximum weight

due to the field elevation of DRO (6,685 feet above mean sea level), and because they operate relatively short stage lengths to/from DRO, they typically don't carry maximum fuel.

TABLE 4-3 – DRO RUNWAY & TAXIWAY DIMENSIONS

Element	Dimension or Capacity
Runway 3/21	9,201 feet long x 150 feet wide Paved shoulders – 25 feet wide
Weight bearing capacity:	Single wheel: 95,000 pounds Double wheel: 150,000 pounds Double tandem: 210,000 pounds
Parallel Taxiway A	9,201 feet long x 75 feet wide
Runway Centerline to Taxiway Centerline	400 feet

Source: Airport management records, 2014

4.2.2 Airfield Operational Capacity

Airport delays occur when demand exceeds capacity, even within a relatively short period of time (e.g. within an hour or less). Demand may exceed capacity occasionally or sporadically, or it may exceed capacity on a regular basis. As a policy, FAA recommends that when an airfield is reaching 60 percent of its calculated practical annual capacity, capacity enhancement projects should be identified, evaluated, and planned for implementation.

The FAA has provided a variety of methods to calculate airfield capacity and delay, from advanced computer simulation models to formulas and tables in advisory circulars. The complex nature of airport capacity and delay is because airports encompass airside and landside facilities as well as airspace and air traffic control procedures, each of which has different operating requirements and limitations, as well as different capacity and delay levels.

A number of factors and variables affect each airport's operational capacity, including but not limited to:

- Total number of aircraft operations (takeoffs and landings) in a calendar year.
- Number of operations within given time periods (peak hour, average day, peak month).
- The type/mix of aircraft. FAA developed aircraft classifications for wake turbulence separation standards, described in **Table 4-4**.
- Volume/percent of training (touch and go) operations in relation to total activity.
- The airfield configuration, including:
    - The size, number, location, and orientation of the runways.
    - The location and orientation of taxiways, including the number and location of exit and bypass taxiways.

  - The size and location of aircraft run-up pads, hold aprons, and penalty boxes.
  - The location of terminal/parking areas in relation to taxiways and runways.
  - The size and location of deicing pads.
- Limitations/restrictions on utilization of an airfield facility (runway, taxiway, parking apron) by certain types/category of aircraft.
- Average runway occupancy times by departing and arriving aircraft.
- Air traffic control services, including controller-pilot communications, and availability of radar for aircraft separation.
- Obstacle clearance arrival and departure procedures.
- Noise abatement procedures.
- Utilization of runways (percent of arrivals and departures accommodated by each runway) within given time periods.
- Local and regional airspace capacity, as well as the proximity to/and influence of adjacent airports and their arrival/departure procedures, runway layout, and utilization.
- Local and regional airspace designations and configuration, including Special Use Airspace (SUA).
- The airport's capacity to plow and treat the Airport Operations Area (AOA) during winter weather events.
- Airfield construction – extent, location, timing, and duration.
- Frequency and location on-airport of specialty aircraft missions/events such as fire fighting mobilization, gliders, banner towing, parachuting, agricultural, flight testing, airshows/fly-ins, etc.
- Availability of instrument approaches, types of procedures (straight-in or circling, with or without vertical guidance), limitations on who can use them, and published minimums.
- Prevailing wind and weather conditions over given time periods.
- Frequency and length of Temporary Flight Restrictions (TFR) imposed by FAA.

TABLE 4-4 – AIRCRAFT CLASSIFICATION FOR WAKE TURBULENCE SEPARATION

Aircraft Class	Description	Maximum Gross Takeoff Weight (pounds)	Sample Aircraft
Small – S	Single Engine	Less than 12,500	Cessna 172, Piper Warrior
Small – T	Twin engine	Less than 12,500	Beach 35, Piper Seneca, Turbo Commander
Small +	Mixed engines	Between 12,500 and 41,000	Lear 35, Hawker 400, Citation 10
Large	Multiple engines	Between 41,000 and 300,000	B-737, A319, Global Express, CRJ-200
B-757	Boeing 757	300,000	B-757
Heavy	Multiple engines	More than 300,000	B-747, B-767, B-777, A330
Super Heavy	A380	1,200,000	A380

Source: FAA Order 7110.65, *Air Traffic Control*

Mountain airports like DRO experience limitations in terms of communication, navigational aid, and radar capabilities because of signal interference from terrain, which directly impact airport capacity and delay. The FAA is in the process of implementing the Next Generation Air Traffic Control and Airspace System (NextGen), which FAA states will significantly reduce airport and airspace delays, in part by addressing the limitations imposed by terrain and weather conditions.

An examination of the list of factors indicates that almost every variable will change over time, some frequently and within relatively short time frames (airfield construction, temporary flight restrictions, and certain weather conditions); others are longer term (airfield facilities, instrument approaches, and airspace designations). Airport capacity, therefore, is not a static number—it is a constantly changing and evolving resource.

While airport and airspace computer simulation models can use these variables to analyze and quantify capacity and delay, the simulation models are very complex, require significant investment of resources, and are based on a number of assumptions about existing and future activity, airport facilities, aircraft operating procedures, and air traffic capabilities.

Another approach to analyzing airport capacity and delay is to utilize a top-down methodology by starting with FAA AC 150/5060-5, *Airport Capacity and Delay*. The AC provides detailed calculations of airfield capacity using a number of variables including runway configuration and utilization, aircraft mix/category, ratio of training (touch and go) to total activity, visual (VFR) versus instrument (IFR) conditions, and peak period activity. Based on this methodology, DRO's estimated operational capacity is shown in comparison to projected demand in **Table 4-5**. The year 2035 forecast of demand represents less than 50 percent of calculated annual and peak hour capacity.

TABLE 4-5 – DEMAND VS CAPACITY

VFR[a] Hourly Capacity	IFR[b] Hourly Capacity	Annual Service Volume
74	57	195,000
Airport Master Plan Forecast – Year 2035		
VFR Hourly Demand 32	IFR Hourly Demand 16	Annual Operations 61,566
Because DRO is a non-towered airport, there are no records of actual peak hour operations. VFR hourly demand calculated based on Annual Operations × 10.4% (Peak Month) ÷ 30 (Average Day) × 15% (Peak Hour). IFR hourly demand calculated based on Annual Operations ÷ 2 × 10.4% (Peak Month) ÷ 30 (Average Day) × 15% (Peak Hour). Actual peak hour operations likely fluctuate by season, and may also differ from calculations.		
Demand-Capacity Ratio		
43.2%	28%	31.6%

Notes: [a]VFR = Visual Flight Rules
[b]IFR – Instrument Flight Rules
Source: Jviation

One factor accounting for the airfield's surplus operational capacity is the taxiway system. There are nine exit taxiways off of Runway 3/21 (**Table 4-6**) that minimize runway occupancy time by arriving and departing aircraft, even though all of the taxiways are right angle exits - i.e. no high-speed or acute angled taxiways. FAA states: "When the design peak hour traffic is less than 30 operations (landings and takeoffs), a properly located right-angled exit taxiway will achieve an efficient flow of traffic."[1]

The FAA calculated the utilization of exit taxiways by category of aircraft, location (distance from landing threshold), angle of taxiways, and under wet and dry conditions (**Table 4-7**). In terms of the number and location of DRO's exit taxiways (**Table 4-6**) all categories of aircraft are adequately accommodated. FAA AC 150/5060-5, *Airport Capacity and Delay*, states that taxiway capacity assumptions are based on: "A full-length parallel taxiway, ample runway entrance/exit taxiways, and no taxiway crossing problems."

In addition to the nine exit taxiways, there is a holding bay (run-up) apron near the Runway 3 threshold, as well as two by-pass taxiways to Runway 3.

[1] Source: FAA AC 150/530-13A, *Airport Design*, Chapter 4, Taxiway and Taxilane Design, Para. 409. Exit Taxiways, a. Exit Angle

TABLE 4-6 – DRO TAXIWAYS

Exit Taxiway	Distance (feet)
Distance from Runway 21 to:	
A1	38
A2	1,470
A3	2,850
A4	3,190
A5	4,400
A6	6,340
A7	7,445
A8	8,820
A9	9,130
Distance from Runway 3 to:	
A1	9,187
A2	7,708
A3	6,336
A4	6,020
A5	4,787
A6	2,880
A7	1,700
A8	375
A9	38

Source: Jviation

TABLE 4-7 – EXIT TAXIWAY CUMULATIVE PERCENTAGES

Distance Threshold to Exit (feet)	Wet Runways				Dry Runways							
	Right and Acute Angled Exits				Right Angled Exits				Acute Angled Exits			
	S	T	L	H	S	T	L	H	S	T	L	H
0	0	0	0	0	0	0	0	0	0	0	0	0
500	0	0	0	0	0	0	0	0	1	0	0	0
1,000	4	0	0	0	6	0	0	0	13	0	0	0
1,500	23	0	0	0	39	0	0	0	53	0	0	0
2,000	60	0	0	0	84	1	0	0	90	1	0	0
2,500	84	1	0	0	99	10	0	0	99	10	0	0
3,000	96	10	0	0	100	39	0	0	100	40	0	0
3,500	99	41	0	0	100	81	2	0	100	82	9	0
4,000	100	80	1	0	100	98	8	0	100	98	26	3
4,500	100	97	4	0	100	100	24	2	100	100	51	19
5,000	100	100	12	0	100	100	49	9	100	100	76	55
5,500	100	100	27	0	100	100	75	24	100	100	92	81
6,000	100	100	48	10	100	100	92	71	100	100	98	95
6,500	100	100	71	35	100	100	98	90	100	100	100	99
7,000	100	100	88	64	100	100	100	98	100	100	100	100
7,500	100	100	97	84	100	100	100	100	100	100	100	100
8,000	100	100	100	93	100	100	100	100	100	100	100	100
8,500	100	100	100	99	100	100	100	100	100	100	100	100
9,000	100	100	100	100	100	100	100	100	100	100	100	100

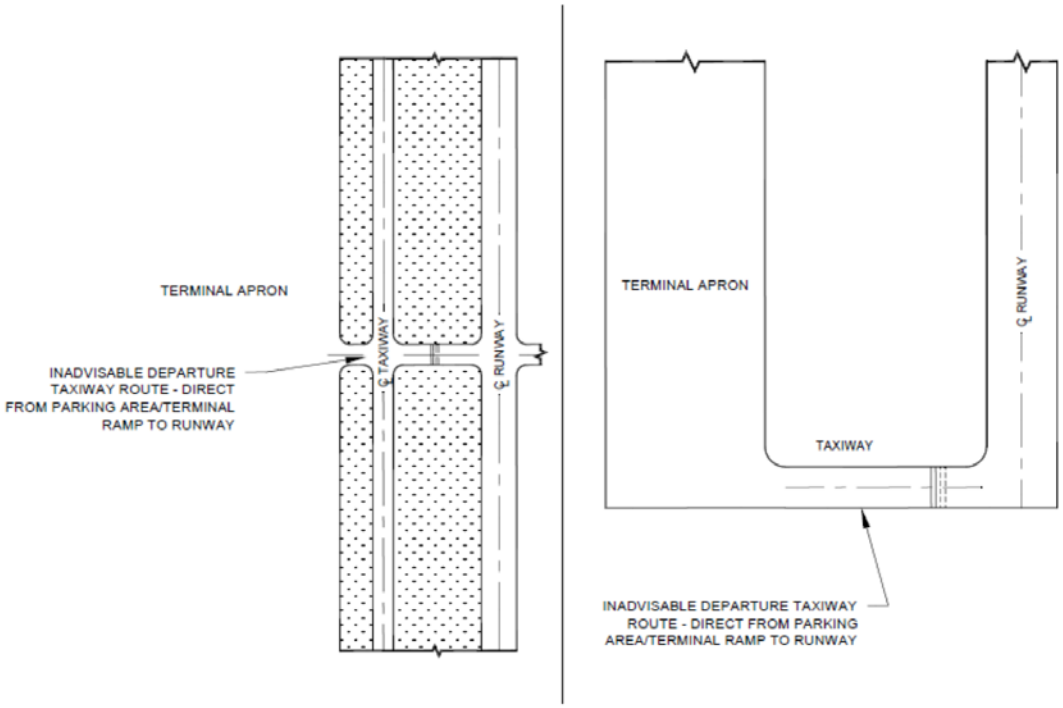
Notes: S – Small, single engine - 12,500 lbs or less
T- Small, twin Engine - 12,500 lbs or less
L – Large - 12,500 lbs to 300,000 lbs
H – Heavy - greater than 300,000

Source: FAA AC 150/5300-13A, *Airport Design*, Chapter 4, Table 4-13

At such time when the stub taxiways are in need of reconstruction, they should be modified to meet FAA Design standards **(Figure 4-1** and **Figure 4-2).** Taxiway A from connectors A1 to A6 is scheduled to be rehabilitated in 2016; with A4 scheduled for removal. Taxiway A from A6 to A9 and connectors A7, A8, and A9 are also scheduled for a fog seal as preventative maintenance.

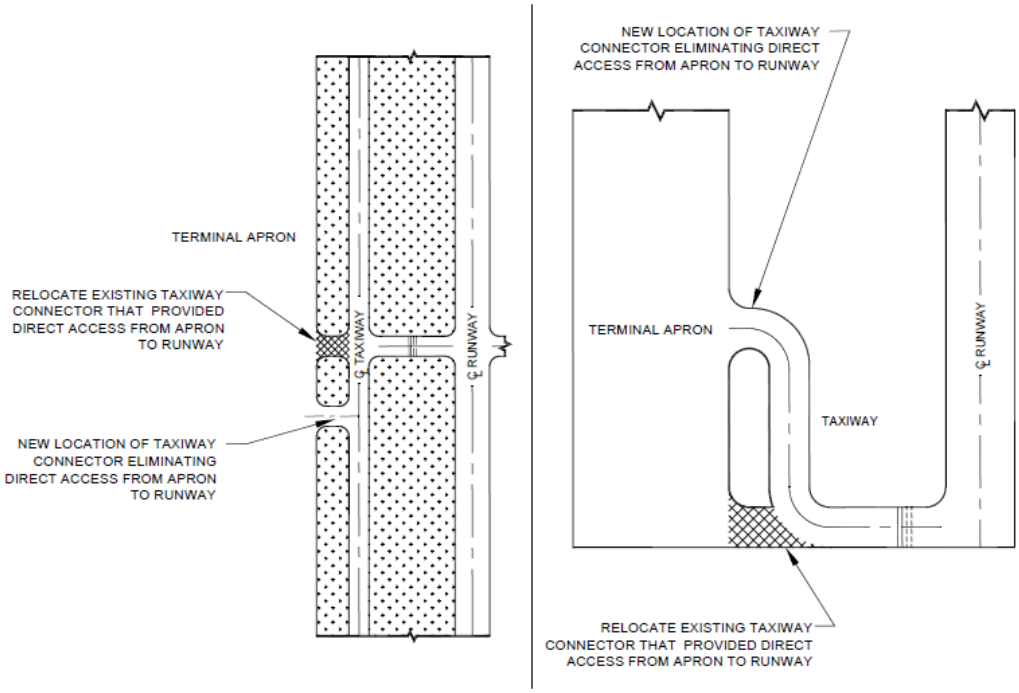
Following the Taxiway A rehabilitation and removal of A4, the taxiways will be renumbered. A new High Intensity Taxiway Lighting (HITL) system will be installed for Taxiway A and connectors A1, A2, A3, A5, and A6.

FIGURE 4-1 – NON-RECOMMENDED TAXIWAY DESIGN



Source: FAA AC 150/5300-13A, *Airport Design*, Chapter 4, Figures 4-2 and 4-3

FIGURE 4-2 – PROPER TAXIWAY DESIGN



Source: FAA AC 150/5300-13A, *Airport Design*, Chapter 4, Figures 4-2 and 4-3

4.2.3 Runway Length

Runway 3/21 is 9,201 feet long. With a field elevation of 6,685 feet above sea level (ASL) and a mean maximum temperature of 88.9^0 F in the summer, density altitude[2] reaches 10,138 feet. In general, airplane performance decreases as density altitude increases. In particular, takeoff distance increases and climb rates decrease as density altitude rises. In the winter months, the density altitude is lower due to colder temperatures, and airplane performance improves compared to summer months.

As noted in **Chapter 2, Inventory**, DRO accommodates a wide variety of air carrier, small general aviation, and corporate aircraft. Runway length requirements, particularly for air carrier and corporate jets, are a function of many factors and variables, including:

- Aircraft weight
- Field elevation above mean sea level
- Runway slope (gradient)
- Surface type (e.g. paved, grooved, smooth, etc.)
- Wind direction and speed
- Ambient air pressure, temperature, humidity (density altitude)
- Pavement condition (wet, dry, other types of contamination)
- Obstacle clearance/one-engine-out (OEI) departure procedures[3]
- Noise abatement procedures
- Use of bleed air for anti-icing, air conditioning packs, anti-skid devices, etc., on takeoff
- Flap settings (dependent on aircraft weight, runway length, density altitude, obstacle, clearance departure procedures)
- Tire speed and brake energy limits
- Whether operator takes credits for designated clearways

A number of the variables change daily and hourly (for example, weather–wind/temp/pressure, and runway conditions, e.g. wet/dry). Other conditions can change within a given year (such as growth of vegetation or new construction), while others change over a number of years (runway length, pavement type, gradient, etc.)

[2] Airplane performance is based on density altitude, which accounts for elevation above sea level, temperature, humidity, and pressure.
[3] Many commercial operators use third party vendors to provide obstacle data, and obstacle clearance/OEI weight requirements for each runway used. Such data and procedures are incorporated into each operators approved Ops Specs.

For example, obstacles in the vicinity of the airport such as vegetation, buildings, and towers may dictate a displaced threshold and/or certain arrival/departure procedures to a runway. Those obstructions sometimes change significantly within a given year, which in turn changes obstacle clearance procedures used by airlines and other aircraft. On the other hand, other obstacles, particularly terrain, are relatively static and change little over time, as are the obstacles in the vicinity of DRO.

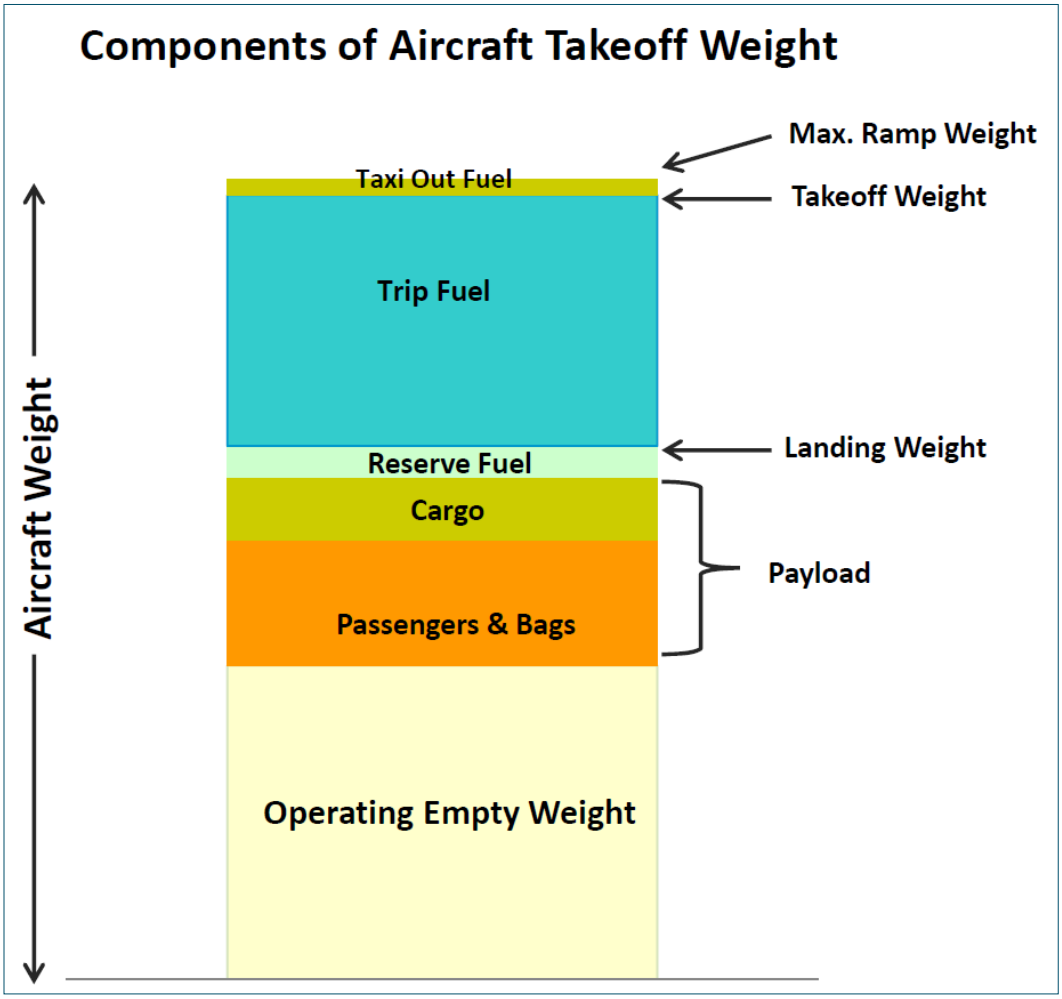
Airlines and other aircraft operators typically adjust to the changing conditions–particularly the short and medium term changes–by adjusting their aircraft takeoff and landing weight. See **Figure 4-3** for a description of the various components of aircraft takeoff weight. The two primary components of takeoff weight that an operator can manage are payload and trip fuel.

When departing from a 9,200-foot-long runway with favorable winds, low temperature and humidity, dry pavement, etc., an operator of an Airbus A-320 and A-319 (such as American, United, Frontier, etc.) may be able to depart at close to maximum gross takeoff weight.

However, after a snow or ice storm when the pavement is contaminated, the same airplane may be weight limited even though temperatures are low, and airlines will leave passengers, baggage, and fuel off the airplane in order to safely depart from or land on the 9,200-foot runway. This is also the case when ambient temperatures rise well above standard, such as departing from DRO in July, compared to taking off in January. Also, when winds rapidly shift direction and speed, or when new obstructions (e.g. vegetation or new construction) reach certain elevations, operators may be required to reduce takeoff weight and use other departure procedures.

Commercial aircraft operators are governed by various federal aviation regulations. Each operator is required to have FAA-approved Operations Specifications (Ops Specs) for each aircraft they operate. Ops Specs are developed by each airline starting with the aircraft manufacturer's performance data, then modified by each airline based on their individual operating procedures, and then reviewed, modified, and approved by the FAA. For example, airlines may have variations in their obstacle clearance and one-engine-out (OEI) procedures, including weight penalties, based on the safety margins and operating techniques they cite within their Ops Specs.

FIGURE 4-3 – COMPONENTS OF AIRCRAFT TAKEOFF WEIGHT



Source: Jviation

As a result, each airline's Ops Specs for the same type of airplane (such as the A-139/-320, B-737 and 757, etc.) will be somewhat different, and will also be different than the manufacturer's performance data. Once approved, pilots must follow their carrier's Ops Specs, not the manufacturer's data.

The FAA has published obstacle departure procedures for each airport, including DRO, as well as weather minimums for departures (**Figure 4-4**). The departure procedures apply to all aircraft, but the weather minimums legally apply only to commercial operators (e.g. FAR Part 135, 121, etc.), but not to private (FAR Part 91) operators, although Part 91 operators may voluntarily choose to abide by the departure weather minimums. Weather minimums for commercial air carriers may be different than shown below based on their particular Ops Specs and aircraft capabilities.

FIGURE 4-4 – DEPARTURE PROCEDURES

DURANGO, CO
DURANGO-LA PLATA COUNTY (DRO)
AMDT 6A 09015 (FAA)

TAKEOFF MINIMUMS: **Rwy 3**, std. w/ a min. climb of 215' per NM to 7600, or 1700-3 for climb in visual conditions.

DEPARTURE PROCEDURE: **Rwy 3,** climbing right turn to 9000 heading 160° and DRO VOR/DME R-125 to RESER INT, or for climb in visual conditions: Cross Durango-La Plata County Airport Southeast bound at or above 8200 MSL, then proceed on DRO VOR/DME R-125 to RESER INT. **Rwy 21**, climbing right turn to 9500 heading 280° and DRO VOR/DME R-235 to MARKE INT.

NOTE: **Rwy 3,** trees beginning 1223' from DER, 794' left of centerline, up to 42' AGL/6741' MSL. Trees beginning 488' from DER, 431' right of centerline, up to 42' AGL/6698' MSL, vehicles on road beginning 8' from DER, right and left of centerline, up to 15' AGL/6706' MSL.

Source: FAA, Terminal Instrument Procedures Development, DRO

When departing DRO in the summer when the temperature is 88.9^{0}F, a number of aircraft take a weight penalty (**Table 4-8**) but many corporate jets can depart DRO in the summer at or near maximum takeoff weight. The takeoff performance data for most Airbus and Boeing aircraft is from the aircraft manufacturer. Other aircraft performance data was presented in Business & Commercial Aviation's Purchase and Planning Handbook, May 2014.

TABLE 4-8 – AIRCRAFT TAKEOFF PERFORMANCE DATA

Aircraft	Max. Takeoff Weight[/a/] (manufacturer listed)	Takeoff Weight at DRO (at mean max temp 88.9°F)	Runway Length at DRO[/a/] (no weight restrictions)
Airbus A-319	160,000 lbs	155,000 lbs	13,200′
Airbus A-320	171,000 lbs	161,000 lbs.	14,500′
Boeing 737-700	148,000 lbs	137,000 lbs	14,500′
Boeing 757-200	251,000 lbs	235,000 lbs	12,300′
Bombardier CRJ-700	73,000 lbs	72,750 lbs	8,400′
Embraer ERJ-170	85,098 lbs	83,459 lbs	10,110′
Embraer ERJ-190	114,552 lbs	114,199 lbs	10,341′
Embraer Legacy 650	53,572 lbs	53,572 lbs	7,979′
Dassault Falcon 2000	42,800 lbs	42,010 lbs	6,800′
Dassault Falcon 7X	70,000 lbs	69,140 lbs	8,045′
Gulfstream G-450	74,600 lbs	74,600 lbs	8,200′
Bombardier Global 5000	92,500 lbs	88,373 lbs	6,798′
Airbus ACJ-318	149,900 lbs	149,900 lbs	7,660′
Airbus ACJ-319	168,650 lbs	168,650 lbs	8,360′
Boeing BBJ (-700IGW)	171,000 lbs	170,827 lbs	10,200′
Gulfstream G-550	91,000 lbs	91,000 lbs	9,070′
Gulfstream G-650	99,600 lbs	99,600 lbs	9,000′

Note: [/a/]No runway length or obstacle clearance limitations, at mean maximum temperature 88.9°F, field elev. 6,685′ MSL
Sources: Airbus Aircraft Characteristic Manuals: A-319, A-320, Boeing Airplane Characteristics for Airport Planning: B-737, B-757 Business & Commercial Aviation, May 2014, Purchase Planning Handbook: CRJ-700, ERJ-170, ERJ-190, FA-2000, 7X, ACJ-18/319, BBJ, G-550, G-650

There are several important points concerning the takeoff data shown in **Table 4-8**:

- The takeoff weights and runway lengths shown do <u>not</u> account for obstacle clearance departure procedures from DRO. Each carrier and corporate operator takes different weight penalties for obstacle clearance purposes, based on their Ops Specs. It is possible that additional weight restrictions are imposed above and beyond what are shown when departing DRO during summer months, as well as when the runway is contaminated (snow, slush, standing water, etc.)
- It is possible that obstacle clearance procedures on departure, particularly to satisfy one-engine-out (OEI) climb requirements at 88.9°F, might be more restrictive than runway length constraints. If that is the situation, then extending the runway would provide relative operational benefit. Specific input from aircraft operators at DRO, based on their approved Ops Specs, is needed to make that determination.
- Extending Runway 3/21 would allow some operators to depart DRO at higher takeoff weights, particularly during the summer months. In order to allow departures by all aircraft with no weight

penalties, the runway would need to be approximately 14,500 feet long (not considering obstacle clearance requirements).

- Air carriers currently fly relatively short stage lengths to/from DRO, with non-stop service to DEN (261 nautical miles (nm)), PHX (306 nm), and DFW (586 nm). The top 10 origin and destination (O&D) passenger markets and their distance from DRO include:
    - Denver (DEN) – 261 nm
    - Dallas-Fort Worth (DFW) – 586 nm
    - Houston (IAH) – 755 nm
    - Phoenix (PHX) – 306 nm
    - Chicago (ORD) – 963 nm
    - Austin (AUS) – 654 nm
    - San Francisco (SFO) – 699 nm
    - Seattle (SEA) – 892 nm
    - Minneapolis (MSP) – 804 nm
    - Atlanta (ATL) – 1,160 nm

The non-stop range of the air carrier aircraft serving DRO is significantly longer than the distance to most of the top 10 passenger O&D markets, including the current non-stop markets served (DFW, PHX, and DEN); see **Table 4-9** for maximum aircraft ranges. As a result, most air carrier aircraft serving the top 10 O&D markets typically depart DRO with less than maximum fuel, which reduces their takeoff weight before any additional weight restrictions are applied for obstacle clearance climbs or runway length.

Based on the existing and anticipated fleet of aircraft that serve DRO, as well as the non-stop routes served, the existing Runway 3-21 length (9,201 feet) allows air carriers to operate with sufficient payloads to meet their financial, marketing, and service level objectives. If the opportunity to extend the runway to 9,900 feet in the future becomes available, that would increase each air carrier's ability to carry even more useful load, which would further increase DRO's attractiveness as an origin and destination passenger market, and may open the possibility to serve new, longer haul routes.

TABLE 4-9 – AIRCRAFT RANGES

Aircraft	Maximum Range (nm)
B-737-700	4,000
B-757-200	4,700
CRJ-700	1,218
Airbus A-319	3,600
Airbus A-320	3,100
ERJ-170	1,800
ERJ-190	1,800

Source: Aircraft manufacturers

4.2.4 Airfield Lighting, Marking, and Navigational Aids

DRO currently has a variety of airfield lighting, navigational aids, and communication systems:

- High Intensity Runway Lights (HIRL) on 3/21
- Medium Intensity Taxiway Lights (MITL)
- Runway distance remaining signs
- Runway and taxiway guidance signs
- Medium Intensity Approach Light System (MALSR) to Runway 3
- Precision Approach Path Indicator lights (PAPI) Runway 3
- Visual Approach Slope Indicator lights (VASI) Runway 21
- Rotating beacon
- Unicom radio (Common Traffic Advisory Frequency – CTAF) 122.8 MHz
- Automated Surface Observing System (ASOS) – 102.625 MHz and (970) 259-3579
- Segmented circle and lighted wind sock
- Remote Communications Outlet (RCO) for Denver Flight Service Station (122.35 MHz)
- Denver Center Approach/Departure Control Frequency 118.575 MHz
- Durango Terminal VHF Omnidirectional Range/Distance Measuring Equipment (TVOR/DME) on the field – 108.2 MHz
- Instrument Landing System (ILS – CAT I) to Runway 3 – localizer antenna (109.1 MHz) and glide slope antenna. Runway 3 also has a published non-precision VOR and GPS approach

All of DRO's facilities are in compliance with FAA AC 150/5300-13A, *Airport Design*, and 14 CFR FAR Part 139, *Airport Certification*. The published minimums on the Runway 3 ILS are 200 feet above the touchdown zone and a ½ mile, which is the lowest for CAT I ILS approaches.

One of the GPS Runway 3 approaches is a Localizer Performance with Vertical Guidance (LPV) and it also has published minimums of 200 feet above the runway touchdown zone, and a ½ mile.

As noted in FAA AC 150/5340-30H, *Design and Installation Details for Airport Visual Aids*:

> "Runway centerline lights and touchdown zone lights are required for CAT II and CAT III runways and for CAT I runways used for landing operations below 2,400 ft. (750 m) RVR. Runway centerline lights are required on runways used for takeoff operations below 1,600 ft. (480 m) RVR unless specifically approved by the FAA in an airline operator's specification for that runway. Although not operationally required, runway centerline lights are recommended for CAT I runways greater than 170 ft. (50 m) in width or when used by aircraft with approach speeds over 140 knots."

The installation of runway centerline and touchdown zone lights (**Figure 4-5**) may allow some commercial operators to reduce their takeoff minimums from DRO, which may enhance schedule reliability.

Close coordination with various lines of business (departments) within FAA, as well as specific aircraft operators, would be required to determine the actual reduction in visibility minimums that could be achieved with the installation of the centerline and touchdown zone lights. The installation could be done as an AIP-eligible item as part of the runway reconstruction, but the cost of maintaining the lights, including plowing, would be DRO's responsibility.

FIGURE 4-5 – RUNWAY CENTERLINE AND TOUCHDOWN ZONE LIGHTS

Source: Google Images, 2014

It is recommended that a GPS LPV (localizer performance with vertical guidance) instrument approach procedure be published by the FAA to Runway 21, similar to the existing LPV approach to Runway 3. It is also recommended that a medium intensity approach light system with runway alignment indicator lights (MALSR) be installed to Runway 21 in order to achieve visibility minimums of ½ mile, similar to the existing approach light system and visibility minimums to Runway 3.

4.2.5 Obstructions

Existing obstructions are discussed in detail in **Section 2.4.10** of this document. The primary surface obstructions consist of terrain, service road, and a tree. The terrain is located to the west of the existing GA/FBO apron and penetrates the surface by less than one foot. The tree is located southeast of the Runway 21 threshold and penetrates the primary surface by approximately five feet. The service road that provides access to the airport's navigational aids penetrates the primary surface between one and four feet. However, this road is a private airport road with controlled access. Consequently, no action is recommended.

It is recommended that the tree and terrain obstructions to the primary surface be removed as soon as possible in the planning period. It is also recommended that an obstruction light be placed on the AvFlight hangar to enhance safety. Lastly, it is recommended that County Road 309A be relocated to mitigate the penetration to the Runway 21 approach surface.

4.3 LANDSIDE REQUIREMENTS

4.3.1 Regional Transportation Network

The roads and highways that provide access to DRO are adequate to handle current conditions and the future growth predicted in the approved FAA Forecast. DRO is accessed by State Highway 172, which connects to County Road 309 (also known as Airport Road).

4.3.2 On-Airport Circulation Roadways

As mentioned in Section 2.9.1, Airport Road is a two-lane road that extends from State Highway 172 to the intersection of County Road 309A, just north of the airport boundary. At that point, Airport Road splits into two two-lane roads, divided by a landscaped median. The two eastern lanes are one-way southbound and route traffic to the main parking lot at DRO. The two western lanes are a two-way service road that continues past the parking lots to the terminal building, FBO, GA hangars, and ARFF building. Airport Road currently is considered to be in good condition, ***and should be maintained throughout the planning period. Should a preferred alternative be selected that relocates the terminal, plans should be updated to reflect the new entrance roadway system.***

A Traffic Analysis Report was completed by Felsburg Holt & Ullevig (see **Appendix J**) to determine future needs. The existing intersection with State Highway 172 is considered a safety hazard with both La Plata County and CDOT due to sight distance limitations and increased crash potential. ***Consequently, it is recommended that a new intersection be constructed to improve safety.*** Alternatives in the next chapter provide potential intersection locations that serve the preferred terminal alternative.

The secondary access point from County Road 309A from the south that connects to Airport Road is currently unpaved. Because this access is rarely used by airport visitors, and the area to which it connects is sparsely populated, improvements have not been warranted. La Plata County planners are interested in improving County Road 309A to provide a secondary access from the south.

4.3.3 Parking

Parking space requirements for the terminal parking lot are a function of forecasted enplanements, and DRO's parking is inadequate for the existing passenger demand level. The existing terminal parking has a shortfall of 118 spaces, which increases throughout the planning period. The growth in parking shown in

Table 4-10 is tied to the low forecast growth rate of 1.9 percent used to represent growth in originating passengers (as opposed to the higher forecast of 3.5 percent that captures growth in both Origination and Destination Passengers). Rental car parking has a smaller need for additional parking because they currently operate with all cars rented and on the road, rather than sitting in the parking lots. Some growth in employee parking is also anticipated; however, this is geared to the operation of the Airport and tenants, rather than pure passenger growth. The total number of acres in the parking needs calculation includes roadways, landscaping, circulation, etc. In conclusion, approximately 13 acres in total parking facilities is needed if all vehicles were on the surface lots.

TABLE 4-10 – DRO PARKING REQUIREMENTS

Year	Parking Requirements				Needs Calculation			
	Public Parking	Rental Car Parking	Employee Parking	Total Need	Spaces Available	Shortfall	Total square feet Public Surface Parking + Circulation	Acres
2015	987	219	75	1281	1,163	-118	249,026	6.86
2025	1513	280	105	1898	1,163	-735	368,979	10.16
2035	1949	359	120	2428	1,163	-1265	471,972	13.00

Source: Jviation

4.4 Terminal Requirements

A commercial terminal is one of the most susceptible areas on an airport to major impacts arising from minor changes. An airline scheduling change of just 30 minutes could lead to an overload in a secure passenger departure lounge (hold room), significantly increase passenger screening time, crowd the baggage claim, or require an additional gate.

Airline schedules cannot be accurately traced and predicted in the short- or long-term. Subsequently, annual enplanements and peak activity based on today's operations carried forward are the most reasonable

indicators of future activity levels. However, it is important to note that DRO's terminal is currently constrained due to the steady increase in enplanements over the past several years as detailed in **Chapter 3, Aviation Activity Forecasts**.

The following discussion of the various functional components outlines how the particular areas are performing at their current size at current peak passenger levels, how they are anticipated to perform under the forecast for the planning period, and which areas require future expansion.

Planning Activity Level 1 (PAL 1), the anticipated enplanement level to be reached in the 10-year planning period, was used as the benchmark for any proposed improvements to the existing terminal. We look beyond the current needs because construction projects take time; significant projects can take years from initial budgeting through design and construction. Consequently, an incremental improvement to meet a current need is likely to be outdated and outgrown before it is completed. Therefore, it is good planning to keep looking down the road and anticipate future needs in today's plan.

4.4.1 Level of Service

The FAA, along with the International Air Transportation Association (IATA), has developed standards for analyzing airport space requirements. IATA defines standards in relation to the "Level of Service" that should be maintained by the airport operator.[4] These service levels are discussed as a means to assess the ability of the particular areas to comfortably perform their intended purpose. The service levels are as follows:

A – Excellent level of service. Conditions of free flow, no delays, and excellent levels of comfort.

B – High level of service. Conditions of stable flow, very few delays, and high levels of comfort.

C – Good level of service. Conditions of stable flow, acceptable delays, and good levels of comfort.

D – Adequate level of service. Conditions of unstable flow, acceptable delays for short periods of time, and adequate levels of comfort.

E – Inadequate level of service. Conditions of unstable flow, unacceptable delays, and inadequate levels of comfort.

F – Unacceptable level of service. Conditions of cross-flows, system breakdowns, and unacceptable delays; an unacceptable level of discomfort.

[4] International Air Transportation Association's *Airport Terminal Reference Planning Manual*, 9th Edition, 2004.

The Level of Service (LOS) indicators for DRO's overall passenger terminal is estimated to be a "D" during peak periods due to the current constraints experienced throughout the terminal. This assessment was made from several site visits to observe passenger flows combined with a detailed analysis of the facility using industry standard planning factors. As a graphic example, **Figure 4-6** displays images of various airports with activity levels similar to DRO. The size deficiency of the DRO terminal versus the other airports is demonstrated by the difference in the footprints of these comparable airports.

FIGURE 4-6 – TERMINAL COMPARISONS

Source: Jviation

The following sections describe and analyze each functional area of the terminal building. Using industry standards for DRO's specific situation, conceptual planning factors have been determined for each functional area. Planning factors are the "units of facility," such as square feet or linear feet that adequately serve a "unit of demand," such as a passenger who is either arriving or departing.

While annual enplaned passengers (ANNEP) are a useful benchmark for describing the activity from year to year, total Peak Hour Passenger (PHP) activity is most important for determining the size of terminal facilities. Many facilities, like restrooms and circulation hallways, must be sized to handle the highest PHP demand. Peak flight arrivals at 20-minute intervals are considered in determining the size of baggage claim areas and the number and type of baggage claim devices. The square footage per passenger factors have been derived to account for the gear and luggage that travelling passengers have in tow; a typical person in an airport requires more space than other types of public facilities. **Table 4-11** depicts the peak hour enplanements currently and over the planning period and the number of gates needed based on the PHP.

These factors have been applied to DRO's activity forecast to derive the facility size requirements to adequately provide a "B" LOS in **Table 4-12.**

TABLE 4-11 – DRO TERMINAL FACILITY REQUIREMENTS

	Current 2015	PAL 1 2025	PAL 2 2035
Annual Enplaned Passengers (ANNEP)[/a/]	205,000	284,000	391,000
Peak Hour Enplanements (PHP)	263	340	425
Number of Gates	4	5	7

Note: [/a/]Rounded to nearest thousandth

Sources: Jviation and RS&H, Inc.

Based on historical airport activity, virtually all passengers at the airport are assumed to be O&D passengers. Connecting activity is expected to be minimal. Consequently, O&D passengers, for practical purposes, equal PHP.

Using these planning factors as a tool for analysis, the varying demands placed on the different components of the terminal can be studied. **Figure 4-7** is a graphic representation of the most significant "hot spots" of activity where the peak hour functioning of the terminal building is overloaded.

FIGURE 4-7 – TERMINAL HOT SPOTS/EXISTING CONSTRAINTS

Source: RS&H, Inc.

TABLE 4-12 - DRO TERMINAL FACILITY REQUIREMENTS

Type of Occupancy	Existing Space (LF OR SF)[a]	Current Need 2015	PAL 1 2025	PAL 2 2035
Airline Space				
Ticket Counter Length (LF)	48	90	114	135
Ticket Counter Area (SF)	556	900	1,140	1,350
Ticket Counter Active Area(SF)	556	900	1,140	1,350
Ticket Counter Queuing (SF)	1,414	2,250	2,850	3,375
Ticket Offices and Admin. (SF)	639	2,700	3,420	4,050
Outbound Baggage Area (SF)	3,430	3,200	3,200	4,000
Baggage Claim Length (LF)	50	139	179	224
Baggage Claim Area (SF)	2,516	4,070	5,247	6,567
Inbound Baggage Area (SF)	0	1,860	2,380	3,000
Operations Facilities (SF)	709	2,000	3,200	4,100
Passenger Departure Lounges (hold rooms) (SF)	2,812	9,044	11,554	14,966
Temporary Hold Room Tent (SF)	4,500	-	-	-
Airline Space Sub-Total:	**17,000**	**26,924**	**34,131**	**42,758**
Transportation Security Administration (TSA)				
Security Screening Checkpoint (SF)	1,377	8,150	8,700	11,384
Hold Baggage System (HBS) (SF)	0	4,690	4,890	5,110
Baggage Screener Area (SF)	504	930	1,200	1,500
Baggage Inspection Support Facilities (SF)	0	460	590	730
Admin. Offices (TSA) (SF)	597	600	700	800
TSA Space Sub-Total	**2,500**	**14,830**	**16,080**	**19,524**
Concessions				
News/Gifts/Sundry (SF)	1,254	400	600	800
Food and Beverage (SF)	1,640	1,400	2,200	2,800
Other Revenues (SF)	235	1,000	1,600	2,100
Rental Car/Ground Transportation (SF)	1,021	700	1,200	1,500
Concessions Sub-Total	**4,200**	**3,500**	**5,600**	**7,200**
Public Space				
Public Circulation (SF)	12,263	24,500	40,000	50,700
Washrooms (SF)	1,159	3,660	4,560	5,530
Public Space Sub-Total	13,500	28,160	44,560	56,230
Airport Administration Sub-Total	2,400	5,000	5,000	5,000
Utilities and Support Spaces Sub-Total	1,900	3,686	5,376	6,804
Total Terminal Area (Rounded)	**41,500 SF***	**82,100**	**110,800**	**137,600**

Notes: [a] LF = Linear Feet, SF = Square Feet

*The areas described above are approximate based on available archived drawings and CAD files for the existing terminal building, therefore rounded totals were used for the existing facility.

Sources: Jviation and RS&H, Inc.

4.4.2 Building Code Considerations

The International Building Code (IBC) determines the maximum occupancy of a building or portion of a building based on the function of the space. Since DRO is located outside the Durango city limits, La Plata County is the Authority Having Jurisdiction for the Airport. Subsequently, the County's planning, zoning, and building departments and their adopted codes are the enforced at DRO, and all permits and inspections are by the La Plata County building department. At this time, La Plata County uses the 2003 IBC, but plans to adopt the 2012 Codes by the end of 2015. The adoption of newer codes can have significant impacts to large-scale renovation projects, potentially requiring the entire facility to be brought up to compliance with the current code.

It is not the intent of this study to perform a comprehensive code analysis and life safety audit of the existing terminal building; working knowledge of the IBC was used to investigate elements of the terminal as they were encountered. A comprehensive code analysis of the building is necessary for a major terminal renovation. It is worth noting that the existing building was constructed under the 1982 Universal Building Code, prior to the existence of the IBC and ADA. There are likely to be subtle but important improvements required throughout the facility as renovations are made to meet the current code (e.g. handrail heights, hallway widths, fire separations, etc.).

Per IBC 402, an airport terminal building fits into the Occupancy Classification for a "Covered Mall." The terminal construction appears to be Type IIA, structural steel framing with one-hour fireproofing on all structural members, joists, and floor and roof deck assemblies. It appears the terminal was originally separated into three distinct fire areas to satisfy the code. Since the original construction, portions of the building were equipped with a built-in automated fire suppression sprinkler system. The location of fire-separated partitions and fire-rated wall assemblies installed as part of the building's construction, were not evaluated as part of this study.

Exits are clearly marked and placed throughout the facility to decrease the travel distance from any point in the terminal to an exit. IBC 402 requires that a person in the building is never more than 200 feet from a point of egress. The egress requirements are achieved in part due to the boarding gate doors at the hold rooms, which can serve as emergency exits, and the multiple airlock vestibules opening to the curb front.

Passengers in a terminal are not usually dispersed evenly throughout the building. While the building code assumes an average number of people spaced evenly throughout the square footage of the building, the actual peak passenger loading tends to come in surges. When a large plane arrives, it sends a wave of passengers through the terminal toward the baggage claim, restrooms, and exits. At certain times, parts of the terminal may be experiencing high traffic volume, while other areas are empty. The exits have been designed to allow these surges of people egress to safety regardless of where in the building they are if there

is an emergency. The redundancy of the exits allows the building to function safely, however the current peak surges of passengers is far beyond the size the spaces were intended to accommodate.

4.4.3 Physical Condition of the Existing Terminal

In general, the terminal has a lackluster, out-of-date feel and the interior finishes are worn, faded, and in need of improvement. The terminal has undergone routine maintenance to keep the essential systems functional. For instance, the roof membrane was replaced approximately five years ago; a tinted film was added to the aluminum storefront windows to reduce the solar heat gain; the buildings mechanical systems have been replaced; and large expanses of the interior acoustical ceiling tiles have been replaced to brighten up the facility.

Despite the continual maintenance, the ever increasing passenger loads on this facility are apparent in the deterioration and poor condition of many of the public spaces. There continue to be portions of the ceiling and gypsum soffits showing water marks indicative of leaks. The plumbing systems within the walls have sprung leaks requiring significant maintenance. Water infiltration into a public facility should always be seriously considered due to the persistent nature of water to wear down structures. The flooring, countertops, display cases and kiosks, and paint throughout the building are all worn and in need of replacement. All of these factors contribute to the perceived comfort of the passengers utilizing the facility.

4.4.4 Gates and Apron Frontage

Table 4-13 indicates that a total of seven gates will be needed by the end of the planning period based upon total PHP and the estimated enplanements throughout the year. Currently, no passenger loading bridges (PLBs) are available. ***It is recommended that three additional gates be constructed by the end of the planning period and that consideration to PLBs be given.***

TABLE 4-13 – DRO GATE REQUIREMENTS

Planning Activity Level	Enplaned Passengers[a]	PHP (Enplaned)	Gates
Existing (2015)	205,000	263	4
PAL 1 (2025)	284,000	340	5
PAL 2 (2035)	391,000	425	7

Note: [a]Rounded to nearest thousandth

Source: Jviation

4.4.4.1 Commercial Apron Frontage

The commercial apron is made up of approximately 25,170 square yards of concrete and asphalt. The existing apron has four parking positions reserved for commercial aircraft located directly in front of the terminal. All of the parking positions are configured to allow the airplanes to use power-in/power-out

operations to approach and exit the terminal apron. The strength of the existing pavement within 100 feet of the terminal building is not sufficient to accommodate commercial aircraft; consequently, parking positions are also located so that the aircraft remain on sufficiently rated pavement for the extent of the power-in/power-out operations. Depending on the parking position, passengers must walk between 100 feet and 240 feet across the apron from the gates of the terminal to the stairs of the airplane.

The existing commercial aircraft is constricted in all directions, limiting the practical expandability of the area. Runway and tail-height limits dictate the minimum distance parked aircraft must be from the runway. The terminal building and non-aircraft-rated pavement delineate the limit towards the landside. Laterally, the commercial apron is limited on both sides by the GA and U.S. Forest Service aprons.

The FAA requires that stationary parked aircraft are within tail-height limits to protect the airspace around the runway. Based on the existing runway elevations, aircraft such as the A319 cannot adequately park at the existing parking locations on the commercial apron without their tail height penetrating the 14 CFR Part 77 surface. In order to satisfy the requirements, the parking positions must position the aircraft tails farther from the runway. The existing conditions do not allow for this since the pavement farther from the runway is not aircraft rated. Subsequently, significant improvements are required for the existing apron. ***Based on the forecast for PAL 1 it is recommended that improvements to the commercial apron provide accommodation for at least a single parking position and a Remain Over Night (RON) pad for larger aircraft.***

Among other considerations, the National Fire Protection Association (NFPA) 415: *Standard on Airport Terminal Buildings, Fueling Ramp Drainage, and Loading Walkways*, requires that aircraft fueling must take place at least 50 feet away from the terminal building. Typically, commercial aircraft will fuel in their parked location, resulting in another restriction on the proximity of parked aircraft to the terminal.

Currently, the airlines operate with power-in/power-out parking positions. This is beneficial because it requires fewer personnel to depart a plane, but is detrimental because it requires larger separation between parked aircraft and more apron pavement to facilitate movement. The larger area favors a larger, broader, and less efficient terminal hold room to properly connect passengers to their aircraft, or results in passengers walking long distances outdoors on a busy apron. Furthermore, the terminal building and surrounding objects on the apron are hit with jet blast from aircraft powering out of parking positions. Push-back parking stalls are more efficient because they reduce apron width and required terminal size, and provide a better experience for the passenger.

Another item for consideration is the need for deicing. Smaller aircraft that use less than 25 gallons of deicing fluid can deice in their parking positions on the apron. Larger aircraft requiring substantially more deicing fluid currently deice on northeast apron end. The deicing fluid is applied with a boom truck and

excess fluid and over-spray is collected with a vacuum truck before the excess fluid enters the storm drainage system. *It is recommended that the commercial apron has a designated area with trench drains to collect deicing fluids.*

There are a variety of possible configurations for the layout of the commercial apron but to satisfy the PAL 1 demands and provide appropriate infrastructure for the aircraft, approximately 40,000 square yards of total apron pavement are anticipated to meet industry standards. Push-back parking configurations are recommended as the most economical layout. The commercial apron functional requirements are to provide:

- One gate for a large aircraft
- Four gates for Regional Jets
- Two RON parking positions
- A location for deicing activities

The commercial apron functional requirements for PAL 2 are to provide:

- Two gates for a large aircraft
- Five gates for Regional Jets
- Two RON parking positions
- A location for deicing activities

Approximately 14,830 square yards of additional apron pavement are recommended to accommodate the PAL 1 demands, and another 28,500 square feet to meet PAL 2.

4.4.5 Airline Functions

Terminal areas dedicated to airline functions, as detailed in **Table 4-14**, directly support airline operations. These spaces include ticketing and check-in, baggage, passenger hold rooms, and airline office space.

TABLE 4-14 – DRO AIRLINE FUNCTION AREAS

Type of Occupancy[a]	Existing Space	Current Need 2015	PAL 1 2025	PAL 2 2035
Ticket Counter Area (SF)	556	900	1,140	1,350
Ticket Counter Active Area (SF)	556	900	1,140	1,350
Ticket Counter Length (LF)	48	90	114	135
Ticket Counter Queuing (SF)	1,414	2,250	2,850	3,375

Type of Occupancy[a]	Existing Space	Current Need 2015	PAL 1 2025	PAL 2 2035
Ticket Offices and Administration (SF)	639	2,700	3,420	4,050
Outbound Baggage Area (SF)	3,430	3,200	3,200	4,000
Baggage Claim Area (SF)	2,516	4,070	5,247	6,567
Baggage Claim Length (LF)	50	139	179	224
Inbound Baggage Area (SF)	0	1,860	2,380	3,000
Operations Facilities (SF)	709	2,000	3,200	4,100
Passenger Departure Lounges (hold rooms) (SF)	2,812	9,044	11,554	14,966
Temporary Hold Room Tent (SF)	4,500	-	-	-
Airline Space Total (Rounded):	**17,000**	**26,924**	**34,131**	**42,758**

Note: [a] LF = Linear Feet SF = Square Feet

Sources: Jviation and RS&H, Inc.

4.4.5.1 Ticketing Area

The airline ticketing area includes ticketing counters, passenger queuing, airline ticket offices, and outbound baggage handling operations. As described in the following sections and illustrated in **Table 4-14**, existing space does not meet current demand and needs to be expanded to meet the demands of all planning activity levels. The lack of depth for passenger queuing results in an impediment to passenger circulation in the ticket lobby. This functional area operates at a Service Level of "E" during peak hours.

The addition of freestanding check-in kiosks is a recommended improvement for the terminal. As enplanements increase in the future and ticketing technology advances, the ticketing area will need to adapt to these changes.

4.4.5.2 Ticket Counters

The length of the ticket counter is a function of the number of passengers who use the counter for ticketing and baggage check-in. The existing terminal facilities have four airline stations, with two six-foot-long counters per space. The existing counters use 48 linear feet of the available ticketing counter frontage. As detailed in **Table 4-14**, the counter length does not meet current or future demand. The counters have been refurbished, but are dated and show significant wear. There are digital touch-screen displays available at several counter positions for passengers without checked baggage, but there is not a separate queue; passengers with and without checked baggage have to wait in the same queue. This functional area operates at a Service Level of "E" during peak hours.

Approximately 65 linear feet of additional counter length is recommended to meet PAL 1, and an additional 85 linear feet to meet PAL 2.

4.4.5.3 Ticketing/Queuing Area

There is no separation between the ticketing/queuing area and the passenger circulation area. For an airport of this size, the recommended depth for the ticket lobby is 60 feet; the existing lobby is only 28 feet deep, and this space is also a main circulation route. Consequently, when queuing increases, circulation decreases and vice versa. Similar to the ticket counter space, queuing space is inadequate for current and forecasted demand. The addition of free-standing check-in kiosks would be a welcome addition for the terminal, enabling passengers without checked baggage to wait in shorter lines and move through the area faster. As enplanements increase and ticketing technology advances, the ticketing area will need to adapt to these changes; the industry is trending towards more automation and self-service opportunities. This functional area operates at a Service Level of "E" during peak hours, and is one of the notable deficiencies of the existing terminal.

Approximately 1,435 square feet of additional ticketing-queuing space is recommended to meet PAL 1 demand and 1,960 square feet over existing to meet PAL 2; plus additional space for the installation of free-standing check-in kiosks.

4.4.5.4 Curbside Check-In

Curbside check-in is currently not provided at DRO.

Curbside check-in is not a recommended addition for the planning period.

4.4.5.5 Check-in Kiosks

Stand-alone check-in kiosks are currently not provided at DRO.

Stand-alone check-in kiosks are recommended per the ticketing/queuing area discussion above.

4.4.5.6 Airline Office and Administration

The airline operation offices, located behind the ticketing counters, were listed by the airline personnel as being functional, though the net space available to the air carriers is approximate one-quarter the size of the industry standard size. The office is strategically located and functions well, but is heavily used as the terminal is leasing facilities for maintenance, storage, and amenities for employees (i.e. breakrooms). This functional area is currently at a Service Level of "D." The offices are centrally located and do not have access to any natural light or fresh air. There is very limited room for storage or growth.

Approximately 2,780 square feet of additional Airline Office and Administration space is recommended to meet the PAL 1 demand and 3,410 square feet over existing to meet PAL 2.

4.4.5.7 Outbound Baggage, Baggage Make-up

The available space for baggage make-up at 3,430 square feet is in line with the industry standard space typically required. However, after September 11, 2001 the original space was modified and encroached upon to make space for the TSA offices, and now portions of the space are inefficiently laid out. The baggage carts must be manually moved into position to be loaded as there is limited space for maneuvering the carts via tug. Overall the function of the baggage make-up area is slower and requires a more labor-intensive operation; the Level of Service grade for this area is a "D."

Furthermore, there is inadequate space for the airlines storage needs; as a temporary solution, wooden storage sheds have been constructed on the ramp to accommodate some of the storage demands. These are not climate controlled, making the storage of various heat-sensitive items difficult. This storage is not conveniently located, and occupies the already constrained ramp space. A more permanent solution is desired.

No additional baggage make-up space is needed to satisfy PAL 1, though improvements to maximize efficiency could be made during a remodel or a new facility. Approximately 580 square feet over existing is required to meet PAL 2.

4.4.5.8 In-bound Baggage Area

DRO does not currently have a covered in-bound baggage area. The current airline operations staff unloads the baggage directly from the ramp into the building, completely exposed to the elements. A higher level of passenger service can be met through a covered location where bags can be transferred to the baggage claim while protected from wind, rain, and weather. A covered location can also improve the energy efficiency of the building by reducing the air infiltration into the conditioned space during off-loading activities.

Approximately 2,380 square feet of covered in-bound baggage area is recommended for PAL 1 and 3,000 square feet over existing to meet PAL 2.

4.4.5.9 Baggage Claim

Due to checked bag fees imposed by most airlines, a current trend has been to check fewer bags. Nationally, the average passenger is carrying on more and checking less. Despite this national trend, as a resort airport the checked bag counts remain considerably high and have recently increased with a greater number of international travelers visiting for longer periods of time. There is one baggage carousel in the terminal. The existing area around the carousels for mingling, waiting, and collecting activities is approximately 2,500 square feet, and the baggage claim frontage presents only 50 linear feet. This is significantly less space than is typically provided at comparable airports.

This area is particularly stressed during peak hours when multiple flights are deplaning within a short time of one another. The strain on this area is compounded since multiple tugs are not able to unload bags simultaneously, causing an extended wait for passengers in this area. At peak times, passengers spill over into adjacent spaces impacting the rental car queuing and the circulation ways in this portion of the terminal.

This functional area operates at a Service Level of "E" during peak hour, and is one of the notable deficiencies of the existing terminal.

Approximately 130 linear feet of additional bag claim belt length and 2,730 square feet of baggage claim space is recommended to meet PAL 1, and 4,050 square feet over existing meet PAL 2.

4.4.5.10 Circulation – Tugs & Ground Service Equipment

The temporary tent hold room addition outside the baggage make-up area presents an obstacle to circumvent, and further reduces tug maneuverability on the ramp. The ramp space available around the terminal is occupied by Ground Service Equipment (GSE), baggage tugs, Airport staff vehicles, and storage sheds for the airlines. The numerous items occupying this space negatively impact the circulation efficiency of the tugs and other GSE. Creating dedicated parking for Airport staff vehicles within the AOA outside of the tug and GSE operating area, and relocating the storage sheds could reduce congestion and improve efficiency. This area operates at a Service Level of "E" during peak hours.

Recommended improvements include additional ramp space, a more efficient circulation path for tugs and GSE, dedicated parking within the AOA for airport staff vehicles, and relocating the storage sheds.

4.4.5.11 Passenger Departure Lounges (Hold Rooms)

In 2013, a 4,500-square-foot tensile membrane tent was erected on the ramp to temporarily alleviate some of the constriction within the hold rooms and to allow for a second TSA checkpoint. Even though this improvement greatly improved the function within the terminal, it does not sufficiently solve all the terminal's issues. The second TSA checkpoint appropriated approximately 25 percent of the existing hold room area, and the passenger waiting areas are now divided into two distinct halves by a narrow hallway between the original hold room and the temporary tent structure. The analysis included the temporary hold room space; this brings the total available hold room space to slightly over 7,300 square feet. Approximately 2,700 square feet of the hold room space is currently utilized by the airline kiosks, circulation pathways, vestibules, and structure; these areas are undersized. The remaining 4,800 square feet is utilized for waiting area at the gates.

The waiting room seating is very utilitarian and is not particularly comfortable or inviting. One metric for evaluating the performance of the waiting room is to consider the density of the room during peak loading

hours. This assumes 20 percent of the passengers in the waiting areas are standing and 80 percent of the passengers are seated. Applying these ratios to the current peak hour enplanements:

- 20% x 263 (peak hour enplaned passenger) x 10.25 square feet/passenger = 539 square feet for standing
- 80% x 263 (peak hour enplaned passenger) x 15.00 square feet/passenger = 3,156 square feet for sitting
- Waiting room utilized at DRO = 539 square feet + 3,156 square feet = 3,695 square feet
- 3,695 square feet (waiting room utilized at DRO) / 4,500 square feet (waiting room available) = **82% waiting room density**

IATA standards state that the level of service correlates to the saturated density of the waiting area utilization[5]:

- Service Level A = 40%
- Service Level B = 50%
- Service Level C = 65%
- Service Level D = 80%
- Service Level E = 95%
- Service Level F = >100% utilized space

Per these industry standards the hold room with the temporary tent addition functions at a "D" Service Level. The airline personnel have indicated there is still extreme localized congestion at the gate locations when larger aircraft are departing.

The two small restrooms located off the original hold room are undersized and inconveniently located. There are also temporary restrooms directly accessible from the tent hold room, but the existing restroom square footage remains deficient. Considering that travelling passengers often have luggage in tow, it is a great benefit for the restrooms to be sized accordingly.

Taken as a whole, the deficiencies and difficulties listed above diminish passenger comfort. The result is an overall space that functions at a "D" Level of Service.

Approximately 4,240 square feet of additional hold room space is recommended to meet the PAL 1 demand, and an additional 7,652 square feet to meet PAL 2.

[5] International Air Transportation Association's *Airport Terminal Reference Planning Manual*, 9th Edition, 2004.

4.4.5.12 Loading Dock

There is not a designated loading dock for the terminal, but it is a recognized need. Deliveries are either brought through the terminal through the main doors, or through the main pedestrian door on the apron that accesses the restaurant space and the mechanical room, but does not have truck loading/unloading available. Receiving deliveries requires utilizing the passenger circulation area, or impacts the GSE circulation on the apron. This can present a difficulty when deliveries coincide with peak hour surges.

A designated loading dock is a recommended improvement.

4.4.6 Passenger Security

Areas within the terminal identified for passenger security are those that directly facilitate or support all functions related to security operations. These areas include passenger and baggage screening, TSA operating space, and space for passenger queuing before and after screening. As is typical of terminals that were designed prior to September 11, 2001, the spaces were never designed to function in the current capacity required by the TSA for passenger and baggage screening. The imposition of these functions onto spaces designed for other purposes is exemplified by performance breakdown in the central hallway of the terminal. This section analyzes each of the TSA areas in further detail. In general, the space allotted to TSA activities is only one-fifth of the industry standard required to satisfy the current needs, and requires substantial improvements to provide a quality level of service throughout the planning period. Overall, the TSA spaces are one of the notable deficiencies of the terminal and provide an "E" Level of Service, detailed in Table 4-15.

TABLE 4-15 – DRO TSA REQUIREMENTS

Type of Occupancy	Existing Space (square feet)	Current Need 2015 (square feet)	PAL 1 2025 (square feet)	PAL 2 2035 (square feet)
Transportation Security Administration (TSA)				
Security Screening Checkpoint	1,377	8,150	8,700	11,384
Hold Baggage System (HBS)	0	4,690	4,890	5,110
Baggage Screener Area	504	930	1,200	1,500
Baggage Inspection Support Facilities	0	460	590	730
Administrative Offices (TSA)	597	600	700	800
TSA Space Total (Rounded)	**2,500**	**14,830**	**16,080**	**19,524**

Sources: Jviation and RS&H, Inc.

4.4.6.1 TSA Checkpoint

The original terminal was designed before the TSA screening requirements. After the new requirements were implemented, the most logical point to expand was the existing security checkpoint in the center of the building at the entrance to the hold room. From here, the terminal splits into two areas: one area is

secure, the other is non-secure. This has constricted the passenger flow through the terminal and created a ripple effect on many of the adjacent spaces. Furthermore, TSA security requirements have resulted in passengers spending more time in the terminal than they previously did: passengers arrive earlier anticipating the extra screening time, and potentially end up spending more time in queuing and waiting in the secure area as a result.

The security checkpoint has two lanes with two stations for identification verification, and only a single metal detector. The existing checkpoint contains two X-Ray machine lanes for carry-on bags and belongings, and one magnetometer that is the constricting point in the process. These are followed by a compressed reconciliation area for passengers to collect their belongings.

As part of the temporary hold room tent addition, 25 percent of the old hold room area was reallocated for the TSA screening lanes, allowing for the addition of a second lane. Prior to this improvement the single TSA lane could not efficiently process passengers and passengers who arrived more than an hour before their flight were often not processed in time. The throughput has been substantially increased, but it is still a frequent occurrence to witness enplaning passengers imploring others to allow them to cut in line to avoid missing their flights. Queuing for TSA screening extends into the central hallway. This hallway is extremely constricted as it also serves as the primary access way for the concessions, first aid room, restrooms, and administration offices, as well as the egress hallway from the hold rooms for all deplaning passengers.

Each of the TSA screening lanes remain substantially less than the TSA recommended size. The TSA recommends 1,200 square feet per security screening lane, in addition to queuing and reconciliation areas. The length and width of each lane are dramatically less than ideal, the area is awkwardly set up, making a 90-degree bend into the hold room, and the reconciliation area is constricted. There is not sufficient space for the TSA private screening or baggage inspection areas. ***An additional screening lane is recommended to ensure a higher level of service throughput is provided during peak hours.*** Overall the TSA checkpoint area is currently approximately 6,773 square feet deficient.

DRO would like to make the screening process as streamlined and convenient for passengers as possible. Given the size and traffic of the Airport, the Service Levels for the TSA checkpoint are largely dependent on maximum queuing wait time:

- Service Level A – 5 minutes or less
- Service Level B – 10 minutes
- Service Level C – 15 minutes
- Service Level D – 20 minutes
- Service Level E – 25 minutes

- Service Level F – 30 minutes or more

The actual passenger experience based on wait time can vary between a Service Level of "C" and "F" at peak hours depending on the TSA staffing levels and their screening efficiency. On peak travel days, the maximum observed wait time at the TSA screening queue was over 20 minutes. The TSA screening must process 150 passenger per hour or 2.5 passengers per minute, per lane in order to attain Service Level of "C." Although theoretically possible with the existing configuration, this level of throughput is not typically achieved. Currently, when a passenger sets off the magnetometer or is selected for a more thorough search, the TSA stops all throughput at this already constricted point until the passenger has been thoroughly searched and cleared.

Given the space deficiencies, the poor arrangement of the checkpoint, the impacts to the adjacent spaces, and the variable processing abilities at peak hours, the overall Level of Service grade for this area is an "E."

Approximately 7,325 additional square feet are recommended to meet PAL 1 and 10,010 square feet over existing to meet PAL 2.

4.4.6.2 Hold Baggage System

There is no space available for a Hold Baggage System (HBS) in the existing terminal. TSA space is currently occupied by two reveal CT-80 Explosive Detection Systems (EDS) machines to scan the checked luggage. The equipment is able to process the checked baggage at present peak hours without undue delays. However, additional space is required for satisfactory manual scanning stations. Furthermore, there is no room on the main level of the terminal for any of the baggage support facilities. There is little room for growth in this area, and there is substantially less space available for baggage screening than at comparable facilities. The addition of such devices generally results in a faster and more reliable security screening. Assuming a throughput of 120 bags per hour, four EDS units are recommended for PAL 1 and five for PAL 2. This area requires adequate space for baggage conveyor belts and personnel support spaces in addition to the EDS equipment.

Approximately 4,890 additional square feet for an HBS is recommended for PAL 1 and 5,110 square feet over existing for PAL 2.

4.4.6.3 Baggage Screener Area

TSA baggage security screening takes place in a portion of the space that once served the outbound baggage. This functional area is currently at a Service Level of "D." Explosive Trace Detection (ETD) units are utilized; four ETD units are recommended for PAL 1 and five for PAL 2. This area would also include a dedicated Threat Resolution Room and adequate circulation space for TSA personnel.

Approximately 700 additional square feet are recommended to meet PAL 1 and 1,000 square feet over existing to meet PAL 2.

4.4.6.4 Baggage Inspection Support Facilities

Currently, there is no dedicated space for Baggage Inspection Support and related TSA storage; these demands are included within the other TSA spaces at DRO. These spaces include a conveyor control room and TSA Information Technology (IT) center, as well as room for maintenance and storage supplies.

Approximately 590 additional square feet are recommended to meet PAL 1 and 730 square feet over existing to meet PAL 2.

4.4.6.5 TSA Administration Offices, Break room, Miscellaneous

The TSA administration offices, break room, and training rooms utilize approximately 600 square feet of the terminal's second floor. These spaces are in line with TSA standard spaces for this size airport. As the enplanements continue to increase and the passenger screening demands increase, additional TSA staff may be required. It is anticipated that approximately 100 additional square feet will be needed to meet PAL 1. As is the case with all the spaces in the terminal building, there is insufficient space available for storage and support facilities.

Approximately 100 additional square feet are recommended to meet PAL 1 and 200 square feet over existing to meet PAL 2.

4.4.7 Concessions

Concessions consist of a two non-secure establishments off the central hallway: a small restaurant with a kitchen, and a news and gift shop. There is also a full-service bar and grab-and-go options in the temporary tent hold room. **Table 4-16** details the existing and needed space for concessions.

TABLE 4-16 – DRO CONCESSION REQUIREMENTS

Type of Occupancy	Existing Space (square feet)	Current Need 2015 (square feet)	PAL 1 2025 (square feet)	PAL 2 2035 (square feet)
Concessions				
News/Gifts/Sundry	1,254	400	600	800
Food and Beverage	1,640	1,400	2,200	2,800
Other Revenues	235	1,000	1,600	2,100
Rental Car/Ground Transportation	1,021	700	1,200	1,500
Concessions Total (Rounded):	**4,200**	**3,500**	**5,600**	**7,200**

Sources: Jviation and RS&H, Inc.

Enplaning passengers tend to hurry through security and spend more time in the secure area of the terminal. Once through screening, passengers typically do not return to the non-secure portion of a terminal. Providing concessions to both areas of a terminal ensures all passengers are adequately served.

The concessions in the secure area have been well utilized; adding a restaurant with a kitchen would be an opportunity for the airport to improve the passenger experience. The sizes of both concession areas are ample for their function, and operate at a Service Level of "C" during peak hours.

Additional permanent concessions in the secure portion of the terminal are recommended. An additional 1,160 square feet of food and beverage is recommended to meet PAL 2.

4.4.7.1 Rental Car

There are currently five rental car companies with counters located off the lobby, near the baggage claim. Each vender has a small office and a customer counter totaling approximately 200 square feet of space. Queuing for the rental cars can be negatively impacted during peak loading at the baggage claim. During busy hours the queuing area for rental cars creates congestion that interferes with circulation through the lobbies. Peak hour use of the rental counters coincides with peak hour use of the previously discussed undersized baggage claim area. The administrative and counter area provided for the rental car companies is sufficient; however, the public experience of this space is often at a Service Level of "D."

Additional queuing space at the rental cars is recommended; no additional office space is required for PAL 1, and 480 square feet over existing to meet PAL 2.

4.4.8 Public Spaces

The public spaces for the terminal include the high traffic areas that connect the spaces discussed in the previous sections; **Table 4-17** details current space and future need. These spaces are generally over-used and operate at an "E" Level of Service during peak hours.

TABLE 4-17 – DRO PUBLIC SPACE REQUIREMENTS

Type of Occupancy	Existing Space[a] (square feet)	Current Need 2015 (square feet)	PAL 1 2025 (square feet)	PAL 2 2035 (square feet)
Public Space				
Public Circulation (SF)	12,263	24,500	40,000	50,700
Restrooms (SF)	1,159	3,660	4,560	5,530
Public Space Total (Rounded):	**13,500**	**28,160**	**44,560**	**56,230**

Note: [a]The areas described above are approximate based on available archived drawings and CAD files for the terminal building, therefore, rounded totals were used for the existing facility.
Sources: Jviation and RS&H, Inc.

4.4.8.1 Circulation Area

Circulation area is space identified for passengers to transition from one location of the terminal to another. These areas must be kept as clear as possible to allow the terminal and its components to operate effectively. Unassigned circulation area is a valuable space as it affords versatility to the other adjacent spaces. Circulation areas provide room for the overflowing queuing and waiting spaces to spill into, relieving constraints resulting from peak hour demands.

In general, the use of the circulation space in the terminal exceeds its capacity, with various congested areas that slow down the passenger flow and decrease the Level of Service at specific locations.

The circulation spaces are generally at a Service Level of "E." However, there are various areas of converging traffic flows near the center of the terminal where many people cross paths, such as in the central hallway, which can function closer to a Service Level of "F" at peak times. The central hallway is the crossroads for all enplaning and deplaning passengers, the access route for airport administration and TSA offices, the two non-secure concession stores, as well as the main public restrooms, the ATM, and the handicap restroom.

Furthermore, the available public circulation space is dramatically lower than the current need. Given the geometry of the existing terminal, which is built around the central hallway, it would be a huge undertaking to reconfigure and improve the circulation patterns to alleviate congestion.

Approximately 27,740 square feet of additional public circulation space is recommended to meet the PAL 1 demand, and 42,730 square feet over existing to meet PAL 2.

4.4.8.2 Restrooms

The only non-secure restrooms are accessed off the central hallway, inconveniently located at the nexus of activity for the entire building. Any remodeling or repairs to the existing restrooms presents a difficult situation since they are the only ones available to the public on the front half of the building. Additionally, they are insufficient for the current passenger load.

As discussed in the hold room section above, permanent improvements to the undersized secure-side restrooms off the hold room are also warranted.

There are no restrooms readily accessible from the Baggage Claim area. The current passenger volume of the airport could justify a set of restrooms in this area.

Approximately 3,400 square feet of additional restroom space is recommended to meet the PAL 1 demand and 4,370 square feet over existing to meet PAL 2.

4.4.9 Airport Administration

The airport administrative spaces are located on the second floor of the terminal, accessed by a central corridor with stairs at either end. TSA offices occupy one side of the corridor, and Airport Administration occupies the other half. Men's and women's restrooms are off the hallway as well. The Airport Administration spaces consist of four offices, a conference room, and a small break room. The common office is shared by airport staff and also houses the airport computer servers. Airport administration space is detailed in Table 4-18.

TABLE 4-18 – DRO AIRPORT ADMINISTRATION REQUIREMENTS

Type of Occupancy	Existing Space (square feet)	Current Need 2015 (square feet)	PAL 1 2025 (square feet)	PAL 2 2035 (square feet)
Airport Administration	2,400 SF	5,000 SF	5,000 SF	5,000 SF

Sources: Jviation and RS&H, Inc.

As the activity at DRO increases, the administration is anticipated to grow, and consequently, this space will need to respond. In general, these spaces are over-used and operate at a "D" Level of Service.

Approximately 2,600 square feet of additional administration space is recommended to meet the PAL 1 demand, and 2,600 square feet over existing to meet PAL 2.

4.4.10 Building Utilities and Support Spaces

The building support spaces include the behind-the-scenes that make the terminal function. On the ground floor there are two janitor closets, a mechanical room, an electrical room, a back-up generator room, and an elevator room. On the second floor there is a mechanical room and a janitor closet. Table 4-19 details the space for utilities and support.

TABLE 4-19 – DRO BUILDING UTILITIES AND SUPPORT SPACE REQUIREMENTS

Type of Occupancy	Existing Space (square feet)	Current Need 2015 (square feet)	PAL 1 2025 (square feet)	PAL 2 2035 (square feet)
Utilities and Support Spaces	1,900	3,686	5,376	6,804

Sources: Jviation and RS&H, Inc.

The electrical room includes the switchgear cabinets, panel boards, and electronics related to the rooftop photovoltaic system. The generator room houses a small natural gas generator that can provide power to certain critical systems; a larger overall building backup generator is desired.

The mechanical spaces house boilers and forced air blowers. Some areas of the terminal are served by Rooftop Units (RTU). The space provided is adequate to condition the current terminal, however if the

terminal square footage increases, the mechanical space provided must proportionally increase to maintain the proper climate conditioning.

The janitor closets are small and undersized. A good portion of the closet space is taken up with plumbing chases, minimizing the room for janitorial supply storage. The elevator room is adequate for the mechanical and hydraulic systems required for the single elevator.

As at any heavily utilized facility, storage space is at a premium. With increased activity and use, tools, equipment, files, and supplies tend to accumulate and take up a great deal of space. Additional storage space would be a very welcome addition at the airport.

Approximately 3,475 square feet of additional building utility and support space is recommended to meet the PAL 1 demand and 4,905 square feet over existing to meet PAL 2.

4.4.11 Utilities

The primary utility corridor runs directly to the east of the existing terminal building, underneath the apron. The utility corridor contains wet and dry utilities including water, sanitary sewer, natural gas, electric, and communication. All existing utilities, with the exception of water, meet current demand. An analysis of the existing water system was completed by Wright Water Engineers to understand the capacity and condition of the system for current needs as well as through PAL 2 (see **Appendix K**). The study found that there are adequate water rights but immediate improvements required are raw water intake, raw water storage, and quality of potable water.

The tank that stores raw water prior to being treated is old and deteriorating. *It is recommended that the tank be replaced and communication lines added to link the raw water storage to the rest of the treatment facility during PAL 1.*

The Airport has experienced some water quality issues with the potable water due to the large amount of water storage required for fire fighting and the amount of organic materials interacting with chorine in the storage tanks. This has been addressed by implementing a water flushing schedule. Based on the projected water demands, the water treatment system can operate effectively through PAL 1 but will have to be improved to provide additional capacity for PAL 2.

It is recommended that water metering be monitored and when the treated water distribution reaches 30,000 gallons per day, an additional water treatment filter compartment should be added.

4.5 General Aviation (GA)

4.5.1 Aircraft Parking – Tie-downs and Hangars

Aircraft parking aprons serve two primary functions: they accommodate transient aircraft and based aircraft tie-downs. Many hangars, including those used for aircraft storage and aircraft maintenance, also have aprons in front of the building for aircraft maneuvering and short-term parking. Such aprons in front of hangars serve different purposes, and are not part of this analysis.

DRO's paved GA apron is approximately 89,000 square yards. It is south of the air carrier apron/terminal building. The apron has two sections, one for based aircraft tie-downs and the other for transient aircraft parking. The transient parking is in front of the FBO building.

The based aircraft apron has 18 tie-down positions marked for larger aircraft, and 38 tie-down positions marked for smaller aircraft. The 18 tie-downs for larger aircraft allow for power-in and power-out parking, while the 38 tie-downs are nested – i.e. require push-in, pull-out.

There is a designated taxilane between the power-in/power-out and the nested tie-downs, with 83 feet between the marked tie-down positions. FAA criteria for taxilane Object Free Area (OFA) width is detailed in **Table 4-20**.

TABLE 4-20 – TAXILANE OFA WIDTH

Airplane Design Group	Taxilane OFA Width
I (Wingspan <49 feet)	79 feet
II (Wingspan 49 feet < 79 feet)	115 feet

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

The majority of piston-engine aircraft fall within ADG I. A number of turbine-powered aircraft, such as the Cessna Caravan (CE-208 – 52.1'), Pilatus (PC-12 – 53.3'), Beech King Air (C90 – 53.7'), Beech King Air 250/200 (B200GT – 57.9'), fall within ADG II; see **Table 4-21**.

TABLE 4-21 – AIRPLANE DESIGN GROUP BY AIRCRAFT

Airplane Design Group	Aircraft
I (Wingspan <49 feet)	Cessna 152, 172, 182, 206, 310, 402; Piper PA-28, -23, -30, -31, -32, -34, -46; Beech BE-19, -24, -33, -36, -55, -58, -77; TBM-700, -850, -900; Kodiak 100
II (Wingspan 49 feet < 79 feet)	Cessna Caravan CE-208; Pilatus PC-12; Beech C90, BE-200, -350

Source: Jviation

However, relatively few turbine-powered aircraft are based on outdoor tie-downs. Due in part to their relatively high acquisition and operating cost, as well as insurance requirements, the majority of turbine

aircraft are stored in hangars to protect them from the weather and provide additional security. In fact, many transient operators prefer to store their turbine aircraft in hangars for a single overnight parking.

Table 4-22 depicts the based aircraft forecast summary; a detailed fleet mix of based aircraft is presented in **Chapter 3, Aviation Activity Forecasts**.

TABLE 4-22 - BASED AIRCRAFT FLEET MIX FORECAST SUMMARY

Year	Single	Jet	Multi-	Helicopter	Other	Total
2013	61	0	8	1	0	**70**
2015	62	0	8	1	0	**71**
2020	65	0	9	1	0	**75**
2025	70	1	9	1	0	**80**
2030	73	2	9	1	0	**85**
2035	76	3	10	1	0	**90**

Source: Jviation

The following assumptions and factors were used to determine demand for tie-downs versus hangars by based aircraft: the price differential between tie-down and hangar storage, insurance requirements, perceived level of security, and competition from adjacent airports in terms of pricing and availability of tie-downs and hangars. Airports such as DRO that have strong seasonal peaks tend to see the number of based aircraft fluctuate over the course of the calendar year.

- Single-engine aircraft: 60% will be on tie-downs, 40% will be in hangars
- Multi-engine aircraft: 10% will be on tie-downs, 90% will be in hangars
- Jets: 0% will be on tie-downs, 100% will be in hangars
- Helicopters: 0% will be on tie-downs, 100% will be in hangars

The relatively high percentage of single-engine airplanes using tie-downs is due primarily to price sensitivity of airplane owners. In general, the higher the price of the aircraft, the more likely it is to be stored in hangar. Based on those assumptions, the demand-capacity analysis is shown in **Table 4-23.**

TABLE 4-23 - BASED AIRCRAFT – TIE-DOWN & HANGAR DEMAND

	Demand		Existing Capacity		Demand for Additional	
Year	Tie-downs[a]	Hangars	Tie-downs	Hangars[b]	Tie-downs	Hangars
2013	38	32	56	71	(18)	(39)
2015	38	33	56	71	(18)	(38)
2020	40	35	56	71	(16)	(36)
2025	43	37	56	71	(13)	(34)
2030	45	40	56	71	(11)	(31)
2035	47	43	56	71	(9)	(28)

Notes: [a]Tie-down demand based on 60% of single-engine aircraft + 10% of multi-engine aircraft. Existing tie-down capacity exceeds projected demand

[b]Existing hangar capacity based on combination of T-hangars (56 units) + conventional (multi-plane) hangars

Source: Jviation

4.5.2 Transient Aircraft Parking Requirements

The transient apron adjacent to the FBO is approximately 21,364 square yards (252' x 763'). There are no designated parking positions on the transient ramp. The forecast of GA itinerant operations through 2035 indicate steady growth in transient traffic as shown in **Table 4-24**.

TABLE 4-24 – ITINERANT AND LOCAL GA OPERATIONS FORECAST

Year	Preferred GA Operations Forecast (1.4%)	Itinerant	Local	Percent Itinerant
2013	34,714	17,357	17,357	50%
2014	35,200	17,600	17,600	50%
2015	35,693	18,025	17,668	51%
2016	36,192	18,458	17,734	51%
2017	36,699	18,900	17,799	52%
2018	37,213	19,351	17,862	52%
2019	37,734	19,810	17,924	53%
2020	38,262	20,279	17,983	53%
2021	38,798	20,757	18,041	54%
2022	39,341	21,244	18,097	54%
2023	39,892	21,741	18,151	55%
2024	40,450	22,248	18,203	55%
2025	41,017	22,764	18,253	56%
2026	41,591	23,291	18,300	56%
2027	42,173	23,828	18,345	57%
2028	42,764	24,375	18,389	57%
2029	43,362	24,933	18,429	58%
2030	43,969	25,502	18,467	58%
2031	44,585	26,082	18,503	59%
2032	45,209	26,673	18,536	59%
2033	45,842	27,276	18,566	60%
2034	46,484	27,658	18,826	60%
2035	47,135	28,281	18,854	60%

Source: Jviation

FAA AC 150/5300-13A, *Airport Design*, states that regarding GA itinerant aprons:

> **Itinerant aircraft**. Some apron area should be established to handle itinerant aircraft, which are usually only on the airport for a few days at the most. Wheel chocks are generally used rather than tie-down anchors. The aircraft stand can either be designed so that the aircraft can enter the stand under its own power or the aircraft may have to be pushed into the stand by hand or with a tug. Itinerant parking is generally associated with the FBO at a general aviation airport or can be accommodated near a terminal building.

AC *Airport Design* also states with regard to aircraft aprons:

> Apron locations that allow direct access onto a runway are not recommended. The apron layout should allow the design of taxiways in a manner that promotes good situational awareness by forcing pilots to consciously make turns. Taxiways originating from aprons and forming a straight line across runways are not recommended. Proper placement of aprons contributes to better accessibility, efficient aircraft movement and reduction in poor situational awareness conditions.
>
> **General.** Aprons and associated taxilanes should be designed based on the design of aircraft and/or the combination of aircraft that will use the facility. Itinerant or transient aprons should be designed for easy access by the aircraft under power. Aprons designed to handle jet aircraft should take into account the effects of jet blast and allowing sufficient area for safe maneuvering.

The transient apron at DRO accommodates a variety of GA aircraft, from single-engine pistons to large corporate jets and helicopters, as well as transient military aircraft.

As noted above, the preferred layout on transient (itinerant) aprons is to allow power-in, power-out parking. The alternative is to utilize power-in, tug-out parking, and in some extreme situations with very congested ramps use tug-in and tug-out parking.

While the use of tugs increases parking capacity on aprons, it is not popular with aircraft operators or FBOs because the use of tugs increases the possibility of inadvertent aircraft damage. Although FBOs do use tugs when necessary to move aircraft on ramps, as well as to move aircraft into and out of hangars, the preferred parking layout on transient aprons is power-in, power-out.

The forecast of itinerant aircraft operations served as the basis for projecting transient aircraft parking demand.

The formula for determining transient parking demand was based on:

- Annual Itinerant Ops ÷ 2 (Arrivals) × 10.5% (Peak Month) ÷ 30 (Average Day) × .4 (Transient AC Parking)

Transient parking demand tends to fluctuate, even within relatively short periods (i.e. less than an hour). Parking demand is based on the number of aircraft on the ramp at the same time, and each aircraft will park for differing lengths of time, and each will require different types and levels of service from the FBO, from uploading fuel, acquiring catering, having maintenance performed, being stored overnight in a hangar, to dropping off and picking up passengers. There are times when demand exceeds capacity, even

for short periods. As a result, transient aprons and FBOs must have flexibility to accommodate fluctuating demand and service needs.

Space requirements for transient aprons are based on the following assumptions and shown in **Table 4-25**:

- 50% of the parked transient aircraft fall within ADG I, and 50% within ADG II.
- 10-foot clearance between parking positions.
- ADG I aircraft require 2,000 square feet per parking position, including clearance between parking positions.
- ADG II aircraft require 3,500 square feet per parking position, including clearance between parking positions.
- Power-in, power out parking will be provided where feasible.
- Taxilanes will meet ADG II OFA criteria (i.e. 115 feet wide).
- The FBO will use tugs when necessary during peak periods, and also to move aircraft into and out of hangars.

TABLE 4-25 – TRANSIENT APRON VS. CAPACITY

Year	Transient Aircraft Parking Demand	Parking Space Required (SY)	Taxilane (SY)	Transient Apron Space Required (SY)	Transient Apron Space Available (SY)	Demand
2013	12	3,712	9,750	13,462	21,364	(7,902)
2014	12	3,764	9,750	13,514	21,364	(7,850)
2015	13	3,855	9,750	13,605	21,364	(7,759)
2016	13	3,948	9,750	13,697	21,364	(7,667)
2017	13	4,042	9,750	13,792	21,364	(7,572)
2018	14	4,139	9,750	13,888	21,364	(7,476)
2019	14	4,237	9,750	13,986	21,364	(7,378)
2020	14	4,337	9,750	14,087	21,364	(7,277)
2021	15	4,440	9,750	14,189	21,364	(7,175)
2022	15	4,544	9,750	14,293	21,364	(7,071)
2023	15	4,650	9,750	14,399	21,364	(6,965)
2024	16	4,759	9,750	14,508	21,364	(6,856)
2025	16	4,869	9,750	14,618	21,364	(6,746)
2026	16	4,982	9,750	14,731	21,364	(6,633)
2027	17	5,096	9,750	14,846	21,364	(6,518)
2028	17	5,213	9,750	14,963	21,364	(6,401)
2029	17	5,333	9,750	15,082	21,364	(6,282)
2030	18	5,455	9,750	15,204	21,364	(6,160)
2031	18	5,579	9,750	15,328	21,364	(6,036)
2032	19	5,705	9,750	15,454	21,364	(5,910)
2033	19	5,834	9,750	15,583	21,364	(5,781)
2034	19	5,916	9,750	15,665	21,364	(5,699)
2035	20	6,049	9,750	15,798	21,364	(5,566)

Source: Jviation

4.6 Aviation Support Equipment & Facilities

4.6.1 Aircraft Rescue and Fire Fighting (ARFF)

As discussed in **Section 2.7.1**, DRO has an ARFF Class I, Index B. DRO's two ARFF vehicles, the 2002 Oshkosh TI-1500 and the 1985 Oshkosh T-1500, are in good condition. ***However, it is recommended that the 1985 Oshkosh T-1500 be replaced within 10 years, and the 2002 Oshkosh TI-1500 be replaced by the end of the 20-year planning period.*** No additional ARFF equipment is recommended during the next 20 years.

4.6.2 Snow Removal Equipment (SRE)

DRO's current snow removal equipment (SRE) is listed in **Table 4-26**. The Airport's snow removal and maintenance equipment adequately meets the requirements of AC 150/5200-30C, *Airport Winter Safety and Operations*, which requires enough equipment to clear one inch of falling snow per hour from the primary runway, taxiway(s), and priority apron areas.

TABLE 4-26 – DRO SNOW REMOVAL EQUIPMENT

Year	Model	Use	Condition
2001	Oshkosh H Series	Broom	Good
1998	Oshkosh H Series	Broom	Good
2012	Oshkosh H Series	Blower	Good
1989	Snowblast MP-3000	Blower	Good
1983	Oshkosh W700015R	Blower	Good
1999	Oshkosh H-2723	Plow Truck	Good
1986	Oshkosh P Series	Plow Truck	Good
1985	Oshkosh P Series	Plow Truck	Good
2010	Volvo 150F	Loader	Good
2001	John Deere 624H	Loader	Good

Source: DRO Airport Administration, 2014

As shown above, all SRE is currently in good condition. ***However, it is recommended that the following SRE be replaced in the next 10 years:***

- 1983 Oshkosh W7000 15R Blower
- 1985 Oshkosh P Series Plow Truck
- 1986 Oshkosh P Series Plow Truck
- 1989 Snowblast MP-3000 Blower

By the end of the planning period, it is also recommended that the 1998 Oshkosh H Series Broom and the 1999 Oshkosh H-2723 Plow Truck be replaced.

4.6.3 ARFF Station/SRE Storage Building/Maintenance Facility

The ARFF and SRE building is located on the south corner of the GA apron, south of the terminal building. The facility provides storage for SRE, ARFF, and maintenance equipment and is approximately 26,120 square feet. Although the building is adequate in size, airport management has indicated that the existing ARFF bay doors are not wide enough to accommodate newer, larger equipment. *Improvements to the ARFF bays, such as widening a bay door or expanding the building with an additional ARFF bay is recommended in the 20-year planning period.*

4.6.4 Airport Equipment Storage Facilities

Currently, the Airport's storage hangar is located northwest of the ARFF building. Ground maintenance equipment and illuminated "X's" are stored in the storage hangar. The existing capacity of the storage hangar (2,000 square feet) is adequate, and the facility is in good condition. *No improvements are recommended during the planning period.*

4.6.5 Other Federal Agency Facility Needs (TSA and USFS)

Federal agencies that operate at DRO are the TSA and the U.S. Forest Service (USFS). TSA personnel operate inside the Commercial Terminal, and lease space for offices and other support rooms from the Airport. USFS facilities including a storage warehouse, office building, and fire suppressant reloading area, are located north of the terminal, across from the Runway 21 end. Existing facilities adequately meet the needs of their respective federal agencies. Changes to federal regulations have the potential to impact facility and staffing needs. *It is recommended that facilities be monitored to ensure they continue to provide an adequate level of service and comply with federal requirements.*

4.6.6 Fuel Storage Requirements – 100 LL and Jet-A

DRO's fuel farm has three 12,000-gallon aboveground Jet-A fuel storage tanks, and one 12,000-gallon 100LL fuel storage tank, which are owned and maintained by the FBO, AvFlight. Based on fuel data provided by airport management, over 1.3 million gallons of fuel were sold in 2013, with the peak month of fuel sales occurring in June. Jet-A fuel sales are the highest during the summer season, and 100LL AvGas fuel sales spike only in June. The annual operations for the same time period were approximately 47,068. Measuring fuel flowage against annual operations equates to approximately 29.9 gallons of fuel per operation, with an average of 31 gallons of fuel per operation since 2008. Comparing the average 31 gallons per operation against the Airport's existing fuel storage capacity, approximately five days of Jet-A and 28 days of AvGas fuel storage can be accommodated in 2035, as shown in Table 4-27.

TABLE 4-27 – FUEL STORAGE CAPACITY

	2015	2020	2030	2035
Total Operations – Average Peak Day	176	187	199	226
Air Carrier Operations – Average Peak Day	44	45	47	51
GA & Military Operations – Average Peak Day	133	142	152	175
Fuel (gal) – Average Peak Day	5,456	5,797	6,169	7,006
Existing Fuel Storage – Jet-A	36,000	36,000	36,000	36,000
Existing Fuel Storage – AvGas	12,000	12,000	12,000	12,000
Approximate Days of Fuel (Total)	9	8	8	7
Approximate Days of Fuel – Jet-A	7	7	6	5
Approximately Days of Fuel – AvGas	37	34	31	28

Source: Jviation

Although there is not a shortfall in Jet-A capacity over the next 20 years, existing storage capacity may not adequately provide for periods of extreme peak activity. ***Additional Jet-A fuel storage capacity is recommended.***

4.6.7 Deicing Facilities

Deicing is the removal of frost, ice, slush, or snow through the application of heated water and propylene or ethylene glycol to ensure safe aircraft operations. Currently, deicing for commercial aircraft is provided by AvFlight. Glycol from deicing operations drains off airport facilities into storm water collection, ultimately reaching nearby rivers, lakes, and streams. Glycol can impact water quality through reductions in dissolved oxygen, reduced organism abundance and species diversity, and drinking water contamination.

Airports with 1,000 or more annual jet departures that generate wastewater associated with airfield pavement deicing are to use non-urea-containing deicers, or alternatively, meet a numeric effluent limitation for ammonia.[6]

Currently, there is one deice pad for commercial aircraft located on the northeast corner of the commercial apron. The trench drain for deicing fluid contaminants is located on the south side of the commercial deice pad. **Airport management has indicated that improvements are needed to the trench drain as it currently does not drain properly.** ***Further, an expansion to the existing deice area is recommended to meet tail height clearance requirements for aircraft coming to and from the deice pad via Taxiway A2.***

[6] United States Environmental Protection Agency, Fact Sheet: *Effluent Guidelines for Airport Deicing Discharges*, April 2012

The current collection system meets the 20 percent requirements; therefore, DRO is not required to collect deicing fluid. *DRO should continue to monitor aircraft deicing fluid collection activities and compliance with EPA standards.*

4.6.8 Utilities

Utilities at the Airport include natural gas, phone service, electrical service, a domestic water distribution system, and a sanitary sewer system. As indicated in Chapter 2, Inventory, the existing 10,000-gallon raw water tank is in fair condition and is undersized to meet capacity. *Replacing the water tank with a larger tank is recommended during the planning period.* Further, the lavatory dump station for aircraft located near the car rental wash bays is also inefficient to meet current demand. *Expansion to the lavatory dump station is recommended.*

4.6.9 Airport Recycling, Reuse, and Waste Reduction Plan

Appendix L contains the airport recycling, reuse, and waste reduction plan.

5.0 ALTERNATIVES ANALYSIS

This chapter describes and evaluates DRO's development alternatives to enable selection of a preferred development plan that accommodates the demand and facility requirements for airside facilities, landside facilities, and the terminal building as recommended in **Chapter 4, Facility Requirements.** Multiple options for alternatives were considered by the County, City, airport staff, and members of the Planning Advisory Committee (PAC) in arriving at the "preferred" alternative. The preferred alternative serves as the basis for the Airport Layout Plan (ALP) drawing set.

5.1 OVERVIEW AND PROCESS

The alternatives analysis considers options for meeting facility requirements for the entire airport. The complexity and challenges faced in properly locating passenger terminal facilities weighs heavily on the decisions regarding other facilities. Once decisions about the passenger facilities are made, the other facilities can be developed on the remaining land.

Thus, the master plan process first considered the overall site plan needs for all airport uses simultaneously to see what growth capacity currently exists. The feedback from PAC meetings and a public open house yielded many comments and suggestions, some of which are incorporated into this analysis.

The first key observation is that the airfield is adequately sized and located to meet the foreseeable needs of aircraft operations. Second is that even though DRO owns developable land on both sides of the airfield, development is concentrated on the west side of the runway with sharply sloped terrain constraining the western edge of the development. Land on the east side could be developed, but the lack of access and utilities has thus far been a deterrent to potential development projects. Over the past 20 years the development area on the west side has filled in available land and is beginning to constrain growth and revenue-producing opportunities for the Airport. Some expansion is possible for current uses, but likely comes at the expense of growth options for adjacent uses and is not sustainable beyond 10 to 20 years.

As described in earlier chapters, the terminal is currently operating beyond its capacity limits. Given the complexity of terminal redevelopment, an engineering evaluation was required to gain sufficient understanding of site development to make an informed decision. With the need to significantly increase the passenger facilities, especially auto parking, the decision should consider whether that large investment should be made in the same location and at the expense of potential expansion of adjacent uses. This analysis will assist in evaluating options, weighing the benefits versus the costs, and how this process can assist in making the decision.

5.1.1 Decision Process

Through this study's scoping phase, it was determined that the Airport's existing decision-making process will be utilized. The elected officials for the City of Durango and La Plata County jointly decide on airport business matters. The elected officials seek input and delegate many day-to-day operational decisions to the Airport Advisory Commission and DRO's professional staff. For special matters, such as master planning, other groups may be called upon to provide input. In this case, the master planning team has facilitated a PAC that participates in the analysis and offers feedback and input on study materials. The public also plays a key role in advising the elected bodies—their input comes in the typical political manner as well as through master plan outreach events.

5.2 EVALUATION FACTORS

The team developed quantitative and qualitative evaluation criteria to assist in evaluating the alternatives. The criteria were developed based upon results of surveys given to the PAC, passengers, airlines, tenants, and business owners. The planning team provided additional analysis to ensure alternatives meet performance criteria for safety and security compliance.

5.2.1 Qualitative Evaluation Criteria

Qualitative evaluation criteria are considered to be subjective. Despite their subjectivity they are valuable to the evaluation process as they measure the long-term effects and benefits of an alternative.

- *Promotes safety and efficiency of airport operations:* Does the terminal space allow for efficient and safe operations of the airlines and maintenance staff? Do the roadway and public access system provide clear and efficient routes for the traveling public? Does the commercial aircraft apron layout allow safe and efficient aircraft operations? Are the auto parking and pedestrian access located minimal distances from the terminal?

  Each of the alternatives will be designed to meet the airport's safety and efficiency requirements.

- *Enhances security of airport and airline operations:* Does the alternative provide adequate space for airport and airline operations? Are TSA space requirements met?

  Each alternative meets TSA space requirements, and expansion of the terminal and related facilities would support airport and airline operations over the 20-year planning period. The phasing of the construction would pose challenges and require careful coordination to ensure security is not compromised.

- *Improves customer satisfaction/convenience:* The alternatives weighed the facility's ease of use with a goal to achieve Level of Service "C" (see **Section 4.4.1**).

  Once constructed, expansion of the terminal and related facilities will meet customer needs and expectations. Customer satisfaction will be greatly improved over existing conditions.

- *Fosters Durango/Four Corners' Image:* DRO is a gateway to the region, and serves an area that has a mix of tourism, business development, and industry (oil and gas). Therefore, the aesthetic and visual impacts of the public facility are critical to express the area's image.

  DRO is a gateway to the region, and serves an area that has a mix of tourism, business development, and industry (oil and gas). Therefore, the aesthetic and visual impacts of the public facility are critical to express the area's image. The planning team will let local commentary determine the outcome of this analysis. One variable might be whether new construction with more light and higher ceilings better conveys Durango's image versus a renovation of the existing building. Another variable is whether a parking garage constructed in front of the terminal that impedes the mountain views when exiting the terminal speaks to Durango's image.

- *Minimizes construction phasing impacts to tenants and users:* This criterion considers the impacts that phasing of facilities will have on airport operations and the traveling public.

  The key difference between the alternatives is the length of time that efficiency of airport operations is disrupted while the improvements are constructed—significant phasing is inefficient and causes confusion.

- *Incorporates sustainable design elements where appropriate:* Sustainability is a broad term that encompasses a wide variety of practices applicable to the management of airports.[1] This criterion's goal is for DRO's development to achieve the "Triple Bottom Line:"
  - Maintain economic stability with room for growth (Economic Growth)
  - Conserve natural resources (Environmental Stewardship)
  - Recognize the needs of the community and region (Social Responsibility)

  Each alternative description details the unique opportunities to incorporate sustainable design elements.

[1] Airport Cooperative Research Program, Synthesis 10, *Airport Sustainability Practices, A Synthesis of Airport Practice*, 2008.

- *Sensitive to environmental resources:* Development provides for minimal environmental disruption (wetlands, endangered species habitat, cultural resources, water quality, air quality, noise impacts, etc.).

  All three alternatives impact wetlands. However, coordination with regulatory agencies would be done and mitigation completed as required. The alternatives may also impact bald eagle winter roosting habitat and other migratory bird species. A nesting raptor survey is recommended to determine active nests (reference Appendix C). Potential endangered species habitat also exists within the Alternative Three development area and protocol surveys would be necessary. Should endangered species be present, mitigation would be required.

5.2.2 Quantitative Evaluation Criteria

Quantitative evaluation criteria are objective and verifiable. The following criteria are included in this analysis:

- *Complies with FAA safety and design standards:* This criterion is non-negotiable but is included here to highlight the fact that elements must comply with critical design standards. For example, the distance the buildings, aircraft, and other objects must remain from the runway. However, for various concepts it also stipulates the need for other airfield facilities, the protection of those facilities, and the protection of airspace that surrounds the runway.

  All three alternatives meet current FAA safety and design standards.

- *Maximizes operational efficiency:* For a system to work well, the elements comprising the system should be located, sized, and situated to enable each element to operate at peak capacity. For example, auto parking should be designed and situated to enable passengers to quickly find parking within a minimum distance to the terminal entrance.

  Once constructed, all three alternatives will improve operational efficiency.

- *Meets the 20-year facility requirements with room to grow:* As shown on **Figure 5-1** and described in **Chapter 4**, **Facility Requirements**, there are quantifiable performance measures that each alternative must meet in order to conduct an "apples to apples" comparison. For example, if an alternative does not meet the 20-year facility requirements of PAL 2 and it is not reasonably feasible to do so, then the alternative is eliminated.

FIGURE 5-1 – PLANNING ACTIVITY LEVELS

Existing Conditions	•Terminal:	**41,500** Square Feet (with Tent)
	•Apron Parking Positions:	**4**
	•Auto Parking:	**1,100** (Paved)
	•Annual Enplanements:	**200,000**
	•Peak Hour Enplanements:	**263**
Today's Needs	•Terminal:	~**82,000** Square Feet
	•Apron Parking Positions:	**5** (with Boarding Bridges)
	•Remain Overnight Parking Positions:	**1**
	•Auto Parking:	**1,500** (Paved)
	•Annual Enplanements:	**200,000**
	•Peak Hour Enplanements:	**263**
PAL 1	•Terminal:	**110,800** Square Feet
	•Apron Parking Positions:	**5** (with Boarding Bridges)
	•Overnight Parking Positions:	**2**
	•Auto Parking:	**1,900** (Paved)
	•Annual Enplanements:	**300,000**
	•Peak Hour Enplanements:	**340**
PAL 2	•Terminal:	**137,600** Square Feet
	•Apron Parking Positions	**7** (with Boarding Bridges)
	•Overnight Parking Positions:	**2**
	•Auto Parking Spaces:	**2,400** (Paved)
	•Annual Enplanements	**400,000**
	•Peak Hour Enplanements:	**425**

Source: Jviation

Given the size of the investment, better alternatives will offer additional expansion opportunities so facilities meet demand levels much longer than 20 years.

- *Balances benefits with costs:* The key to balancing benefits and costs is understanding the long- and short-term benefits and potential opportunities along with the associated costs for each alternative. A lower investment for the short-term to temporarily alleviate current issues may ultimately limit future revenue opportunities and growth options, while making a larger investment could maximize growth and revenue opportunities and benefit the community for decades. This criterion is very important considering the relatively high costs associated with each alternative. The costs are a quantifiable way to compare alternatives and those costs have been estimated and are included in this chapter. The key to using this criterion well is in understanding the costs and then comparing concepts to consider what opportunities might be gained from a concept that has a higher estimated cost. Conversely, concepts can be compared as to whether lower investment in the near term ultimately limits revenue opportunities and removes feasible growth options in both the short and

the long range. The balancing of benefits and costs will come in the form of deciding whether there is enough potential benefit derived from the selection of a particular alternative.

A final note on costs: For the first screening analysis the study team prepared estimates that allow for the comparison of alternatives. Further refinement of estimates is provided in the next phase as the preferred concept is broken down into individual projects that comprise a development program. These individual projects have varying eligibility for grant assistance. The financial implementation analysis and narrative text (performed after the preferred alternative is selected) has much to add on this topic. The reason to point this out is that a valid question to pose when considering costs is, "How much does this alternative cost the local community?" Until this analysis is performed and grant applications submitted, this would be pure speculation.

5.3 Alternative Development – Alternatives Considered

5.3.1 Alternative Development

A number of elements go into the development of alternatives; this study developed an array of options that could meet all or many of the selection criteria. Some of the alternatives that were considered were identified in past studies, others were identified by the Airport Advisory Commission, the PAC, tenants and other stakeholders, and the public.

5.3.2 Eliminated Alternatives

As alternatives were being developed, several were eliminated from further consideration. The reasons they were dismissed are on the following pages.

Shift Runway 3-21 to the east: The objective of this alternative is to provide additional development space on the west side of the airfield where all current facilities exist, allowing existing operations to remain, and creating room for expansion to meet current and future demand.

This alternative could not meet the criterion "Balances benefits with costs." Because of the need to maintain operations on the current runway while a new runway was constructed, the new runway would have to be outside the existing safety areas of the current operational runway. DRO is located on a mesa top and buildable areas are limited without using extensive fill, significantly driving up the cost of the project. In addition, in order to accommodate the required amount of embankment, land acquisition would be necessary. County Road 309A would have to be relocated, along with other site preparation and pavement needs to construct an equivalent runway. Additionally, demolition of the current parallel taxiway and partial demolition of the existing runway width to meet taxiway design standards would be required. Consequently, moving the runway is not considered feasible when other alternatives exist.

Construct remote parking lots on east or west side: The options are to expand parking north of CR 309A on the west side; north of CR 309 and CR 309A intersection on the west side (requires land acquisition); or on the east side while leaving the existing terminal facilities in their current location. All options allow for expansion of the terminal and other facilities into existing parking areas, eliminating the need to move the terminal or facilities to the east, which would require utilities, parallel taxiway, and other site preparations. Although these alternatives initially seem feasible, they would create an on-going operational cost as a shuttle would be necessary to transport passengers.

Relocate the U.S. Forest Service (USFS) base and/or General Aviation (GA) to the east: Relocating these facilities would give the commercial terminal facilities ample space to expand. However, aviation activity on the east side of the airport requires a parallel taxiway between the development and the runway. This is a significant cost requiring DRO to seek funding from the FAA. It is far less likely that FAA funding would be available to relocate another federal installation or GA facilities as opposed to terminal facilities. Thus, the cost to implement this alternative would likely be borne locally and would also be additional to Alternatives One or Two as described in Section 5.3.3 to meet the program requirements.

5.3.3 Terminal Alternatives Carried Forward for Evaluation

The three alternatives carried forward for further evaluation are described in the following sections.

- **Alternative 1:** Renovate and Expand the Existing Terminal, Expand Aircraft Parking Apron, and Automobile Parking
- **Alternative 2:** Construct New Terminal Adjacent to Existing Terminal, Expand Aircraft Parking Apron, and Automobile Parking
- **Alternative 3:** Construct New Terminal, New Aircraft Parking Apron, and New Auto Parking on the East Side of the Runway

Each alternative is evaluated at two planning activity levels (PAL). As shown in **Figure 5-1**, there will be different needs to accommodate as the activity at the airport grows. Since this evaluation has the long-range view of 20 years, it is useful to plan in smaller periods of time. PAL 1 represents approximately 10 years of growth: it meets the existing needs *plus* the needs expected by 2025. This represents the ideal amount of capacity to build.

PAL 2 encompasses the additional needs that will be required by the end of the planning period in 2035. The PALs act as a trigger point: once the enplanement level is reached for PAL 1 plans to meet the next activity level should be implemented. Plans can be implemented before or after the forecasted year depending on actual activity and trends. Additionally, PAL 1 can be an identified activity level selected to balance with funding availability, either more or less. For the purposes of this analysis, however, the PALs have been selected at 10-year intervals.

It is important to compare the alternatives with both PALs in mind because this is a 20-year time frame. It also allows the analysis to view the concept's challenges to expansion at the end of the planning period, and whether there is ability to expand beyond that.

5.3.3.1 Baseline Improvements

Before analyzing the alternatives, it is necessary to identify elements of terminal programs that are common to all concepts. There are two site improvements that are required regardless of the alternative selected. The first is the intersection of the airport access road, Airport Road/County Road 309 (CR 309), with Colorado State Highway 172 (SH 172); the other is the airport-owned water system.

Airport access road: The current primary access to the Airport from the surrounding area is SH 172. County Road 309A (CR 309A) provides secondary access to the Airport from the south. The access road to the Airport from SH 172 is CR 309. The intersection of SH 172 and CR 309 was analyzed in the traffic study

completed by Felsburg Holt & Ullevig, Inc. as part of the report, and is included in **Appendix J**. The following was noted in the study:

> The existing SH 172 / CR 309 intersection has been identified as a traffic safety problem by both La Plata County and the Colorado Department of Transportation (CDOT). La Plata County Staff has rated the intersection #1 on a listing of intersections in need of improvement, and CDOT Staff agree that the configuration and location of the intersection causes sight distance limitations and increased crash potential.

Based on this safety concern, access would likely be relocated and the existing intersection closed or limited. The preferred location for the new access road is to the east of the existing entrance and aligns with existing County Road 338 (CR 338). This location would require intersection improvements to SH 172 to add turn lanes. From the new intersection the rural access road would continue to the south adjacent to DRO's property line. Where possible, the alignment for the new roadway would follow existing roadways in the area. Should existing roadways be improved, intersections to access roads would be maintained and improved. The new road would tie into the existing CR 309A.

A portion of CR 309A is located within the existing Runway Protection Zone (RPZ). Roadways are to be avoided in RPZs as per FAA guidance. Consequently, the portion of CR 309A located within the RPZ would be relocated to the north, outside the existing and future RPZ limits. The relocated road would tie back into the existing CR 309A.

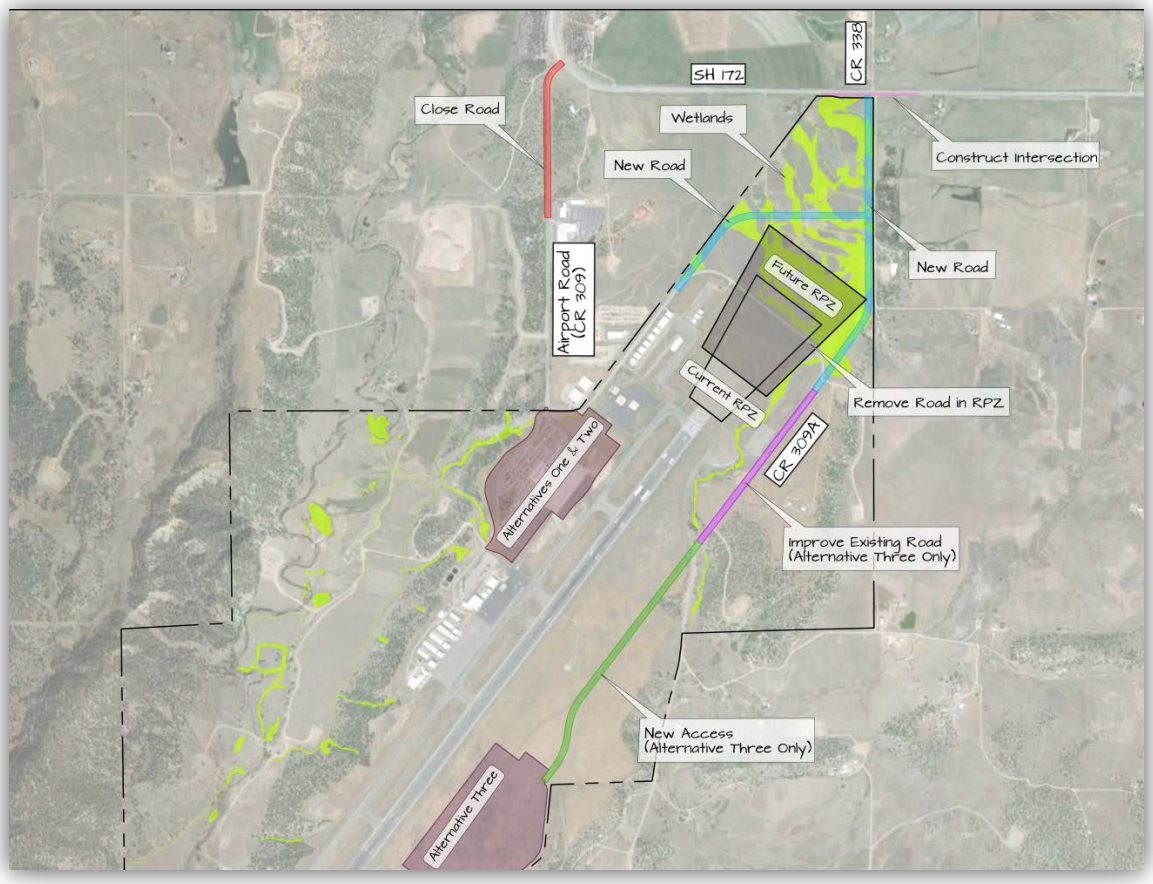
The roadway improvements required beyond the new access road and relocated CR 309A are dependent on the site alternative selected. Alternatives One and Two would not require the western portion of CR 309A between the new access road and the terminal site to be improved. Alternative Three would require the eastern portion of CR 309A to be improved to tie in to the new terminal site. The roadway improvements include bringing the existing two-lane paved and gravel roadways up to the new access road typical section standards. The realigned portion of CR 309A and access from SH 172 would impact wetlands in the area. **Figure 5-2** depicts the relocated and new access roads as well as wetland locations. A Section 404 permit[2] would be required.

It was also noted in Ecosphere's report (**Appendix C**) that bald eagle roost sites are located within the proposed connection from SH 172 to CR 309A area. It was suggested that the cottonwood trees be removed outside the roosting period from March 16th to November 14th.

---

[2] Section 404 of the Clean Water Act establishes a program to regulate the discharge of dredged or fill material into waters of the Unites States, including wetlands. Activities in waters of the United States regulated under this program include fill for development, water resource projects, infrastructure development, and mining projects. A permit is required before dredged or fill material may be discharged into waters of the United States.

FIGURE 5-2 – AIRPORT ACCESS ROADS



Note: Not to scale
Sources: Jviation, Felsburg Holt & Ullevig, and Ecosphere Environmental Services

Airport-owned water system: The Airport has its own water treatment facility, operated and maintained by airport staff. Coordination with airport staff was critical to understanding the existing system and determining existing infrastructure that required improvement.

As a part of the analysis of the existing site conditions, the planning team brought on an engineering firm that prepared a study on the airport's water, sanitary sewer, and irrigation systems. This section provides a brief summary of the study findings; the complete study findings are in **Appendix K**.

The existing water system was analyzed to understand the capacity and condition of the system for current needs as well as the projected 20-year buildout. The water demands were reviewed for aviation-related development and do not account for future offsite development. The study examined historical water demands and correlated them to historic passenger enplanements to determine a water demand per passenger. This value was extrapolated to approximate the final water demand based off of the 20-year

enplanement estimates. The analysis included water rights, water source, water treatment, and water distribution.

The study found that there are adequate water rights to provide for the study period. Based on projected water demands, the water treatment system can operate effectively through PAL 1 but will have to be improved to provide additional capacity for PAL 2. The water metering should be monitored and when the treated water distribution reaches 30,000 gallons per day, planning should begin on the upgrades. This PAL 2 requirement will be reflected as a baseline condition for each alternative studied.

5.4 Analysis of Terminal Alternatives

The following sections identify and discuss shared and unique elements of the alternatives within the context of the evaluation criteria. This chapter concludes with the identification of the preferred terminal alternative based upon a local decision described in **Section 5.1.1**, and recommendations for general aviation development (secondary).

5.4.1 Shared Elements

5.4.1.1 Airside Expansion

Alternatives One and Two: In order to accommodate the aircraft parking positions and maneuvering area for airline ground service equipment (GSE), the apron must not only be expanded but also reconstructed and strengthened due to the reconfigured aircraft parking layout and new aircraft fleet mix. The existing terminal apron would be expanded to the north and to the west to allow for an increase in parking positions and operational area for air carriers. The expansion is anticipated to encroach on the landside parking lot. This loss of parking spaces will be offset with the proposed parking expansion.

A de-icing fluid containment system would also be considered with the expansion. The containment system would include a trench drain to capture de-icing fluid. This trench drain system would require an isolation valve to divert storm water into the drainage system during typical operations and to divert de-icing fluids to a storage facility during icing conditions. The containment system could be a surface pond or a containment tank.

5.4.1.2 Landside Expansion

Alternatives One and Two: Landside infrastructure improvements include constructing/improving the access roads, reconfiguring the terminal circulation road and parking areas, and constructing drainage improvements. The existing landscaping around the parking would be impacted during the parking expansion. Realignment of the circulation road is necessary to maximize parking spaces. The realignment

would improve pedestrian access by adding and expanding sidewalks. Lighting is to be installed to increase pedestrian and vehicle visibility.

The expansion of the parking area would have to be completed in phases to reduce the impact to the traveling public. Existing unpaved parking areas would be improved first to offset the loss of parking spaces due to the building and apron expansions. PAL 1 would involve reconfiguring the existing parking lot and circulation road to maximize the developable area on top of the mesa.

5.4.1.3 Infrastructure

Utilities are another element which must be considered. The primary utility corridor runs directly to the east of the existing terminal building, underneath the apron. This utility corridor was studied in the conceptual and schematic documents as a part of a former study, which identified utility impacts for a terminal expansion into the existing apron area.

Plans show that the utility corridor contains wet and dry utilities including water, sanitary sewer, natural gas, electric, and communication. The utility services extend from this utility corridor to the terminal building. Depending on the final building footprint that is selected for the terminal expansion, it is very likely that the existing utility corridor and services will be impacted. Constructing building foundations over the top of utilities can create issues with shifting foundations and restricts access to utilities for repair and maintenance. For the purposes of this study it is assumed that the utility mains and services will need to be reconstructed as the building footprint is expanded.

5.4.1.4 Program Elements for PAL 2

The additional facilities required to meet PAL 2 include an expansion of the terminal by 30,000 square feet and the expansion of the boarding lounge to accommodate two additional gates. The aircraft parking apron is also enlarged to accommodate the additional two gated parking positions. Auto parking needs will require an additional 500 parking stalls.

The terminal building and aircraft parking apron expansion proposed in Alternatives One and Two removes additional auto parking that needs to be replaced. Without sufficient surface parking available on airport-owned property within reasonable walking distance to the terminal entrances, the proposed solution that is most user-friendly is to construct a 1000-space parking structure in the main parking lot.

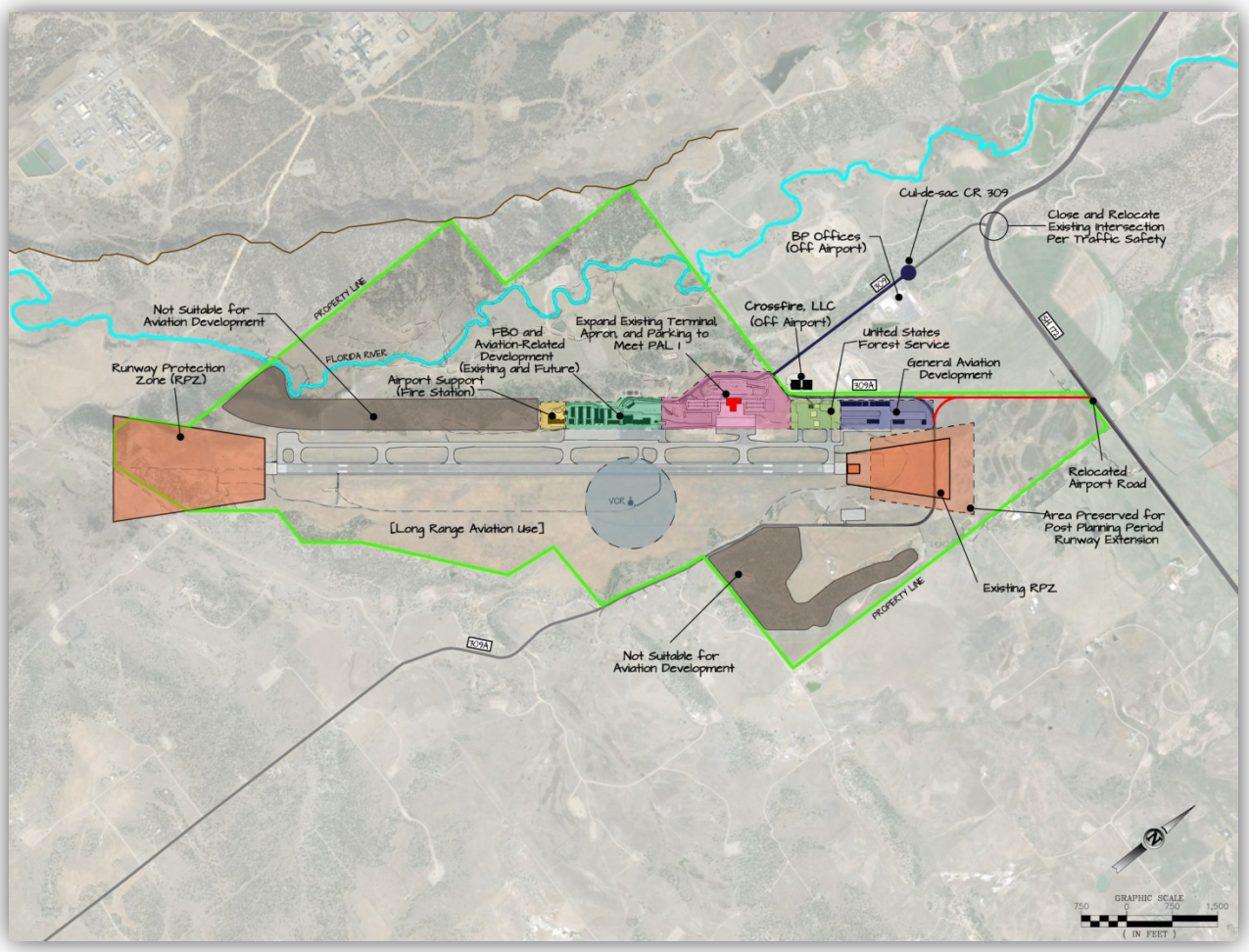
5.4.2 Alternative One: Renovate and Expand Existing Terminal

5.4.2.1 Overview for PAL 1

Alternative One involves renovating and expanding the existing terminal building to meet the PAL 1 facility requirements. This alternative seeks to use the existing airfield and landside infrastructure to the

greatest extent possible. The aircraft parking apron would be reconstructed and expanded to make room for the five aircraft parking positions with boarding bridges and the two parking positions for overnight-only parking. Existing concrete pavement that is not strong enough to support aircraft will be removed and pavement of required strength will be constructed. Auto parking would be impacted by the terminal expansion. The parking that was eliminated, along with the parking stalls required in PAL 1, would be constructed in expanded surface lots. The entrance road that loops in front of the terminal would be moved as close to the edge of the bench as possible and the majority of landscaping within the loop road would be removed to make room for the required spaces. **Figure 5-3** depicts a general layout for PAL 1.

FIGURE 5-3 – ALTERNATIVE ONE – SITE OVERVIEW: PAL 1

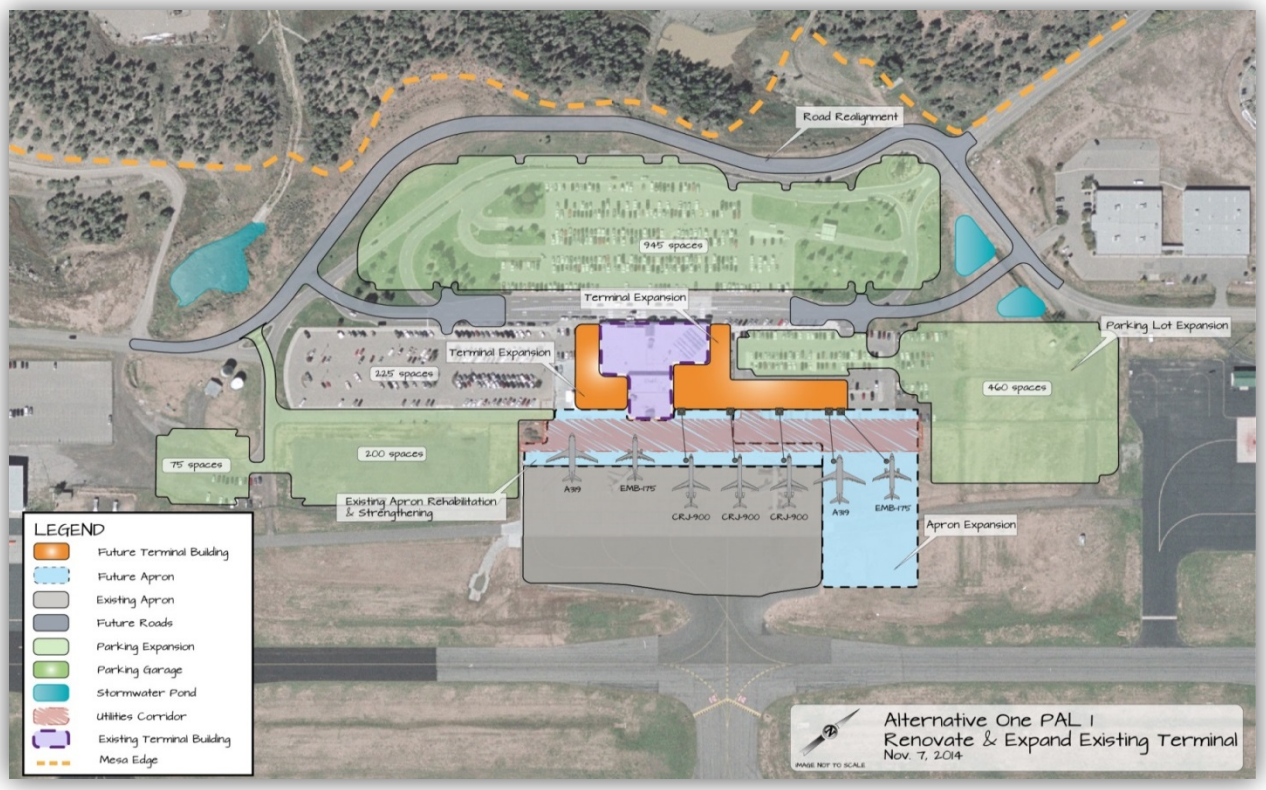


Note: Not to scale
Source: Jviation

5.4.2.2 Terminal Renovation and Expansion

The existing terminal building would be enlarged to accommodate additional depth and length of all terminal functions and areas. This includes approximately 80,000 square feet of new building area. The existing building will need to be incorporated into the new construction and be completely reconfigured. For this reason the renovation will require a remodel of existing interior and exterior finishes. Due to the age and capacity of building systems, existing systems would be replaced with current equipment sized to serve the needs of the entire building and meeting latest energy efficiency standards. The existing building codes for fire protection would be implemented and integrated between old and new space. Any design elements to existing space such as changes in ceiling height would be incorporated as able. The project would be phased to minimize impacts to normal operations. New boarding lounges would be constructed on a second level with boarding bridges. Concession areas meeting program requirements would be located both sides of the security checkpoint and sized to offer passengers options for food, beverage, and sundries. **Figure 5-4** depicts the terminal concept for PAL 1.

FIGURE 5-4 – ALTERNATIVE ONE – TERMINAL CONCEPT: PAL 1

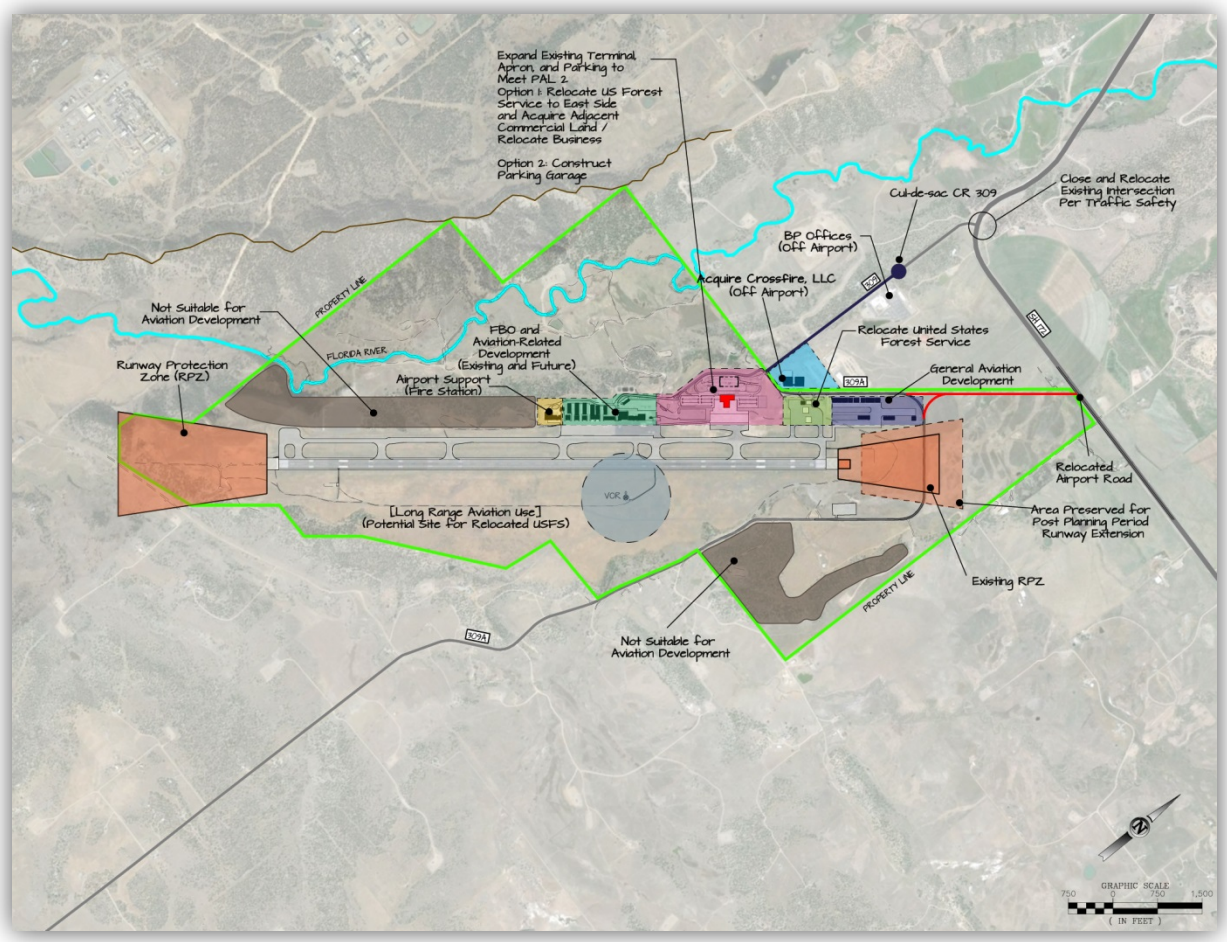


Note: Not to scale
Source: Jviation

5.4.2.3 Program Elements for PAL 2

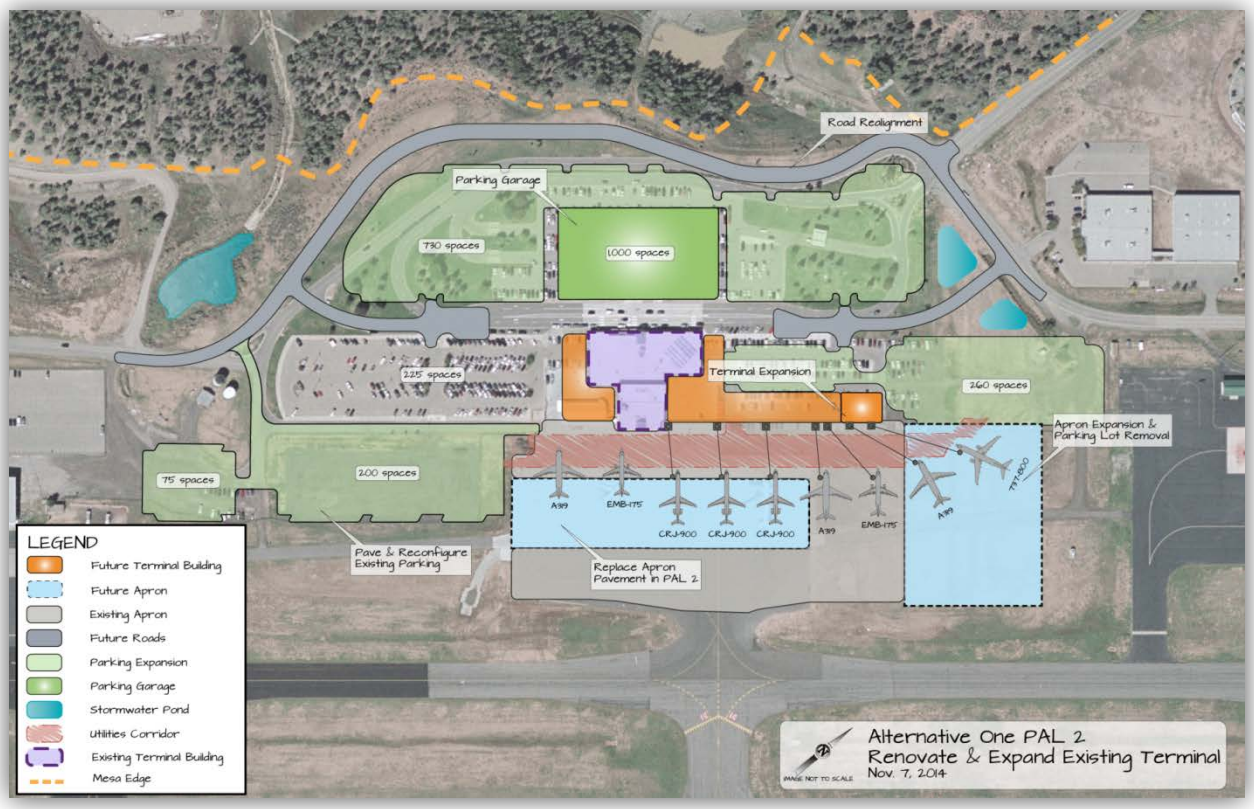
Figure 5-5 depicts the distribution of developed land on the airport as well as the new entrance road location. Two options for the parking garage are depicted should other approaches be preferred when the project is needed. The acquisition and relocation of private buildings (shown in blue) and/or the relocation of US Forest Service facilities to another part of the Airport are assumed to have similar costs without the customer convenience and potential return on investment of a parking garage. **Figure 5-6** depicts the terminal concept for PAL 2.

FIGURE 5-5 – ALTERNATIVE ONE – SITE OVERVIEW: PAL 2



Note: Not to scale
Source: Jviation

FIGURE 5-6 – ALTERNATIVE ONE – TERMINAL CONCEPT: PAL 2



Note: Not to scale
Source: Jviation

5.4.2.4 Selection Criteria Analysis

The following text details the evaluation factors in relation to Alternative One.

Qualitative:

- *Minimizes construction phasing impacts to tenants and users:* Alternative One requires significant phasing and use of temporary facilities, and would have the greatest impact on airport efficiency and customer satisfaction/convenience during construction. The phasing would also extend the construction period and total cost.
- *Incorporates sustainable design elements where appropriate:* While the alternative allows for growth of DRO to meet demand which increases economic growth, the growth is limited due to the previously mentioned site constraints. This alternative has minimal impact to existing environmental resources, however, re-use of existing facilities is limited to those that are cost-effective, and thus, new materials would be required. While the alternative meets the 20-year demand, expansion beyond PAL 2 would be extremely restricted without land acquisition,

relocation of facilities to east side, or airport relocation. Consequently, it may not meet the community's and region's need beyond 20 years.

Quantitative:

- *Meets the 20-year facility requirements, plus room to grow:* Alternative One meets the planning period needs; however, expansion to meet PAL 2 requires significant investment in parking facilities to reach the end of the planning period. In order to grow beyond PAL 2, airport plans need to consider relocating facilities to the east side of the airfield (such as Alternative Three) or potentially consider airport relocation.
- *Balances benefits and costs:* The key benefit for choosing Alternative One is the limited re-use of existing infrastructure, which may decrease costs overall. It can be implemented in phases to meet funding requirements or meet a lower level of service if desired. However, because the terrain drops off to the west, expansion to meet PAL 2 comes at a significant cost due to parking requirements. A parking structure would temporarily displace hundreds of spaces and cost an estimated $25 million dollars, which must be funded locally because the facility is ineligible for grant funding assistance. Also, the phasing would extend the construction period and increase unit costs.

Another factor is that the available land on the other side of the airfield remains difficult to put into productive use. Also, there is very little land that can be offered to potential aviation-related businesses that may look to locate in Durango. The ability to feasibly develop airport land offers the opportunity to diversify the airport revenues and increase the economic activity in the region.

Table 5-1 provides the Rough Order Magnitude cost estimate for Alternative One. The PAL 1 costs are shown separately from the PAL 2 costs, but the total amount is considered necessary to fully meet the requirements for the 20-year planning period.

TABLE 5-1 – ALTERNATIVE ONE COSTS

Terminal Building Costs	PAL 1	PAL 2
Renovate/Expand Terminal Building	$44,898,888	$12,141,000
Passenger Boarding Bridges	$2,625,000	$1,050,000
Site Costs		
Earthwork	$1,500,500	$826,500
Utilities	$1,752,500	$517,500
Apron Construction	$4,099,900	$2,403,800
Apron Replacement		$3,263,900
Parking Lots	$5,442,100	$298,500
Structured Parking		$25,000,000
Roadways/Access	$4,740,900	-
Total Construction Cost	**$65,059,788**	**$45,501,200**
Design and Program Management		
Program Management	$3,252,989	$2,275,060
Design	$3,903,587	$2,730,072
Construction Management	$4,554,185	$3,185,084
Contingencies	$6,505,979	$4,550,120
Total ROM Cost	**$83,276,529**	**$58,241,536**
Total ROM Cost Combined: PAL 1 & 2		**$141,518,065**

Note: Costs are shown in today's dollars
Source: Jviation

5.4.3 Alternative Two: Construct New Terminal Adjacent to Existing

5.4.3.1 Overview for PAL 1

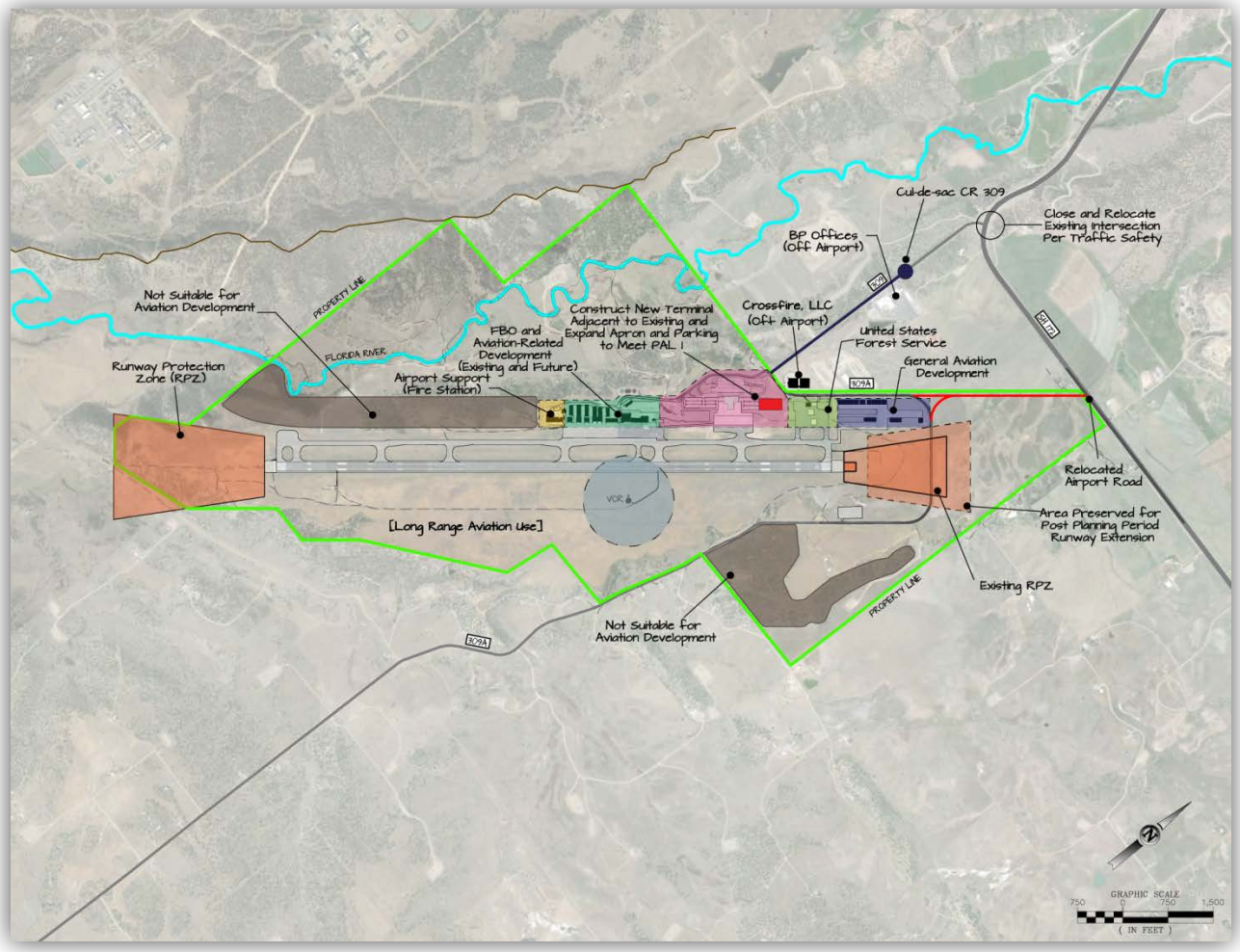
Alternative Two proposes to construct a new terminal building next to the existing terminal building to meet the PAL 1 facility requirements. Similarly to Alternative One, this alternative seeks to use the existing airfield and landside infrastructure to the greatest extent possible with a new building.

The aircraft parking apron would be reconstructed and expanded to connect to the new terminal's five aircraft parking positions with boarding bridges and two parking positions for overnight only parking. Existing concrete pavement that is not strong enough to support aircraft would be removed and new pavement constructed of required strength.

Auto parking would be impacted by the terminal expansion. The parking that was eliminated, along with the parking stalls required in PAL 1, would be constructed in expanded surface lots. The entrance road that loops in front of the terminal would be moved as close to the edge of the mesa top as possible, and the majority of landscaping within the loop road would be removed to make room for the required spaces. This

alternative would also use the airfield and landside infrastructure to the greatest extent possible. The new terminal building would be constructed to the north of the existing terminal with jet bridges extending from the proposed building towards the apron. **Figure 5-7** depicts a general layout for PAL 1.

FIGURE 5-7 – ALTERNATIVE TWO – SITE OVERVIEW: PAL 1



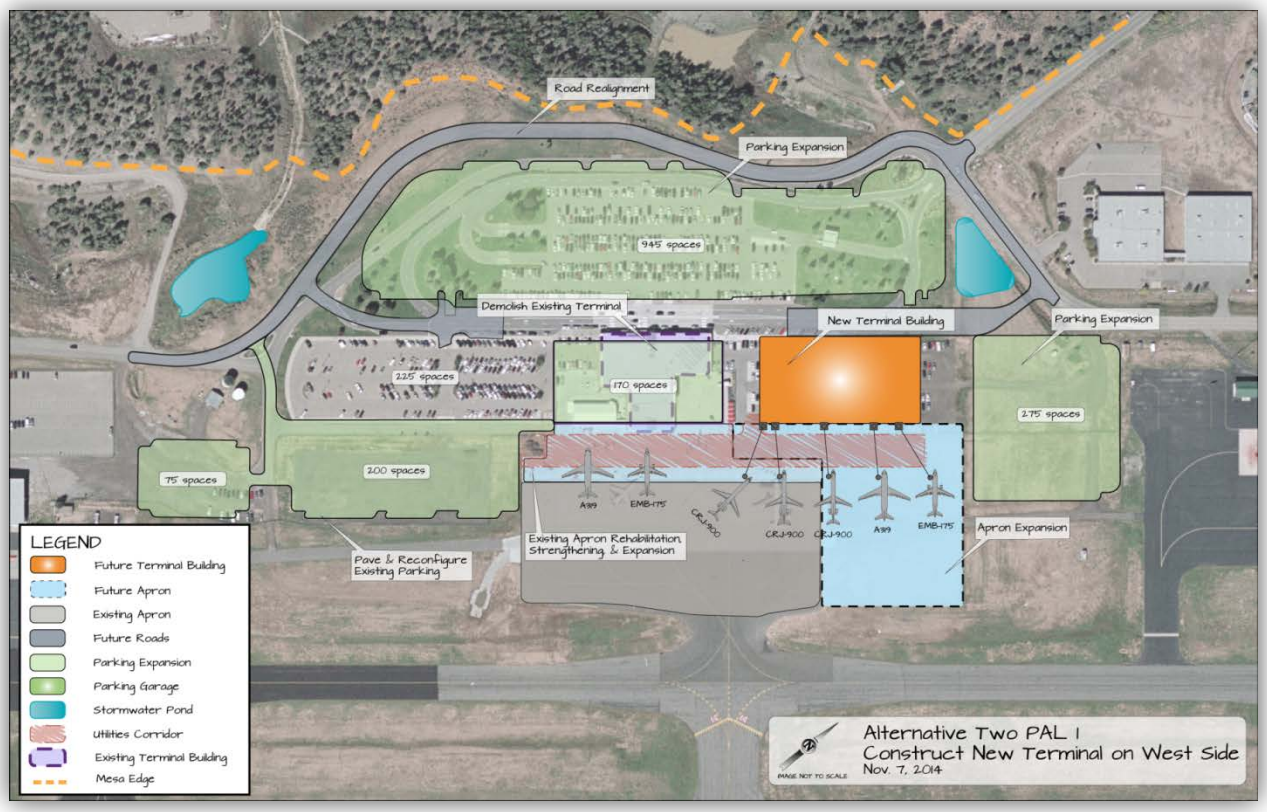
Note: Not to scale
Source: Jviation

5.4.3.2 Terminal Construction

An all-new terminal building would be constructed to meet the PAL 1 requirements. The existing building would need to be demolished after the new building was completed and the site reused for auto parking. High-performance modern systems would be used to capture the benefits of sustainable design principles and reduce operating costs of the new building. Design elements that reflect Durango's image would be incorporated into the project. Some phasing would be needed to minimize impacts to the normal airport

operations, primarily because there is very little area for contractors to stage equipment and materials outside of areas needed for normal airport operations. New boarding lounges would be constructed on a second level with boarding bridges. Concession areas meeting program requirements would be located both sides of the security checkpoint and sized to offer passengers options for food, beverage, and sundries. **Figure 5-8** depicts a terminal concept for PAL 1.

FIGURE 5-8 - ALTERNATIVE TWO – TERMINAL CONCEPT: PAL 1



Note: Not to scale
Source: Jviation

5.4.3.3 Airside Expansion

The apron must be extended to the new terminal site.

5.4.3.4 Landside Expansion

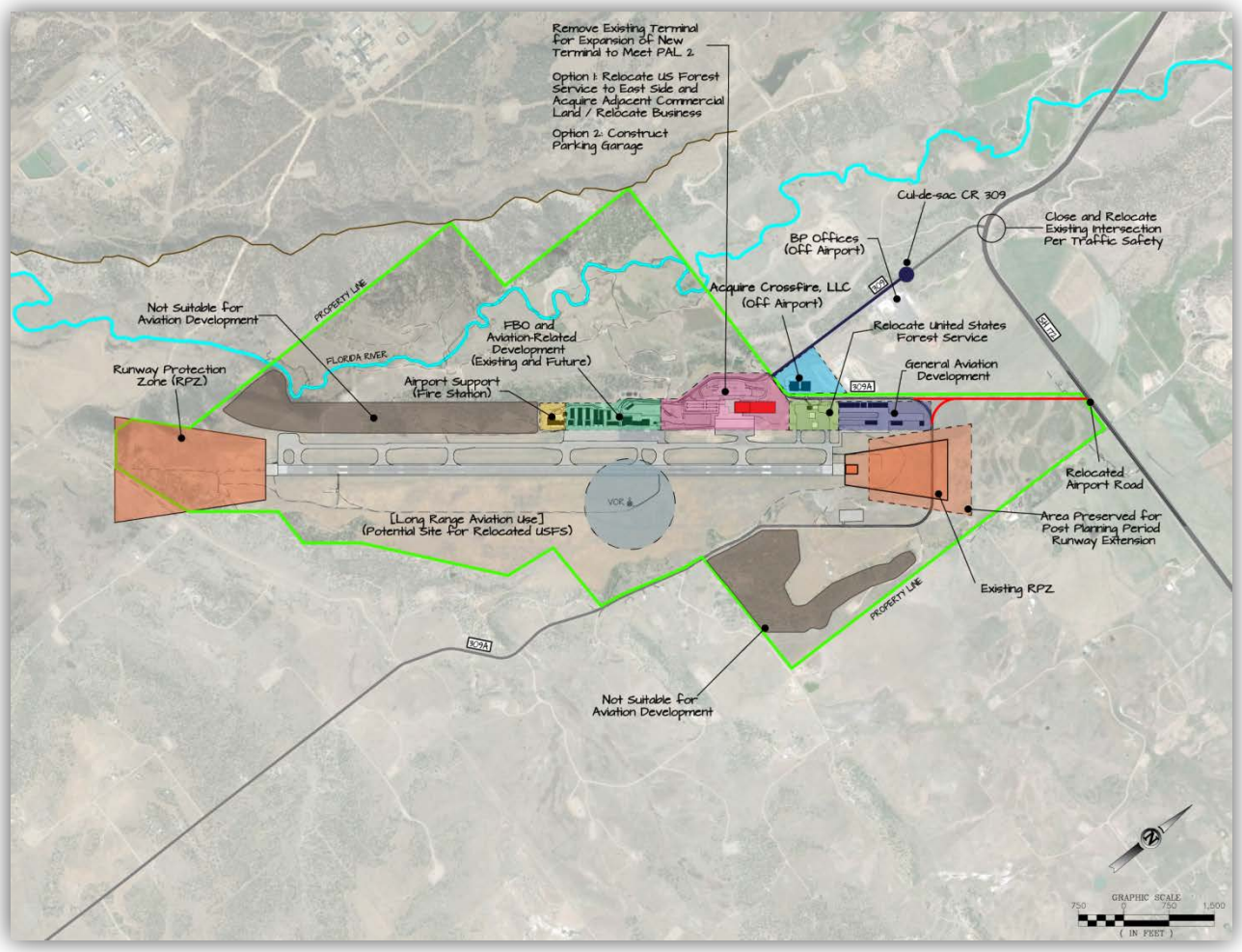
Additional landside infrastructure improvements include reconfiguring the terminal circulation road particularly in front of the new terminal building and parking areas, and constructing drainage improvements.

After the existing terminal building is demolished, the area would need to be paved, following the opening of the new terminal.

5.4.3.5 Program Elements for PAL 2

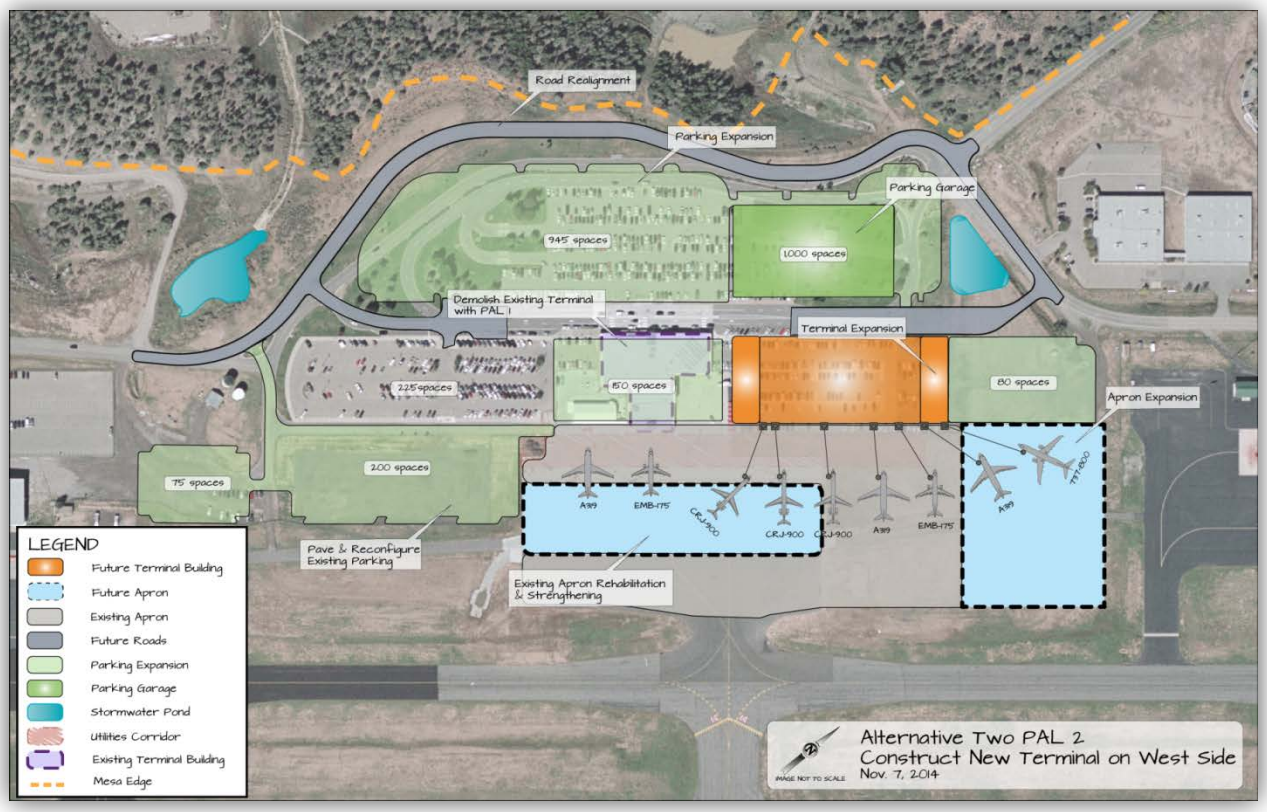
Figure 5-9 depicts the distribution of developed land on the airport as well as the new airport entrance road location. Two options to having to build the parking garage are depicted should other approaches be preferred at the time when the project is needed. The acquisition and relocation of private buildings and/or the relocation of US Forest Service facilities to another part of the airport are assumed to have similar costs, without the customer convenience and potential return on investment of a parking garage. **Figure 5-10** depicts the terminal concept for PAL 2.

FIGURE 5-9 – ALTERNATIVE TWO – SITE OVERVIEW: PAL 2



Note: Not to scale
Source: Jviation

FIGURE 5-10 ALTERNATIVE TWO – TERMINAL CONCEPT: PAL 2



Note: Not to scale
Source: Jviation

5.4.3.6 Selection Criteria Analysis

The following text details the evaluation factors in relation to Alternative Two.

Qualitative*:*

- *Minimizes construction phasing impacts to tenants and users:* This alternative would require significant landside phasing for existing operations to continue as the new terminal displaces parking and roadway infrastructure. Phasing is also critical in relation to utility services to maintain service without interruption. Disruptions to normal operations are to be anticipated which would cause passenger and tenant inconveniences. The phasing would also extend the construction period, thereby extending passenger and tenant inconvenience and increasing costs. However, new construction requires less phasing during building construction and changeover.
- *Incorporates sustainable design elements where appropriate:* Economic growth would result from this alternative due to the expanded terminal space and associated infrastructure (apron, parking, etc.) as it would allow for additional airline operations and tenants. However, growth is limited due to site constraints previously discussed. Alternative Two has minimal impact on existing environmental resources but would require use of new materials. Construction of a new terminal provides ample opportunities to incorporate sustainable features. However, this alternative does require the demolition of the existing terminal in order to provide required parking. Lastly, the alternative is limited to meeting demand through PAL 2. Expansion beyond PAL 2 would require land acquisition, relocation of facilities to east side, or airport relocation, all which comes with significant costs. Consequently, it may not meet the community's and region's need beyond 20 years.

Quantitative*:*

- *Meets the 20-year facility requirements, plus room to grow:* Alternative Two meets the planning period needs; however, expansion beyond PAL 2 would require development of the east side or airport relocation.
- *Balances benefits and costs:* The key benefit for choosing Alternative Two is the limited re-use of existing infrastructure, which may decrease costs compared to new infrastructure. Alternative Two can be implemented in phases to meet funding requirements or meet a lower level of service if desired. However, because the terrain drops off to the west, expansion to meet PAL 2 comes at a significant cost due to parking need requirements. A parking structure would temporarily displace hundreds of spaces and cost an estimated $25 million dollars which must be funded locally because the facility is ineligible for grant funding assistance. Also, the phasing would extend the construction period and increase unit costs.

Another factor is the fact that the available land on the other side of the airfield remains difficult to put into productive use. Also there is very little land that can be offered to potential aviation-related businesses that may look to locate in Durango. The ability to feasibly develop airport land offers the opportunity to diversify the airport's revenues and increase the economic activity in the region.

Table 5-2 provides the Rough Order Magnitude cost estimate for Alternative Two. The PAL 1 costs are shown separately from the PAL 2 costs, but the total amount is considered necessary to fully meet the requirements for the 20-year planning period.

TABLE 5-2 – ALTERNATIVE TWO COSTS

Terminal Building Costs	**PAL 1**	**PAL 2**
Construct New Terminal	$39,235,665	$9,490,215
Passenger Boarding Bridges	$2,625,000	$1,050,000
Demolish Existing Terminal	$231,000	
Site Costs		
Earthwork	$1,704,000	$888,800
Utilities	$1,977,700	$385,000
Apron Construction	$4,881,200	$2,466,400
Apron Replacement		$3,263,900
Parking Lots	$5,519,100	$274,300
Structured Parking		$25,000,000
Roadways/Access	$5,398,400	
Total Construction Cost	**$61,572,065**	**$42,818,615**
Design and Program Management		
Program Management	$3,078,603	$2,140,931
Design	$3,694,324	$2,569,117
Construction Management	$4,310,045	$2,997,303
Contingencies	$6,157,207	$4,281,862
Total ROM Cost	**$78,812,243**	**$54,807,827**
Total ROM Cost Combined: PAL 1 & 2		**$133,620,070**

Note: Costs are shown in today's dollars
Source: Jviation

5.4.4 Alternative Three: Construct New Terminal Complex on East Side of Airfield

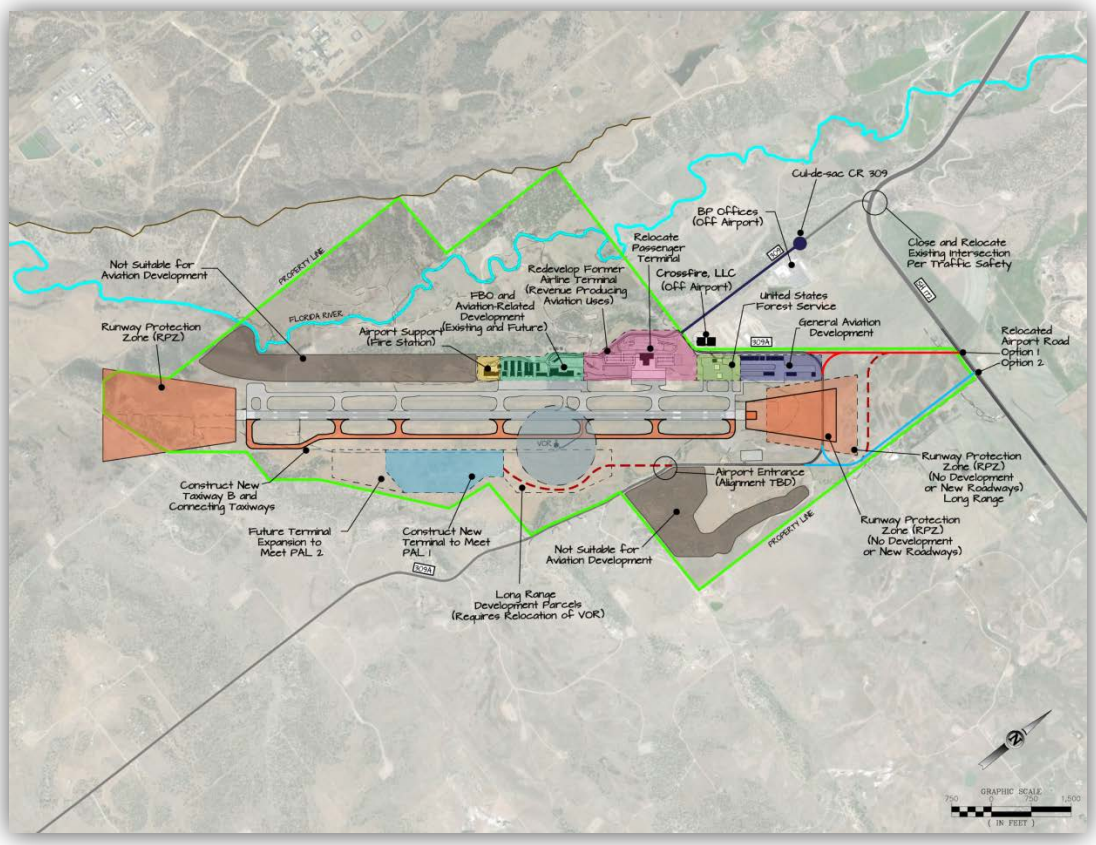
5.4.4.1 Overview for PAL 1

Alternative Three involves construction of all-new terminal facilities on the east side of the airfield on undeveloped land. This alternative seeks to utilize airport-owned land that is available for development but has not been considered accessible due to the barriers such as utility extension and access. Construction of a

new terminal, aircraft parking apron, parallel taxiway, auto parking, and access roadways to SH 172 would be required. The former terminal location would then be made available for lease or redevelopment; this concept does not include any costs.

Figure 5-11 provides a site overview for PAL 1 development.

FIGURE 5-11 – ALTERNATIVE THREE – SITE OVERVIEW: PAL 1



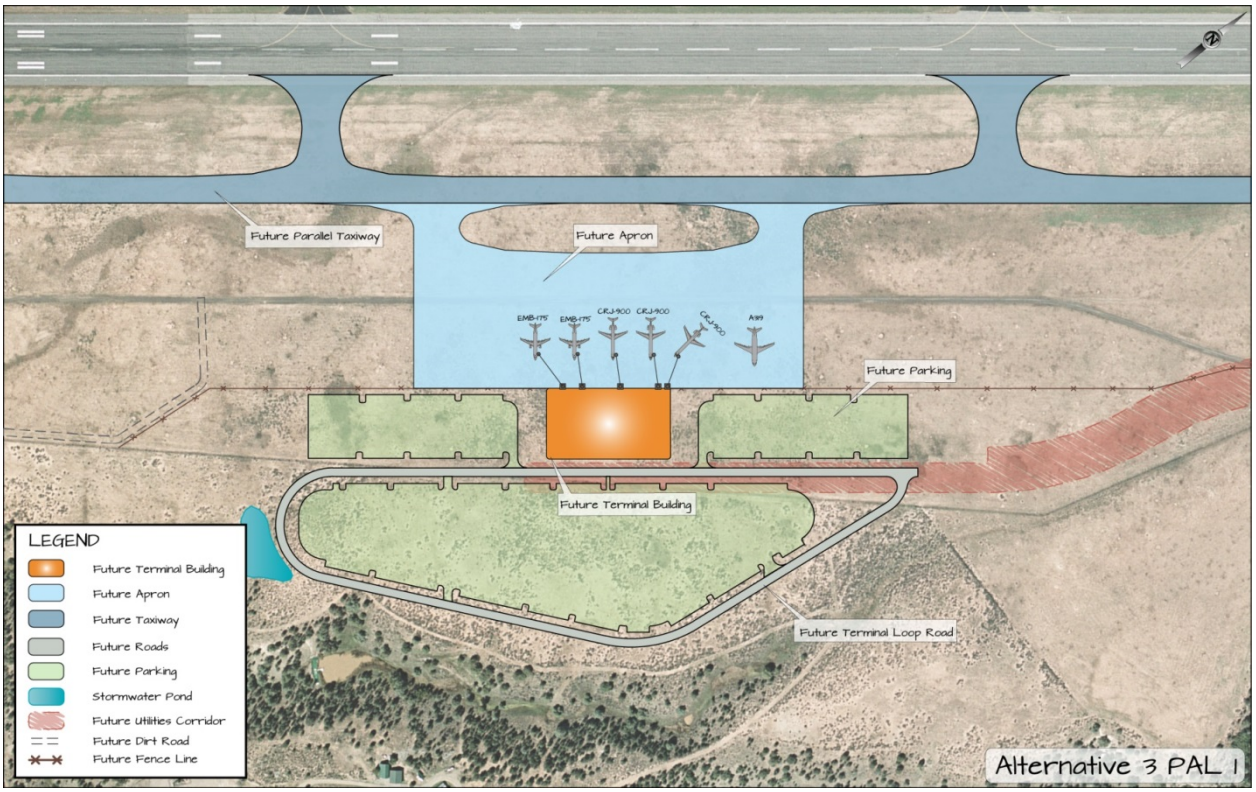
Note: Not to scale
Source: Jviation

5.4.4.2 Terminal Construction

An all-new terminal building would be constructed to meet the PAL 1 requirements. High-performance modern systems would be used to capture the benefits of sustainable design principles and reduce operating costs of the new building. No phasing would be needed, as airport operations will not be affected by construction. New boarding lounges would be constructed on a second level with boarding bridges. Design elements that reflect the Durango image would be incorporated into the project, especially considering the unobstructed views to the west overlooking the airfield from the boarding lounge. Concession areas meeting program requirements would be located both sides of the security checkpoint and sized to offer

passengers options for food, beverage, and sundries. Sustainable design elements would be featured throughout the site development. **Figure 5-12** illustrates the terminal concept for PAL 1.

FIGURE 5-12 – ALTERNATIVE THREE – TERMINAL CONCEPT: PAL 1



Note: Not to scale
Source: Jviation

5.4.4.3 Airside Construction

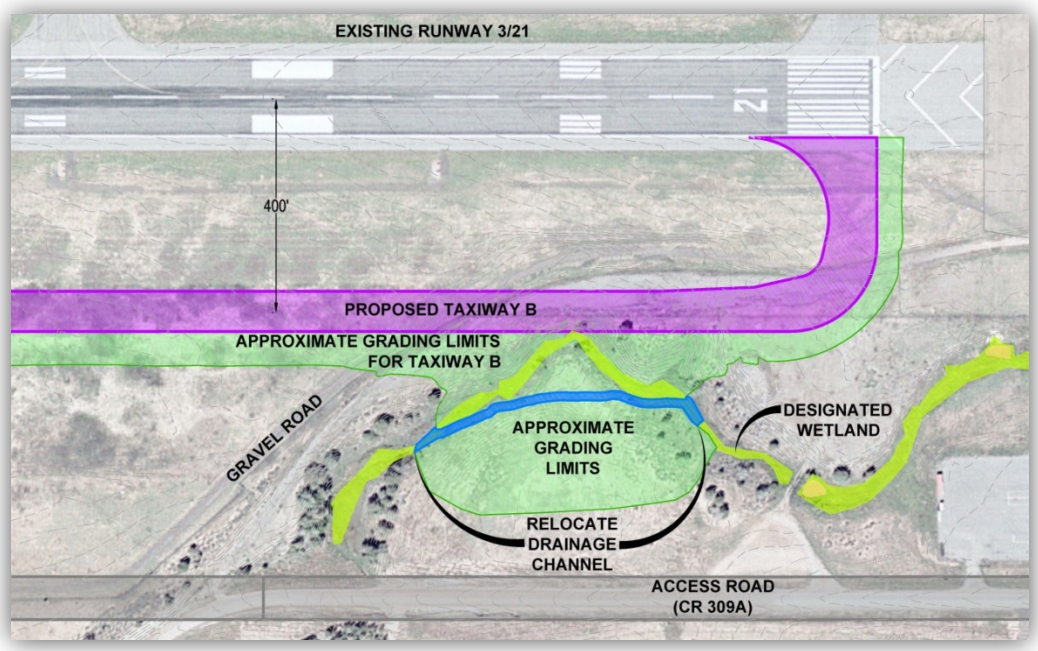
To provide terminal service on the east side of the runway, a new parallel taxiway, Taxiway B, would be required to allow for safe and efficient aircraft movement. Six connector taxiways would be constructed and edge lighting and airfield signage installed, with the required 400-foot taxiway-to-runway separation and various electronic navigational aids relocated outside of the safety areas. The final location would be outside of the safety areas for the runway and taxiway. An FAA flight check would be required with any modification to the critical area or the equipment. One notable design note is that the south end of Taxiway B would remain within a critical area for the Glideslope antenna, thus hold lines are proposed on either side of the critical area, a commonly used mitigation strategy. This approach allows for considerable savings because the area features sloping terrain that would otherwise require additional earthwork.

At the north end of Taxiway B, the vertical and horizontal alignment would impact an existing drainage channel (see **Figure 5-13**). In this location the drainage channel would need to be filled in and

embankment depths are expected to range from 20 to 30 feet deep. The drainage channel contains waters of the U.S. (wetland/stream) that would be impacted by this fill condition. A Section 404 permit would be required. The new parallel taxiway would also encroach upon potential endangered species habitat (see **Section 2.14.4** for detail). USFWS protocol surveys would be required prior to development and mitigation may be necessary.

The proposed Taxiway B and access road would also pass through the critical area for navigational equipment called a VOR. Stopped vehicles and aircraft in the critical area can interfere with the VOR operation. It's not clear whether FAA would approve leaving the VOR in place given the proximity to taxiing aircraft and occasional vehicles on the adjacent Taxiway B. Options to mitigate this possible disruption include: relocate the VOR, eliminate the VOR, relocate the access road, or upgrade the VOR.

FIGURE 5-13 – TAXIWAY B GRADING IMPACT



Note: Not to scale
Source: Jviation

The current ALP depicts the VOR's relocation, although a final location was not determined. The current ROM cost estimate does not include costs to relocate the VOR. Discussions on the VOR have included decommissioning it, but this would require a significant amount of coordination with the FAA and is not the ideal mitigation option. If the impacts to the critical area due to aircraft on Taxiway B can be accommodated, the access road could be realigned to avoid the critical area. Another option that has been discussed is upgrading the VOR to include newer technologies that may have a reduced critical area. The final solution will be determined with coordination through the FAA and the airport.

The storm water drainage for Taxiway B would be directed to the south through infield drainage ditches and culverts, intercepted south of the new terminal complex, and diverted under Taxiway B to a new detention pond. The remaining storm water from the terminal complex to the south would drain to a new detention pond located just east of the Runway 3/21 blast pad. Use of the existing detention ponds on the west side of the runway would require a large amount of piping and would be cost prohibitive.

The new terminal building would be centered on the terminal apron and would have the ability to expand to the north and south to meet PAL 2 and beyond.

In order to accommodate the new development area, a new electric vault would be installed on the east side of the airfield near the terminal development. This new electric vault would replace the existing and provide power to the entire airfield lighting system.

5.4.4.4 Landside Construction

A new road would also be constructed from the improved section of CR 309A up to a new terminal loop road. As CR 309A is currently located below the mesa, the new access road would need to climb up the slope to reach the Alternative Three site. This will require large cuts and fills to meet grade requirements. Landscaping berms may be considered to lessen the visual impact of the new roadway as it climbs the mesa. A new circulation road would be required to support the terminal development on the east side. The circulation road would include two 12-foot lanes with curb and gutter and two five-foot sidewalks. Additional lanes may be needed at intersections and in front of the terminal to increase safety and improve traffic flow.

Parking has been defined in three areas which have the potential to be expanded to the north and south to accommodate future growth. The storm water in these lots would be collected by a system of inlets and underground storm sewer pipes and conveyed to a new detention pond. Allowable ponding depths at inlets in parking areas would be carefully considered to balance inlet efficiency and passenger comfort. Utility infrastructure for the parking lots would include lighting and revenue control. Electrical and communications ducts and wiring would be required.

5.4.4.5 Infrastructure

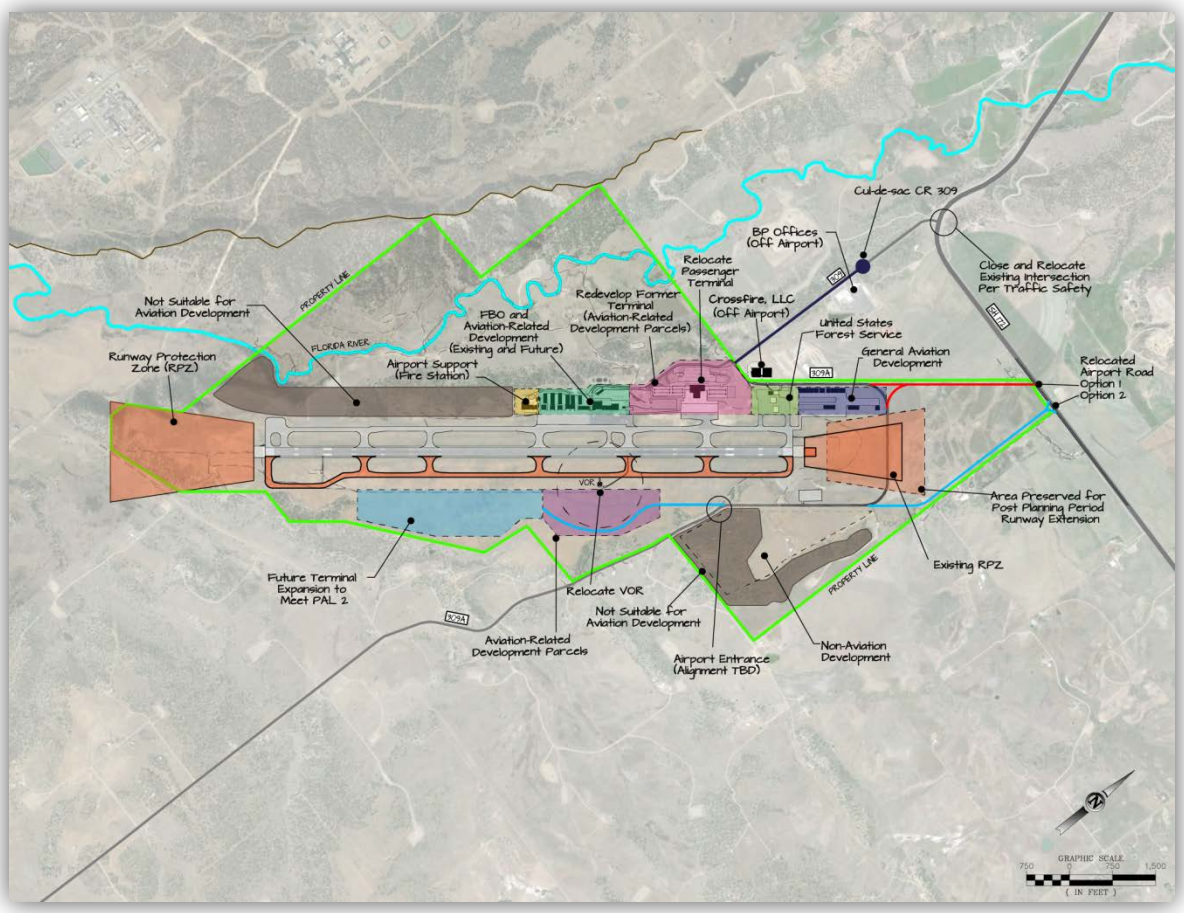
To support a new terminal building on the east side of the runway, new utility infrastructure would be required. The utility infrastructure required for the new terminal building includes water, sanitary sewer, storm sewer, natural gas, electric, communications, and irrigation. The majority of utilities would be installed using open trench construction with granular bedding. Most of these utility systems would be extended from the existing infrastructure on the west side of the runway. The proposed utility corridor on the north end would be adjacent to a potentially eligible historic site as defined in the Phase I Cultural

Resources Report. Coordination with the State Historic Preservation Office (SHPO) and an additional survey may be required due to the close proximity.

5.4.4.6 Program Elements for PAL 2

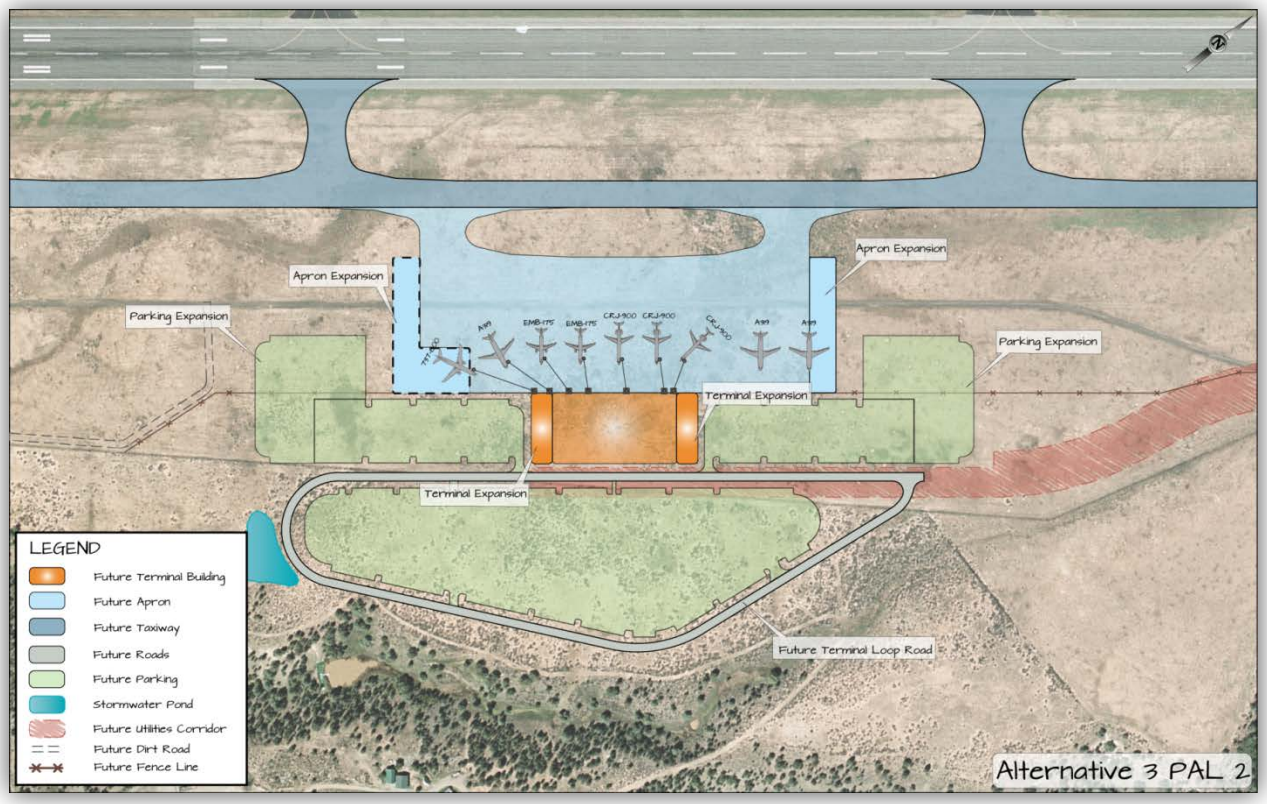
The terminal building and aircraft parking apron expansion will not affect the ability to provide the additional auto parking required for PAL 2. The ability to provide this parking in surface lots significantly reduces the costs to meet PAL 2 for Alternative Three. **Figure 5-14** and **Figure 5-15** illustrate the overall and terminal concept development for PAL 2, respectively.

FIGURE 5-14 – ALTERNATIVE THREE – SITE OVERVIEW: PAL 2



Note: Not to scale
Source: Jviation

FIGURE 5-15 – ALTERNATIVE THREE – TERMINAL CONCEPT: PAL 2



Note: Not to scale
Source: Jviation

5.4.4.7 Selection Criteria Analysis

The following text details the evaluation factors in relation to Alternative Three.

Qualitative:

- *Minimizes construction phasing impacts to tenants and users:* The new terminal site would be constructed on the east side of the airfield, allowing operations to continue at the existing facility on the west side without interruption. This alternative would not require phasing as construction would take place on a new site. Therefore, passenger/tenant inconvenience would not occur as immediate changeover to the new terminal would occur upon completion.
- *Incorporates sustainable design elements where appropriate:* This alternative provides significant opportunities for economic growth as it opens the east side of the airfield to development for the new terminal site and allows the existing west side terminal area to be repurposed for other aviation related revenue producing development. Although this alternative would impact wetlands and have the potential to impact endangered species habitat, all mitigation measures would be met to meet regulatory agency requirements. Construction of a new terminal provides ample opportunities to incorporate sustainable features and limit energy and water use. This alternative would also provide the community and region an option that extends well beyond the needs of PAL 2, thereby reducing impacts to resources in the future.

Quantitative:

- *Meets the 20-year facility requirements, plus room to grow:* Alternative Three meets the planning period needs with the ability to feasibly expand beyond the planning horizon.
- *Balances benefits and costs:* Development costs are high in PAL 1 to develop the east side; however, it opens up the airport-owned land on the east side for development and revenue production, effectively enlarging the Airport. Also, the former terminal and apron would allow for the recruitment of aviation-related uses, which promotes additional revenue diversification and economic development. Costs to meet PAL 2 are significantly reduced.

Table 5-3 provides the Rough Order Magnitude cost estimate for Alternative Three. The PAL 1 costs are shown separately from the PAL 2 costs, but the total amount is considered necessary to fully meet the requirements for the 20-year planning period.

TABLE 5-3 – ALTERNATIVE THREE COSTS

Terminal Building Costs	PAL 1	PAL 2
Construct New Terminal	$37,367,300	$9,490,215
Passenger Boarding Bridges	$2,625,000	$1,050,000
Site Costs		
Earthwork	$6,164,500	$838,500
Utilities	$4,616,000	$385,000
Apron Construction	$9,773,100	$2,231,200
Taxiway Construction	$15,873,800	-
Parking Lots	$5,247,200	$1,380,900
Structured Parking		-
Roadways/Access	$7,957,000	-
Total Construction Cost	**$89,623,900**	**$15,375,815**
Design and Program Management		
Program Management	$4,481,195	$768,791
Design	$5,377,434	$922,549
Construction Management	$6,273,673	$1,076,307
Contingencies	$8,962,390	$1,537,582
Total ROM Cost	**$114,718,592**	**$19,681,043**
Total ROM Cost Combined: PAL 1 & 2		**$134,399,635**

Note: Costs are shown in today's dollars
Source: Jviation

Table 5-4 compares the costs of the three alternatives.

TABLE 5-4 – ALTERNATIVE COST SUMMARY

	PAL 1	PAL 2	TOTAL
Alternative One: Renovate and Expand	$83,276,528	$58,241,536	$141,518,064
Alternative Two: Construct New - West	$78,812,243	$54,807,827	$133,650,070
Alternative Three: Construct New - East	$114,718,592	$19,681,043	$134,399,635

Note: Costs are shown in today's dollars
Source: Jviation

5.4.5 Comparison of Cost Estimates

The analysis of the alternatives based solely on cost shows that the lowest cost alternative to meet the existing need and the projected need through PAL 1 is Alternative Two. This is due mostly to the ability to take advantage of the proximity of utilities and reutilize some aircraft parking apron. The alternative also does not require the construction of a taxiway and avoids most of the phasing issues associated with extensive renovation of a terminal while it is in operation. However, the auto parking becomes the big challenge and is the key weakness of the concepts on the existing west side of the airfield.

Surface parking cannot be feasibly created or conveniently located without the construction of a parking structure. Thus with the 20-year needs in mind, the costs equalize in PAL 2.

The key drivers of cost for Alternative Three are the preparation of the site with earthwork, drainage, and utilities. An added expense is the construction of a new taxiway. These one-time costs are required in PAL 1 but don't carry forward to future PALs. The PAL 1 cost is considerably higher than Alternatives One and Two, however the return is that the airport gains half of an airport that can be put into productive use and re-use.

The benefits to taking on a larger PAL 1 project is that the future expansions for PAL 2 and beyond are much less costly.

5.4.6 Summary

Numerous technical observations per industry standards have been made based upon the alternative discussion and analysis as described in the following text.

DRO is projected to add 1.9 to 3.5 percent additional passengers each year. The facilities should expect to handle between 300,000 and 400,000 annual passengers (enplanements) by the end of the 20-year planning period (2035).

There are no "low cost" approaches that will satisfy the needs for today. None of the alternatives that satisfy today's needs has a comparatively low cost. Expansions to meet future needs (PAL 2) do have wide differences in cost to consider.

The terminal building is undersized for the current demand.

- Required today: 82,000 square feet and existing building is 37,000 square feet.
- Plan to accommodate 140,000 square feet at end of planning period.
- Corroborated by airlines (surveys and focus group).

The parking system capacity is at failure today

- Main and Credit Card lots are full most days.
- Unpaved Overflow lots are often filled even on off-peak days
- Required spaces: 1,500 needed today (existing is 1,100 paved/unpaved combined)
- Plan to Accommodate: 2,400 spaces

Additional aircraft apron is required with all obstruction clearances met.

- Per airline and aircraft manufacturer forecasts and orders, airlines are going to be flying larger regional aircraft placing a higher peak demand on the processing systems.
- The size of the aircraft parking apron limits the number of aircraft to four simultaneously
- DRO is hampered in its ability to recruit new airline service with overnight capability
- Required today: 5 parking positions plus room to feasibly expand
- Plan to accommodate: 7 parking positions plus two RON

5.5 Selection of the Preferred Alternative

Alternatives were presented to the PAC, Airport Commission, public and elected officials to obtain their preferred alternative. The PAC and Airport Commission were asked to fill out an evaluation matrix to rank the alternatives based upon the evaluation criteria as presented in this chapter. The evaluation matrix and results are presented in **Appendix M**. Both the PAC and Airport Commission determined that Alternative Three had the greatest ability to meet the evaluation criteria; however, both groups expressed concern about how PAL 1 would be funded. This concern needed to be addressed prior to presenting the recommendation to the public and elected officials.

In order to measure the financial impact to the local community, the Consultant and Sponsor coordinated with the FAA to obtain an estimate of what could be anticipated from federal funding. The FAA's indicated that funding requests up to $35 to $40 million would be considered and noted that a matching amount from local and other funding would increase likelihood of FAA funding. Consequently, a project budget of $80 to $90 million was set as a goal. Because PAL 1's costs exceeded the new budget, the analysis was re-tooled and a new PAL was created, PAL 0. PAL 0 is based upon meeting today's needs as listed below:

- Terminal – 82,000 square feet
- Parking – 1,500 spaces
- Gates – 4
- Remain Overnight Parking Positions (RON) – 1

Terminal items were then placed in two categories, scalable and non-scalable, to determine the best way to meet the budget as shown in **Table 5-5**. Items not considered were the fuel farm and wash rack as they are owned the FBO and rental car concessions, respectively. These items may be relocated to the east side should the owners decide maintaining the facilities on the west side of the airfield is not conducive to efficient operations.

TABLE 5-5 – TERMINAL PROGRAM ELEMENTS: SCALABLE VERSUS NON-SCALABLE

Scalable	Non-Scalable
Parallel Taxiway: construct partial parallel taxiway to minimize construction costs and wetland mitigation	Grading
Entrance Roadway: maintain current intersection	Permitting
Apron: construct space to meet today's needs of four gates and one RON	Utilities
Gates: four gates to meet today's needs	Basic Access
Jet Bridges: defer bridges at initial PAL	Terminal Core
Terminal Size: construct terminal to meet today's needs	

Source: Jviation

Further coordination with the PAC and Colorado Department of Transportation resulted in the need to include the new entrance roadway due to existing safety concerns with the intersection and forecasted increase in demand. The development cost for the new PAL 0 fell at $75.3 million (today's dollars), within the acceptable range of $80 to $90 million (construction year costs).[3] This new analysis was presented to the PAC and Airport Commission on January 15, 2015. The PAC and Airport Commission recommended Alternative Three, PAL 0 as the preferred alternative.

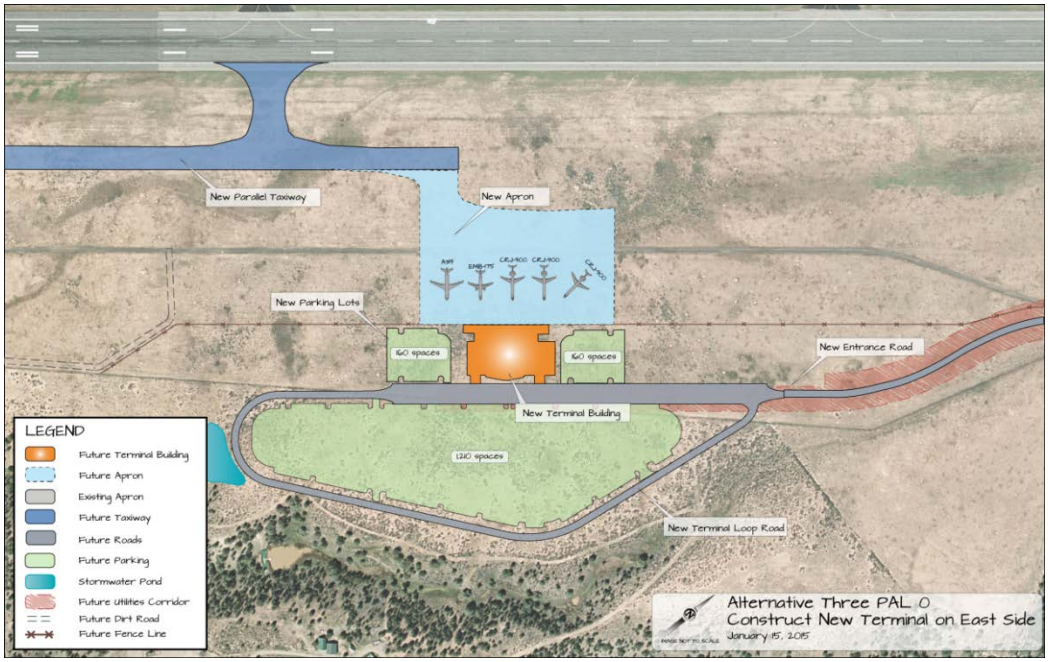
A second public open house displaying each alternative, including PAL 0, was held on January 21, 2015 and the majority of comments received were in favor of Alternative Three, PAL 0. Comments and responses received at both open houses are in **Appendix N**.

The County and City were presented with the new analysis and recommendations from the PAC, Commission, and public on February 10, 2015 at the joint study session. It was concluded that the Alternative Three was the preferred alternative and would meet the long-term demand for the region.

Alternative Three, PAL 0 development is shown in **Figure 5-16.**

[3] PAL 0 is projected to cost $85.4 million at time of construction, which falls within the acceptable range of $80 to $90 million; see **Chapter 7, Financial Analysis** for further explanation and additional details.

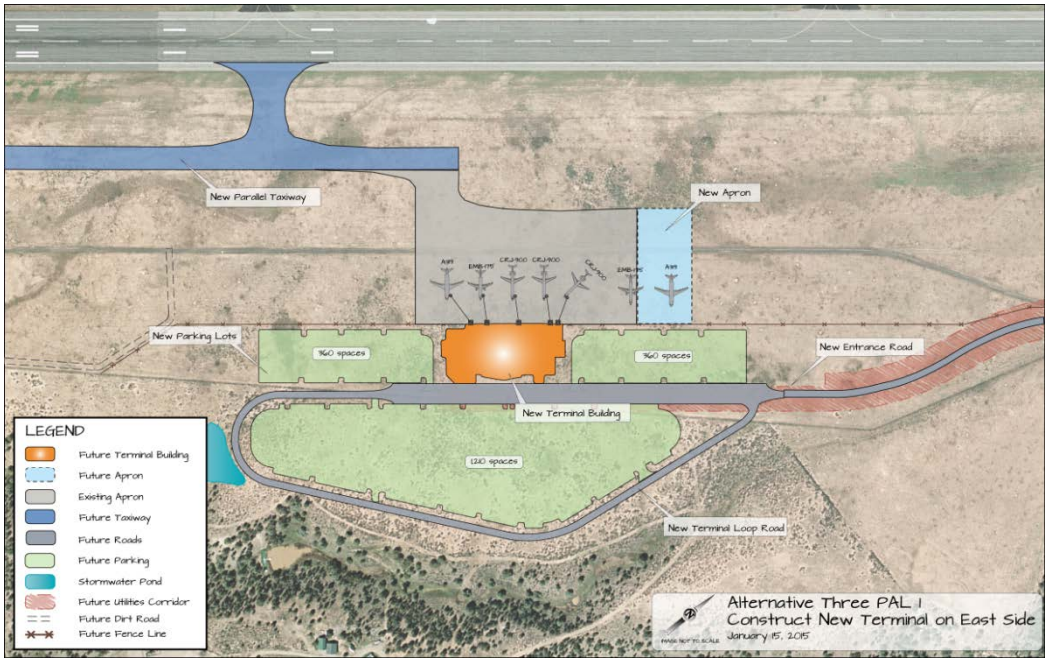
FIGURE 5-16 – ALTERNATIVE THREE - PAL 0



Note: Not to scale
Source: Jviation

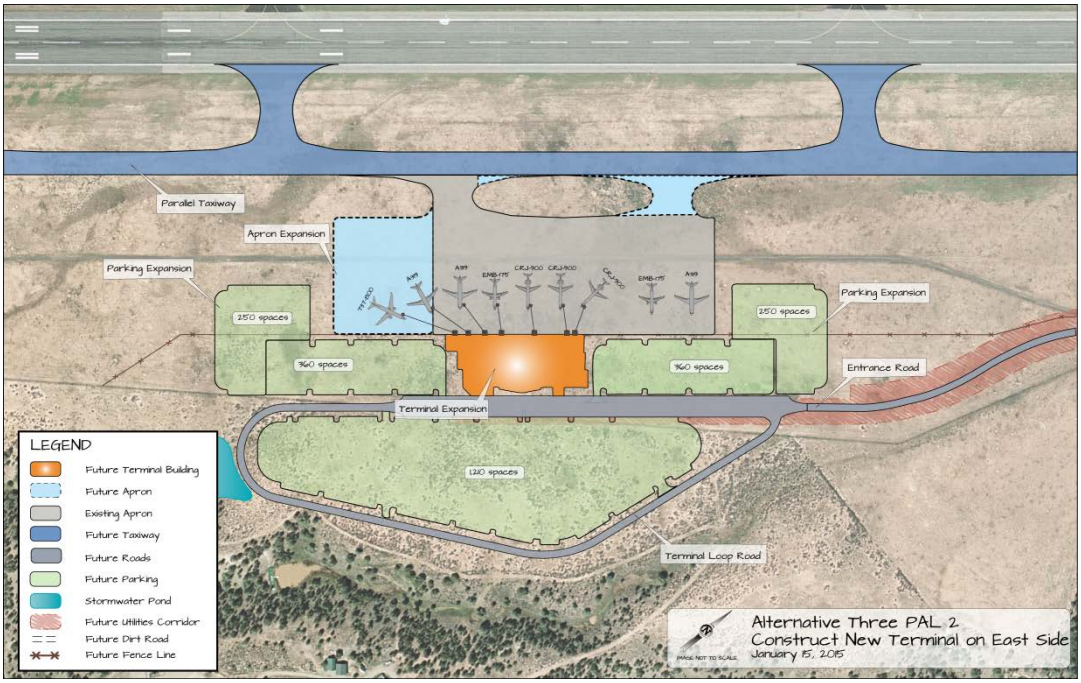
Figure 5-17 and **Figure 5-18** depict growth into PAL 1 and PAL 2, respectively. **Table 5-6** details the costs for PAL 0, PAL 1, and PAL 2.

FIGURE 5-17 – ALTERNATIVE THREE - PAL 1



Note: Not to scale
Source: Jviation

FIGURE 5-18 – ALTERNATIVE THREE - PAL 2



Note: Not to scale

Source: Jviation

TABLE 5-6 – ALTERNATIVE THREE (PREFERRED) COSTS

Terminal Building Costs	PAL 0	PAL 1	PAL 2
Construct new terminal	$26,200,000	$9,750,000	$9,300,000
Passenger boarding bridges	-	$3,750,000	$1,500,000
Site Costs			
Earthwork	$2,548,100	$495,196	$1,994,900
Utilities	$4,616,000	-	$385,000
Apron Construction	$7,089,000	$2,690,500	$2,231,200
Taxiway Construction	$8,343,600	-	$10,734,863
Parking Lots	$4,142,526	$1,104,674	$1,380,900
Roadways/Access	$6,398,200	-	-
Total Construction Cost	**$59,337,426**	**$17,790,370**	**$27,526,863**
Design and Program Management	**$15,975,356**	**$3,968,803**	**$6,897,521**
Total ROM Cost	**$75,312,782**	**$21,759,173**	**$34,424,384**
Total ROM Cost Combined: PAL 0, 1, & 2			**$131,496,339**

Note: Costs are shown in today's dollars

Source: Jviation

5.6 Secondary Development

Secondary development includes airport facilities that depend in part on the selection of the preferred location of the primary alternatives. These facilities primarily include general aviation development (hangars, apron, U.S. Forest Service, etc.). As the preferred alternative for terminal development relocates the facilities to the undeveloped east side of the airfield, the west side will be available for additional aviation activities and expansion of existing facilities. Redevelopment of the old terminal building and parking areas will be a priority for DRO due to their revenue producing potential by leasing to aviation related businesses.

Recommended development includes the following items which are also depicted on **Figure 5-19**:

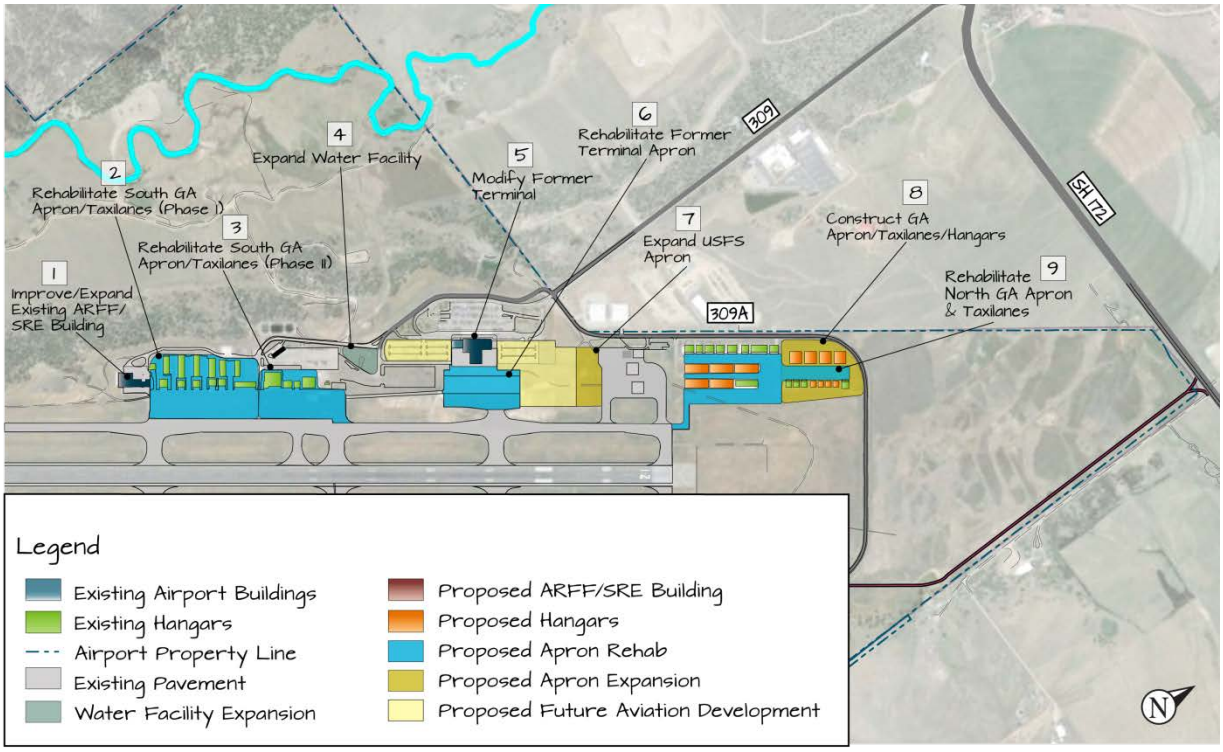
1. Improve/Expand ARFF/SRE building
2. Rehabilitate South GA Apron/Taxilanes (Phase I)
3. Rehabilitate South GA Apron/Taxilanes (Phase II)
4. Expand water facility
5. Modify former terminal
6. Rehabilitate former terminal apron
7. Expand USFS apron
8. Construct GA apron/taxilanes/hangars
9. Rehabilitate North GA apron and taxilanes

Due to the nature of the proposed development, alternatives were not developed.

5.7 Summary

The selected terminal alternative, Alternative three, PAL 0, best serves the future of DRO. Relocating the terminal facilities to the east side provides the community with an airport that will meet current and future demands. General aviation development on the west side will have the opportunity to expand providing DRO with additional revenue producing growth. **Chapter 7, Capital Improvement Program and Financial Implementation**, details the phasing and funding of the proposed development within the planning period.

FIGURE 5-19 – GENERAL AVIATION DEVELOPMENT



Note: Not to scale

Source: Jviation

6.0 AIRPORT PLANS

Future development plans for DRO have evolved from a variety of considerations. Aviation activity forecasts, facility requirements, environmental considerations, and aircraft operational characteristics are among the many factors evaluated to develop a dependable basis for planning. Forecasts are utilized as a framework for planning; however, development and facilities are constructed to meet actual demand.

Previous chapters in this Master Plan have documented future development needs at DRO. The purpose of this chapter is to categorically review, summarize, and graphically detail various elements of the future airport development plan. These elements are represented in the Airport Layout Plan (ALP) drawing set for DRO through the inclusion of following drawings: the Airport Layout Plan, the Terminal Area Plan, the Airport Airspace Drawing – Part 77, Existing/Ultimate Airspace Approach Profiles, Inner Portion of the Approach Surface Drawings, Departure Surface Drawings, the Land Use Plan, and the Exhibit A Property Map.

The purpose of the ALP set of drawings is to graphically depict the existing and proposed airport facilities so that the relationships among the facilities, as well as the airport's setting in the context of adjacent uses, can be evaluated. The full array of protected land areas and airspace are drawn in plan view, allowing planners to identify these areas to ensure proper control over safety critical areas and develop plans that efficiently utilize all airport land. When the Federal Aviation Administration (FAA) conditionally approves and signs the ALP set, FAA can then fund development that is eligible for FAA participation, subject to environmental processing through the National Environmental Policy Act (NEPA). These conditions are described in a letter that accompanies the ALP set and must be met prior to implementing depicted development.

The ALP set of drawings were prepared according to relevant FAA Advisory Circulars and FAA Airports Division (ARP) Standard Operating Procedure No. 2.00 (October 1, 2013). The drawings were circulated among the various FAA lines of business that are affected by the development shown in the ALP set and their comments incorporated into the set. In accordance with FAA regulation the airport sponsor must keep the ALP up to date at all times. Thus, the ALP set that is included in this narrative report may not be current. At the time this narrative report was published, FAA signature was pending. Contact DRO or FAA Denver Airports District Office in order to view the latest approved ALP set.

Each sheet of the set is briefly described in the following text and included in this chapter narrative.

6.1 Cover Sheet

The cover sheet (Sheet 01 of 18) contains basic required information about the location of the airport along with an aerial overview of the airport's setting. The index of drawings for the entire 18-sheet drawing set orients the reviewer with the location and order of each sheet.

6.2 Airport Layout Plan (ALP)

The Airport Layout Plan - Future (Sheet 03 of 18) graphically represents the existing and future airport facilities required to enable the Airport to accommodate future demand. It provides detailed information pertinent to airport and runway design criteria, which is necessary to define relationships with applicable standards. For larger and more complicated airports the required information shown on the ALP may be provided on multiple sheets in order to enhance clarity and maintain a readable scale. For this set, tabulated data and wind roses have been included on a separate sheet (Airport Data - Sheet 02 of 18). These tables provide detail regarding the size, type, dimensions, and other design criteria applicable to the design standards DRO is planning to establish and maintain. Additionally, there are facilities that are planned for ultimate implementation, but not necessarily within the 20-year planning horizon. Because the ALP may only depict existing and future facilities (within 20 years from approval), these ultimate configurations are depicted on the Airport Layout Plan - Ultimate (Sheet 04 of 18).

Sheets 02 through 04, and the following paragraphs describe the key development depicted on the Airport Layout Plan.

6.2.1 Terminal Development

Without doubt, the most important development depicted on the ALP is the relocation of the passenger terminal to a site on the opposite side of the runway. This includes a new terminal building, apron areas, and a new parallel taxiway complex that provides safe and efficient access to the airfield. In addition, a new roadway connects State Highway 172 to the new terminal site and the parking facilities needed through 2035 with additional room for expansion.

Also depicted, but without specific development concepts, are areas for aeronautical development, redevelopment, and non-aeronautical development. One of the key features of the terminal relocation is the ability to reuse the former terminal site to accommodate expansion of adjacent uses or to accommodate the needs of a prospective aeronautical business wishing to locate at DRO. The redevelopment area shown over the former terminal site will be actively marketed for such aeronautical activity in order to put the land into productive use and to enhance and diversify the airport's revenues.

6.2.2 Taxiway System

As mentioned in Section 6.2.1, the terminal development on the east side of the runway will require a new parallel Taxiway B that separates the commercial apron from the runway and allows for safe and efficient movement of aircraft to each runway end. The Master Plan concludes that due to financial constraints the taxiway implementation should be phased. Taxiway B can be constructed without significant cost from the new terminal apron to the south, and will serve the main instrument approach and departure ends of the runway. To the north of the new terminal apron, Taxiway B will require more extensive earthwork, wetland mitigation, and the relocation of a major FAA navigation facility. Thus, the south taxiway segment will be constructed first, while the north portion will be implemented later in the planning period.

Other minor adjustments to taxiway exits are also shown that will prevent pilots from taxiing directly onto a runway without needing to turn. This planning concept was developed to prevent unintentional runway incursions that are a significant safety concern being addressed nationwide.

6.2.3 General Aviation Facilities

General aviation (GA) serves a crucial role at any airport. This segment includes all non-airline or military flying. The most visible facilities at airports related to GA activity are the hangars that are constructed to store aircraft. The land available for the development of new hangars is reaching capacity at DRO. With the relocation of the terminal complex there will be ample area for new general aviation development throughout the planning period and beyond. This development is shown on separate sheets of the ALP set (terminal area plans) at larger scales for clarity.

Hangar development could include a range of hangar sizes that meet the needs of third-party individuals and entities. Third-party developers will also establish the aprons that accompany new hangars and respective vehicle access/parking expansion. Construction is dependent upon the demand to accommodate transient aircraft and based aircraft. Activity demand and private investment will dictate the level of actual development; therefore, it is anticipated that construction will be phased over the 20-year planning period.

6.2.4 ARFF and SRE

Aircraft Rescue and Fire Fighting (ARFF) facility expansion is likely needed to meet the needs and facility requirements for ARFF as well as the storage of snow removal equipment (SRE). The options exist for either enlarging the existing facilities at the south end of the general aviation area or constructing new facilities on the former terminal site. Specific concepts were not prepared to depict this option as this is not a near term issue to address.

6.3 Terminal Area Plans

In order to provide additional required detail on the location, setbacks, dimensions, and other criteria applicable to buildings and aprons, larger scale terminal drawings have been prepared. The South GA Apron Area (Sheet 05 of 18) shows the aprons and buildings associated with general aviation facilities at the south end of the developed area on the west side of Runway 3/21. The existing terminal complex is detailed on Sheet 06 of 18, existing and proposed buildings and aprons associated with the US Forest Service operation and the general aviation area to the north are depicted on Sheet 07 of 18, and the new passenger terminal complex is shown on Sheet 08 of 18. Aside from additional dimensions and detail required by the FAA, these are enhanced scale drawings that are identical to the ALP (Sheet 03 of 18).

Terminal Area Plan drawings, as provided in Sheets 05 through 08.

DURANGO-LA PLATA COUNTY AIRPORT

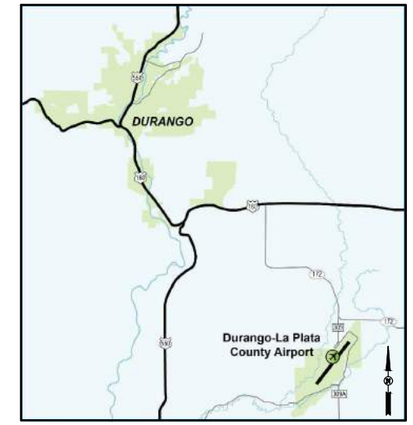
DURANGO, COLORADO

AIRPORT LAYOUT PLAN DRAWING SET

RESERVED FOR FAA APPROVAL LETTER

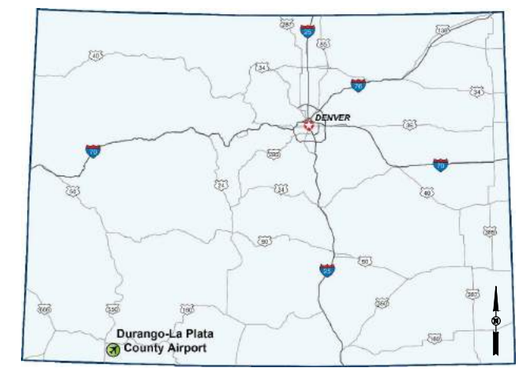
NOT TO SCALE

THE PREPARATION OF THIS DOCUMENT MAY HAVE BEEN SUPPORTED, IN PART, THROUGH THE AIRPORT IMPROVEMENT PROGRAM FINANCIAL ASSISTANCE FROM THE FEDERAL AVIATION ADMINISTRATION (PROJECT NUMBER 3-08-0019-044) 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 AIRPORT LAYOUT PLAN 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 APPROPRIATE PUBLIC LAWS.



VICINITY MAP

NOT TO SCALE

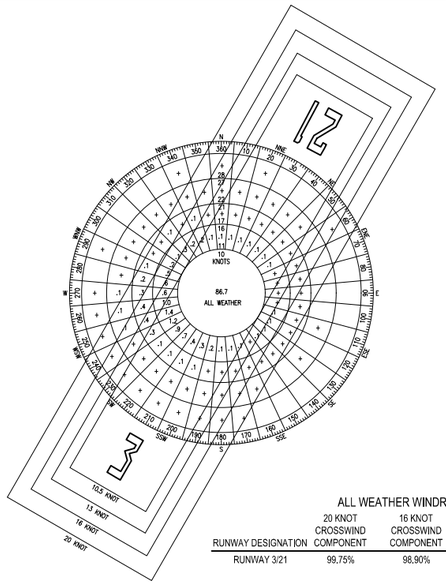


LOCATION MAP

NOT TO SCALE

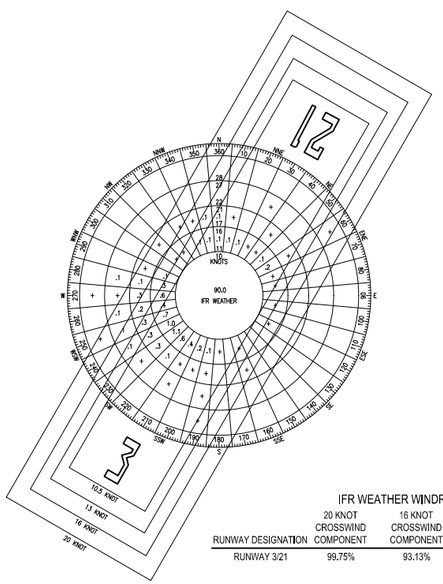
INDEX OF DRAWINGS

SHEET NO.	TITLE	REVISION DATE
01	COVER SHEET	
02	AIRPORT DATA SHEET	
03	AIRPORT LAYOUT PLAN – FUTURE	
04	AIRPORT LAYOUT PLAN – ULTIMATE	
05	TERMINAL AREA PLAN – SOUTH GENERAL APRON AREA	
06	TERMINAL AREA PLAN – EXISTING TERMINAL	
07	TERMINAL AREA PLAN – NORTH GENERAL APRON AREA	
08	TERMINAL AREA PLAN – FUTURE/ULTIMATE TERMINAL AREA	
09	AIRPORT AIRSPACE DRAWING	
10	AIRPORT AIRSPACE DRAWING	
11	AIRPORT AIRSPACE PROFILE	
12	AIRPORT AIRSPACE OBSTACLE TABLE	
13	INNER APPROACH SURFACE DRAWING – RUNWAY 3	
14	INNER APPROACH SURFACE DRAWING – RUNWAY 21	
15	RUNWAY DEPARTURE SURFACE DRAWING – RUNWAY 3	
16	RUNWAY DEPARTURE SURFACE DRAWING – RUNWAY 21	
17	LAND USE PLAN	
18	EXHIBIT A – AIRPORT PROPERTY INVENTORY MAPS	



ALL WEATHER WINDROSE

RUNWAY DESIGNATION	20 KNOT CROSSWIND COMPONENT	16 KNOT CROSSWIND COMPONENT	13 KNOT CROSSWIND COMPONENT	10.5 KNOT CROSSWIND COMPONENT
RUNWAY 3/21	99.75%	98.90%	96.93%	94.49%



IFR WEATHER WINDROSE

RUNWAY DESIGNATION	20 KNOT CROSSWIND COMPONENT	16 KNOT CROSSWIND COMPONENT	13 KNOT CROSSWIND COMPONENT	10.5 KNOT CROSSWIND COMPONENT
RUNWAY 3/21	99.75%	93.13%	98.03%	96.60%

RUNWAY DATA TABLE

ITEM	RUNWAY 3/21 EXISTING	RUNWAY 3/21 FUTURE	RUNWAY 3/21 ULTIMATE
RUNWAY DESIGN CODE (RDC)	D-IV-2,400'	SAME	SAME
RUNWAY REFERENCE CODE (RRC)	D-IV-2,400'	SAME	SAME
RUNWAY WIDTH AND LENGTH	150' X 9,201'	SAME	150' X 9,901'
RUNWAY SURFACE COMPOSITION	GROOVED ASPHALT	SAME	SAME
PAVEMENT DESIGN STRENGTH (LBS)			
SINGLE WHEEL GEAR (SWG)	95,000 LBS	SAME	SAME
DUAL WHEEL GEAR (DWG)	150,000 LBS	SAME	SAME
DUAL TANDEM GEAR (DTG)	210,000 LBS	SAME	SAME
PERCENT EFFECTIVE GRADIENT	0.8%	SAME	SAME
PCN	59 F/C/X/T	SAME	SAME
PERCENT WIND COVERAGE			
10.5 KNOT ALL WEATHER	94.49%	SAME	SAME
IFR	96.60%	SAME	SAME
20 KNOT ALL WEATHER	99.75%	SAME	SAME
IFR	99.75%	SAME	SAME
DISPLACED THRESHOLD ELEVATION	N/A	N/A	N/A
RUNWAY SAFETY AREA DIMENSIONS (RSA) *SEE NOTE 3	500' X 11,201'	SAME	500' X 11,901'
RUNWAY LIGHTING	HIRL	SAME	SAME
APPROACH RUNWAY PROTECTION ZONE (RPZ)	(3) 1,000' x 1,750' x 2,500' (21) 500' x 1,010' x 1,700'	(3) SAME (21) 1,000' x 1,510' x 1,700'	(3) SAME (21) SAME
DEPARTURE RUNWAY PROTECTION ZONE (RPZ)	500' X 1,010' X 1,700'	SAME	SAME
RUNWAY MARKING	PRECISION	SAME	SAME
APPROACH CATEGORY	(3) 50:1 (21) 20:1	SAME	SAME
APPROACH TYPE	(3) PRECISION (21) VISUAL	(3) SAME (21) PRECISION	(3) SAME (21) SAME
VISIBILITY MINIMUMS	(3) 1/2-MILE (21) VISUAL	(3) SAME (21) NOT LOWER THAN 3/4-MILE	(3) SAME (21) SAME
TYPE OF AERONAUTICAL SURVEY REQUIRED FOR APPROACH	(3) VERTICALLY GUIDED (21) VISUAL	(3) SAME (21) VERTICALLY GUIDED	(3) SAME (21) SAME
RUNWAY DEPARTURE SURFACE	(3) YES (21) YES	SAME	SAME
RUNWAY OBJECT FREE AREA (ROFA)	800' X 11,201'	SAME	11,901'
OBSTACLE FREE ZONE (OFZ)	400'	SAME	SAME
THRESHOLD SITING SURFACE (TSS)	(3) 34:1 (21) 20:1	SAME	SAME
TSS PENETRATIONS	(3) ROAD (21) NONE	SAME	SAME
VISUAL AND INSTRUMENT NAVAIDS	(3) MALSR, PAPI, ILS, VOR/DME (21) VASI, REIL	SAME	SAME
TOUCHDOWN ZONE ELEVATION (TDZE)	(3) 6,643.21' (21) 6,689.34'	SAME	SAME
TAXIWAY AND TAXILANE			
WIDTH	75'	SAME	SAME
SAFETY AREA (TSA)	171'	SAME	SAME
OBJECT FREE AREA (TOFA)	259'	SAME	SAME
TAXIWAY EDGE SAFETY MARGIN (TESM)	15'	SAME	SAME
RUNWAY SEPARATION	400'	SAME	SAME
LIGHTING	MITL	SAME	SAME
TAXILANE SEPARATION	215'	SAME	SAME
TAXILANE WIDTH	75'	SAME	SAME
TAXILANE OBJECT FREE AREA (TOFA)	225'	SAME	SAME
VERTICAL AND HORIZONTAL DATUM	NAVD88 (V), NAD83 (H)	SAME	SAME

AIRPORT DATA TABLE

ITEM	EXISTING	FUTURE	ULTIMATE
AIRPORT REFERENCE CODE (ARC)	D-IV	SAME	SAME
MEAN MAX. TEMP. - HOTTEST MONTH	88.9°	SAME	SAME
AIRPORT ELEVATION (MSL)	6,689.41'	SAME	SAME
AIRPORT & TERMINAL NAVAIDS *SEE NOTE 2	TAXIWAY LIGHTS, ROTATING BEACON, LIGHTED WIND CONE AND SEGMENTED CIRCLE, ASOS, RDR, VOR/DME	SAME	SAME
AIRPORT REFERENCE POINT (ARP)	LAT: 37°09'05.47" N LONG: 107°45'13.57" W	SAME SAME	LAT: 30°56'00.91" N LONG: 107°25'41.78" W
CRITICAL AIRCRAFT	BOEING 757-200	SAME	SAME
WINGSPAN	124.67'	SAME	SAME
TAIL HEIGHT	44.5'	SAME	SAME
UNDERCARRIAGE	10 WHEELS [1x2] + [2x4]	SAME	SAME
APPROACH SPEED	135 KNOTS	SAME	SAME
MAGNETIC VARIATION	9°35'7" E CHANGING BY 7.3' W ANNUALLY	SAME	SAME
NPIAS SERVICE LEVEL	PRIMARY COMMERCIAL SERVICE	SAME	SAME
STATE EQUIVALENT SERVICE ROLE	COMMERCIAL SERVICE	SAME	SAME

RUNWAY END DATA

ITEM	RUNWAY 3/21 EXISTING	RUNWAY 3/21 FUTURE	RUNWAY 3/21 ULTIMATE
RUNWAY END ELEVATIONS	(3) 6,619.74' (21) 6,689.34'	SAME	(3) SAME (21) 6,764.24'
TOUCHDOWN ZONE ELEVATIONS	(3) 6,643.21' (21) 6,689.34'	SAME	(3) SAME (21) 6,764.24'
RUNWAY END COORDINATES	(3) LAT: 37°08'29.33" N LONG: 107°45'48.05" W	SAME	(3) SAME SAME
	(21) LAT: 37°09'41.60" N LONG: 107°44'39.09" W	SAME	(21) LAT: 30°56'02.01" N LONG: 107°24'49.27" W
DISPLACED THRESHOLD ELEVATIONS	(3) N/A (21) N/A	SAME	SAME
DISPLACED THRESHOLD COORDINATES	(3) N/A (21) N/A	SAME	SAME

DECLARED DISTANCES

RUNWAY	TAKEOFF RUNWAY AVAILABLE (TORA)			TAKEOFF DIST. AVAILABLE (TODA)			ACCELERATE STOP DIST. AVAILABLE (ASDA)			LANDING DIST. AVAILABLE (LDA)		
	EXISTING	FUTURE	ULTIMATE	EXISTING	FUTURE	ULTIMATE	EXISTING	FUTURE	ULTIMATE	EXISTING	FUTURE	ULTIMATE
3	9,201'	SAME	9,901'	9,201'	SAME	9,901'	9,201'	SAME	9,901'	9,201'	SAME	9,901'
21	9,201'	SAME	9,901'	9,201'	SAME	9,901'	9,201'	SAME	9,901'	9,201'	SAME	9,901'

NOTES

1. ALL HORIZONTAL COORDINATES - NAD83/2011, ALL VERTICAL COORDINATES - NAVD88
2. OWNERSHIP OF NAVAIDS: (FAA) ASOS, VOR/DME
   (SPONSOR) TAXIWAY LIGHTS, ROTATING BEACON, LIGHTED WINDCONE, SEGMENTED CIRCLE, RDR
3. ACTUAL RSA DIMENSIONS MEET OR EXCEED STANDARDS FOR CRITICAL AIRCRAFT.

SOURCE

1. WIND DATA - NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, NATIONAL CLIMATIC DATA CENTER, STATION #72462-DURANGO, COLORADO. PERIOD OF RECORD 2000-2009.
2. MAGNETIC VARIATION - NATIONAL CENTER FOR ENVIRONMENTAL INFORMATION (NCEI), 12/2013.
3. GEOSPATIAL INFORMATION COMPILED BY WOOLPERT, INC. IN MAY 2015.

DRAWING LEGEND

ITEM	EXISTING	FUTURE
AIRPORT PROPERTY BOUNDARY		
AIRPORT PAVEMENT (ASPHALT/CONCRETE)		
BUILDING/HANGAR		
PHASED EXPANSION AREA (FUTURE)		
WETLANDS		
REMOVE		
RUNWAY PROTECTION ZONE (RPZ)	RPZ	RPZ(F)
PRECISION OBSTACLE FREE ZONE (POFZ)	POFZ	
ROADWAY		
DEVELOPMENT AREA		
BUILDING RESTRICTION LINE (BRL)	BRL	
RUNWAY OBJECT FREE AREA (ROFA)	ROFA	
RUNWAY SAFETY AREA (RSA)	RSA	
OBJECT FREE ZONE – RUNWAY (ROFZ)	ROFZ	
OBSTACLE FREE ZONE – INNER APPROACH (OFZ)	OFZ	
TAXIWAY OBJECT FREE AREA (TOFA)	TOFA	TOFA(F)
TAXIWAY SAFETY AREA (TSA)	TSA	TSA(F)
TAXIWAY EDGE SAFETY MARGIN (TESM)	TESM	TESM(F)
THRESHOLD SITING SURFACE (TSS)	TSS(E)	
GLIDE PATH QUALIFICATION SURFACE (GQS)	GQS(E)	
APPROACH SURFACE (40:1)	AP 40:1(E)	
APPROACH SURFACE (50:1)	AP 50:1(E)	
FENCE (8' HEIGHT)	X	XX
RUNWAY THRESHOLD LIGHT		
RUNWAY END IDENTIFIER LIGHTS (REIL)		
ROTATING BEACON		
GLIDE SLOPE ANTENNA		
ASOS		
DME ANTENNA		
MALSR ARRAY		
MALSR		
LOCALIZER		
PAPI		
VASI		
WINDCONE		
SEGMENTED CIRCLE		
AIRPORT REFERENCE POINT (ARP)		
PRIMARY/SECONDARY AIRPORT CONTROL STATION (PAC/SAC)		

AIRPORT FACILITY LIST

EXISTING ID	ITEM	ELEVATION	FUTURE ID
1	PASSENGER TERMINAL	6,710.9'	1
2	HANGAR	6,688.4'	
3	ARFF/SRE	6,692.4'	
4	RENTAL CAR MAINTENANCE FACILITY	6,679.2'	
5	ELECTRICAL VAULT	6,677.7'	
6	STORAGE MAINTENANCE FACILITY	6,677.2'	
7	EXECUTIVE HANGAR	6,684.4'–6,690.7'	7
8	T–HANGAR	6,675.0'–6,682.2'	8
9	FBO/MAINTENANCE HANGAR	6,704.4'	
10	FBO HANGAR	6,684.1'–6,688.5'	
11	WATER TREATMENT FACILITY	6,697.1'	
12	U.S. FOREST SERVICE BASE	6,707' EST.	
13	U.S. FOREST SERVICE WAREHOUSE	6,710' EST.	
14	MALSR	6,493.2'–6,619.6'	14
15	PAPI	6,622.2'	15
16	GLIDESLOPE ANTENNA	6,621.3'	
17	ASOS	--	
18	VOR/DME	6,661.5'	
19	WINDCONE AND SEGMENTED CIRCLE	6,661.9'	
20	ROTATING BEACON	6,670.6'	
21	VASI	6,673.9'–6,679.2'	
22	REIL	6,686.8'–6,687.2'	
23	LOCALIZER	6,693.7'	
24	LOCALIZER BUILDING	--	
25	PARKING BOOTH	--	
26	FUEL FACILITY	6,657.9	

NOTES

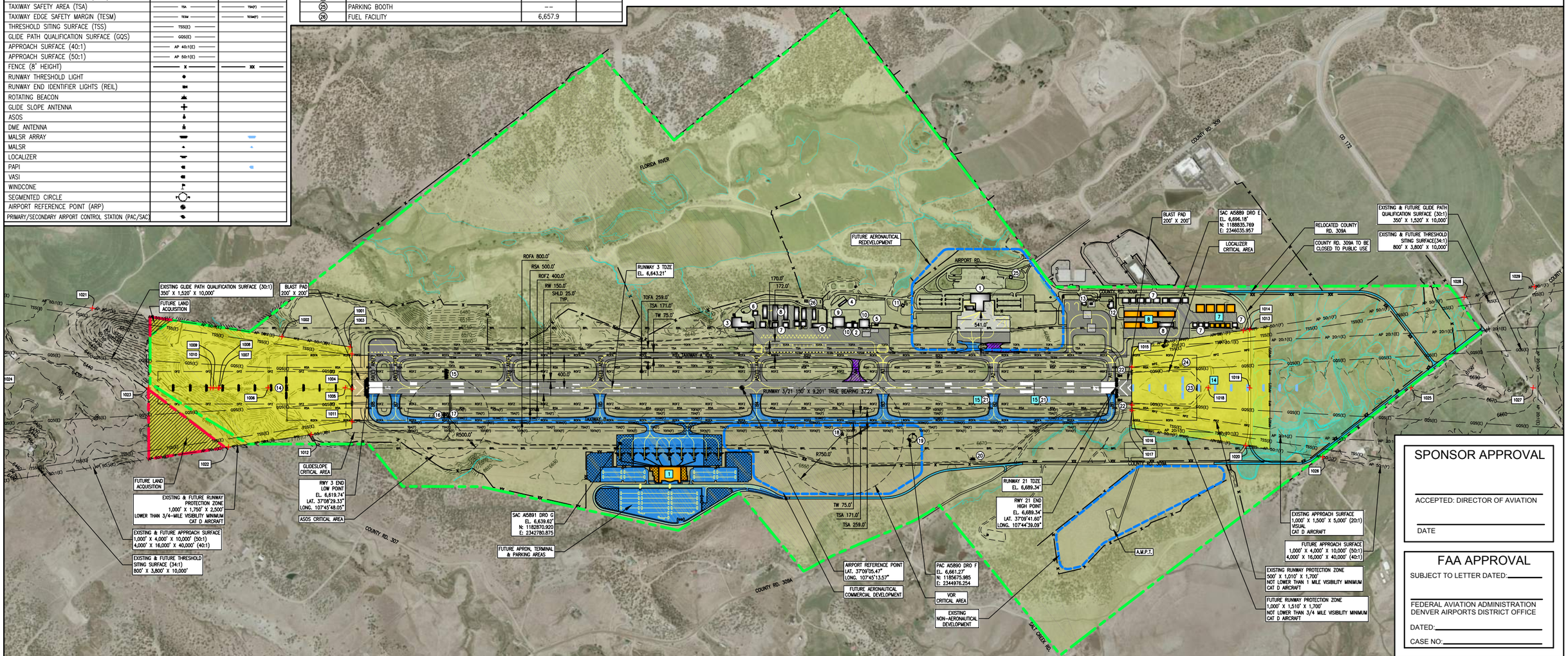
1. ALL HORIZONTAL COORDINATES – NAD83/2011, ALL VERTICAL COORDINATES – NAVD88

SOURCE

1. THE SITE PLAN LINE WORK AND AERIAL IMAGE IS BASED ON THE PLANIMETRIC MAPPING & ORTHO–IMAGERY INFORMATION COMPILED BY WOOLPERT, INC. IN MAY 2015.
2. WETLAND AREAS WERE DEFINED BY ECOSPHERE ENVIRONMENTAL SERVICES IN 2014.

APPROACH ROAD INTERSECTION TABLE

NO	OBJECT TYPE	ABOVE GROUND LEVEL (AGL)
1901	INTERSECTION ROAD (+6' ADJUSTMENT ADDED)	6,619.96'
1902	INTERSECTION ROAD (+6' ADJUSTMENT ADDED)	6,588.72'
1903	INTERSECTION ROAD (+6' ADJUSTMENT ADDED)	6,621.94'
1904	INTERSECTION ROAD (+6' ADJUSTMENT ADDED)	6,626.93'
1905	INTERSECTION ROAD (+6' ADJUSTMENT ADDED)	6,624.90'
1906	INTERSECTION ROAD (+6' ADJUSTMENT ADDED)	6,614.14'
1907	INTERSECTION ROAD (+6' ADJUSTMENT ADDED)	6,595.77'
1908	INTERSECTION ROAD (+6' ADJUSTMENT ADDED)	6,594.66'
1909	INTERSECTION ROAD (+6' ADJUSTMENT ADDED)	6,599.34'
1910	INTERSECTION ROAD (+6' ADJUSTMENT ADDED)	6,607.28'
1911	INTERSECTION ROAD (+6' ADJUSTMENT ADDED)	6,621.32'
1912	INTERSECTION ROAD (+6' ADJUSTMENT ADDED)	6,622.22'
1913	INTERSECTION ROAD (+6' ADJUSTMENT ADDED)	6,723.49'
1914	INTERSECTION ROAD (+6' ADJUSTMENT ADDED)	6,713.13'
1915	INTERSECTION ROAD (+6' ADJUSTMENT ADDED)	6,697.96'
1916	INTERSECTION ROAD (+6' ADJUSTMENT ADDED)	6,697.26'
1917	INTERSECTION ROAD (+6' ADJUSTMENT ADDED)	6,695.46'
1918	INTERSECTION ROAD (+6' ADJUSTMENT ADDED)	6,707.74'
1919	INTERSECTION ROAD (+6' ADJUSTMENT ADDED)	6,716.11'
1920	INTERSECTION ROAD (+6' ADJUSTMENT ADDED)	6,705.30'
1921	INTERSECTION ROAD (+6' ADJUSTMENT ADDED)	6,467.59'
1922	INTERSECTION ROAD (+6' ADJUSTMENT ADDED)	6,479.60'
1923	INTERSECTION ROAD (+6' ADJUSTMENT ADDED)	6,475.52'
1924	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	6,622.14'
1925	INTERSECTION ROAD (+6' ADJUSTMENT ADDED)	6,704.01'
1926	INTERSECTION ROAD (+6' ADJUSTMENT ADDED)	6,697.10'
1927	INTERSECTION HIGHWAY (+17' ADJUSTMENT ADDED)	6,692.00'



SPONSOR APPROVAL

ACCEPTED: DIRECTOR OF AVIATION

DATE

FAA APPROVAL

SUBJECT TO LETTER DATED:

FEDERAL AVIATION ADMINISTRATION
DENVER AIRPORTS DISTRICT OFFICE

DATED:

CASE NO:

E:\Projects\DRO\CAD\ALP\2014\PLANS\
D2–DRO–ALP–ALP2.dwg
Aug 13, 2015 – 8:30am
robert.bell

JVIATION®

DURANGO-LA PLATA COUNTY AIRPORT

DES: B.L.R.
DR: B.L.R.
CH: C.M.C.
APP: D.F.N.

ISSUE RECORD

NO.	BY	DATE	DESCRIPTION
1	D.F.N.	7/21/15	ISSUED FOR AIRSPACE REVIEW
2	C.M.C.	10/30/15	FINAL

AIRPORT LAYOUT PLAN

AIRPORT LAYOUT PLAN - FUTURE

AIP GRANT NO.	JVIATION PROJ. NO.	DATE:
3-08-0019-044	2014.DRO.02	OCTOBER, 2015

SHEET NO.
03 of 18

DRAWING LEGEND

ITEM	EXISTING	FUTURE	ULTIMATE
AIRPORT PROPERTY BOUNDARY			
AIRPORT PAVEMENT (ASPHALT/CONCRETE)			
BUILDING/HANGAR			
PHASED EXPANSION AREA (FUTURE)			
WETLANDS			
REMOVE			
RUNWAY PROTECTION ZONE (RPZ)	RPZ	RPZ(F)	RPZ
PRECISION OBSTACLE FREE ZONE (POFZ)	POFZ		
ROADWAY			
DEVELOPMENT AREA			
BUILDING RESTRICTION LINE (BRL)	BRL		
RUNWAY OBJECT FREE AREA (ROFA)	ROFA		ROFA
RUNWAY SAFETY AREA (RSA)	RSA		RSA
OBJECT FREE ZONE – RUNWAY (ROFZ)	ROFZ		ROFZ
OBSTACLE FREE ZONE – INNER APPROACH (OFZ)	OFZ		
TAXIWAY OBJECT FREE AREA (TOFA)	TOFA	TOFA(F)	
TAXIWAY SAFETY AREA (TSA)	TSA	TSA(F)	
TAXIWAY EDGE SAFETY MARGIN (TESM)	TESM	TESM(F)	
THRESHOLD SITING SURFACE (TSS)	TSS(E)		
GLIDE PATH QUALIFICATION SURFACE (GQS)	GQS(E)		
APPROACH SURFACE (40:1)	AP 40:1(E)		
APPROACH SURFACE (50:1)	AP 50:1(E)		
FENCE (8' HEIGHT)	X	XX	
RUNWAY THRESHOLD LIGHT			
RUNWAY END IDENTIFIER LIGHTS (REIL)			
ROTATING BEACON			
GLIDE SLOPE ANTENNA			
ASOS			
DME ANTENNA			
MALSR ARRAY			
MALSR			
LOCALIZER			
PAPI			
VASI			
WINDCONE			
SEGMENTED CIRCLE			
AIRPORT REFERENCE POINT (ARP)			
PRIMARY/SECONDARY AIRPORT CONTROL STATION (PAC/SAC)			

AIRPORT FACILITY LIST

EXISTING ID	ITEM	ELEVATION	FUTURE ID	ULTIMATE ID
1	PASSENGER TERMINAL	6,710.9'	1	
2	HANGAR	6,688.4'		
3	ARFF/SRE	6,692.4'		
4	RENTAL CAR MAINTENANCE FACILITY	6,679.2'		
5	ELECTRICAL VAULT	6,677.7'		
6	STORAGE MAINTENANCE FACILITY	6,677.2'		
7	EXECUTIVE HANGAR	6,684.4'–6,690.7'	7	
8	T–HANGAR	6,675.0'–6,682.2'	8	
9	FBO/MAINTENANCE HANGAR	6,704.4'		
10	FBO HANGAR	6,684.1'–6,688.5'		
11	WATER TREATMENT FACILITY	6,697.1'		
12	U.S. FOREST SERVICE BASE	6,707' EST.		
13	U.S. FOREST SERVICE WAREHOUSE	6,710' EST.		
14	MALSR	6,493.2'–6,619.6'	14	14
15	PAPI	6,622.2'	15	15
16	GLIDESLOPE ANTENNA	6,621.3'		
17	ASOS	--		
18	VOR/DME	6,661.5'		
19	WINDCONE AND SEGMENTED CIRCLE	6,661.9'		
20	ROTATING BEACON	6,670.6'		
21	VASI	6,673.9'–6,679.2'		
22	REIL	6,686.8'–6,687.2'		22
23	LOCALIZER	6,693.7'		23
24	LOCALIZER BUILDING	--		
25	PARKING BOOTH	--		
26	FUEL FACILITY	6,657.9		

NOTES

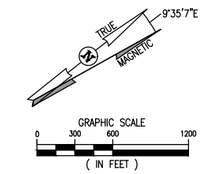
1. ALL HORIZONTAL COORDINATES – NAD83/2011, ALL VERTICAL COORDINATES – NAVD88
2. ULTIMATE FACILITIES ARE NOT NEEDED WITHIN THE PLANNING HORIZON. THEY ARE SHOWN IN ORDER TO ALLOW NEAR TERM PLANS TO ACCOUNT FOR ULTIMATE CONCEPTS.

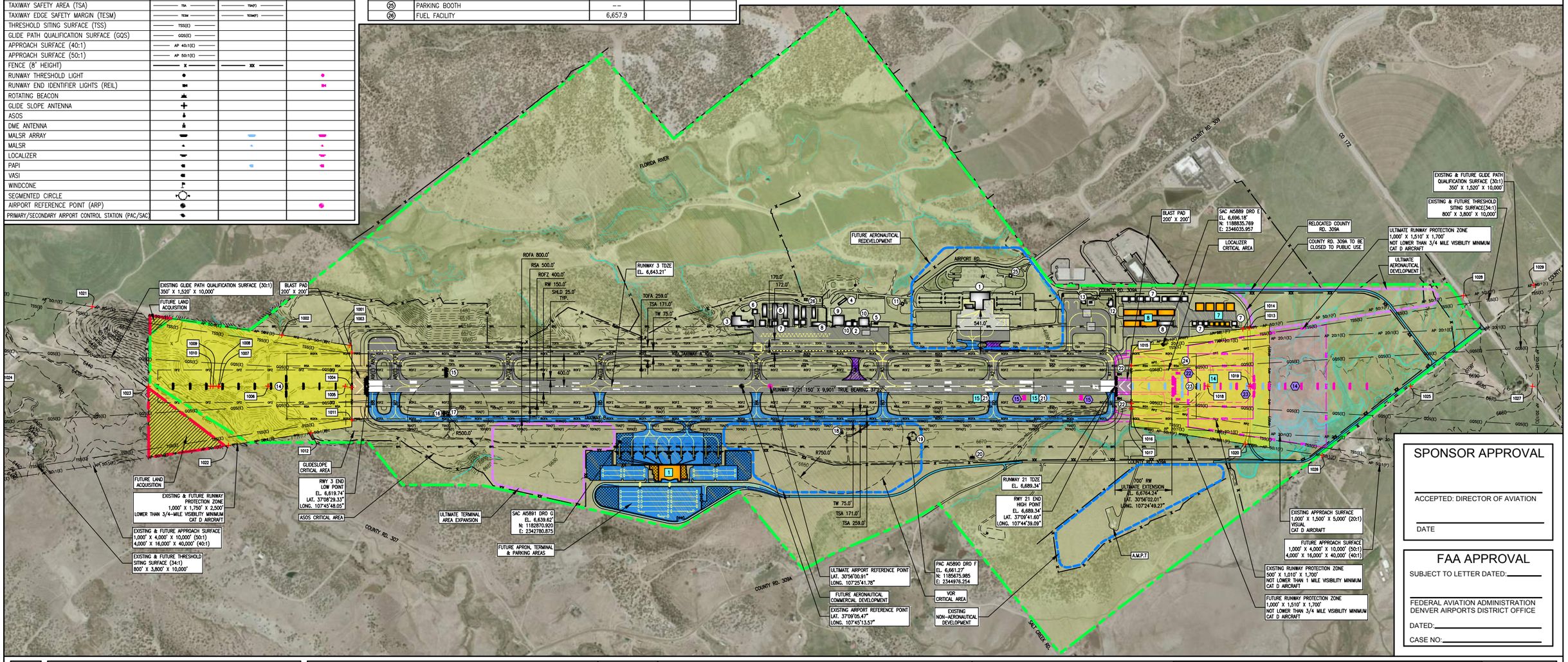
SOURCE

1. THE SITE PLAN LINE WORK AND AERIAL IMAGE IS BASED ON THE PLANIMETRIC MAPPING & ORTHO–IMAGERY INFORMATION COMPILED BY WOOLPERT, INC. IN MAY 2015.
2. WETLAND AREAS WERE DEFINED BY ECOSPHERE ENVIRONMENTAL SERVICES IN 2014.

APPROACH ROAD INTERSECTION TABLE

NO	OBJECT TYPE	ABOVE GROUND LEVEL (AGL)
1901	INTERSECTION ROAD (+60' ADJUSTMENT ADDED)	6,519.96'
1902	INTERSECTION ROAD (+60' ADJUSTMENT ADDED)	6,559.72'
1903	INTERSECTION ROAD (+60' ADJUSTMENT ADDED)	6,621.84'
1904	INTERSECTION ROAD (+60' ADJUSTMENT ADDED)	6,628.93'
1905	INTERSECTION ROAD (+60' ADJUSTMENT ADDED)	6,624.96'
1906	INTERSECTION ROAD (+60' ADJUSTMENT ADDED)	6,614.14'
1907	INTERSECTION ROAD (+60' ADJUSTMENT ADDED)	6,595.77'
1908	INTERSECTION ROAD (+60' ADJUSTMENT ADDED)	6,594.66'
1909	INTERSECTION ROAD (+60' ADJUSTMENT ADDED)	6,559.24'
1910	INTERSECTION ROAD (+60' ADJUSTMENT ADDED)	6,567.38'
1911	INTERSECTION ROAD (+60' ADJUSTMENT ADDED)	6,621.32'
1912	INTERSECTION ROAD (+60' ADJUSTMENT ADDED)	6,692.22'
1913	INTERSECTION ROAD (+60' ADJUSTMENT ADDED)	6,722.40'
1914	INTERSECTION ROAD (+60' ADJUSTMENT ADDED)	6,713.12'
1915	INTERSECTION ROAD (+60' ADJUSTMENT ADDED)	6,687.94'
1916	INTERSECTION ROAD (+60' ADJUSTMENT ADDED)	6,687.26'
1917	INTERSECTION ROAD (+60' ADJUSTMENT ADDED)	6,685.46'
1918	INTERSECTION ROAD (+60' ADJUSTMENT ADDED)	6,707.74'
1919	INTERSECTION ROAD (+65' ADJUSTMENT ADDED)	6,716.11'
1920	INTERSECTION ROAD (+65' ADJUSTMENT ADDED)	6,765.90'
1921	INTERSECTION ROAD (+65' ADJUSTMENT ADDED)	6,467.68'
1922	INTERSECTION ROAD (+65' ADJUSTMENT ADDED)	6,479.60'
1923	INTERSECTION ROAD (+65' ADJUSTMENT ADDED)	6,476.52'
1924	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	6,622.14'
1925	INTERSECTION ROAD (+60' ADJUSTMENT ADDED)	6,704.01'
1926	INTERSECTION ROAD (+60' ADJUSTMENT ADDED)	6,687.52'
1927	INTERSECTION HIGHWAY (+17' ADJUSTMENT ADDED)	6,683.00'





SPONSOR APPROVAL

ACCEPTED: DIRECTOR OF AVIATION

DATE

FAA APPROVAL

SUBJECT TO LETTER DATED:

FEDERAL AVIATION ADMINISTRATION
DENVER AIRPORTS DISTRICT OFFICE

DATED:

CASE NO:

E:\Projects\DRO\DRO\AIP\2014\PLANS\
04–DRO–AIP–ALP.dwg
Jul 13, 2016 – 8:51am
robert.bell

JVIATION®

DURANGO-LA PLATA COUNTY AIRPORT

DES: B.L.R.
DR: B.L.R.
CH: C.M.C.
APP: D.F.N.

ISSUE RECORD

NO.	BY	DATE	DESCRIPTION
1	D.F.N.	7/21/15	ISSUED FOR AIRSPACE REVIEW
2	C.M.C.	10/30/15	FINAL

AIRPORT LAYOUT PLAN

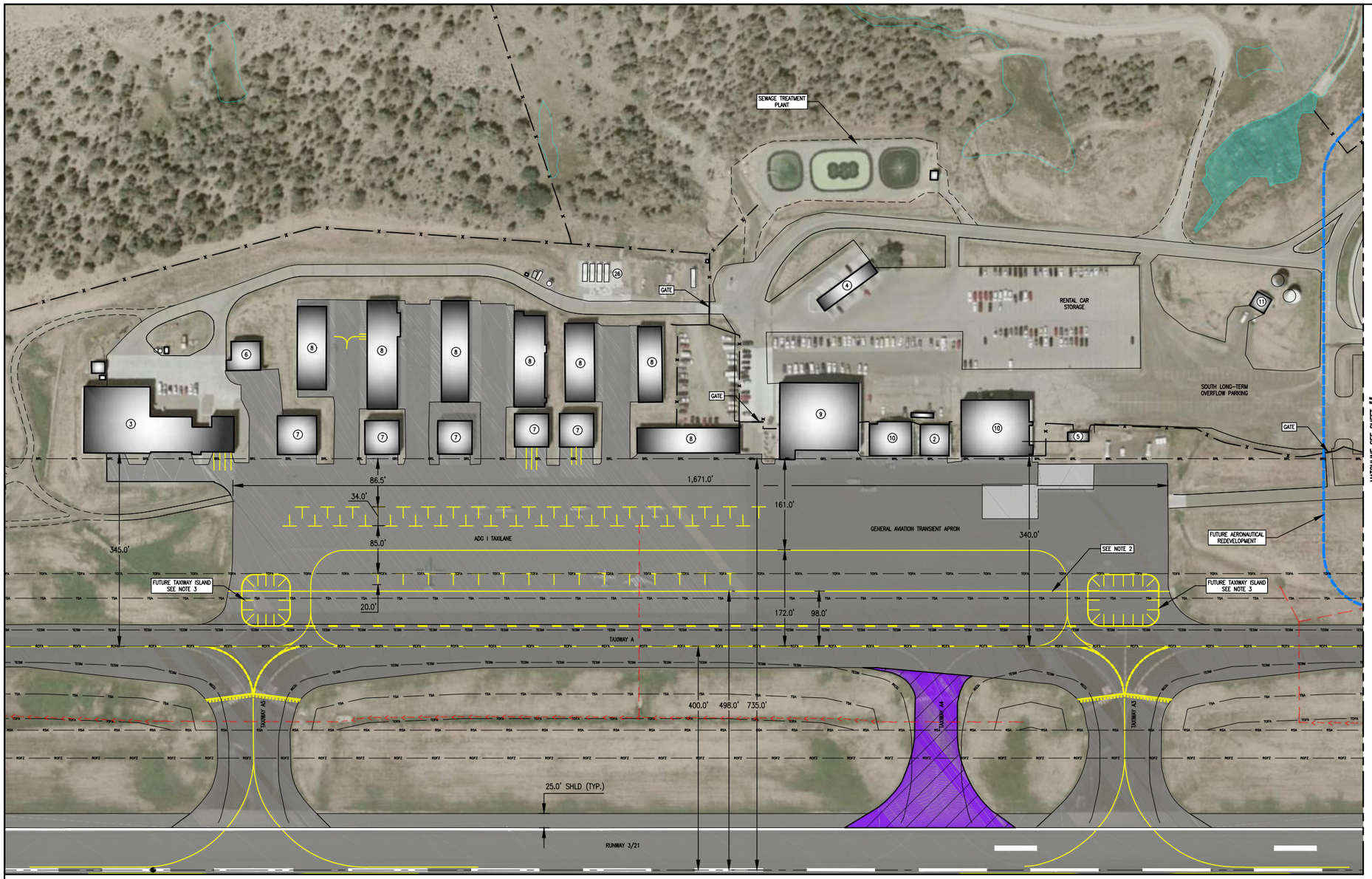
AIRPORT LAYOUT PLAN - ULTIMATE

AIP GRANT NO. 3-08-0019-044

JVIATION PROJ. NO. 2014.DRO.02

DATE: OCTOBER, 2015

SHEET NO. 04 of 18



DRAWING LEGEND

ITEM	EXISTING	FUTURE
AIRPORT PROPERTY BOUNDARY		
AIRPORT PAVEMENT (ASPHALT/CONCRETE)		
BUILDING/HANGAR		
PHASED EXPANSION AREA (FUTURE)		
WETLANDS		
REMOVE		
RUNWAY PROTECTION ZONE (RPZ)	RPZ	RPZ(F)
PRECISION OBSTACLE FREE ZONE (POFZ)	POFZ	
ROADWAY		
DEVELOPMENT AREA		
STORM SWALE		
STORM SEWER		
BUILDING RESTRICTION LINE (BRL)	BRL	
RUNWAY OBJECT FREE AREA (ROFA)	ROFA	
RUNWAY SAFETY AREA (RSA)	RSA	
OBJECT FREE ZONE – RUNWAY (ROFZ)	ROFZ	
OBSTACLE FREE ZONE – INNER APPROACH (OFZ)	OFZ	
TAXIWAY OBJECT FREE AREA (TOFA)	TOFA	TOFA(F)
TAXIWAY SAFETY AREA (TSA)	TSA	TSA(F)
TAXIWAY EDGE SAFETY MARGIN (TESM)	TESM	TESM(F)
THRESHOLD SITING SURFACE (TSS)	TSS(E)	
GLIDE PATH QUALIFICATION SURFACE (GQS)	GQS(E)	
APPROACH SURFACE (40:1)	AP 40:1(E)	
APPROACH SURFACE (50:1)	AP 50:1(E)	
FENCE (8' HEIGHT)	X	XX
RUNWAY THRESHOLD LIGHT		
RUNWAY END IDENTIFIER LIGHTS (REIL)		
ROTATING BEACON		
GLIDE SLOPE ANTENNA		
ASOS		
DME ANTENNA		
MALSR ARRAY		
MALSR		
LOCALIZER		
PAPI		
VASI		
WINDCONE		
SEGMENTED CIRCLE		
AIRPORT REFERENCE POINT (ARP)		
PRIMARY/SECONDARY AIRPORT CONTROL STATION (PAC/SAC)		

AIRPORT FACILITY LIST

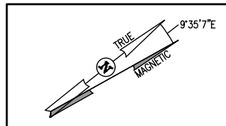
EXISTING ID	ITEM	ELEVATION	FUTURE ID
2	HANGAR	6688.4'	
3	ARFF/SRE	6692.4'	
4	RENTAL CAR MAINTENANCE FACILITY	6679.2'	
5	ELECTRICAL VAULT	6677.7'	
6	STORAGE MAINTENANCE FACILITY	6679.4'	
7	EXECUTIVE HANGAR	6684.4' – 6690.7'	
8	T–HANGAR	6675.0' – 6682.2'	
9	FBO MAINTENANCE HANGAR	6704.4'	
10	FBO HANGAR	6684.1' – 6688.5'	
11	WATER TREATMENT FACILITY	6697.1'	
26	FUEL FACILITY	6,657.9	

NOTES

1. NOT ALL ITEMS IN LEGEND SHOWN ON THIS SHEET.
2. EXISTING PAVEMENT MARKING DENOTES THE APPROXIMATE LIMIT OF OBSTACLES FOR AIRCRAFT DESIGN GROUP III. AIRCRAFT DESIGN GROUP IV TSA AND TOFA LIMITS ARE DEPICTED FOR USE WHEN GROUP IV AIRCRAFT ARE PRESENT IN THE FUTURE.
3. ISLANDS TO BE PAINTED AS PART OF TAXIWAY A REHABILITATION PROJECT AIP # 3–08–0019–045.

SOURCE

1. THE SITE PLAN LINE WORK AND AERIAL IMAGE IS BASED ON THE PLANIMETRIC MAPPING & ORTHO–IMAGERY INFORMATION COMPILED BY WOOLPERT, INC. IN MAY 2015.
2. WETLAND AREAS WERE DEFINED BY ECOSPHERE ENVIRONMENTAL SERVICES IN 2014.



GRAPHIC SCALE
0 50 100 200
(IN FEET)

DATE: JUNE, 2014
ANNUAL RATE OF CHANGE: 7.3' W
SOURCE: U.S. NGDC

E:\Projects\DRO\CAD\ALP\2014\PLANS\
05-08-0180-ALP-TERM.dwg
Aug 13, 2015 - 8:52am
robert.bell

JVIATION®

DURANGO-LA PLATA COUNTY AIRPORT

DES: B.L.R.
DR: B.L.R.
CH: C.M.C.
APP: D.F.N.

ISSUE RECORD

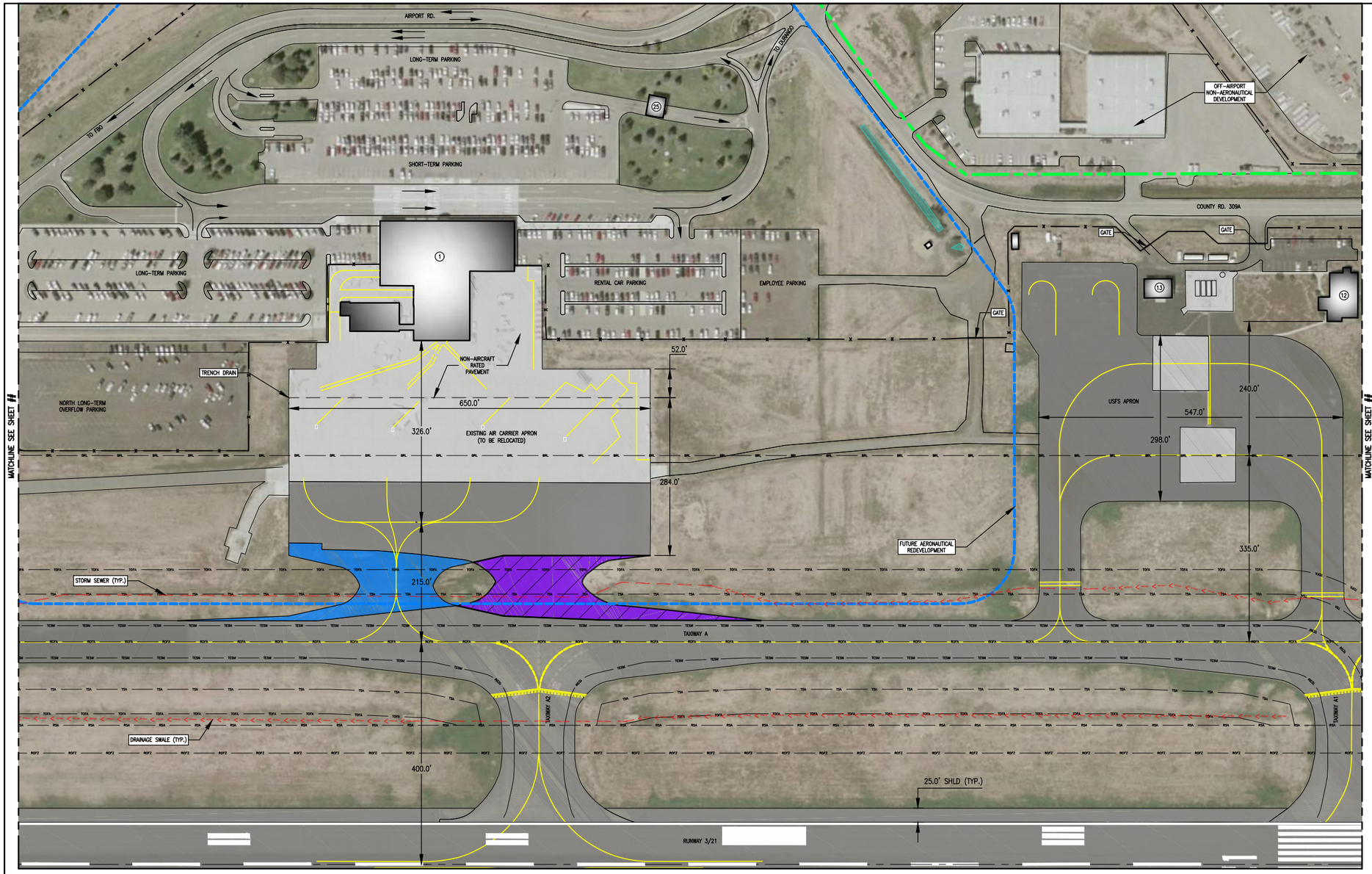
NO.	BY	DATE	DESCRIPTION
1	D.F.N.	7/21/15	ISSUED FOR AIRSPACE REVIEW
2	C.M.C.	10/30/15	FINAL

AIRPORT LAYOUT PLAN

TERMINAL AREA PLAN-
SOUTH GENERAL APRON AREA

AIP GRANT NO.	JVIATION PROJ. NO.	DATE:
3-08-0019-044	2014.DRO.02	OCTOBER, 2015

SHEET NO.
05 of 18



DRAWING LEGEND

ITEM	EXISTING	FUTURE
AIRPORT PROPERTY BOUNDARY		
AIRPORT PAVEMENT (ASPHALT/CONCRETE)		
BUILDING/HANGAR		
PHASED EXPANSION AREA (FUTURE)		
WETLANDS		
REMOVE		
RUNWAY PROTECTION ZONE (RPZ)	RPZ RPZ	RPZ(F) RPZ(F)
PRECISION OBSTACLE FREE ZONE (POFZ)	POFZ POFZ	
ROADWAY		
DEVELOPMENT AREA		
STORM SWALE		
STORM SEWER		
BUILDING RESTRICTION LINE (BRL)	BRL	
RUNWAY OBJECT FREE AREA (ROFA)	ROFA	
RUNWAY SAFETY AREA (RSA)	RSA	
OBJECT FREE ZONE – RUNWAY (ROFZ)	ROFZ	
OBSTACLE FREE ZONE – INNER APPROACH (OFZ)	OFZ	
TAXIWAY OBJECT FREE AREA (TOFA)	TOFA	TOFA(F)
TAXIWAY SAFETY AREA (TSA)	TSA	TSA(F)
TAXIWAY EDGE SAFETY MARGIN (TESM)	TESM	TESM(F)
THRESHOLD SITING SURFACE (TSS)	TSS(E)	
GLIDE PATH QUALIFICATION SURFACE (GQS)	GQS(E)	
APPROACH SURFACE (40:1)	AP 40:1(E)	
APPROACH SURFACE (50:1)	AP 50:1(E)	
FENCE (8' HEIGHT)	X	XX
RUNWAY THRESHOLD LIGHT		
RUNWAY END IDENTIFIER LIGHTS (REIL)		
ROTATING BEACON		
GLIDE SLOPE ANTENNA		
ASOS		
DME ANTENNA		
MALSR ARRAY		
MALSR		
LOCALIZER		
PAPI		
VASI		
WINDCONE		
SEGMENTED CIRCLE		
AIRPORT REFERENCE POINT (ARP)		
PRIMARY/SECONDARY AIRPORT CONTROL STATION (PAC/SAC)		

AIRPORT FACILITY LIST

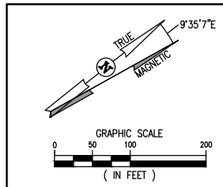
EXISTING ID	ITEM	ELEVATION	FUTURE ID
1	PASSENGER TERMINAL	6,710.9'	
12	U.S. FOREST SERVICE BASE	6,707' EST	
13	U.S. FOREST SERVICE WAREHOUSE	6,710' EST	
25	PARKING BOOTH	--	

NOTES

1. NOT ALL ITEMS IN LEGEND SHOWN ON THIS SHEET.
2. EXISTING PAVEMENT MARKING DENOTES THE APPROXIMATE LIMIT OF OBSTACLES FOR AIRCRAFT DESIGN GROUP III. AIRCRAFT DESIGN GROUP IV TSA AND TOFA LIMITS ARE DEPICTED FOR USE WHEN GROUP IV AIRCRAFT ARE PRESENT IN THE FUTURE.

SOURCE

1. THE SITE PLAN LINE WORK AND AERIAL IMAGE IS BASED ON THE PLANIMETRIC MAPPING & ORTHO-IMAGERY INFORMATION COMPILED BY WOOLPERT, INC. IN MAY 2015.
2. WETLAND AREAS WERE DEFINED BY ECOSPHERE SERVICES IN 2014.



DATE: JUNE, 2014
ANNUAL RATE OF CHANGE: 7.3' W
SOURCE: U.S. NGDC

E:\Projects\DRO\CAD\ALP\2014\PLANS\
06-08-DRO-ALP-TERM.dwg
Aug 13, 2015 - 8:52am
robert.bell

JVIATION®

DURANGO-LA PLATA COUNTY AIRPORT

DES: B.L.R.
DR: B.L.R.
CH: C.M.C.
APP: D.F.N.

ISSUE RECORD

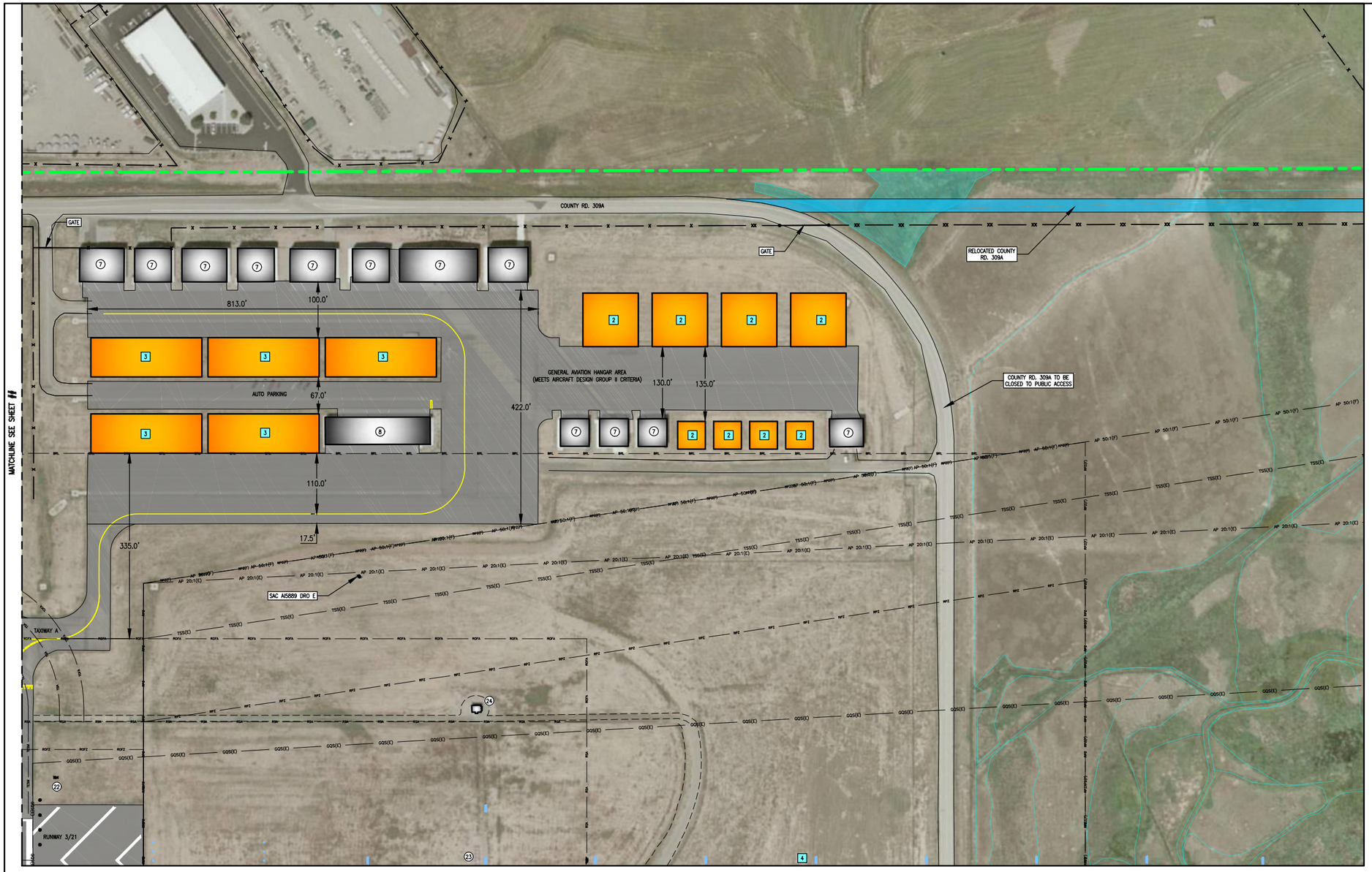
NO.	BY	DATE	DESCRIPTION
1	D.F.N.	7/21/15	ISSUED FOR AIRSPACE REVIEW
2	C.M.C.	10/30/15	FINAL

AIRPORT LAYOUT PLAN

TERMINAL AREA PLAN- EXISTING TERMINAL

AIP GRANT NO.	JVIATION PROJ. NO.	DATE:
3-08-0019-044	2014.DRO.02	OCTOBER, 2015

SHEET NO.
06 of 18



DRAWING LEGEND

ITEM	EXISTING	FUTURE
AIRPORT PROPERTY BOUNDARY		
AIRPORT PAVEMENT (ASPHALT/CONCRETE)		
BUILDING/HANGAR		
PHASED EXPANSION AREA (FUTURE)		
WETLANDS		
REMOVE		
RUNWAY PROTECTION ZONE (RPZ)	RPZ RPZ	RPZ(F) RPZ(F)
PRECISION OBSTACLE FREE ZONE (POFZ)	POFZ POFZ	
ROADWAY		
DEVELOPMENT AREA		
BUILDING RESTRICTION LINE (BRL)	BRL	
RUNWAY OBJECT FREE AREA (ROFA)	ROFA	
RUNWAY SAFETY AREA (RSA)	RSA	
OBJECT FREE ZONE – RUNWAY (ROFZ)	ROFZ	
OBSTACLE FREE ZONE – INNER APPROACH (OFZ)	OFZ	
TAXIWAY OBJECT FREE AREA (TOFA)	TOFA	TOFA(F)
TAXIWAY SAFETY AREA (TSA)	TSA	TSA(F)
TAXIWAY EDGE SAFETY MARGIN (TESM)	TESM	TESM(F)
THRESHOLD SITING SURFACE (TSS)	TSS(E)	
GLIDE PATH QUALIFICATION SURFACE (GQS)	GQS(E)	
APPROACH SURFACE (40:1)	AP 40:1(E)	
APPROACH SURFACE (50:1)	AP 50:1(E)	
FENCE (8' HEIGHT)	X	XX
RUNWAY THRESHOLD LIGHT		
RUNWAY END IDENTIFIER LIGHTS (REIL)		
ROTATING BEACON		
GLIDE SLOPE ANTENNA		
ASOS		
DME ANTENNA		
MALSR ARRAY		
MALSR		
LOCALIZER		
PAPI		
VASI		
WINDCONE		
SEGMENTED CIRCLE		
AIRPORT REFERENCE POINT (ARP)		
PRIMARY/SECONDARY AIRPORT CONTROL STATION (PAC/SAC)		

AIRPORT FACILITY LIST

EXISTING ID	ITEM	ELEVATION	FUTURE ID
7	EXECUTIVE HANGAR	--	2
8	T-HANGAR	--	3
	MALSR	--	4
22	REIL	6687.2'	
23	LOCALIZER	6693.7'	
24	LOCALIZER BUILDING	--	

NOTES

1. NOT ALL ITEMS IN LEGEND SHOWN ON THIS SHEET.
2. EXISTING PAVEMENT MARKING DENOTES THE APPROXIMATE LIMIT OF OBSTACLES FOR AIRCRAFT DESIGN GROUP III. AIRCRAFT DESIGN GROUP IV TSA AND TOFA LIMITS ARE DEPICTED FOR USE WHEN GROUP IV AIRCRAFT ARE PRESENT IN THE FUTURE.

SOURCE

1. THE SITE PLAN LINE WORK AND AERIAL IMAGE IS BASED ON THE PLANIMETRIC MAPPING & ORTHO-IMAGERY INFORMATION COMPILED BY WOOLPERT, INC. IN MAY 2015.
2. WETLAND AREAS WERE DEFINED BY ECOSPHERE SERVICES IN 2014.

TRUE
MAGNETIC
9°35'7"E

GRAPHIC SCALE
0 50 100 200
(IN FEET)

DATE: JUNE, 2014
ANNUAL RATE OF CHANGE: 7.3' W
SOURCE: U.S. NGDC

E:\Projects\DRO\CAD\ALP\2014\PLANS\
05-08-DRO-ALP-TERM.dwg
Jun 11, 2016 - 8:32am
robert.bell

JVIATION®

DURANGO-LA PLATA COUNTY AIRPORT

DES: B.L.R.
DR: B.L.R.
CH: C.M.C.
APP: D.F.N.

ISSUE RECORD

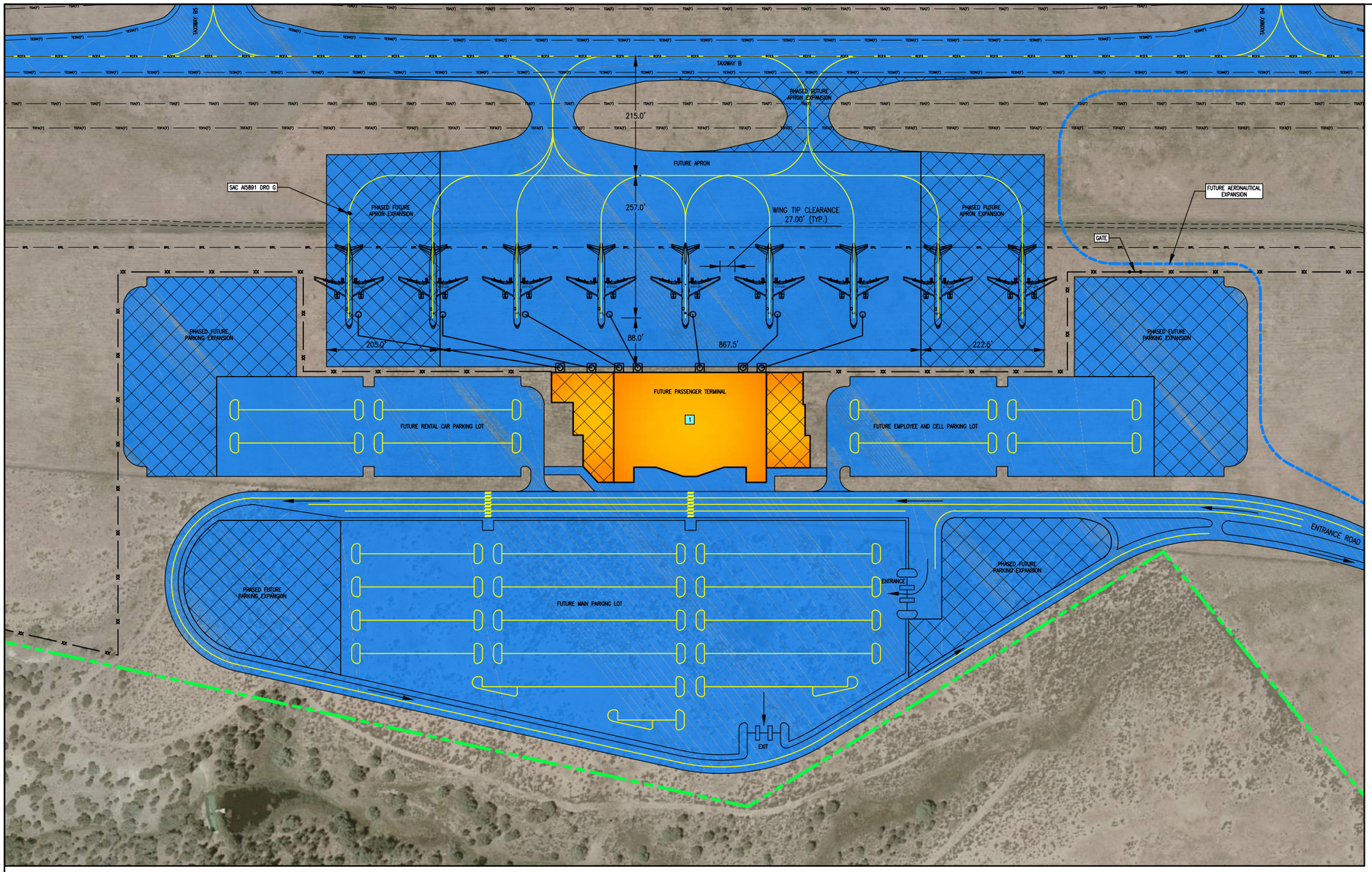
NO.	BY	DATE	DESCRIPTION
1	D.F.N.	7/21/15	ISSUED FOR AIRSPACE REVIEW
2	C.M.C.	10/30/15	FINAL

AIRPORT LAYOUT PLAN

TERMINAL AREA PLAN-
NORTH GENERAL APRON AREA

AIP GRANT NO. 3-08-0019-044
JVIATION PROJ. NO. 2014.DRO.02
DATE: OCTOBER, 2015

SHEET NO.
07 of 18



DRAWING LEGEND

ITEM	EXISTING	FUTURE
AIRPORT PROPERTY BOUNDARY		
AIRPORT PAVEMENT (ASPHALT/CONCRETE)		
BUILDING/HANGAR		
PHASED EXPANSION AREA (FUTURE)		
WETLANDS		
REMOVE		
RUNWAY PROTECTION ZONE (RPZ)	RPZ RPZ	RPZ(F) RPZ(F)
PRECISION OBSTACLE FREE ZONE (POFZ)	POFZ POFZ	
ROADWAY		
DEVELOPMENT AREA		
BUILDING RESTRICTION LINE (BRL)	BRL	
RUNWAY OBJECT FREE AREA (ROFA)	ROFA	
RUNWAY SAFETY AREA (RSA)	RSA	
OBJECT FREE ZONE – RUNWAY (ROFZ)	ROFZ	
OBSTACLE FREE ZONE – INNER APPROACH (OFZ)	OFZ	
TAXIWAY OBJECT FREE AREA (TOFA)	TOFA	TOFA(F)
TAXIWAY SAFETY AREA (TSA)	TSA	TSA(F)
TAXIWAY EDGE SAFETY MARGIN (TESM)	TESM	TESM(F)
THRESHOLD SITING SURFACE (TSS)	TSS(E)	
GLIDE PATH QUALIFICATION SURFACE (GQS)	GQS(E)	
APPROACH SURFACE (40:1)	AP 40:1(E)	
APPROACH SURFACE (50:1)	AP 50:1(E)	
FENCE (8' HEIGHT)	X	XX
RUNWAY THRESHOLD LIGHT		
RUNWAY END IDENTIFIER LIGHTS (REIL)		
ROTATING BEACON		
GLIDE SLOPE ANTENNA		
ASOS		
DME ANTENNA		
MALSR ARRAY		
MALSR		
LOCALIZER		
PAPI		
VASI		
WINDCONE		
SEGMENTED CIRCLE		
AIRPORT REFERENCE POINT (ARP)		
PRIMARY/SECONDARY AIRPORT CONTROL STATION (PAC/SAC)		

AIRPORT FACILITY LIST

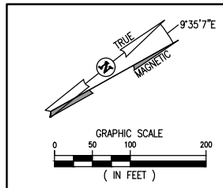
EXISTING ID	ITEM	ELEVATION	FUTURE ID
	PASSENGER TERMINAL	6,678.0'	1

NOTES

1. NOT ALL ITEMS IN LEGEND SHOWN ON THIS SHEET.
2. EXISTING PAVEMENT MARKING DENOTES THE APPROXIMATE LIMIT OF OBSTACLES FOR AIRCRAFT DESIGN GROUP III. AIRCRAFT DESIGN GROUP IV TSA AND TOFA LIMITS ARE DEPICTED FOR USE WHEN GROUP IV AIRCRAFT ARE PRESENT IN THE FUTURE.
3. PASSENGER TERMINAL HEIGHT SUBJECT TO ARCHITECTURAL DESIGN

SOURCE

1. THE SITE PLAN LINE WORK AND AERIAL IMAGE IS BASED ON THE PLANIMETRIC MAPPING & ORTHO-IMAGERY INFORMATION COMPILED BY WOOLPERT, INC. IN MAY 2015.
2. WETLAND AREAS WERE DEFINED BY ECOSPHERE SERVICES IN 2014.



DATE: JUNE, 2014
ANNUAL RATE OF CHANGE: 7.3' W
SOURCE: U.S. NGDC

E:\Projects\DRO\CAD\ALP\2014\PLANS\
05-08-DRO-ALP-TERM.dwg
Jul 11, 2016 - 8:53am
robert.bell

JVIATION®

DURANGO-LA PLATA COUNTY AIRPORT

DES: B.L.R.
DR: B.L.R.
CH: C.M.C.
APP: D.F.N.

ISSUE RECORD

NO.	BY	DATE	DESCRIPTION
1	D.F.N.	7/21/15	ISSUED FOR AIRSPACE REVIEW
2	C.M.C.	10/30/15	FINAL

AIRPORT LAYOUT PLAN

TERMINAL AREA PLAN-
FUTURE/ULTIMATE TERMINAL AREA

AIP GRANT NO. 3-08-0019-044
JVIATION PROJ. NO. 2014.DRO.02
DATE: OCTOBER, 2015

SHEET NO.
08 of 18

6.4 Airspace Plan – Part 77

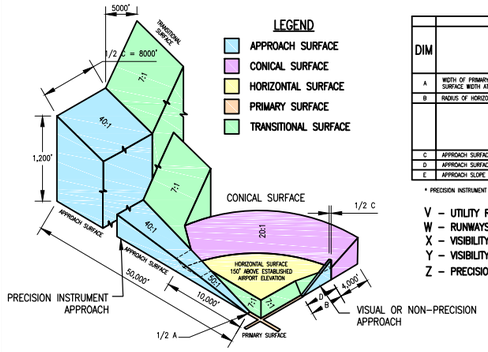
The Part 77 Airspace Drawing is based upon CFR 14 Part 77, Safe, Efficient Use, and Preservation of the Navigable Airspace. The criteria contained in CFR 14 Part 77 have been established to provide guidance in controlling the height of objects within airport vicinities, and to protect an airport's airspace and approaches from hazards potentially affecting safe and efficient aircraft operations. CFR 14 Part 77 specifies dimensions of imaginary surfaces so that when an object penetrates a surface it may be identified as an obstruction to the airspace.[1]

The Part 77 Airspace drawings (Sheets 09, 10, 11, and 12 of 18), provide plan and profile views that depict the imaginary surfaces and penetrations specific to DRO. This is an extremely important aspect of planning to ensure that the airspace remains unobstructed and efficiently utilized. As such, every object is identified and evaluated to determine whether it is a hazard to navigation. Due to the level of detail required, planners follow special procedures to collect and analyze this data. The volume of data collected at DRO requires this to be depicted on four sheets of the ALP set.

Future planned runway lengths and future planned approaches, to all runway ends, are the basis of the airspace plan view. Runway 3/21 is based on a larger-than-utility runway with an existing precision instrument approach to Runway 3. Future precision approach development is also planned for Runway 21 during the planning period. No change to runway dimensions during the planning period, but a runway extension to the north of the existing Runway 21 threshold is identified in the ultimate configuration. The locations of physical facilities and infrastructure are being planned accordingly.

[1] Appendix E further details requirements for airspace protection with regard to obstructions to air navigation.

THIS PAGE WAS INTENTIONALLY LEFT BLANK



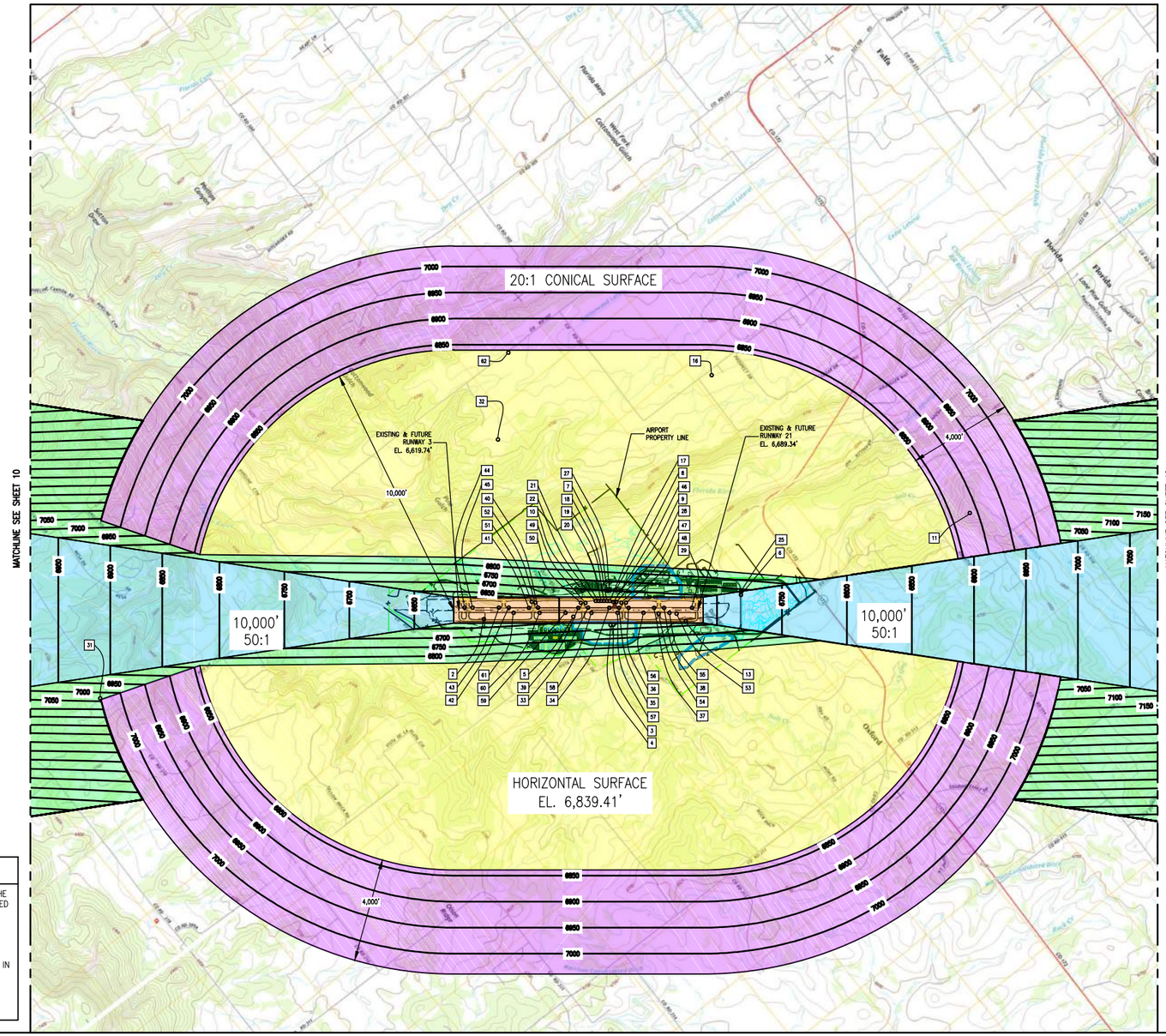
LEGEND

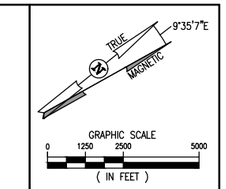
- APPROACH SURFACE
- CONICAL SURFACE
- HORIZONTAL SURFACE
- PRIMARY SURFACE
- TRANSITIONAL SURFACE

DIM	ITEM	DIMENSIONAL STANDARDS (FEET)					
		VISUAL RUNWAY		NON-PRECISION INSTRUMENT RUNWAY			Z
		V	W	V	W X	W Y	
A	WIDTH OF PRIMARY SURFACE & 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 RUNWAY		NON-PRECISION INSTRUMENT RUNWAY			Z
		V	W	V	W X	W Y	
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	*

* PRECISION INSTRUMENT APPROACH SLOPE IS 50:1 FOR INNER 10,000' AND 40:1 FOR AN ADDITIONAL 40,000'

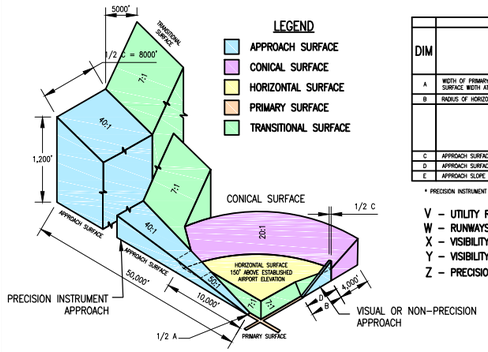
V – UTILITY RUNWAYS
W – RUNWAYS LARGER THAN UTILITY
X – VISIBILITY MINIMUMS GREATER THAN 3/4 MILE
Y – VISIBILITY MINIMUMS AS LOW AS 3/4 MILE
Z – PRECISION INSTRUMENT APPROACH SLOPE





NOTES
1. SEE SHEET 11 FOR TABLE OF OBSTACLES.

SOURCE
1. THE SITE PLAN LINE WORK AND AERIAL IMAGE IS BASED ON THE PLANIMETRIC MAPPING & ORTHO-IMAGERY INFORMATION COMPILED BY WOOLPERT, INC. IN MAY 2015.
2. OBSTRUCTION SURVEY DATA WAS COMPILED BY WOOLPERT, INC. IN MAY 2015.
3. THE QUAD MAP IMAGERY WAS OBTAINED FROM USGS WEB SITE IN MARCH 2015.
4. ALL HORIZONTAL COORDINATES – NAD83/2011, ALL VERTICAL COORDINATES – NAVD88



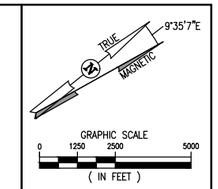
LEGEND

- APPROACH SURFACE
- CONICAL SURFACE
- HORIZONTAL SURFACE
- PRIMARY SURFACE
- TRANSITIONAL SURFACE

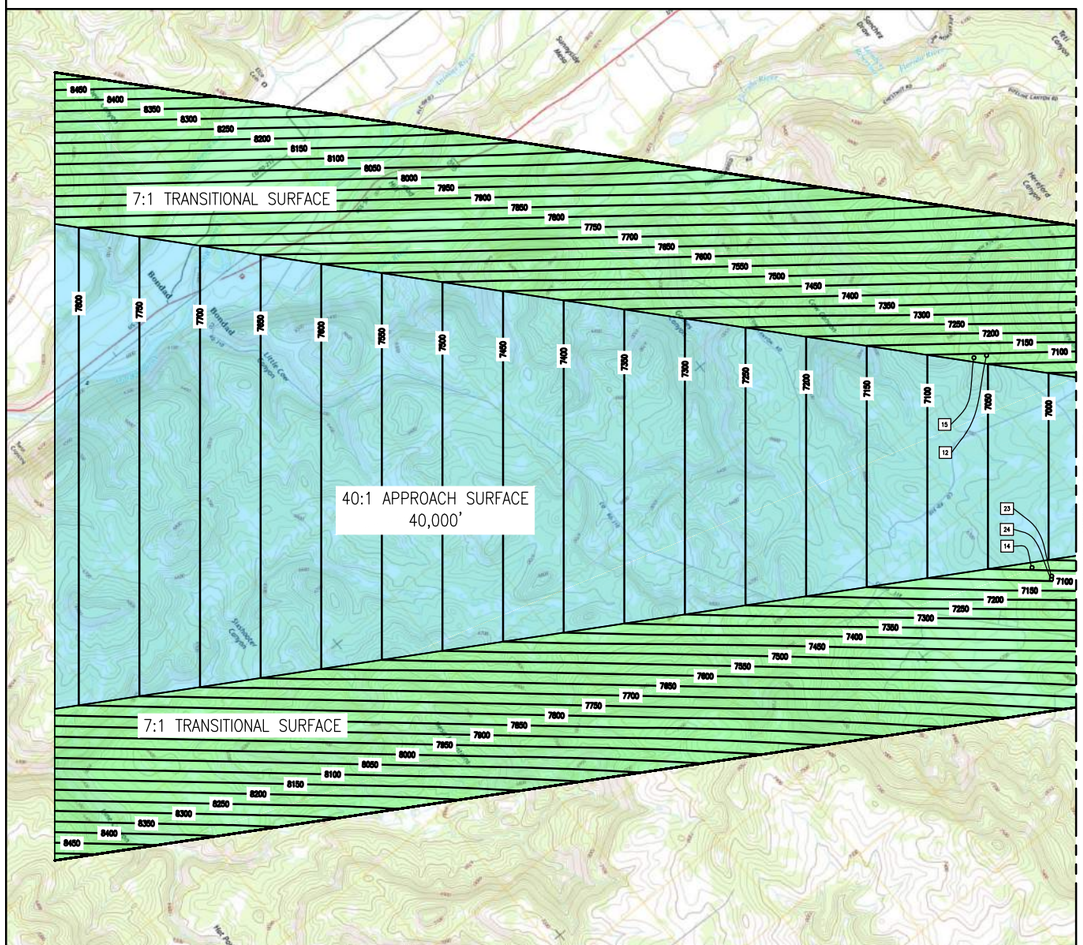
DIM	ITEM	DIMENSIONAL STANDARDS (FEET)					
		VISUAL RUNWAY		NON-PRECISION INSTRUMENT RUNWAY			Z
		V	W	V	W X	W Y	
A	WIDTH OF PRIMARY SURFACE & APPROACH SURFACE WIDTH AT INNER END	250	500	500	500	1,000	1,000
B	RADIUS OF HORIZONTAL SURFACE	5,000	5,000	5,000	10,000	10,000	10,000
		VISUAL RUNWAY		NON-PRECISION INSTRUMENT RUNWAY			Z
		V	W	V	W X	W Y	
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	*

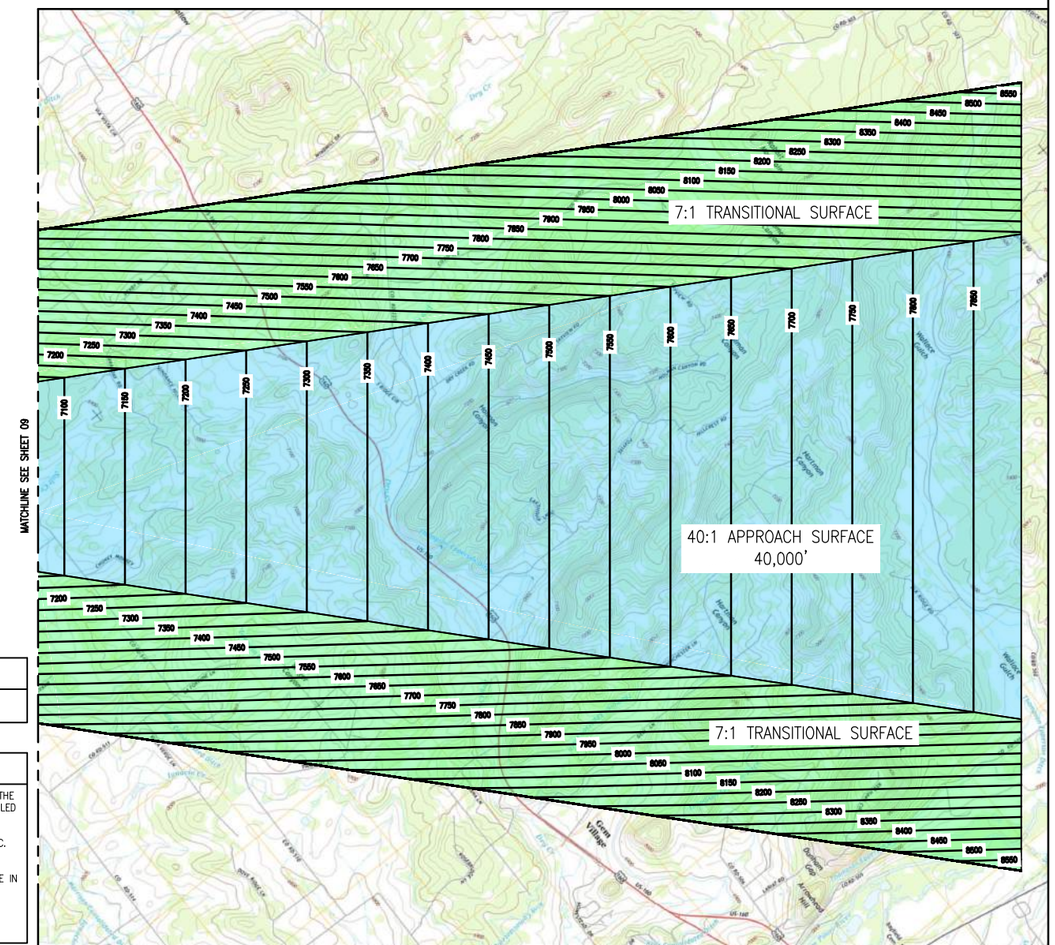
* PRECISION INSTRUMENT APPROACH SLOPE IS 50:1 FOR INNER 10,000' AND 40:1 FOR AN ADDITIONAL 40,000'

V – UTILITY RUNWAYS
W – RUNWAYS LARGER THAN UTILITY
X – VISIBILITY MINIMUMS GREATER THAN 3/4 MILE
Y – VISIBILITY MINIMUMS AS LOW AS 3/4 MILE
Z – PRECISION INSTRUMENT APPROACH SLOPE



DATE: JUNE, 2014
ANNUAL RATE OF CHANGE: 7.3' W
SOURCE: U.S. NGDC





NOTES

1. SEE SHEET 11 FOR TABLE OF OBSTACLES.

SOURCE

1. THE SITE PLAN LINE WORK AND AERIAL IMAGE IS BASED ON THE PLANIMETRIC MAPPING & ORTHO-IMAGERY INFORMATION COMPILED BY WOOLPERT, INC. IN MAY 2015.
2. OBSTRUCTION SURVEY DATA WAS COMPILED BY WOOLPERT, INC. IN MAY 2015.
3. THE QUAD MAP IMAGERY WAS OBTAINED FROM USGS WEB SITE IN MARCH 2015.
4. ALL HORIZONTAL COORDINATES – NAD83/2011, ALL VERTICAL COORDINATES – NAVD88

I:\Projects\DRO\CAD\ALP\2014\PLANS\
09-10-DRO-ALP-AIRD.dwg
Jul 11, 2016 - 8:50am
robert.bell

JVIATION®

DURANGO-LA PLATA COUNTY AIRPORT

DES: B.L.R.
DR: B.L.R.
CH: C.M.C.
APP: D.F.N.

ISSUE RECORD

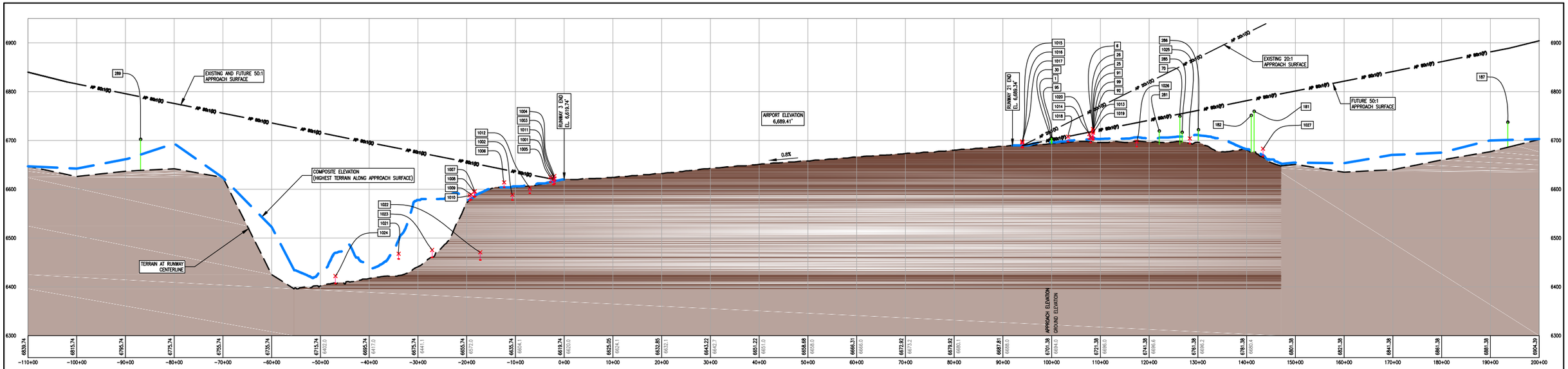
NO.	BY	DATE	DESCRIPTION

AIRPORT LAYOUT PLAN

AIRPORT AIRSPACE DRAWING

AIP GRANT NO.	JVIATION PROJ. NO.	DATE:
3-08-0019-044	2014.DRO.02	OCTOBER, 2015

SHEET NO.
10 of 18



PROFILE
HORIZ: 1" = 1,000'
VERT: 1" = 100'

AIRSPACE OBSTACLE TABLE

NO.	OBJECT TYPE	NORTHING	EASTING	OJECT HEIGHT	ABOVE GROUND LEVEL (AGL)	EXISTING 20:1 APPROACH SURFACE ELEVATION	EXISTING 20:1 APPROACH PENETRATION	FUTURE PART 77 SURFACE ELEVATION	FUTURE PART 77 PENETRATION	SURFACE REFERENCED	DISPOSITION
1	OBSTRUCTION LIGHT ON LOCALIZER	1,188,696.196	2,246,652.700	9.63'	6,706.63'	6,719.63'	-16.90'	6,706.44'	2.25'	RUNWAY 21 APPROACH	
6	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,189,706.856	2,246,646.289	15.00'	6,719.82'	N/A	N/A	6,718.32'	1.51'	RUNWAY 21 APPROACH	TO BE RELOCATED
25	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,189,786.756	2,246,650.289	16.21'	6,722.03'	N/A	N/A	6,719.38'	2.92'	RUNWAY 21 APPROACH	TO BE RELOCATED
26	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,189,612.226	2,246,766.389	15.00'	6,719.00'	6,761.92'	-42.90'	6,719.33'	0.67'	RUNWAY 21 APPROACH	TO BE RELOCATED
30	BUILDING	1,189,841.616	2,246,354.759	11.26'	6,704.77'	6,719.00'	-14.23'	6,706.30'	3.47'	RUNWAY 21 APPROACH	INSTALL OB LIGHT
70	TREE	1,190,611.696	2,246,368.257	57.44'	6,749.55'	6,851.02'	-101.47'	6,754.01'	-4.46'	RUNWAY 21 APPROACH	
91	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,189,599.326	2,246,690.359	15.00'	6,717.09'	6,761.99'	-44.89'	6,719.36'	-1.26'	RUNWAY 21 APPROACH	
92	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,189,411.136	2,246,928.699	15.00'	6,716.42'	6,761.89'	-46.47'	6,718.26'	-1.84'	RUNWAY 21 APPROACH	
96	OBSTRUCTION LIGHT ON LOCALIZER	1,188,688.600	2,246,588.415	9.81'	6,700.63'	6,716.50'	-15.90'	6,706.44'	5.22'	RUNWAY 21 APPROACH	
99	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,189,628.196	2,246,870.264	15.00'	6,716.48'	6,761.91'	-45.44'	6,718.37'	-1.89'	RUNWAY 21 APPROACH	
1011	TREE	1,191,588.907	2,249,147.293	83.67'	6,759.59'	6,927.19'	-167.60'	6,784.46'	-24.87'	RUNWAY 21 APPROACH	
1012	TREE	1,191,654.156	2,249,157.462	75.00'	6,751.05'	6,924.19'	-173.11'	6,782.28'	-32.29'	RUNWAY 21 APPROACH	
1013	TREE	1,196,243.294	2,252,606.900	31.81'	6,737.27'	N/A	N/A	6,888.54'	-151.30'	RUNWAY 21 APPROACH	
2011	BUILDING	1,189,992.951	2,241,572.913	27.16'	6,719.15'	N/A	N/A	6,746.53'	-26.27'	RUNWAY 21 APPROACH	
2015	TELEPHONE PYLON/POLE	1,190,697.698	2,241,334.287	20.68'	6,716.49'	6,853.31'	-136.81'	6,754.93'	-38.62'	RUNWAY 21 APPROACH	
2016	TELEPHONE PYLON/POLE	1,191,120.216	2,241,341.219	21.92'	6,721.81'	6,870.63'	-148.15'	6,761.61'	-39.73'	RUNWAY 21 APPROACH	
2019	TELEPHONE PYLON/POLE	1,175,129.274	2,233,697.795	31.47'	6,702.19'	6,759.69'	-57.50'	6,749.50'	-47.49'	RUNWAY 3 APPROACH	

APPROACH ROAD INTERSECTION TABLE

NO.	OBJECT TYPE	NORTHING	EASTING	OBJECT HEIGHT	ABOVE GROUND LEVEL (AGL)	EXISTING 20:1 APPROACH SURFACE ELEVATION	EXISTING 20:1 APPROACH PENETRATION	FUTURE PART 77 SURFACE ELEVATION	FUTURE PART 77 PENETRATION	SURFACE REFERENCE	DISPOSITION
1001	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,191,023.201	2,239,775.946	10.00'	6,619.99'	6,619.99'	0.00'	6,620.22'	-0.23'	RUNWAY 3 APPROACH	
1002	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,190,440.698	2,239,152.281	10.00'	6,588.72'	6,588.72'	0.00'	6,626.95'	-43.27'	RUNWAY 3 APPROACH	
1003	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,190,957.648	2,239,558.183	10.00'	6,621.84'	6,621.84'	0.00'	6,619.74'	2.10'	RUNWAY 3 APPROACH	NON-PUBLIC AIRPORT ROAD
1004	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,191,217.679	2,239,396.102	10.00'	6,626.69'	6,626.69'	0.00'	6,619.74'	7.00'	RUNWAY 3 APPROACH	NON-PUBLIC AIRPORT ROAD
1005	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,190,691.786	2,240,328.616	10.00'	6,624.96'	6,624.96'	0.00'	6,621.41'	3.55'	RUNWAY 3 APPROACH	NON-PUBLIC AIRPORT ROAD
1006	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,179,921.997	2,239,637.778	10.00'	6,614.14'	6,614.14'	0.00'	6,640.38'	-26.24'	RUNWAY 3 APPROACH	
1007	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,179,453.212	2,239,955.208	10.00'	6,596.77'	6,596.77'	0.00'	6,652.49'	-55.72'	RUNWAY 3 APPROACH	
1008	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,179,444.102	2,239,954.006	10.00'	6,594.66'	6,594.66'	0.00'	6,652.54'	-57.88'	RUNWAY 3 APPROACH	
1009	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,179,356.745	2,239,915.262	10.00'	6,589.34'	6,589.34'	0.00'	6,653.98'	-64.64'	RUNWAY 3 APPROACH	
1010	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,179,270.183	2,239,694.742	10.00'	6,587.38'	6,587.38'	0.00'	6,654.53'	-67.15'	RUNWAY 3 APPROACH	
1011	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,190,487.143	2,240,037.918	10.00'	6,621.27'	6,621.27'	0.00'	6,619.74'	1.53'	RUNWAY 3 APPROACH	NON-PUBLIC AIRPORT ROAD
1012	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,179,373.958	2,240,217.368	10.00'	6,596.55'	6,596.55'	0.00'	6,629.81'	-27.69'	RUNWAY 3 APPROACH	
1013	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,189,792.862	2,246,640.989	15.00'	6,723.49'	N/A	N/A	6,716.37'	6.12'	RUNWAY 21 APPROACH	TO BE RELOCATED
1014	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,189,736.649	2,246,695.933	10.00'	6,712.12'	N/A	N/A	6,714.62'	-2.71'	RUNWAY 21 APPROACH	
1015	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,189,272.249	2,246,995.676	10.00'	6,697.09'	6,693.34'	3.74'	6,689.34'	8.65'	RUNWAY 21 APPROACH	NON-PUBLIC AIRPORT ROAD
1016	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,189,966.966	2,246,796.756	10.00'	6,697.09'	6,689.34'	7.92'	6,689.34'	7.92'	RUNWAY 21 APPROACH	NON-PUBLIC AIRPORT ROAD
1017	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,191,037.797	2,246,496.257	10.00'	6,695.46'	6,689.34'	6.12'	6,689.34'	6.12'	RUNWAY 21 APPROACH	NON-PUBLIC AIRPORT ROAD
1018	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,189,944.055	2,246,790.006	10.00'	6,709.78'	6,736.31'	-26.53'	6,709.12'	-0.33'	RUNWAY 21 APPROACH	
1019	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,189,240.786	2,247,100.007	15.00'	6,716.11'	6,701.47'	45.76'	6,718.35'	-2.24'	RUNWAY 21 APPROACH	
1020	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,189,840.725	2,247,024.159	15.00'	6,706.50'	N/A	N/A	6,717.79'	-11.29'	RUNWAY 21 APPROACH	
1021	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,179,340.616	2,237,400.007	10.00'	6,467.69'	6,467.69'	0.00'	6,692.64'	-225.96'	RUNWAY 3 APPROACH	
1022	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,179,010.389	2,239,786.816	15.00'	6,470.69'	6,470.69'	0.00'	6,650.13'	-179.58'	RUNWAY 3 APPROACH	
1023	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,179,272.176	2,239,674.703	15.00'	6,476.62'	6,476.62'	0.00'	6,669.57'	-194.38'	RUNWAY 3 APPROACH	
1024	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,177,222.861	2,237,273.816	15.00'	6,422.15'	6,422.15'	0.00'	6,639.53'	-217.38'	RUNWAY 3 APPROACH	
1025	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,196,831.429	2,249,240.247	10.00'	6,204.03'	6,361.37'	-157.34'	6,258.57'	-54.60'	RUNWAY 21 APPROACH	
1026	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,189,508.596	2,249,205.391	10.00'	6,697.83'	N/A	N/A	6,724.29'	-26.47'	RUNWAY 21 APPROACH	
1027	INTERSECTION HIGHWAY (+15' ADJUSTMENT ADDED)	1,192,042.900	2,249,243.966	17.00'	6,683.02'	6,936.21'	-253.26'	6,788.12'	-105.10'	RUNWAY 21 APPROACH	

NOTES

1. ITEMS SHOWN HIGHLIGHTED YELLOW REPRESENT OBJECT THAT PENETRATES THE REFERENCED SURFACE.
2. ITEMS SHOWN WITH NEGATIVE VALUES IN THE PENETRATION COLUMN ARE OBJECTS THAT DO NOT PENETRATE THE REFERENCED SURFACE.
3. SERVICE ROADS PROVIDE ACCESS TO THE AIRPORT'S NAVIGATIONAL AIDS. ACCESS TO THESE ROADS IS CONTROLLED.
4. SEE PLAN VIEWS ON SHEETS 8, 9, 12 AND 13.
5. OBJECTS THAT HAVE N/A ARE OUTSIDE THE EXISTING APPROACH SURFACE. ELEVATIONS IN THESE COLUMNS DO NOT APPLY. THEY ARE ONLY APPLICABLE TO FUTURE APPROACH.

SOURCE

1. OBSTRUCTION SURVEY DATA WAS COMPILED BY WOOLPERT, INC. IN MAY 2015.
2. ALL HORIZONTAL COORDINATES – NAD83/2011, ALL VERTICAL COORDINATES – NAVD88

I:\Projects\DRO\CAD\ALP\2014\PLANS\
11-DRO-ALP-AIRP.dwg
Jun 11, 2016 - 08:54am
robert.bell

JVIATION®

DURANGO-LA PLATA COUNTY AIRPORT

DES: B.L.R.
DR: B.L.R.
CH: C.M.C.
APP: D.F.N.

ISSUE RECORD

NO.	BY	DATE	DESCRIPTION
1	D.F.N.	7/21/15	ISSUED FOR AIRSPACE REVIEW
2	C.M.C.	10/30/15	FINAL

AIRPORT LAYOUT PLAN

AIRPORT AIRSPACE PROFILE

AIP GRANT NO. 3-08-0019-044
JVIATION PROJ. NO. 2014.DRO.02
DATE: OCTOBER, 2015

SHEET NO. 11 of 18

NOTES

1. ITEMS SHOWN HIGHLIGHTED YELLOW REPRESENT OBJECT THAT PENETRATES THE REFERENCED SURFACE.
2. ITEMS SHOWN WITH NEGATIVE VALUES IN THE PENETRATION COLUMN ARE OBJECTS THAT DO NOT PENETRATE THE REFERENCED SURFACE.
3. SERVICE ROADS PROVIDE ACCESS TO THE AIRPORT'S NAVIGATIONAL AIDS. ACCESS TO THESE ROADS IS CONTROLLED.

SOURCE

1. OBSTRUCTION SURVEY DATA WAS COMPILED BY WOOLPERT, INC. IN MAY 2015.
2. ALL HORIZONTAL COORDINATES – NAD83/2011, ALL VERTICAL COORDINATES – NAVD88

AIRSPACE OBSTACLE TABLE

NO.	OBJECT TYPE	NORTHING	EASTING	OBJECT HEIGHT	ABOVE GROUND LEVEL (AGL)	PART 77 SURFACE ELEVATION	PART 77 PENETRATION	SURFACE REFERENCE	DISPOSITION
1	OBSTRUCTION LIGHT ON LOCALIZER	1,188,698.190	2,346,552.700	9.69'	6,703.69'	6,701.44'	2.25'	RUNWAY 21 APPROACH	
2	OBSTRUCTION LIGHT ON GS	1,181,410.500	2,341,182.540	42.06'	6,662.68'	6,624.80'	37.88'	PRIMARY	
3	ANTENNA	1,185,164.420	2,344,465.560	15.63'	6,677.19'	6,674.65'	2.54'	RUNWAY TRANSITIONAL	FIXED BY FUNCTION
4	OBSTRUCTION LIGHT ON VDME	1,185,074.630	2,344,412.310	28.12'	6,688.99'	6,675.95'	13.04'	RUNWAY TRANSITIONAL	
5	TOP WEATHER STATION	1,184,154.470	2,343,259.780	11.57'	6,660.74'	6,654.56'	6.18'	PRIMARY	FIXED BY FUNCTION
6	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,189,705.850	2,346,645.380	15.00'	6,719.82'	6,718.32'	1.50'	RUNWAY 21 APPROACH	TO BE RELOCATED
7	OBSTRUCTION LIGHT ON LIGHTPOLE	1,185,794.220	2,343,295.960	57.00'	6,724.11'	6,698.59'	25.52'	RUNWAY TRANSITIONAL	
8	OBSTRUCTION LIGHT ON LIGHTPOLE	1,186,055.920	2,343,484.110	52.30'	6,719.94'	6,703.28'	16.66'	RUNWAY TRANSITIONAL	
9	OBSTRUCTION LIGHT ON LIGHTPOLE	1,186,224.400	2,343,619.350	52.80'	6,719.68'	6,704.82'	14.86'	RUNWAY TRANSITIONAL	
10	OBSTRUCTION LIGHT ON LIGHTPOLE	1,185,058.750	2,342,705.740	57.19'	6,715.19'	6,691.31'	23.88'	RUNWAY TRANSITIONAL	
11	CHIMNEY/SMOKESTACK	1,198,544.990	2,349,700.450	44.00'	6,889.23'	6,885.05'	4.18'	CONICAL	INSTALL OB LIGHT
12	TELEPHONE PYLON/POLE	1,168,001.450	2,325,270.900	33.00'	6,847.14'	7,090.57'	-243.43'	RUNWAY TRANSITIONAL	
13	TREE	1,187,416.980	2,346,110.920	21.22'	6,690.78'	6,685.69'	5.09'	PRIMARY	TO BE LOWERED
14	TREE	1,164,787.460	2,331,663.910	27.00'	6,821.31'	7,038.37'	-217.06'	RUNWAY TRANSITIONAL	
15	TREE	1,167,622.510	2,325,071.020	30.00'	6,853.87'	7,080.30'	-226.43'	RUNWAY TRANSITIONAL	
16	TREE	1,194,123.870	2,339,355.010	59.00'	6,840.29'	6,839.41'	0.88'	HORIZONTAL	TO BE REMOVED
17	NATURAL HIGH POINT	1,185,626.830	2,343,666.410	0.00'	6,665.61'	6,664.79'	0.82'	PRIMARY	TO BE LOWERED
18	NATURAL HIGH POINT	1,185,541.840	2,343,597.410	0.00'	6,664.49'	6,663.95'	0.54'	PRIMARY	TO BE LOWERED
19	NATURAL HIGH POINT	1,185,457.190	2,343,531.800	0.00'	6,663.60'	6,663.13'	0.47'	PRIMARY	TO BE LOWERED
20	NATURAL HIGH POINT	1,185,372.860	2,343,463.690	0.00'	6,662.48'	6,662.31'	0.17'	PRIMARY	TO BE LOWERED
21	NATURAL HIGH POINT	1,185,291.840	2,343,398.100	0.00'	6,661.81'	6,661.46'	0.35'	PRIMARY	TO BE LOWERED
22	NATURAL HIGH POINT	1,185,202.820	2,343,325.120	0.00'	6,660.47'	6,660.58'	-0.11'	PRIMARY	
23	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,165,117.120	2,332,291.500	15.00'	6,796.37'	7,076.89'	-280.52'	RUNWAY TRANSITIONAL	
24	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,165,046.850	2,332,372.770	15.00'	6,799.07'	7,092.36'	-293.29'	RUNWAY TRANSITIONAL	
25	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,189,785.760	2,346,550.310	15.00'	6,722.30'	6,718.38'	3.92'	RUNWAY 21 APPROACH	TO BE RELOCATED
26	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,189,612.220	2,346,765.910	15.00'	6,719.00'	6,718.37'	0.63'	RUNWAY 21 APPROACH	TO BE RELOCATED
27	BUILDING	1,185,874.620	2,343,355.440	38.47'	6,706.45'	6,699.86'	6.59'	RUNWAY TRANSITIONAL	INSTALL OB LIGHT
28	AIRPORT SIGN	1,185,797.680	2,343,860.000	2.71'	6,669.41'	6,666.74'	2.67'	PRIMARY	
29	AIRPORT SIGN	1,187,932.980	2,345,854.730	2.36'	6,689.19'	6,687.64'	1.55'	PRIMARY	
30	BUILDING	1,188,841.510	2,346,354.750	11.26'	6,704.77'	6,701.20'	3.57'	RUNWAY 21 APPROACH	INSTALL OB LIGHT
31	OIL RIG	1,167,995.590	2,334,318.890	106.00'	6,801.61'	7,033.09'	-231.48'	RUNWAY TRANSITIONAL	
32	ANTENNA	1,186,157.000	2,336,134.940	126.07'	6,843.65'	6,839.41'	4.24'	HORIZONTAL	INSTALL OB LIGHT
33	RUNWAY SIGN	1,184,812.910	2,343,349.260	3.31'	6,660.21'	6,658.47'	1.74'	PRIMARY	
34	RUNWAY SIGN	1,185,450.500	2,343,862.270	2.14'	6,665.40'	6,664.70'	0.70'	PRIMARY	
35	RUNWAY SIGN	1,185,739.760	2,344,094.680	2.24'	6,668.65'	6,667.51'	1.14'	PRIMARY	
36	RUNWAY SIGN	1,186,028.280	2,344,325.730	2.40'	6,671.56'	6,670.31'	1.25'	PRIMARY	
37	RUNWAY SIGN	1,186,792.600	2,344,939.410	2.55'	6,677.46'	6,675.93'	1.53'	PRIMARY	
38	RUNWAY SIGN	1,187,089.670	2,345,177.590	2.26'	6,680.37'	6,679.04'	1.33'	PRIMARY	
39	RUNWAY SIGN	1,184,516.670	2,343,112.570	2.75'	6,657.32'	6,655.84'	1.48'	PRIMARY	
40	RUNWAY SIGN	1,183,310.710	2,342,143.430	2.44'	6,644.73'	6,643.61'	1.12'	PRIMARY	
41	RUNWAY SIGN	1,183,035.360	2,341,923.490	2.52'	6,641.00'	6,639.76'	1.24'	PRIMARY	
42	RUNWAY SIGN	1,182,433.810	2,341,439.410	2.15'	6,633.06'	6,632.20'	0.86'	PRIMARY	
43	RUNWAY SIGN	1,182,137.520	2,341,201.160	2.67'	6,630.74'	6,629.13'	1.61'	PRIMARY	
44	RUNWAY SIGN	1,181,110.080	2,340,376.840	1.80'	6,621.69'	6,621.02'	0.67'	PRIMARY	
45	RUNWAY SIGN	1,181,348.230	2,340,567.940	2.21'	6,623.30'	6,622.50'	0.80'	PRIMARY	
46	TAXIWAY SIGN	1,185,710.140	2,343,790.670	2.60'	6,668.75'	6,665.88'	2.87'	PRIMARY	
47	TAXIWAY SIGN	1,185,930.980	2,344,002.220	2.90'	6,670.78'	6,668.21'	2.57'	PRIMARY	
48	TAXIWAY SIGN	1,186,074.100	2,344,110.250	2.34'	6,670.95'	6,669.59'	1.36'	PRIMARY	
49	TAXIWAY SIGN	1,184,853.670	2,343,136.870	2.31'	6,658.66'	6,657.74'	0.92'	PRIMARY	
50	TAXIWAY SIGN	1,184,717.100	2,343,027.160	2.94'	6,657.77'	6,656.54'	1.23'	PRIMARY	
51	TAXIWAY SIGN	1,183,263.650	2,341,813.560	2.71'	6,642.29'	6,641.06'	1.23'	PRIMARY	
52	TAXIWAY SIGN	1,183,351.020	2,341,930.330	2.42'	6,642.69'	6,642.57'	0.12'	PRIMARY	
53	VASI	1,187,324.880	2,345,660.660	4.08'	6,684.11'	6,682.88'	1.23'	PRIMARY	
54	VASI	1,186,779.860	2,345,223.700	3.83'	6,678.21'	6,677.32'	0.89'	PRIMARY	
55	RUNWAY SIGN	1,187,132.780	2,345,460.280	3.88'	6,682.70'	6,680.73'	1.97'	PRIMARY	
56	RUNWAY SIGN	1,186,352.370	2,344,834.210	3.12'	6,676.26'	6,673.41'	1.86'	PRIMARY	
57	RUNWAY SIGN	1,185,572.940	2,344,207.910	4.32'	6,669.71'	6,667.07'	2.64'	PRIMARY	
58	RUNWAY SIGN	1,184,793.370	2,343,582.180	2.33'	6,660.20'	6,659.34'	0.86'	PRIMARY	
59	RUNWAY SIGN	1,184,013.830	2,342,956.180	2.56'	6,652.85'	6,652.12'	0.73'	PRIMARY	
60	RUNWAY SIGN	1,183,233.750	2,342,330.050	2.93'	6,645.08'	6,644.11'	0.97'	PRIMARY	
61	RUNWAY SIGN	1,182,454.190	2,341,703.420	2.89'	6,634.57'	6,633.61'	0.96'	PRIMARY	
62	COMMUNICATION TOWER	1,188,564.020	2,333,779.630	143.27'	6,896.47'	6,839.41'	57.06'	HORIZONTAL	INSTALL OB LIGHT
63	POLE	1,187,393.626	2,344,362.642	52.72'	6,732.72'	6,736.72'	-4.01'	RUNWAY TRANSITIONAL	
64	POLE	1,187,261.485	2,344,249.090	52.36'	6,731.82'	6,735.27'	-3.44'	RUNWAY TRANSITIONAL	
65	POLE	1,187,531.564	2,344,474.142	54.39'	6,734.51'	6,737.74'	-3.24'	RUNWAY TRANSITIONAL	
66	TREE	1,182,626.225	2,340,934.359	17.57'	6,638.57'	6,645.97'	-7.40'	RUNWAY TRANSITIONAL	
67	TREE	1,183,220.225	2,341,460.540	17.82'	6,640.11'	6,647.99'	-7.88'	RUNWAY TRANSITIONAL	
68	TREE	1,187,066.970	2,345,988.944	37.73'	6,686.73'	6,691.92'	-5.19'	RUNWAY TRANSITIONAL	
69	TREE	1,187,454.514	2,346,282.142	22.19'	6,688.19'	6,693.05'	-4.86'	RUNWAY TRANSITIONAL	
70	TREE	1,190,611.092	2,348,368.257	57.44'	6,749.55'	6,754.01'	-4.46'	RUNWAY 21 APPROACH	
71	NATURAL HIGH POINT	1,181,193.298	2,339,913.317	0.00'	6,616.42'	6,620.16'	-3.74'	RUNWAY TRANSITIONAL	
72	NATURAL HIGH POINT	1,180,943.320	2,340,224.658	0.00'	6,618.23'	6,619.74'	-1.51'	PRIMARY	
73	NATURAL HIGH POINT	1,180,810.722	2,340,388.842	0.00'	6,617.85'	6,619.74'	-1.89'	PRIMARY	
74	NATURAL HIGH POINT	1,183,204.901	2,342,308.392	0.00'	6,640.80'	6,643.78'	-2.98'	PRIMARY	
75	NATURAL HIGH POINT	1,183,479.265	2,341,960.454	0.00'	6,641.50'	6,643.75'	-2.25'	PRIMARY	
76	NATURAL HIGH POINT	1,185,321.519	2,344,544.715	0.00'	6,662.90'	6,670.69'	-7.79'	RUNWAY TRANSITIONAL	
77	NATURAL HIGH POINT	1,185,592.243	2,344,226.072	0.00'	6,665.29'	6,667.26'	-1.97'	PRIMARY	
78	NATURAL HIGH POINT	1,185,844.295	2,343,860.809	0.00'	6,667.40'	6,667.01'	0.39'	PRIMARY	
79	NATURAL HIGH POINT	1,185,919.363	2,343,935.392	0.00'	6,667.85'	6,667.85'	0.00'	PRIMARY	
80	NATURAL HIGH POINT	1,185,712.175	2,343,744.524	0.00'	6,666.51'	6,665.71'	0.80'	PRIMARY	TO BE LOWERED
81	NATURAL HIGH POINT	1,187,992.024	2,345,879.113	0.00'	6,686.97'	6,688.16'	-1.20'	PRIMARY	
82	NATURAL HIGH POINT	1,188,145.563	2,346,004.486	0.00'	6,688.61'	6,689.34'	-0.73'	PRIMARY	
83	SERVICE ROAD (+10' ADJUSTMENT ADDED)	1,181,001.596	2,340,160.327	10.00'	6,627.45'	6,619.74'	7.71'	PRIMARY	NON-PUBLIC AIRPORT ROAD
84	SERVICE ROAD (+10' ADJUSTMENT ADDED)	1,181,141.896	2,339,984.389	10.00'	6,627.33'	6,619.74'	7.58'	PRIMARY	NON-PUBLIC AIRPORT ROAD
85	SERVICE ROAD (+10' ADJUSTMENT ADDED)	1,183,301.030	2,341,618.675	10.00'	6,648.49'	6,639.93'	8.56'	PRIMARY	NON-PUBLIC AIRPORT ROAD
86	SERVICE ROAD (+10' ADJUSTMENT ADDED)	1,186,623.975	2,344,045.344	10.00'	6,683.18'	6,697.81'	-14.63'	RUNWAY TRANSITIONAL	
87	SERVICE ROAD (+10' ADJUSTMENT ADDED)	1,186,540.522	2,343,985.451	10.00'	6,682.00'	6,696.23'	-14.24'	RUNWAY TRANSITIONAL	
88	SERVICE ROAD (+10' ADJUSTMENT ADDED)	1,186,399.214	2,343,883.576	10.00'	6,680.00'	6,693.64'	-13.64'	RUNWAY TRANSITIONAL	
89	SERVICE ROAD (+10' ADJUSTMENT ADDED)	1,186,296.964	2,343,809.168	10.00'	6,678.36'	6,691.84'	-13.49'	RUNWAY TRANSITIONAL	
90	SERVICE ROAD (+10' ADJUSTMENT ADDED)	1,187,971.145	2,346,144.784	10.00'	6,698.53'	6,689.40'	9.14'	PRIMARY	NON-PUBLIC AIRPORT ROAD
91	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,189,509.320	2,346,893.350	15.00'	6,717.00'	6,718.36'	-1.36'	RUNWAY 21 APPROACH	
92	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,189,481.133	2,346,928.090	15.00'	6,716.42'	6,718.36'	-1.94'	RUNWAY 21 APPROACH	
93	BUILDING	1,185,950.044	2,343,262.358	39.41'	6,706.67'	6,716.50'	-9.83'	RUNWAY TRANSITIONAL	
94	MALSR NAVAID	1,180,873.572	2,340,301.539	-0.43'	6,619.58'	6,619.74'	-0.17'	PRIMARY	
95	OBSTRUCTION LIGHT ON LOCALIZER	1,188,668.603	2,346,589.415	9.81'	6,703.67'	6,701.44'	2.23'	RUNWAY 21 APPROACH	
96	OBSTRUCTION LIGHT WSK NAVAID	1,181,100.213	2,341,358.063	23.30'	6,643.35'	6,650.25'	-6.90'	PRIMARY	
97	LIGHT ON WSK	1,185,718.003	2,344,984.084	22.71'	6,684.28'	6,688.30'	-4.02'	RUNWAY TRANSITIONAL	

AIRSPACE OBSTACLE TABLE

NO.	OBJECT TYPE	NORTHING	EASTING	OBJECT HEIGHT	ABOVE GROUND LEVEL (AGL)	PART 77 SURFACE ELEVATION	PART 77 PENETRATION	SURFACE REFERENCE	DISPOSITION
98	OBSTRUCTION LIGHT ON APBN	1,186,137.692	2,345,651.908	57.01'	6,727.73'	6,730.14'	-2.41'	RUNWAY TRANSITIONAL	
99	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,189,528.194	2,346,870.364	15.00'	6,716.48'	6,718.37'	-1.89'	RUNWAY 21 APPROACH	
100	NATURAL HIGH POINT	1,181,140.357	2,339,978.024	0.00'	6,616.68'	6,619.74'	-3.06'	PRIMARY	
101	TAXIWAY LIGHT	1,181,141.408	2,339,971.316	2.21'	6,618.59'	6,619.74'	-1.15'	PRIMARY	
102	BUILDING	1,185,376.116	2,342,921.164	26.54'	6,688.60'	6,698.34'	-9.74'	RUNWAY TRANSITIONAL	
103	OIL RIG	1,167,995.590	2,334,318.890	105.65'	6,801.61'	7,033.09'	-231.48'	RUNWAY TRANSITIONAL	
104	POLE	1,186,813.923	2,343,901.437	25.25'	6,697.17'	6,731.04'	-33.88'	RUNWAY TRANSITIONAL	
105	POLE	1,187,114.616	2,344,138.627	41.22'	6,719.08'	6,733.99'	-14.91'	RUNWAY TRANSITIONAL	
106	POLE	1,187,716.678	2,344,601.437	31.27'	6,713.26'	6,752.35'	-39.09'	RUNWAY TRANSITIONAL	
107	POLE	1,186,917.625	2,343,136.256	27.27'	6,688.90'	6,726.82'	-37.91'	RUNWAY TRANSITIONAL	
108	POLE	1,186,967.304	2,344,018.507	25.07'	6,700.19'	6,732.73'	-32.55'	RUNWAY TRANSITIONAL	
109	POLE	1,187,207.518	2,344,064.998	33.21'	6,711.40'	6,750.33'	-38.93'	RUNWAY TRANSITIONAL	
110	POLE	1,188,322.063	2,344,898.719	41.50'	6,729.04'	6,766.89'	-37.84'	RUNWAY TRANSITIONAL	
111	POLE	1,188,415.855	2,345,076.864	38.61'	6,727.99'	6,757.13'	-29.14'	RUNWAY TRANSITIONAL	
112	FENCE	1,183,811.877	2,341,792.662	5.74'	6,645.74'	6,670.41'	-24.67'	RUNWAY TRANSITIONAL	
113	FENCE	1,186,109.766	2,343,280.841	4.09'	6,669.87'	6,729.62'	-59.76'	RUNWAY TRANSITIONAL	
114	FENCE	1,186,195.923	2,343,350.104	4.99'	6,670.99'	6,730.41'	-59.43'	RUNWAY TRANSITIONAL	
115	FENCE	1,186,308.678	2,343,521.748	4.48'	6,668.08'	6,723.24'	-55.16'	RUNWAY TRANSITIONAL	
116	FENCE	1,186,985.897	2,344,169.946	3.50'	6,679.28'	6,718.67'	-39.39'	RUNWAY TRANSITIONAL	
117	FENCE	1,188,162.722	2,344,887.594	4.40'	6,690.40'	6,752.98'	-62.58'	RUNWAY TRANSITIONAL	
118	FENCE	1,188,032.456	2,344,844.160	5.76'	6,689.73'	6,745.21'	-55.48'	RUNWAY TRANSITIONAL	
119	FENCE	1,187,928.927	2,344,761.592	6.07'	6,689.51'	6,744.10'	-54.59'	RUNWAY TRANSITIONAL	
120	FENCE	1,187,515.621	2,344,362.205	5.03'	6,685.04'	6,748.18'	-63.15'	RUNWAY TRANSITIONAL	
121	FENCE	1,185,477.498	2,338,903.099	4.97'	6,686.40'	6,839.41'	-153.01'	HORIZONTAL	
122	PARKING LOT	1,187,590.816	2,346,876.765	0.00'	6,704.02'	6,749.70'	-45.69'	RUNWAY TRANSITIONAL	
123	PARKING LOT	1,187,628.099	2,346,779.103	0.00'	6,698.91'	6,735.49'	-36.58'	RUNWAY TRANSITIONAL	
124	PARKING LOT	1,187,740.462	2,346,674.395	0.00'	6,697.80'	6,713.77'	-15.98'	RUNWAY TRANSITIONAL	
125	PARKING LOT	1,187,860.793	2,346,765.291	0.00'	6,699.35'	6,714.13'	-14.78'	RUNWAY TRANSITIONAL	
126	PARKING LOT	1,187,964.342	2,346,843.454	0.00'	6,700.46'	6,715.07'	-14.61'	RUNWAY TRANSITIONAL	
127	PARKING LOT	1,187,644.132	2,346,893.958	15.18'	6,704.24'	6,746.85'	-42.61'	RUNWAY TRANSITIONAL	
128	PARKING LOT	1,187,676.923	2,344,553.147	13.90'	6,695.90'	6,742.89'	-46.99'	RUNWAY TRANSITIONAL	
129	PARKING LOT	1,187,797.462	2,344,649.247	15.14'	6,697.46'	6,743.76'	-46.30'	RUNWAY TRANSITIONAL	
130	PARKING LOT	1,186,648.598	2,343,931.655	15.07'	6,685.43'	6,711.98'	-26.55'	RUNWAY TRANSITIONAL	
131	PARKING LOT	1,186,713.495	2,343,841.931	15.51'	6,686.33'	6,727.36'	-41.04'	RUNWAY TRANSITIONAL	
132	PARKING LOT	1,186,938.066	2,343,919.014	14.51'	6,688.08'	6,740.40'	-52.31'	RUNWAY TRANSITIONAL	
133	PARKING LOT	1,187,068.463	2,344,024.299	14.29'	6,691.15'	6,741.57'	-50.42'	RUNWAY TRANSITIONAL	
134	PARKING LOT	1,186,381.758	2,343,704.228	14.65'	6,678.81'	6,710.69'	-31.89'	RUNWAY TRANSITIONAL	
135	PARKING LOT	1,186,460.362	2,343,796.760	14.81'	6,678.81'	6,708.42'	-29.61'	RUNWAY TRANSITIONAL	
136	PARKING LOT	1,186,531.759	2,343,878.389	14.83'	6,680.60'	6,706.62'	-26.02'	RUNWAY TRANSITIONAL	
137	PARKING LOT	1,186,588.937	2,343,748.256	14.85'	6,679.36'	6,725.55'	-46.19'	RUNWAY TRANSITIONAL	
138	PARKING LOT	1,186,631.815	2,343,653.898	13.59'	6,681.59'	6,739.59'	-58.00'	RUNWAY TRANSITIONAL	
139	PARKING LOT	1,186,526.229	2,343,614.548	14.52'	6,677.12'	6,733.82'	-56.69'	RUNWAY TRANSITIONAL	
140	PARKING LOT	1,186,027.693	2,343,164.963	14.24'	6,678.24'	6,734.19'	-55.95'	RUNWAY TRANSITIONAL	
141	COMMUNICATION TOWER	1,190,834.060	2,344,539.050	83.27'	6,787.43'	6,839.41'	-51.98'	HORIZONTAL	
142	BUSH	1,186,051.880	2,343,502.058	4.99'	6,672.79'	6,700.97'	-28.18'	RUNWAY TRANSITIONAL	
143	TOWER/2610018	1,185,898.367	2,335,299.974	39.97'	6,772.97'	6,839.41'	-66.44'	HORIZONTAL	
144	OIL RIG/08-000437	1,194,885.600	2,348,420.390	18.90'	6,760.90'	6,839.41'	-78.51'	HORIZONTAL	
145	TELEPHONE PYLON/POLE	1,192,181.892	2,346,522.844	38.05'	6,764.05'	6,839.41'	-75.36'	HORIZONTAL	
146	TELEPHONE PYLON/POLE	1,184,553.591	2,332,167.173	37.16'	6,759.68'	6,839.41'	-79.73'	HORIZONTAL	
147	TELEPHONE PYLON/POLE	1,184,633.854	2,333,614.222	45.75'	6,763.18'	6,839.41'	-76.23'	HORIZONTAL	
148	TREE	1,184,857.338	2,342,286.244	15.57'	6,653.72'	6,716.88'	-63.16'	RUNWAY TRANSITIONAL	
149	TREE	1,184,683.614	2,342,325.027	29.94'	6,662.94'	6,696.30'	-33.36'	RUNWAY TRANSITIONAL	
150	TREE	1,182,790.993	2,341,026.210	19.73'	6,641.73'	6,652.03'	-10.30'	RUNWAY TRANSITIONAL	
151	TREE	1,180,437.552	2,340,832.132	24.61'	6,618.30'	6,646.50'	-28.19'	RUNWAY TRANSITIONAL	
152	TREE	1,180,682.545	2,340,981.112	20.96'	6,626.21'	6,642.66'	-16.45'	RUNWAY TRANSITIONAL	
153	TREE	1,181,449.099	2,341,933.063	28.56'	6,639.40'	6,688.55'	-49.15'	RUNWAY TRANSITIONAL	
154	TREE	1,181,287.581	2,341,765.670	25.56'	6,636.69'	6,682.45'	-45.76'	RUNWAY TRANSITIONAL	
155	TREE	1,181,539.626	2,341,992.795	19.67'	6,631.95'	6,688.02'	-56.06'	RUNWAY TRANSITIONAL	
156	TREE	1,181,325.395	2,341,968.510	23.62'	6,638.95'	6,703.33'	-64.38'	RUNWAY TRANSITIONAL	
157	TREE	1,181,159.219	2,341,698.731	21.28'	6,632.40'	6,685.41'	-53.01'	RUNWAY TRANSITIONAL	
158	TREE	1,181,404.797	2,341,757.569	24.98'	6,638.72'	6,671.52'	-32.80'	RUNWAY TRANSITIONAL	
159	TREE	1,183,604.441	2,341,311.003	20.44'	6,648.44'	6,702.03'	-53.59'	RUNWAY TRANSITIONAL	
160	TREE	1,183,250.267	2,341,108.254	29.14'	6,649.58'	6,689.84'	-40.26'	RUNWAY TRANSITIONAL	
161	TREE	1,183,361.909	2,341,033.336	15.33'	6,640.33'	6,708.61'	-68.28'	RUNWAY TRANSITIONAL	
162	TREE	1,183,518.647	2,341,101.452	22.59'	6,643.03'	6,716.20'	-73.16'	RUNWAY TRANSITIONAL	
163	TREE	1,183,234.492	2,341,346.175	24.81'	6,647.77'	6,662.17'	-14.39'	RUNWAY TRANSITIONAL	
164	TREE	1,183,223.767	2,341,217.890	20.54'	6,643.26'	6,675.24'	-31.98'	RUNWAY TRANSITIONAL	
165	TREE	1,183,673.674	2,341,412.357	13.38'	6,644.38'	6,697.80'	-53.42'	RUNWAY TRANSITIONAL	
166	TREE	1,183,722.371	2,341,617.199	22.52'	6,649.52'	6,691.26'	-41.74'	RUNWAY TRANSITIONAL	
167	TREE	1,184,298.978	2,341,991.178	24.14'	6,656.62'	6,695.41'	-38.79'	RUNWAY TRANSITIONAL	
168	TREE	1,184,008.008	2,341,931.868	23.35'	6,656.17'	6,674.17'	-17.99'	RUNWAY TRANSITIONAL	
169	TREE	1,184,136.438	2,341,882.288	28.25'	6,653.25'	6,691.61'	-38.36'	RUNWAY TRANSITIONAL	
170	TREE	1,183,912.023	2,341,868.024	21.20'	6,654.15'	6,671.88'	-17.73'	RUNWAY TRANSITIONAL	
171	TREE	1,183,929.314	2,341,760.222	17.80'	6,652.80'	6,684.99'	-32.19'	RUNWAY TRANSITIONAL	
172	TREE	1,183,803.420	2,341,634.619	23.80'	6,646.95'	6,686.43'	-39.48'	RUNWAY TRANSITIONAL	
173	TREE	1,183,906.002	2,341,660.714	13.15'	6,645.15'	6,693.37'	-48.22'	RUNWAY TRANSITIONAL	
174	TREE	1,185,872.526	2,345,592.016	27.92'	6,683.82'	6,745.22'	-61.40'	RUNWAY TRANSITIONAL	
175	TREE	1,186,950.104	2,345,965.642	20.39'	6,685.39'	6,698.06'	-12.67'	RUNWAY TRANSITIONAL	
176	TREE	1,186,494.693	2,345,939.148	21.61'	6,682.81'	6,732.95'	-50.14'	RUNWAY TRANSITIONAL	
177	TREE	1,186,784.597	2,345,954.576	26.41'	6,684.41'	6,710.38'	-25.97'	RUNWAY TRANSITIONAL	
178	TREE	1,187,559.169	2,346,574.312	24.04'	6,698.28'	6,718.06'	-19.77'	RUNWAY TRANSITIONAL	
179	TREE	1,187,353.320	2,346,466.590	26.42'	6,693.42'	6,722.63'	-29.21'	RUNWAY TRANSITIONAL	
180	TREE	1,188,600.912	2,345,240.570	13.27'	6,705.27'	6,757.31'	-52.04'	RUNWAY TRANSITIONAL	
181	TREE	1,191,938.927	2,349,147.393	83.67'	6,759.50'	6,784.48'	-24.97'	RUNWAY 21 APPROACH	
182	TREE	1,191,854.156	2,349,157.462	75.08'	6,751.08'	6,783.28'	-32.20'	RUNWAY 21 APPROACH	
183	TREE	1,198,333.163	2,349,646.614	24.83'	6,858.69'	6,872.59'	-13.90'	CONICAL	
184	TREE	1,206,101.238	2,356,392.451	39.14'	6,974.40'	7,120.43'	-146.03'	RUNWAY 21 APPROACH	
185	TREE	1,187,838.831	2,346,994.020	24.13'	6,712.13'	6,743.03'	-30.90'	RUNWAY TRANSITIONAL	
186	TREE	1,188,291.394	2,347,793.908	32.40'	6,721.40'	6,801.52'	-80.12'	RUNWAY TRANSITIONAL	
187	TREE	1,195,848.294	2,352,690.902	31.81'	6,737.27'	6,888.56'	-151.30'	RUNWAY 21 APPROACH	
188	TREE	1,203,535.743	2,359,026.297	25.74'	6,961.09'	7,138.95'	-177.87'	RUNWAY 21 APPROACH	
189	TREE	1,175,012.735	2,333,176.016	32.34'	6,696.91'	6,805.35'	-108.44'	RUNWAY TRANSITIONAL	
190	TREE	1,171,166.665	2,336,129.407	26.38'	6,714.00'	6,858.40'	-144.40'	CONICAL	
191	TREE	1,164,999.747	2,331,533.163	32.08'	6,824.91'	7,011.73'	-186.82'	RUNWAY 3 APPROACH	
192	TREE	1,167,636.881	2,325,427.208	37.36'	6,864.86'	7,055.88'	-191.02'	RUNWAY 3 APPROACH	
193	TREE	1,185,129.629	2,338,643.732	38.92'	6,733.17'	6,839.41'	-106.24'	HORIZONTAL	
194	TREE	1,186,174.852	2,343,159.358	45.67'	6,709.33'	6,748.72'	-39.39'	RUNWAY TRANSITIONAL	

AIRSPACE OBSTACLE TABLE

NO.	OBJECT TYPE	NORTHING	EASTING	OBJECT HEIGHT	ABOVE GROUND LEVEL (AGL)	PART 77 SURFACE ELEVATION	PART 77 PENETRATION	SURFACE REFERENCED	DISPOSITION
195	TREE	1,188,210.211	2,344,012.737	49.07'	6,726.07'	6,839.41'	-113.34'	HORIZONTAL	
196	TREE	1,190,505.553	2,345,190.110	49.03'	6,755.03'	6,839.41'	-84.38'	HORIZONTAL	
197	TREE	1,198,476.790	2,349,316.975	24.47'	6,842.26'	6,875.95'	-33.69'	CONICAL	
198	TREE	1,186,589.089	2,346,727.462	26.36'	6,720.62'	6,816.14'	-95.53'	RUNWAY TRANSITIONAL	
199	TREE	1,188,001.065	2,347,904.979	41.24'	6,718.24'	6,838.05'	-119.81'	RUNWAY TRANSITIONAL	
200	TREE	1,170,812.526	2,337,349.522	27.37'	6,697.44'	6,854.77'	-157.33'	CONICAL	
201	TREE	1,181,625.528	2,352,790.960	29.17'	6,806.67'	6,839.41'	-32.74'	HORIZONTAL	
202	TREE	1,181,583.284	2,353,245.432	30.61'	6,806.22'	6,839.41'	-33.19'	HORIZONTAL	
203	TREE	1,197,951.372	2,346,490.594	27.46'	6,812.26'	6,839.41'	-27.15'	HORIZONTAL	
204	TREE	1,197,849.561	2,346,360.324	28.71'	6,808.90'	6,839.41'	-30.51'	HORIZONTAL	
205	TREE	1,204,421.625	2,350,233.015	35.09'	6,916.09'	7,614.70'	-698.62'	RUNWAY TRANSITIONAL	
206	TREE	1,182,076.460	2,354,090.433	27.87'	6,792.82'	6,839.51'	-46.69'	CONICAL	
207	NATURAL HIGH POINT	1,183,608.306	2,341,577.146	0.00'	6,642.89'	6,674.04'	-31.15'	RUNWAY TRANSITIONAL	
208	NATURAL HIGH POINT	1,188,581.299	2,345,722.343	0.00'	6,689.77'	6,703.30'	-13.53'	RUNWAY TRANSITIONAL	
209	NATURAL HIGH POINT	1,184,930.228	2,342,644.058	0.00'	6,657.84'	6,685.70'	-27.86'	RUNWAY TRANSITIONAL	
210	NATURAL HIGH POINT	1,184,852.930	2,342,482.057	0.00'	6,658.74'	6,695.62'	-36.88'	RUNWAY TRANSITIONAL	
211	NATURAL HIGH POINT	1,184,924.930	2,342,791.114	0.00'	6,656.72'	6,670.14'	-13.42'	RUNWAY TRANSITIONAL	
212	NATURAL HIGH POINT	1,186,822.141	2,344,005.215	0.00'	6,673.48'	6,720.54'	-47.07'	RUNWAY TRANSITIONAL	
213	NATURAL HIGH POINT	1,187,676.910	2,344,656.602	0.00'	6,681.13'	6,731.39'	-50.26'	RUNWAY TRANSITIONAL	
214	NATURAL HIGH POINT	1,187,563.392	2,344,614.712	0.00'	6,680.24'	6,725.16'	-44.92'	RUNWAY TRANSITIONAL	
215	NATURAL HIGH POINT	1,188,511.622	2,345,167.478	0.00'	6,688.49'	6,756.57'	-68.08'	RUNWAY TRANSITIONAL	
216	NATURAL HIGH POINT	1,188,574.916	2,345,561.558	0.00'	6,689.82'	6,720.64'	-30.82'	RUNWAY TRANSITIONAL	
217	NATURAL HIGH POINT	1,188,514.020	2,345,641.370	0.00'	6,689.60'	6,706.30'	-16.70'	RUNWAY TRANSITIONAL	
218	NATURAL HIGH POINT	1,188,677.167	2,345,570.259	0.00'	6,690.49'	6,728.81'	-38.33'	RUNWAY TRANSITIONAL	
219	NATURAL HIGH POINT	1,188,757.206	2,345,473.329	0.00'	6,690.93'	6,746.77'	-55.84'	RUNWAY TRANSITIONAL	
220	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,188,017.360	2,347,236.089	15.00'	6,709.87'	6,757.39'	-47.52'	RUNWAY TRANSITIONAL	
221	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,187,872.123	2,347,120.849	15.00'	6,710.09'	6,755.40'	-45.31'	RUNWAY TRANSITIONAL	
222	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,187,689.423	2,346,974.363	15.00'	6,707.05'	6,752.71'	-45.66'	RUNWAY TRANSITIONAL	
223	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,187,499.232	2,346,819.713	15.00'	6,702.31'	6,751.27'	-48.96'	RUNWAY TRANSITIONAL	
224	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,187,370.986	2,346,717.372	15.00'	6,698.09'	6,750.02'	-51.93'	RUNWAY TRANSITIONAL	
225	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,187,280.011	2,346,643.117	15.00'	6,694.98'	6,748.95'	-53.97'	RUNWAY TRANSITIONAL	
226	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,187,134.420	2,346,526.399	15.00'	6,688.99'	6,747.46'	-58.47'	RUNWAY TRANSITIONAL	
227	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,198,368.265	2,349,502.044	15.00'	6,848.99'	6,873.55'	-24.56'	CONICAL	
228	SERVICE ROAD (+10' ADJUSTMENT ADDED)	1,187,576.882	2,347,050.262	10.00'	6,705.83'	6,770.77'	-64.94'	RUNWAY TRANSITIONAL	
229	SERVICE ROAD (+10' ADJUSTMENT ADDED)	1,187,546.623	2,347,068.051	10.00'	6,705.83'	6,775.31'	-69.48'	RUNWAY TRANSITIONAL	
230	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,170,705.194	2,337,267.660	15.00'	6,684.48'	6,861.05'	-176.57'	CONICAL	
231	SERVICE ROAD (+10' ADJUSTMENT ADDED)	1,183,503.495	2,341,671.276	10.00'	6,649.70'	6,653.72'	-4.02'	RUNWAY TRANSITIONAL	
232	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,186,054.740	2,342,424.118	15.00'	6,672.48'	6,720.90'	-48.42'	RUNWAY TRANSITIONAL	
233	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,186,715.560	2,343,741.640	15.00'	6,683.66'	6,738.30'	-54.64'	RUNWAY TRANSITIONAL	
234	SERVICE ROAD (+10' ADJUSTMENT ADDED)	1,186,932.909	2,344,267.272	10.00'	6,685.82'	6,703.37'	-17.55'	RUNWAY TRANSITIONAL	
235	SERVICE ROAD (+10' ADJUSTMENT ADDED)	1,186,837.550	2,344,199.596	10.00'	6,685.17'	6,701.68'	-16.51'	RUNWAY TRANSITIONAL	
236	SERVICE ROAD (+10' ADJUSTMENT ADDED)	1,186,728.483	2,344,121.242	10.00'	6,684.29'	6,699.63'	-15.34'	RUNWAY TRANSITIONAL	
237	SERVICE ROAD (+10' ADJUSTMENT ADDED)	1,187,549.420	2,344,749.149	10.00'	6,691.00'	6,709.46'	-18.46'	RUNWAY TRANSITIONAL	
238	SERVICE ROAD (+10' ADJUSTMENT ADDED)	1,187,686.233	2,344,826.687	10.00'	6,691.66'	6,714.28'	-22.61'	RUNWAY TRANSITIONAL	
239	SERVICE ROAD (+10' ADJUSTMENT ADDED)	1,187,809.774	2,344,903.200	10.00'	6,692.45'	6,717.92'	-25.47'	RUNWAY TRANSITIONAL	
240	SERVICE ROAD (+10' ADJUSTMENT ADDED)	1,187,895.173	2,344,962.540	10.00'	6,694.80'	6,719.77'	-24.97'	RUNWAY TRANSITIONAL	
241	SERVICE ROAD (+10' ADJUSTMENT ADDED)	1,187,974.390	2,345,023.836	10.00'	6,694.17'	6,720.85'	-26.68'	RUNWAY TRANSITIONAL	
242	SERVICE ROAD (+10' ADJUSTMENT ADDED)	1,188,063.665	2,345,096.744	10.00'	6,695.17'	6,721.60'	-26.43'	RUNWAY TRANSITIONAL	
243	SERVICE ROAD (+10' ADJUSTMENT ADDED)	1,188,700.944	2,345,307.286	10.00'	6,702.24'	6,759.78'	-57.54'	RUNWAY TRANSITIONAL	
244	SERVICE ROAD (+10' ADJUSTMENT ADDED)	1,188,628.986	2,345,396.586	10.00'	6,701.78'	6,743.57'	-41.78'	RUNWAY TRANSITIONAL	
245	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,189,218.577	2,345,487.889	15.00'	6,713.00'	6,790.39'	-77.39'	RUNWAY TRANSITIONAL	
246	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,189,276.053	2,345,534.094	15.00'	6,713.90'	6,791.24'	-77.34'	RUNWAY TRANSITIONAL	
247	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,189,388.770	2,345,624.480	15.00'	6,715.00'	6,792.92'	-77.92'	RUNWAY TRANSITIONAL	
248	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,189,469.680	2,345,689.362	15.00'	6,715.79'	6,794.13'	-78.34'	RUNWAY TRANSITIONAL	
249	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,189,598.097	2,345,791.692	15.00'	6,716.94'	6,796.11'	-79.17'	RUNWAY TRANSITIONAL	
250	BUILDING	1,185,177.788	2,342,716.562	24.65'	6,684.13'	6,701.43'	-17.30'	RUNWAY TRANSITIONAL	
251	BUILDING	1,185,555.879	2,343,091.789	22.61'	6,686.61'	6,697.62'	-11.01'	RUNWAY TRANSITIONAL	
252	BUILDING	1,185,667.277	2,343,079.173	16.78'	6,680.06'	6,709.19'	-29.13'	RUNWAY TRANSITIONAL	
253	BUILDING	1,185,786.465	2,343,000.155	17.33'	6,678.05'	6,728.88'	-50.83'	RUNWAY TRANSITIONAL	
254	BUILDING	1,185,614.196	2,342,837.730	20.15'	6,680.77'	6,729.86'	-49.09'	RUNWAY TRANSITIONAL	
255	BUILDING	1,186,169.440	2,343,475.826	32.93'	6,699.52'	6,714.95'	-15.43'	RUNWAY TRANSITIONAL	
256	BUILDING	1,186,004.366	2,343,393.775	20.71'	6,688.56'	6,708.07'	-19.51'	RUNWAY TRANSITIONAL	
257	BUILDING	1,187,235.097	2,344,147.969	22.44'	6,701.93'	6,744.29'	-42.36'	RUNWAY TRANSITIONAL	
258	BUILDING	1,189,100.218	2,345,911.901	17.09'	6,711.27'	6,734.57'	-23.30'	RUNWAY TRANSITIONAL	
259	BUILDING	1,188,877.986	2,345,389.065	28.83'	6,721.21'	6,767.16'	-45.95'	RUNWAY TRANSITIONAL	
260	BUILDING	1,188,950.239	2,345,446.989	29.66'	6,722.28'	6,768.24'	-45.96'	RUNWAY TRANSITIONAL	
261	BUILDING	1,189,060.922	2,345,457.990	28.26'	6,722.01'	6,777.99'	-55.98'	RUNWAY TRANSITIONAL	
262	BUILDING	1,189,102.825	2,345,569.293	29.17'	6,722.86'	6,770.52'	-47.66'	RUNWAY TRANSITIONAL	
263	BUILDING	1,189,184.503	2,345,635.614	26.42'	6,721.01'	6,771.65'	-50.64'	RUNWAY TRANSITIONAL	
264	BUILDING	1,189,377.332	2,345,790.604	29.97'	6,726.28'	6,774.49'	-48.21'	RUNWAY TRANSITIONAL	
265	OBSTRUCTION LIGHT ON ANTENNA	1,188,707.420	2,346,227.210	46.84'	6,738.84'	6,768.81'	-29.97'	RUNWAY TRANSITIONAL	
266	CHIMNEY/SMOKESTACK	1,205,358.589	2,355,976.756	28.39'	6,964.23'	7,126.77'	-162.54'	RUNWAY TRANSITIONAL	
267	BUILDING	1,184,992.900	2,342,527.489	30.41'	6,688.41'	6,704.04'	-15.64'	RUNWAY TRANSITIONAL	
268	BUILDING	1,184,954.766	2,342,427.618	16.45'	6,674.46'	6,711.06'	-36.60'	RUNWAY TRANSITIONAL	
269	BUILDING	1,185,175.413	2,342,575.383	23.18'	6,680.23'	6,716.23'	-36.00'	RUNWAY TRANSITIONAL	
270	BUILDING	1,185,490.388	2,342,996.808	25.51'	6,689.50'	6,701.22'	-11.71'	RUNWAY TRANSITIONAL	
271	BUILDING	1,185,294.650	2,342,648.517	18.00'	6,678.02'	6,719.73'	-41.71'	RUNWAY TRANSITIONAL	
272	BUILDING	1,185,369.663	2,342,721.091	16.07'	6,676.45'	6,719.11'	-42.67'	RUNWAY TRANSITIONAL	
273	BUILDING	1,185,475.910	2,342,796.723	14.50'	6,675.32'	6,721.13'	-45.80'	RUNWAY TRANSITIONAL	
274	BUILDING	1,185,656.854	2,342,965.699	18.63'	6,680.95'	6,720.28'	-39.33'	RUNWAY TRANSITIONAL	
275	BUILDING	1,185,679.312	2,343,199.028	17.01'	6,682.30'	6,698.08'	-15.78'	RUNWAY TRANSITIONAL	
276	BUILDING	1,189,356.611	2,346,120.775	22.31'	6,720.33'	6,738.06'	-17.73'	RUNWAY TRANSITIONAL	
277	BUILDING	1,189,280.992	2,345,710.353	33.92'	6,729.20'	6,773.36'	-44.17'	RUNWAY TRANSITIONAL	
278	BUILDING	1,189,041.444	2,345,480.981	28.67'	6,721.99'	6,773.68'	-51.68'	RUNWAY TRANSITIONAL	
279	BUILDING	1,188,970.921	2,345,422.737	29.18'	6,722.26'	6,772.80'	-50.54'	RUNWAY TRANSITIONAL	
280	BUILDING	1,188,955.350	2,346,795.353	18.50'	6,712.50'	6,732.45'	-19.95'	RUNWAY TRANSITIONAL	
281	BUILDING	1,189,902.951	2,348,572.813	27.15'	6,719.15'	6,745.53'	-26.37'	RUNWAY 21 APPROACH	
282	BUILDING	1,188,638.383	2,345,252.633	19.77'	6,711.77'	6,759.62'	-47.85'	RUNWAY TRANSITIONAL	
283	BUILDING	1,186,310.278	2,342,834.948	28.76'	6,690.02'	6,701.37'	-11.35'	RUNWAY TRANSITIONAL	
284	TANK	1,186,695.275	2,343,660.900	25.05'	6,695.05'	6,744.64'	-49.59'	RUNWAY TRANSITIONAL	
285	TELEPHONE PYLON/POLE	1,190,697.098	2,348,334.387	20.68'	6,716.40'	6,754.93'	-38.52'	RUNWAY 21 APPROACH	
286	TELEPHONE PYLON/POLE	1,191,120.310	2,348,341.280	21.92'	6,721.88'	6,761.61'	-39.73'	RUNWAY 21 APPROACH	
287	TELEPHONE PYLON/POLE	1,193,105.986	2,356,019.533	35.03'	6,712.61'	6,844.15'	-131.54'	CONICAL	
288	TELEPHONE PYLON/POLE	1,201,131.209	2,361,572.683	36.12'	6,947.95'	7,192.15'	-244.21'	RUNWAY TRANSITIONAL	
289	TELEPHONE PYLON/POLE	1,175,129.274	2,333,597.795	31.87'	6,702.10'	6,789.50'	-87.40'	RUNWAY 3 APPROACH	
290	TELEPHONE PYLON/POLE	1,171,560.538	2,336,664.698	36.59'	6,732.46'	6,850.19'	-117.73'	CONICAL	

I:\Projects\DRO\CAD\ALP\2014\PLANS\
12-DRO-ALP-OBST.dwg
Jun 13, 2016 – 8:35am
robert.bell

JVIATION®

DURANGO-LA PLATA COUNTY AIRPORT

DES: B.L.R.	DR: B.L.R.	CH: C.M.C.	APP: D.F.N.

ISSUE RECORD

NO.	BY	DATE	DESCRIPTION
1	D.F.N.	7/21/15	ISSUED FOR AIRSPACE REVIEW
2	C.M.C.	10/30/15	FINAL

AIRPORT LAYOUT PLAN

AIRPORT AIRSPACE OBSTACLE TABLE

AIP GRANT NO. 3-08-0019-044 | JVIATION PROJ. NO. 2014.DRO.02 | DATE: OCTOBER, 2015

SHEET NO. 12 of 18

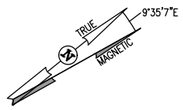
6.5 Inner Approach Plans and Profiles

The Inner Portion of the Approach Surface Drawings (Sheets 13 and 14 of 18) provide a detailed view of the inner areas of the runway protection zone (RPZ) surfaces and CFR 14 Part 77 approach surfaces that are further described in **Chapter 4, Facility Requirements**. The RPZ is an area off each runway end designed to enhance the protection of people and property on the ground. The RPZ begins 200 feet off the end of the runway, and extends along the runway centerline in a trapezoidal shape. Size of the RPZ is a function of the design aircraft, and visibility minimums of the runway's instrument approach capabilities. The Inner Portion of the Approach Surface Drawings is based upon future planned approaches to each runway end and illustrates large-scale plan and profiles. The drawings identify roadways, railroads, structures, power lines, and other potential obstructions that may lie within the confines of each runway end's inner approach surface area. Sheets 13 and 14 depict the Inner Portion of the Approach Surface drawings.

6.6 Departure Plans and Profiles

Departure Surface Drawings (Sheets 15 and 16 of 18) graphically depict applicable runway departure surfaces as defined in Table 3-2, Approach/Departure Standards Table in FAA AC 150/5300-13A, *Airport Design*. The departure surfaces are shown for each runway end that is primarily designated for instrument departures. Departure runway ends supporting air carrier operations show one-engine inoperative (OEI) obstacle identification surface (OIS) and vertically guided protection surfaces. Departure Surface and Vertically Guided Protection Surface drawings for DRO are shown on Sheets 15 and 16.

THIS PAGE WAS INTENTIONALLY LEFT BLANK



GRAPHIC SCALE

0 100 200 400

(IN FEET)

DATE: JUNE, 2014
ANNUAL RATE OF CHANGE: 7.3' W
SOURCE: U.S. NGDC

PROFILE
HORIZ: 1" = 200'
VERT: 1" = 20'

NOTES

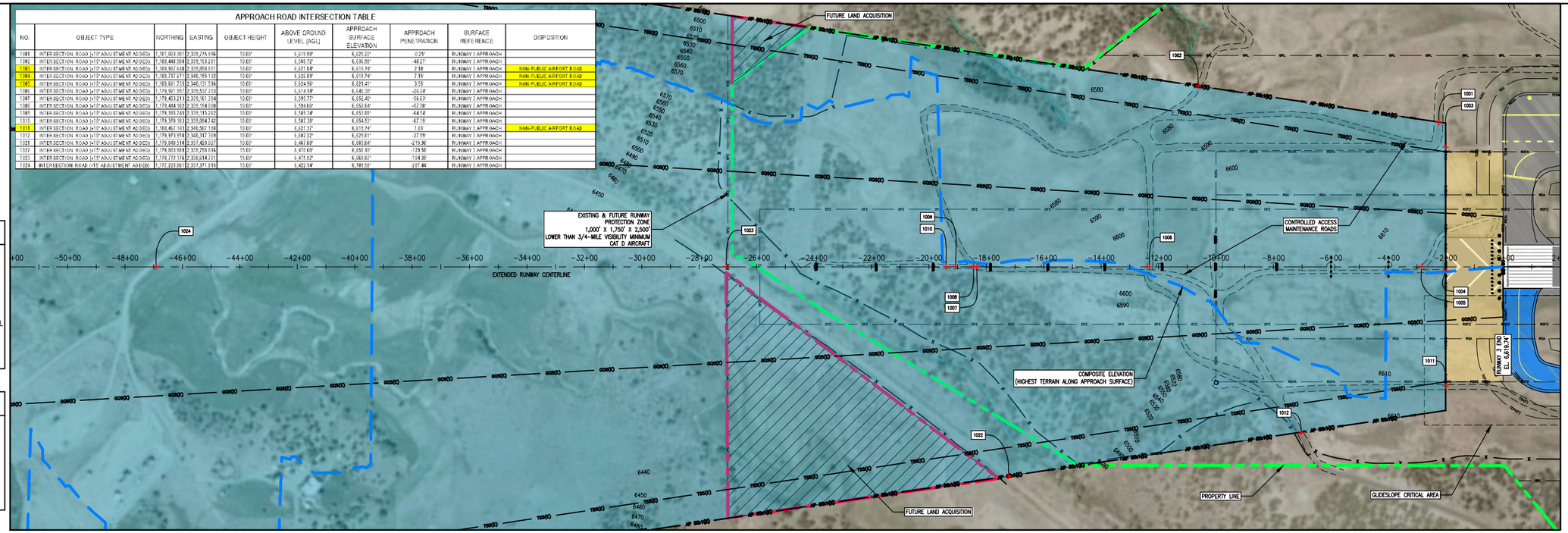
1. ITEMS SHOWN HIGHLIGHTED YELLOW REPRESENT OBJECT THAT PENETRATES THE REFERENCED SURFACE.
2. ITEMS SHOWN WITH NEGATIVE VALUES IN THE PENETRATION COLUMN ARE OBJECTS THAT DO NOT PENETRATE THE REFERENCED SURFACE.
3. SERVICE ROADS PROVIDE ACCESS TO THE AIRPORT'S NAVIGATIONAL AIDS. ACCESS TO THESE ROADS IS CONTROLLED.
4. OBJECTS 1022, 1023, 1024 ARE BELOW THE VIEWABLE PROFILE LIMIT. THEY ARE NOT PENETRATIONS TO ANY SURFACE.

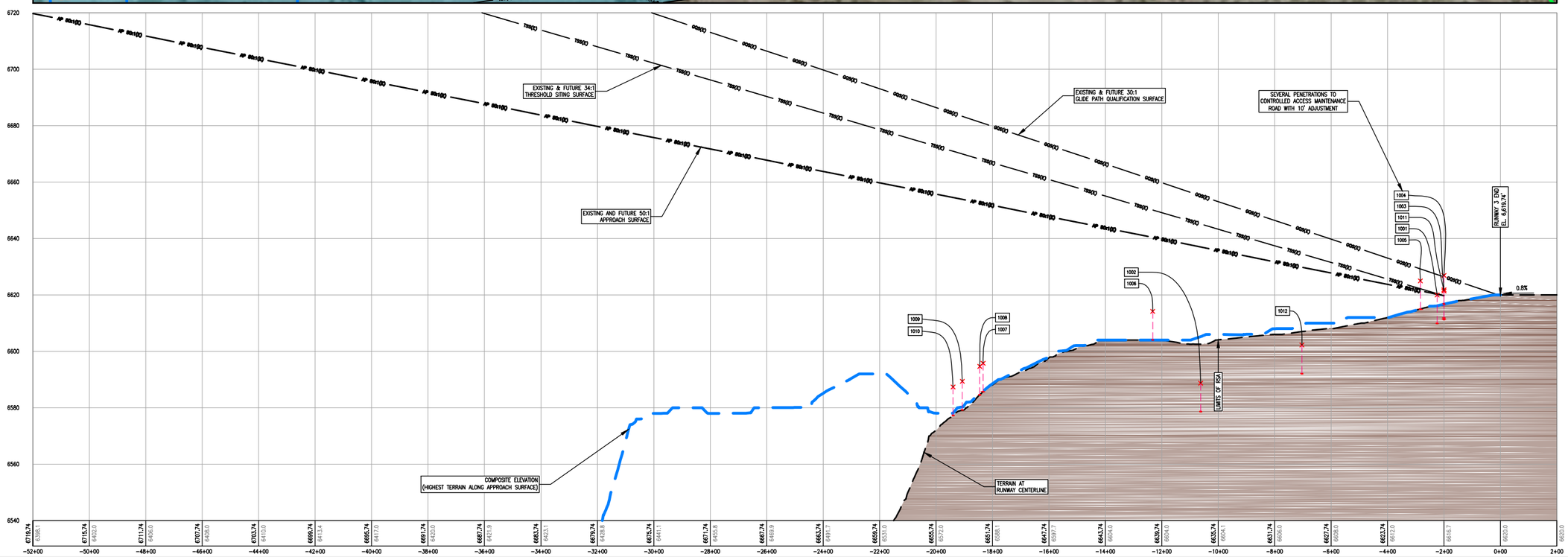
SOURCE

1. THIS SITE PLAN LINE WORK AND AERIAL IMAGE IS BASED ON THE PLANIMETRIC MAPPING & ORTHO-IMAGERY INFORMATION COMPILED BY WOOLPERT, INC. IN MAY 2015.
2. OBSTRUCTION SURVEY DATA WAS COMPILED BY WOOLPERT, INC. IN MAY 2015.
3. ALL HORIZONTAL COORDINATES – NAD83/2011, ALL VERTICAL COORDINATES – NAVD88

APPROACH ROAD INTERSECTION TABLE

NO.	OBJECT TYPE	NORTHING	EASTING	OBJECT HEIGHT	ABOVE GROUND LEVEL (AGL)	APPROACH SURFACE ELEVATION	APPROACH PENETRATION	SURFACE REFERENCE	DISPOSITION
1001	INTERSECTION ROAD (+10' ADJUSTMENT AD DED)	1,781,803.301	2,305,275.946	10.60'	6,619.59'	6,620.22'	-0.29'	RUNWAY 3 APPROACH	
1002	INTERSECTION ROAD (+10' ADJUSTMENT AD DED)	1,780,448.569	2,305,153.201	10.60'	6,580.72'	6,539.55'	-48.27'	RUNWAY 3 APPROACH	
1003	INTERSECTION ROAD (+10' ADJUSTMENT AD DED)	1,780,902.408	2,305,208.653	10.60'	6,621.84'	6,613.74'	2.10'	RUNWAY 3 APPROACH	NON-PUBLIC AIRPORT ROAD
1004	INTERSECTION ROAD (+10' ADJUSTMENT AD DED)	1,780,712.577	2,346,155.132	10.60'	6,626.89'	6,613.74'	7.15'	RUNWAY 3 APPROACH	NON-PUBLIC AIRPORT ROAD
1005	INTERSECTION ROAD (+10' ADJUSTMENT AD DED)	1,780,661.735	2,346,131.516	10.60'	6,624.59'	6,621.41'	3.55'	RUNWAY 3 APPROACH	NON-PUBLIC AIRPORT ROAD
1006	INTERSECTION ROAD (+10' ADJUSTMENT AD DED)	1,779,931.951	2,305,537.113	10.60'	6,514.14'	6,540.39'	-25.24'	RUNWAY 3 APPROACH	
1007	INTERSECTION ROAD (+10' ADJUSTMENT AD DED)	1,779,453.213	2,305,361.334	10.60'	6,595.75'	6,652.40'	-56.63'	RUNWAY 3 APPROACH	
1008	INTERSECTION ROAD (+10' ADJUSTMENT AD DED)	1,779,444.162	2,305,154.018	10.60'	6,594.65'	6,652.64'	-57.98'	RUNWAY 3 APPROACH	
1009	INTERSECTION ROAD (+10' ADJUSTMENT AD DED)	1,779,395.743	2,305,115.212	10.60'	6,589.34'	6,657.89'	-64.54'	RUNWAY 3 APPROACH	
1010	INTERSECTION ROAD (+10' ADJUSTMENT AD DED)	1,779,370.163	2,305,094.743	10.60'	6,587.39'	6,654.53'	-67.15'	RUNWAY 3 APPROACH	
1011	INTERSECTION ROAD (+10' ADJUSTMENT AD DED)	1,780,467.143	2,346,567.108	10.60'	6,621.37'	6,613.74'	1.63'	RUNWAY 3 APPROACH	NON-PUBLIC AIRPORT ROAD
1012	INTERSECTION ROAD (+10' ADJUSTMENT AD DED)	1,779,973.958	2,346,317.169	10.60'	6,582.22'	6,621.81'	-27.59'	RUNWAY 3 APPROACH	
1021	INTERSECTION ROAD (+10' ADJUSTMENT AD DED)	1,778,805.158	2,357,429.017	10.60'	6,461.68'	6,683.64'	-215.96'	RUNWAY 3 APPROACH	
1022	INTERSECTION ROAD (+15' ADJUSTMENT AD DED)	1,779,303.969	2,358,298.816	15.60'	6,470.69'	6,550.11'	-179.58'	RUNWAY 3 APPROACH	
1023	INTERSECTION ROAD (+15' ADJUSTMENT AD DED)	1,778,722.176	2,358,614.201	15.60'	6,475.52'	6,684.82'	-194.35'	RUNWAY 3 APPROACH	
1024	INTERSECTION ROAD (+15' ADJUSTMENT AD DED)	1,777,223.06	2,357,371.815	15.60'	6,421.14'	6,709.59'	-237.44'	RUNWAY 3 APPROACH	





I:\Projects\DRO\CAD\ALP\2014\PLANS\
13-14-DRO-ALP-IAGD.dwg
Jun 11, 2015 - 8:50am
robert.bell

JVIATION®

DURANGO-LA PLATA COUNTY AIRPORT

DES: B.L.R.
DR: B.L.R.
CH: C.M.C.
APP: D.F.N.

ISSUE RECORD

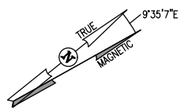
NO.	BY	DATE	DESCRIPTION
1	D.F.N.	7/21/15	ISSUED FOR AIRSPACE REVIEW
2	C.M.C.	10/30/15	FINAL

AIRPORT LAYOUT PLAN

INNER APPROACH SURFACE DRAWING - RUNWAY 3

AIP GRANT NO. 3-08-0019-044
JVIATION PROJ. NO. 2014.DRO.02
DATE: OCTOBER, 2015

SHEET NO. 13 of 18



GRAPHIC SCALE

0 100 200 400

(IN FEET)

DATE: JUNE, 2014
ANNUAL RATE OF CHANGE: 7.3' W
SOURCE: U.S. NGDC

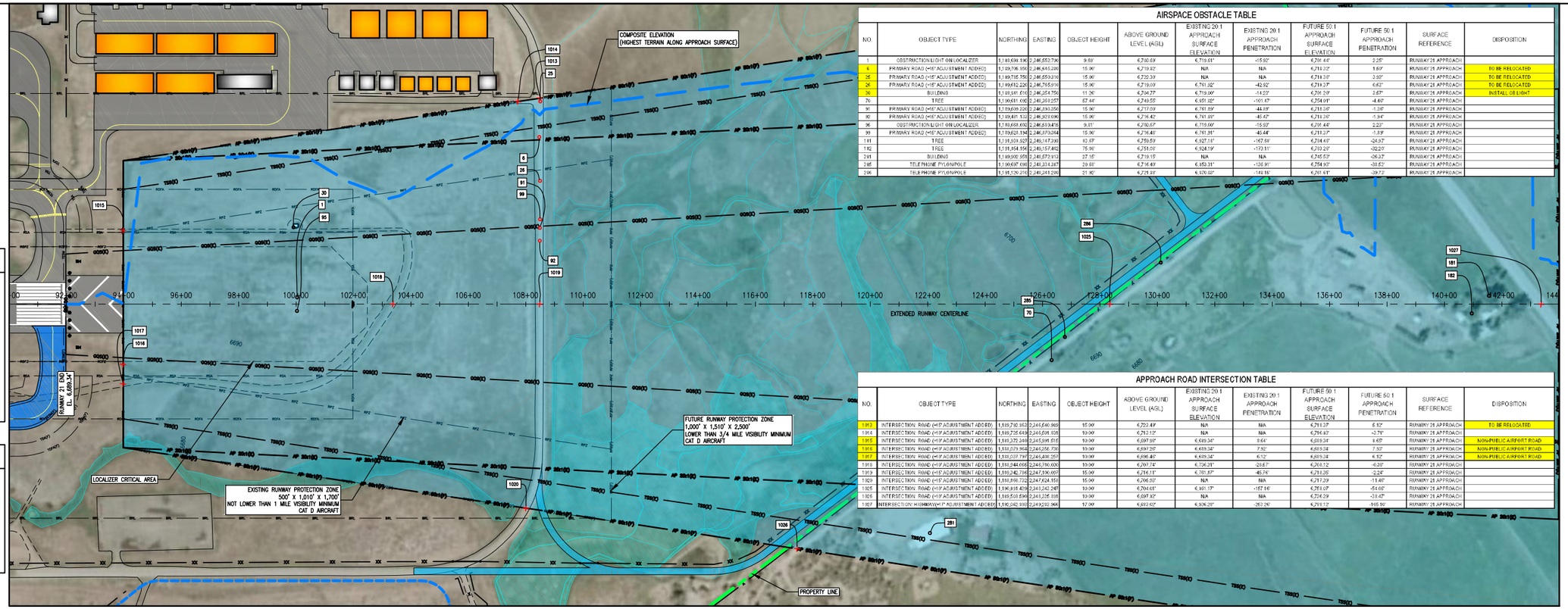
PROFILE
HORIZ: 1" = 200'
VERT: 1" = 20'

NOTES

1. ITEMS SHOWN HIGHLIGHTED YELLOW REPRESENT OBJECT THAT PENETRATES THE REFERENCED SURFACE.
2. ITEMS SHOWN WITH NEGATIVE VALUES IN THE PENETRATION COLUMN ARE OBJECTS THAT DO NOT PENETRATE THE REFERENCED SURFACE.
3. SERVICE ROADS PROVIDE ACCESS TO THE AIRPORT'S NAVIGATIONAL AIDS. ACCESS TO THESE ROADS IS CONTROLLED.
4. ULTIMATE SURFACES NOT SHOWN.
5. FOR POINTS THAT HAVE "N/A" ARE OUTSIDE THE EXISTING APPROACH SURFACE, AND ARE WITHIN THE LIMITS OF THE FUTURE PART 77, AND FUTURE APPROACH SURFACES.

SOURCE

1. THIS SITE PLAN LINE WORK AND AERIAL IMAGE IS BASED ON THE PLANIMETRIC MAPPING & ORTHO-IMAGERY INFORMATION COMPILED BY WOOLPERT, INC. IN MAY 2015.
2. OBSTRUCTION SURVEY DATA WAS COMPILED BY WOOLPERT, INC. IN MAY 2015.
3. ALL HORIZONTAL COORDINATES – NAD83/2011, ALL VERTICAL COORDINATES – NAVD88

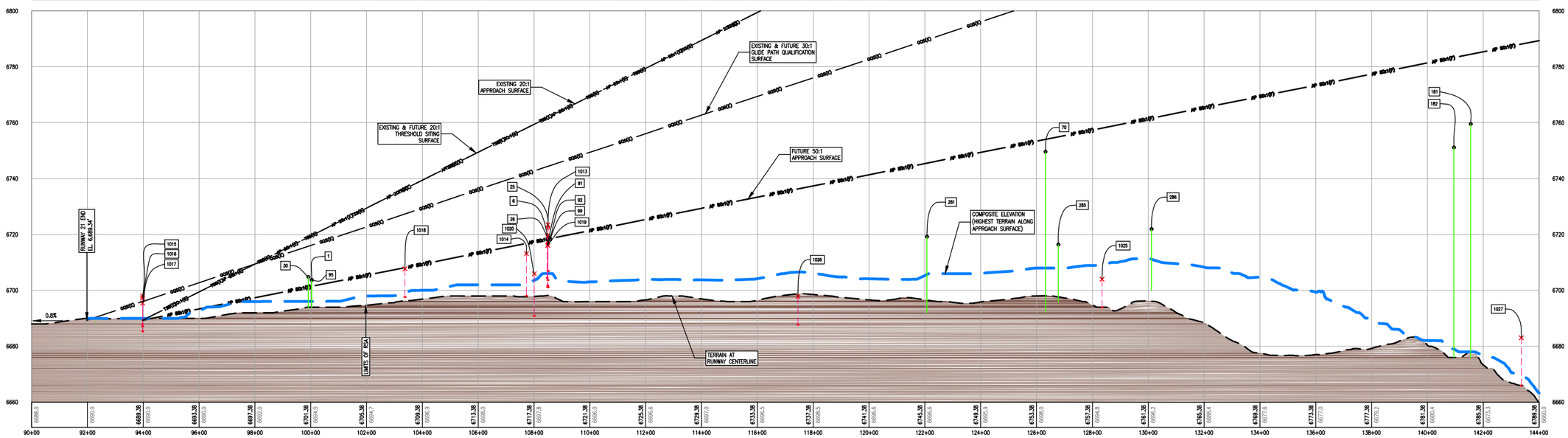


AIRSPACE OBSTACLE TABLE

NO.	OBJECT TYPE	NORTHING	EASTING	OBJECT HEIGHT	ABOVE GROUND LEVEL (AGL)	EXISTING 20:1 APPROACH SURFACE ELEVATION	EXISTING 20:1 APPROACH PENETRATION	FUTURE 50:1 APPROACH SURFACE ELEVATION	FUTURE 50:1 APPROACH PENETRATION	SURFACE REFERENCE	DISPOSITION
1	OBSTRUCTION LIGHT ON LOCALIZER	1,188,694.19	2,246,552.70	9.69'	4,730.69	6,719.01'	-15.92'	6,791.44'	2.25'	RUNWAY 21 APPROACH	
6	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,189,706.95	2,246,445.28	15.00'	4,719.92	N/A	N/A	6,719.37'	1.60'	RUNWAY 21 APPROACH	TO BE RELOCATED
25	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,189,715.79	2,246,559.31	15.00'	4,722.39	N/A	N/A	6,719.37'	3.02'	RUNWAY 21 APPROACH	TO BE RELOCATED
26	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,189,612.22	2,246,765.91	15.00'	4,719.09	6,761.92'	-42.92'	6,719.37'	6.63'	RUNWAY 21 APPROACH	TO BE RELOCATED
30	BUILDING	1,188,941.61	2,246,354.79	11.20'	4,734.77	6,719.00'	-14.23'	6,791.23'	3.67'	RUNWAY 21 APPROACH	INSTALL OB LIGHT
70	TREE	1,190,681.66	2,246,399.07	67.44'	4,749.55	6,857.02'	-107.47'	6,754.91'	-4.42'	RUNWAY 21 APPROACH	
91	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,189,609.02	2,246,993.05	15.00'	4,717.09	6,761.89'	-44.89'	6,718.36'	-0.36'	RUNWAY 21 APPROACH	
92	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,189,411.13	2,246,901.06	15.00'	4,716.42	6,761.89'	-45.47'	6,718.36'	-1.94'	RUNWAY 21 APPROACH	
95	OBSTRUCTION LIGHT ON LOCALIZER	1,188,658.60	2,246,589.48	9.31'	4,730.67	6,719.00'	-15.92'	6,791.44'	2.23'	RUNWAY 21 APPROACH	
99	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,189,628.31	2,246,979.04	15.00'	4,716.40	6,761.89'	-45.44'	6,718.37'	-1.89'	RUNWAY 21 APPROACH	
181	TREE	1,191,939.62	2,249,147.29	82.07'	4,759.59	6,927.11'	-167.58'	6,794.44'	-24.57'	RUNWAY 21 APPROACH	
182	TREE	1,191,954.56	2,249,157.46	75.00'	4,751.01	6,924.19'	-173.11'	6,793.29'	-32.20'	RUNWAY 21 APPROACH	
281	BUILDING	1,189,600.95	2,248,573.91	27.15'	4,715.15	N/A	N/A	6,745.53'	-26.37'	RUNWAY 21 APPROACH	
285	TELE PHONE PYLON/POLE	1,190,637.08	2,248,374.87	29.60'	4,714.40	6,853.31'	-138.91'	6,754.93'	-39.53'	RUNWAY 21 APPROACH	
286	TELE PHONE PYLON/POLE	1,191,120.01	2,248,243.20	31.90'	4,728.88	6,870.03'	-141.16'	6,761.61'	-29.72'	RUNWAY 21 APPROACH	

APPROACH ROAD INTERSECTION TABLE

NO.	OBJECT TYPE	NORTHING	EASTING	OBJECT HEIGHT	ABOVE GROUND LEVEL (AGL)	EXISTING 20:1 APPROACH SURFACE ELEVATION	EXISTING 20:1 APPROACH PENETRATION	FUTURE 50:1 APPROACH SURFACE ELEVATION	FUTURE 50:1 APPROACH PENETRATION	SURFACE REFERENCE	DISPOSITION
1963	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,189,790.962	2,246,646.965	15.00'	4,723.49'	N/A	N/A	6,718.37'	6.12'	RUNWAY 21 APPROACH	TO BE RELOCATED
1964	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,189,735.649	2,246,696.938	10.00'	4,713.12'	N/A	N/A	6,718.37'	-2.75'	RUNWAY 21 APPROACH	
1965	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,189,372.349	2,246,996.816	10.00'	4,697.98'	6,689.34'	8.64'	6,689.34'	8.65'	RUNWAY 21 APPROACH	NON-PUBLIC AIRPORT ROAD
1966	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,189,079.968	2,246,856.756	10.00'	4,697.98'	6,689.34'	7.92'	6,689.34'	7.92'	RUNWAY 21 APPROACH	NON-PUBLIC AIRPORT ROAD
1967	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,188,037.797	2,246,486.257	10.00'	4,696.48'	6,689.34'	6.12'	6,689.34'	6.12'	RUNWAY 21 APPROACH	NON-PUBLIC AIRPORT ROAD
1968	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,188,944.095	2,246,790.600	10.00'	4,707.74'	6,736.31'	-28.67'	6,703.12'	-0.28'	RUNWAY 21 APPROACH	
1969	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,189,242.796	2,247,106.667	15.00'	4,716.11'	6,761.87'	-45.76'	6,718.36'	-2.24'	RUNWAY 21 APPROACH	
1970	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,189,868.722	2,247,624.155	15.00'	4,706.50'	N/A	N/A	6,717.29'	-11.46'	RUNWAY 21 APPROACH	
1965	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,190,931.409	2,248,242.247	10.00'	4,704.68'	6,861.17'	-157.16'	6,753.07'	-54.60'	RUNWAY 21 APPROACH	
1966	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,189,508.696	2,248,325.888	10.00'	4,697.92'	N/A	N/A	6,724.29'	-28.47'	RUNWAY 21 APPROACH	
1967	INTERSECTION HIGHWAY (+15' ADJUSTMENT ADDED)	1,190,042.930	2,249,282.966	17.00'	4,693.92'	6,906.29'	-283.26'	6,719.12'	-165.16'	RUNWAY 21 APPROACH	



E:\Projects\DRO\CAD\ALP\2014\PLANS\
13-14-DRO-ALP-XSD.dwg
Jul 13, 2016 - 8:56am
robert.bell

JVIATION®

DURANGO-LA PLATA COUNTY AIRPORT

DES: B.L.R.
DR: B.L.R.
CH: C.M.C.
APP: D.F.N.

ISSUE RECORD

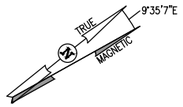
NO.	BY	DATE	DESCRIPTION
1	D.F.N.	7/21/15	ISSUED FOR AIRSPACE REVIEW
2	C.M.C.	10/30/15	FINAL

AIRPORT LAYOUT PLAN

INNER APPROACH SURFACE DRAWING - RUNWAY 21

AIP GRANT NO. 3-08-0019-044
JVIATION PROJ. NO. 2014.DRO.02
DATE: OCTOBER, 2015

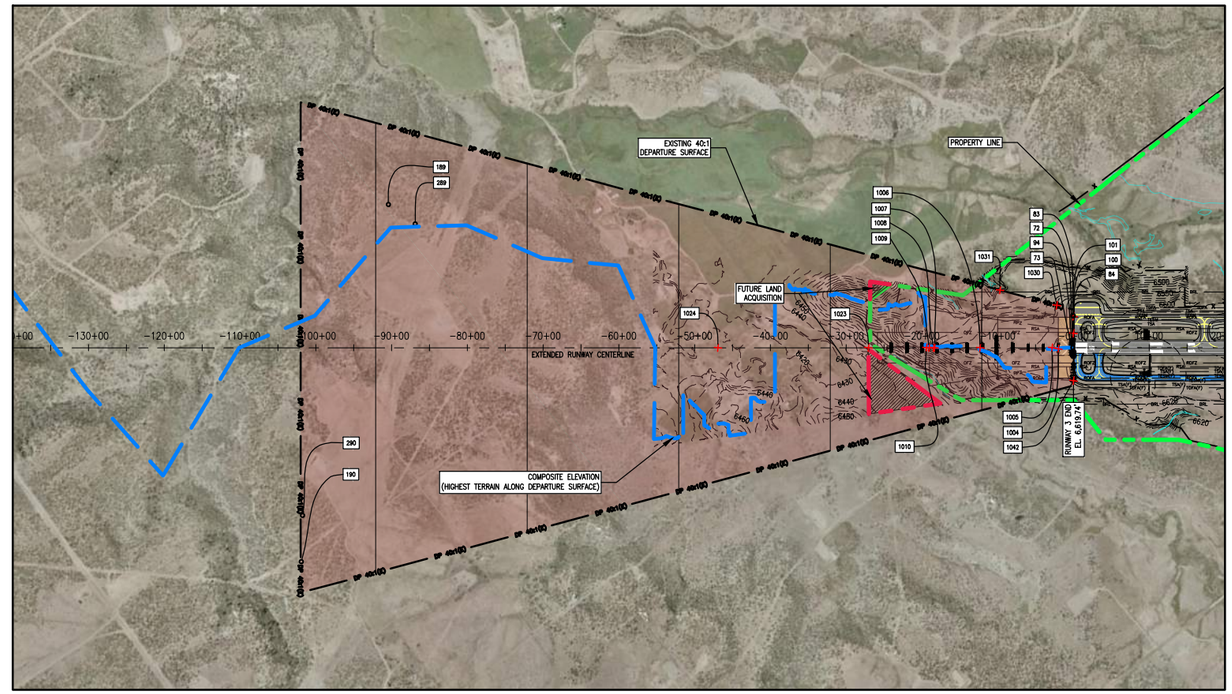
SHEET NO. 14 of 18

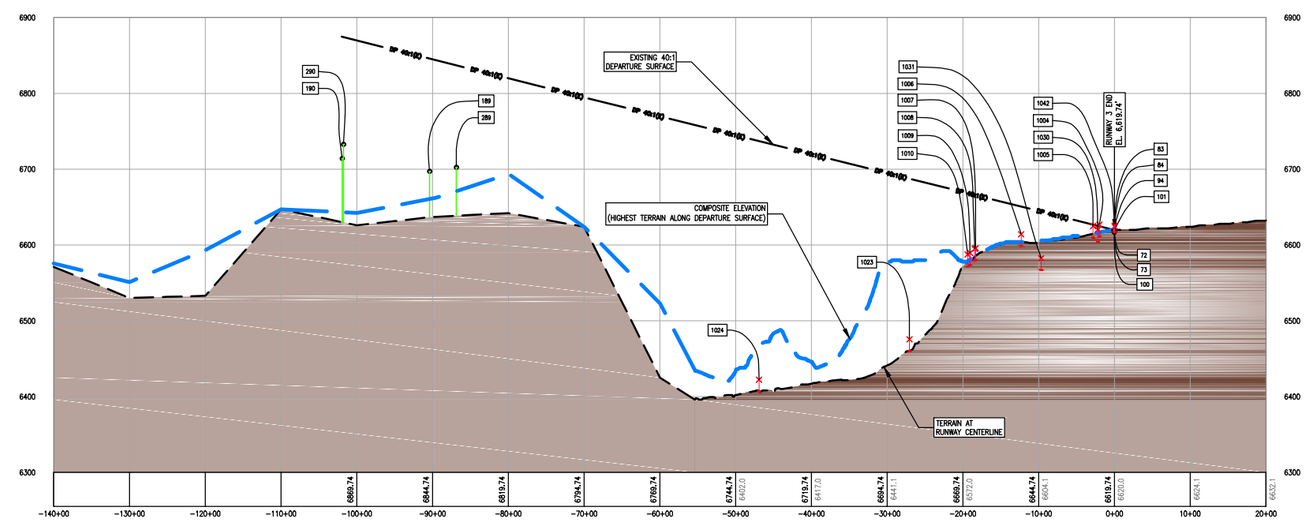


GRAPHIC SCALE
0 500 1000 2000
(IN FEET)

DATE: JUNE, 2014
ANNUAL RATE OF CHANGE: 7.3' W
SOURCE: U.S. NGDC

PROFILE
HORIZ: 1" = 1,000'
VERT: 1" = 100'





AIRSPACE OBSTACLE TABLE

NO.	OBJECT TYPE	NORTHING	EASTING	OBJECT HEIGHT	ABOVE GROUND LEVEL (AGL)	DEPARTURE SURFACE ELEVATION	DEPARTURE PENETRATION	SURFACE REFERENCE	DISPOSITION
72	NATURAL HIGH POINT	1,190,843.330	2,340,224.538	9.00'	6,618.23'	6,619.39'	-1.63'	RUNWAY 3 DEPARTURE	
73	NATURAL HIGH POINT	1,190,818.722	2,340,338.043	9.00'	6,618.01'	6,619.29'	0.64'	RUNWAY 3 DEPARTURE	
83	SERVICE ROAD (+40' ADJUSTMENT ADDED)	1,191,001.596	2,340,190.337	10.00'	6,627.49'	6,619.29'	7.79'	RUNWAY 3 DEPARTURE	NON-PUBLIC AIRPORT ROAD
84	SERVICE ROAD (+40' ADJUSTMENT ADDED)	1,191,141.696	2,339,594.339	10.00'	6,627.32'	6,619.77'	7.59'	RUNWAY 3 DEPARTURE	NON-PUBLIC AIRPORT ROAD
94	MALSR NAVAID	1,190,673.507	2,340,301.505	40.42'	6,615.58'	6,626.04'	-0.42'	RUNWAY 3 DEPARTURE	
100	NATURAL HIGH POINT	1,191,140.057	2,339,570.034	9.00'	6,616.69'	6,619.29'	-2.61'	RUNWAY 3 DEPARTURE	
101	TAXIWAY LIGHT	1,191,141.436	2,339,571.376	2.21'	6,616.59'	6,619.58'	-1.27'	RUNWAY 3 DEPARTURE	
189	TREE	1,175,012.735	2,333,176.016	33.34'	6,696.51'	6,845.81'	-149.90'	RUNWAY 3 DEPARTURE	
190	TREE	1,171,156.669	2,336,125.407	26.38'	6,714.02'	6,874.57'	-160.56'	RUNWAY 3 DEPARTURE	
289	TELEPHONE PYLON/POLE	1,175,125.274	2,333,597.756	31.80'	6,709.10'	6,836.94'	-134.84'	RUNWAY 3 DEPARTURE	
290	TELEPHONE PYLON/POLE	1,171,595.538	2,335,664.938	36.99'	6,732.46'	6,874.17'	-141.70'	RUNWAY 3 DEPARTURE	

DEPARTURE ROAD INTERSECTION TABLE

NO.	OBJECT TYPE	NORTHING	EASTING	OBJECT HEIGHT	ABOVE GROUND LEVEL (AGL)	DEPARTURE SURFACE ELEVATION	DEPARTURE PENETRATION	SURFACE REFERENCE	DISPOSITION
1004	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,190,717.671	2,340,196.132	10.00'	6,626.39'	6,624.74'	2.15'	RUNWAY 3 DEPARTURE	NON-PUBLIC AIRPORT ROAD
1005	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,190,668.708	2,340,328.516	10.00'	6,626.50'	6,624.56'	1.94'	RUNWAY 3 DEPARTURE	
1006	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,179,924.997	2,339,637.703	10.00'	6,614.14'	6,650.54'	-36.40'	RUNWAY 3 DEPARTURE	
1007	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,179,453.243	2,339,168.334	10.00'	6,596.77'	6,666.57'	-69.80'	RUNWAY 3 DEPARTURE	
1008	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,179,444.192	2,339,154.086	10.00'	6,594.66'	6,666.46'	-71.80'	RUNWAY 3 DEPARTURE	
1009	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,179,196.746	2,339,116.242	10.00'	6,589.34'	6,667.41'	-78.07'	RUNWAY 3 DEPARTURE	
1010	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,179,276.182	2,339,094.742	10.00'	6,587.23'	6,663.23'	-76.00'	RUNWAY 3 DEPARTURE	
1023	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,179,272.176	2,338,614.205	15.00'	6,475.62'	6,687.49'	-211.88'	RUNWAY 3 DEPARTURE	
1024	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,177,222.881	2,337,279.816	15.00'	6,422.18'	6,737.04'	-314.90'	RUNWAY 3 DEPARTURE	
1030	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,191,096.139	2,339,704.106	10.00'	6,620.64'	6,626.26'	6.23'	RUNWAY 3 DEPARTURE	
1031	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,190,602.294	2,339,396.456	10.00'	6,620.64'	6,642.38'	-43.44'	RUNWAY 3 DEPARTURE	
1042	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,190,616.710	2,340,447.936	10.00'	6,624.60'	6,619.74'	4.86'	RUNWAY 3 DEPARTURE	NON-PUBLIC AIRPORT ROAD

NOTES

1. ITEMS SHOWN HIGHLIGHTED YELLOW REPRESENT OBJECT THAT PENETRATES THE REFERENCED SURFACE.
2. ITEMS SHOWN WITH NEGATIVE VALUES IN THE PENETRATION COLUMN ARE OBJECTS THAT DO NOT PENETRATE THE REFERENCED SURFACE.
3. SERVICE ROADS PROVIDE ACCESS TO THE AIRPORT'S NAVIGATIONAL AIDS. ACCESS TO THESE ROADS IS CONTROLLED.

SOURCE

1. OBSTRUCTION SURVEY DATA WAS COMPILED BY WOOLPERT, INC. IN MAY 2015.
2. ALL HORIZONTAL COORDINATES – NAD83/2011, ALL VERTICAL COORDINATES – NAVD88

E:\Projects\DRO\CAD\ALP\2014\PLANS\
15- 15-DRO-ALP-RDSD.dwg
Jul 13, 2016 - 8:56am
robert.bell

JVIATION®

DURANGO-LA PLATA COUNTY AIRPORT

DES: B.L.R.
DR: B.L.R.
CH: C.M.C.
APP: D.F.N.

ISSUE RECORD

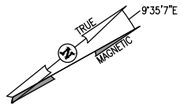
NO.	BY	DATE	DESCRIPTION
1	D.F.N.	7/21/15	ISSUED FOR AIRSPACE REVIEW
2	C.M.C.	10/30/15	FINAL

AIRPORT LAYOUT PLAN

RUNWAY DEPARTURE SURFACE DRAWING - RUNWAY 3

AIP GRANT NO. 3-08-0019-044
JVIATION PROJ. NO. 2014.DRO.02
DATE: OCTOBER, 2015

SHEET NO. 15 of 18



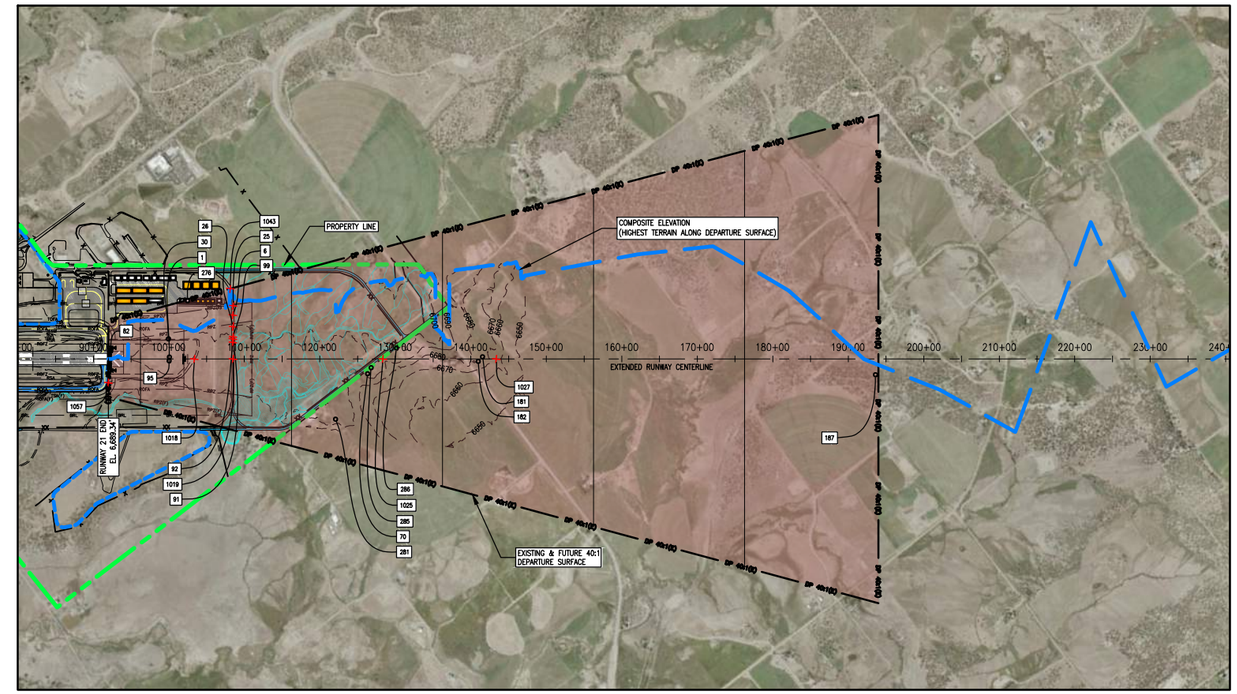
GRAPHIC SCALE

0 500 1000 2000

(IN FEET)

DATE: JUNE, 2014
ANNUAL RATE OF CHANGE: 7.3' W
SOURCE: U.S. NGDC

PROFILE
HORIZ: 1" = 1,000'
VERT: 1" = 100'



AIRSPACE OBSTACLE TABLE

NO.	OBJECT TYPE	NORTHING	EASTING	OBJECT HEIGHT	ABOVE GROUND LEVEL (AGL)	DEPARTURE SURFACE ELEVATION	DEPARTURE PENETRATION	SURFACE REFERENCE	DISPOSITION
1	OBSTRUCTION LIGHT ON LOCALIZER	1,189,638.190	2,246,652.700	9.69'	6,700.69'	6,703.46'	-6.79'	RUNWAY 21 DEPARTURE	
6	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,189,708.856	2,246,646.280	15.90'	6,719.82'	6,706.57'	-19.75'	RUNWAY 21 DEPARTURE	
25	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,189,786.750	2,246,650.310	15.90'	6,722.20'	6,706.64'	-15.24'	RUNWAY 21 DEPARTURE	
26	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,189,812.220	2,246,786.810	15.90'	6,729.60'	6,706.62'	-11.62'	RUNWAY 21 DEPARTURE	
30	BUILDING	1,189,845.610	2,246,254.750	11.50'	6,704.77'	6,709.17'	-4.40'	RUNWAY 21 DEPARTURE	
70	TREE	1,190,611.090	2,246,268.257	67.44'	6,749.60'	6,776.18'	-26.63'	RUNWAY 21 DEPARTURE	
92	NATURAL HIGH POINT	1,188,746.660	2,246,604.416	9.00'	6,688.61'	6,690.12'	-1.62'	RUNWAY 21 DEPARTURE	
91	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,188,509.320	2,246,590.350	15.90'	6,707.60'	6,720.62'	-13.02'	RUNWAY 21 DEPARTURE	
99	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,188,411.130	2,246,588.090	15.90'	6,716.42'	6,730.61'	-14.20'	RUNWAY 21 DEPARTURE	
95	OBSTRUCTION LIGHT ON LOCALIZER	1,189,648.600	2,246,589.416	9.81'	6,700.67'	6,709.47'	-8.81'	RUNWAY 21 DEPARTURE	
99	PRIMARY ROAD (+15' ADJUSTMENT ADDED)	1,188,523.194	2,246,570.364	15.90'	6,716.48'	6,730.63'	-14.15'	RUNWAY 21 DEPARTURE	
1018	TREE	1,191,938.927	2,249,347.392	83.52'	6,759.67'	6,813.26'	-53.59'	RUNWAY 21 DEPARTURE	
1019	TREE	1,191,954.156	2,249,357.492	75.98'	6,751.69'	6,811.77'	-60.08'	RUNWAY 21 DEPARTURE	
1057	TREE	1,190,440.294	2,252,590.912	31.81'	6,737.23'	6,843.37'	-106.14'	RUNWAY 21 DEPARTURE	
276	BUILDING	1,189,356.611	2,246,326.275	22.31'	6,720.32'	6,715.55'	5.77'	RUNWAY 21 DEPARTURE	INSTALL OBLIGHT
281	BUILDING	1,189,902.951	2,243,573.812	27.15'	6,719.15'	6,764.58'	-45.43'	RUNWAY 21 DEPARTURE	
285	TELEPHONE PYLON/POLE	1,190,697.690	2,243,234.317	20.68'	6,716.40'	6,776.33'	-59.93'	RUNWAY 21 DEPARTURE	
286	TELEPHONE PYLON/POLE	1,191,120.310	2,243,241.296	21.92'	6,721.85'	6,784.69'	-62.81'	RUNWAY 21 DEPARTURE	

DEPARTURE ROAD INTERSECTION TABLE

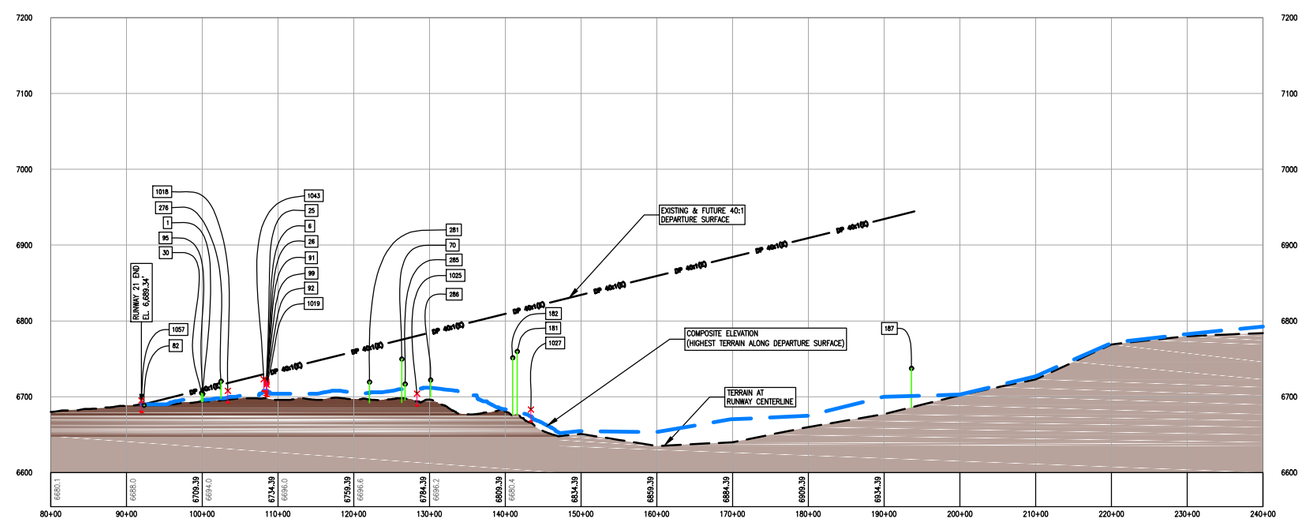
NO.	OBJECT TYPE	NORTHING	EASTING	OBJECT HEIGHT	ABOVE GROUND LEVEL (AGL)	DEPARTURE SURFACE ELEVATION	DEPARTURE PENETRATION	SURFACE REFERENCE	DISPOSITION
1018	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,191,944.660	2,246,799.030	10.90'	6,707.79'	6,717.89'	-10.06'	RUNWAY 21 DEPARTURE	
1019	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,189,342.736	2,247,190.097	15.90'	6,716.11'	6,730.61'	-14.50'	RUNWAY 21 DEPARTURE	
1025	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,190,918.429	2,243,242.247	10.90'	6,704.61'	6,780.26'	-75.64'	RUNWAY 21 DEPARTURE	
1027	INTERSECTION HIGHWAY(+17' ADJUSTMENT ADDED)	1,190,092.930	2,249,232.996	17.00'	6,693.02'	6,817.31'	-124.29'	RUNWAY 21 DEPARTURE	
1043	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,189,398.276	2,246,250.128	15.90'	6,729.70'	6,756.66'	-26.96'	RUNWAY 21 DEPARTURE	
1067	INTERSECTION ROAD (+15' ADJUSTMENT ADDED)	1,187,858.401	2,246,212.146	10.90'	6,706.66'	6,689.24'	5.72'	RUNWAY 21 DEPARTURE	NON-PUBLIC AIRPORT ROAD

NOTES

1. ITEMS SHOWN HIGHLIGHTED YELLOW REPRESENT OBJECT THAT PENETRATES THE REFERENCED SURFACE.
2. ITEMS SHOWN WITH NEGATIVE VALUES IN THE PENETRATION COLUMN ARE OBJECTS THAT DO NOT PENETRATE THE REFERENCED SURFACE.
3. SERVICE ROADS PROVIDE ACCESS TO THE AIRPORT'S NAVIGATIONAL AIDS. ACCESS TO THESE ROADS IS CONTROLLED.
4. ULTIMATE SURFACES NOT DEPICTED.

SOURCE

1. OBSTRUCTION SURVEY DATA WAS COMPILED BY WOOLPERT, INC. IN MAY 2015.
2. ALL HORIZONTAL COORDINATES – NAD83/2011, ALL VERTICAL COORDINATES – NAV88



JVIATION®

DURANGO-LA PLATA COUNTY AIRPORT

DES: B.L.R.
DR: B.L.R.
CH: C.M.C.
APP: D.F.N.

ISSUE RECORD

NO.	BY	DATE	DESCRIPTION
1	D.F.N.	7/21/15	ISSUED FOR AIRSPACE REVIEW
2	C.M.C.	10/30/15	FINAL

AIRPORT LAYOUT PLAN

RUNWAY DEPARTURE SURFACE DRAWING - RUNWAY 21

AIP GRANT NO. 3-08-0019-044
JVIATION PROJ. NO. 2014.DRO.02
DATE: OCTOBER, 2015

SHEET NO. 16 of 18

E:\Projects\DRO\CAD\ALP\2014\PLANS\
15- 16- DRO- ALP- 1605D.dwg
July 13, 2016 - 8:53am
robert.bell

6.7 Land Use

The Land Use Plan (Sheet 17 of 18) graphically depicts existing and recommended future land uses within the future property line, as well as the vicinity of DRO. This is a primary planning document used to identify property and land uses that may or may not be compatible with the sustained long term operation of DRO. It includes land within the future 65 day/night average sound level (DNL) noise contour, a standard metric for identifying average noise levels, above which would not be compatible with noise sensitive uses. The Land Use Plan provides guidance to local authorities to establish appropriate land use controls and/or zoning within the vicinity of DRO, as well as a plan for future uses of revenue-producing areas contained on airport property.

The Land Use Plan for DRO is presented below, on Sheet 17. The predominant land uses adjacent to the airport boundary are agricultural and low density residential. Because of the relatively remote location of the airport and the lack of zoning in place in La Plata County, recommendations for additional land use controls are limited to monitoring trends in subdivisions in the county and keeping a good dialog with the surrounding residents. The current and projected noise contours are depicted on the Land Use Plan and there are no noise sensitive uses within the 65 DNL contour.

As a long-term strategy, DRO could benefit from the establishment of an Airport Zone or Overlay Zone that would provide for notification of the airport's proximity to prospective real estate buyers and would allow DRO staff to be notified of any development proposals within the zone so that staff could provide the zoning board comments on the effects that a proposed development could have on airport operations and compatibility.

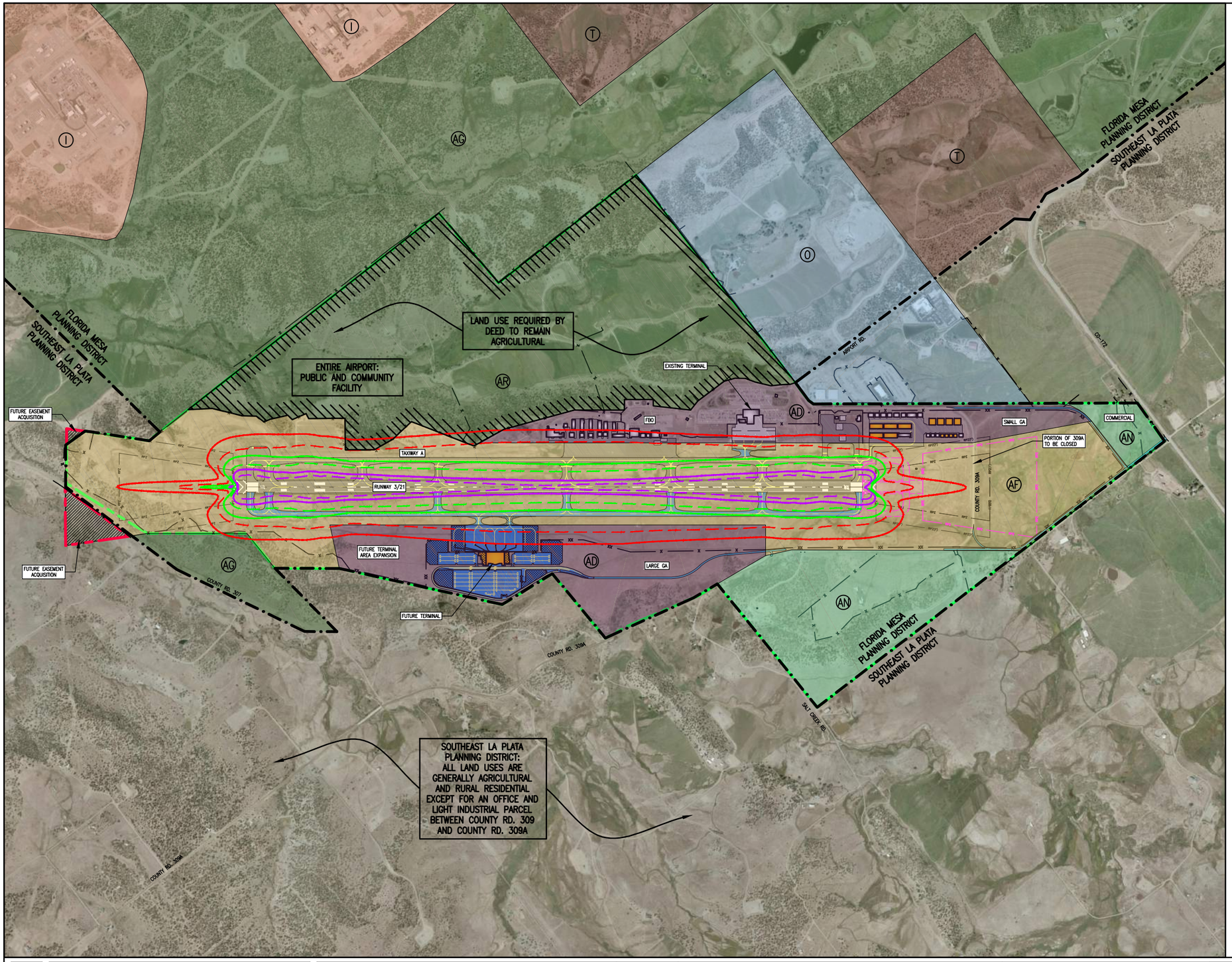
6.8 Exhibit A Property Map

The Airport Property Map (Sheet 18 of 18) illustrates the acquisition history of various tracts of land within airport boundaries as well as any ownership status of any land that is recommended by the master plan for acquisition. Specific required information is provided on Sheet 18 for analyzing both current and future aeronautical uses of land that have been acquired through federal funding. The purpose of the Exhibit A is to certify to FAA that existing and future development has been or will be situated on land owned by the airport sponsor.

The plan view graphically identifies individual parcels that may have been acquired separately over time and provides information useful for identifying the boundaries. The accompanying table provides detail about former ownership, recording data, purpose of the parcel, and information about which FAA grant(s) may

have been used to acquire parcels. Alternatively, if land has been released or there is a different type of interest in the property the Exhibit A will be the document that maintains that information.

This Master Plan has identified only one parcel that is slated for acquisition during the planning period. This land is south of current airport property and is situated beneath the Runway 3 RPZ. More detail on this RPZ can be found on Sheet 13 of 18, Inner Approach Surface Drawing.



LAND USE PLANNING IN LA PLATA COUNTY

LA PLATA COUNTY CODE

THE LA PLATA COUNTY CODE CONSTITUTES A COMPLETE COMPILATION OF THE GENERAL AND PERMANENT ORDINANCES AND RESOLUTIONS OF THE COUNTY OF LA PLATA, COLORADO. THE CODE ALSO ESTABLISHES PROCEDURES AND REQUIREMENTS FOR DEVELOPMENT WITHIN THE COUNTY, INCLUDING THE LAND SURROUNDING DURANGO LA PLATA COUNTY AIRPORT. THE CODE IS CONTINUOUSLY UPDATED THROUGH NEW ORDINANCES AND RESOLUTIONS. CURRENTLY THERE IS NO ZONING IN PLACE AT THE AIRPORT.

LA PLATA COUNTY COMPREHENSIVE PLAN (2001)

THE LA PLATA COUNTY CODE CONSTITUTES A COMPLETE COMPILATION OF THE GENERAL AND PERMANENT ORDINANCES AND RESOLUTIONS OF THE COUNTY OF LA PLATA, COLORADO. THE CODE ALSO ESTABLISHES PROCEDURES AND REQUIREMENTS FOR DEVELOPMENT WITHIN THE COUNTY, INCLUDING THE LAND SURROUNDING DURANGO LA PLATA COUNTY AIRPORT. THE CODE IS CONTINUOUSLY UPDATED THROUGH NEW ORDINANCES AND RESOLUTIONS. CURRENTLY THERE IS NO ZONING IN PLACE AT THE AIRPORT.

FLORIDA MESA PLANNING DISTRICT LAND USE PLAN (2001)

DURANGO LA PLATA COUNTY AIRPORT IS CONTAINED WITH IN THE FLORIDA MESA PLANNING DISTRICT. IT IS SITUATED ON A MESA AT THE EASTERN EDGE OF THE DISTRICT, WHICH PLACES IT ADJACENT TO THE SOUTHEAST LA PLATA PLANNING DISTRICT. THE FLORIDA MESA PLANNING DISTRICT DEVELOPED A LAND USE PLAN COVERING THE AIRPORT AND LAND WITHIN THE DISTRICT GENERALLY WEST OF THE AIRPORT. LAND USES SURROUNDING THE AIRPORT ARE PREDOMINANTLY AGRICULTURAL AND RURAL RESIDENTIAL ON LARGE LOTS. WITHIN THE FLORIDA MESA DISTRICT THERE IS AN AREA NORTH OF THE AIRPORT PLANNED FOR OFFICE AND LIGHT INDUSTRIAL USES, WHICH IS COMPATIBLE WITH AIRPORT OPERATIONS. FARTHER WEST OF THE AIRPORT THERE ARE INDUSTRIAL USES. TWO TRACTS OF TRIBAL LAND ARE ALSO WITHIN THE PORTION OF THE FLORIDA MESA DISTRICT VISIBLE IN THIS PLAN.

SOUTHEAST LA PLATA PLANNING DISTRICT

THE AIRPORT ALSO BORDERS THE SOUTHEAST PLANNING DISTRICT. UNLIKE THE FLORIDA MESA DISTRICT THE SOUTHEAST LA PLATA DISTRICT ELECTED TO NOT LOCK IN ANY SPECIFIC USES FOR LAND. THEY CHOSE THE FLEXIBILITY OF VIEWING EACH PROPOSAL SEPARATELY AND JUDGING ITS COMPATIBILITY AGAINST A NUMBER OF PERFORMANCE MEASURES. IN THE VICINITY OF THE AIRPORT, THE LAND USES ARE GENERALLY OPEN SPACE, AGRICULTURAL, OR RURAL RESIDENTIAL. OFFICE AND LIGHT INDUSTRIAL USES ARE LOCATED IN THE AREA AT THE CORNER OF CR 309 AND CR 309A AND SITUATED ADJACENT TO THE SAME PLANNED USE IN THE FLORIDA MESA DISTRICT.

LA PLATA COUNTY COMPREHENSIVE PLAN UPDATE

AS THIS LAND USE PLAN WITHIN THE AIRPORT MASTER PLAN WAS BEING PREPARED, LA PLATA COUNTY BEGAN WORK ON AN UPDATE TO THE 2001 COMPREHENSIVE PLAN. GIVEN THE TIMING, THIS IS AN EXCELLENT OPPORTUNITY TO ADDRESS FUTURE COMPATIBILITY OF USES SURROUNDING THE AIRPORT. DRO WOULD BENEFIT FROM THE ESTABLISHMENT OF AN AIRPORT OVERLAY ZONE. THIS IS A PLANNING TOOL THAT RECOGNIZES THE UNIQUE CHARACTER OF THE FACILITY AND PROVIDES AN OPPORTUNITY FOR AIRPORT STAFF TO GUIDE LA PLATA COUNTY REGARDING IMPACTS OF PROPOSALS TO LONG-TERM AIRPORT OPERATION. HOWEVER, THE OVERLAY ZONE WOULD NOT ALTER THE UNDERLYING CLASSIFICATION OR OTHERWISE LIMIT DEVELOPMENT. SUGGESTED REQUIREMENTS WITHIN THE ZONE INCLUDE:

- REQUIREMENT TO PROVIDE A FAA FORM 7460-1 INDICATING A PROPOSAL WAS NOT A HAZARD TO NAVIGABLE AIRSPACE.
- REQUIREMENT TO NOTIFY BUYERS OF REAL ESTATE WITHIN THE OVERLAY ZONE OF THE PRESENCE OF THE AIRPORT AND ITS OPERATION.
- REQUIREMENT FOR THE APPLICANT TO GRANT AN AVIGATION EASEMENT THAT EXPRESSLY RECOGNIZES THE RIGHT TO LAWFULLY OVERFLY THE PROPERTY, AND IF NECESSARY FOR AIRPORT REPRESENTATIVES TO ENTER THE PROPERTY TO MAINTAIN THE HEIGHT OF TREES OR OTHER TALL VEGETATION.
- REFERRAL OF APPLICATIONS TO AIRPORT STAFF FOR PROPOSED DEVELOPMENT TO ASSESS POTENTIAL IMPACTS TO THE AIRPORT AND PROVIDE THAT EVALUATION TO LA PLATA COUNTY ELECTED OFFICIALS.

CITY OF DURANGO

THROUGH AN INTERGOVERNMENTAL AGREEMENT, THE CITY OF DURANGO OPERATES THE AIRPORT WHICH IS JOINTLY OWNED AND SPONSORED BY THE CITY OF DURANGO AND LA PLATA COUNTY. THE AIRPORT ITSELF LIES OUTSIDE OF THE CITY'S BOUNDARY. THROUGH ITS OPERATION OF THE AIRPORT AND PARTICIPATION WITH THE PREPARATION OF THE AIRPORT MASTER PLAN, THE CITY HELPS SHAPE THE LAND USE DECISIONS WITHIN AIRPORT PROPERTY. THE USES SHOWN ON THIS LAND USE PLAN THAT ARE WITHIN THE AIRPORT'S BOUNDARY ARE CONSISTENT WITH THE CURRENT MASTER PLAN THAT IS JOINTLY SPONSORED AND APPROVED BY THE CITY OF DURANGO AND LA PLATA COUNTY.

RECOMMENDATION

THE DURANGO LA PLATA COUNTY AIRPORT MASTER PLAN RECOMMENDS THAT LA PLATA COUNTY, THROUGH THE UPDATE OF THE COMPREHENSIVE PLAN, INCLUDE THE FOLLOWING OBJECTIVES REGARDING THE AIRPORT:

- INCORPORATE THE AIRPORT'S CURRENT MASTER PLAN.
- SPECIFY RECOMMENDED, COMPATIBLE LAND USES IN THE SOUTHEAST LA PLATA PLANNING DISTRICT THROUGH THE PREPARATION OF A DISTRICT LAND USE PLAN THAT ALSO INCORPORATES AIRPORT PLANNING DOCUMENTS.
- UPDATE THE FLORIDA MESA LAND USE PLAN AND INCORPORATE AIRPORT PLANNING DOCUMENTS.
- SEEK TO ESTABLISH AN AIRPORT OVERLAY ZONE THAT OFFERS TOOLS TO PROTECT AIRSPACE AND ENCOURAGE COMPATIBILITY WITH SURROUNDING USES.

LEGEND

NOISE CONTOURS

- EXISTING 2013 65 DNL NOISE CONTOUR
- EXISTING 2013 70 DNL NOISE CONTOUR
- EXISTING 2013 75 DNL NOISE CONTOUR
- FUTURE 2035 65 DNL NOISE CONTOUR
- FUTURE 2035 70 DNL NOISE CONTOUR
- FUTURE 2035 75 DNL NOISE CONTOUR

ON-AIRPORT LAND USE

- (AF) AIRFIELD AND AIRSPACE PROTECTION
- (AD) AERONAUTICAL DEVELOPMENT
- (AN) NON-AERONAUTICAL DEVELOPMENT
- (AR) USE REQUIRED TO REMAIN AGRICULTURAL

OFF-AIRPORT LAND USE

- (AG) AGRICULTURAL/ RURAL RESIDENTIAL
- (O) OFFICE/LIGHT INDUSTRIAL
- BOUNDARY OF PLANNING DISTRICTS
- (T) TRIBAL
- (I) INDUSTRIAL

SOURCE

1. THE NOISE CONTOUR DATA WAS OBTAINED FROM KB ENVIRONMENTAL SCIENCES, INC.
2. THE SITE PLAN LINE WORK AND AERIAL IMAGE IS BASED ON THE PLANIMETRIC MAPPING & ORTHO-IMAGERY INFORMATION COMPILED BY WOOLPERT, INC. IN MAY 2015.
3. OFF AIRPORT LAND USE FROM FLORIDA MESA PLANNING DISTRICT LAND USE PLAN.

NOTES

1. THERE ARE NO INCOMPATIBLE OR NOISE SENSITIVE USES LOCATED WITHIN THE EXISTING OR FUTURE 65 DNL CONTOUR.
2. NO PUBLIC LAND IS LOCATED WITHIN THE BOUNDARY OF THIS MAP.

TRUE
MAGNETIC
9°35'7"E

GRAPHIC SCALE
0 375 750 1500
(IN FEET)

DATE: JUNE, 2014
ANNUAL RATE OF CHANGE: 7.3' W
SOURCE: U.S. NGDC

I:\Projects\DRO\CAD\ALP\2014\PLANS\
17-DRO-ALP-LAND.dwg
Jun 13, 2016 - 8:50am
robert.bell

JVIATION®

DURANGO-LA PLATA COUNTY AIRPORT

DES: B.L.R.
DR: B.L.R.
CH: C.M.C.
APP: D.F.N.

ISSUE RECORD

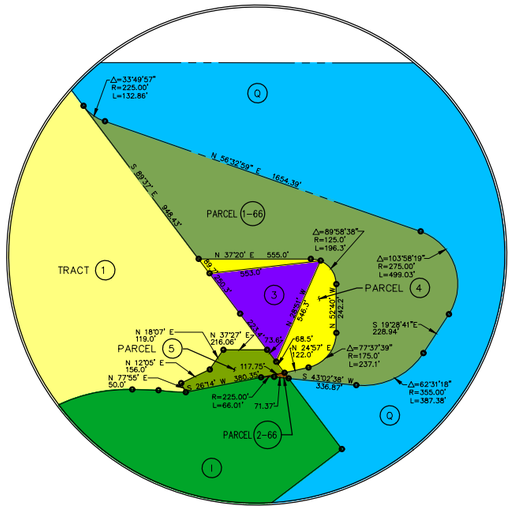
NO.	BY	DATE	DESCRIPTION
1	D.F.N.	7/21/15	ISSUED FOR AIRSPACE REVIEW
2	C.M.C.	10/30/15	FINAL

AIRPORT LAYOUT PLAN

LAND USE PLAN

AIP GRANT NO. 3-08-0019-044
JVIATION PROJ. NO. 2014.DRO.02
DATE: OCTOBER, 2015

SHEET NO. 17 of 18



DETAIL "A"
NOT TO SCALE

NOTES

1. THIS DRAWING AND PARCEL DATA WAS COMPILED FROM RESEARCHING ORIGINAL DOCUMENTS ON FILE WITH THE LA PLATA COUNTY CLERK AND RECORDER AND FROM PREVIOUSLY APPROVED PROPERTY MAPS. BOUNDARY FIELD SURVEYS WERE NOT PERFORMED TO VERIFY PARCEL BOUNDARY DESCRIPTIONS PROVIDED IN PRIOR PROPERTY MAPS. THE DOCUMENT NUMBERS LISTED FOR EACH PARCEL CAN BE USED TO REQUEST COPIES OF RECORDED DOCUMENTS OR VIEW THEM ONLINE. THE INFORMATION PROVIDED MEETS THE REQUIREMENTS OF FAA STANDARD OPERATING PROCEDURE 3.00, DATED OCTOBER 1, 2013.

2. EASEMENT PARCELS WHICH NOW UNDERLIE PARCEL "Q" ARE NOT SHOWN. PREVIOUS EXHIBIT "A" PROPERTY MAPS INCLUDED TRACT 4 AND PARCELS 1 AND 2, WHICH WERE ACQUIRED UNDER FAAP-03; AND PARCELS 3-66 AND 4-66 WHICH WERE ACQUIRED UNDER FAAP-04. THE AIRPORT NOW OWNS THESE PARCELS IN FEE SIMPLE, AND AS A RESULT, THE EASEMENTS NO LONGER APPLY.

3. (*) FEE SIMPLE OWNERSHIP SUBJECT TO SEVERED AGRICULTURAL EASEMENT GRANTED TO ANOTHER PARTY.

4. (1) PARCEL T IS THE EXTINGUISHMENT OF AGRICULTURAL EASEMENT GRANTED TO THE PRIOR LAND OWNER. PARCEL T IS A PORTION OF PARCEL N CURRENTLY OWNED BY THE CITY OF DURANGO AND LA PLATA COUNTY IN FEE SIMPLE.

5. (**) IN SEPTEMBER 1982, MR. F.B. DASHNER DONATED 368.3787 ACRES TO THE SPONSOR DESIGNATED AS PARCEL N ON THE DURANGO LA PLATA COUNTY AIRPORT PROPERTY MAP -EXHIBIT A. PURSUANT TO THAT CERTAIN WARRANTY DEED RECORDED DECEMBER 30, 1982, AR RECEPTION NO.' 477873 OF THE REAL PROPERTY RECORDS OF LA PLATA COUNTY, COLORADO, F.B. DASHNER, TRUSTEE GRANTED TO LA PLATA COUNTY THAT CERTAIN REAL PROPERTY SITUATE IN THE COUNTY OF LA PLATA, STATE OF COLORADO, SUBJECT TO THE RIGHT TO USE SAID LAND FOR AGRICULTURAL PURPOSES ONLY WITHOUT THE RIGHT TO CONSTRUCT IMPORVEMENTS GRANTED TO F.B. DASHNER, HIS SUCCESSORS AND ASSIGNS FOREVER.

   FOLLOWING MR. DASHNER'S DEATH, THIS RIGHT OF AGRICULTURAL USE WAS CONVEYED FROM THE F.B. DASHNER ESTATE TO KEITH AND CAROLYN FASSBENDER, FRIENDS OF F.B. DASHNER, PURSUANT TO THAT CERTAIN PERSONAL REPRESENTATIVE'S DEED OF DISTRIBUTION RECORDED MARCH 3, 1989, AT RECEPTION NO. 575318. THE FASSBENDERS SUBSEQUENTLY DIVORCED AND THE AGRICULTURAL USE INTEREST WAS DIVIDED BETWEEN THEM PURSUANT TO QUIT CLAIM DEEDS RECORDED MAY 26, 2000, AT RECEPTION NO. 787022 TO IMPLEMENT TERMS OF THE DIVORCE DECREE ENTERED IN OCTOBER OF 1998. KEITH FASSBENDER QUITCLAIMED A PORTION OF HIS INTEREST IN THAT CERTAIN REAL PROPERTY TO CAROLYN WATSON.

   PURSUANT TO SPECIAL WARRANTY DEED FROM LA PLATA COUNTY AND THE CITY OF DURANGO TO KEITH AND MARY FASSBENDER, CONVEYING FEE TITLE TO 103.34 ACRES OF THE SUBJECT PROPERTY -ORIGINAL PARCEL N -RECORDED MARCH 30, 2011 AT RECEPTION NO. 1028744; AND SHOWN AS "FASSBENDER" PARCEL ON THE DURANGO LA PLATA COUNTY AIRPORT PROPERTY MAP -EXHIBIT A.

   IN EXCHANGE FOR THE FEE TITLE OWNERSHIP OF "FASSBENDER" PARCEL TO KEITH AND MARY FASSBENDER AND PURSUANT TO ORIGINAL EASEMENT AGREEMENT BETWEEN THE CITY OF DURANGO, LA PLATA COUNTY AND KEITH R. AND MARY D. FASSBENDER, RECORDED MARCH 30, 2011 AT RECEPTION NO. 1028745 THE AGRICULTURAL EASEMENT ESTABLISHED BY F.B. DASHNER WAS VACATED BY THE KEITH R. AND MARY D, FASSBENDER PROVIDING UNENCUMBERED OWNERSHIP FOR THE SPONSOR ON THE REMAINDER OF PARCEL N.

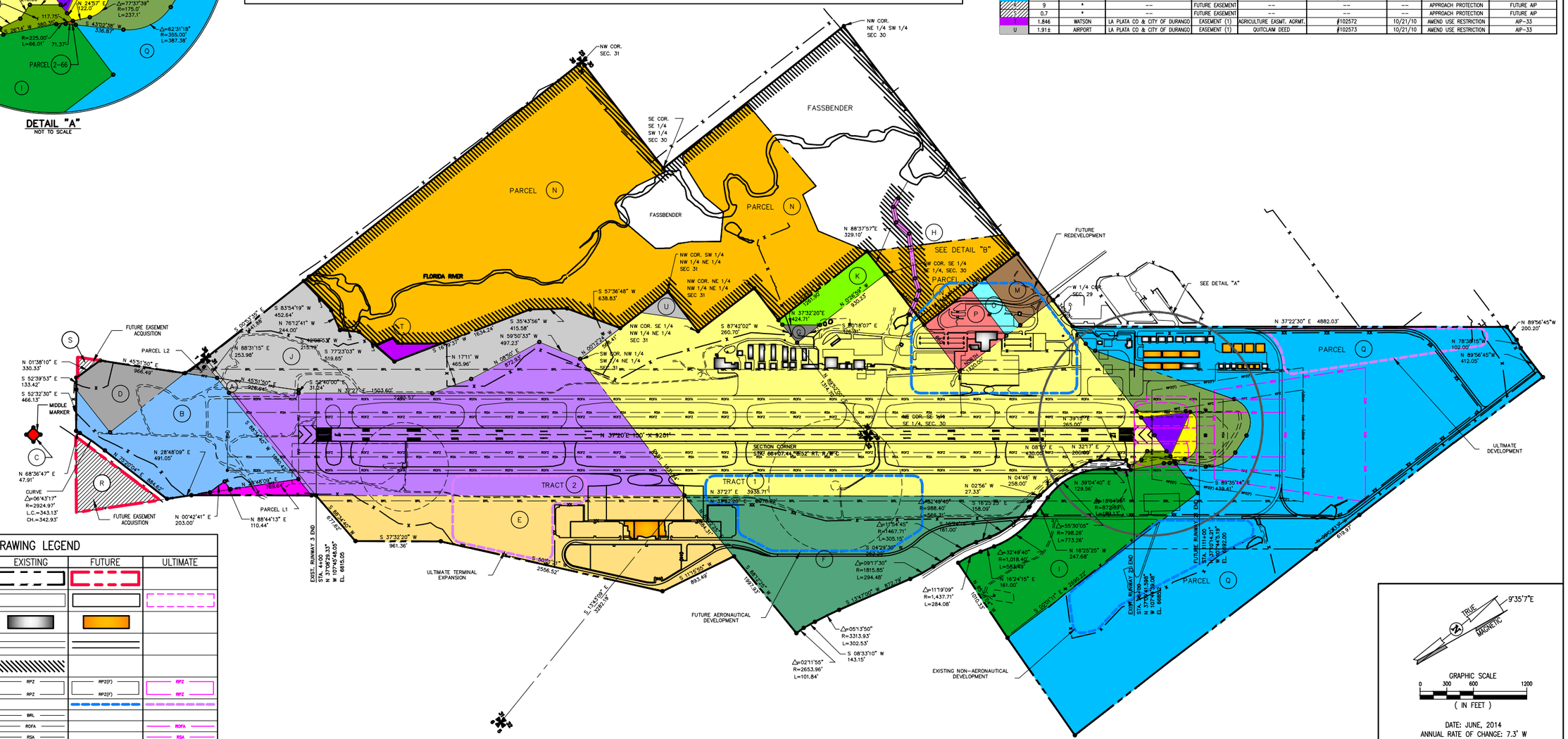
6. THE AIRPORT GEOMETRY WAS UPDATED WITH PLANIMETRIC MAPPING INFORMATION COMPILED BY WOOLPERT, INC. IN MAY 2015

7. ALL COORDINATE DATA IS NAD83/NAVD88.

LAND PARCEL DATA

PARCEL	ACRES	GRANTOR	GRANTEE	INTEREST	DOC TYPE	RECORDING DOCUMENT	DATE	PURPOSE	PROJECT/GRANT NO.
TRACT 1	257.46	CAMERON	LA PLATA CO & CITY OF DURANGO	FEE	WARRANTY DEED	#189218	1/14/47	AIRPORT/ARFIELD	SPONSOR ACQUISITION
TRACT 2	122.028	GRAHAM	LA PLATA CO & CITY OF DURANGO	FEE	WARRANTY DEED	#289790	5/15/59	AIRPORT/ARFIELD	FAAP-03
3	3.00	McCAW	LA PLATA CO & CITY OF DURANGO	FEE	INGRESS EGRESS GRANT	#292173	8/28/59	APPROACH PROTECTION	FAAP-03
4	2.73	McCAW	LA PLATA CO & CITY OF DURANGO	FEE	WARRANTY DEED	#294846	12/29/59	APPROACH PROTECTION	FAAP-03
5	1.30	GRAHAM	LA PLATA CO & CITY OF DURANGO	FEE	WARRANTY DEED	#294844	12/29/59	APPROACH PROTECTION	FAAP-03
1-66	19.48	McCAW	LA PLATA CO & CITY OF DURANGO	FEE	WARRANTY DEED	#346700	8/1/67	APPROACH PROTECTION	FAAP-04
2-66	0.03	GRAHAM	LA PLATA CO & CITY OF DURANGO	FEE	INDENTURE	#349438	3/11/68	APPROACH PROTECTION	FAAP-04
A	1.826	DASHNER	LA PLATA CO & CITY OF DURANGO	FEE	COURT SETTLEMENT	#421707	7/18/79	APPROACH PROTECTION	ADAP-04
B	44.981	BARNES	LA PLATA CO & CITY OF DURANGO	FEE	AMENDED RULE AND ORDER	#433658	8/7/79	APPROACH PROTECTION	ADAP-04
C	1.00	BARNES	LA PLATA CO & CITY OF DURANGO	FEE	AMENDED RULE AND ORDER	#433658	8/7/79	MIDDLE MARKER	ADAP-04
D	11.407	DORE	LA PLATA CO & CITY OF DURANGO	FEE	AMENDED RULE AND ORDER	#433657	8/7/79	APPROACH PROTECTION	ADAP-04
E	72.048	GALE	LA PLATA COUNTY	FEE	WARRANTY DEED	#427182	1/2/79	FUTURE DEVELOPMENT	ADAP-06
F	76.441	DASHNER	LA PLATA COUNTY	FEE	WARRANTY DEED	#426481	12/5/78	FUTURE DEVELOPMENT	ADAP-06
G	0.976	DASHNER	LA PLATA COUNTY	FEE	WARRANTY DEED	#439592	1/10/80	FUTURE DEVELOPMENT	SPONSOR ACQUISITION
H	1.635	DASHNER	LA PLATA COUNTY	EASEMENT	EXCEPTION IN DEED	#439592	1/10/80	MAINTAIN ACCESS	SPONSOR ACQUISITION
I	52.764	ASPEN SPRINGS	LA PLATA COUNTY	FEE	WARRANTY DEED	#427076	12/28/78	FUTURE DEVELOPMENT	SPONSOR ACQUISITION
J	61.1566	DASHNER	LA PLATA COUNTY	FEE	WARRANTY DEED	#440819	2/21/80	AIRPORT/ARFIELD	SPONSOR ACQUISITION
K	8.54	DASHNER	LA PLATA COUNTY	FEE	WARRANTY DEED	#461222	9/25/81	TERMINAL AREA	SPONSOR ACQUISITION
L1	4.914	BARNES	LA PLATA CO & CITY OF DURANGO	FEE	AMENDED RULE AND ORDER	#433658	8/7/79	APPROACH PROTECTION	SPONSOR ACQUISITION
L2									
M	7.00	GREGG	LA PLATA COUNTY	FEE	WARRANTY DEED	#486874	8/2/83	AIRPORT ACCESS	AIP-03
N	388.3787	DASHNER	AIRPORT	FEE (*)	WARRANTY DEED	#477873	12/30/82	LAND USE COMPATIBILITY	SPONSOR ACQUISITION
N(**)	251.49	FASSBENDER	LA PLATA CO & CITY OF DURANGO	FEE	SPECIAL WARRANTY DEED	#1028743	3/18/11	LAND USE COMPATIBILITY	SPONSOR ACQUISITION
O	3.00	WHITE	LA PLATA COUNTY	FEE	RULE AND ORDER	#531552	5/1/86	AIRPORT ACCESS	SPONSOR ACQUISITION
P	10.00	SWERSON	LA PLATA COUNTY	FEE	WARRANTY DEED	#407906	3/22/77	AIRPORT ACCESS	AIP-12
Q	250.649	McCAW	LA PLATA COUNTY	FEE	COURT SETTLEMENT	#629086	6/22/92	APPROACH PROTECTION	AIP-13
R	9	*	--	FUTURE EASEMENT	--	--	--	APPROACH PROTECTION	FUTURE AIP
S	0.7	*	--	FUTURE EASEMENT	--	--	--	APPROACH PROTECTION	FUTURE AIP
T	1.846	WATSON	LA PLATA CO & CITY OF DURANGO	EASEMENT (1)	AGRICULTURE EASMT. AGRMT.	#102572	10/21/10	AMEND USE RESTRICTION	AIP-33
U	1.91±	AIRPORT	LA PLATA CO & CITY OF DURANGO	EASEMENT (1)	QUITCLAIM DEED	#102573	10/21/10	AMEND USE RESTRICTION	AIP-33

SEE DETAIL "A"



DRAWING LEGEND

ITEM	EXISTING	FUTURE	ULTIMATE
AIRPORT PROPERTY BOUNDARY			
AIRPORT PAVEMENT (ASPHALT/CONCRETE)			
BUILDING/HANGAR			
ROADWAY			
AGRICULTURAL EASEMENT			
RUNWAY PROTECTION ZONE (RPZ)	RPZ / RPZ	RPZ(F) / RPZ(F)	RPZ / RPZ
DEVELOPMENT AREA			
BUILDING RESTRICTION LINE	BRL		
RUNWAY OBJECT FREE AREA (ROFA)	ROFA		ROFA
RUNWAY SAFETY AREA (RSA)	RSA		RSA
OBJECT FREE ZONE - RUNWAY (ROFZ)	ROFZ		
FENCE (8' HEIGHT)	x	xx	

DATE: JUNE, 2014
ANNUAL RATE OF CHANGE: 7.3' W
SOURCE: U.S. NGDC

JVIATION®

DURANGO-LA PLATA COUNTY AIRPORT

DES: B.L.R.
DR: B.L.R.
CH: C.M.C.
APP: D.F.N.

ISSUE RECORD

NO.	BY	DATE	DESCRIPTION
1	D.F.N.	7/21/15	ISSUED FOR AIRSPACE REVIEW
2	C.M.C.	10/30/15	FINAL

AIRPORT LAYOUT PLAN

EXHIBIT A - AIRPORT PROPERTY INVENTORY MAPS

AIP GRANT NO. 3-08-0019-044
JVIATION PROJ. NO. 2014.DRO.02
DATE: OCTOBER, 2015

SHEET NO. 18 of 18

7.0 CAPITAL IMPROVEMENT PROGRAM & FINANCIAL IMPLEMENTATION

With a chosen development concept as the preferred alternative, the focus now shifts to understanding the financial resources that will be needed in order to have a feasible plan. The first section of this chapter analyzes the development program at the project level, culminating in a list of projects that are sequenced and/or prioritized to maximize construction efficiency, efficient phasing, or match a lifecycle. In the second section of this chapter, the development program tabulates the funding requirements for projects and allocates the expected sources of funding. The tables at the end of the chapter provide the full list of projects and planned funding amounts for the 20-year planning period. This is also known as the Capital Improvement Program, or CIP.

7.1 CAPITAL IMPROVEMENT PROGRAM (CIP)

The preferred development program that was selected among the alternatives in **Chapter 5**, **Alternatives Analysis**, calls for the relocation of the passenger terminal complex to the east side of the airfield. The projects needed to implement this program will be high priority projects requiring significant levels of funding from a number of sources. There are also projects in the queue that are associated with the normal upkeep of DRO or are enabling projects needed prior to major construction. The CIP captures both types of projects and sequences them by priority.

The CIP is further broken down into three phases, which match the three forecasting time frames identified in **Chapter 3**, **Aviation Activity Forecasts**.

CIP Phases:

Phase I **2015-2020**
Phase II **2021-2025**
Phase III **2026-2035**

Phase I projects are much more focused on detail because the need for these projects is certain. Many times the projects in the first year or two have been in the queue and interrupting the timing of those projects is not always beneficial. However, these are the highest priority projects and normally will feature significant development program elements from the preferred alternative. Phase II projects are a bit less certain but often feature rehabilitation projects for airport infrastructure that require periodic maintenance or replacement. Phase II can also show projects that are expected once demand reaches certain activity levels. Phase III projects are much less certain but they fill the requirements of the forecasted activity levels so that

the plan can meet expected demand levels within planned funding levels. The key projects in the CIP are identified and discussed in the following sections.

7.2 PHASE I – 2015 THROUGH 2020

7.2.1 Enabling Projects

Phase I will begin with a project year that has ended, but not all of the construction has been completed. The reason to start with a completed year is to show the most recent balances of funding sources and reserves. These first projects also include enabling projects that are needed prior to initiation of the design and construction of the preferred development program. Costs for all projects are shown in 2015 dollars.

2015 Project A1– Environmental Assessment (EA).....$1,036,039

The EA is an enabling project that is required prior to FAA being able to fund projects associated with the relocation of the terminal building, including the designs. The EA, a planning study, follows a rigid methodology that looks closely at the potential impacts to specific environmental categories caused by the proposed improvements. The master plan has taken a careful look at environmental conditions in order to develop concepts that avoid environmentally sensitive areas. Because of this, planners are confident that a Finding of No Significant Impact (FONSI) will be obtained, subject to taking on any mitigation steps needed to avoid significant impacts. Once FAA issues the FONSI, FAA can then financially participate in the implementation of the terminal program. The price shown is from a firm bid.

2015 Project A2 – Taxiway A Rehabilitation Design/Construction $5,968,645

Taxiway A is the main parallel taxiway on the west side of the runway. This project provides for the rehabilitation of the majority of the taxiway surface. A portion of the taxiway in front of the south general aviation parking apron requires full reconstruction, thus was separated from this project. Completion of this taxiway is urgently needed and must be done prior to the focus shifting to the terminal relocation. The price shown is from a firm bid.

2016 Project A3 – Taxiway A Rehabilitation Design – Reconstructed Portion $180,000

Although this portion of Taxiway A meets the requirements for full reconstruction, due to FAA funding restraints it will be rehabilitated instead.

2016 Project A4 – Fog Seal/Restripe Runway 3/21..... $875,000

This important project is considered an enabling project because it is vital to ensuring that the runway surface is protected while the bulk of the resources for this CIP phase are directed toward implementing the

terminal relocation program. A seal coat will be applied to the runway surface and affected markings will be reapplied. The cost reflects the need to avoid runway closures that affect airline service.

2016 Project A5 – Airfield Backup Generator $185,400

An airfield backup generator is vital to maintaining a safe airfield in all conditions. DRO has only one connection to the power supply so an interruption would cause a complete outage on the airfield, including critical navigational aids and communication facilities. Considering the extensive utility work in the terminal relocation program, having a backup generator will be prudent.

2016 Project A6 – Acquire SRE - Snow Plow and Vehicle $484,100

In order to meet requirements under Federal Aviation Regulation Part 139, DRO is required to maintain equipment capable of maintaining a safe airfield in winter conditions. A dump truck vehicle with a plow attachment designed for use on airfield pavements is needed to maintain readiness.

2016 Project A7 - Environmental Assessment - Phase 2 ..... $200,000

This project has been included to account for additional survey work and coordination with tribes and agencies which may be required in relation to cultural resources within the project area.

2017 Project A8 – Taxiway A Rehabilitation Construction $2,000,000

This is the final phase of rehabilitation for Taxiway A, and is the construction phase for the project designed in 2016.

2017 Project A9 – Modify ARFF Bay Openings $200,000

Recent evolution in ARFF vehicle design has resulted in wider trucks. While the door openings are just wide enough to handle the existing vehicles, new ARFF vehicles may need additional width. This project is intended to increase the opening width to safely accommodate the new vehicles identified in this plan.

7.2.2 Preferred Development Program – Relocate Terminal to East

The relocation of an airport terminal is a large undertaking. As such, implementing this part of the master plan will require significant resources and coordination. Before continuing with the project descriptions, an overall description of the program is useful to see how everything fits together. The design and construction projects that comprise the terminal replacement program involve extensive coordination, and each needs to be phased and efficiently sequenced to get the best results in terms of duration and construction bids.

A key benefit of relocating the terminal to the east side of the airfield is the efficiency of not having to build the improvements in multiple short phases that would result in huge inconveniences for the public and the tenants. The ability to turn the entire site over to the contractors greatly simplifies the implementation of the program.

Each terminal project shown in the CIP contains a number of sub-projects intended to maximize efficiency and be built under a single bid. In our list these groupings of sub-projects are called Bid Packs. The bid packs are further broken down in this CIP to separate the engineering or architectural design from the actual construction phase. This efficiently allows for design and construction activities to occur concurrently and allows for flexibility with cash flow.

The prices listed for each project includes construction cost, an allowance for contingencies, an allowance for program management, and design engineering if included. As a reminder, these estimates are shown in 2015 dollars. Inflation will be considered in the second section of this chapter to help planners anticipate the actual amount of funds that will be required as the program is implemented over several years. The program is expected to be completed in 2021 with a grand opening following the completion of construction of the 2021 bid pack. The last project of the program is briefly described in the second phase of the CIP.

2018 Project A10 – Replace Passenger Terminal – Civil Bid Pack 1 - Design..... $265,569

Civil Airfield/Landside Grading/Drainage Design - The first design package includes various elements from the selection of the design team, geotechnical engineers, and surveyors to negotiating contracts and fees. The site investigation will include geotechnical and surveying.

Schematic design of the apron and partial parallel Taxiway B grading will be completed and coordinated with the FAA. Concurrence from the FAA will be acquired prior to proceeding with final design. Final design will also include road access off 309A grading, parking lot grading and airfield and parking lot drainage. FAA and DRO review and concurrence are part of this process.

2018 Project A11 – Replace Passenger Terminal – Civil Bid Pack 2 - Design..... $321,774

The second bid package also includes the selection of the design team and engineers as well as contracts and fee negotiations. Design to improve the existing water distribution system, new water mains, sanitary sewer alignment, and water bore will be done in this phase. Improvements to the existing water distribution system are necessary for west side operations, and new utilities are required for relocation of the terminal facilities to the east side. FAA and DRO review and concurrence are part of this process.

2018 Project A12 – Replace Passenger Terminal – Architecture Design.....$3,275,000

This element includes the architectural design of the new passenger terminal building and permitting elements. Coordination with DRO, the City, County, and FAA will be completed throughout the process to ensure a terminal is designed that meets the vision of DRO.

2019 Project A13 – Replace Passenger Terminal – Civil Bid Pack 1 - Construction $5,244,536

The first phase of construction will consist of grading for the apron, Taxiway B (partial parallel - south end of apron to Runway 3 end), road access off 309A, and parking lot, as well as construction of airfield and parking lot drainage. Contingencies and construction management are included in this phase.

2019 Project A14 – Replace Passenger Terminal – Terminal Building Construction ..$30,785,000

Construction of the new passenger terminal can begin while grading for other facilities is taking place. The terminal building is anticipated to be constructed over a one-year period and be approximately 80,000 square feet, depending on final design. Sustainable practices will be applied to ensure that the space is optimally efficient and able to be expanded with minimum additional cost to future designers. A total of five gates will be accommodated as well as baggage claim, TSA, concessions, rental car, and airline space. The construction phase includes bidding, permits, and commissioning of the new facility.

2019 Project A15 – Replace Passenger Terminal – Civil Bid Pack 3 - Design.....$1,003,511

Civil Airfield/Landside Paving and Lighting Design - This design phase includes selection of the design team and engineers as well as contract and fee negotiations. Pavement design of the apron and taxiway, parking lots, access road from 309A to new terminal site, and loop road around parking lots will be accomplished. Lighting for each of these elements will also be completed which includes medium intensity taxiway lights (MITLS), parking and apron lighting, as well as road striping and reflectors.

2019 Project A16 – Replace Passenger Terminal – Civil Bid Pack 4 - Design..... $397,392

Airport Access Road Coordination/Design - This design phase also includes selection of the design team and engineers and negotiation of contracts and fees. The project involves a new access point from state highway 172 which would connect with the existing CR 309A. The alignment of the road would be perpendicular to the existing driveway which runs north to south. The driveway would be "decommissioned" once the new access road is constructed, and access to the private properties would be from the new road. Extensive coordination with CDOT, Durango, La Plata County, and other stakeholders will be necessary. Also, as impacts to wetlands are expected, there will be coordination with the Army Corps of Engineers.

2020 Project A17 – Replace Passenger Terminal – Civil Bid Pack 2 - Construction $6,354,500

The existing water system is owned by the Airport. Due to the projected growth, improvements to the existing water distribution system are necessary. As the terminal facilities are moving to the east side it is also necessary to construct new water mains and sanitary sewer. This phase includes contingencies and construction management.

2020 Project A18 – Replace Passenger Terminal – Civil Bid Pack 3 - Construction ...$11,141,714

Construct apron, parking lots, parking lighting, access road off 309A, and loop road around parking lots; includes contingency and construction management.

7.3 PHASE II – 2021 THROUGH 2025

Phase II projects have not been assigned years but are sequenced according to priority to match the projected needs of the airport by 2025. In Phase II, the priorities may change according to actual demand levels or the scopes of each project may be scaled up or down to better fit the actual need. The first project will be the final project of the passenger terminal replacement program, which concludes in 2021.

Project B1 - Replace Passenger Terminal - Civil Bid Pack 3 - Construction $8,675,956

Construct partial parallel taxiway and install lighting; includes contingency and construction management.

Project B2 – Replace Passenger Terminal – Civil Bid Pack 4 - Construction.....$7,847,830

Construction of the new airport access road from state highway 172 will be accomplished. Wetland impacts identified during the EA and design phase will need to be mitigated in this phase. Mitigation is anticipated to be payment to an existing wetland bank in La Plata County.

Project B3 – Conduct Strategic Business Plan $250,000

Develop Airport Strategic Business Plan to improve financial performance, maximize the Airport's services to the community, and allow for continued airport development.

Project B4 – Replace ARFF Vehicle..... $830,000

The replacement of one ARFF vehicle is scheduled to occur by 2025 in order to meet the requirements of 14 CFR Part 139. This includes the preparation of specifications and delivery for a new vehicle to meet current requirements.

Project B5 – Rehabilitate Runway 3/21 and Portion of Taxiway A.....$8,700,000

Preventative and regular maintenance of airfield pavements is a critical element of airport maintenance. Following the completion of the terminal replacement, the first priority is to the runway. Rehabilitation of Runway 3/21's pavement will extend the useful pavement life of the runway pavement. The estimate reflects resurfacing and re-grooving the runway and includes design and construction.

Project B6 – Acquire Four Passenger Loading Bridges $1,800,000

Passenger boarding bridges provide customers and airlines with an increased level of service and comfort; especially in adverse weather conditions. DRO perceives the acquisition of the bridges as a key element in customer service and the Durango image. Includes acquisition and installation.

Project B7 – Construct T/W B to R/W 21, Relocate VOR, NEPA Documentation ...$15,225,000

A parallel taxiway is considered a basic element of airfield design. Completion of Taxiway B on the east side will improve aircraft efficiency and airfield safety. Relocation of the VOR is necessary to complete the taxiway. Impacts to wetlands cannot be avoided and mitigation may be required. One likely scenario for mitigation is payment to a mitigation bank, although the final method will be determined following permitting. Design of the grading, pavement, and VOR relocation is included, as well as construction.

Project B8 – Relocate CR309A outside Runway Protection Zone (RPZ) $1,500,000

Currently, CR309A cuts through the Runway 21 RPZ. Per FAA guidance, the road should be located outside the RPZ. This includes design, engineering, and construction.

Project B9 – Acquire Snow Removal Equipment..... $750,000

Replace aging 1983 Oshkosh W7000 Blower, 1985 and 1986 Oshkosh P Series Plow Trucks, and 1989 Snowblast MP-3000 Blower. The replacement of this SRE equipment is necessary for DRO to maintain clear runways/taxiways during adverse weather.

Project B10 – Modify Former Terminal Building.....$2,000,000

Modification of the west side terminal will be completed to repurpose it for lease to an aeronautical business. Leasing the old terminal will provide DRO with additional revenues well into the future. The estimate simply reserves an amount of funds that can be used to attract potential businesses. The price reflects mechanical updates and interior/exterior cosmetic changes plus design.

Project B11 – Rehabilitate South General Aviation Apron-Phase 1..... $300,000

It is anticipated that the south general aviation apron and taxilanes will be in fair condition during this phase. Rehabilitation of each is necessary to extend the life of the pavement and provide reasonable facilities for general aviation tenants; includes design and construction.

Project B12 – Conduct Airport Master Plan $1,000,000

A master plan is suggested in the 2025 time frame to re-evaluate the recommendations from the prior master plan. A master plan project is recommended every 5 to 10 years to ensure the master plan is tracking with projected demand. At that time, a new CIP will be prepared to update this one. That CIP will address airport demand and lay the groundwork for continued expansion as warranted. Price includes comprehensive public outreach program and frequent updates to elected leaders.

7.4 PHASE III – 2026 THROUGH 2035

Phase III covers the last half of the planning period. These projects are sequenced to show the types of projects that will be needed to meet the forecasted demand. Future planning that considers the actual passenger and airline trends seen in Phase II will determine which projects will need to be constructed in this CIP phase. However, the value of planning for Phase III projects in this master plan is to ensure that the plan can be financially supported, and that there is sufficient developable land to accommodate the upper range of the approved forecast.

Project C1 – Expand Terminal Building (260k Enplanements) $12,200,000

The terminal building will be expanded to accommodate enplanements projected in PAL 1. This will include an approximate 30,000-square-foot building expansion that accommodates two additional gates, expanded holdrooms, concessions, and public circulation. Design and construction are included.

Project C2 – Expand Terminal Apron (260k Enplanements) $5,000,000

It is anticipated that additional aircraft parking positions will be needed. The apron will be expanded to accommodate two additional parking positions and movement area. Includes design and construction.

Project C3 – Expand Terminal Parking (260k Enplanements) $1,500,000

Supplying sufficient auto parking for passengers, employees, and tenants is critical to airport operations. An additional 400 parking spaces will be needed at this time. Includes design and construction.

Project C4 – Rehabilitate or Relocate ARFF Building.....$5,000,000

The existing ARFF/SRE building is situated next to steep terrain to the south and GA hangars to the north, leaving very few options for expansion. Consideration should be made to relocate the building to a more central location that allows for expansion. Estimate shown is to rehabilitate the existing building. Includes design and construction phases.

Project C5 – Replace Taxiway Lighting with LED Fixtures..... $600,000

DRO values sustainability. LED lights are proven to reduce the need for power and have a longer lifespan. Replacement of the existing taxiway lights with LED lights will reduce maintenance needs and result in lower utility costs.

Project C6 – Relocate Shared Rental Car Maintenance Facilities to East Side $4,500,000

Design/Construction - The existing west side washrack and maintenance area for rental cars will be removed and a new washrack and maintenance facility constructed on the east side to consolidate all rental car operations.

Project C7 – Relocate/Expand Fuel Farm $1,000,000

Expansion of the fuel farm is necessary to accommodate the anticipated increase in Jet-A fuel. As the terminal facility moved to the east side, relocating the fuel farm to the east would improve fueling efficiency.

Project C8 – Rehabilitate South GA Apron Phase 2 .....$2,000,000

It is anticipated that the south general aviation apron and taxilanes will be in fair condition. Rehabilitation will be necessary to extend the life of the pavement and provide desirable facilities for general aviation tenants; includes design and construction.

Project C9 – Acquire SRE Vehicle..... $630,000

Replace the aging 1999 Oshkosh H-2723 Plow Truck with a newer model. This replacement is necessary to assist DRO in keeping the runways/taxiways open during adverse conditions.

Project C10 – Conduct Airport Master Plan $1,000,000

A master plan is suggested in the 2030-2035 time frame to re-evaluate the recommendations from the prior master plan. At that time, a new CIP will be prepared to update this one. That CIP will address airport

demand and lay the groundwork for continued expansion as warranted. Price includes comprehensive public outreach program and frequent updates to elected leaders.

Project C11 – Fog Seal and Restripe Runway 3/21 ..... $550,000

A seal coat will be applied to the runway surface and affected markings will be reapplied. The cost reflects the need to avoid runway closures that affect airline service.

Project C12 – Construct Holding Apron at Runway 21 End.....$2,000,000

As aircraft operations continue to increase during peak periods, congestion can lead to delays of airline operations. Constructing a holding apron that allows for aircraft to bypass another can alleviate this chokepoint. The price reflects the significant costs to construct a holding apron that meets FAA criteria for Airport Reference Code D-IV. Includes design engineering and construction.

Project C13 – Prepare Lease Lots on East Development Area.....$1,500,000

This is a valuable project that would extend infrastructure and grade a number lease lots that could be quickly leased to a large GA tenant or an FBO. This would raise the value of the airport to prospective aeronautical tenants by being able to make significant acreage in shovel-ready condition.

Project C14 – Expand USFS Apron (Assist Only) $500,000

Based upon discussions during the master plan process, the USFS anticipates a need for expansion in the future to maintain mission readiness. Firefighting aircraft are evolving from the aging piston aircraft of yesterday to larger modified airliners. Having the ability to accommodate the expansion of the USFS is valuable to the entire Four Corners Region. Estimate includes only what is needed by the Airport to participate in this potential USFS project.

Project C15 – Construct Apron/Taxilanes in East Development Area.....$2,000,000

Building on the work done in Project C13, this project will build an apron to the north of the new terminal and at least one stub taxiway that provides access from a hangar site to the airfield. The construction of hangars is anticipated by this time to meet the demands of the general aviation business community or other aeronautical tenants.

Project C16 – Rehabilitate Former Terminal Apron $3,000,000

It is expected that a general aviation aircraft or other type of aeronautical use will be leasing the former terminal apron. Thus to address the normal wear and tear that is anticipated, rehabilitation of the apron is recommended. The estimate includes design and construction for this concrete apron.

Project C17 – Replace ARFF Vehicle $850,000

The replacement of one ARFF vehicle is scheduled to occur by 2025 in order to meet the requirements of 14 CFR Part 139. This includes the preparation of specifications and delivery of a new vehicle that meets current requirements.

Project C18 – Rehabilitate North GA Apron/Taxilanes $500,000

It is anticipated that the north general aviation apron and taxilanes will be in fair condition. Rehabilitation will be necessary to extend the life of the pavement and provide reasonable facilities for general aviation tenants; includes design and construction.

Project C19 – Expand Water Facility $420,000

The water treatment facility at DRO provides the potable water for the Airport and a number of other users on the west side of the airfield. The potential exists for an increase in demand for water that will warrant an upgrade to accommodate the need. The system will also be handling the water needs on the east side of the field, including the new terminal complex and any other development that occurs by this time. Cost shown includes design, engineering, and construction.

Project C20 – Acquire SRE Vehicle..... $750,000

It is anticipated that the 1998 Oshkosh H Series Broom will be in fair condition at best. Replacement will allow DRO to be able to clear runways and taxiways in a timely manner during periods of adverse weather.

Project C21 – Conduct Environmental Assessment For Terminal Expansion $1,000,000

Expansion of the terminal and facilities to meet growing enplanement numbers is anticipated at this time. An Environmental Assessment (EA) will be completed in compliance with the National Environmental Compliance Act (NEPA). Projects to be included are terminal expansion, apron expansion, parking expansion, and other related facilities). The EA would include a comprehensive public outreach program and agency/stakeholder coordination.

Project C22 – Expand Terminal Building (380,000 Enplanements) $14,000,000

To meet the upper forecast demand level of 380,000 enplanements, an expansion of approximately 20,000 square feet is needed to accommodate the increase in enplanements. The expansion as estimated will include two additional gates for a total of nine gates. Given the fact that this is a project at the end of the forecast period, there will be at least two master plans that address the actual trends in enplanements and airline service. The expansions of holdrooms, concessions, airline, and rental car space have been factored

into the estimate in order to meet the 2035 enplanement forecast. Estimate includes design, program management, and construction.

Project C23 – Expand Terminal Apron (380,000 Enplanements).....$4,000,000

Representing the airfield civil portion of the expansion program, the apron will be expanded to the south to accommodate two additional parking positions as well as movement area. Estimate includes design, program management, and construction.

Project C24 – Expand Terminal Parking (380,000 Enplanements).....$1,400,000

Representing the landside civil portion of the expansion program, parking stalls will be increased to provide an additional 500 spaces to meet demand. Estimate includes design, program management, and construction.

Project C25 – Fog Seal and Restripe Taxiway B $550,000

This important project is needed to care for and extend the lifecycle of the taxiway. A seal coat will be applied to the taxiway surface and affected markings will be reapplied.

7.5 Capital Improvement Program

The CIP is a valuable tool and product of a master plan. Taken together, they represent the orderly plan to accommodate demand over the long term. It is likely that this CIP will evolve over the 10 years until the next master plan. All of the variables are in constant movement, especially airline service. However, this CIP demonstrates at the project level that this plan will be able to support the forecasted demand over the planning period, and perhaps well beyond because of the terminal relocation to the east side of the airfield.

The next section of this chapter examines and allocates the various sources of funds that are planned to be available to implement the CIP. This includes examining the cash flow that will be required to fund the projects and operate the airport at the high level of service the region's traveler has come to expect.

7.6 Financial Implementation Analysis

7.6.1 FINANCIAL ANALYSIS OBJECTIVES

The primary objective of the Financial Implementation Analysis for the master plan is to evaluate DRO's capability to fund the CIP and to finance operations. The program is planned for implementation through three phases of development - Phase I (2015-2020), Phase II (2021-2025), and Phase III (2026-2035). The analysis includes development of a detailed Financial Implementation Plan. Objectives for developing the Financial Implementation Plan include presenting the results of the implementation evaluation and

providing practical guidelines for matching an appropriate amount and timing of financial sources with the planned use of funds.

7.6.2 OVERALL APPROACH

The overall approach for conducting the Financial Implementation Analysis includes the following steps:

- Gathering and reviewing key DRO documents related to historical financial results, capital improvement plans, operating budgets, regulatory requirements, City/County policies, airline agreements, and other operating agreements with Airport users.
- Interviewing key DRO officials to gain an understanding of the existing operating and financial environment, relationships with the airlines, and overall management philosophy.
- Reviewing the Aviation Activity Forecast previously developed in the master plan.
- Reviewing the (CIP) project cost estimates and development schedules anticipated for the planning period and projecting the overall financial requirements for the program.
- Determining and analyzing the sources and timing of capital funds available to meet the financial requirements for operating DRO and financing the CIP.
- Analyzing historical operations and maintenance expenses, developing operations and maintenance expense growth assumptions, reviewing assumptions with DRO management and projecting future operations and maintenance expenses for the planning period.
- Analyzing historical revenue sources, developing revenue growth assumptions, reviewing assumptions with DRO management and projecting future airline and non-airline revenues for the planning period.
- Completing results of the review in a Financial Analysis Summary that evaluates the financial reasonableness of the CIP.

7.6.3 CAPITAL FUNDING SOURCES

In the past, DRO has used a combination of the Federal Aviation Administration (FAA) Airport Improvement Program (AIP) entitlement and discretionary grants, Colorado DOT grants, passenger facility charges, rental car customer facility charges, private third-party financing, and cash reserves/net operating revenues to fund capital improvements. These funding sources will continue to be important to finance the Airport's master plan CIP during the planning period.

7.6.3.1 Airport Improvement Program Grants

DRO receives grants from the FAA to finance the eligible costs of certain capital improvements. These federal grants are allocated to commercial passenger service airports through the AIP. AIP grants include passenger entitlement grants, which are allocated among airports by a formula that is based on passenger enplanements and discretionary grants that are awarded in accordance with FAA guidelines. In February 2012, after several years of continuing budget resolutions in Congress, the FAA Modernization and Reform Act of 2012 was enacted and authorized funding for the AIP through September 30, 2015. In September 2015, Congress extended authorization through March 2016 while it continues its deliberations on funding the FAA and its programs for the next several years. Under current AIP authorization legislation, eligible projects are funded on a 90% AIP grant/10% local match basis for small and non-hub airports. Under this authorization, DRO received current entitlements of about $1.8 million in 2015 and future annual grants are projected to grow to $2.8 million by 2035 - the end of the planning period. Non-hub airports (those with annual enplanements up to about 370,000 passengers) can accumulate and carryover up to three years of unspent entitlements plus the current year before the awards are revoked. In 2014, DRO had approximately $3.9 million in unspent entitlements to carryover for use in 2015. The implementation analysis assumes the application of AIP passenger entitlement funds will be about $15.2 million during the Phase I planning period, $10.5 million during Phase II and $25.0 million during Phase III.

The approval of AIP discretionary funding is based on a project eligibility ranking method the FAA uses to award grants, at their discretion, based on a project's priority and importance to the national air transportation system. In the past, DRO has received discretionary funding support for various eligible capital projects. It is reasonable to assume that DRO will receive additional discretionary funding during the planning period for higher priority, eligible projects, such as runway, taxiway and aircraft apron projects. The implementation analysis assumes the application of AIP discretionary funds will be $26.9 million during Phase I. Regarding this assumed level of funding for Phase I, it is important to note that the FAA has an annual discretionary set-aside program which provides for $20 million in AIP discretionary funds for selected non-hub airport terminal building projects. This analysis assumes that DRO will be awarded this grant in the 2019 time frame for its terminal building improvements. The implementation analysis also assumes that additional discretionary grants of about $27.6 million will be available for high priority airfield pavement projects during the five-year Phase II period and about $13.1 million will be available during the 10-year Phase III period. Since the future availability of AIP discretionary grants is not certain until an actual grant is awarded, it should be noted that any CIP projects which have discretionary funds indicated as a funding source in the implementation plan may need to be delayed until such funds actually become available.

The implementation analysis further assumes that the current AIP program will continue to be extended through 2035 and that future program authorizations will provide substantially similar funding levels as it currently does and as it has historically provided since the program was established in 1982.

7.6.3.2 Colorado Department of Transportation Grants

The Colorado Department of Transportation (CDOT), Division of Aeronautics provides Discretionary Aviation Grants for airport projects from a portion of the state sales tax collected on aviation fuel. Grants are approved for projects including those that are AIP eligible, aviation pavement maintenance projects, and various other aviation projects. For AIP-eligible projects, state grant awards for up to 50% of an airport's local match requirement are allowed. Non-Revenue producing projects that are not AIP eligible (but are still eligible for state funding) may also receive up to 80% funding (with a 20% local match) for the total cost of approved projects. In past years, an estimated limit of about $400,000 per year in state grants was awarded to Colorado airports supported by the Division. More recently the limit has been $250,000 per year to better fit the trends in lower fuel prices that have reduced the amount of funds the state has available for grants. DRO's CIP includes several projects during the planning period that are assumed to be partially funded from State Aeronautics Grants - $1.3 million in Phase I, $970,000 in Phase II and $2.1 million in Phase III.

7.6.3.3 Passenger Facility Charges

The Aviation Safety and Capacity Expansion Act of 1990 established the authority for commercial service airports to apply to the FAA for imposing and using a Passenger Facility Charge (PFC) of up to $3.00 per eligible enplaned passenger. With the passage of AIR-21 in June 2000, airports could apply for an increase in the PFC collection amount from $3.00 per eligible enplaned passenger to $4.50. The proceeds from PFCs are eligible to be used for AIP eligible projects and for certain additional projects that preserve or enhance capacity, safety or security; mitigate the effects of aircraft noise; or enhance airline competition. PFCs may also be used to pay debt service on bonds (including principal, interest and issue costs) and other indebtedness incurred to carry out eligible projects. In addition to funding future planned projects, the legislation permits airports to collect PFCs to reimburse the eligible costs of projects that began on or after November 5, 1990.

DRO currently collects PFC revenues in an approved open application and is planning to submit an additional application to continue collection without interruption of its collection authority. Current collections are approximately $850,000 per year. The implementation analysis assumes that DRO will submit additional PFC applications and amendments, as required, to ensure that the collection of PFC revenues continues beyond the authorized expiration date through the end of the planning period in 2035. The implementation analysis further assumes that PFCs will be used on a pay-as-you-go basis to fund

approximately $3.8 million in eligible project costs during Phase I, $4.7 million in Phase II and $18.1 million in Phase III.

7.6.3.4 City/County Capital Contribution

The City of Durango and La Plata County have indicated their recognition of the importance of the planned implementation of the Eastside Terminal Area Development for the long-term growth of commercial passenger activity at DRO. The capital financial plan projects that $39.7 million in funding will be needed from the City/County during the 2018-2021 time frame to implement the terminal project to design and construct. If this level of funding is not available from the City/County and another alternative source is not identified, development of the terminal project will not be feasible during the currently planned implementation period.

7.6.3.5 Rental Car Customer Facility Charges

In the last several years, rental car Customer Facility Charges (CFCs) have become common financing tools for landside improvements at airports in the United States. CFCs are collected by the rental car companies on behalf of, and for the benefit of, the airports where they operate. The charge is typically based on a fee per rental car transaction day that is added to rental car contracts.

The CFC fee is to be used to support the planning, design, and construction of various landside and passenger terminal improvements at DRO, including facilities used by the rental car companies. Unlike other funding sources, the implementation analysis does not apply CFCs to fund specific capital projects—instead, the analysis assumes that CFCs will be used to support the cash flow needs of the overall capital program. Current collections are approximately $300,000 per year, growing to about $600,000 per year by the end of the planning period. The capital financial plan projects that approximately $2.8 million in CFC revenue will be available to support cash flow during Phase I, $1.9 million in Phase II, and $4.6 million in Phase III.

7.6.3.6 Private Third Party Funding

Many airports use private third-party financing when the planned improvements will be primarily used by private businesses or other outside organizations. Projects of this kind are not eligible for federal funding, and typically include general aviation development areas, hangars, fixed base operator (FBO) facilities, cargo facilities, private aircraft parking aprons, industrial development areas, non-aviation commercial areas, and various other projects. These projects are implemented and funded as market demand warrants and do not affect an airport's other capital funding capabilities. The implementation analysis assumes that private third-party funding will be available to finance $2.4 million of such projects in Phase II and $16.4 million in Phase III.

7.6.3.7 Cash Reserves/Airport Net Operating Revenues

At the beginning of 2015, DRO had accumulated about $2.6 million in unrestricted cash reserves available for operations and capital project funding. The implementation analysis assumes that these cash reserves/net operating cash flow will be used throughout the planning period to fund about $917,472 in project costs (local grant match requirements and project components ineligible for federal funding) during Phase I, $678,930 in Phase II, and $28.8 million in Phase III.

7.6.4 FINANCIAL ANALYSIS AND IMPLEMENTATION PLAN FOR THE MASTER PLAN CAPITAL IMPROVEMENT PROGRAM

This analysis, along with the Schedules presented at the end of this chapter, provides the results of evaluating the financial reasonableness of implementing the master plan CIP during the planning period of 2015 through 2035.

7.6.4.1 Estimated Project Costs and Development Schedule

The CIP Estimated Project Costs and Development Schedule is derived from previous results of the master plan analysis. The CIP for capital expansion and improvement projects is projected on an annual basis for the Phase I planning period from 2015 through 2020, in total for the Phase II planning period from 2021 through 2025, and in total for the Phase III planning period from 2026 through 2035. For each of these planning periods, **Schedule 7-1** presents the CIP including estimated costs and anticipated development schedule for the identified projects.

As shown in **Schedule 7-1**, the total estimated cost of projects is $185,246,966 in 2015 dollars. The estimated costs for projects scheduled during the period 2015 through 2035 are adjusted by an assumed three percent rate of annual inflation. The resulting total project costs escalated for inflation are $238,078,404. **Table 7-1** presents a summary of the Schedule and provides a comparison of 2015 base year costs with escalated costs adjusted for inflation for each of the planning periods.

TABLE 7-1 SUMMARY OF 2015 BASE YEAR AND TOTAL ESCALATED COSTS FOR THE MASTER PLAN CAPITAL IMPROVEMENT PROGRAM

Planning Periods	2015 Base Year Costs	Total Escalated Costs
Phase I Projects (2015-2020)	$69,918,180	$76,594,770
Phase II Projects (2021-2025)	$48,878,786	$57,956,698
Phase III Projects (2026-2035)	$66,450,000	$103,526,935
Total Project Costs	$185,246,966	$238,078,404

Note: Addition errors are due to rounding of calculated amounts.
Source: Leibowitz & Horton AMC analysis

7.6.4.2 Sources and Uses of Capital Funding

Funding sources for the CIP depend on many factors, including AIP and PFC project eligibility, the ultimate type and use of facilities to be developed, management's current and desired levels of the airline cost per enplaned passenger, the availability of other financing sources, and the priorities for scheduling project completion. For master planning purposes, assumptions were made related to the funding source of each capital improvement.

Schedule 7-2 lists each of the CIP projects, their estimated costs (escalated annually for inflation) and the assumed funding sources and amounts. During the planning period, it was assumed that AIP entitlement grants would partially fund runway/taxiway rehabilitation, aircraft parking aprons, passenger loading bridges, snow removal equipment (SRE), terminal entrance road improvements, Eastside Terminal Area Improvements and other eligible improvements. It was assumed that AIP discretionary grants would partially fund runway/taxiway rehabilitation and extension, the commercial passenger aircraft parking apron and the new eastside terminal building. It was assumed that CDOT aviation grants would provide a portion of the funding for AIP eligible projects. PFC pay-as-you-go revenues were assumed to also fund a portion of the AIP eligible projects. Private third party financing was assumed to fund ineligible project elements related to the former terminal building, fuel farm facilities, and other ineligible improvements. Available cash reserves were assumed to fund ineligible projects and a portion of the local match for AIP projects.

A summary of the sources of capital funding by type and uses of capital funding by planning period for the CIP is presented in **Table 7-2**.

TABLE 7-2 SUMMARY OF SOURCES AND USES OF CAPITAL FUNDING FOR THE MASTER PLAN CAPITAL IMPROVEMENT PROGRAM

Sources of Capital Funding	Phase I (2015-2020)	Phase II (2021-2025)	Phase III (2026-2034)	Totals
AIP Entitlement Grants	$15,170,339	$10,514,363	$25,000,258	$50,684,960
AIP Discretionary Grants	$26,854,231	$27,553,152	$13,126,166	$67,533,549
CDOT Aviation Grants	$1,286,593	$969,975	$2,126,518	$4,383,086
Passenger Facility Charges	$3,804,253	$4,702,830	$18,125,620	$26,632,703
City/County Capital Contribution	$28,561,883	$11,149,345	$0	$39,711,228
Private Third Party Funding	$0	$2,388,105	$16,358,658	$18,746,762
Cash Reserves/Net Ops Cash Flow	$917,472	$678,930	$28,789,714	$30,386,116
Total Sources of Capital Funding	$76,594,770	$57,956,698	$103,526,935	$238,078,404
Uses of Capital Funding				
Runway/Taxiway Improvements	$9,177,095	$38,629,150	$2,648,545	$50,454,790
Aircraft Apron Improvements	$10,195,862	$0	$22,590,528	$35,786,389
Terminal & Related Landside Improvements	$55,987,400	$13,041,449	$46,894,819	$115,923,669
General Aviation Facility Improvements	$0	$368,962	$7,010,853	$7,379,816
SRE Facilities & Equipment	$498,623	$895,539	$2,149,995	$3,544,157
ARFF Facilities & Equipment	$212,180	$991,063	$9,114,109	$10,317,353
Other Improvements	$523,610	$4,030,534	$13,118,086	$17,672,230
Total Uses of Capital Funding	$76,594,770	$57,956,698	$103,526,935	$238,078,404

Note: Addition errors are due to rounding of calculated amounts.
Source: Leibowitz & Horton AMC analysis

7.6.4.3 Projected Operations and Maintenance Expenses

Operations and maintenance expense projections for the Phase I (2015 through 2020), the Phase II (2021 through 2025) and the Phase III (2026 through 2035) planning periods are based on DRO's 2015 budget, the anticipated impacts of inflation, aviation traffic increases, facility improvements, and the recent experience of other airports with similar levels of aviation activity.

7.6.4.3.1 Operations and Maintenance Expense Projection Assumptions

Operations and maintenance expense growth assumptions, as reflected in **Schedule 7-3**, were developed to project DRO's operating expenses during the planning period. Actual amounts for 2012 through 2014 and budgeted amounts for 2015 provide a comparison with expenses that are projected for the period 2016 through 2035. For each of the following expense categories, projections are based on 2015 budgeted amounts with an assumed 3% annual rate of inflation beginning in 2016.

- Personnel Services
- Materials & Supplies
- Charges & Services
- Utilities
- Minor Capital Outlays
- Other Operating Expenses.

7.6.4.3.2 Projection of Operations and Maintenance Expenses and Operating Expenses Per Enplaned Passenger

The projection of operations and maintenance expenses is provided in **Schedule 7-3**. As shown in the Schedule, total expenses are expected to grow from $2,926,746 budgeted in 2015 to $3,825,092 in 2020, reflecting an overall growth rate of 7.8% per year and a total of $20,269,964 during the Phase I planning period. Phase II expenses are projected to total $20,917,172, reflecting a 3% annual growth rate for the five-year period 2021-2025. Phase III expenses are projected to total $52,359,665, reflecting a 3% annual growth rate for the ten-year period 2026-2035.

Schedule 7-3 also provides a comparison of DRO's total operating expenses per enplaned passenger versus an average for airports with similar resort community operations, as well as overall non-hub airports with similar levels of aviation activity. DRO's operating expenses per enplaned passenger are projected to increase from $14.17 budgeted for 2015 to an average of $14.77 during the Phase III planning period. Also during Phase III, the average for similar non-hub resort airports grows from $38.83 in 2015 to an average of $45.72, and the overall non-hub industry average grows from $45.36 in 2015 to $53.42 (Source: Non-Hub Airports, FAA Operating and Financial Summary Report #127 and FAA Air Carrier Activity Information System enplanement database). These comparisons show that budgeted and projected operating expenses at DRO are substantially lower than other non-hub airports (including resort airports) of similar size during all three phases of the 21-year planning period. This implies that DRO currently manages operations and controls expenses more efficiently than other comparable non-hub airports.

7.6.4.4 Projected Operating Revenues

Operating revenue projections for the Phase I (2015 through 2020), the Phase II (2021 through 2025) and the Phase III (2026 through 2035) planning periods are based on DRO's 2015 budget, current rates and charges methodology, current leasing practices, the anticipated impacts of inflation, aviation traffic increases, facility expansions, and the recent experience of other airports with similar levels of aviation activity.

7.6.4.4.3 Operating Revenue Projection Assumptions

Operating revenue growth assumptions, as reflected in **Schedule 7-4**, were developed to project the Airport's operating revenues during the planning period. Actual amounts for 2012 through 2014 and budgeted amounts for 2015 provide a comparison with revenues that are projected for the period 2016 through 2035. This analysis organizes revenues into categories for airline revenues, non-airline revenues and non-operating revenues. Annual revenue growth assumptions for the period 2016 through 2035 are provided in the following sections.

- Airline Revenues
  - Airline landing fee projections beginning in 2017 are based on DRO's 2015/2016 budget with growth at a 3% annual inflation rate plus increases in aircraft landed weight using annual growth at ½ the rate of forecast passenger enplanements. This reflects the airlines' practice of managing increased load factors before additional flights are provided.
  - Airline terminal rent projections beginning in 2017 are based on DRO's 2015/2016 budget with growth at a 3% annual inflation rate thereafter.
- Non-Airline Revenues
  - State Aviation Fuel Tax Refund revenue projections beginning in 2016 are based on DRO's 2015 budget with growth at a 3% annual inflation rate plus increases in aircraft landed weight using annual growth at half the rate of forecast passenger enplanements.
  - Non-Airline revenue projections beginning in 2016 for the following categories are based on DRO's 2015 budget with growth at a 3% annual inflation rate plus the annual rate of forecast enplanement growth:
    - Concession Fees - Rental Cars
    - Concession Fees - Terminal
    - Parking Lot - Airport Operated
    - Concession Fees - Ground Transportation.
  - Non-Airline revenue projections beginning in 2016 for the following categories are based on DRO's 2015 budget with growth at a 3% annual inflation rate thereafter:
    - Landing Fees - Air Taxi/Freight
    - FBO Rent
    - FBO Fuel Flowage Fees
    - Land Rent
    - Terminal Rentals Other

- Concession Fees - Advertising
- Airport Utility Reimbursements
- Auto Fuel Sales
- Other Revenue

- Non-Operating Revenues - Non-Operating revenue projections beginning in 2016 for Interest Income are based on the DRO's 2015 budget with no annual inflation growth thereafter and asset sales are based on the 2015 budget with inflation growth thereafter beginning in 2016.

7.6.4.4.4 Projection of Operating Revenues, Airline Cost Per Enplaned Passenger and Operating Revenues Per Enplaned Passenger

The projection of operating revenues is provided in **Schedule 7-4**. As shown in the Schedule, airline revenues are expected to grow from $490,000 budgeted for 2015 to $571,785 projected for 2020 with a total of $3,140,320 during the Phase I planning period. During Phase II, airline revenues are projected to total $3,217,485, and during the Phase III, revenues are projected to total $8,682,012. The overall annual growth rate for airline revenues is 3.9% during the planning period. Non-airline revenues are expected to grow from $2,534,400 budgeted for 2015 to $3,363,155 projected for 2020 with a total of $17,592,919 during Phase I. During Phase II, non-airline revenues are projected to total $20,041,671. During Phase III, non-airline revenues are projected to total $62,728,829. The overall annual growth rate for non-airline revenues is 5.7%. Total Airport revenues (including non-operating revenues) are expected to grow from $3,030,400 budgeted for 2015 to $3,941,736 projected for 2020, with a total of $20,771,580 during Phase I. During Phase II, revenues are projected to total $23,295,853, and during Phase III, revenues are projected to total $71,500,184. The overall annual growth rate for DRO revenues is 5.8%.

Schedule 7-4 also provides a comparison of DRO's airline cost per enplaned passenger (CPEP) versus an average for airports with similar resort community operations, as well as overall non-hub airports with similar levels of aviation activity. The airline CPEP (all airline fees and rentals divided by enplaned passengers) is a measure airlines use to compare their cost of operations among the airports they serve. DRO's airline CPEP is projected to grow from $2.37 budgeted for 2015 to an average of $2.45 during Phase III. Over the same period, the average for similar non-hub resort airports grows from $14.28 in 2015 to an average of $16.81 and the overall non-hub industry average grows from $9.00 in 2015 to $10.60 (Source: Non-Hub Airports, FAA Operating and Financial Summary Report #127 and FAA Air Carrier Activity Information System enplanement database). These comparisons show that airline rates and charges at DRO are currently substantially lower than other similar non-hub airports (including resort airports) and are expected to remain lower (by as much as 85%) throughout the planning period. DRO's very low level of CPEP suggests that rate-setting practices and the overall structure of rates and charges should be revised to enable the Airport to recover a greater portion of its operating costs from the airlines that serve DRO.

Schedule 7-4 also provides a comparison of DRO's total operating revenue per enplaned passenger versus an average for other non-hub and resort airports. DRO's total operating revenue per enplaned passenger is projected to grow from $14.64 budgeted for 2015 to an average of $20.15 during Phase III. Over the same period, the average for similar non-hub resort airports grows from $45.06 in 2015 to an average of $53.05, and the overall non-hub industry average grows from $44.78 in 2015 to $52.73 (Source: Non-Hub Airports, FAA Operating and Financial Summary Report #127 and FAA Air Carrier Activity Information System enplanement database). These comparisons show that non-airline revenues along with airline revenues are substantially lower than both the resort and non-hub industry averages throughout the planning period. This indicates that DRO's overall policies for setting/negotiating user fees and rental rates should be reviewed and adjusted over time in order to establish rates that are more comparable with other airports having similar levels of aviation activity.

7.6.4.5 Financial Plan Summary for the Master Plan Capital Improvement Program

The Financial Plan Summary presented in **Schedule 7-5** includes a Capital Cash Flow section that presents a summary of projected capital funding (from **Schedule 7-2**) and scheduled capital expenditures (from **Schedule 7-1**) with the cash flow that results from implementing the master plan CIP. **Schedule 7-5** also includes an Operating Cash Flow section that summarizes totals for operating revenues (from **Schedule 7-4**) and operating expenses (from **Schedule 7-3**) with the addition of beginning cash reserve balances to provide the cash flow that results from these activities.

Schedule 7-1 of the Financial Implementation Analysis provides practical approaches for scheduling capital expenditures to match the availability of capital funding. **Schedule 7-2** provides practical approaches for matching specific capital funding sources with each of the identified projects. As shown in **Schedule 7-5**, positive year end cash reserves are projected throughout the planning period 2015 to 2035.

Based on the assumptions underlying the Financial Implementation Analysis summarized in the Capital Cash Flow section of **Schedule 7-5**, implementation of projects in the Master Plan CIP that are scheduled throughout the planning period are projected to be financially reasonable if the City and County can provide approximately $39.7 million in funding for the Eastside Terminal Area Development project planned for implementation in the 2018-2021 time frame. Complete funding of the Eastside Terminal Development is also significantly dependent on the FAA's approval of the $20 million discretionary grant set-aside for non-hub terminal buildings. If these two funding sources are not available for the terminal project and other alternative sources cannot be identified, then development of the terminal project will not be feasible during the implementation period that is currently planned.

Implementation of other capital projects during the 2015-2035 planning period that have AIP discretionary grants indicated as a funding source are subject to the availability of those grants which are

provided at the sole discretion of the FAA. If the identified portion of discretionary funding is not awarded by the FAA, then these projects will need to be delayed until funding is available.

Additionally, the Financial Implementation Analysis relies on achievement of the aviation activity and passenger enplanement forecast. Actual aviation traffic may temporarily vary from the projected levels of activity without a significant adverse impact on the capital program. If decreased traffic levels occur and persist, implementation of all the proposed projects may not be financially feasible. It should also be noted, however, that if the forecast activity levels are not met, then a number of the planned capital improvements may not be necessary.

7.7 Financial Analysis Schedules

Financial analysis Schedule 7-1 through Schedule 7-5 are presented on the following pages.

SCHEDULE 7-1

DURANGO-LA PLATA COUNTY AIRPORT (DRO)
Durango, Colorado

DROMP_2014_5.123 Sched 7-1

Master Plan - Financial Implementation Analysis
Estimated Project Costs and Development Schedule

08-Jan-16

Capital Improvement Program	Funding Schedule									
	Phase I							Phase II	Phase III	Total
	2015	2016	2017	2018	2019	2020	Total	2021-2025	2026-2035	Funding
Funds Used for Capital Improvement Projects										
AIP Entitlement Grants	$1,782,544	$1,786,392	$1,854,180	$1,891,896	$1,930,938	$1,971,350	$11,217,300	$10,514,363	$25,000,258	$46,731,921
AIP Entitlements carryover from the prior years	3,953,039	153,911	328,158	272,717	(0)	(0)	3,953,039	(0)	(0)	3,953,039
AIP Entitlement unspent current year + carryover	(153,911)	(328,158)	(272,717)	0	0	0	0	0	0	0
AIP Discretionary Grants	854,231	0	0	0	22,220,515	3,779,485	26,854,231	27,553,152	13,126,166	67,533,549
CDOT Aviation Grants	340,495	89,564	106,090	250,444	250,000	250,000	1,286,593	969,975	2,126,518	4,383,086
Passenger Facility Charges	2,253,985	861,070	891,304	922,600	954,994	988,526	6,872,480	5,488,277	14,271,946	26,632,703
City/County Capital Contribution	0	0	0	0	39,711,228	0	39,711,228	0	0	39,711,228
Customer Facility Charges	1,102,136	310,534	321,437	332,724	344,406	356,499	2,767,736	1,943,103	4,618,073	9,328,912
Private 3rd Party Funding	0	0	0	0	0	0	0	2,388,105	16,358,658	18,746,762
Net Operating Cash Flow	103,654	132,317	80,933	48,164	19,904	116,644	501,616	2,378,681	19,140,519	22,020,816
Funds Available Current Year	10,236,173	3,005,630	3,309,385	3,718,545	65,431,985	7,462,504	93,164,222	51,235,655	94,642,139	239,042,016
Beginning Cash Balance/Funds Carried Over from Prior Year	2,603,666	5,835,155	6,858,550	7,833,954	7,393,095	31,508,879	2,603,666	19,173,118	12,452,074	2,603,666
Funds Used Current Year	(7,004,684)	(1,982,235)	(2,333,980)	(4,159,405)	(41,316,201)	(19,798,266)	(76,594,770)	(57,956,698)	(103,526,935)	(238,078,404)
Funds Carried Over to Next Year	$5,835,155	$6,858,550	$7,833,954	$7,393,095	$31,508,879	$19,173,118	$19,173,118	$12,452,074	$3,567,278	$3,567,278

	Capital Project Description	2015 Base Year Costs	Estimated Project Costs and Development Schedule									
			Phase I							Phase II	Phase III	Total Escalated
			2015	2016	2017	2018	2019	2020	Total	2021-2025	2026-2035	Costs
Phase I Projects (2015-2020)												
A1	EA New Terminal	$1,036,039	$1,036,039						$1,036,039			$1,036,039
A2	Rehab Taxiway A - Design & Construct	5,968,645	5,968,645						5,968,645			5,968,645
	Total Capital Projects 2015	$7,004,684	$7,004,684	$0	$0	$0	$0	$0	$7,004,684	$0	$0	$7,004,684
A3	Taxiway A - Sched III Design	180,000		185,400					185,400			185,400
A4	Fog Seal/Restripe Runway 3/21	875,000		901,250					901,250			901,250
A5	Airfield Backup Generator	185,400		190,962					190,962			190,962
A6	Snow Removal Equipment - Snow Plow and Vehicle	484,100		498,623					498,623			498,623
A7	Environmental Assessment - Phase 2	200,000		206,000					206,000			206,000
	Total Capital Projects 2016	$1,924,500	$0	$1,982,235	$0	$0	$0	$0	$1,982,235	$0	$0	$1,982,235
A8	Taxiway A - Sched III Construction	2,000,000			2,121,800				2,121,800			2,121,800
A9	Modify ARFF Bay Openings	200,000			212,180				212,180			212,180
	Total Capital Projects 2017	$2,200,000	$0	$0	$2,333,980	$0	$0	$0	$2,333,980	$0	$0	$2,333,980
A10a	Replace Passenger Terminal - Civil 1 - Design Eastside Apron/Taxiway Grading/Drainage	73,602				79,261			79,261			79,261
A10b	Replace Passenger Terminal - Civil 1 - Design Eastside Terminal Building Grading/Drainage	139,386				150,104			150,104			150,104
A10c	Replace Passenger Terminal - Civil 1 - Design Eastside Entrance Road Grading/Drainage	25,860				27,848			27,848			27,848
A10d	Replace Passenger Terminal - Civil 1 - Design Eastside Parking Grading/Drainage	26,721				28,775			28,775			28,775
A11a	Civil 2 - Design Westside Water Distribution System Improvements	5,280				5,770			5,770			5,770
A11b	Replace Passenger Terminal - Civil 2 - Design Eastside Utility System & Deicing Pad	316,494				340,829			340,829			340,829
A12	Replace Passenger Terminal - Design Eastside Terminal Building	3,275,000				3,526,817			3,526,817			3,526,817
	Total Capital Projects 2018	$3,862,343	$0	$0	$0	$4,159,405	$0	$0	$4,159,405	$0	$0	$4,159,405

Source: Leibowitz and Horton AMC Analysis

DURANGO-LA PLATA COUNTY AIRPORT (DRO)
Durango, Colorado

DROMP_2014_5.123 Sched 7-1

Master Plan - Financial Implementation Analysis
Estimated Project Costs and Development Schedule

08-Jan-16

Capital Improvement Program	Funding Schedule									
	Phase I							Phase II	Phase III	Total
	2015	2016	2017	2018	2019	2020	Total	2021-2025	2026-2035	Funding
Funds Used for Capital Improvement Projects										
AIP Entitlement Grants	$1,782,544	$1,786,392	$1,854,180	$1,891,896	$1,930,938	$1,971,350	$11,217,300	$10,514,363	$25,000,258	$46,731,921
AIP Entitlements carryover from the prior years	3,953,039	153,911	328,158	272,717	(0)	(0)	3,953,039	(0)	(0)	3,953,039
AIP Entitlement unspent current year + carryover	(153,911)	(328,158)	(272,717)	0	0	0	0	0	0	0
AIP Discretionary Grants	854,231	0	0	0	22,220,515	3,779,485	26,854,231	27,553,152	13,126,166	67,533,549
CDOT Aviation Grants	340,495	89,564	106,090	250,444	250,000	250,000	1,286,593	969,975	2,126,518	4,383,086
Passenger Facility Charges	2,253,985	861,070	891,304	922,600	954,994	988,526	6,872,480	5,488,277	14,271,946	26,632,703
City/County Capital Contribution	0	0	0	0	39,711,228	0	39,711,228	0	0	39,711,228
Customer Facility Charges	1,102,136	310,534	321,437	332,724	344,406	356,499	2,767,736	1,943,103	4,618,073	9,328,912
Private 3rd Party Funding	0	0	0	0	0	0	0	2,388,105	16,358,658	18,746,762
Net Operating Cash Flow	103,654	132,317	80,933	48,164	19,904	116,644	501,616	2,378,681	19,140,519	22,020,816
Funds Available Current Year	10,236,173	3,005,630	3,309,385	3,718,545	65,431,985	7,462,504	93,164,222	51,235,655	94,642,139	239,042,016
Beginning Cash Balance/Funds Carried Over from Prior Year	2,603,666	5,835,155	6,858,550	7,833,954	7,393,095	31,508,879	2,603,666	19,173,118	12,452,074	2,603,666
Funds Used Current Year	(7,004,684)	(1,982,235)	(2,333,980)	(4,159,405)	(41,316,201)	(19,798,266)	(76,594,770)	(57,956,698)	(103,526,935)	(238,078,404)
Funds Carried Over to Next Year	$5,835,155	$6,858,550	$7,833,954	$7,393,095	$31,508,879	$19,173,118	$19,173,118	$12,452,074	$3,567,278	$3,567,278

Capital Project Description	2015 Base Year Costs	Estimated Project Costs and Development Schedule									
		Phase I							Phase II	Phase III	Total Escalated Costs
		2015	2016	2017	2018	2019	2020	Total	2021-2025	2026-2035	
A13a Replace Passenger Terminal - Civil 1 - Construct Eastside Apron/Taxiway Grading/Drainage	1,453,517					1,604,411		1,604,411			1,604,411
A13b Replace Passenger Terminal - Civil 1 - Construct Eastside Terminal Building Grading/Drainage	2,752,641					3,038,401		3,038,401			3,038,401
A13c Replace Passenger Terminal - Civil 1 - Construct Eastside Entrance Road Grading/Drainage	510,692					563,708		563,708			563,708
A13d Replace Passenger Terminal - Civil 1 - Construct Eastside Parking Grading/Drainage	527,686					582,466		582,466			582,466
A14 Replace Passenger Terminal - Construct Eastside Terminal Building	30,785,000					33,980,880		33,980,880			33,980,880
A15a Replace Passenger Terminal - Civil 3 - Design Eastside Apron/Taxiway Paving/Lighting	781,680					862,828		862,828			862,828
A15b Replace Passenger Terminal - Civil 3 - Design Eastside Parking Paving/Lighting	221,831					244,860		244,860			244,860
A16a Replace Passenger Terminal - Civil 4 - Design/ Coordination Eastside Airport Access Road	388,392					428,712		428,712			428,712
A16b Replace Passenger Terminal - Civil 4 - Design Eastside Airport Access Road Landscaping	9,000					9,934		9,934			9,934
Total Capital Projects 2019	$37,430,439	$0	$0	$0	$0	$41,316,201	$0	$41,316,201	$0	$0	$41,316,201
A17a Civil 2 - Construct Westside Water Distribution System Improvements	$104,271						$120,879	$120,879			$120,879
A17b Replace Passenger Terminal - Civil 2 - Construct Eastside Utility System & Deicing Pad	6,250,229						7,071,560	7,071,560			7,071,560
A18a Replace Passenger Terminal - Civil 3 - Construct Eastside Apron	6,760,921						7,649,361	7,649,361			7,649,361
A18b Replace Passenger Terminal - Civil 3 - Construct Eastside Parking Paving/Lighting	4,380,793						4,956,465	4,956,465			4,956,465
Total Capital Projects 2020	$17,496,214	$0	$0	$0	$0	$0	$19,798,266	$19,798,266	$0	$0	$19,798,266
Total Phase I Project Costs	$69,918,180	$7,004,684	$1,982,235	$2,333,980	$4,159,405	$41,316,201	$19,798,266	$76,594,770	$0	$0	$76,594,770

Source: Leibowitz and Horton AMC Analysis

DURANGO-LA PLATA COUNTY AIRPORT (DRO)
Durango, Colorado

DROMP_2014_5.123 Sched 7-1

Master Plan - Financial Implementation Analysis
Estimated Project Costs and Development Schedule

08-Jan-16

Capital Improvement Program	Funding Schedule									
	Phase I							Phase II	Phase III	Total
	2015	2016	2017	2018	2019	2020	Total	2021-2025	2026-2035	Funding
Funds Used for Capital Improvement Projects										
AIP Entitlement Grants	$1,782,544	$1,786,392	$1,854,180	$1,891,896	$1,930,938	$1,971,350	$11,217,300	$10,514,363	$25,000,258	$46,731,921
AIP Entitlements carryover from the prior years	3,953,039	153,911	328,158	272,717	(0)	(0)	3,953,039	(0)	(0)	3,953,039
AIP Entitlement unspent current year + carryover	(153,911)	(328,158)	(272,717)	0	0	0	0	0	0	0
AIP Discretionary Grants	854,231	0	0	0	22,220,515	3,779,485	26,854,231	27,553,152	13,126,166	67,533,549
CDOT Aviation Grants	340,495	89,564	106,090	250,444	250,000	250,000	1,286,593	969,975	2,126,518	4,383,086
Passenger Facility Charges	2,253,985	861,070	891,304	922,600	954,994	988,526	6,872,480	5,488,277	14,271,946	26,632,703
City/County Capital Contribution	0	0	0	0	39,711,228	0	39,711,228	0	0	39,711,228
Customer Facility Charges	1,102,136	310,534	321,437	332,724	344,406	356,499	2,767,736	1,943,103	4,618,073	9,328,912
Private 3rd Party Funding	0	0	0	0	0	0	0	2,388,105	16,358,658	18,746,762
Net Operating Cash Flow	103,654	132,317	80,933	48,164	19,904	116,644	501,616	2,378,681	19,140,519	22,020,816
Funds Available Current Year	10,236,173	3,005,630	3,309,385	3,718,545	65,431,985	7,462,504	93,164,222	51,235,655	94,642,139	239,042,016
Beginning Cash Balance/Funds Carried Over from Prior Year	2,603,666	5,835,155	6,858,550	7,833,954	7,393,095	31,508,879	2,603,666	19,173,118	12,452,074	2,603,666
Funds Used Current Year	(7,004,684)	(1,982,235)	(2,333,980)	(4,159,405)	(41,316,201)	(19,798,266)	(76,594,770)	(57,956,698)	(103,526,935)	(238,078,404)
Funds Carried Over to Next Year	$5,835,155	$6,858,550	$7,833,954	$7,393,095	$31,508,879	$19,173,118	$19,173,118	$12,452,074	$3,567,278	$3,567,278

Capital Project Description	2015 Base Year Costs	Estimated Project Costs and Development Schedule									
		Phase I							Phase II	Phase III	Total
		2015	2016	2017	2018	2019	2020	Total	2021-2025	2026-2035	Escalated Costs
EASTSIDE TERMINAL AREA DEVELOPMENT SUMMARY											
Design Terminal Area Grading/Drainage - Civil 1	$265,569	$0	$0	$0	$285,989	$0	$0	$285,989	$0	$0	$285,989
Construct Terminal Area Grading/Drainage - Civil 1	5,244,536	0	0	0	0	5,788,986	0	5,788,986	0	0	5,788,986
Design Terminal Area Utility System - Civil 2	316,494	0	0	0	340,829	0	0	340,829	0	0	340,829
Construct Terminal Area Utility System - Civil 2	6,250,229	0	0	0	0	0	7,071,560	7,071,560	0	0	7,071,560
Design Terminal Building	3,275,000	0	0	0	3,526,817	0	0	3,526,817	0	0	3,526,817
Construct Terminal Building	30,785,000	0	0	0	0	33,980,880	0	33,980,880	0	0	33,980,880
Design Terminal Area Paving/Lighting - Civil 3	1,003,511	0	0	0	0	1,107,688	0	1,107,688	0	0	1,107,688
Construct Terminal Area Paving/Lighting - Civil 3	19,817,670	0	0	0	0	0	12,605,827	12,605,827	10,061,449	0	22,667,276
Design/Coordination Airport Access Road - Civil 4	397,392	0	0	0	0	438,646	0	438,646	0	0	438,646
Construct Airport Access Road - Civil 4	7,847,830	0	0	0	0	0	0	0	9,101,077	0	9,101,077
Total Eastside Terminal Area Development Costs	$75,203,231	$0	$0	$0	$4,153,635	$41,316,201	$19,677,387	$65,147,223	$19,162,526	$0	$84,309,749
Phase II Projects (2021-2025)											
B1 Replace Passenger Terminal - Civil 3 - Construct Eastside Taxiway Paving/Lighting	$8,675,956							$0	$10,061,449		$10,061,449
B2a Replace Passenger Terminal - Civil 4 - Construct Eastside Airport Access Road	7,670,095							0	8,894,959		8,894,959
B2b Replace Passenger Terminal - Civil 4 - Construct Eastside Airport Access Road Landscaping	177,735							0	206,118		206,118
B3 Conduct Strategic Business Plan	250,000							0	298,513		298,513
B4 Replace ARFF Vehicle	830,000							0	991,063		991,063
B5 Rehab Runway 3/21 & Taxiway A (Between A2-A3)	8,700,000							0	10,388,255		10,388,255
B6 Acquire Passenger Boarding Bridges (4)	1,800,000							0	2,149,294		2,149,294
B7 Extend Parallel Taxiway B to Runway 21 End/Relocate VOR/NEPA Documentation	15,225,000							0	18,179,446		18,179,446
B8 Relocate CR309A Outside Runway Protection Zone	1,500,000							0	1,791,078		1,791,078
B9 Acquire SRE Vehicle	750,000							0	895,539		895,539
B10 Modify Former Westside Terminal - Prepare for Lease	2,000,000							0	2,388,105		2,388,105
B11 Rehab South GA Apron/Taxilanes - Phase 1	300,000							0	368,962		368,962
B12 Conduct Airport Master Plan	1,000,000							0	1,343,916		1,343,916
Total Phase II Project Costs	$48,878,786	$0	$0	$0	$0	$0	$0	$0	$57,956,698	$0	$57,956,698

Source: Leibowitz and Horton AMC Analysis

DURANGO-LA PLATA COUNTY AIRPORT (DRO)
Durango, Colorado

DROMP_2014_5.123

Sched 7-1

Master Plan - Financial Implementation Analysis
Estimated Project Costs and Development Schedule

08-Jan-16

Capital Improvement Program	Funding Schedule									
	Phase I							Phase II	Phase III	Total
	2015	2016	2017	2018	2019	2020	Total	2021-2025	2026-2035	Funding
Funds Used for Capital Improvement Projects										
AIP Entitlement Grants	$1,782,544	$1,786,392	$1,854,180	$1,891,896	$1,930,938	$1,971,350	$11,217,300	$10,514,363	$25,000,258	$46,731,921
AIP Entitlements carryover from the prior years	3,953,039	153,911	328,158	272,717	(0)	(0)	3,953,039	(0)	(0)	3,953,039
AIP Entitlement unspent current year + carryover	(153,911)	(328,158)	(272,717)	0	0	0	0	0	0	0
AIP Discretionary Grants	854,231	0	0	0	22,220,515	3,779,485	26,854,231	27,553,152	13,126,166	67,533,549
CDOT Aviation Grants	340,495	89,564	106,090	250,444	250,000	250,000	1,286,593	969,975	2,126,518	4,383,086
Passenger Facility Charges	2,253,985	861,070	891,304	922,600	954,994	988,526	6,872,480	5,488,277	14,271,946	26,632,703
City/County Capital Contribution	0	0	0	0	39,711,228	0	39,711,228	0	0	39,711,228
Customer Facility Charges	1,102,136	310,534	321,437	332,724	344,406	356,499	2,767,736	1,943,103	4,618,073	9,328,912
Private 3rd Party Funding	0	0	0	0	0	0	0	2,388,105	16,358,658	18,746,762
Net Operating Cash Flow	103,654	132,317	80,933	48,164	19,904	116,644	501,616	2,378,681	19,140,519	22,020,816
Funds Available Current Year	10,236,173	3,005,630	3,309,385	3,718,545	65,431,985	7,462,504	93,164,222	51,235,655	94,642,139	239,042,016
Beginning Cash Balance/Funds Carried Over from Prior Year	2,603,666	5,835,155	6,858,550	7,833,954	7,393,095	31,508,879	2,603,666	19,173,118	12,452,074	2,603,666
Funds Used Current Year	(7,004,684)	(1,982,235)	(2,333,980)	(4,159,405)	(41,316,201)	(19,798,266)	(76,594,770)	(57,956,698)	(103,526,935)	(238,078,404)
Funds Carried Over to Next Year	$5,835,155	$6,858,550	$7,833,954	$7,393,095	$31,508,879	$19,173,118	$19,173,118	$12,452,074	$3,567,278	$3,567,278

Capital Project Description		2015 Base Year Costs	Estimated Project Costs and Development Schedule									
			Phase I							Phase II	Phase III	Total Escalated
			2015	2016	2017	2018	2019	2020	Total	2021-2025	2026-2035	Costs
Phase III Projects (2026-2035)												
C1	Expand Terminal Building (260,000 enp)	$12,200,000							$0		$19,007,202	$19,007,202
C2	Expand Terminal Apron (260,000 enp)	5,000,000							0		7,789,837	7,789,837
C3	Expand Terminal Parking (260,000 enp)	1,500,000							0		2,336,951	2,336,951
C4	Rehab or Relocate ARFF/SRE Building	5,000,000							0		7,789,837	7,789,837
C5	Replace Taxiway Lighting with LED Fixtures	600,000							0		934,780	934,780
C6	Relocate RAC Car Washrack; Maintenance	4,500,000							0		7,010,853	7,010,853
C7	Relocate/Expand Fuel Farm	1,000,000							0		1,557,967	1,557,967
C8	Rehab South GA Apron/Taxilanes - Phase 2	2,000,000							0		3,115,935	3,115,935
C9	Acquire SRE Vehicle	630,000							0		981,519	981,519
C10	Conduct Airport Master Plan	1,000,000							0		1,557,967	1,557,967
C11	Fog Seal and Restripe Runway 3/21	550,000							0		856,882	856,882
C12	Holding Apron - Taxiway A at Runway 21 End	2,000,000							0		3,115,935	3,115,935
C13	Prepare Lease Lots North of Passenger Terminal	1,500,000							0		2,336,951	2,336,951
C14	Expand USFS Apron (assist only)	500,000							0		778,984	778,984
C15	Construct GA Apron/Taxilanes for Large Hangar Sites	2,000,000							0		3,115,935	3,115,935
C16	Rehab Former Westside Terminal Apron	3,000,000							0		4,673,902	4,673,902
C17	Acquire ARFF Vehicle	850,000							0		1,324,272	1,324,272
C18	Rehab North GA Apron/Taxilanes	500,000							0		778,984	778,984
C19	Expand Water Facility	420,000							0		654,346	654,346
C20	Acquire SRE Vehicle	750,000							0		1,168,476	1,168,476
C21	Conduct EA for Terminal Expansion	1,000,000							0		1,557,967	1,557,967
C22	Expand Terminal Building (380,000 enp)	14,000,000							0		21,811,544	21,811,544
C23	Expand Terminal Apron (380,000 enp)	4,000,000							0		6,231,870	6,231,870
C24	Expand Terminal Parking (380,000 enp)	1,400,000							0		2,181,154	2,181,154
C25	Fog Seal/Restripe Taxiway B	550,000							0		856,882	856,882
	Total Phase III Project Costs	$66,450,000	$0	$0	$0	$0	$0	$0	$0	$0	$103,526,935	$103,526,935
Total Project Costs		$185,246,966	$7,004,684	$1,982,235	$2,333,980	$4,159,405	$41,316,201	$19,798,266	$76,594,770	$57,956,698	$103,526,935	$238,078,404

Source: Leibowitz and Horton AMC Analysis

SCHEDULE 7-2

DURANGO-LA PLATA COUNTY AIRPORT (DRO)
Durango, Colorado

DROMP_2014_5.123

Sched 7-2

Master Plan - Financial Implementation Analysis
Projected Capital Funding Sources

08-Jan-16

	Capital Improvement Projects	Total Escalated Costs	AIP Entitlement Funding	AIP Discretionary Funding	Total AIP Funding	CDOT Aviation Grants	Passenger Facility Charges (PAYG)	City/County Capital Contribution	Private 3rd Party Funding	Cash Reserves/ Net Revs	Total Funding
Phase I Projects (2015-2020)											
A1	EA New Terminal	$1,036,039	$951,912		$951,912	$42,063				$42,064	$1,036,039
A2	Rehab Taxiway A - Design & Construct	5,968,645	4,629,760	854,231	5,483,991	298,432	186,222			0	5,968,645
	Totals for 2015	$7,004,684	$5,581,672	$854,231	$6,435,903	$340,495	$186,222	$0	$0	$42,064	$7,004,684
A3	Taxiway A - Sched III Design	185,400	166,860		166,860	9,270	9,270			0	185,400
A4	Fog Seal/Restripe Runway 3/21	901,250	811,125		811,125	45,063	45,063			0	901,250
A5	Airfield Backup Generator	190,962			0					190,962	190,962
A6	Snow Removal Equipment - Snow Plow and Vehicle	498,623	448,761		448,761	24,931	24,931			0	498,623
A7	Environmental Assessment - Phase 2	206,000	185,400		185,400	10,300	10,300			0	206,000
	Totals for 2016	$1,982,235	$1,612,146	$0	$1,612,146	$89,564	$89,564	$0	$0	$190,962	$1,982,235
A8	Taxiway A - Sched III Construction	2,121,800	1,909,620	0	1,909,620	106,090	106,090			0	2,121,800
A9	Modify ARFF Bay Openings	212,180			0	0	212,180			0	212,180
	Totals for 2017	$2,333,980	$1,909,620	$0	$1,909,620	$106,090	$318,270	$0	$0	$0	$2,333,980
A10a	Replace Passenger Terminal - Civil 1 - Design Eastside Apron/Taxiway Grading/Drainage	79,261	71,335		71,335	3,963	3,963			0	79,261
A10b	Replace Passenger Terminal - Civil 1 - Design Eastside Terminal Building Grading/Drainage	150,104	135,093		135,093	7,505	7,505			0	150,104
A10c	Replace Passenger Terminal - Civil 1 - Design Eastside Entrance Road Grading/Drainage	27,848	25,064		25,064	1,392	1,392			0	27,848
A10d	Replace Passenger Terminal - Civil 1 - Design Eastside Parking Grading/Drainage	28,775			0					28,775	28,775
A11a	Civil 2 - Design Westside Water Distribution System Improvements	5,770			0					5,770	5,770
A11b	Replace Passenger Terminal - Civil 2 - Design Eastside Utility System & Deicing Pad	340,829	306,746		306,746	17,041	17,041			0	340,829
A12	Replace Passenger Terminal - Design Eastside Terminal Building	3,526,817	1,626,375		1,626,375	220,542	1,150,877			529,023	3,526,817
	Totals for 2018	$4,159,405	$2,164,614	$0	$2,164,614	$250,444	$1,180,780	$0	$0	$563,567	$4,159,405

Source: Leibowitz and Horton AMC Analysis

DURANGO-LA PLATA COUNTY AIRPORT (DRO)
Durango, Colorado

DROMP_2014_5.123

Sched 7-2

Master Plan - Financial Implementation Analysis
Projected Capital Funding Sources

08-Jan-16

Capital Improvement Projects		Total Escalated Costs	AIP Entitlement Funding	AIP Discretionary Funding	Total AIP Funding	CDOT Aviation Grants	Passenger Facility Charges (PAYG)	City/County Capital Contribution	Private 3rd Party Funding	Cash Reserves/ Net Revs	Total Funding
A13a	Replace Passenger Terminal - Civil 1 - Construct Eastside Apron/Taxiway Grading/Drainage	$1,604,411		$1,443,970	$1,443,970	80,221	80,221			$0	$1,604,411
A13b	Replace Passenger Terminal - Civil 1 - Construct Eastside Terminal Building Grading/Drainage	3,038,401	1,930,938		1,930,938	151,920	480,336	475,208		0	3,038,401
A13c	Replace Passenger Terminal - Civil 1 - Construct Eastside Entrance Road Grading/Drainage	563,708			0	17,859	480,336	65,513		0	563,708
A13d	Replace Passenger Terminal - Civil 1 - Construct Eastside Parking Grading/Drainage	582,466			0			582,466		0	582,466
A14	Replace Passenger Terminal - Construct Eastside Terminal Building	33,980,880		20,000,000	20,000,000			13,980,880		0	33,980,880
A15a	Replace Passenger Terminal - Civil 3 - Design Eastside Apron/Taxiway Paving/Lighting	862,828		776,546	776,546			86,283		0	862,828
A15b	Replace Passenger Terminal - Civil 3 - Design Eastside Parking Paving/Lighting	244,860			0			244,860		0	244,860
A16a	Replace Passenger Terminal - Civil 4 - Design/ Coordination Eastside Airport Access Road	428,712			0			428,712		0	428,712
A16b	Replace Passenger Terminal - Civil 4 - Design Eastside Airport Access Road Landscaping	9,934			0			9,934		0	9,934
	Totals for 2019	$41,316,201	$1,930,938	$22,220,515	$24,151,453	$250,000	$1,040,892	$15,873,857	$0	$0	$41,316,201
A17a	Civil 2 - Construct Westside Water Distribution System Improvements	120,879			0					120,879	120,879
A17b	Replace Passenger Terminal - Civil 2 - Construct Eastside Utility System & Deicing Pad	7,071,560	1,971,350		1,971,350	250,000		4,850,211		0	7,071,560
A18a	Replace Passenger Terminal - Civil 3 - Construct Eastside Apron	7,649,361		3,779,485	3,779,485		988,526	2,881,350		0	7,649,361
A18b	Replace Passenger Terminal - Civil 3 - Construct Eastside Parking Paving/Lighting	4,956,465			0			4,956,465		0	4,956,465
	Totals for 2020	$19,798,266	$1,971,350	$3,779,485	$5,750,834	$250,000	$988,526	$12,688,026	$0	$120,879	$19,798,266
	Total Phase I Project Funding	$76,594,770	$15,170,339	$26,854,231	$42,024,570	$1,286,593	$3,804,253	$28,561,883	$0	$917,472	$76,594,770

Source: Leibowitz and Horton AMC Analysis

DURANGO-LA PLATA COUNTY AIRPORT (DRO)
Durango, Colorado

DROMP_2014_5.123

Sched 7-2

Master Plan - Financial Implementation Analysis
Projected Capital Funding Sources

08-Jan-16

Capital Improvement Projects	Total Escalated Costs	AIP Entitlement Funding	AIP Discretionary Funding	Total AIP Funding	CDOT Aviation Grants	Passenger Facility Charges (PAYG)	City/County Capital Contribution	Private 3rd Party Funding	Cash Reserves/ Net Revs	Total Funding
EASTSIDE TERMINAL AREA DEVELOPMENT SUMMARY										
Design Terminal Area Grading/Drainage - Civil 1	$285,989	$231,492	$0	$231,492	$12,861	$12,861	$0	$0	$28,775	$285,989
Construct Terminal Area Grading/Drainage - Civil 1	5,788,986	1,930,938	1,443,970	3,374,907	250,000	1,040,892	1,123,187	0	0	5,788,986
Design Terminal Area Utility System - Civil 2	340,829	306,746	0	306,746	17,041	17,041	0	0	0	340,829
Construct Terminal Area Utility System - Civil 2	7,071,560	1,971,350	0	1,971,350	250,000	0	4,850,211	0	0	7,071,560
Design Terminal Building	3,526,817	1,626,375	0	1,626,375	220,542	1,150,877	0	0	529,023	3,526,817
Construct Terminal Building	33,980,880	0	20,000,000	20,000,000	0	0	13,980,880	0	0	33,980,880
Design Terminal Area Paving/Lighting - Civil 3	1,107,688	0	776,546	776,546	0	0	331,143	0	0	1,107,688
Construct Terminal Area Paving/Lighting - Civil 3	22,667,276	0	9,779,485	9,779,485	0	988,526	11,899,265	0	0	22,667,276
Design/Coordination Airport Access Road - Civil 4	438,646	0	0	0	0	0	438,646	0	0	438,646
Construct Airport Access Road - Civil 4	9,101,077	2,013,181	0	2,013,181	0	0	7,087,896	0	0	9,101,077
Total Eastside Terminal Area Development Funding	$84,309,749	$8,080,082	$32,000,000	$40,080,082	$750,444	$3,210,198	$39,711,228	$0	$557,798	$84,309,749
Phase II Projects (2021-2025)										
B1 Replace Passenger Terminal - Civil 3 - Construct Eastside Taxiway Paving/Lighting	$10,061,449		$6,000,000	$6,000,000		$0	$4,061,449		$0	$10,061,449
B2a Replace Passenger Terminal - Civil 4 - Construct Eastside Airport Access Road	8,894,959	2,013,181		2,013,181			6,881,778		0	8,894,959
B2b Replace Passenger Terminal - Civil 4 - Construct Eastside Airport Access Road Landscaping	206,118			0			206,118		0	206,118
B3 Conduct Strategic Business Plan	298,513			0					298,513	298,513
B4 Replace ARFF Vehicle	991,063			0	250,000	741,063			0	991,063
B5 Rehab Runway 3/21 & Taxiway A (Between A2-A3)	10,388,255	4,157,779	5,191,650	9,349,429	500,000	538,825			0	10,388,255
B6 Acquire Passenger Boarding Bridges (4)	2,149,294	1,934,365		1,934,365		214,929			0	2,149,294
B7 Extend Parallel Taxiway B to Runway 21 End/Relocate VOR/NEPA Documentation	18,179,446		16,361,502	16,361,502		1,817,945			0	18,179,446
B8 Relocate CR309A Outside Runway Protection Zone										
B9 Acquire SRE Vehicle	1,791,078	1,270,987		1,270,987	89,554	430,538			0	1,791,078
B10 Modify Former Westside Terminal - Prepare for Lease	895,539	805,985		805,985	44,777	44,777			0	895,539
B11 Rehab South GA Apron/Taxilanes - Phase 1	2,388,105			0				2,388,105	0	2,388,105
B12 Conduct Airport Master Plan	368,962	332,066		332,066	18,448				18,448	368,962
	1,343,916			0	67,196	914,752			361,968	1,343,916
Total Phase II Project Funding	$57,956,698	$10,514,363	$27,553,152	$38,067,515	$969,975	$4,702,830	$11,149,345	$2,388,105	$678,930	$57,956,698

Source: Leibowitz and Horton AMC Analysis

DURANGO-LA PLATA COUNTY AIRPORT (DRO)
Durango, Colorado

DROMP_2014_5.123

Sched 7-2

Master Plan - Financial Implementation Analysis
Projected Capital Funding Sources

08-Jan-16

Capital Improvement Projects		Total Escalated Costs	AIP Entitlement Funding	AIP Discretionary Funding	Total AIP Funding	CDOT Aviation Grants	Passenger Facility Charges (PAYG)	City/County Capital Contribution	Private 3rd Party Funding	Cash Reserves/ Net Revs	Total Funding
Phase III Projects (2026-2035)											
C1	Expand Terminal Building (260,000 enp)	$19,007,202	$2,245,419		$2,245,419		$5,000,000			$11,761,784	$19,007,202
C2	Expand Terminal Apron (260,000 enp)	7,789,837	2,296,871	4,713,982	7,010,853	250,000	528,984			0	7,789,837
C3	Expand Terminal Parking (260,000 enp)	2,336,951			0					2,336,951	2,336,951
C4	Rehab or Relocate ARFF/SRE Building	7,789,837	2,350,131	2,000,000	4,350,131	389,492	3,050,214			0	7,789,837
C5	Replace Taxiway Lighting with LED Fixtures	934,780	841,302		841,302	46,739	46,739			0	934,780
C6	Relocate RAC Car Washrack; Maintenance	7,010,853			0				7,010,853	0	7,010,853
C7	Relocate/Expand Fuel Farm	1,557,967			0	0			1,557,967	0	1,557,967
C8	Rehab South GA Apron/Taxilanes - Phase 2	3,115,935	2,804,341		2,804,341	155,797				155,797	3,115,935
C9	Acquire SRE Vehicle	981,519	883,368		883,368	49,076	49,076			0	981,519
C10	Conduct Airport Master Plan	1,557,967	1,402,171		1,402,171	77,898	77,898			0	1,557,967
C11	Fog Seal and Restripe Runway 3/21	856,882	771,194		771,194	42,844	42,844			0	856,882
C12	Holding Apron - Taxiway A at Runway 21 End	3,115,935	0	2,804,341	2,804,341	155,797	155,797			0	3,115,935
C13	Prepare Lease Lots North of Passenger Terminal	2,336,951			0				2,336,951	0	2,336,951
C14	Expand USFS Apron (assist only)	778,984			0				778,984	0	778,984
C15	Construct GA Apron/Taxilanes for Large Hangar Sites	3,115,935	2,804,341		2,804,341	155,797				155,797	3,115,935
C16	Rehab Former Westside Terminal Apron	4,673,902			0				4,673,902	0	4,673,902
C17	Acquire ARFF Vehicle	1,324,272	1,191,845		1,191,845	66,214	66,214			0	1,324,272
C18	Rehab North GA Apron/Taxilanes	778,984	701,085		701,085	38,949				38,949	778,984
C19	Expand Water Facility	654,346			0					654,346	654,346
C20	Acquire SRE Vehicle	1,168,476	1,051,628		1,051,628	58,424	58,424			0	1,168,476
C21	Conduct EA for Terminal Expansion	1,557,967	1,402,171		1,402,171	77,898	77,898			0	1,557,967
C22	Expand Terminal Building (380,000 enp)	21,811,544	2,253,551		2,253,551		8,053,057			11,504,936	21,811,544
C23	Expand Terminal Apron (380,000 enp)	6,231,870	2,000,840	3,607,843	5,608,683	311,593	311,593			0	6,231,870
C24	Expand Terminal Parking (380,000 enp)	2,181,154			0					2,181,154	2,181,154
C25	Fog Seal/Restripe Taxiway B	856,882			0	250,000	606,882			0	856,882
	Total Phase III Project Funding	$103,526,935	$25,000,258	$13,126,166	$38,126,424	$2,126,518	$18,125,620	$0	$16,358,658	$28,789,714	$103,526,935
Total Project Funding		$238,078,404	$50,684,960	$67,533,549	$118,218,509	$4,383,086	$26,632,703	$39,711,228	$18,746,762	$30,386,116	$238,078,404

Source: Leibowitz and Horton AMC Analysis

SCHEDULE 7-3

DURANGO-LA PLATA COUNTY AIRPORT (DRO)
Durango, Colorado

DROMP_2014_5.123 Sched 7-3

Master Plan - Financial Implementation Analysis
Actual, Budgeted and Projected Operations & Maintenance Expenses

08-Jan-16

				Phase I								
	Actual	Actual	Acutal	Budgeted	Projected						Phase II	Phase III
Operations & Maintenance Expenses	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total	2021-2025	2026-2035
Personnel Services:					+$30,000	+$120,000	+$120,000	+$120,000				
Salaries & Wages	$807,823	$766,406	$754,152	$993,272	$1,041,561	$1,146,774	$1,255,142	$1,366,762	$1,407,764	$7,211,275	$7,698,232	$19,270,142
Employee Benefits	296,117	286,238	288,498	381,039	403,979	462,133	522,032	583,727	601,239	2,954,149	3,287,823	8,230,046
Total Personnel Services	$1,103,940	$1,052,644	$1,042,650	$1,374,311	$1,445,540	$1,608,907	$1,777,174	$1,950,489	$2,009,004	$10,165,424	$10,986,055	$27,500,189
Annual Growth Rate	-	-4.6%	-0.9%	31.8%	5.2%	11.3%	10.5%	9.8%	3.0%	11.6%	3.0%	3.0%
Materials & Supplies:												
Office Supplies	$0	$1,107	$2,879	$4,500	$4,635	$4,774	$4,917	$5,065	$5,217	$29,108	$28,527	$71,409
Chemicals & Lab Supplies	0	250	6,110	13,000	13,390	13,792	14,205	14,632	15,071	84,089	82,412	206,293
Janitorial Supplies	0	11,293	33,499	40,000	41,200	42,436	43,709	45,020	46,371	258,736	253,575	634,748
Clothing & Uniforms	0	2,681	4,639	5,500	5,665	5,835	6,010	6,190	6,376	35,576	34,867	87,278
Fuel	310,550	306,709	305,234	385,000	396,550	408,447	420,700	433,321	446,321	2,490,338	2,440,664	6,109,446
Vehicle Parts	13,816	11,276	6,994	12,000	12,360	12,731	13,113	13,506	13,911	77,621	76,073	190,424
Hand Tools	0	0	856	2,000	2,060	2,122	2,185	2,251	2,319	12,937	12,679	31,737
Signs & Parts	0	95	205	2,000	2,060	2,122	2,185	2,251	2,319	12,937	12,679	31,737
Painting Supplies	0	2,510	17,167	11,500	11,845	12,200	12,566	12,943	13,332	74,387	72,903	182,490
Repair Parts & Materials	0	2,511	39,760	37,800	38,934	40,102	41,305	42,544	43,821	244,506	239,629	599,836
Fire & Rescue Supplies	6,200	13,516	12,436	11,100	11,433	11,776	12,129	12,493	12,868	71,799	70,367	176,142
Office Equiupment < 5K	0	0	2,743	5,000	5,150	5,305	5,464	5,628	5,796	32,342	31,697	79,343
Security Supplies	0	3,391	5,379	7,000	7,210	7,426	7,649	7,879	8,115	45,279	44,376	111,081
Other Supplies	117,078	81,505	45,053	51,000	52,530	54,106	55,729	57,401	59,123	329,889	323,309	809,303
Total Materials & Supplies	$447,644	$436,844	$482,954	$587,400	$605,022	$623,173	$641,868	$661,124	$680,958	$3,799,544	$3,723,755	$9,321,269
Annual Growth Rate	-	-2.4%	10.6%	21.6%	3.0%	3.0%	3.0%	3.0%	3.0%	5.9%	3.0%	3.0%
Charges & Services:												
Professional Services	$9,897	$56,766	$20,982	$70,000	$72,100	$74,263	$76,491	$78,786	$81,149	$452,789	$443,757	$1,110,808
Liability Insurance	59,590	85,720	70,488	70,965	73,094	75,287	77,545	79,872	82,268	459,031	449,875	1,126,122
Other Contracted Services	69,339	128,004	34,815	71,000	73,130	75,324	77,584	79,911	82,308	459,257	450,096	1,126,677
Radio Services	1,176	1,051	0	10,000	10,300	10,609	10,927	11,255	11,593	64,684	63,394	158,687
Books, Newspapers & Periodicals	0	90	96	5,000	5,150	5,305	5,464	5,628	5,796	32,342	31,697	79,343
Postage	0	617	620	1,300	1,339	1,379	1,421	1,463	1,507	8,409	8,241	20,629
Publications & Legal Notices	0	0	0	500	515	530	546	563	580	3,234	3,170	7,934
Ad Placement	12,928	11,439	1,068	20,000	20,600	21,218	21,855	22,510	23,185	129,368	126,788	317,374
Special Events	0	0	6,245	5,000	5,150	5,305	5,464	5,628	5,796	32,342	31,697	79,343
Relocation Expenses	0	0	1,500	0	0	0	0	0	0	0	0	0
Dues & Memberships	9,585	2,108	9,182	3,000	3,090	3,183	3,278	3,377	3,478	19,405	19,018	47,606
Recruitment	0	0	1,147	0	0	0	0	0	0	0	0	0
Auto Allowance & Mileage	0	900	0	0	0	0	0	0	0	0	0	0
Professional Development	15,681	51,188	20,246	30,000	30,900	31,827	32,782	33,765	34,778	194,052	190,182	476,061
Training	0	95	29,975	34,000	35,020	36,071	37,153	38,267	39,415	219,926	215,539	539,535
Vehicle Rent & Maintenance	0	0	0	17,200	17,716	18,247	18,795	19,359	19,940	111,257	109,037	272,941
Rentals	0	383	4,859	5,040	5,191	5,347	5,507	5,673	5,843	32,601	31,951	79,978
Repairs & Maintenence	16,965	4,059	8,520	30,000	30,900	31,827	32,782	33,765	34,778	194,052	190,182	476,061
Total Charges & Services	$195,161	$342,420	$209,743	$373,005	$384,195	$395,721	$407,593	$419,820	$432,415	$2,412,749	$2,364,623	$5,919,101
Annual Growth Rate	-	75.5%	-38.7%	77.8%	3.0%	3.0%	3.0%	3.0%	3.0%	12.8%	3.0%	3.0%
Utilities:												
Electric	$211,009	$197,167	$227,536	$190,000	$195,700	$201,571	$207,618	$213,847	$220,262	$1,228,998	$1,204,483	$3,015,051
Water, Sewer, Trash	0	0	7,557	7,500	7,725	7,957	8,195	8,441	8,695	48,513	47,545	119,015
Gas	0	0	18,902	30,000	30,900	31,827	32,782	33,765	34,778	194,052	190,182	476,061
Telephone & Data	9,054	6,316	3,668	4,700	4,841	4,986	5,136	5,290	5,449	30,402	29,795	74,583
Cell Phone	0	0	3,630	4,380	4,511	4,647	4,786	4,930	5,078	28,332	27,767	69,505
Total Utilities	$220,063	$203,483	$261,293	$236,580	$243,677	$250,988	$258,517	$266,273	$274,261	$1,530,296	$1,499,772	$3,754,215
Annual Growth Rate	-	-7.5%	28.4%	-9.5%	3.0%	3.0%	3.0%	3.0%	3.0%	0.8%	3.0%	3.0%

Source: Leibowitz and Horton AMC Analysis

DURANGO-LA PLATA COUNTY AIRPORT (DRO)
Durango, Colorado

DROMP_2014_5.123

Sched 7-3

Master Plan - Financial Implementation Analysis
Actual, Budgeted and Projected Operations & Maintenance Expenses

08-Jan-16

				Phase I								
	Actual	Actual	Acutal	Budgeted	Projected						Phase II	Phase III
Operations & Maintenance Expenses	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**Total**	**2021-2025**	**2026-2035**
Minor Capital Outlay:						+$15,000						
Vehicles & Equipment	$0	$0	$29,059	$25,000	$25,750	$41,523	$42,768	$44,051	$45,373	$224,465	$248,117	$621,084
Other Capital	0	10,245	0	60,000	61,800	63,654	65,564	67,531	69,556	388,105	380,363	952,121
Total Minor Capital Outlay	$0	$10,245	$29,059	$85,000	$87,550	$105,177	$108,332	$111,582	$114,929	$612,569	$628,480	$1,573,205
Annual Growth Rate	-	-	183.6%	192.5%	3.0%	20.1%	3.0%	3.0%	3.0%	25.8%	3.0%	3.0%
Other Operating Expenses:												
Operating Contingency	$0	$0	$0	$10,000	$10,300	$10,609	$10,927	$11,255	$11,593	$64,684	$63,394	$158,687
Salary Contingency	0	0	0	32,827	33,812	34,826	35,871	36,947	38,055	212,338	208,103	520,921
Admin Fee General Fund	199,000	216,600	213,100	227,623	234,452	241,485	248,730	256,192	263,877	1,472,359	1,442,990	3,612,079
Transfer to Capital	1,320,000	180,000	200,000	0	0	0	0	0	0	0	0	0
Total Other Operating Expenses	$1,519,000	$396,600	$413,100	$270,450	$278,564	$286,920	$295,528	$304,394	$313,526	$1,749,381	$1,714,487	$4,291,687
Annual Growth Rate	-	-73.9%	4.2%	-34.5%	3.0%	3.0%	3.0%	3.0%	3.0%	-4.5%	3.0%	3.0%
Total Operations & Maintenance Expenses	$3,485,808	$2,442,236	$2,438,799	$2,926,746	$3,044,548	$3,270,885	$3,489,011	$3,713,682	$3,825,092	$20,269,964	$20,917,172	$52,359,665
Annual Growth Rate	-	-29.9%	-0.1%	20.0%	4.0%	7.4%	6.7%	6.4%	3.0%	7.8%	3.0%	3.0%
Operating Expenses Per Enplaned Passenger:												
Durango-La Plata County Airport	$18.69	$12.67	$12.60	$14.17	$14.24	$14.78	$15.23	$15.66	$15.58	$14.98	$15.35	$14.77
Similar Non-Hub Resort Industry Average	$38.22	$38.02	$38.42	$38.83	$39.24	$39.65	$40.07	$40.49	$40.92	$39.87	$42.24	$45.72
Non-Hub Indusrty Average	$42.85	$44.42	$44.89	$45.36	$45.84	$46.33	$46.82	$47.31	$47.81	$46.58	$49.35	$53.42

Source: Leibowitz and Horton AMC Analysis

SCHEDULE 7-4

DURANGO-LA PLATA COUNTY AIRPORT (DRO)
Durango, Colorado

DROMP_2014_5.123

Sched 7-4

Master Plan - Financial Implementation Analysis
Actual, Budgeted and Projected Operating Revenues

08-Jan-16

Revenues	Actual 2012	Actual 2013	Actual 2014	Phase I Budgeted 2015	Phase I Projected 2016	Phase I Projected 2017	Phase I Projected 2018	Phase I Projected 2019	Phase I Projected 2020	Phase I Total	Phase II 2021-2025	Phase III 2026-2035
					LDW - Landed Weight Growth							
					ENP - Enplanement Growth							
AIRLINE REVENUES												
Landing Fees	$273,513	$247,694	$240,922	$250,000	$250,000	$262,021	$274,619	$287,824	$301,663	$1,626,127	$1,740,347	$4,984,453
Terminal Rent	227,325	207,257	234,772	240,000	240,000	247,200	254,616	262,254	270,122	1,514,193	1,477,138	3,697,559
Total Airline Revenues	$500,838	$454,951	$475,694	$490,000	$490,000	$509,221	$529,235	$550,078	$571,785	$3,140,320	$3,217,485	$8,682,012
Annual Growth Rate	-	-9.2%	4.6%	3.0%	0.0%	3.9%	3.9%	3.9%	3.9%	3.1%	4.0%	4.0%
Airline Cost Per Enplaned Passenger:												
Durango-La Plata County Airport	$2.69	$2.36	$2.46	$2.37	$2.29	$2.30	$2.31	$2.32	$2.33	$2.32	$2.36	$2.45
Similar Non-Hub Resort Industry Averag	$13.83	$13.98	$14.13	$14.28	$14.43	$14.58	$14.73	$14.89	$15.05	$14.66	$15.53	$16.81
Non-Hub Indusrty Average	$8.56	$8.82	$8.91	$9.00	$9.10	$9.19	$9.29	$9.39	$9.49	$9.24	$9.79	$10.60
NON-AIRLINE REVENUES												
Landing Fees - NonSignatory Carriers	$1,596	$3,549	$6,354	$0	$0	$0	$0	$0	$0	$0	$0	$0
Landing Fees - Air Taxi/Freight	10,675	25,204	43,220	8,000	8,000	8,240	8,487	8,742	9,004	50,473	49,238	123,252
Landing Fees - Miscellaneous	0	8,114	0	0	0	0	0	0	0	0	0	0
State Aviation Fuel Tax Rebates	146,113	102,605	102,782	100,000	104,808	109,848	115,130	120,665	126,467	676,918	729,611	2,089,648
FBO Rent	24,758	24,132	26,326	26,000	26,780	27,583	28,411	29,263	30,141	168,179	164,824	412,586
FBO Fuel Flowage Fees	33,964	38,306	33,794	35,000	36,050	37,132	38,245	39,393	40,575	226,394	221,879	555,404
Land Rent	44,000	64,044	59,702	54,000	55,620	57,289	59,007	60,777	62,601	349,294	342,327	856,909
Terminal Rentals - NonSignatory Carriers	0	5,760	11,520	0	0	0	0	0	0	0	0	0
Terminal Rentals Other	12,420	7,245	10,230	26,400	27,192	28,008	28,848	29,713	30,605	170,766	167,360	418,933
Concession Fees - Rental Cars	577,496	576,087	604,655	550,000	586,391	625,190	666,556	710,659	757,680	3,896,477	4,610,091	15,099,715
Concession Fees - Terminal	46,015	66,906	51,803	45,000	47,977	51,152	54,536	58,145	61,992	318,803	377,189	1,235,431
Concession Fees - Advertising	32,781	33,281	27,177	35,000	36,050	37,132	38,245	39,393	40,575	226,394	221,879	555,404
Concession Fees - Parking	920,361	1,095,876	1,055,906	0	0	0	0	0	0	0	0	0
Parking Lot-Airport Operated	0	0	229,231	1,300,000	1,386,015	1,477,722	1,575,496	1,679,740	1,790,881	9,209,854	10,896,579	35,690,234
Concession Fees - Ground Transportation	225	0	0	5,000	5,331	5,684	6,060	6,461	6,888	35,423	41,910	137,270
Airport Utility Reimbursements	0	16,233	24,643	20,000	20,600	21,218	21,855	22,510	23,185	129,368	126,788	317,374
Auto Fuel Sales	304,329	264,866	310,419	285,000	293,550	302,357	311,427	320,770	330,393	1,843,497	1,806,725	4,522,577
Other Revenue	47,810	34,942	55,777	45,000	46,350	47,741	49,173	50,648	52,167	291,078	285,272	714,091
Total Non-Airline Revenues	$2,202,543	$2,367,150	$2,653,539	$2,534,400	$2,680,715	$2,836,293	$3,001,477	$3,176,879	$3,363,155	$17,592,919	$20,041,671	$62,728,829
Annual Growth Rate	-	7.5%	12.1%	-4.5%	5.8%	5.8%	5.8%	5.8%	5.9%	4.0%	5.9%	6.0%
NON-OPERATING REVENUES												
Interest Earned	$2,228	$225	$2,080	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$6,000	$5,000	$10,000
Other Contributions	0	101,563	0	0	0	0	0	0	0	0	0	0
Sale of Fixed Assets	0	3,376	0	5,000	5,150	5,305	5,464	5,628	5,796	32,342	31,697	79,343
Total Non-Operating Revenues	$2,228	$105,164	$2,080	$6,000	$6,150	$6,305	$6,464	$6,628	$6,796	$38,342	$36,697	$89,343
Annual Growth Rate	-	4620.1%	-98.0%	188.5%	2.5%	2.5%	2.5%	2.5%	2.5%	21.8%	2.6%	2.7%
Total Revenues	$2,705,609	$2,927,265	$3,131,313	$3,030,400	$3,176,865	$3,351,818	$3,537,176	$3,733,585	$3,941,736	$20,771,580	$23,295,853	$71,500,184
Annual Growth Rate	-	8.2%	7.0%	-3.2%	4.8%	5.5%	5.5%	5.6%	5.6%	3.9%	5.6%	5.8%
Operating Revenues Per Enplaned Passenger:												
Durango-La Plata County Airport	$14.49	$14.64	$16.17	$14.64	$14.83	$15.12	$15.41	$15.72	$16.03	$15.32	$17.07	$20.15
Similar Non-Hub Resort Industry Average	$43.35	$44.12	$44.59	$45.06	$45.53	$46.01	$46.50	$46.99	$47.49	$46.26	$49.02	$53.05
Non-Hub Indusrty Average	$45.81	$43.85	$44.32	$44.78	$45.26	$45.74	$46.22	$46.71	$47.20	$45.98	$48.72	$52.73

Source: Leibowitz and Horton AMC Analysis

SCHEDULE 7-5

DURANGO-LA PLATA COUNTY AIRPORT (DRO)
Durango, Colorado

DROMP_2014_5.123 Sched 7-5

Master Plan - Financial Implementation Analysis
Financial Plan Summary
Budgeted and Projected Net Revenues, Capital Funding and Capital Expenditures

08-Jan-16

Operating/Capital Cash Flow	Phase I							Phase II	Phase III
	Budgeted	Projected							
	2015	2016	2017	2018	2019	2020	Total	2021-2025	2026-2035
Passenger Enplanements	206,573	213,826	221,334	229,106	237,150	245,477	1,353,466	1,362,883	3,544,098
Annual Growth Rates	-	3.51%	3.51%	3.51%	3.51%	3.51%	3.51%	3.51%	3.51%
Operating Cash Flow									
Revenues:									
Airline Revenues	$490,000	$490,000	$509,221	$529,235	$550,078	$571,785	$3,140,320	$3,217,485	$8,682,012
Non-Airline Revenues	2,534,400	2,680,715	2,836,293	3,001,477	3,176,879	3,363,155	17,592,919	20,041,671	62,728,829
Non-Operating Revenues	6,000	6,150	6,305	6,464	6,628	6,796	38,342	36,697	89,343
Total Revenues	$3,030,400	$3,176,865	$3,351,818	$3,537,176	$3,733,585	$3,941,736	$20,771,580	$23,295,853	$71,500,184
Operations & Maintenance Expenses	($2,926,746)	($3,044,548)	($3,270,885)	($3,489,011)	($3,713,682)	($3,825,092)	($20,269,964)	($20,917,172)	($52,359,665)
Total Net Operating Cash Flow Available For Capital Expenditures	$103,654	$132,317	$80,933	$48,164	$19,904	$116,644	$501,616	$2,378,681	$19,140,519
Capital Cash Flow									
Beginning Cash Balance	$2,603,666	$5,835,155	$6,858,550	$7,833,954	$7,393,095	$31,508,879	$2,603,666	$19,173,118	$12,452,074
Other Capital Funding Sources:									
AIP Entitlement Grants	$1,782,544	$1,786,392	$1,854,180	$1,891,896	$1,930,938	$1,971,350	$11,217,300	$10,514,363	$25,000,258
AIP Entitlement unspent current year + carryover	(153,911)	(328,158)	(272,717)	0	0	0	0	0	0
AIP Entitlements carryover from the prior years	3,953,039	153,911	328,158	272,717	(0)	(0)	3,953,039	(0)	(0)
AIP Discretionary Grants	854,231	0	0	0	22,220,515	3,779,485	26,854,231	27,553,152	13,126,166
CDOT Aviation Grants	340,495	89,564	106,090	250,444	250,000	250,000	1,286,593	969,975	2,126,518
Passenger Facility Charges	2,253,985	861,070	891,304	922,600	954,994	988,526	6,872,480	5,488,277	14,271,946
City/County Capital Contribution	0	0	0	0	39,711,228	0	39,711,228	0	0
Customer Facility Charges	1,102,136	310,534	321,437	332,724	344,406	356,499	2,767,736	1,943,103	4,618,073
Private 3rd Party Funding	0	0	0	0	0	0	0	2,388,105	16,358,658
Total Other Capital Funding Sources	$10,132,519	$2,873,313	$3,228,451	$3,670,381	$65,412,081	$7,345,860	$92,662,606	$48,856,974	$75,501,619
Total Funds Available for Capital Expenditures	$12,839,839	$8,840,785	$10,167,934	$11,552,500	$72,825,080	$38,971,383	$95,767,888	$70,408,773	$107,094,213
Capital Improvement Program Expenditures	7,004,684	1,982,235	2,333,980	4,159,405	41,316,201	19,798,266	76,594,770	57,956,698	103,526,935
Ending Cash Balance	$5,835,155	$6,858,550	$7,833,954	$7,393,095	$31,508,879	$19,173,118	$19,173,118	$12,452,074	$3,567,278

Source: Leibowitz and Horton AMC Analysis

APPENDIX A

GLOSSARY

GLOSSARY

Above Ground Level (AGL). An altitude that is measured with respect to the underlying ground.

Accelerate-stop distance available (ASDA). The runway plus stopway length declared available and suitable for the acceleration and deceleration of an airplane aborting a takeoff.

Administrator. Federal Aviation Administrator or any person to whom he has delegated his authority in the matter concerned.

Advisory Circular (AC). External communications or publications issued by the FAA to provide non-regulatory guidelines for the recommendations relative to a policy, and guidance and information relative to a specific aviation subject matter.

Air Carrier. A person or company who undertakes directly by lease, or other arrangement, to engage in air transportation.

Aircraft. A device that is used or intended to be used for flight in the air.

> ***Airplane.*** An engine-driven fixed-wing aircraft heavier than air that is supported in flight by the dynamic reaction of the air against its wings.
>
> > ***Large Airplane.*** An airplane of more than 12,500 pounds maximum certified takeoff weight.
> >
> > ***Small Airplane.*** An airplane of 12,500 pounds or less maximum certified takeoff weight.
>
> ***Balloon.*** A lighter-than-air aircraft that is not engine-driven, and that sustains flight through the use of either gas buoyancy or an airborne heater.
>
> ***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.
>
> ***Heavy Aircraft.*** Aircraft capable of takeoff weight of more than 255,000 pounds whether or not they are operating at this weight during particular phase of flight.
>
> ***Helicopter.*** A rotorcraft that, for horizontal motion, depends principally on its engine-driven rotors.
>
> ***Large Aircraft.*** Aircraft of more than 41,000 pounds maximum certified takeoff weight, up to 255,000 pounds
>
> ***Regional Jet (RJ).*** There is no regulatory definition for an RJ; however, for FAA use, an RJ is a commercial jet airplane that carries fewer than 100 passengers.
>
> ***Rocket.*** An aircraft propelled by ejected expanding gases generate in engine from self-contained propellants and not dependants on the intake of outside substances.
>
> ***Rotorcraft.*** A heavier-than-air aircraft that depends principally for it support in flight on the lift generated by one or more rotors.
>
> ***Small Aircraft.*** Aircraft of 41,000 pounds or less maximum certified takeoff weight.

Aircraft Accident Safety Zone. This zone represents data clusters of historical aircraft accidents. The data is collected from the NTSB and analyzed in several studies to first determine the shape of the zone based

on the greatest cluster of accident sites per acre and second on the ratio of accidents per acre changes.

Aircraft Approach Category: An alphabetical classification of an aircraft based upon 1.3 times the stall speed in a landing configuration at their maximum certified landing weight. The categories are as follows:

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

Aircraft Deicing Pad. *See Deicing Pad.*

Aircraft Operation. *See Operation.*

Aircraft Rescue and Fire Fighting (ARFF). A special category of fire fighting that involves the response, hazard mitigation, evacuation and possible rescue of passengers and crew of an aircraft involved in (typically) an airport ground emergency.

ARFF Building. A facility located at an airport that provides emergency vehicles, extinguishing agents, and personnel responsible for minimizing the impacts of an aircraft accident or incident.

Airplane. *See Aircraft*

Airplane Design Group (ADG). A numerical classification aircraft based on wingspan or tail height. Where an airplane is in two categories, the most demanding category should be used. The groups are as follows:

> ***Group I***: Up to but not including 49 feet wingspan or tail height up to but not including 20 feet. (e.g. Cessna 172)
>
> ***Group II***: 49 feet up to but not including 79 feet wingspan or tail height from 20 up to not including 30 feet. (e.g. Cessna Citation Business jet).
>
> ***Group III***: 79 feet up to but not including 118 feet wingspan or tail height from 30 up to but not including 45 feet. (e.g. Boeing 737)
>
> ***Group IV***: 118 feet up to but not including 171 feet wingspan or tail height from 60 up to but not including 66 feet. (e.g. Boeing 767)
>
> ***Group V***: 171 feet up to but not including 214 feet wingspan or tail height from 60 up to but not including 66 feet. (e.g. Boeing 747)
>
> ***Group VI***: 214 feet up to but not including 262 feet wingspan or tail height from 66 up to but not including 80 feet. (e.g. Airbus A380)

Table: Airplane Design Groups (ADG)

Group #	Tail Height (ft.)	Wingspan (ft.)
I	<20	<49
II	20 ≤30	49 ≤79
III	30 ≤45	79 ≤118
IV	45 ≤60	118≤171
V	60 ≤66	171≤214
VI	66 ≤80	214 ≤262

Airport. An area of land or water that is used or intended to be used for the landing and takeoff of aircraft, and includes its buildings and facilities, if any.

> ***Cargo Service Airport.*** An airport served by aircraft providing air transportation of property only, including mail, with an annual aggregate landed weight of at least 100 million pounds.

Certificated Airport. An airport that has been issued an Airport Operating Certificate by the FAA under the authority of FAR Part 139, Certification and Operation.

Commercial Service Airport. A public airport providing scheduled passenger service that enplanes at least 2,500 annual passengers.

General Aviation Airport. An airport that provides air service to only general aviation.

Hub Airport. An airport that an airline uses as a transfer point to get passengers to their intended destination. It is part of a hub and spoke model, where travelers moving between airports not served by direct flights change planes en route to their destinations.

> ***Large Hub Airport.*** An airport that handles over 1% of the country's annual enplanements.
>
> ***Medium Hub Airport.*** An airport that handles 0.25% ≥ 1% of the country's annual enplanements.
>
> ***Small Hub Airport.*** An airport that handles 0.05% ≥ 0.25% of the country's annual enplanements.
>
> ***Non-Hub Airport.*** An airport that handles over 10,000 enplanements, but less than 0.05% of the country's annual enplanements.

Incursions. *See Runway Incursion.*

International Airport. Relating to international flight, it means:

- An airport of entry which has been designated by the Secretary of Treasury or Commissioner of Customs as an international airport for customs service.
- A landing rights airport at which specific permission to land must be obtained from customs authorities in advance of contemplated use.
- Airports designated under the Convention on ICAO as an airport for use by international commercial air transport and/or international general aviation.

Primary Airport. A commercial service airport that enplanes at least 10,000 annual passengers.

Reliever Airport. General aviation airports in a major metropolitan area that provides pilots with attractive alternatives to using congested hub airports.

Uncontrolled Airport. An airport without an air traffic control tower at which the control of VFR traffic is not exercised. Pilots "see and avoid" other traffic without the aid of air traffic control.

Airport Authority. A quasi-government public organization responsible for setting the policies governing the management and operation of an airport or system of airports under its jurisdiction.

Airport Capital Improvement Plan. The planning program used by the FAA to identify, prioritize, and distribute funds for airport development and the needs of National Airspace System (NAS) to meet specified national goals and objectives.

Airport Elevation. The highest point of an airport's usable runway(s) expressed in feet above mean sea level (MSL).

Airport Facility Directory. A publication with information on all airports, seaplane bases, and heliports open to the public. This publication is issued in seven volumes according to geographical area, and includes communications data, navigational facilities, and certain special notices and procedures.

Airport Improvement Program (AIP). A program authorized by the Airport and Airway Improvement Act of 1982 that provides funding for the airport planning and development.

Airport Influence Area. The area defined by overlaying the FAR Part 77 Imaginary Surfaces, Aircraft Accident Safety Zone data, and Noise Contour data over the top of an existing land use map, critical areas map or other base map.

Airport Layout Plan (ALP). A scaled drawing of the airport showing the layout of existing and proposed facilities necessary for current and future operation and development of the airport.

Airport Layout Plan Drawing Set. A set of planning drawings that depicts existing airport facilities and proposed development as determined from the planners' review of the aviation activity forecasts, facility requirements, and alternative analysis. Minimum components of the set are:

- Cover Sheet
- Airport Layout Plan (ALP)
- Data Sheet
- Facilities Layout Plan
- Terminal Area Plan(s)
- Airspace Drawing
- Inner Approach Surface Drawing(s)
- Departure Surface Drawing(s)
- On-Airport Land Use Drawing
- Off-Airport Land Use Drawing
- Airport Property (also known as the Exhibit A)
- Utility Drawing(s)

Airport Lighting. Various lighting aids that may be installed on an airport. Types of airport lighting include:

ALS. *See Approach Light System.*

Boundary Lights. Lights defining the perimeter of an airport or landing area.

Runway Centerline Lighting. Flush centerline lights spaced at 50-foot intervals beginning 75 feet from the landing threshold and extending to within 75 feet of the opposite end of the runway. Only used on Category II/III ILS Runways.

Runway Edge Lights. Lights used to outline the edges of the runways during periods of darkness or restricted visibility conditions. They are usually uniformly spaced at intervals of approximately 200 feet, and intensity may be controlled or preset. These light systems are classified according to the intensity they are capable of producing:

- ***High Intensity Runway Lights (HIRLs).***
- ***Medium Intensity Runway Lights (MIRLs).***
- ***Low Intensity Runway Lights (LIRLs).***

Runway End Identifier Lights (REIL).Provides rapid and positive identification of the approach end of particular runway. The system consists of a pair of synchronized flashing lights, one on each side of the runway threshold.

Threshold Lights. Fixed lights arranged symmetrically left and right of the runway centerline, identifying the runway threshold. Lights are green for arriving aircraft and red for departing aircraft.

Touchdown Zone Lighting. Two rows of transverse light bars located symmetrically about the runway centerline normally at 100 foot intervals. Only used on Category II/III ILS Runways.

Airport Markings. Markings used on runway and taxiway surfaces to identify a specific runway, a runway threshold, a centerline, a hold line, etc. A runway should be marked in accordance with its present usage such as: 1) Visual, 2) Nonprecision instrument, 3) Precision Instrument.

Airport Master Plan. A comprehensive study of an airport that focuses on the short-, medium-, and long-term development plan to meet future aviation demand of the airport.

Airport Obstruction Chart. A scaled drawing depicting the FAR Part 77 imaginary airspace surfaces, a representation of objects that penetrate these surfaces, runway, taxiway, and ramp areas, navigational aids, buildings, roads, and other detail in the vicinity of the airport.

Airport Operations Area (AOA). An area of an airport used or intended to be used for landing, takeoff, or surface maneuvering of aircraft. An AOA includes such paved areas or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiways, or apron.

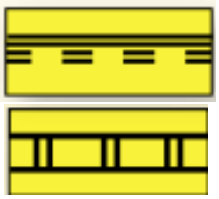
Airport Operator. The operator (private or public) or sponsor of a public-use airport.

Airport Reference Code (ARC). A coding system used to relate the airport design criteria to the operational and physical characteristics of the airplanes intended to use the airport or the critical aircraft. It is a two character code consisting of the Aircraft Approach Category and the Airplane Design Group.

Airport Reference Point (ARP). The latitude and longitude of the approximate center of the runway(s) at an airport.

Airport Signs. Signs used to identify items and locations on the airport.

Boundary Sign. These signs are used to identify the location of the boundary of the RSA/ROFZ or ILS critical areas for a pilot, or an existing the runway. These signs have a black inscription on a yellow background.



Destination Sign. These signs indicate the general direction to a remote location. They have black inscriptions on a yellow background and ALWAYS contain an arrow.

Direction Sign. These signs indicate directions of taxiways leading out of an intersection. They may also be used to indicate a taxiway exit from a runway. These signs have black inscriptions on a yellow background and ALWAYS contain arrows.

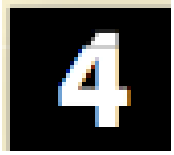
Information Sign. These signs are installed on the airside of an airport and are considered to be signs other than mandatory signs. They have black inscriptions on a yellow background.

Location Sign. These signs identify the taxiway or runway upon which the aircraft is located. The sign has a yellow inscriptions on a black background with a yellow border and does NOT use arrows.

Mandatory Instruction Sign. They denote taxiway/runway intersections, runway/runway intersections, ILS critical areas, OFZ boundaries, runway approach areas, CAT II/II operations areas, military landing zones, and no entry areas. These signs have white inscriptions with a black outline on a red background.

Roadway Sign. These signs are located on the airfield and are solely intended for vehicle operators. They should conform to the categorical color codes established by the Manual on Uniform Traffic Control Devices (MUTCD).

Runway Distance Remaining Signs. These signs are used to provide distance remaining information to pilots during takeoff and landing operations. These signs have a white numeral inscription on a black background.



Airport Sponsor. The entity that is legally responsible for the management and operation of an airport including the fulfillment of the requirements of laws and regulations related thereto.

Airport Surveillance Radar (ASR). A radar system used at airports to detect and display the position of aircraft in the terminal area.

Air Route Traffic Control Centers (ATRCC). A facility responsible for en route control of aircraft operating under IFR in a particular volume of airspace (within its area of jurisdiction) at high altitudes between airport approaches and departures. Approximately 26 such centers cover the United States.

Airside. The portion of an airport that contains the facilities necessary for the operations of aircraft.

Air Taxi. An aircraft operating under an air taxi operating certificate for the purpose of carrying passengers, mail, cargo for revenue in accordance with FAR 121 or FAR Part 135.

Air Traffic. Any aircraft operating in the air or on an airport surface, exclusive of loading ramps and parking areas.

Air Traffic Control (ATC). A service provided by ground-based controllers who direct aircraft on the ground and in the air. The primary purpose of ATC systems is to *separate* aircraft to prevent collisions, to organize and expedite the flow of

traffic, and to provide information and other support for pilots when able.

Air Traffic Control Tower (ATCT). A facility in the terminal air traffic control system located at an airport which consists of a tower cab structure and an associated instrument flight rules rooms, if radar equipped, that uses ground-to-air and air-to-ground communications and radar, visual, signaling, and other devices to provide for the safe and expeditious movement of terminal area air traffic in the airspace and airports within its jurisdiction.

Annual Service Volume (ASV). The number of annual operations that can reasonably be expected to occur at the airport based on a given level of delay.

Anti-Icing. Following aircraft deicing, anti-icing chemicals can applied to protect against the accumulation of ice or snow for a limited period of time, known as the holdover time.

Approach (or Departure) Airspace. The airspace, within five statue miles of an airport, through which aircraft more during landing and takeoff.

Approach Surface. *See Imaginary Surfaces.*

Approach Light System (ALS). An airport lighting facility aids in runway identification during the transition from instrument flight to visual flight for landing.

> ***Approach Light System with Sequenced Flashing (ALFS).***
>
> ***Lead-in-light System (LDIN).*** Consists of one or more series of flashing lights installed at or near ground level that provides positive visual guidance along an approach path, either curving or straight, where special problems exist with hazardous terrain, obstructions, or noise abatement procedures.
>
> ***Medium-Intensity Approach Light System with Runway Alignment Indicator (MALSR).*** A lighting system installed on the approach end of a runway and consists of a series of lightbars, strobe lights, or a combination that extends outward from the runway end. It usually serves a runway that has an instrument approach procedure associated with it and allows the pilot to visually identify and align self with the runway environment once the pilot has arrived at a prescribed point on the approach.
>
> ***Omnidirectional Approach Lighting System (ODALS).*** Consist of seven omnidirectional flashing lights located in the approach area of a non-precision runway. Five lights are located on the runway centerline extended with the first light located 300 feet from the threshold and extending at equal intervals up to 1,500 feet from the threshold. The other two lights are located on each side of the runway, with a lateral distance of 40 feet from the runway edge, or 75v feet from the runway edge when installed on a runway equipped with VASI.
>
> ***Runway Alignment Indicator Lights (RAILS).*** Sequenced Flashing Lights which are installed only in combination with other lighting systems.

Apron. A specific portion of the airfield used for passenger, cargo or freight loading and unloading, aircraft parking, and the refueling, maintenance

and servicing of aircraft. Also referred to as ramp or tarmac.

Approach (or Departure) Airspace. The airspace, within five statue miles of an airport, through which aircraft more during landing and takeoff.

Approach Surface*. See Imaginary Surfaces.*

Arrival Time. The time an aircraft touches down on arrival.

Automated Flight Service Station (AFSS). An automated air traffic facility that provides information and services to aircraft pilots before, during, and after flights, but it is not responsible for giving instructions or clearances or providing separation.

Automated Surface Observation System (ASOS). Similar data reporting as an AWOS, but usually owned and maintained by the National Weather Service.

Automated Weather Observation System (AWOS). An automated sensor suite which is voice synthesized to provide a weather report that can be transmitted via VHF radio, NDB, or VOR ensuring that pilots on approach have up-to-date airport weather for safe and efficient aviation operations. Most AWOS observe and record temperature and dew point in degrees Celsius, wind speed and direction in knots, visibility, cloud coverage and ceiling up to 12,000 feet, freezing rain, thunderstorm (lightning), and altimeter setting.

Avigation Easement. A contractual right or a property interest in land over which a right of unobstructed flight in the airspace can occur.

Balloon. *See Aircraft.*

Baggage Claim. *A*n area where passengers obtain luggage that was previously checked at an airline ticket counter at the departing airport.

Based Aircraft. The general aviation aircraft that use a specific airport as a home base.

Base Leg. *See Traffic Pattern.*

Benefit-Cost Analysis (BCA). An analysis of the cost, benefit, and the uncertainty associated with a project or action. A formal BCA is required for capacity projects of $5 million or more AIP discretionary funds.

Birds Balls. High-density plastic floating balls that can be used to cover ponds and prevent birds from using the sites.

Blast Fence. A barrier used to divert or dissipate jet blast or propeller wash.

Boundary Lights. *See Airport Lighting.*

Boundary Sign. *See Airport Signs.*

Building Restriction Line (BRL). A line that identifies suitable building area locations on airports to limit building proximity to aircraft movement areas. Typically base on the FAR Part 77 Airport Imaginary Surfaces.

Capacity (Throughput Capacity). A measure of the maximum number of aircraft operations or their airport components which can be accommodated on the airport.

Capital Improvement Plan (CIP). The planning program used by the FAA to indentify, prioritize, and distribute AIP funds for airport development and the needs of the NAS to meet specified national goals and objectives.

Cargo Service Airport. *See Airport.*

Ceiling. The height above the earth's surface of the lowest layer of clouds or obscuring

phenomena that is reported as broken, overcast or obscured.

Certificated Airport. *See Airport.*

Citizen's Advisory Committee (CAC). A group of individuals that weight recommendations against community goals, values, and needs, typically during a Master Plan.

Clear Zone. Former term for Runway Protection Zone.

Clearway (CWY). A defined rectangular area beyond the end of the runway cleared or suitable for use in lieu of runway to satisfy take off distance requirements.

Commercial Service Airport. *See Airport.*

Common Traffic Advisory Frequency (CTAF). The VHF radio frequency used for air-to-air communication at uncontrolled airports or where no control tower is currently active. Pilots use the common frequency to coordinate their arrivals and departures safely, give position reports, and acknowledge other aircraft in the airfield traffic pattern.

Compass Rose. A circle, graduated in degrees, printed on some charts or marked on the ground at an airport. It is used as a reference to either true or magnetic direction. When marked on the ground it is used to calibrate an aircraft's compass.

Conical Surface. *See Imaginary Surfaces.*

Consultant. A firm, individual, partnership, corporation, or joint venture that performs architectural, engineering or planning service as defined in AC150/5100-14D, employed to undertake work funded under an FAA airport grant assistance program.

Controlled Airspace. Airspace of defined dimensions within which air traffic control service is provided to IFR flight and to VFR flights in accordance with the airspace classification. Controlled airspace is a generic term that covers Class A, Class B, Class C, Class D, and Class E Airspace.

Critical (Design) Aircraft. The most demanding aircraft with at least 500 annual operations that operates, or is expected to operate, at the airport.

Crosswind. A wind that is not parallel to a runway centerline or to the intended flight path of an aircraft.

Crosswind Component. The component of wind that is at a right angle to the runway centerline or the intended flight path of an aircraft.

Crosswind Leg. *See Traffic Pattern.*

Decision Height (DH). This is associated with precision approaches and the aircraft is continually descending on final approach. When the aircraft reaches the DH, the pilot must make a decision to land or execute the missed approach procedure.

Deicing. The removal, though application of a max of heated water and propylene or ethylene glycol, of frost, ice, slush, or snow from the aircraft in order to provide clean surfaces.

Deicing Pad. A facility where an aircraft received deicing or anti-icing.

Delay. The difference between constrained and unconstrained operating time.

Demand. The number of aircraft operations, passengers, or other factors that are required in a specific period of time.

Department of Transportation (DOT). The United States federal department that institutes and coordinates national transportation programs; created in 1966. The FAA is an organization within the DOT.

Departure Airspace. *See Approach Airspace.*

Destination Sign. *See Airport Signs.*

Detention Ponds. Storm water management ponds that hold storm water for short periods of time, a few hours to a few days.

Direction Sign. *See Airport Signs.*

Discretionary Grant Funds: Annual Federal grant funds that may be appropriate to an airport based upon designation by the Secretary of Transportation or Congress to meet a specified national priority such as enhancing capacity, safety, and security or mitigating noise.

Displaced Threshold. *See Threshold.*

Distance Measuring Equipment (DME). *See Navigation Aid.*

Downwind Leg. *See Traffic Pattern.*

Emergency Locator Transmitter (ELT). A radio transmitter attached to the aircraft structure that aids in locating downed aircraft by radiating a audio tone on 121.5 MHz or 243 MHz.

Enplanement. The boarding of a passenger, cargo, freight or mail on an aircraft at an airport.

Entitlement Grant Funds. Annual federal funds for which all airports in the NPIAS are eligible for.

Environmental Assessment (EA). An environmental analysis performed pursuant to the Nation Environmental Policy Act to determine whether an action would significantly affect the environment and thus require a more detailed environment al impact statement.

Environmental Impact Statement (EIS). A document required of federal agencies by the National Environmental Policy Act (NEPA) for major projects or legislative proposals affecting the environment. It is a tool for decision-making describing the positive. If no significant impact is found a Finding of No Significant Impact (FONSI) is issued.

Federal Aviation Administration (FAA). An agency of the United States Department of Transportation with authority to regulate and oversee all aspects of civil aviation in the United States.

Federal Aviation Regulations (FAR). The general and permanent rules established by the executive departments and agencies of the Federal government for aviation which are published in the Federal Register. These are the aviation subset of the U.S. Code of Federal Regulations (CFR).

Federal Grant Agreement. A Federal agreement that represents an agreement made between the FAA (on the behalf of the United States) and an airport sponsor for the grant of Federal Funding.

Federal Grant Assurance. A provision within a Federal grant agreement to which the recipient of Federal airport development assistance has agreed to comply in consideration of the assistance provided.

Finding of No Significant Impact (FONSI). A public document prepared by a Federal agency that presents the rationale why a proposed action will not have a significant effect on the environment and for which an environmental impact statement will not be prepared.

Fixed Base Operator (FBO). A business enterprise located on the airport property that provides services to pilots including aircraft rental, training, fueling, maintenance, parking, and the sale of pilot supplies.

Flight Service Station (FSS). An air traffic facility that provides information and services to aircraft pilots before, during, and after flights, but unlike ATC, is not responsible for giving instructions, clearances, or providing separation.

Flight Standards District Office (FSDO). An FAA field office serving an assigned geographical area and staffed with Flight Standard personnel who serve the aviation industry and the general public on matters relating to the certification and operation of air carrier and general aviation aircraft. Activities include general surveillance of operation safety, certification of airmen and aircraft, accident prevention, investigation, enforcement, etc.

Foreign Object Debris (FOD). Any object found on an airport that does not belong in or near airplanes, and as a result can injure personnel and damage aircraft.

Form 7460-1, Notice of Proposed Construction or Alternation. Federal law requires filing a Notice of Proposed Construction or Alteration (Form 7460) for all structures over 200 feet AGL or lower if closer than 20,000 feet to a public use airport with a runway over 3,200 feet in length.

Form 7480-1, Notice of Landing Area Proposal. Submitted to the FAA Airport Regional Division Office or ADO as formal written notification for project involving the construction of a new airport; the construction, realigning, altering, activating, or abandoning of a runway, landing strip, or associated taxiway; or the deactivation or abandoning of an entire airport.

Fuel Flowage Fee. A tax assessed on the user, which is paid at the pump. Fuel flowage fee revenues are sent to the airport governing body, usually the board or authority and are then used for airport improvements or other expenses.

Gap Analysis. *See Safety Management System.*

Gate. An aircraft parking position used by a single aircraft loading or unloading passengers, mail, or cargo, etc.

General Aviation (GA). The segment of aviation that encompasses all aspects of civil aviation except certified air carriers and other commercial operators, such as airfreight carriers.

General Aviation Airport. *See Airport.*

Geographic Information System (GIS). A technology that manages, analyzes, and disseminates geographic data.

Glider. *See Aircraft.*

Glideslope. *See Instrument Landing System.*

Global Positioning System (GPS). A satellite based navigational system that provides signals in the cockpit of aircraft defining aircraft position in terms of latitude, longitude, and altitude.

GPS Runway. *See Runway.*

Grant Agreement. *See Federal Grant Agreement.*

Ground Access. The transportation system on and around the airport that provides access to and from the airport by ground transportation vehicle for passengers, employees, cargo, freight, and airport services.

Hazard. *See Safety Management System.*

Hazardous Wildlife. Species of wildlife (birds, mammals, reptiles) including feral animals and

domesticated animals not under control, that are associated with aircraft strike problems, are capable of causing structural damage to airport facilities, or act as attractants to other wildlife that pose a strike hazard.

Heavy Aircraft. *See Aircraft.*

Helicopter. *See Aircraft.*

Helipad. A small, designated area, usually with prepared surface, on a heliport, airport, landing/takeoff area, apron/ramp, movement area used for takeoff, landing, or parking of helicopters.

Heliport. An area of land, water, or structure used or intended to be used for the landing and takeoff of helicopters.

High Intensity Runway Lighting (HIRL). *See Airport Lighting.*

Holdover Time. The estimated time the application of anti-icing fluid will prevent the formation of frozen contamination on the protected surfaces of an aircraft. With a one-step deicing/anti-icing operation, the holdover beings at the start of the operations; with a two-step operations, the holdover beings at the start of the final anti-icing application.

Horizontal Surface. *See Imaginary Surfaces.*

Hub Airport. *See Airport.*

Imaginary Surfaces. Are surfaces defined in FAR Part 77, and are in relation to the airport and each runway. The size of these imaginary surfaces is based on the category of each runway for current and future airport operations. Any objects which penetrate these surfaces are considered an obstruction and affects navigable airspace.

Approach Surface. An imaginary obstruction limiting surface defined in FAR Part 77 which is longitudinally centered on an extended runway centerline and extends outward and upward from the primary surface at each end of a runway at a designated slope and distance upon the type of available or planned approach by aircraft to a runway.

Conical Surface. An imaginary obstruction-limiting surface defined in FAR Part 77 that extends from the edge of the horizontal surface outward and upward at a slope of 20 to 1 for a horizontal distance of 4,000 feet.

Horizontal Surface. An imagery obstruction-limiting surface defined in FAR Part 77 that is specified as a portion of a horizontal plane surrounding a runway located 150 feet above the established airport elevation. The specific horizontal dimension of this surface is a function of the types of approaches existing or planned for the runway.

Primary Surface. An imaginary obstruction-limiting surface defined in FAR Part 77 that is specified as a rectangular surface longitudinally centered about a runway. The specific dimensions of this surface are function of types of approaches existing or planned for the runway.

Transitional Surface. An imaginary obstruction-limiting surface defined in FAR Part 77 that extends outward and upward at right angles to the runway centerline and the runway centerline

extended at a slope of 7 to 1 from the slides of the primary surface.

Incursion. The unauthorized entry by an aircraft, vehicle, or obstacle into the defined protected area surrounding an active runway, taxiway, or apron.

Information Sign. *See Airport Signs.*

Inner Marker (IM). *See Instrument Landing System.*

Instrument Approach. A series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing or to a point from which a landing may be made visually.

Instrument Flight Rules (IFR). Procedures for the conduct of flight in weather conditions below Visual Flight Rules (VFR) weather minimums. The term IFR is often also used to define weather conditions and type of flight plan under which an aircraft is operating. IFR is defined as the weather condition that occurs whenever the cloud ceiling is at least 500 feet above ground level, but less than 1,000 feet and/or visibility is at least one statue mile, but less than 3 statute miles.

Instrument Landing System (ILS). A precise ground based navigation system for aircraft that provides precision guidance to an aircraft approaching a runway. It uses a combination of radio signals and, in many cases, high-intensity lighting arrays to enable a safe landing during instrument meteorological conditions. Normally consists of the following components and visual aids:

Localizer. The component of an ILS which provides horizontal guidance to the runway.

Glideslope. An independent ILS subsystem that provides vertical guidance to aircraft approaching a runway. It is an antenna array that is usually located on one side of the runway touchdown zone.

Outer Marker (OM). A marker beacon at or near the glideslope intercept altitude of an ILS approach and it keyed to transmit two dashes per second.

Middle Marker (MM). A marker beacon that defines a point along the glideslope of an ILS normally located at or near the point of DH (CAT I). It is keyed to transmit alternate dots and dashes.

Inner Marker (IM). A marker beacon use with an ILS (CAT II & CAT III) precision approach located between the middle marker and the end of the ILS runway, transmitting a radiation pattern keyed at six dots per second, and indicating that the pilot, both aurally and visually, is at the DH

Approach Lights. *See Approach Lighting Systems.*

ILS Categories:

Precision Approach Category I (CAT I). An instrument approach procedure which provides for an approach to a DH of not less than 200 feet and visibility of not less than ½ mile or RVR 2,400 (RVR 1,800 with operative touchdown zone and runway centerline lights).

Precision Approach Category II (CAT II). An instrument approach procedure which provides for an approach to a

minima less than CAT I to as low as a DH of not less than 200 feet and visibility of not less than 100 feet and RVR of not less than RVR 1,200.

Precision Approach Category III (CAT III An instrument approach procedure which provides for an approach to minima less than CAT II.

Instrument Meteorological Conditions (IMC). Meteorological conditions expressed in terms of specific visibility and ceiling conditions that are less than the minimums specified for visual meteorological conditions. IMC are defined as period when cloud ceiling are less than 1,000 feet above ground and/or visibility less than three miles

Instrument Runway. *See Runway.*

International Civil Aviation Organization (ICAO). An agency of the United Nations which codifies the principles and techniques of the international air navigation, and fosters the planning and development of international air transport to ensure safe and orderly growth. The ICAO Council adopts standards and recommended practices concerning air navigation, prevention of unlawful interference, and facilitation of border-crossing procedure for international civil aviation.

Itinerant Operations. *See Operation.*

Knot. A unit of speed equal to one nautical mile per hour, or 1.15 statue mile per hour.

Land and Hold Short Operations (LAHSO). To increase airport capacity, efficiency, and safety, LAHSO clearances usually instruct an aircraft to land, and then hold short of an intersecting runway, taxiway, or predetermined point.

Large Hub Airport. *See Airport.*

Landside. The portion of an airport that provides the facilities necessary for the processing of passengers, cargo, freight, and ground transportation vehicles.

Large Airplane. *See Aircraft.*

Lead-In-Light System (LDIN). *See Approach Light System.*

Localizer. *See Instrument Landing System.*

Local Operations. *See Operation.*

Location Sign. *See Airport Signs.*

Low Intensity Airport Lighting. *See Airport Lighting.*

Magnetic (Compass) Heading. The heading relative to the magnetic poles of the Earth. Is the heading indicated by a magnetic compass.

Mandatory Instruction Sign. *See Airport Signs.*

Maximum Certified Takeoff Weight (MTOW). The Maximum certificated weight for the airplane at takeoff, i.e. the airplane's weight at the start of the takeoff run.

Mean Sea Level (MSL). The average or mean height of the sea, with reference to a suitable reference surface.

Medium Hub Airport. *See Airport.*

Medium Intensity Approach Light System with Runway Alignment Indicator (MASLR). *See Approach Light System.*

Medium Intensity Runway Lights (MIRL). *See Airport Lighting.*

Middle Marker (MM). *See Instrument Landing System.*

Military Operations. *See Operation.*

Minimum Descent Altitude. This is associated with non-precision approaches and is the lowest altitude an aircraft can fly until the pilot sees the airport environment. If the pilot has not found the airport environment by the Missed Approach Point (MAP) a missed approach is initiated.

Missed Approach Point (MAP). The point prescribed in an instrument approach at which a missed approach procedure shall be executed if visual reference of the runway environment is not in sight or the pilot decides it is unsafe to continue. The MAP is similar in principle to the Decision Height.

Movement Area. The runway, taxiways, and other area of an airport an airport/heliport which are utilized for taxiing, air taxiing, takeoff, and landing of aircraft, exclusive of loading ramps and parking areas. At those airports with a tower, specific approval for entry onto the movement area must be obtained from ATC.

National Airspace System (NAS). The network of air traffic control facilities, air traffic control areas, and navigational facilities throughout the U.S.

National Environmental Policy Act (NEPA). Federal legislation that established environmental policy for the nation. It requires an interdisciplinary framework for federal agencies to evaluate environmental impacts and contains action-forcing procedures to ensure that federal agency decision makers take environmental factors into account.

National Plan of Integrated Airport Systems (NPIAS). The national airport system plan developed by the Secretary of Transportation on a biannual basis for the development of public use airports to meet national air transportation needs.

National Transportation Safety Board (NTSB). A federal investigatory board whose mandate is to ensure safe public transportation. As part of the DOT, the NTSB investigates accidents, conducts studies, and makes recommendations to federal agencies and the transportation industry.

Navigation Aid (NAVAID). Any visual electronic device, airborne or on the surface, which provides point-to-point guidance information or position data to aircraft in flight.

Distance Measuring Equipment (DME). Equipment (airborne and ground) used to measure, in nautical miles, the slant range distance of an aircraft from the DME NAVAID.

Non-Directional Beacon (NDB). A radio transmitter at a known location used as a NAVIAD. The signal transmitted does not include inherent directional information, in contrast with other NAVIADS such as VOR and TACAN.

Precision Approach Path Indicator (PAPI). A path indicator that uses a single row of lights arranged to provide precision descent guidance information during approach to a runway.

Rotating Beacon. A visual NAVAID used to assist pilots in finding an airport, particularly those flying in IMC or VFR at night. The beacon provides information about the type of airport through the use of a particular set of color filter:

- Green flashed alternated with two quick white flashes: Lighted military land airport.
- Alternating White and green flashes: Lighted civilian land airport.

- Alternating white and yellow flashes: lighted water airport
- Alternating yellow, green, and white: Lighted heliport.

Tactical Air Navigation (TACAN). An ultra-high frequency electronic rho-theta NAVAID which provides suitably equipped aircraft a continuous indication of bearing and distance to the TACAN station.

Visual Approach Slope Indicator (VASI). A system of lights arranged to provide vertical visual approach slope guidance to aircraft during approach to landing by radiating a directional pattern of high intensity red and white focused light beam.

VOR (Very High Frequency Omni-directional Radio-range). A ground-based electronic NAVAID transmitting very high frequency navigation signals, 360 azimuth, oriented from magnetic north, used as a basis for navigation in NAS.

VORTAC. A NAVAID providing VOR azimuth, TACAN azimuth, and TACAN DME at one site.

Night. The time between the end of evening civil twilight and the beginning of morning civil twilight, as published in the American Air Almanac, converted to local time.

Noise Abatement Procedures. Procedures developed by the FAA and community to reduce the level of noise generated by aircraft departing over populated areas.

Noise Contour. A continuous line on a map of the airport vicinity connecting all points of the same noise level. These contours represent noise levels generated from aircraft operations, takeoff and landing of aircraft. They are generated based on mythology developed by the FAA and the data provides information that can be used to identify varying degrees of noise impacts on the surrounding area.

Non-Directional Beacon (NDB). *See Navigation Aid.*

Non-Hub Airport. *See Airport.*

Non-Movement Area. Taxilanes and apron areas not in the movement area and therefore no under the control of traffic control.

Nonprecision Approach Procedure. A standard instrument approach procedure in which no electronic glideslope is provided.

Nonprecision Runway. *See Runway.*

Notice to Airmen (NOTAM).A notice containing information concerning the establishment, condition, or change in any component (facility, service, procedure of, or hazard in the NAS) 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). An area on the ground centered on a runway (ROFA), taxiway (TOFA), or taxilane centerline provided to enhance the safety of aircraft operations by having the area free of objects, except for objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes.

Obstacle. An existing object which may be expected at a fixed location within prescribed area with reference to the vertical clearance that must be provided during flight operations.

Obstacle Free Zone (OFZ). The OFZ is the airspace below 150 feet above the established airport elevation and along the runway and extended runway centerline that is required to be clear of all objects, except for frangible visual NAVAIDs that need to be located in the OFZ because of their function, in order to provide clearance protection for aircraft landing or taking off from the runway, and for missed approaches.

Obstruction. An object of greater height than any of the surfaces presented in FAR Part 77. (Obstructions to air navigation are presumed to be hazards to air navigation until an FAA study has determined otherwise.)

Omnidirectional Approach Lighting System (ODALS). *See Approach Light System.*

Operation. The landing, takeoff, or touch-and-go procedure by an aircraft on a runway at an airport.

> ***Itinerant Operations.*** Operations by aircraft that leaves the local airspace.
>
> ***Local Operations.*** Aircraft operations performed by aircraft that are based at the airport and that operate in the local traffic pattern or within sight of the airport, that are known to be departing for or arriving from flights in local practice areas within a prescribed distance from the airport, or that execute simulated instrument approaches at the airport.
>
> ***Military Operations.*** Aircraft operations performed in military aircraft. May be itinerant or local operations.
>
> ***Transient Operations.*** Operations by aircraft that are not based at a specified airport.

Outer Marker (OM). *See Instrument Landing System.*

Parallel Runways. *See Runway.*

Parallel Taxiways. *See Taxiway.*

Passenger Facility Charge (PFC). The collection of PFC fees for every enplaned passenger at commercial airports controlled by public agencies to be used to fund FAA-approved projects that enhance safety, security, or Capacity; reduce noise; or increase air carrier competition.

Peak Hour (PH). An estimate of the busiest hour in a day. This is also known as the design hour.

Performance-Based Navigation (PBN). It specifies that aircraft RNP and RNAV systems performance requirements be defined in terms of accuracy, integrity, availability, continuity and functionality required for the proposed operations in the context of a particular airspace, when supported by the appropriate navigation infrastructure.

> ***Area Navigation (RNAV).*** A method of navigation that permits aircraft operations on any desired flight path.
>
> ***Required Navigation Performance (RNP).*** A type of Performance-Based Navigation (PBN) that allows an aircraft to fly a specific path between two, 3 dimensionally defined points in space.

Planning Activity Level (PAL). Selected activity levels that may trigger the need for additional facilities or improvements.

Precision Approach Categories I, II, III (CAT I, CAT II, CAT III). *See Instrument Landing System.*

Precision Approach Procedure. A standard precision approach procedure in which an electronic glideslope is provided, such as ILS or PAR.

Primary Airport. *See Airport.*

Primary Surface. *See Imaginary Surfaces.*

Poor Visibility and Ceiling (PVC). Is a condition that exists whenever the cloud ceiling is less than 500 feet and/or the visibility is less than one statue mile.

Precision Approach Path Indicator (PAPI). *See Navigational Aid*

Ramp. Synonymous with Apron. *See Apron.*

Record of Decision (ROD). A public document that reflects the FAA's final decision of an EIS, rationale behind that decision, and commitments to enforce and monitor mitigation.

Regional Jet. *See Aircraft.*

Regression Analysis. A statistical technique that seeks to identify and quantify the relationships between factors associated with a forecast.

Reliever Airport. *See Airport.*

Retention Ponds. Storm water management ponds that hold water for several months.

Risk Assessment. *See Safety Management System.*

RNAV. *See Performance Based Navigatio.n*

RNP. *See Performance Based Navigation.*

Roadway Sign. *See Airport Signs.*

Rocket. *See Aircraft.*

Rotating Beacon. *See Navigation Aid.*

Rotorcraft. *See Aircraft.*

Runway (RW). Defined as rectangular surface on an airport prepared or suitable for the landing and takeoff of airplanes.

> ***Instrument Runway.*** A runway equipped with electronic and visual navigation aids for which a precision or nonprecision approach procedure having straight-in landing minimums has been approved.
>
> ***GPS Runway.*** A runway having a precision or nonprecision approach procedure using GPS navigational guidance with or without vertical guidance.
>
> ***Nonprecision Instrument Runway.*** A runway having an existing instrument approach procedure utilizing air navigation facilities with only horizontal guidance for which a straight-in or side-step nonprecision approach procedure has been approved.
>
> ***Nonprecision Runway.*** A runway with only horizontal guidance available.
>
> ***Parallel Runways.*** Two or more runways at the same airport whose centerlines are parallel. In addition to runway number, parallel runways are designated as L (left) and R (right) or, if three parallel runways exist, L (left), C (center), and R (right).

Precision Instrument Runway. A runway having an existing instrument approach procedure utilizing air navigation facilities with both horizontal and vertical guidance for which a precision approach procedure has been approved.

Utility Runway. A runway that is constructed for and intended to used by propeller driven aircraft of 12,500 pounds maximum gross weight and less.

Visual Runway. A runway without an existing or planned straight-in instrument approach procedure and no instrument approach procedure/equipment.

Runway Alignment Indicator Lights (RAILS). *See Approach Light System.*

Runway Blast Pad. A surface adjacent to the ends of the runways provided to reduce the erosive effect of jet blast and propeller wash.

Runway Centerline Lighting. *See Airport Lighting.*

Runway Distance Remaining Sign. *See Airport Signs.*

Runway Edge Lights. *See Airport Lighting.*

Runway End Identifier Lights (REIL). *See Airport Lighting.*

Runway Environment. The physical runway and the areas surrounding the runway out to the hold position marking.

Runway Gradient. The ratio of the change in elevation divided by the length of the runway expressed as a percentage.

Runway Heading. The magnetic direction that corresponds with the runway centerline extended.

Runway Incursion. Any occurrence at an airport involving the incorrect presence of an aircraft, vehicle, or person on the protected area of a surface designated for the landing and takeoff of aircraft.

Runway Lights. *See Airport Lighting.*

Runway Protection Zone (RPZ). A trapezoidal area off the runway end intended 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 from the runway.

Runway Visual Range (RVR). The distance over which a pilot of an aircraft on the centerline of the runway can see the runway surface markings delineating the runway or identifying its centerline. RVR is normally expressed in feet.

Safety Assessment. *See Safety Management System.*

Safety Assurance. *See Safety Management System.*

Safety Management System. The formal top-down business-like approach to managing safety risk. It includes systematic procedures, practices, and policies for the management of safety (including safety risk management, safety policy, safety assurance, and safety promotion).

Gap Analysis. Identification of existing safety components, compare to SMS program requirements. Gap analysis provides an airport operator an initial SMS development plan and Safety roadmap to compliance.

Hazard. Any existing or potential condition that can lead to injury, illness, or death to people; damage to or loss of a system, equipment, or property, or damage to the environment. A hazard is a condition that is a prerequisite to an accident or incident.

Risk Assessment. Assessment of the system or component to compare the achieved risk level with the tolerable risk level.

Safety Assessment. A systematic, comprehensive evaluation of an implemented system.

Safety Assurance. SMS process management functions that systematically provides confidence that organizational products/services meet or exceed safety requirements.

Safety Policy. Defines the fundamental approach to managing safety that is to be adopted within an organization. Safety policy further defines the organization's commitment to safety and overall safety vision.

Safety Promotion. A combination of safety culture, training, and data sharing activities that supports the implementation and operation of an SMS in an organization.

Safety Risk Control. Anything that mitigates the safety risk of a hazard. Safety risk controls necessary to mitigate an unacceptable risk should be mandatory, measureable, and monitored for effectiveness.

Safety Risk Management (SRM). A formal process within the SMS composed of describing the system, identifying the hazards, assessing the risk, analyzing the risk, and controlling the risk. The SRM process is embedded in the operation system: is not a separate/distinct process.

Severity. The consequence or impact of a hazard in terms of degree of loss or harm.

Safety Policy. *See Safety Management System.*

Safety Promotion. *See Safety Management System.*

Safety Risk. *See Safety Management System.*

Safety Risk Control. *See Safety Management System.*

Safety Risk Management (SRM). *See Safety Management System.*

Scope. The document that identifies and defines the tasks emphasis, and level of effort associated with a project or study.

Self-Fueling. The fueling of an aircraft by the owner or operator of the aircraft.

Segmented Circle. A circle located on an airport where wind and runway pattern information are located. It performs two function: it aids the pilot in locating the obscure airports, and it provides a centralized location for wind and traffic pattern indicators as may be required on a particular airport.

Separation. The spacing of aircraft to achieve their safe and orderly movement in flight, and while landing and taking off.

Severity. *See Safety Management System.*

Shoulder. An area adjacent to the edge of paved runways, taxiways, or aprons providing a transition between the pavement and the adjacent surface; support for aircraft running off the pavement; enhanced drainage; and blast protection.

Small Airplane. *See Aircraft.*

Small Hub Airport. *See Airport.*

Snow Removal Equipment (SRE). Equipment, such as plow trucks and brooms, to remove snow from the paved surfaces on an airport.

Sponsor. A public agency or private owner of a public-use airport that submits to the Secretary an application for financial assistance for the airport.

Surface Movement Guidance and Control System (SMGCS). Systems providing routing, guidance, surveillance and control to aircraft and affected vehicles in order to maintain movement rates under all local weather condition within the Aerodrome Visibility Operational Level (AVOL) whilst maintaining the required level of safety.

System of Airport Reporting (SOAR). The FAA Office of Airport integrated database that contains airport planning, development, and financial information.

Tactical Air Navigation (TACAN). *See Navigation Aid.*

Tailwind. Any wind more than 90 degrees to the longitudinal axis of the runway.

Takeoff Distance Available (TODA). The TORA plus the length of any remaining runway or clearway (CWY) beyond the far end of the TORA.

Takeoff Run Available (TORA). The runway length declared available and suitable for the ground run of an airplane taking off.

Taxi. The movement of an airplane under its own power on the surface of an airport.

Taxilane (TL). The portion of the aircraft parking area used for access between taxiways and aircraft parking positions.

Taxiway (TW). A defined path established for the taxiing aircraft from one part of an airport to another.

> ***Parallel Taxiway.*** A taxiway whose centerline is parallel to an adjacent runway.

Taxiway Safety Area (TSA). A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an airplane unintentionally departing the taxiway.

Technical Advisory Committee (TAC). A group of individual that provide input on technical issues.

Terminal Area. A general term used to describe airspace in which approach control service or airport traffic control service is provided.

Terminal Area Forecast (TAF). The official forecast of aviation activity, both aircraft and enplanements, at FAA facilities. This includes FAA-towered airports, federally contracted towered airports, non-federal towered airports, and many non-towered airports.

Terminal Instrument Procedures (TERPS). Published flight procedure standards for conducting instrument approaches to runways under instrument meteorological conditions. Information on TERPS is contained in FAA

Order 8260.3, United States Standard for Terminal Instrument Procedures (TERPS).

Threshold (TH). The beginning of that portion of the runway available for landing. In some instances, the landing threshold may be displaced.

> **Displaced Threshold.** A threshold that is located at a point on the runway other than the designated beginning of the runway.

Threshold Lighting. *See Airport Lighting.*

Through-the-Fence Operations. Those activities permitted by the airport sponsor through an agreement that permits access to the public landing area by independent entities or operator offering an aeronautical activity or to owners of aircraft based on land adjacent to, but not a part of, the airport property. The obligation to make an airport available for the use and benefit of the public does not impose any requirement for the airport sponsor to permit ground access by aircraft from adjacent property.

Throughput Capacity. *See Capacity.*

Touchdown Zone Lighting. *See Airport Lighting.*

Traffic Pattern. The traffic flow that is prescribed for aircraft landing at, taxiing on, or taking off from an airport.

> ***Base Leg.*** A flight path at right angles to the landing runway off its approach end. The base leg extends from the downwind leg to the intersection of the extended runway centerline.
>
> ***Crosswind Leg.*** A flight path at right angles to the landing runway off its upwind end.
>
> ***Downwind Leg.*** A flight path parallel to the landing runway in the direction opposite to landing. The downwind leg normally extends between the crosswind leg and the base leg.
>
> ***Upwind Leg.*** A flight path parallel to the landing runway in the direction of the landing.

Transitional Surface. *See Imaginary Surfaces.*

Transient Operations. *See Operation.*

Transportation Security Administration (TSA). An agency established in 2001 to safeguard United States transportation systems and to insure safe air travel. TSA operates under the Department of Homeland Security.

True Heading. A heading relative to the actual North and South Poles of the Earth, rather than the magnetic poles.

Uncontrolled Airport. *See Airport.*

Uncontrolled Airspace. Airspace where an ATC service is not deemed necessary or cannot be provided for practical reasons. Uncontrolled airspace is a generic term that covers Class F and Class G Airspace.

Universal Integrated Communications (UNICOM). An air-ground communication facility operated by a private agency to provide advisory service at uncontrolled airport. Aircraft call the ground station to make announcements of their intentions. In some cases, the ground station is not staffed. If no one is staffing the ground station, pilots broadcast their location and intentions over the UNICOM or CTAF channel. When the ground station is closed this is done without an acknowledgement.

Upwind Leg. *See Traffic Pattern.*

Utility Runway. *See Runway.*

Visibility. A measure of the horizontal opacity of the atmosphere at which prominent unlighted objects may be seen and identified by day and prominent lighted objects may be seen and identified by night; and is expressed in terms of the horizontal distance at which a person should be able to see and identify, is measured in statute miles.

Visual Approach. An approach conducted on an IFR flight plan which authorizes the pilot to proceed visually and clear of clouds to the airport. The pilot, at all times, must have either the airport or the preceding aircraft in sight. Reported weather at the airport must be ceiling at or above 1,000 feet and visibility of three miles or greater.

Visual Approach Slope Indicator (VASI). *See Navigational Aid.*

Visual Flight Rules (VFR). Procedures for the conduct of flight in weather conditions above Visual Flight Rules (VFR) weather minimums. The term VFR is often also used to define weather conditions and type of flight plan under which an aircraft is operating. VFR is defined as the weather condition whenever the cloud ceiling is at least 1,000 feet above ground level and visibility is at least three statue miles.

Visual Meteorological Conditions (VMC). Meteorological conditions expressed in terms of specific visibility and ceiling conditions which are equal to or greater than the threshold values for IMC.

Visual Runway. *See Runway.*

VOR. *See Navigation Aid.*

VORTAC. *See Navigation Aid.*

Wide Area Augmentation System (WAAS). An enhancement of the GPS that includes integrity broadcasts, differential correction, and additional ranging signals for the purpose of providing the accuracy, integrity, availability, and continuity required to support all phases of flight.

Wildlife Attractants. Any human-made structure, land-use practice, or human-made or natural geographic feature that can attract or sustain hazardous wildlife within the approach or departure airspace or the airport's AOA. These attractants can include architectural features, landscaping, waste disposal sites, wastewater treatment facilities, agricultural or aquaculture activities, surface mining, or wetlands.

Wildlife Hazard Assessment (WHA).

Wind Direction. Is the opposite direction in which the windsock is pointing, and is specified in terms of magnetic heading.

Windsock (Wind Cone). A conical textile tube designed to indicate wind direction and relative wind speed.

APPENDIX B

DRO INSTRUMENT APPROACH CHARTS & DEPARTURE PROCEDURES

LOC I-DRO	APP CRS	Rwy ldg	9201
109.1	027°	TDZE	6638
		Apt Elev	6685

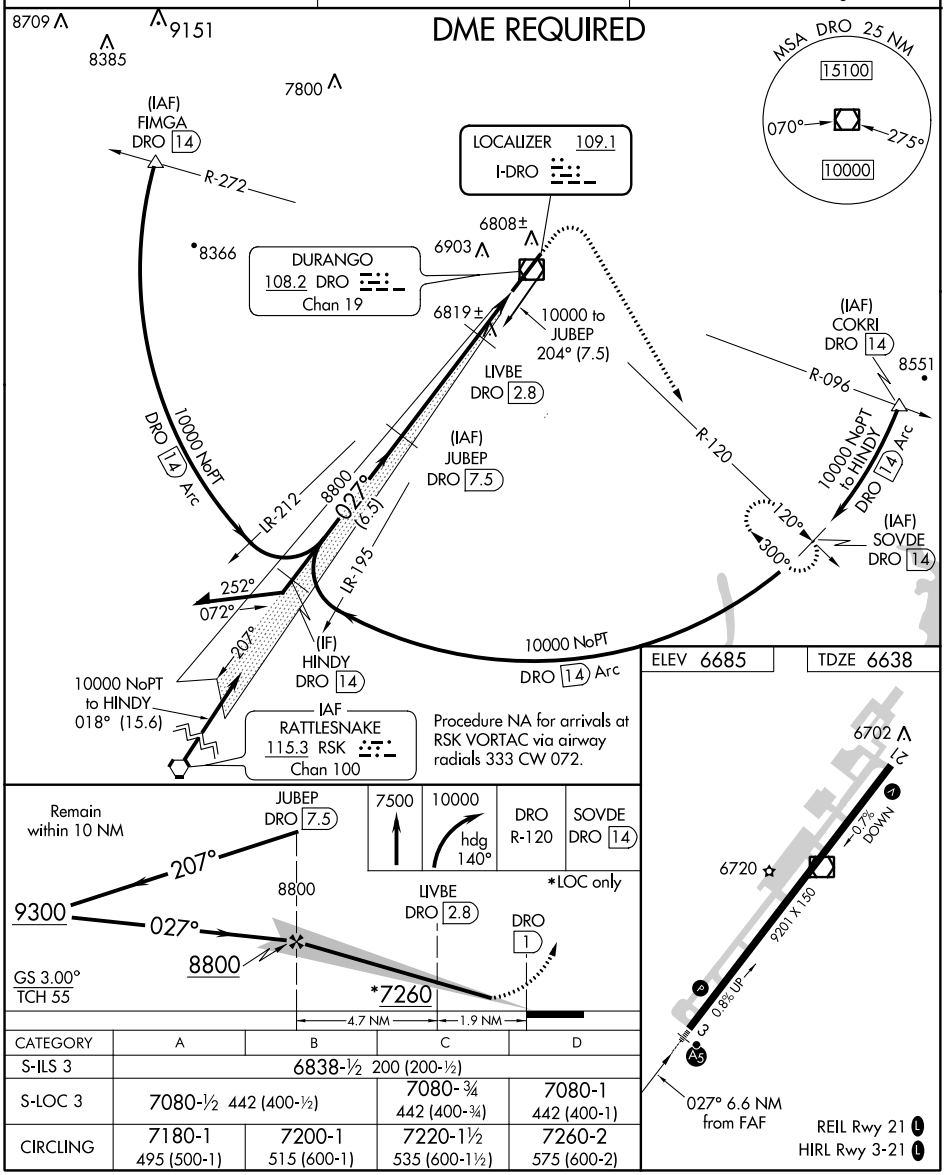
ILS or LOC/DME RWY 3
DURANGO-LA PLATA COUNTY (DRO)

DME from DRO VOR/DME.
Simultaneous reception of I-DRO and DRO VOR/DME required.

MALSR

MISSED APPROACH: Climb to 7500 then climbing right turn to 10000 via heading 140° and DRO VOR/DME R-120 to SOVDE/14 DME and hold. Continue climb-in-hold to 10000.

ASOS	DENVER CENTER	UNICOM
120.625	118.575 348.7	122.8 (CTAF) L



CATEGORY	A	B	C	D
S-ILS 3	6838-½ 200 (200-½)			
S-LOC 3	7080-½ 442 (400-½)		7080-¾ 442 (400-¾)	7080-1 442 (400-1)
CIRCLING	7180-1 495 (500-1)	7200-1 515 (600-1)	7220-1½ 535 (600-1½)	7260-2 575 (600-2)

SW-1, 26 JUN 2014 to 24 JUL 2014

SW-1, 26 JUN 2014 to 24 JUL 2014

WAAS CH 53710 W03A	APP CRS 027°	Rwy ldg 9201 TDZE 6638 Apt Elev 6685

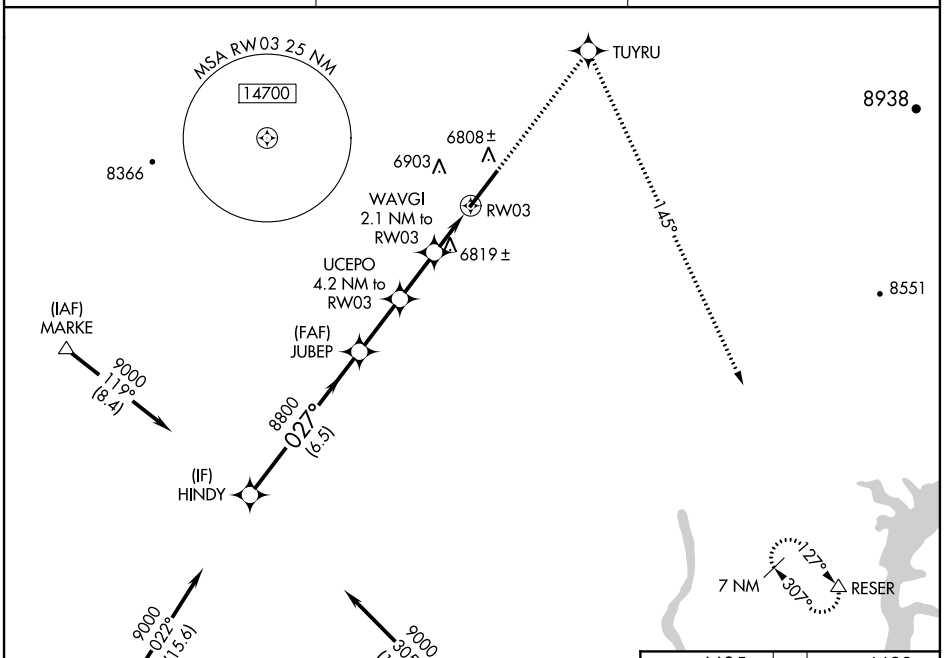
RNAV (GPS) RWY 3
DURANGO-LA PLATA COUNTY (DRO)

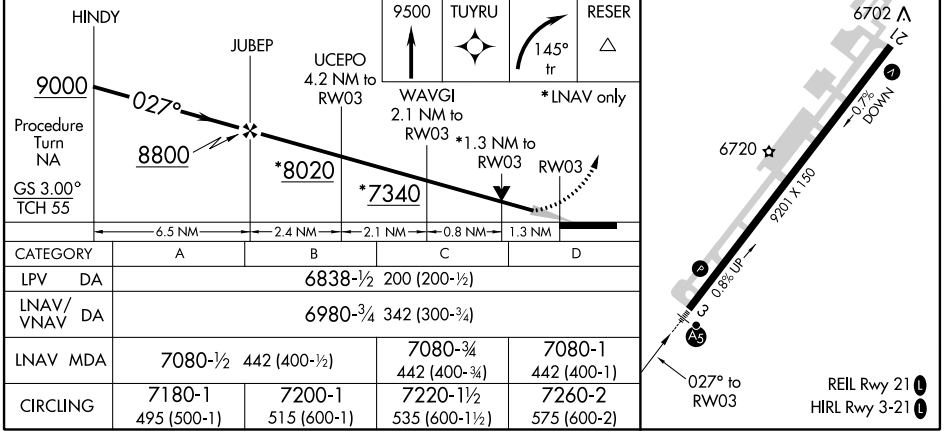
For uncompensated Baro-VNAV systems, procedure NA below -28°C (-18°F) or above 36°C (96°F). DME/DME RNP-0.3 NA.

MALSR

MISSED APPROACH: Climb to 9500 direct TUYRU then climbing right turn via 145° track to RESER and hold.

ASOS	DENVER CENTER	UNICOM
120.625	118.575 348.7	122.8 (CTAF) L





CATEGORY	A	B	C	D
LPV DA	6838-½ 200 (200-½)			
LNAV/VNAV DA	6980-¾ 342 (300-¾)			
LNAV MDA	7080-½ 442 (400-½)		7080-¾ 442 (400-¾)	7080-1 442 (400-1)
CIRCLING	7180-1 495 (500-1)	7200-1 515 (600-1)	7220-1½ 535 (600-1½)	7260-2 575 (600-2)

SW-1, 26 JUN 2014 to 24 JUL 2014

SW-1, 26 JUN 2014 to 24 JUL 2014

VOR/DME DRO	APP CRS	Rwy ldg	9201
108.2	029°	THRE	6616
Chan 19		Apt Elev	6685

VOR/DME RWY 3

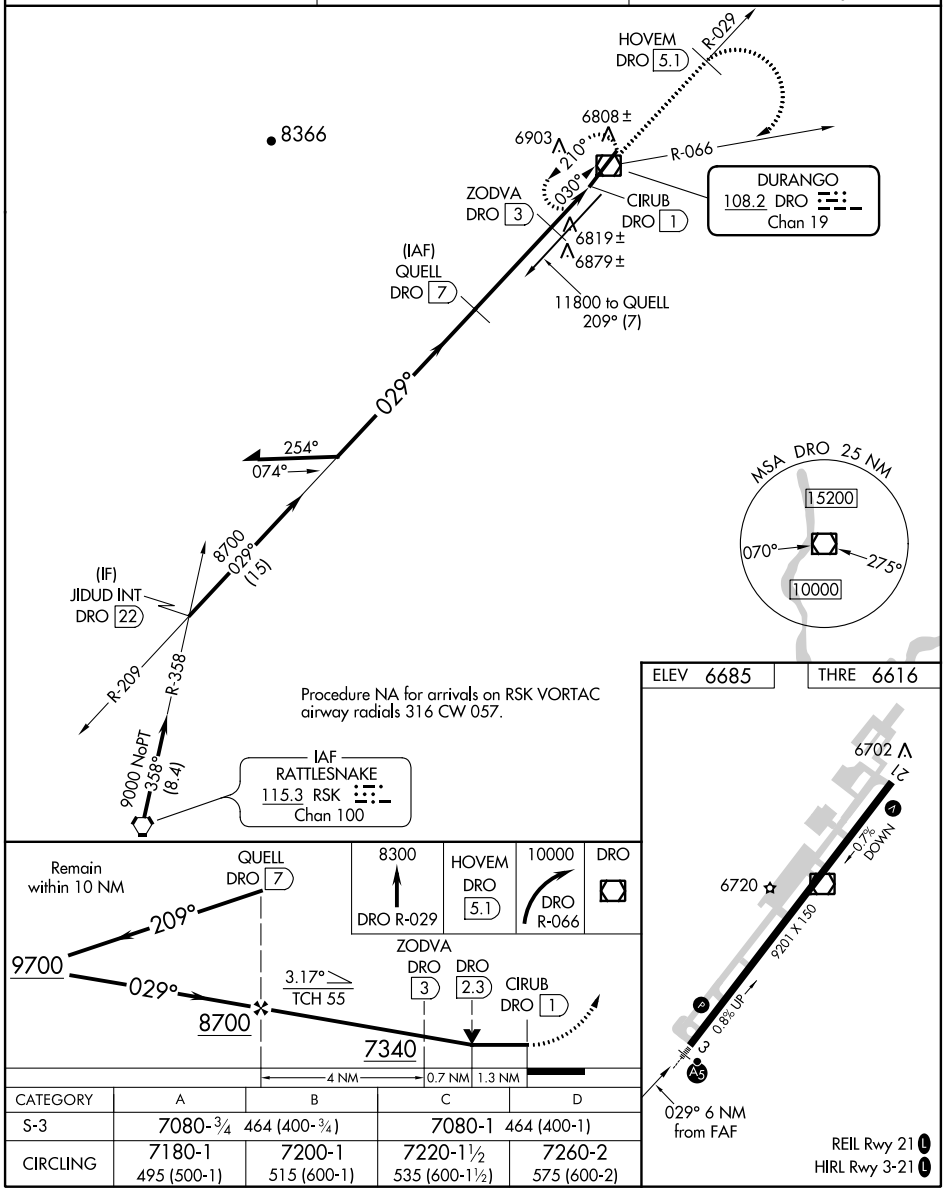
DURANGO-LA PLATA COUNTY (DRO)

When local altimeter setting not received, procedure NA. For inoperative MALSR, increase S-3 Cat A/B visibility to 1 mile and Cats C/D visibility to 1⅜ mile.

MALSR A5

MISSED APPROACH: Climb to 8300 on DRO VOR/DME R-029 to HOVEM/DRO 5.1 DME then climbing right turn to 10000 on DRO VOR/DME R-066 to DRO VOR/DME and hold.

ASOS	DENVER CENTER	UNICOM
120.625	118.575 348.7	122.8 (CTAF) L



CATEGORY	A	B	C	D
S-3	7080-¾ 464 (400-¾)		7080-1 464 (400-1)	
CIRCLING	7180-1 495 (500-1)	7200-1 515 (600-1)	7220-1½ 535 (600-1½)	7260-2 575 (600-2)

SW-1, 26 JUN 2014 to 24 JUL 2014

SW-1, 26 JUN 2014 to 24 JUL 2014

IFR TAKEOFF MINIMUMS AND (OBSTACLE) DEPARTURE PROCEDURES

Civil Airports and Selected Military Airports

ALL USERS: Airports that have Departure Procedures (DPs) designed specifically to assist pilots in avoiding obstacles during the climb to the minimum enroute altitude , and/or airports that have civil IFR takeoff minimums other than standard, are listed below. Takeoff Minimums and Departure Procedures apply to all runways unless otherwise specified. Altitudes, unless otherwise indicated, are minimum altitudes in MSL.

DPs specifically designed for obstacle avoidance are referred to as Obstacle Departure Procedures (ODPs) and are described below in text, or published separately as a graphic procedure. If the (Obstacle) DP is published as a graphic procedure, its name will be listed below, and it can be found in either this volume (civil), or the applicable military volume, as appropriate. Users will recognize graphic obstacle DPs by the term "(OBSTACLE)" included in the procedure title; e.g., TETON TWO (OBSTACLE). If not specifically assigned a departure procedure (i.e.,ODP, SID, or radar vector) as part of an IFR clearance, an ODP may be required to be flown for obstacle clearance, even though not specifically stated in the IFR clearance. When doing so in this manner, ATC should be informed when the ODP being used contains a specified route to be flown, restrictions before turning, and/or altitude restrictions.

Some ODPs, which are established solely for obstacle avoidance, require a climb in visual conditions to cross the airport, a fix, or a NAVAID in a specified direction, at or above a specified altitude. These procedures are called Visual Climb Over Airport (VCOA). To ensure safe and efficient operations, the pilot must verbally request approval from ATC to fly the VCOA when requesting their IFR clearance.

Graphic DPs designed by ATC to standardize traffic flows, ensure aircraft separation and enhance capacity are referred to as "Standard Instrument Departures (SIDs)". SIDs also provide obstacle clearance and are published under the appropriate airport section. ATC clearance must be received prior to flying a SID.

CIVIL USERS NOTE: Title 14 Code of Federal Regulations Part 91 prescribes standard takeoff rules and establishes takeoff minimums for certain operators as follows: (1) Aircraft having two engines or less - one statute mile. (2) Aircraft having more than two engines - one-half statute mile. These standard minima apply in the absence of any different minima listed below.

MILITARY USERS NOTE: Civil (nonstandard) TAKEOFF minima are published below. For military takeoff minima, refer to appropriate service directives.

NAME	TAKEOFF MINIMUMS

AKRON, CO
COLORADO PLAINS RGNL (AKO)
ORIG 09127 (FAA)
NOTE: **Rwy 11,** rod on obstruction light on anemometer 314' from DER, 525' left of centerline, 26' AGL/4695' MSL. Lights on hangers 412' from DER, 301' left of centerline, 18' AGL/4687' MSL. **Rwy 29,** vehicles on roadway beginning 971' from DER, 315' left of centerline, 15' AGL/4741' MSL. Trees beginning 1651' from DER, 528' left of centerline, up to 100' AGL/4839' MSL.

ALAMOGORDO, NM
ALAMOGORDO-WHITE SANDS RGNL (ALM)
AMDT 1 02332 (FAA)
TAKEOFF MINIMUMS: **Rwys 16,21,34,** NA
DEPARTURE PROCEDURE: Use CORONA ONE Departure.

NAME	TAKEOFF MINIMUMS

ALAMOSA, CO
SAN LUIS VALLEY RGNL-BERGMAN FIELD (ALS)
AMDT 4B 14037 (FAA)
TAKEOFF MINIMUMS: **Rwys 6, 24,** NA.
DEPARTURE PROCEDURE: **Rwy 2,** climbing right turn, thence...
Rwy 20, climbing left turn, thence...
...direct ALS VORTAC. Continue climb in ALS VORTAC holding pattern (SE, right turns, 301° inbound) to depart ALS VORTAC at airway MEA/ MCA, all others climb to 16000.
NOTE: **Rwy 2,** trees beginning 1070' to 2560' from DER, 197' to 702' left of centerline, 42' up to 72' AGL/7577' up to 7607' MSL.

DENVER, CO (CON'T)

DENVER INTL (DEN)
AMDT 3 12320 (FAA)

DEPARTURE PROCEDURE: **Rwy 7,** climb on a heading between 315° CW to 218° from DER. All other courses: climbing right turn, thence ...
Rwy 8, climb on a heading between 310° CW to 220° from DER. All other courses: climbing right turn, thence …
Rwys 16L, 16R, climb on a heading between 213° CCW to 353° from DER. All other courses: climbing left turn, thence...
Rwys 17L, 17R, climb on a heading between 222° CCW to 353° from DER. All other courses: climbing right turn, thence ...
Rwy 25, climb on a heading between 317° CW to 083° or 206° CCW to 083° from DER. All other courses: climbing left turn, thence ...
Rwy 26, climb on a heading between 313° CW to 083° or 219° CCW to 083° from DER. All other courses: climbing left turn, thence ...
Rwys 34L, 34R, climb on a heading between 313° CW to 172° from DER. All other courses: climbing right turn, thence ...
Rwys 35L, 35R, climb on a heading between 313° CW to 172° from DER. All other courses: climbing right turn, thence ...
. . .direct DEN VOR/DME, climb in DEN VOR/DME holding pattern (hold South, right turns, 343° inbound) to 16500 before proceeding on course.

NOTE: **Rwy 7,** sign 21' from DER, 337' left of centerline, 5' AGL/5357' MSL. **Rwy 16L,** multiple signs beginning 126' from DER, 490' left of centerline, up to 7' AGL/5359' MSL. Communication tower 4749' from DER, 1358' left of centerline, 107' AGL/5478' MSL. **Rwy 25,** sign 48' from DER, 450' right of centerline, 6' AGL/5354' MSL. **Rwy 26,** sign 50' from DER, 339' left of centerline, 5' AGL/5356' MSL.

FRONT RANGE (FTG)
AMDT 3 12320 (FAA)

DEPARTURE PROCEDURE: **Rwy 8,** climb on a heading between 312° CW to 228° from DER. All other courses: climbing left turn direct DEN VOR/DME. Continue climb in DEN VOR/DME holding pattern (hold South, right turns, 343° inbound) to 16500 before proceeding on course.
Rwy 17, climb on a heading between 352° CW to 229° from DER. All other courses: climbing right turn direct DEN VOR/DME. Continue climb in DEN VOR/DME holding pattern (hold South, right turns, 343° inbound) to 16500 before proceeding on course. **Rwy 26,** climb on a heading between 315° CW to 083° or between 226° CCW to 083° from DER. All other courses: climbing right turn direct DEN VOR/DME. Continue climb in DEN VOR/DME holding pattern (hold South, right turns, 343° inbound) to 16500 before proceeding on course. **Rwy 35,** climb on a heading between 313° CW to 172° from DER. All other courses: climbing left turn direct DEN VOR/DME. Continue climb in DEN VOR/DME holding pattern (hold South, right turns, 343° inbound) to 16500 before proceeding on course.

NOTE: **Rwy 17,** pole 3618' from DER, 516' left of centerline, 43' AGL/5603' MSL. **Rwy 26,** trees beginning 98' from DER, 456' right of centerline, up to 50' AGL/5489' MSL.

DENVER, CO (CON'T)

ROCKY MOUNTAIN METROPOLITAN (BJC)
AMDT 5 12320 (FAA)

TAKEOFF MINIMUMS: **Rwy 29L,** 300-1 or std. w/ min. climb of 405' per NM to 5900.

DEPARTURE PROCEDURE: **Rwy 2,** climb on a heading between 350° CW to 160° from DER. All other courses: climbing right turn heading 147° to intercept DEN VOR/DME R-285 to DEN VOR/DME, thence …
Rwys 11L, 11R, climb on heading between 160° CCW to 350° from DER. All other courses: climb heading 113° to intercept DEN VOR/DME R-275 to DEN VOR/DME, thence …
Rwy 20, climb on heading between 160° CCW to 024° from DER. All other courses: climbing left turn heading 044° to intercept DEN VOR/DME R-272 to DEN VOR/DME, thence …
Rwy 29R, climb on heading between 350° CW to 113° from DER. All other courses: climbing right turn heading 142° to intercept DEN VOR/DME R-280 to DEN VOR/DME, thence ...
Rwy 29L, climb on heading between 350° CW to 113° from DER. All other courses: Climbing right turn heading 142° to intercept DEN VOR/DME R-279 to DEN VOR/DME, thence ...
... climb in DEN VOR/DME holding pattern (hold South, right turns, 343° inbound) to 16500 before proceeding on course.

NOTE: **Rwy 2,** pole 432' from DER, 370' right of centerline, 49' AGL/5619' MSL. **Rwy 29L,** terrain beginning 23' from DER 28' left of centerline, up to 5708' MSL. Fence 982' from DER 303' left of centerline, 14' AGL/5714' MSL. Fence 1015' from DER 392' left of centerline, 15' AGL/5725' MSL. Multiple trees beginning 687' from DER 615' right of centerline up to 70' AGL/5839' MSL. Tree 3196' from DER 1337' left of centerline, 70' AGL/5839' MSL.

DURANGO, CO

DURANGO-LA PLATA COUNTY (DRO)
AMDT 6A 09015 (FAA)

TAKEOFF MINIMUMS: **Rwy 3**, std. w/ a min. climb of 215' per NM to 7600, or 1700-3 for climb in visual conditions.

DEPARTURE PROCEDURE: **Rwy 3,** climbing right turn to 9000 heading 160° and DRO VOR/DME R-125 to RESER INT, or for climb in visual conditions: Cross Durango-La Plata County Airport Southeast bound at or above 8200 MSL, then proceed on DRO VOR/DME R-125 to RESER INT. **Rwy 21**, climbing right turn to 9500 heading 280° and DRO VOR/DME R-235 to MARKE INT.

NOTE: **Rwy 3,** trees beginning 1223' from DER, 794' left of centerline, up to 42' AGL/6741' MSL. Trees beginning 488' from DER, 431' right of centerline, up to 42' AGL/6698' MSL, vehicles on road beginning 8' from DER, right and left of centerline, up to 15' AGL/6706' MSL.

26 JUN 2014 to 24 JUL 2014
26 JUN 2014 to 24 JUL 2014

APPENDIX C

BIOLOGICAL RESOURCE REVIEW – ECOSPHERE ENVIRONMENTAL SERVICES

Durango-La Plata County Airport

Biological Resource Review

Prepared for:

Jviation, Inc.

900 South Broadway, Suite 350

Denver, CO 30326

October 6, 2014

Ecosphere Environmental Services

Durango, CO
Cortez, CO
Pagosa Springs, CO
Santa Fe, NM
Farmington, NM

TABLE OF CONTENTS

1. Introduction 1

1.1 Purpose 1

1.2 Scope of Services 1

1.3 Location 1

2. Regulatory Context 2

3. Survey Area 2

4. Methods 2

4.1 Desktop Review 2

4.2 Field Review 3

5. Results 3

5.1 Existing Conditions 3

5.2 USFWS Listed Species with Potential to Occur 4

5.2.1 Southwestern Willow Flycatcher – USFWS Endangered 6

5.2.2 New Mexico Meadow Jumping Mouse – USFWS Endangered 7

5.3 Colorado Listed Species with Potential to Occur 8

5.4 Migratory Birds 11

5.4.1 Birds of Conservation Concern 11

5.4.2 Bald and Golden Eagle Protection Act 14

5.5 Unique Wildlife Habitats 15

5.6 Noxious Weeds 15

6. Discussion and Recommendations 15

7. References 18

Appendix A –Maps of Project Area A-1

Appendix B –Wildlife and Plant List B-1

Appendix C –Photographs C-1

LIST OF TABLES

Table 5-1. Species listed by the USFWS under the authority of the Endangered Species Act of 1973 for La Plata County, Colorado 4
Table 5-2. Colorado Parks and Wildlife Listed Threatened and Endangered Species 8
Table 5-3. USFWS Birds of Conservation Concern (BCC) Bird Conservation Region (BCR) 16 – Southern Rocky Mountains/Colorado Plateau, with Potential to Occur in the Study Area 12

LIST OF FIGURES

Figure 1: Vicinity Map, Durango-La Plata County Airport A-2
Figure 2: Survey Area for Biological Resources A-3
Figure 3: Wildlife habitats in and around the survey area (Colorado Parks and Wildlife 2013) A-4
Figure 4: Unique wildlife habitats A-5
Figure 5: Vegetation communities in the survey area according to Southwest Regional Gap Analysis Project (Lowry et al. 2007) A-6

LIST OF PHOTOGRAPHS

Photograph 1: Potential southwestern willow flycatcher habitat, eastern tributary to Salt Creek. C-2
Photograph 2 : Potential southwestern willow flycatcher habitat, eastern tributary to Salt Creek. (Willows are tall and dense, habitat patch ranges from 20 to 45 feet wide.) C-2
Photograph 3: Florida River lacks shrubs along the banks within the survey area to qualify as potential southwestern willow flycatcher habitat C-3
Photograph 4: Looking downstream on the Florida River: potential habitat for New Mexico meadow jumping mouse C-3
Photograph 5: Potential habitat for New Mexico meadow jumping mouse along a wide drainage flowing to the Florida River. C-4
Photograph 6: Potential New Mexico meadow jumping mouse habitat C-4
Photograph 7: Northwestern field containing potential New Mexico meadow jumping mouse habitat . C-5
Photograph 8: Rodent (potential mouse) scat in potential habitat shown in photograph 7 ..... C-5
Photograph 9: Golden eagle nest C-6
Photograph 10: Potential bald eagle roosts near pond in the northeastern portion of the survey area . C-6
Photograph 11: Active Gunnison's prairie dog colony adjacent to the runway C-7

ABBREVIATIONS/ACRONYMS

BCC	Birds of Conservation Concern
CPW	Colorado Parks and Wildlife
Ecosphere	Ecosphere Environmental Services
GIS	Geographic Information System
IPaC	Information, Planning, and Conservation
SWReGAP	Southwest Regional GAP Analysis Project
USFWS	US Fish and Wildlife Service

1. INTRODUCTION

1.1 Purpose

Ecosphere Environmental Services (Ecosphere) was contracted by Jviation, Inc. to conduct a biological review of the Durango-La Plata County Airport property. The purpose was to evaluate the property and surrounding areas for the presence of federal and state-listed species, describe the vegetation communities, and identify unique wildlife habitats to have provide sufficient information to master plan future improvements in a manner that avoids, if possible, sensitive species and their habitats.

1.2 Scope of Services

The scope of work for the biological resource review included the following:

- Review federal and state-listed plants and wildlife
- Review of existing Geographic Information System (GIS) data for biological resources (e.g., Colorado Parks and Wildlife Species Activity Data)
- Map the vegetation communities using Southwest Regional Gap Analysis Project (SWReGAP) data[1]
- Conduct field surveys to identify potential habitat for federal and state-listed species and unique wildlife habitats
- Report findings and present maps and photographs

1.3 Location

The airport is situated in the foothills of the San Juan Mountains in southwestern Colorado, approximately 14 miles southeast of the City of Durango (Figure 1, Appendix A). The airport is located in La Plata County in Section 29, Township 34 North, Range 8 West, New Mexico Principal Meridian on the Loma Linda, Colorado 7.5-minute United States Geological Survey quadrangle.

[1] The Southwest Regional Gap Analysis Project (SWReGAP) is an update of the Gap Analysis Program's mapping and assessment of biodiversity for the five-state region encompassing Arizona, Colorado, Nevada, New Mexico, and Utah. It is a multi-institutional cooperative effort coordinated by the U.S. Geological Survey Gap Analysis Program. The primary objective of the update is to use a coordinated mapping approach to create detailed, seamless GIS maps of land cover, all native terrestrial vertebrate species, land stewardship, and management status, and to analyze this information to identify those biotic elements that are underrepresented on lands managed for their long term conservation or are "gaps" (Lowry et al. 2007).

2. Regulatory Context

This biological review was conducted within the context of federal and state environmental regulations in support of the Durango Airport Master Plan. Federal and state environmental regulations that apply to the project include, but are not limited to, the following:

- Bald and Golden Eagle Protection Act of 1940, as amended (PL 86-70, PL 87-884, PL 92-535, PL 95-616; USC 668-668d)
- Endangered Species Act of 1973, as amended (PL 94-325; 16 USC § 1531, *et seq.*)
- Migratory Bird Treaty Act of 1918, as amended (16 USC 703-712; 50 CFR Part 21)
- National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321 *et seq.*)
- Federal Noxious Weed Act of 1974, as amended (7 U.S.C. 2801 *et seq.*)
- Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds
- Colorado Noxious Weed Act of 1991, as amended (Colorado Revised Statutes, 35-5.5.)
- Colorado's Nongame and Endangered Species Conservation Act of 1985, as amended (CO ST § 33-2-101 to 108)

3. Survey Area

The survey area is defined as the Durango–La Plata County Airport property comprising about 1,382 acres (Figure 2, Appendix A). The mesa top is the portion of the property that includes the footprint of the airport proper, but the property boundary extends down to the Florida River to the west (Figure 2).

4. Methods

4.1 Desktop Review

Prior to conducting fieldwork, biologists from Ecosphere compiled a list of U.S. Fish and Wildlife Service (USFWS) and State of Colorado listed species that occur or have the potential to occur in La Plata County, Colorado (USFWS 2104a). Information for each species includes their conservation status, habitat associations, and potential to occur in the survey area. Federally listed species were accessed from the Information, Planning, and Conservation (IPaC) decision support system (USFWS 2014a). Species listed with the State of Colorado were obtained online (CPW 2014).

Ecosphere also reviewed the USFWS Birds of Conservation Concern (BCC) list for Bird Conservation Region 16 – Southern Rockies/Colorado Plateau, prior to field work (USFWS 2008). BCC species are birds that are high conservation priority due to moderate to severe threats to the species or their habitats. Reviewing BCC species helps federal agencies to address migratory birds in planning, as mandated by Executive Order 13186.

Unique wildlife habitats are those that provide important elements required for the ecological processes of wildlife species relative to their natural environment. In arid southwestern Colorado, unique wildlife habitats may include water features (rivers or streams, ponds, and wetlands), tall trees in an otherwise open landscape, or habitats created by keystone species that provide habitat for many other species (i.e., prairie dog colonies). Colorado Parks and Wildlife Species Activity Data also provide Geographic Information System (GIS) data of unique habitats, such as elk highway crossing, bald eagle winter concentration, etc. (CPW 2013). Ecosphere reviewed the Wildlife Species Activity Data to locate unique wildlife habitat relative to the survey area (Figure 3, Appendix A); and identified unique habitat based on field surveys and review of aerial maps (Figure 4, Appendix A).

4.2 Field Review

Ecosphere Biologist, Aimee Way, conducted driving and pedestrian surveys of the property on August 26 and 29, 2014. Ms. Way also conducted further investigations and made additional observations while assisting wetland specialist Ryan Unterreiner on August 27, 2014. The biological surveys included identification of plants and wildlife observed, wildlife signs, vocalizations, and unique and potential habitats for wildlife species (Appendix B). Binoculars were used to aid in visual surveys. Photographs of the survey area and the airport property were also taken (Appendix C).

5. RESULTS

5.1 Existing Conditions

The airport is located on a mesa above the Florida River with an elevation range of 6,450 to 6,690 feet above mean sea level. The south-flowing Florida River, a tributary of the Animas River, is located less than 0.5 mile west of the runway facility, and is the predominant water feature within the airport vicinity. Salt Creek, an intermittent tributary of the Florida River, is located approximately 0.5 mile east of the airport. The Animas River is located approximately 6.5 miles west of the airport. Existing land use within the airport vicinity is predominantly agricultural/open space with some scattered rural residences, along with some industrial development.

According to SWReGAP, the primary vegetation community in the survey area is mapped as Agriculture both on the mesa top and in the Florida River valley, as shown in Figure 5 (Lowry et al. 2007). Although the airport is industrial, the historical land use was agricultural. Agriculture, especially ranching, continues to dominate the surrounding area. The second-most dominant vegetation community is Colorado Plateau Piñon (*Pinus edulis*) - Juniper (*Juniperus scopulorum*) Woodlands, covering the slopes leading up to the mesa and the slope along the Florida River valley. Other vegetation types include Inter-Mountain Basins Big Sagebrush Shrublands interspersed within the piñon–juniper woodlands and Inter-Mountain Basins Semi-Desert Shrub Steppe. The airport facilities and buildings occur in an area mapped as Inter-Mountain Basins Greasewood Flats.

Weather in the survey area is characterized by cold winter temperatures and moderate summer temperatures. The airport is located in an arid landscape; annual precipitation is 12.6 inches per year (WRCC 2014).

5.2 USFWS Listed Species with Potential to Occur

The list of USFWS threatened, endangered, and candidate species accessed from the Information, Planning, and Conservation (IPaC) decision support system recognizes 12 species potentially occurring in La Plata County (Table 5-1; USFWS 2014a). IPaC also identified critical habitat[2] present in La Plata County for southwestern willow flycatcher (*Empidonax traillii extimus*) and New Mexico meadow jumping mouse (*Zapus hudsonius luteus*).

Table 5-1. Species listed by the USFWS under the authority of the Endangered Species Act of 1973 for La Plata County, Colorado

Species	Federal Status[1]	Habitat Description	Potential to Occur in the Survey Area
Mammals			
Canada lynx (*Lynx canadensis*)	T	High elevation (8,000 to 11,500 feet in the southern Rocky Mountains), mesic spruce-fir and mixed-conifer forests, especially mixed with aspen.	None. The survey area does not contain high elevation forests.
New Mexico meadow jumping mouse (*Zapus hudsonius luteus*)	**E**	**Habitat specialist occurring in herbaceous emergent wetlands, especially dominated by sedges and broad-leaved forbs. Also may utilize riparian communities containing scrub-shrub wetlands along perennial streams.**	**Potential. The survey area contains potential habitat along the Florida River, a tributary to Salt Creek, and a ditch and wetland on the northwestern survey boundary.**
Birds			

[2] Critical habitat is defined by the USFWS as is a specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection is a specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection http://www.fws.gov/midwest/endangered/saving/CriticalHabitatFactSheet.html.

Species	Federal Status[1]	Habitat Description	Potential to Occur in the Survey Area
Mexican spotted owl (*Strix occidentalis lucida*)	T	Nests in caves, cliffs, or trees in steep-walled canyons with distinct cliff bands and vegetated benches.	None. No caves, cliffs, or steep-walled canyons occur in the survey area.
Southwestern willow flycatcher (*Empidonax traillii extimus*)	**E**	**Breeds in dense, shrubby riparian habitats, usually in close proximity to surface water or saturated soil.**	**Potential. Habitat occurs on the tributary to Salt Creek in the eastern survey area. Individual heard and observed in survey area on two occasions in late June 2012 by an Ecosphere biologist experienced with this species conducting surveys for the Wildlife Hazard Assessment (Ecosphere 2013).**
Western yellow-billed cuckoo (*Coccyzus americanus*)	PT	Breeds in mature cottonwood gallery forests with dense understory vegetation.	None. No cottonwood gallery forests with adequate understory vegetation occur in the survey area.
Fish			
Bonytail chub (*Gila elegans*)	E	Pools and eddies of large main stem rivers; tributaries of the Colorado River.	None. Species does not have potential to occur in the San Juan River Drainage.
Colorado pikeminnow (*Ptychocheilus lucius*)	E	Large rivers with strong currents, deep pools, and quiet backwaters; tributaries of the Colorado and San Juan Rivers.	None. May be affected by water depletions from the San Juan River.
Humpback chub (*Gila cypha*)	E	Deep, fast-moving, turbid waters often associated with large boulders and steep cliffs. Occurs in the Upper Colorado River basin.	None. Species does not have potential to occur in the San Juan River Drainage.
Razorback sucker (*Xyrauchen texanus*)	E	Deep, clear to turbid waters of large rivers and some reservoirs over mud, sand or gravel.	None. May be affected by water depletions from the San Juan River.
Plants			
Knowlton's cactus (*Pediocactus knowltonii*)	E	Piñon-juniper woodland and sagebrush with loamy, gravelly alluvial soils.	None. Although the survey area contains habitat with vegetation and cobbles that appear similar, the soil type and geology is

Species	Federal Status[1]	Habitat Description	Potential to Occur in the Survey Area
			different from the known population.
Schmoll's milkvetch (*Astragalus schmolliae*)	C	Thin, wind-deposited, sandy/gravelly soil on mature piñon-juniper woodland mesa-top and mesa terraces at elevations of 6,790-7,000 feet.	None. Known only from the Mesa Verde area.
Insects			
Uncompahgre fritillary butterfly (*Boloria acrocnema*)	E	Alpine environments above 12,000 feet elevation; host plant is snow willow.	None. Alpine environments do not occur in the survey area.

[1] E = endangered; T = threatened; PT = proposed threatened; C = candidate

Bolded text indicates species has the potential to occur in the survey area.

Both the endangered southwestern willow flycatcher and the endangered New Mexico meadow jumping mouse have potential to occur within the survey area as identified during field surveys. The remaining 10 listed species were eliminated from further discussion due to a lack of habitat in the survey area or because their known range is beyond the survey area (Table 5-1). Critical habitat, as identified by iPaC, does not occur in the survey area for either of these species. Both southwestern willow flycatcher and New Mexico meadow jumping mouse are discussed in greater detail in Sections 5.2.1 and 5.2.2.

5.2.1 Southwestern Willow Flycatcher – USFWS Endangered

The southwestern willow flycatcher was listed as an endangered species by the USFWS on March 29, 1995. This is one of four recognized subspecies of willow flycatchers in North America. Willow flycatchers are distinguishable from other similar *Empidonax* flycatchers by their song (Sogge et. al. 2010). The southwestern willow flycatcher usually breeds in patchy to dense riparian habitats along streams or wetlands that are near or adjacent to surface water or underlain by saturated soil. Common tree and shrub species comprising nesting habitat include willows (*Salix* spp.), seepwillow (*Baccharis* spp.), boxelder (*Acer negundo*), stinging nettle (*Urtica* spp.), blackberry (*Rubus* spp.), cottonwood (*Populus* spp.), arrow weed (*Tessaria sericea*), tamarisk (*Tamarix ramosissima*), and Russian olive (*Elaeagnus angustifolia*) (USFWS 2002). Occupied sites usually consist of dense vegetation in the patch interior or a mosaic of dense patches interspersed with openings and lower vegetation. Standing or flowing water is usually present at the site. Trees and shrubs used for nesting are at least 6 feet in height, with lower stature thickets occurring at higher elevation (USFWS 2002). Flycatchers prefer to nest in dense thickets, which are usually difficult to traverse on foot. Minimum patch size is 0.25 acre for potential breeding habitat, though the average occupied patch size is 21.2 acres (USFWS 2002).

On the east side of the survey area, the ditch and drainage that flow southeast into Salt Creek contain a patch of narrowleaf willow (*Salix exigua*) that meets the size and density needed for willow flycatchers: the patch is 0.5 acres, dense, and the willows range from 5 to 9 feet tall with the taller shrubs in the

southern portion (Photograph 1, Appendix C). The patch is narrow and linear, varying from 20 to 45 feet wide but about 30 feet on average (Photograph 2, Appendix C). Southwestern willow flycatchers have only rarely been found nesting in isolated, narrow, linear riparian habitats that are less than about 30 feet wide, although they will use such linear habitats during migration (Sogge et. al., 2010). Because the patch is small, narrow, and disconnected from other willow habitat, the habitat may be used during migration and less likely for breeding.

The Florida River within the survey area is not suitable southwestern willow flycatcher breeding habitat. The river corridor is heavily grazed, and there are only scattered willow patches, none of which meets the acreage, height, and density requirements (Photograph 3, Appendix C). Suitable habitat is likely present upstream and downstream along the Florida River, but not along the Florida River in the survey area. No other potential southwestern willow flycatcher habitat was observed.

In 2012, an individual southwestern willow flycatcher was heard and observed on two occasions (June 19 and 21, 2012) within the airport boundary (near the boneyard) and along the Florida River by an Ecosphere biologist conducting surveys as part of the Wildlife Hazard Assessment (Ecosphere 2013). Southwestern willow flycatcher generally begin egg laying in mid-May though mid-June (Sogge et al. 2010); therefore, it is unlikely these birds were migrants just passing through the area.

5.2.2 New Mexico Meadow Jumping Mouse – USFWS Endangered

The final rule to list the New Mexico meadow jumping mouse as endangered was published in the Federal Register by the USFWS on June 10, 2014. The subspecies is a habitat specialist occurring in herbaceous wetlands dominated by sedges. Habitat requirements are tall (averaging at least 24 inches), dense, riparian herbaceous vegetation (i.e., plants with no woody tissue) primarily composed of sedges (plants in the Cyperaceae Family) and forbs (broad-leafed herbaceous plants) (USFWS 2014b). Suitable habitat occurs when wetland vegetation achieves full growth potential associated with perennial flowing water (USFWS 2014*b*). Herbaceous vegetation in these community types is composed primarily of sedges (*Carex* spp. or *Schoenoplectus pungens*) and forbs including, but not limited to spikerush (*Eleocharis macrostachya*), beaked sedge, reed canarygrass, rushes (*Juncus* spp. and *Scirpus* spp.); grasses such as bluegrass (*Poa* spp.), slender wheatgrass (*Elymus trachycaulus*), brome (*Bromus* spp.), foxtail barley (*Hordeum jubatum*); and other forbs such as water hemlock (*Cicuta douglasii*), field mint (*Mentha arvense*), and asters (*Aster* spp.) (USFWS 2013).

The New Mexico meadow jumping mouse nests and hibernates in dry upland soils in grassy areas or riparian shrublands, but uses moist soils in riparian zones for feeding. Its range extends an average of 330 feet along banks of permanent waterways (Arizona Game and Fish Department 2007). The New Mexico meadow jumping mouse occurs from 4,500 to 8,000 feet in elevation, with historical records up to 9,600 feet (USFWS 2013).

Three areas contain suitable habitat for the New Mexico meadow jumping mouse. The first area is along the Florida River in the valley west of the airport. The Florida River has fringe wetlands along its banks that contain sedges that are 2 to 3 feet tall and about 4 to 5 feet wide (Photograph 4, Appendix C). A

drainage swale that flows to the Florida River also contains the vegetative characteristics preferred by the mouse (Photograph 5, Appendix C). New Mexico meadow jumping mouse was captured along the Florida River in 2007 (Frey 2008).

The second area occurs along wetlands and a tributary that flows into Salt Creek, on the east side of the survey area and northwest of County Road (CR) 309A between the airport fence and the road (Photograph 6, Appendix C). The ditch/drainage contains standing to slightly flowing water, broadleaf cattails (*Typha latifolia*) in the channel, and dense grasses, rushes and sedges in wetlands that parallel the ditch (Photograph 6). The size of the habitat patch is about 0.9 acres.

Thirdly, suitable habitat occurs in the large portion of the survey area north of Country Road 309A within the wetlands and surrounding ditches; the irrigation return flow water feeds the wetlands in this large field. Within this area dense sedges and grasses approximately 3 to 4 feet tall with both standing and flowing water that appeared to be irrigation return flow from an adjacent flood-irrigated field (Photographs 7 and 8, Appendix C) were observed. The area was leased and irrigated, and currently contains ditches and depressions that provide the vegetation preferred by New Mexico meadow jumping mouse, including some gently flowing water scattered throughout. Therefore, potential habitat occurs throughout the large northern portion of airport property north of County Road 309a; the extent to which should be evaluated in the context of any planning activities.

5.3 Colorado Listed Species with Potential to Occur

Colorado listed threatened and endangered species were reviewed for their potential to occur in the survey area. Thirty-one wildlife species are listed by the State of Colorado (Table 5-2). Of those 31 species, only 2 have the potential to occur in the survey area: southwestern willow flycatcher and burrowing owl (*Athene cunicularia*). The southwestern willow flycatcher (Section 5.2.1) is both a federally endangered species (Section 5.2.1.) and a State Endangered species.

Table 5-2. Colorado Parks and Wildlife Listed Threatened and Endangered Species

Species	State Status[1]	Habitat Description	Potential To Occur In the Survey Area
MAMMALS			
Black-footed ferret (*Mustela nigripes*)	SE	Open grasslands with prairie dog colonies year round.	Although prairie dog towns have not been mapped, they do not appear to be >200 acres around the survey area.
Canada lynx (*Lynx canadensis*)	SE	Large tracts of high elevation (> 8,000 feet) mixed coniferous forest.	None. Survey area does not include mixed coniferous forest. Elevation is below 8,000 ft.
Gray wolf (*Canis lupus*)	SE	Occurs in a variety of habitats where large prey (primarily ungulates) occurs.	None. Gray wolves have been extirpated in Colorado.

Species	State Status[1]	Habitat Description	Potential To Occur In the Survey Area
Grizzly bear (*Ursus arctos*)	SE	Found in a variety of habitats where forage is abundant.	None. Grizzly bears have been extirpated in Colorado.
Kit fox (*Vulpes macrotis*)	SE	Saltbush, shadscale, and greasewood-dominated shrublands.	None. No saltbush, shadscale, or greasewood-dominated shrublands occur in the survey area.
North American River otter (*Lontra canadensis*)	ST	Riparian habitats with an abundant food base of fish and/or crustaceans. Minimum estimated water flow requirement is 10 cubic feet per second.	None. No riparian habitats in survey area. Florida River flows likely fall below minimum 10 cubic feet per second
Preble's meadow jumping mouse (*Zapus hudsonius preblei*)	ST	Riparian areas dominated by shrubby vegetation.	None. Distribution of this species in Colorado is restricted to the front range.
Wolverine (*Gulo gulo*)	SE	Large, remote tracts of boreal forest and alpine tundra.	None. No boreal forest or alpine tundra habitats exist in the survey area.
BIRDS			
Burrowing owl (*Athene cunicularia*)	**ST**	**Dry, open, short-grass plains, usually associated with prairie dog towns.**	**Potential. Prairie dog towns provide suitable nesting and foraging habitat.**
Least tern (*Sterna antillarum*)	SE	Bare or sparsely vegetated sand or dried mudflats along coasts or rivers.	None. No sand or mudflats occur in the survey area.
Lesser prairie chicken (*Tympanuchus pallidicinctus*)	ST	Prefer sandy grasslands with an abundance of mid-grasses, sandsage, and yucca.	None. No sandy grasslands exist in or adjacent to the survey area.
Mexican spotted owl (*Strix occidentalis lucida*)	ST	Nests in caves, cliffs, or trees in steep-walled canyons with distinct cliff bands and vegetated benches.	None. No caves, cliffs, or steep-walled canyons occur in the survey area.
Piping plover (*Charadrius melodus circumcinctus*)	ST	Sandy lakeshore beaches, river sandbars, and sandy wetland pastures.	None. No suitable sandy substrates occur in the survey area.
Plains sharp-tailed grouse (*Tympanuchus phasianellus jamesii*)	SE	Rolling hills with scrub oak thickets and grassy glades. Leks located in meadows, burned areas, or ridges/knolls.	None. Distribution of this species in Colorado is restricted Douglas County.
Southwestern willow flycatcher (*Empidonax traillii extimus*)	**SE**	**Dense, shrubby riparian vegetation, usually in close proximity to surface water or saturated soil.**	**Potential. Habitat occurs on the tributary to Salt Creek in the eastern survey area. Individual heard and observed in survey**

Species	State Status[1]	Habitat Description	Potential To Occur In the Survey Area
			area on two occasions in late July 2012 by an Ecosphere biologist experienced with this species conducting surveys as part of the Wildlife Hazard Assessment (Ecosphere 2013).
Whooping crane (*Grus americana*)	SE	Mudflats around reservoirs and agricultural areas. Winters on salt flats.	None. No mudflats or salt flats exist in the survey area.
AMPHIBIANS			
Boreal toad (*Bufo boreas boreas*)	SE	Springs, streams, ponds, lakes, and marshes in spruce-fir or sub-alpine forests or meadows at elevations > 7,500 feet.	None. Survey area does not include any perennial water sources over 7,500 feet elevation.
FISH			
Arkansas darter (*Etheostoma pallididorsum*)	ST	Clear waters of low current with sandy bottoms and abundant aquatic vegetation. Occurs in tributaries of the Arkansas River.	None. Outside of known range of the species.
Brassy minnow (*Hybognathus hankinsoni*)	ST	Inhabits pools of sluggish clear creeks and small rivers, usually over sand, or gravel. Occurs in South Platte, Republican, and Colorado Rivers.	None. Outside of known range of the species.
Bonytail (*Gila elegans*)	SE	Flowing pools and backwaters in deep water of the Upper Colorado River basin.	None. Outside of known range of the species.
Colorado pikeminnow (*Ptychocheilus lucius*)	ST	Large rivers with strong currents, deep pools, and quiet backwaters; tributaries of the Colorado and San Juan Rivers.	None. May be affected by water depletions from the San Juan River.
Common shiner (*Luxilus cornutus*)	ST	Cool, clear, shaded streams with gravelly bottoms. Occurs in South Platte River and tributaries.	None. Outside of known range of the species.
Greenback cutthroat trout (*Oncorhynchus clarki stomias*)	ST	Cold, clear, gravelly headwater streams with overhanging branches, undercut banks, and eddies behind rubble.	None. Florida River is not a suitable cold, headwater stream.
Humpback chub (*Gila cypha*)	ST	Deep, fast-moving, turbid waters often associated with large boulders and steep cliffs. Occurs in the Upper Colorado River Basin.	None. Outside of known range of the species.

Species	State Status[1]	Habitat Description	Potential To Occur In the Survey Area
Lake chub (*Couesius plumbeus*)	SE	Occupies lake habitats, but migrates to streams to spawn. Extirpated from Colorado	None. Lake chub has been extirpated from Colorado.
Northern redbelly dace (*Phoxinus eos*)	SE	Found in lakes, ponds, bogs, and pools of headwaters and creeks with vegetation. Occurs in the South Platte River Basin.	None. Outside of known range of the species.
Plains minnow (*Hybognathus placitus*)	SE	Rivers with some current, turbid waters, and sandy bottoms. Occurs in South Platte and Republican River Basins,	None. Outside of known range of the species.
Razorback sucker (*Xyrauchen texanus*)	SE	Deep, clear to turbid waters of large rivers and some reservoirs over mud, sand or gravel.	None. May be affected by water depletions from the San Juan River.
Rio Grande sucker (*Catostomus plebeius*)	SE	Small streams with clear pools and riffles. Occurs in Rio Grande Basin.	None. Outside of known range of the species.
Southern redbelly dace (*Phoxinus erythrogaster*)	SE	Small, slow, clear creeks with algae covering the streambed and deep silt deposits. Occurs in a tributary of the Arkansas River.	None. Outside of known range of the species.
Suckermouth minnow (*Phenacobius mirabilis*)	SE	Riffles of warm creeks, streams, and rivers with low to moderate currents. Occurs in mainstem South Platte and tributaries of the Arkansas River.	None. Outside of known range of the species.

[1](SE = State Endangered; ST = State Threatened)

Colorado Parks and Wildlife. http://cpw.state.co.us/learn/Pages/SOC-ThreatenedEndangeredList.aspx. Accessed August 2014.

Bolded text indicates species has the potential to occur in the survey area.

Burrowing owls nest primarily in rodent burrows in grasslands, shrublands, deserts and grassy urban areas (Jones 1998). Potential nesting habitat occurs wherever prairie dog colonies are present. In the survey area, prairie dog colonies are active on and around the runway and terminal, the irrigated fields north of CR 309a, and the valley adjacent to the Florida River. Burrowing owls occur infrequently in La Plata County yet they have been confirmed nesting. In the survey area, no burrowing owls have been detected during past general wildlife surveys (Ecosphere 2013).

5.4 Migratory Birds

5.4.1 Birds of Conservation Concern

A variety of open grassland, sagebrush shrubland, and piñon-juniper woodland bird species were documented during the August survey. Several BCC species were observed, including juniper titmouse (*Baeolophus ridgwayi*), piñon jay (*Gymnorhinus cyanocephalus*), and Lewis's woodpecker (*Melanerpes*

lewis). Additionally, both bald and golden eagle are known to use the survey area. Table 5-3 identifies BCC species in BCR 16 and their habitat associations. Migratory bird nesting depends on the species; raptors begin to nest earlier in the spring while South American migrants begin nesting around early May when they return to the breeding grounds. CPW recommends raptor nesting dates as guidelines to avoid disturbing nesting birds (CPW 2008). Published breeding season dates for small migratory birds are more variable. In general, May 1 to August 1 is a practical timeframe for the majority of birds to nest in the survey area.

Table 5-3. USFWS Birds of Conservation Concern (BCC) Bird Conservation Region (BCR) 16 – Southern Rocky Mountains/Colorado Plateau, with Potential to Occur in the Study Area

Species	Habitat Description	Potential To Occur In the Survey Area
American bittern (*Botaurus lentiginosus*)	**Cattails, rushes, grasses, or sedges of wet meadows or marshes.**	**Potential to occur. Northeastern past irrigated fields contains dense and tall marshy habitat.**
American peregrine falcon (*Falco peregrinus anatum*)	Rugged terrain with rocky cliffs and canyons, 30 to 1,000+ feet high, adjacent to rivers, lakes, or streams.	None. Survey area does not include any rocky cliffs.
Bald eagle (*Haliaeetus leucocephalus*)	**Found around lakes, reservoirs, and rivers. Large branched trees used for nesting, roosting and foraging.**	**Known to occur. Survey area within CPW-defined bald eagle winter concentration area and a known winter roost occurs. Individuals regularly observed in roost trees north of survey area during 2012 surveys conducted for the Wildlife Hazard Assessment (Ecosphere 2013).**
Bendire's thrasher (*Toxostoma bendirei*)	Scrub lands, dry and thin grasslands, open woodland, and cactus.	None. Outside of known range of species.
Black rosy-finch (*Leucosticte atrata*)	Alpine areas above treeline.	None. High elevation habitat is not present.
Brewer's sparrow (*Spizella breweri*)	**Sagebrush shrublands, sagebrush obligate species.**	**Potential to occur. Sagebrush is present east of the runway.**
Brown-capped Rosy Finch (*Leucosticte australis*)	Alpine zone of the high mountains.	None. High elevation habitat is not present.
Cassin's finch (*Haemorhous cassinii*)	**Conifer forests of the high country (8,000 to 11,000 feet), but also will use piñon-juniper woodlands.**	**Potential to occur. Piñon-juniper woodlands provide habitat.**
Chestnut-collared longspur	Short-grass prairie/plains grasslands.	None. Short-grass prairie habitat is not present in the survey area.

Species	Habitat Description	Potential To Occur In the Survey Area
(*Calcarius ornatus*)		
Ferruginous hawk (*Buteo regalis*)	**Flat or rolling terrain in grassland, shrub-steppe, and desert habitats.**	**Potential to occur. Grassland, shrub-steppe, or desert habitats occur in the survey area. Prairie dog towns provide prey base.**
Flammulated owl (*Psiloscops flammeolus*)	Ponderosa pine, aspen, or mixed conifer forests with cavities for nesting, open forests for foraging, and dense shrubs for roosting.	None. The southwestern wooded slope is narrow and does not provide the preferred "forest" structure.
Golden eagle (*Aquila chrysaetos*)	**Open habitat with grasslands, shrublands, and farmlands for foraging. Nests on cliffs or in trees.**	**Known to occur. Nest occurs in survey area and prairie dog colonies provide foraging.**
Grasshopper sparrow (*Ammodramus savannarum*)	Tall grasslands of the prairies.	None. Outside of the known range of the species.
Grace's warbler (*Setophaga graciae*)	**Ponderosa pine forest with a scrub oak understory.**	**Potential to occur. Some ponderosa pine present on the southwestern slopes, but not extensive.**
Gray vireo (*Vireo vicinior*)	**Piñon-juniper woodlands with an open, grassy understory.**	**Potential to occur. Slopes to the mesa contain piñon-juniper woodlands.**
Gunnison sage grouse (*Centrocercus minimus*)	Big sagebrush shrub-steppes with low vegetation.	Although the survey area is within the historical range for this species, development precludes potential habitat for this species and this species has been extirpated from this area.
Juniper titmouse (*Baeolophus ridgway*i)	**Piñon-juniper woodlands.**	**Known to occur. Southwestern survey area.**
Lewis's woodpecker (*Melanerpes lewis*)	**Open pine forests, areas with abundant snags and stumps, riparian areas with cottonwoods, and piñon-juniper woodlands.**	**Known to occur. Northeastern survey area.**
Long-billed curlew (*Numenius americanus*)	Short-grass prairies.	None. Outside of the known range of the species.
Mountain plover (*Charadrius montanus*)	Short grass prairies or flat, open (30% bare) grasslands, often associated with prairie dog towns and intensive grazing.	None. Although survey area contains habitat, it is outside the known range of the species.

Species	Habitat Description	Potential To Occur In the Survey Area
Piñon jay (*Gymnorhinus cyanocephalus*)	**Piñon-juniper woodlands.**	**Known to occur. Southwestern survey area.**
Prairie falcon (*Falco mexicanus*)	Nest on cliff faces in open country below 10,000 feet.	None. No cliff faces present.
Veery (*Catharus fuscescens*)	Breed in moist, dense riparian thickets, such as willow carrs or cottonwood saplings, in tangles of alders and willows.	None. Outside of known range of species.
Western snowy plover (*Charadrius alexandrinus*)	Alkali flats around reservoirs; migrants use mudflats and sandy shorelines.	None. No alkali flats, mudflats, or sandy shoreline habitats occur in the survey area.

Bolded text indicates species has the potential to occur in the survey area.

5.4.2 Bald and Golden Eagle Protection Act

A golden eagle nest is located in the southwestern portion of the survey area in a ponderosa pine tree on a slope between the mesa top and the Florida River. This golden eagle territory was first documented in 2006. The nest successfully fledged young in 2006 and has been successful in several other years since then. Although golden eagles were observed by airport staff in the vicinity of the airport in 2014 (Dennis Ray, Fire Chief/Operations Manager, personal communication), a biologist from Ecosphere monitored the nest in early 2014 and determined in was inactive. In August 2014, Ecosphere observed the nest in poor condition, with no fresh whitewash or prey remains below it (Photograph 9, Appendix C).

CPW identifies the survey area as bald eagle winter concentration with winter roost sites straddling CR 309a (Figure 3, Appendix A; CPW 2013). CPW defines a bald eagle winter concentration as areas within an existing winter range where eagles concentrate between November 15 and April 1. These areas may be associated with roost sites. Roost Sites are defined as individual trees or groups of trees that provide diurnal and/or nocturnal perches for less than 15 wintering bald eagles, and includes a buffer zone extending 0.25-miles around these sites.

Ecosphere documented bald eagles roosting in three tree snags in this area in 2011 and 2012 while conducting surveys of potential wildlife hazards as part of the Wildlife Hazard Assessment (Ecosphere 2013); however, airport staff removed the trees to eliminate the hazard of eagles roosting so close to the runway. A group of three partially dead cottonwood trees still occur in the northeastern portion of the field, two of which are located on the city-owned property (Photograph 10, Appendix C). These trees all possess the large, open-branch structure preferred for roosting and are likely to attract eagles to use them in the future, since bald eagle populations are increasing nationwide.

No bald eagle nests are known to occur in the survey area; however, good nesting trees are present along the Florida River in the valley below the Airport.

5.5 Unique Wildlife Habitats

The general area that includes the survey area is also identified as severe winter range for both elk (*Cervus elaphus*) and mule deer (*Odocoileus hemionus*) by CPW (CPW 2013). Severe winter range is defined as that part of the range where 90 percent of the individuals are located when the annual snowpack is at its maximum and/or temperatures are at a minimum in the two worst winters out of ten. An elk highway crossing, where elk movements traditionally cross roads and present potential animal-vehicle collisions, is also identified near the airport entrance (Figure 3, Appendix A) (CPW 2013).

Three ponds were observed in the fields northeast of the runway and across CR 309a. These ponds provide habitat for migratory waterfowl and amphibians, and a potential food source (i.e., ducks) for bald and golden eagles (Photograph 10). The irrigated fields northeast of the runway provide suitable nesting habitat for marsh-birds such as American bittern (*Botaurus lentiginosus*). A herd of about 15 mule deer bucks were using the fields for resting, foraging, and cover on August 29, 2014.

The prairie dog colony surrounding the runway and within the fenced boundaries was very active during the surveys in August with (Photograph 11). Pocket gophers, open grassland songbirds, and raptors were all seen using the prairie dog colony on August 26, 2014.

A suspected stick raptor nest was observed in a cottonwood tree on the southeast survey area on August 29. Raptors will re-use nests year to year. It is possible that other raptor nests exist in the piñon-juniper woodlands surrounding the airport and could be a concern if construction is planned close to them during the breeding season.

5.6 Noxious Weeds

A variety of noxious weeds were observed in the survey area during the August surveys. Colorado List B species are invasive weeds with populations of varying distribution and densities within the state. The level of mandated control is based on local conditions; the List B species observed are all enforceable in La Plata County. List B species observed in the survey area include: bull thistle (*Cirsium vulgare*), Canada thistle (*Cirsium arvense*), houndstongue (*Cynoglossum officinale*), musk thistle (*Carduus nutans*), oxeye daisy (*Chrysanthemum leucanthemum*), Russian knapweed (*Acroptilon repens*), Russian-olive (*Elaeagnus angustifolia*), salt cedar (*Tamarix sp*.), and Scotch thistle (*Onopordum acanthium*). List C species, which are widespread and common within the state, include chicory *(Cichorium intybus*), common mullein (*Verbascum thapsus*), field bindweed (*Convolvulus arvensis*), and redstem filaree (*Erodium cicutarium*).

6. Discussion and Recommendations

In order to comply with the state and federal environmental regulations outlined in this document, Ecosphere recommends the following actions:

Potential breeding habitat for southwestern willow flycatcher occurs along CR 309a; therefore, Ecosphere suggests the following:

- Conduct USFWS protocol surveys by a permitted biologist to determine the presence or absence of any southwestern willow flycatcher.
- Initiate discussions with the USFWS to determine the extent of survey requirements: surveys are only valid for one year.

Potential habitat for New Mexico meadow jumping mouse occurs at three locations within the survey area and was documented on the Florida River in 2007 (Frey 2008). Therefore, to determine presence or absence of the species in those areas Ecosphere suggests the following:

- Conduct USFWS protocol survey for Mexico meadow jumping mouse by a permitted biologist.
- Contact USFWS for "Interim Survey Guidelines for the New Mexico Meadow Jumping Mouse," which are currently in preparation.

In 2009, a golden eagle nest in the survey area blew down presumably from natural causes. A pair of golden eagle was observed in 2010; in 2011 the nest was rebuilt and a nesting attempt was, but failed. In 2012 the nest was again successful. Therefore, even though the nest was inactive in 2014 and the nest is in somewhat dilapidated condition, the pair have demonstrated they could repair the nest and successfully breed again in the future. Golden eagles typically maintain more than one nest in a territory so an alternate golden eagle nest may also occur in vicinity of the airport.

Consequently, Ecosphere suggests the following:

- Monitor the known golden eagle nest beginning this breeding season (January/February).
- Pedestrian surveys to locate alternate golden eagle nests within the known territory.

To avoid the potential for bald eagles to roost near the project during construction and avoid seasonal restrictions on construction activity, Ecosphere suggests the following:

- Remove the two cottonwood trees that are potential bald eagle winter roosts. It is appropriate to do this only outside the bald eagle roosting period from March 16 to November 14.

For other raptors, including burrowing owls and breeding birds all protected by the Migratory Bird Treaty Act, Ecosphere suggests the following to avoid non-compliance:

- Conduct a nesting raptor survey the year of construction to determine active nests (including burrowing owls). Surveys should begin in April to capture the most raptors.
- Avoid ground disturbance or vegetation clearing during the breeding bird season, from approximately May 1 through August 1.
- If ground disturbance/vegetation clearing cannot avoid the May 1 to August 1 timeframe, use a qualified biologist to conduct a nest clearance survey of the project area no more than 5 days

prior to construction. If active nests are found, options are available to avoid impacts to migratory birds while allowing activities to continue; however, agency coordination may be required.

7. REFERENCES

Arizona Game and Fish Department. 2007. Unpublished New Mexico Meadow Jumping Mouse Animal Abstract Compiled and Edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. 6 pp.

Colorado Parks and Wildlife (CPW). 2008. Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors. Colorado Division of Wildlife, Department of Natural Resources, Denver, Colorado.

CPW. 2013. Species Activity Data, Updated October 29, 2013. Accessed August 2014 online at: http://www.arcgis.com/home/group.html?owner=rsacco&title=Colorado%20Parks%20and%20Wildlife%20-%20Species%20Activity%20Data

CPW. 2014. List of state threatened and endangered species: http://cpw.state.co.us/learn/Pages/SOC-ThreatenedEndangeredList.aspx, Accessed August 2014.

Ecosphere Environmental Services (Ecosphere). 2013. Durango-La Plata County Airport Wildlife Hazard Assessment Final Report. Prepared for Kip Turner, Director of Aviation, Durango-La Plata County Airport. August 2013. Approved by the Federal Aviation Administration September 3, 2013.

Frey, J.K. 2008. Morphology and genetics of the New Mexico meadow jumping mouse (*Zapus hudsonius luteus*). Draft final report submitted to New Mexico Department of Game and Fish, Santa Fe, 12 June 2008. 70 pp. Unpublished document.

Jones, S.R. (1998). Burrowing Owl. Pp. 220-221 *in* Kingery, H.E., ed. Colorado Breeding Bird Atlas. Colorado Bird Atlas Partnership, Denver, Colorado. 636pp.

Lowry, J. H, Jr., R. D. Ramsey, K. A. Thomas, D.L. Schrupp, W. G. Kepner, T. Sajwaj, J. Kirby, E. Waller, S. Schrader, S. Falzarano, L. Langs Stoner, G. Manis, C. Wallace, K. Schulz, P. Comer, K. Pohs, W. Rieth, C. Velasquez, B. Wolk, K.G., Boykin, L. O'Brien, J. Prior-Magee, D. Bradford and B. Thompson. 2007. Land cover classification and mapping. Chapter 2 in J.S. Prior-Magee, et al., eds. Southwest Regional Gap Analysis Final Report. U.S. Geological Survey, Gap Analysis Program, Moscow, ID.

Sogge, M.K., Ahlers, D., and Sferra, S.J. 2010. A natural history summary and survey protocol for the Southwestern Willow Flycatcher: U.S. Geological Survey Techniques and Methods 2A-10, 38 p.

U.S. Fish and Wildlife Service (USFWS). 2002. Southwestern Willow Flycatcher Recovery Plan. Albuquerque, NM.

USFWS. 2008. Birds of Conservation Concern 2008. United States Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, Virginia. 85 pp. [Online version available at <http://www.fws.gov/migratorybirds/>]

USFWS. 2013. Draft Species Status Assessment Report, New Mexico Meadow Jumping Mouse. Albuquerque, New Mexico. 131 pp.

USFWS. 2014a. Endangered Species Act Species List for La Plata County, Colorado. Available: http://ecos.fws.gov/ipac/wizard/trustResourceList!prepare.action. Accessed September 14, 2014.

USFWS. 2014b. Determination of Endangered Status for the New Mexico Meadow Jumping Mouse throughout its Range. Federal Register Vol. 79, No. 111, June 10, 2014.

Appendix A–Maps of Project Area

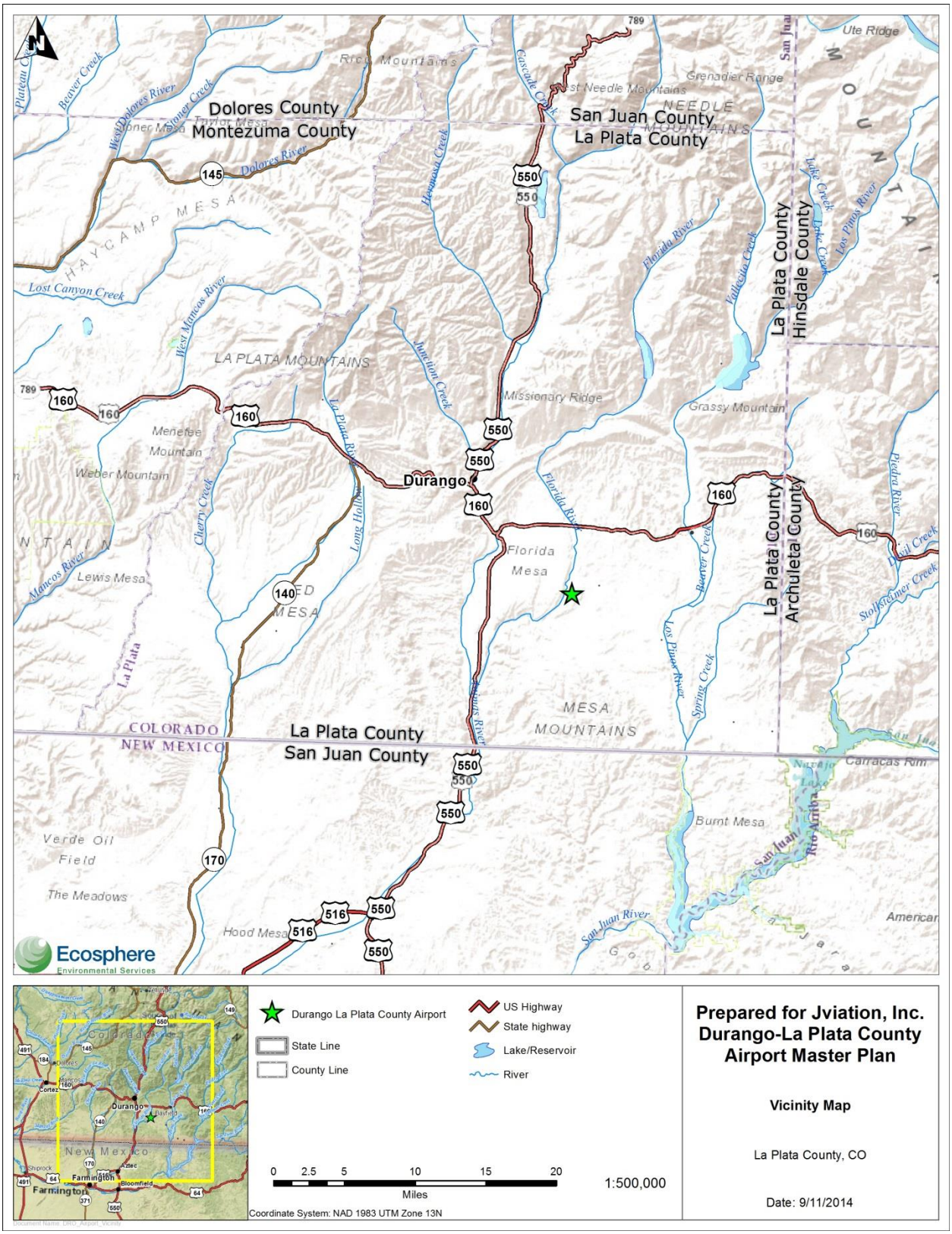


Figure 1: Vicinity of the Durango-La Plata County Airport

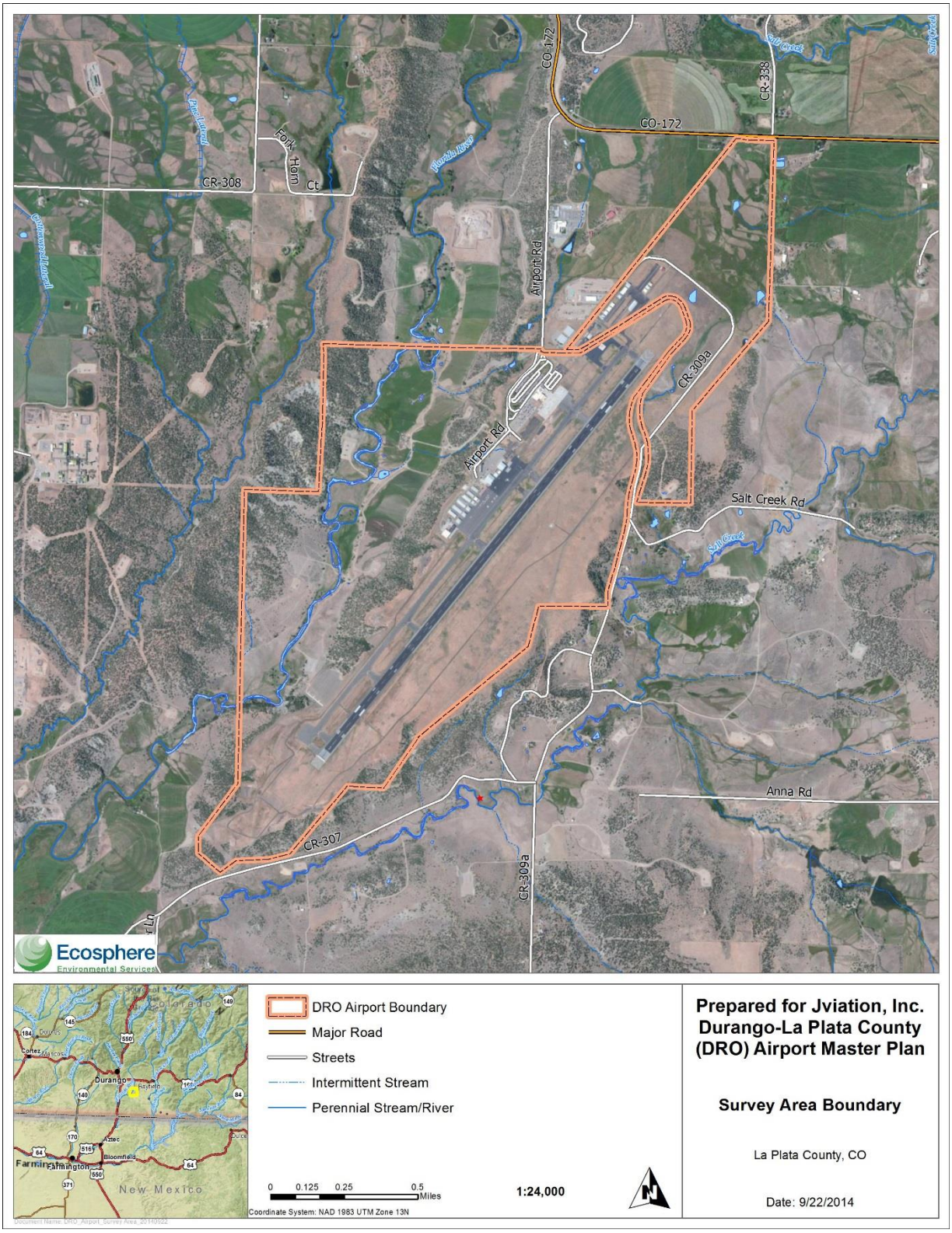


Figure 2: Survey area for biological resources

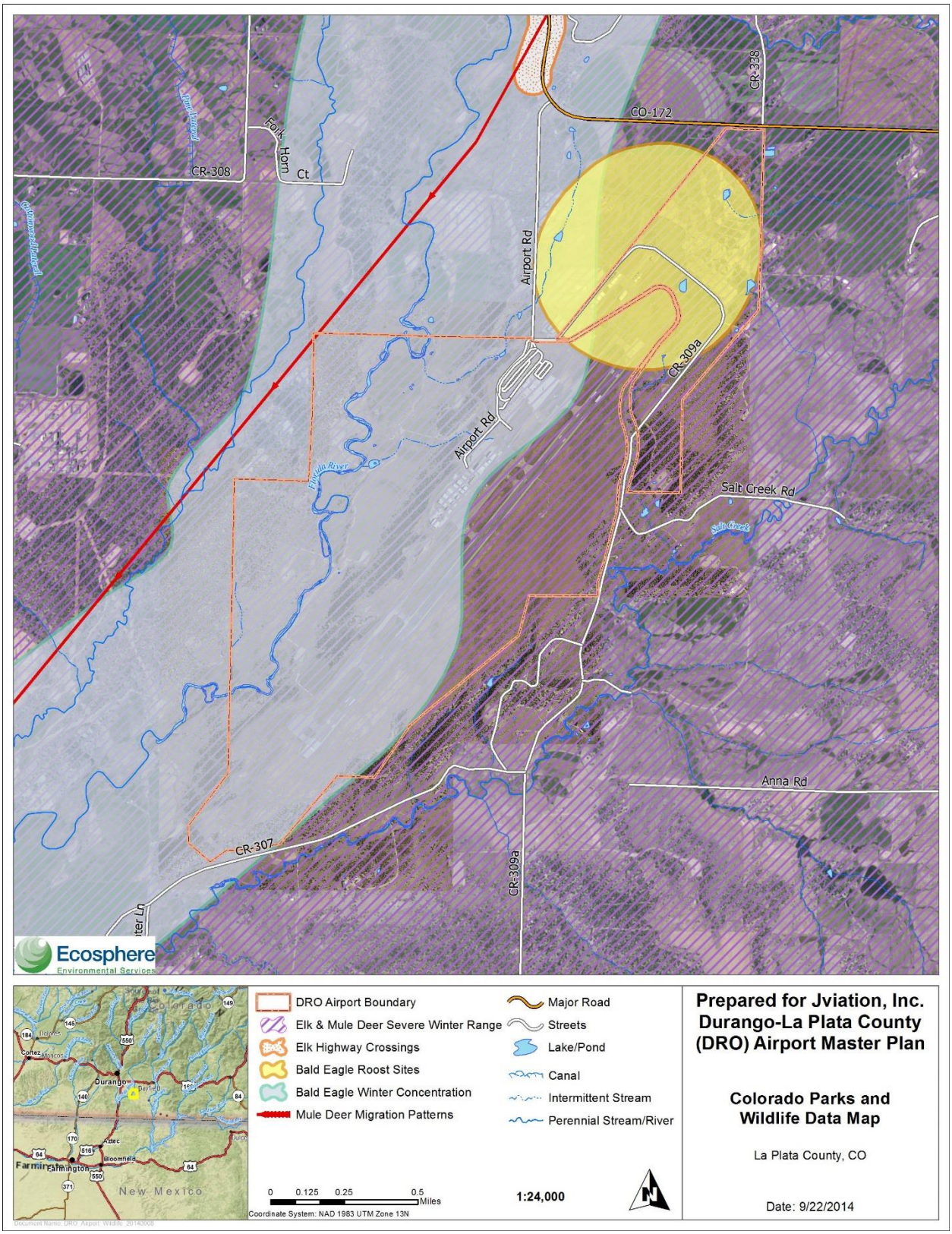


Figure 3: Wildlife habitats in and around the survey area (Colorado Parks and Wildlife 2013)

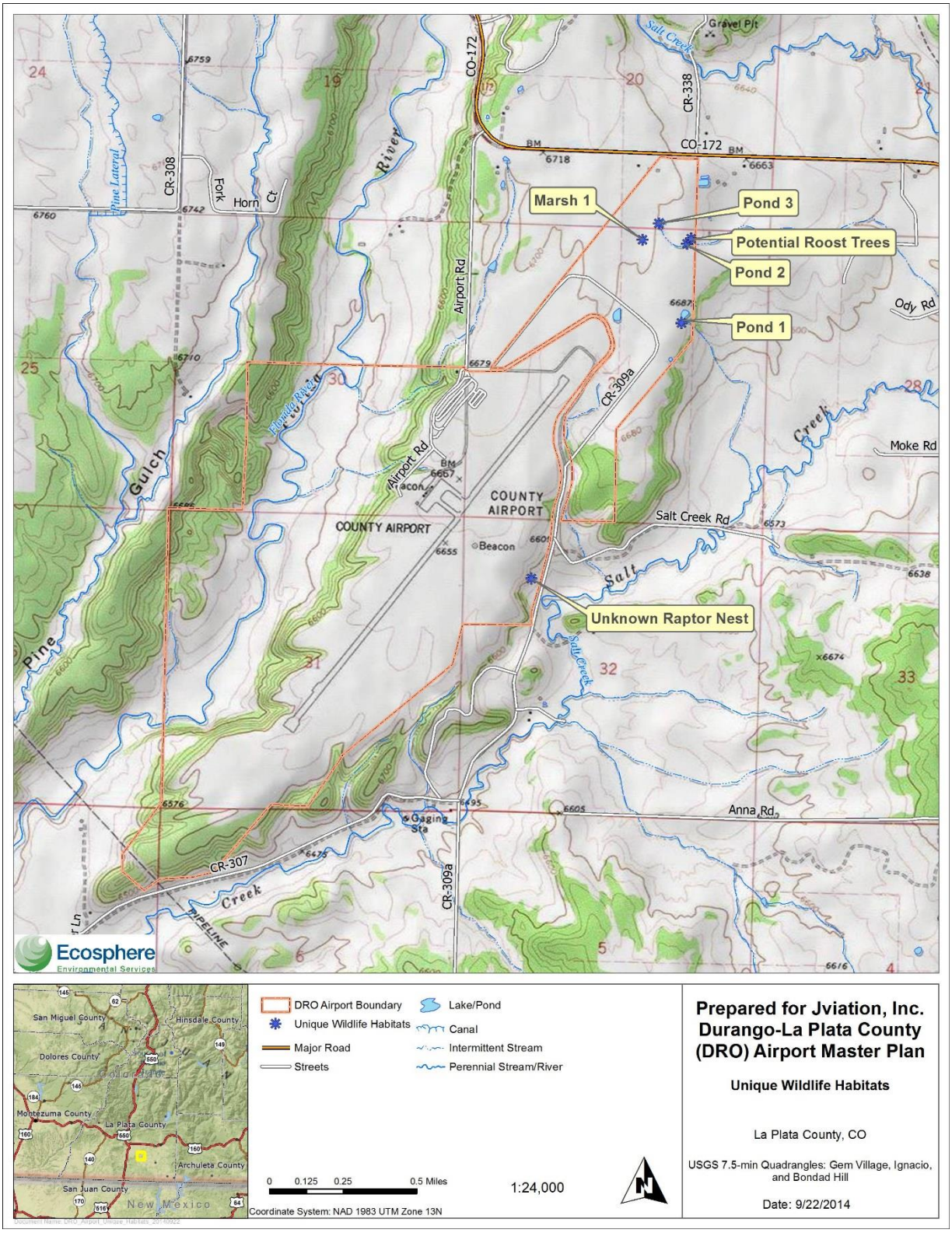


Figure 4: Unique wildlife habitats

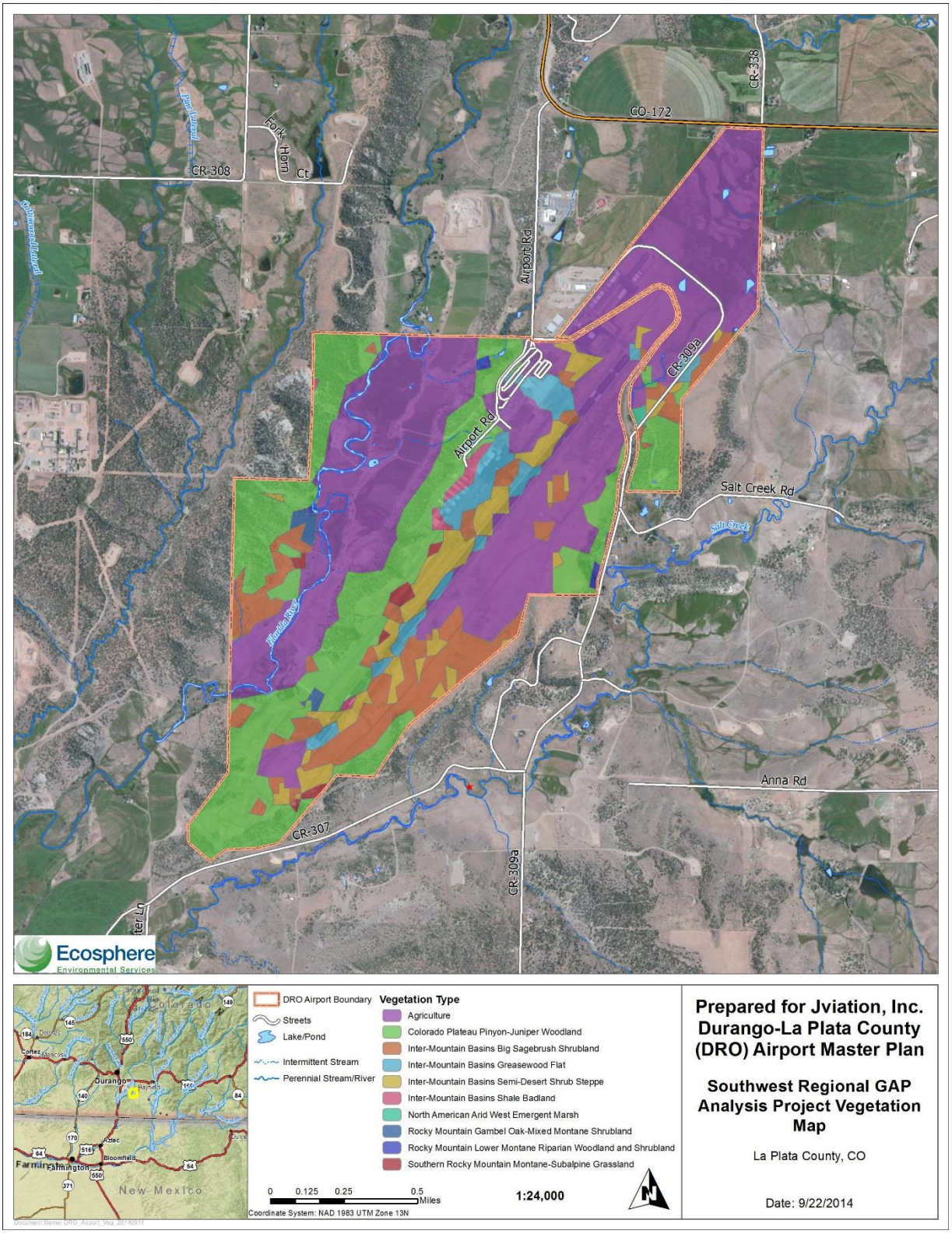


Figure 5: Vegetation communities in the survey area according to Southwest Regional Gap Analysis Project (Lowry et al. 2007)

Appendix B–Wildlife and Plant List

Species	Latin Name
Birds	
American goldfinch	*Spinus tristis*
American robin	*Turdus migratorius*
Ash-throated flycatcher	*Myiarchus cinerascens*
Barn swallow	*Hirundo rustica*
Black-billed magpie	*Pica hudsonia*
Black-capped chickadee	*Poecile atricapillus*
Black-chinned hummingbird	*Archilochus alexandri*
Blue-gray gnatcatcher	*Polioptila caerulea*
Broad-tailed hummingbird	*Selasphorus platycercus*
Brewer's blackbird	*Euphagus cyanocephalus*
Cliff swallow	*Petrochelidon pyrrhonota*
Common raven	*Corvus corax*
Great-blue heron	*Ardea herodias*
Hairy woodpecker	*Picoides villosus*
House finch	*Haemorhous mexicanus*
Juniper titmouse	*Baeolophus ridgwayi*
Lark sparrow	*Chondestes grammacus*
Lesser goldfinch	*Spinus psaltria*
Lewis's woodpecker	*Melanerpes lewis*
MacGillivray's warbler	*Geothlypis tolmiei*
Mallard	*Anas platyrhynchos*
Mountain bluebird	*Sialia currucoides*
Mourning dove	*Zenaida macroura*
Northern flicker	*Colaptes auratus*
Northern mockingbird	*Mimus polyglottos*
Pine siskin	*Spinus pinus*
Red-tailed hawk	*Buteo jamaicensis*
Red-winged blackbird	*Aelaius phoeniceus*
Say's phoebe	*Sayornis saya*

Species	Latin Name
Turkey vulture	*Cathartes aura*
Vesper sparrow	*Pooecetes gramineus*
Violet-green swallow	*Tachycineta thalassina*
Western meadowlark	*Sturnella neglecta*
Western scrub-jay	*Aphelocoma californica*
Western tanager	*Piranga ludoviciana*
Wilson's snipe	*Gallinago delicata*
Mammals	
Mountain cottontail	*Sylvilagus nuttallii*
Mule deer	*Odocoileus hemionus*
Gunnison's prairie dog	*Cynomys gunnisoni*
Grasses	
Indian ricegrass	*Achnatherum hymenoides*
Smooth brome	*Bromus inermis*
Western wheat	*Pascopyrum smithii*
Forbs	
Alfalfa	*Medicago* sp.
Broadleaf cattail	*Typha latifolia*
American wild mint	*Mentha arvensis*
Bull thistle	*Cirsium vulgare*
Chicory	*Cichorium intybus*
Canada thistle	*Cirsium arvense*
Field bindweed	*Convolvulus arvensis*
Houndstongue	*Hieracium cynoglossoides*
Mullein	*Verbascum thapsus*
Musk thistle	*Carduus nutans*
Oxeye daisy	*Leucanthemum vulgare*
Redstem stork's bill	*Erodium cicutarium*
Russian thistle	*Salsola kali*
Russian knapweed	*Acroptilon repens*
Annual yellow sweetclover	*Melilotus indicus*

Species	Latin Name
sunflower	*Helianthus sp.*
Cacti	
Spinystar	*Escobaria vivipara*
Hedgehog cactus	*Echinocereus fendleri*
Pricklypear	*Opuntia polyacantha*
Shrubs	
Big sagebrush	*Artemisia tridentata*
Black sagebrush	*Artemisia nova*
Rubber rabbitbrush	*Ericameria nauseosa*
Gambel's oak	*Quercus gambelii*
Narrowleaf willow	*Salix exigua*
Tamarisk	*Tamarix sp.*
Trees	
Fremont cottonwood	*Populus fremontii*
Two needle piñon	*Pinus edulis*
Narrowleaf cottonwood	*Populus angustifolia*
Ponderosa pine	*Pinus ponderosa*
Rocky Mountain juniper	*Juniperus scopulorum*
Russian olive	*Elaeagnus angustifolia*

Appendix C–PHOTOGRAPHS

Photograph 1: Potential southwestern willow flycatcher habitat, eastern tributary to Salt Creek. (Willows range from 5 to 9 feet tall.)

Photograph 2 : Potential southwestern willow flycatcher habitat, eastern tributary to Salt Creek. (Willows are tall and dense, habitat patch ranges from 20 to 45 feet wide.)

Photograph 3: Florida River lacks shrubs along the banks within the survey area to qualify as potential southwestern willow flycatcher habitat

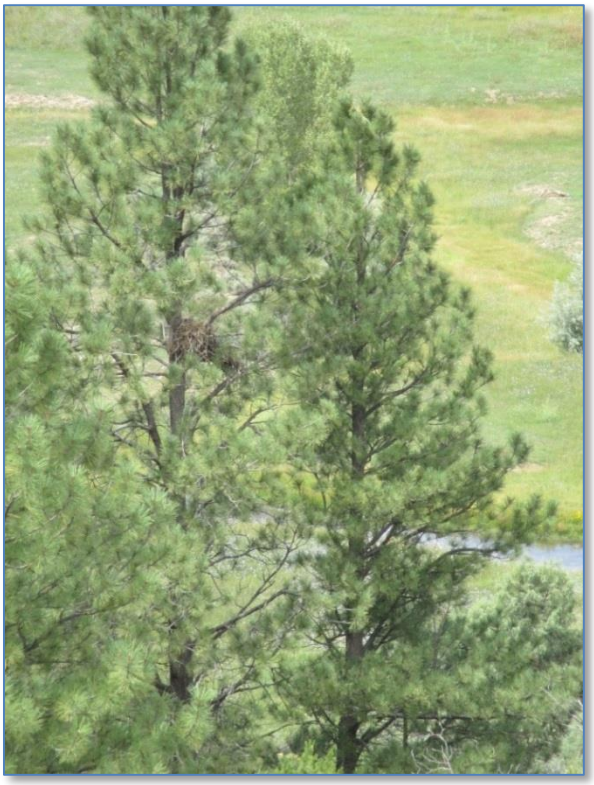
Photograph 4: Looking downstream on the Florida River: potential habitat for New Mexico meadow jumping mouse

Photograph 5: Potential habitat for New Mexico meadow jumping mouse along a wide drainage flowing to the Florida River.

Photograph 6: Potential New Mexico meadow jumping mouse habitat along the eastern drainage to Salt Creek

Photograph 7: Northwestern field containing potential New Mexico meadow jumping mouse habitat

Photograph 8: Rodent (potential mouse) scat in potential habitat shown in photograph 7



Photograph 9: Golden eagle nest

Photograph 10: Potential bald eagle roosts near pond in the northeastern portion of the survey area

Photograph 11: Active Gunnison's prairie dog colony adjacent to the runway

APPENDIX D

PHASE I: ENVIRONMENTAL SITE ASSESSMENT (ESA) – ECOSPHERE ENVIRONMENTAL SERVICES

DURANGO-LA PLATA COUNTY AIRPORT

Phase I
Environmental Site Assessment

Prepared for:

Jviation, Inc.
900 South Broadway, Suite 350
Denver, CO 30326

October 16, 2014

Ecosphere
Environmental Services

Durango, CO
Cortez, CO
Pagosa Springs, CO
Santa Fe, NM
Farmington, NM

TABLE OF CONTENTS

1. Summary 1

2. Introduction 1

2.1 Purpose 1

2.2 Detailed Scope of Services 1

2.3 Limitations and Exceptions 1

2.4 User Reliance 2

3. Site Description 2

3.1 Location and Legal Description 2

3.2 Site and Vicinity General Characteristics 2

3.3 Current Use of the Property 3

3.4 Descriptions of Structures, Roads, Other Improvements on the Site 3

3.5 Current Uses of the Adjoining Properties 3

4. User Provided Information 4

4.1 Title Records 4

4.2 Valuation Reduction for Environmental Issues 4

4.3 Reason for Performing Phase I 4

4.3.1 Records Review 4

4.4 Standard Environmental Record Sources 5

4.5 Federal Regulatory Records 6

4.5.1 State Regulatory Records 6

4.6 Additional Environmental Record Sources 6

4.7 Historical Use Information on the Property 6

4.8 Historical Use Information on Adjoining Properties 6

5. Site Reconnaissance 7

5.1 Methodology and Limiting Conditions 7

5.2 Buildings and Structures 7

5.3 On-site Chemical Storage 8

5.4 Storage Tanks 8

5.5 Electrical Transformers and Potential PCB Sources 8

5.6 Waste Disposal 9
5.7 Odors 9
5.8 Reported Spills/Leaks/Releases 9
5.9 Onsite Wells 9
5.10 Stormwater Drainage 10
5.11 Hydrocarbon Stained Soils and Drips 10
6. Interviews 11
7. Findings and Conclusions 11
8. Opinion 11
9. Deviations 11
10. References 12
11. Statement of Environmental Professional 13
12. Qualification of Environmental Professional 13
Appendix A : Site Maps A-1
Appendix B : Regulatory Records Review Documentation B-1
Appendix C : Site Photographs Taken During Reconnaissance Survey C-1
Appendix D : Qualifications of the Environmental Professional D-1

LIST OF TABLES

Table 1. Airport Ownership 4

LIST OF FIGURES

Figure 1. Project Vicinity Map A-2
Figure 2. Phase I Detail Map A-3

LIST OF PHOTOGRAPHS

Photograph 1. Airport AVGAS Tanks C-2
Photograph 2. Airport AVGAS Tank Dispenser area C-2
Photograph 3. Airport hangars and “green box” transformers C-3
Photograph 4. Airport boneyard C-3

Photograph 5. Airport boneyard.....C-4
Photograph 6. Airport boneyard.....C-4
Photograph 7. Dump in arroyo C-5
Photograph 8. Stormwater outlet near southwest corner of airport.....C-5

ACRONYMS AND ABBREVIATIONS

Airport	Durango-La Plata County Airport
AMPT	Advanced Mobile Propulsion Tests
ARFF	Aircraft Rescue and Fire Fighting
ASTM	American Society for Testing Materials
AST	Aboveground Storage Tank
BMP	Best Management Plan
BP	British Petroleum
CDPHE	Colorado Department of Health and Environment
Ecosphere	Ecosphere Environmental Services
ESA	Phase 1 Environmental Site Assessment
EPA	Environmental Protection Agency
FBO	Fixed-Based Operations
NPDES	National Pollutant Discharge Elimination System
REC	Recognized Environmental Condition
USFS	United States Forest Service
USGS	United States Geological Survey
UST	Underground storage tanks

1. SUMMARY

Ecosphere Environmental Services (Ecosphere) was contracted by Jviation, Inc. to conduct a Phase I Environmental Site Assessment (ESA) to assess potential environmental liabilities for the Durango-La Plata County Airport (the airport) (Appendix A, Figures 1 and 2). The ESA was completed in accordance with American Society for Testing Materials (ASTM) Designation: E1527-13 Standard Practice for Environmental Site Assessments (ASTM 2013).

2. INTRODUCTION

2.1 Purpose

The purpose of the ESA was to evaluate the property and surrounding areas for the presence of recognized environmental conditions (RECs) and/or *de minimis* conditions related to hazardous substances or petroleum products associated with current or historical operations at or near the subject property. *De minimis* conditions are defined by ASTM as environmental conditions that "generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies." A *de minimis* condition is not considered a recognized environmental condition. An example of a *de minimis* condition might be a small, superficial spill of oil that is not anticipated to cause a significant concern.

2.2 Detailed Scope of Services

The scope of work for the ESA included the following:

- Available records review
- Site reconnaissance
- Interviews with persons knowledgeable of the site
- Reporting, researching, and evaluating information

This assessment did not include any testing or sampling of soils, water, potential asbestos-containing material, lead-based paint, urea-formaldehyde, or radon gas. Such sampling activities are not generally included in the scope of a Phase I ESA. If warranted, a Phase II ESA will be recommended to address these issues.

2.3 Limitations and Exceptions

Environmental professionals from Ecosphere performed this ESA using commercial and customary practices in accordance with the ASTM Standard for Environmental Site Assessments (ASTM 2013). Nonetheless, several major qualifications are inherent in the conduct of this or any other environmental due diligence examination:

- It is difficult to predict if any unidentified issues will become actual problems in the future because federal and state regulations continually change, as do the enforcement priorities of the applicable governmental agencies involved.
- The distinct possibility always exists that sources of future environmental liability have yet to manifest themselves to the point where they are reasonably identifiable through an external investigation.
- Ecosphere notes that the results of its investigation represent the application of a variety of engineering and technical disciplines to material facts and conditions associated with the subject property. Many of these facts and conditions are subject to change over time; accordingly, the conclusions and recommendations must be viewed within this context.
- The environmental professionals at Ecosphere shall not be held responsible for conditions or consequences arising from relevant facts that were concealed, withheld, or not fully disclosed at the time the evaluation was performed.
- Several areas of the airport, including private hangers and the Advanced Mobile Propulsion Tests (AMPT) building, were not available for inspection during the site inspection. Please see Section 10 for additional detail.

2.4 User Reliance

Environmental professionals at Ecosphere prepared this report solely for the benefit of its client. This report may be disclosed to third parties who may use and rely upon the report at their discretion. However, any use of or reliance upon this report by any party other than the clients shall be solely at the risk of such party and without legal recourse against Ecosphere or its respective employees.

3. Site Description

3.1 Location and Legal Description

The airport is situated in the foothills of the San Juan Mountains in southwestern Colorado, approximately 8 miles southeast of the City of Durango. The airport is located in La Plata County in portions of Sections 29, 30, 31 and 32 of Township 34 North and Range 8 West, New Mexico Principal Meridian on the Loma Linda, Colorado 7.5-minute United States Geological Survey (USGS) quadrangle (Appendix A, Figure 2). The portion of the airport that was included in this Phase I ESA consists of four parcels with La Plata County Assessor numbers 5903-313-00-862, 5903-293-00-864, 5903-311-00-865, and 5903-302-00-866 (Appendix A, Figure 2). The four parcels occupy approximately 486 acres.

3.2 Site and Vicinity General Characteristics

The airport is located on a plateau above the Animas River valley at an approximate elevation of 6,685 feet above mean sea level. The Animas River is located approximately 6.5 miles west of the airport. The south-flowing Florida River, a tributary of the Animas River, is located less than half a mile west of the

airport runway and is the predominant water feature within the airport vicinity. Salt Creek, a minor, intermittent tributary of the Florida River, is located approximately a half mile east of the airport. Existing land use within the airport vicinity is predominantly agricultural/open space with some scattered rural residences, along with some industrial development.

3.3 Current Use of the Property

The property is a commercial airport owned and operated by the City of Durango and La Plata County.

3.4 Descriptions of Structures, Roads, Other Improvements on the Site

The airport facilities include one runway and one parallel taxiway with connecting taxiways that provide aircraft access to the passenger terminal and facilities on the airport. The runway is 9,201 feet long and 150 feet wide and is constructed of asphalt (Appendix A).

The existing 37,000 square foot terminal was built in 1988 and consists of four boarding gates that serve four commercial airlines, four airline counters, five rental car stands, a gift shop, and a café. An asphalt parking lot is located to the west of the terminal building. South of the terminal is the rental car staging area and rental car wash bays.

The airport is currently served with one full-service Fixed Based Operator (FBO). The FBO is located on the west side of the runway, adjacent to a general aviation apron. A series of general aviation aircraft storage hangars are located directly south of the FBO. South of the series of general aviation aircraft storage hangars is a large maintenance building, which also contains the aircraft rescue and firefighting (ARFF) facility. The U.S. Forest Service (USFS) leases an area north of the passenger terminal to maintain an air tanker reloading base capable of handling two retardant aircraft. A second general aviation area consisting of hangars is located north of the terminal and USFS areas.

Advanced Mobile Propulsion Tests (AMPT) leases an area near the east side of the northeast end of the runway. The AMPT facility performs static testing of in-space (handheld) propulsion thrusters. They don't perform manufacturing.

3.5 Current Uses of the Adjoining Properties

Existing land use within the airport vicinity is predominantly agricultural/open space with some scattered rural residences, along with some industrial development. The Crossfire industrial/office complex is located directly north and adjacent to the airport property along the airport access road. A large British Petroleum (BP) office equipment storage area is located to the north of the Crossfire complex. There are industrial plants—natural gas compression stations—located west and northwest of the airport. The property located adjacent to the airport in all other directions is devoted primarily to agricultural uses. As shown in Figure 2 (Appendix A), a series of oil and gas wells are located within a one-mile radius of the airport.

4. User Provided Information

Dennis Ray, Airport Fire Chief/Public Safety Manager, provided a copy of the airport's current Multi-Sector National Discharge Pollution Elimination System (NPDES) permit (US Environmental Protection Agency [USEPA] 2010), as well as several emails describing stormwater management and solid/hazardous waste management practices at the airport.

4.1 Title Records

Property deeds were obtained from the La Plata County Clerk and Recorder's Office (La Plata County Assess 2014). Ownership records for the property are summarized in Table 1.

Table 1. Airport Ownership

Assessor ID	Owner	Size of Parcel (acres)	Location of Parcel
5903-313-00-862	La Plata County and City of Durango	138	South end of runway
5903-293-00-864	La Plata County and City of Durango	128	North of runway
5903-311-00-865	La Plata County and City of Durango	97	South central area of runway
5903-304-00-866	Dove Island Associates c/o Robert Converse Revocable Trust and George Banker	123	North central area of runway

No environmental liens or activity and use limitations were on record at the La Plata County Clerk and Recorder's Office.

4.2 Valuation Reduction for Environmental Issues

No valuation reduction for environmental issues was identified for the airport.

4.3 Reason for Performing Phase I

The purpose of the Phase I ESA is to evaluate the airport for the presence of hazardous substances and petroleum hydrocarbons and to qualify for Landowner Liability Protections under the Brownfields Amendments to the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (as amended, 42 U.S.C. §9601, 40 CFR Part 307).

4.3.1 Records Review

The following section describes data sources used to assess the property for environmental concerns associated with current or historic site operations. An environmental professional from Ecosphere conducted research on readily available records, performed interviews with government agencies and

individuals familiar with the property, reviewed state and federal databases for known sites with recognized environmental conditions, and reviewed available historic information to identify prior use of the subject property.

4.4 Standard Environmental Record Sources

EnviroCheck Solutions, Inc. conducted a search of federal and local government environmental records in accordance with the ASTM-required search distances for ESAs on August 11, 2014. The databases are intended to describe subject properties and/or other identified sites within the specified search distances when they are included in any governmental databases or environmental incident lists. A copy of the database search results, including the search radius for each database, is provided in Appendix B. Each database search was completed to the ASTM specified search radius (EnviroCheck 2014). Environmental databases that were searched include the following:

NPL	National Priority List and Proposed National Priority List; Environmental Protection Agency (EPA)
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System (EPA)
CERCLIS-NFRAP	No Further Action list (EPA)
CORRACTS	Resource Conservation and Recovery Information System Corrective Action Sites (EPA)
RCRA-TSDF	Resource Conservation and Recovery Information System Treatment, Storage and Disposal Facilities (EPA)
ERNS	Emergency Response Notification System (EPA)
SWLF	Solid Waste Landfills (Colorado Department of Health and Environment [CDPHE])
LUST	Leaking Underground Storage Tank Sites (CDPHE)
UST	Underground Storage Tanks (Colorado Division of Oil and Public Safety [CDOPS])
AST	Aboveground Storage Tanks (CDOPS)
DEFENSE	Formerly Used Defense Sites and Department of Defense Sites (U.S. Army Corps of Engineers)
BROWN	Brownfields Cleanup and Reuse Sites (CDPHE)
DEED	Deed Restrictions/Environmental Covenants (CDPHE)
CONTROLS	Institutional and Engineering Controls (EPA)
EMMISSIONS	Air Emission Sites (CDPHE)
HAZNET	Hazardous Waste Information System
ERNS	Emergency Response Notification System (EPA)
GENERATOR	Small and Large Quantity Generators (EPA)
HAZMAT	Hazardous Materials Storage and Incident Records (US Drug Enforcement Agency; EPA)

4.5 Federal Regulatory Records

The airport was listed on the Generator and ERNS federal databases. The Durango La Plata County Airport is classified as a Conditionally Exempt Small Quantity Generator of Hazardous Waste. Under this classification, the airport is prohibited from generating more than 220 pounds or 25 gallons of hazardous waste in any calendar month.

From 1996 to 2010, the airport reported four minor releases of hydrocarbons via the ERNS system. All four cases have been closed.

The BP tank farm located north of the airport reported four minor spills from 1991 to 1996. All cases are closed.

There was no information indicating a REC associated with the property from off-site facilities based on information contained in the Envirocheck database report, distance from the property, presumed groundwater flow direction, and/or regulatory agency status (Envirocheck 2014).

4.5.1 State Regulatory Records

The airport was listed in the LUST (Leaking Underground Storage Tank), and UST (Underground Storage Tank) state regulatory databases. Two LUST cases dating from 1993 and 1998 are both closed. The UST was closed in 1998.

The BP tank farm located to the north of the airport is listed in the AST state regulatory database as having five hydrocarbon ASTs.

4.6 Additional Environmental Record Sources

The U.S. Drug Enforcement Administration National Clandestine Laboratory Register was reviewed for a list of clandestine labs in the State of Colorado. The database contains a list of locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of clandestine drug laboratories or dumpsites. There were no listed sites in La Plata County, Colorado.

4.7 Historical Use Information on the Property

The site was undeveloped prior to the initial airport construction in 1950. On June 14, 1953 the La Plata Field was officially dedicated (Kellie G. Cheever, Museum Assistant, La Plata County Historical Society, personal communication, September 8, 2014).

4.8 Historical Use Information on Adjoining Properties

The properties and vicinity can be described as predominantly agricultural/open space with some scattered rural residences, along with some industrial development. There are industrial plants –natural gas compression stations – located west and northwest of the airport. The property located adjacent to the airport in all other directions is devoted primarily to agricultural uses.

Adjoining properties observed during the site reconnaissance are described below:

- **North**: The Crossfire industrial/office complex, BP office building and warehouse, agricultural, and open space.
- **East**: Agricultural and open space, and residential properties along the east side of Hwy 309A.
- **South**: Agricultural and open space.
- **West**: Florida River, agricultural, open space and scattered rural residences.

The inspection of adjoining properties from curbside and a review of federal, state, and local regulatory agency databases/records did not reveal the presence of off-site sources considered to be RECs associated with the subject property.

5. SITE RECONNAISSANCE

5.1 Methodology and Limiting Conditions

An environmental professional from Ecosphere conducted a site reconnaissance of the property on August 28, 2014. Site reconnaissance included an inspection of the subject property and observation of adjacent parcels. The weather conditions were sunny and mild (approximately 75 degrees Fahrenheit) at the time site reconnaissance.

The site reconnaissance methodology included inspection of most areas within the developed portion of the airport as well as the perimeter of the developed area of the airport. Adjacent properties were observed from the airport perimeter.

Specific issues related to the site reconnaissance are discussed below. Site information presented in this section is based upon the site inspection, USGS topographic maps, and the database search report prepared by EnviroCheck Solutions, Inc. (Appendix B).

5.2 Buildings and Structures

The airport facilities include one runway, along with a parallel taxiway and connecting taxiways that serve the runway and provide aircraft access to the passenger terminal and facilities on the airport (Figure 2, Appendix A).

The passenger terminal occupies 37,000 square feet and consists of four boarding gates serving four commercial airlines, five rental car stands, a gift shop, and a café. An asphalt parking lot is located on the west side of the terminal building.

One FBO is located on the west side of the runway, adjacent to the general aviation apron. A series of general aviation aircraft storage hangars are located directly south of the FBO, T-hangars and executive/corporate hangars. South of the series of general aviation aircraft storage hangars is a large maintenance building.

The ARFF facility is located on the west side of the runway, on the south end of the main apron. Other large buildings at the airport include the USFS hangar and the AMPT facility.

5.3 On-site Chemical Storage

The airport chemical storage includes Jet A fuel, Avgas, gasoline, diesel, anti-freeze, de-icer, and transmission fluid. The USFS facility stores fire retardant chemicals. AMPT stores propellants provided by their customers for thruster testing. The propellants are hazardous, and they typically have anywhere from five to 30 gallons at the site during a test program. Very small quantities of hazardous waste are generated from cleaning operations, such as residuals on swabs and wipes. These are stored in a hazardous waste container and removed at a regular interval by Safety-Kleen (Doudi Barnes, AMPT Chief Engineer, personal communication September 8, 2014).

5.4 Storage Tanks

The airport has an above ground storage tank (AST) tank farm (Photos 1 and 2 Appendix C) near the main hangar that consists of:

- Three 12,000-gallon Jet A fuel tanks with concrete containment
- One 12,000-gallon 100LL AVGAS fuel with concrete containment
- Three de-icing Type I tanks on asphalt with a dirt berm
- Four over-pack salvage drums
- Nineteen de-icing carboys on asphalt with dirt berm
- One 12,000-gallon unleaded fuel tank on asphalt with dirt berm

A spill containment kit is staged at the tank farm and is inspected and inventoried every quarter and resupplied as needed (Anthony Vicari, Airport Operations Specialist, personal communication, September 3, 2014).

The airport maintenance shop uses a 300-gallon used oil tank, which has secondary containment.

There are four 10,000-gallon ASTs adjacent to the USFS hangar for storage of fire retardant. In addition to the ASTs, the USFS will arrange to have a 2,000-gallon jet fuel tanker truck onsite when they are refueling aircraft. There are also three to four jerry cans of gasoline and diesel fuel stored at the facility (Craig French, Airport USFS Manager personal communication, September 3, 2014).

There are several tanks located at the AMPT facility; however, attempts to interview AMPT personnel to obtain information on the tank contents were not successful.

5.5 Electrical Transformers and Potential PCB Sources

Each set of hangars has “green box” type transformer boxes owned by the La Plata Electric Association that are labeled “No PCBs” (Photo 3, Appendix C). There were no surface indications of leaks from the transformers.

5.6 Waste Disposal

Solid waste generated from the airport facilities is collected in storage containers provided by Waste Management, Inc. The containers are emptied on a regular schedule, and all contents are disposed of at the Crouch Mesa Landfill in Farmington, NM.

All sand/oil separators at the rental car - car wash area are inspected quarterly. During these quarterly inspection, measurements are taken to determine the depth of the sand and oil layers. These separators are cleaned as needed by a third party contractor and the material is disposed of at the City of Durango Wastewater Treatment facility (Anthony Vicari, Airport Operations Specialist, personal communication, September 3, 2014).

South of the maintenance building is an airport "boneyard" used to store tires, metal pipes, empty plastic tanks and drums, fencing, metal roofing, electrical wire, a truck, snow plows and two propane tanks on trailers (Photos 4, 5, and 6, Appendix C). No stained soil was visible during the site inspection.

A small dump containing construction material consisting of metal, concrete, and chunks of asphalt was observed in an arroyo near the southeast end of the airport.

There is an asphalt stockpile area located near the southwest corner of the airport, and two fill areas located to the northeast and southwest end of the airport. The fill areas contain wood or concrete boxes with fence posts (Photo 7, Appendix C). No stained soil was visible in these areas during the site inspection.

5.7 Odors

No odors or pungent, noxious smells outside of incoming/outcoming aircraft exhaust were noticed at the time of the property reconnaissance.

5.8 Reported Spills/Leaks/Releases

No spills/leaks/releases from the airport were documented in the EnviroCheck Radius Search Report (Appendix B) since a minor spill in 2010. ARFF personnel respond to all fuel spills at the airport, and their incident reports document the type of fuel, location of spill, the approximate volume and or size of spill, and the measures taken to clean up the spill. In the last five years ARFF personnel have not been dispatched to respond to any fuel spills of reportable size (Dennis Ray, Airport Fire Chief, personal communication, September 5, 2014).

5.9 Onsite Wells

The airport has multiple monitoring wells located within the perimeter fence. These monitoring wells are located in the vicinity of AvFlight's fuel farm and also on the general aviation ramp. The wells located on the general aviation ramp are the oldest set and were routinely sampled by a third party contractor shortly after their installation. The monitoring well located near the fuel farm was installed in 2009 and was also routinely sampled by a third party contractor for a period of time. In the recent years there is no record

of any sampling and or maintenance performed on these wells in either location (Dennis Ray, Airport Fire Chief, personal communication, September 5, 2014).

A 3,320 foot deep BP America natural gas well is located near the airport perimeter. The well has been producing since 2000, and all inspections of the location have been satisfactory with no spills or releases are identified in the inspection record.

5.10 Stormwater Drainage

There are three structural outflow Best Management Practices (BMP's) and two drainage outflows for stormwater drainage at the airport. The first structural outflow drains the terminal building, USFS and the northern one-third of the general aviation area. It is located just west of the water treatment plant and drains into a retention pond that has three paths for outflow. Normal flows are through a twelve-inch concrete pipe through a drainage structure located at ground level. In the event of a major storm water event, the outflow is through the top of the concrete structure which is located approximately three feet above base level. If the storm water flows exceed the carrying capacity of this structure, the water can flow over a concrete encased rip-rap structure onto the drainage rundown structure directly. The rundown structure is concrete encased riprap with a plunge pool at the bottom of the valley to slow the velocity of the water and the potential for erosion. The bottom outflow is capable of being quickly shut down to allow for the impounding and collection of any spilled pollutants prior to their being able to escape to the Florida River.

The second structural outflow BMP is located immediately south of the fire station/operations building and handles drainage from the south aircraft hangar storage area and general aviation parking apron. It is a retention pond with a twelve-inch culvert pipe outflow that is capable of being plugged in the event of a spill of hazardous materials or pollutants.

The third structural outflow is located west of the south end of the runway and drains the area between the west side of the centerline of the runway and the taxiway surfaces. This is primarily an erosion control structure and consists of a concrete rundown structure that spills into a riprap lined retention pond. It is also capable of being blocked in the extremely unlikely event of a spill of hazardous pollutants.

The first drainage outflow drains the north hangar development area through an underground concrete pipe which outflows near the northeast corner of the runway and into an irrigation tributary of Salt Creek. It is capable of being temporarily plugged.

The second drainage outflow drains the east side of the runway and all lands east of the centerline of the runway. It is a sheet flow drainage and drains to the southeast towards Salt Creek (Photo 8, Appendix C). There are no industrial processes on this side of the runway and the only source of pollutants would be the unlikely event of an aircraft accident (Robert Craig, Airport Stormwater Manager, personal communication, September 4, 2014).

5.11 Hydrocarbon Stained Soils and Drips

No stained soils or drips were observed on the property at the time of the property reconnaissance.

6. INTERVIEWS

Ecosphere interviewed the following airport personnel concerning historic and current environmental conditions at the airport:

Dennis Ray, Airport Fire Chief/Public Safety Manager
Anthony Vicari, Airport Operations Specialist
Robert Craig, Airport Stormwater Manager
David Miller, Airport Water and Wastewater Manager
Craig French, Airport USFS Manager
Doudi Barnes, AMPT Chief Engineer
Kellie G. Cheever, Museum Assistant, La Plata County Historical Society

7. FINDINGS AND CONCLUSIONS

Based on a review of available information described in this report, the subject property has a low environmental risk from potential contamination associated with hazardous substances or petroleum hydrocarbons. The basis for the assigned low-risk level is summarized below:

- Environmental records in the general vicinity did not contain records of active industrial facilities, active remediation, or spills within the ASTM radius of the subject property.
- Current land uses in the general vicinity of the airport represent a low risk for potential contamination to the property.
- All fuel storage tanks at the airport are within appropriate secondary containment, and are regularly monitored for spills and leaks. The airport facility has emergency response staff and equipment to provide immediate and appropriate response to any spills or releases that may occur.

8. OPINION

Based on a review of available information described in this report, no information was identified that would constitute a REC associated with the property.

9. DEVIATIONS

The following deviations from the ASTM standard practice occurred during the site reconnaissance:

- The AMPT facility was not inspected due to lack of access, but an interview conducted with Doudi Barnes, AMPT Chief Engineer, stated that AMPT stores only five to 30 gallons of hazardous propellants during testing, and are removed at a regular interval by Safety-Kleen.
- The inside of USFS hangar was not inspected during the site reconnaissance because no one from the USFS was available. A subsequent phone interview the USGS Manager (Craig French) indicates that the USFS facility stores only fire retardant chemicals.
- In the last five years ARFF personnel have not been dispatched to respond to any fuel spills of reportable size at either facility.

Based on a review of available information described in this report, no additional activities are required.

10. REFERENCES

American Society for Testing and Materials (ASTM) 2013. Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process. E1527-13. The American Society for Testing and Materials. West Conshohocken, PA. USA.

EnviroCheck Solutions Radius Search Report, 1000 Airport Road, Durango, Colorado 81303. Project # 20359, Jviation, August 11, 2014.

La Plata County Assessor. 2014. EagleWeb Property Database. Available at: https://eagleweb.laplata.co.us/assessor/taxweb/search.jsp. Accessed September 2, 2014.

U.S. Environmental Protection Agency (USEPA). 2010. Extension of NPDES Permit Coverage for Industrial Stormwater Discharges (COR05A04I)

11. STATEMENT OF ENVIRONMENTAL PROFESSIONAL

The records search, site inspection, and interviews did not identify any recognized environmental conditions associated with the subject property.

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in Section 312.10 of 40 CFR 312. I have the specific qualifications, based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Completed by: Keith Fox, Environmental Professional, and Krista Dearing, Geologist.

Signature: Date: 9/17/2014

Signature: Date: 9/17/2014

12. QUALIFICATION OF ENVIRONMENTAL PROFESSIONAL

Qualifications are attached in Appendix D.

Appendix A: Site Maps

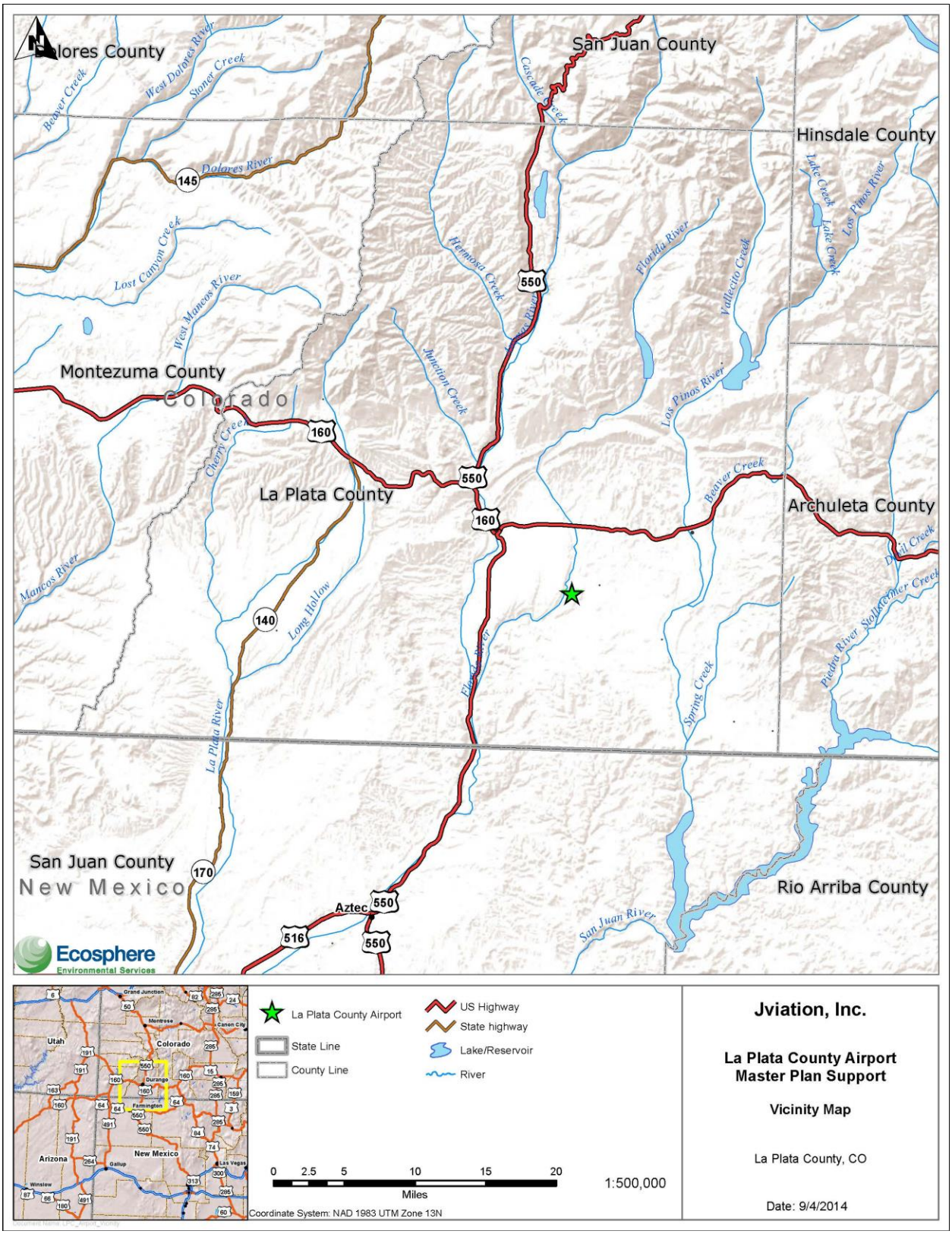


Figure 1. Project Vicinity Map

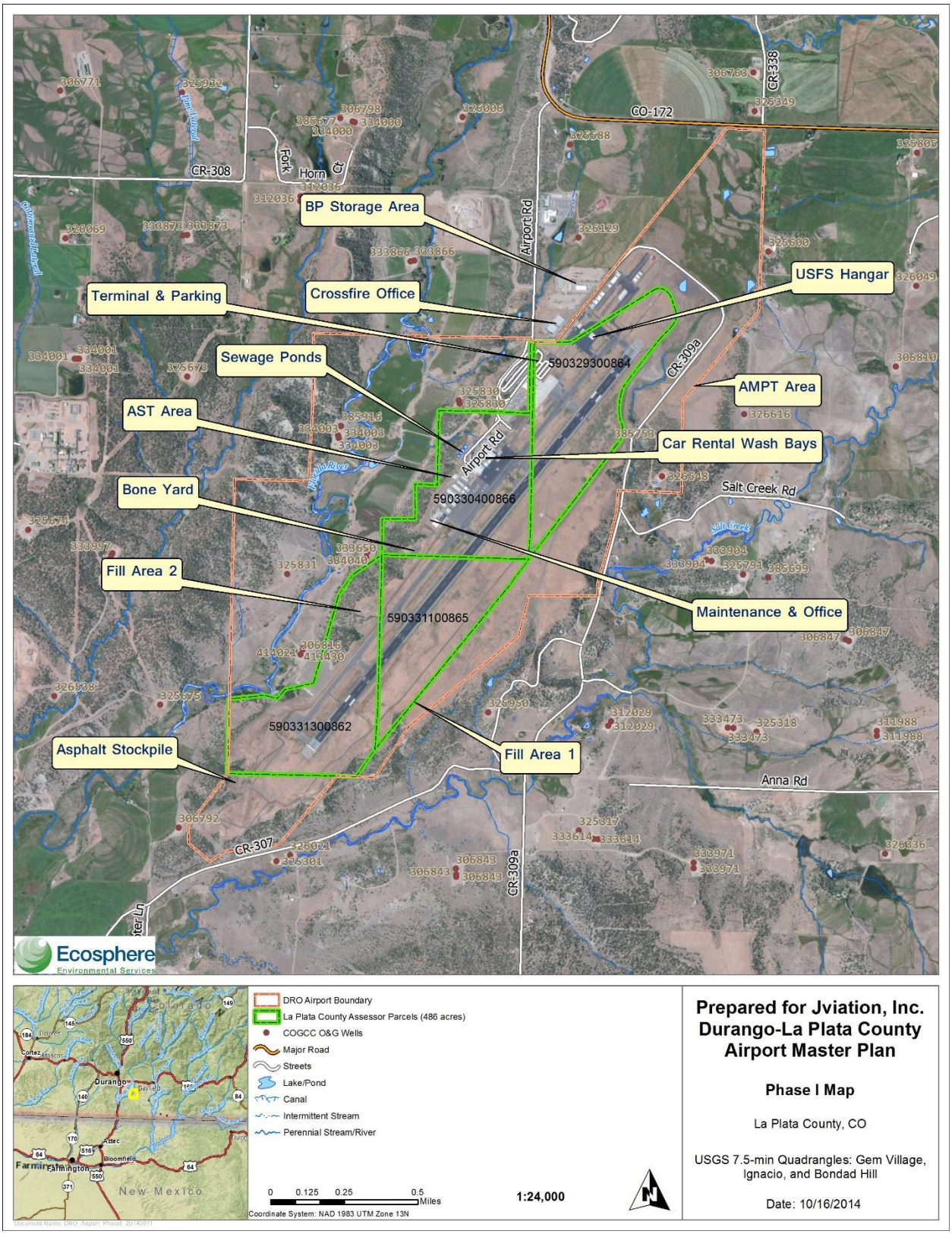


Figure 2. Phase I Detail Map

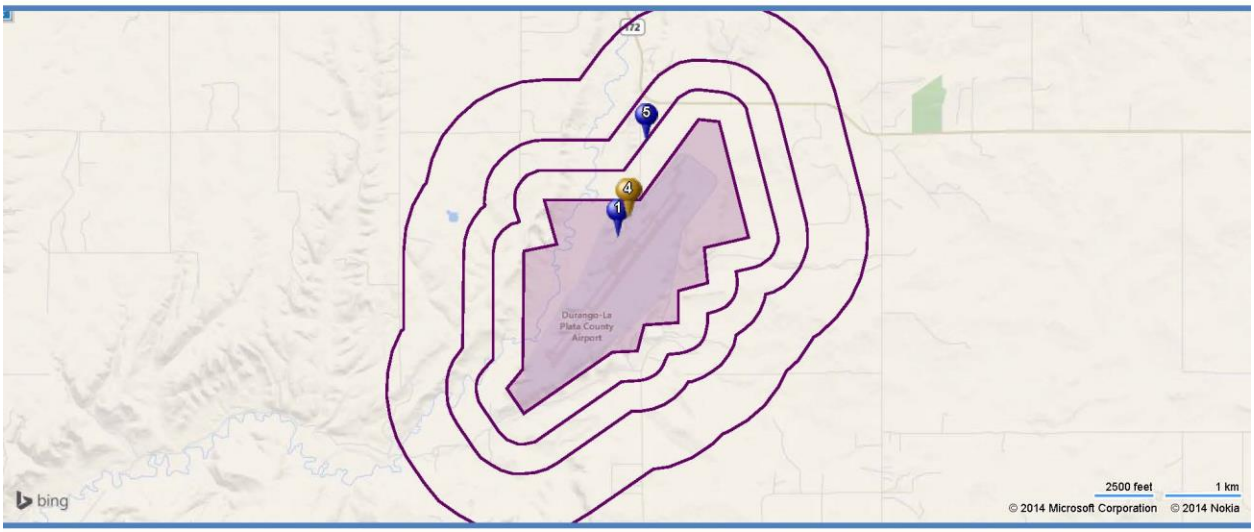
Appendix B: Regulatory Records Review Documentation

EnviroCheck SOLUTIONS

Radius Search Report

1000 Airport Road
Durango, CO 81303

Project #: 20359
Reference: Job Reference: Jviation
Date: Monday 11th of August, 2014



EnviroCheck Solutions, Inc.
9921 Carmel Mountain Road, Suite 381
San Diego, CA 92129
Phone: 866-517-5513
Fax: 858-259-0757
www.envirochecksolutions.com

Powered by the STARReport System

EnviroCheck Radius Search Report

Table of Contents

Cover Page ..... Page 1
Table of Contents ..... Page 2
Site Summary ..... Page 3
Map 1 ..... Page 4
Map 2 ..... Page 5
Site Vicinity Map ..... Page 6
Site Details Summary ..... Page 7
Subject Property Sites ..... Page 8
Surrounding Sites Details ..... Page 23
List of Unlocatable Sites ..... Page 30
About This Report ..... Page 31
Searched Databases ..... Page 32

EnviroCheck Radius Search Report

Site Summary

		Subject Property	Up to 1/4 mile	1/4 mile to 1/2 mile	1/2 mile to 1 mile	Total
Databases Searched to One mile(s)						
NPL	National Priority List (Superfund) Sites	0	0	0	0	0
CORRACT	Corrective Action Sites	0	0	0	0	0
TSD	Treatment, Storage and Disposal Sites	0	0	0	0	0
DEFENSE	Unused and Formerly Used Defense Sites	0	0	0	0	0
BROWN	Brownfields Cleanup and Reuse Sites	0	0	0	0	0
DEED	Deed Restrictions/Environmental Covenants	0	0	0	0	0
Databases Searched to One-Half mile(s)						
CERCLIS	CERCLIS/Superfund Database	0	0	0	-	0
CONTROLS	Institutional and Engineering Controls	0	0	0	-	0
LUST	Leaking Underground Storage Tanks	1	1	0	-	2
SWLF	Solid Waste Landfills	0	0	0	-	0
EMISSIONS	Air Emissions Sites	0	0	0	-	0
HAZNET	Hazardous Waste Information System	0	0	0	-	0
Databases Searched to One-Quarter mile(s)						
ERNS	Emergency Response Notification System	4	4	-	-	8
GENERATOR	Small and Large Quantity Generators	2	0	-	-	2
UST	Underground Storage Tank Sites	1	0	-	-	1
AST	Aboveground Storage Tanks	0	1	-	-	1
HAZMAT	Hazardous Materials Storage and Incident Records	0	0	-	-	0
	Totals	8	6	0	0	14

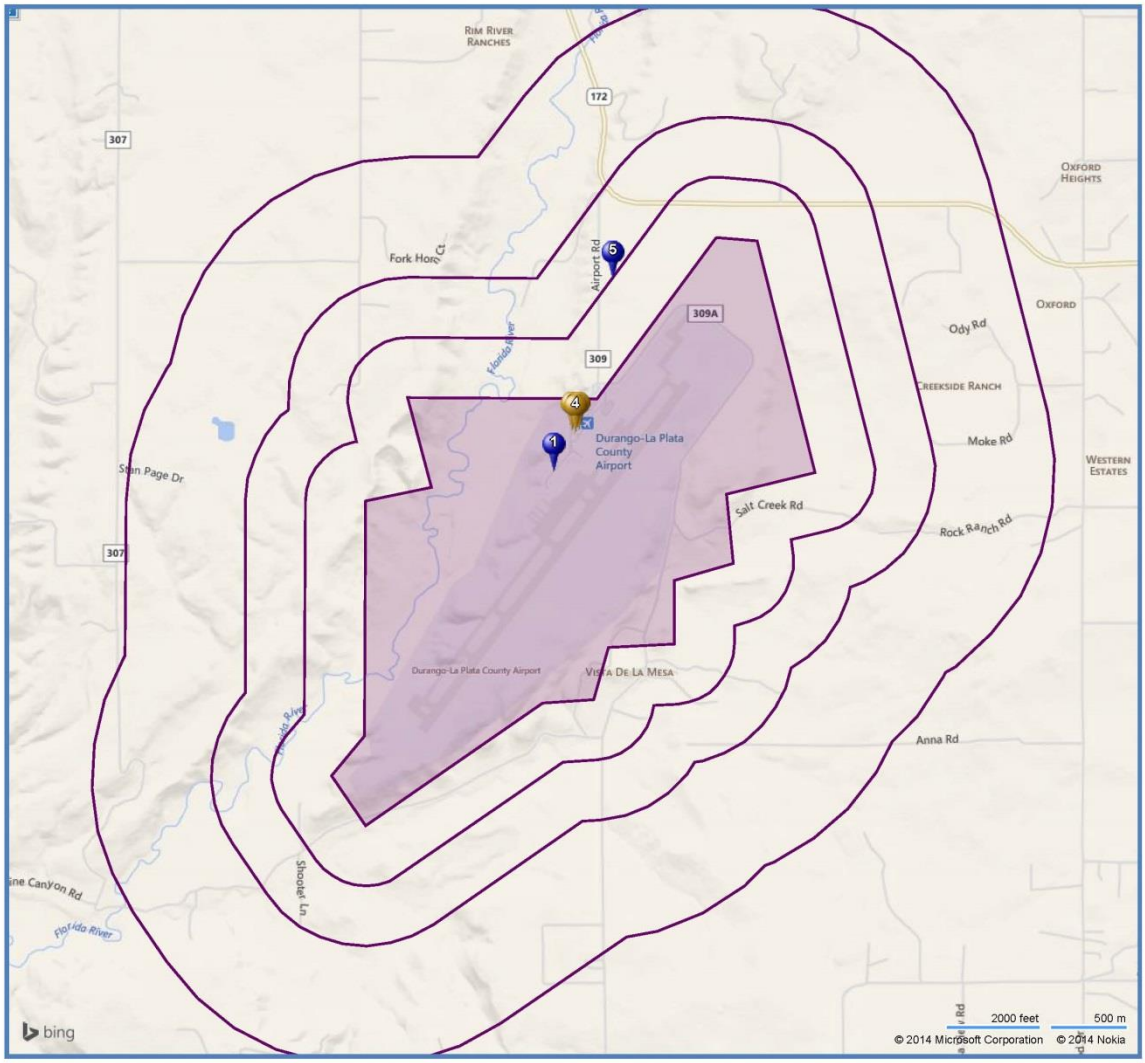
1000 Airport Road, Durango, CO 81303

EnviroCheck Solutions, Inc.
v. 866-517-5513 - f.858-259-0757
www.envirochecksolutions.com

Page 3
8/11/2014

EnviroCheck Radius Search Report

Map 1



Site Searched to One-Quarter Mile

Site Searched to One-Half Mile

Site Searched to One Mile

Subject Property

N

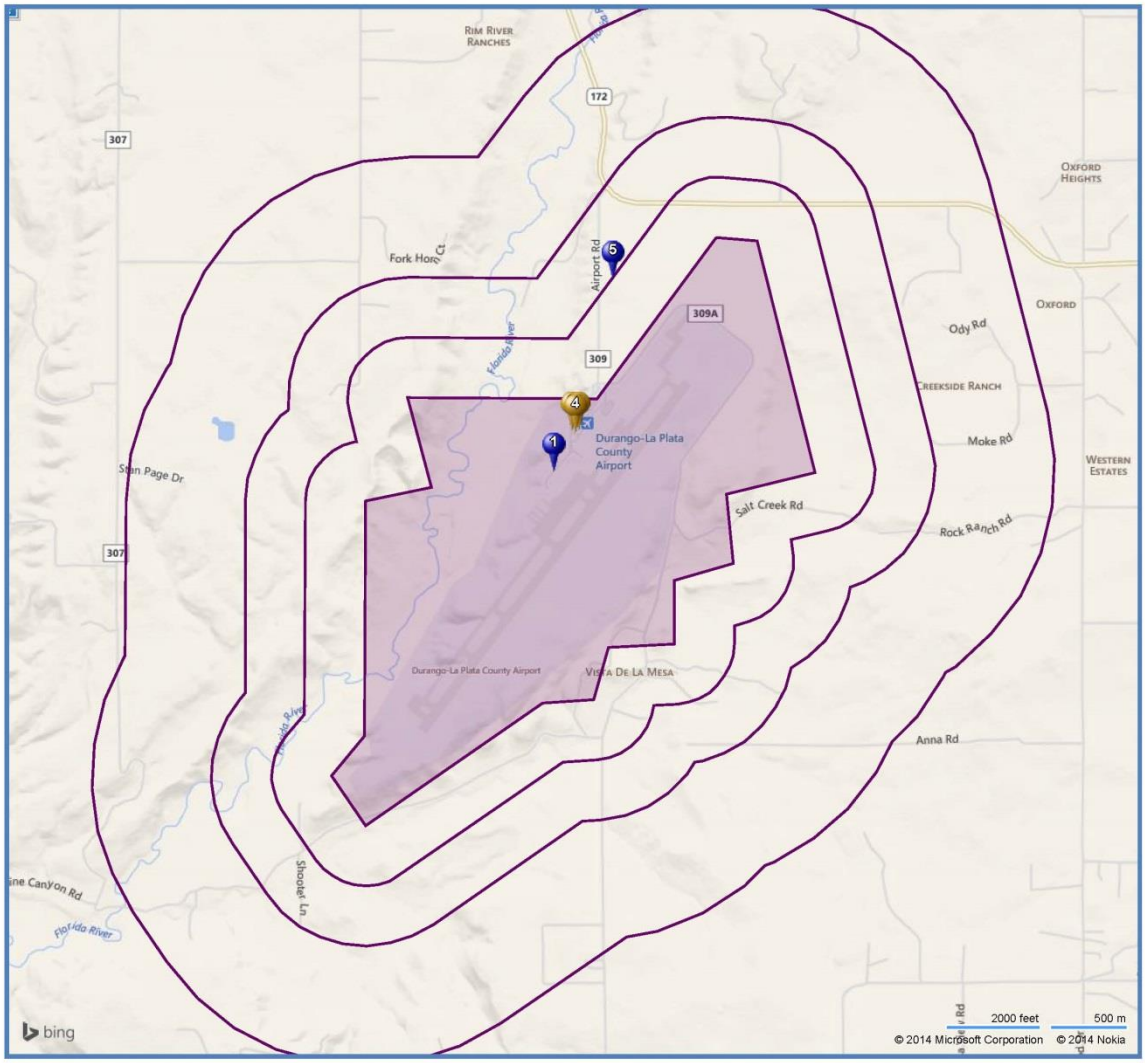
1000 Airport Road, Durango, CO 81303

Page 4
8/11/2014

EnviroCheck Solutions, Inc.
v. 866-517-5513 - f.858-259-0757
www.envirochecksolutions.com

EnviroCheck Radius Search Report

Map 2



Site Searched to One-Quarter Mile

Site Searched to One-Half Mile

Site Searched to One Mile

Subject Property

N

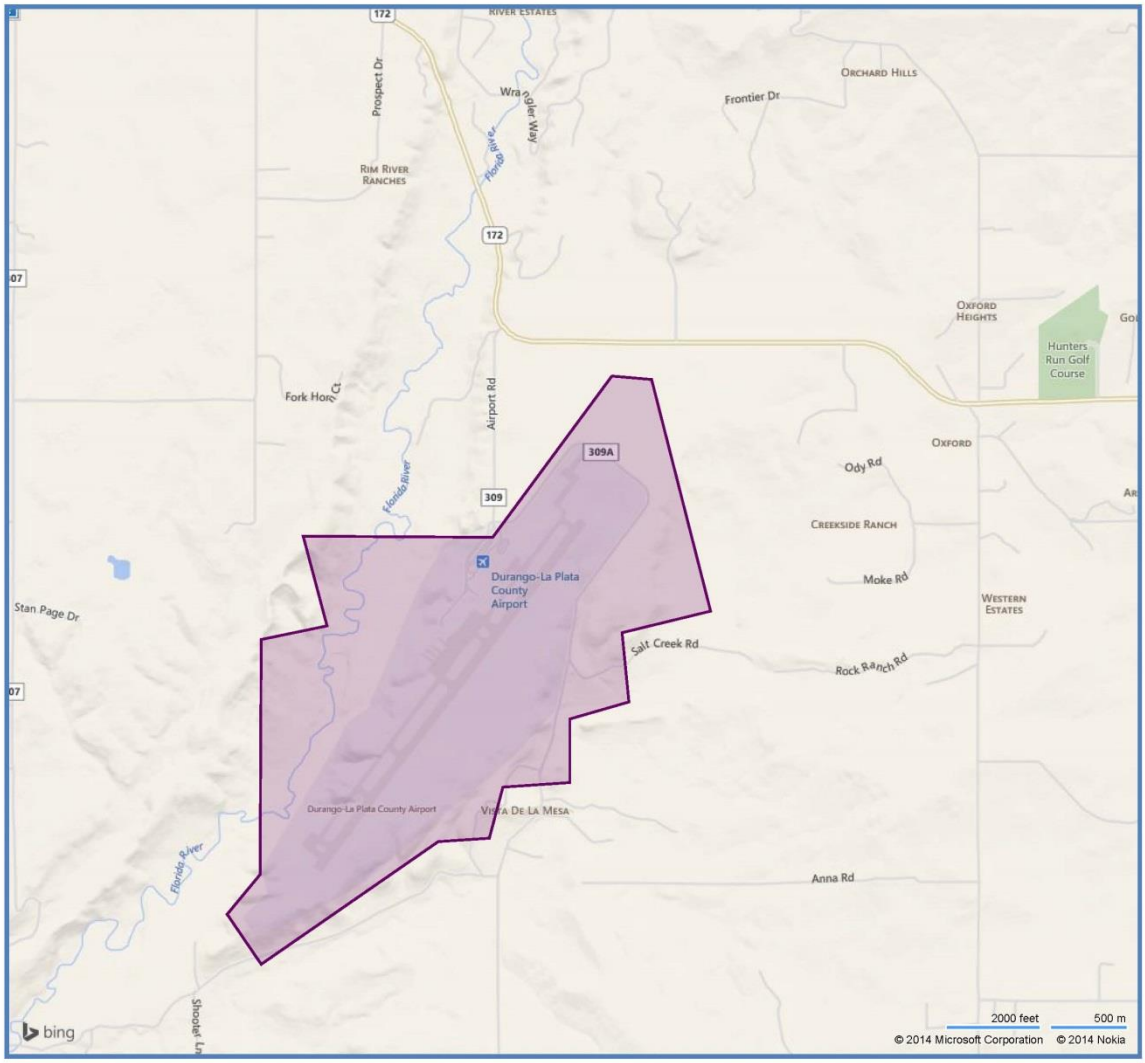
1000 Airport Road, Durango, CO 81303

Page 5
8/11/2014

EnviroCheck Solutions, Inc.
v. 866-517-5513 - f.858-259-0757
www.envirochecksolutions.com

EnviroCheck Radius Search Report

Site Vicinity Map



Site Searched to One-Quarter Mile

Site Searched to One-Half Mile

Site Searched to One Mile

N

1000 Airport Road, Durango, CO 81303

Page 6
8/11/2014

EnviroCheck Solutions, Inc.
v. 866-517-5513 - f.858-259-0757
www.envirochecksolutions.com

EnviroCheck Radius Search Report

Site Details Summary

Map#	DB Type	Site Name/Status	Address	Dist/Dir	Page
1A	ERNS	Unknown/Status Not Applicable or Not Provided By Agency	1340 AIRPORT ROAD, DURANGO, CO	0 ft / South West	8
1B	LUST	Durango-La Plata Airport/Status Not Applicable or Not Provided By Agency	1340 Airport Rd., DURANGO, CO	0 ft / South West	9
1C	UST	Durango-La Plata Airport/Status Not Applicable or Not Provided By Agency	1340 Airport Rd., DURANGO, CO	0 ft / South West	9
2A	GENERATOR	TSA-DURANGO-LAPLATA COUNTY AIRPORT/No	1000 AIRPORT RD, DURANGO, CO	0 ft / West	11
2B	GENERATOR	DURANGO - LA PLATA COUNTY AIRPORT/No	1000 AIRPORT RD BOX 1, DURANGO, CO	0 ft / West	13
3A	ERNS	DURANGO LA PLATA COUNTY AIRPORT/Status Not Applicable or Not Provided By Agency	1000 AIRPORT ROAD, DURANGO, CO	0 ft / West	17
3B	ERNS	Unknown/Status Not Applicable or Not Provided By Agency	1000 AIRPORT RD, DURANGO, CO	0 ft / West	19
4A	ERNS	Unknown/Status Not Applicable or Not Provided By Agency	1300 AIRPORT DRIVE, DURANGO, CO	0 ft / West	20
5A	AST	DURANGO OPERATIONS CENTER/Status Not Applicable or Not Provided By Agency	380 AIRPORT RD, DURANGO, CO	1304 ft / North West	23
5B	LUST	DURANGO OPERATIONS CENTER/Closed case or No Further Action	380 AIRPORT RD, DURANGO, CO	1304 ft / North West	23
5C	ERNS	Unknown/Status Not Applicable or Not Provided By Agency	380 COUNTY ROAD 309, DURANGO, CO	1304 ft / North West	24
5D	ERNS	Unknown/Status Not Applicable or Not Provided By Agency	380 COUNTY RD 309, DURANGO, CO	1304 ft / North West	25
5E	ERNS	Unknown/Status Not Applicable or Not Provided By Agency	380 AIRPORT RD, DURANGO, CO	1304 ft / North West	27
5F	ERNS	Unknown/Status Not Applicable or Not Provided By Agency	380 AIRPORT RD, DURANGO, CO	1304 ft / North West	28

EnviroCheck Radius Search Report

Subject Property Sites

1 Durango-La Plata Airport-Unknown
1340 Airport Rd., DURANGO, CO
Records: 1A,1B,1C,

Site ID: -1669612720
Distance: 0 ft, South West

1A Type: Emergency Response Notification System (ERNS)
Source: U.S. EPA and National Response Center's 1990 to 2005 Emergency Response Notification System list

Record ID: NAERNS90-01-557002

Record Details

Description Of Incident	FUEL TANK ON AIRCRAFT WAS OVERFILLED	**Incident Cause**	OPERATOR ERROR
Incident Date Time	2/15/2001 9:00:00 PM	**Incident Dtg**	OCCURRED
Type Of Incident	AIRCRAFT		

Special Program Information

Date/Time Received	2/16/2001 5:04:19 PM	**Date/Time Complete**	2/16/2001 5:10:10 PM
Call Taker	DMC7004	**Calltype**	INC
Responsible Party Last Name	UNKNOWN	**Responsible Party Company Name**	DURANGO AIR SERVICES
Responsible Party Organization Type	PRIVATE ENTERPRISE	**Responsible Party Company Address**	1000 AIRPORT ROAD
Responsible Party City	DURANGO	**Responsible Party State Name**	CO
Source	TELEPHONE		

Incidents

Aircraft Type	COMMERCIAL	**Aircraft Model**	MD-80
Type Of Fixed Object	UNKNOWN	**Power Generating Facility**	Unknown
Npdes Compliance	Unknown	**Dept Of Transportation Regulated**	Unknown
Pipeline Aboveground	ABOVE	**Exposed Underwater**	No
Pipeline Covered	Unknown	**Grade Crossing**	No
Device Operational	Y	**Brake Failure**	N
Tank Aboveground	ABOVE	**Transportable Container**	Unknown
Tank Regulated	Unknown	**Allision**	No
Structure Operational	Unknown		

Incident Details

Fire Involved	No	**Fire Extinguished**	Unknown

EnviroCheck Radius Search Report

Subject Property Sites

Any Evacuations	No	**Any Injuries**	No
Any Fatalities	No	**Any Damages**	No
Air Corridor Closed	N	**Waterway Closed**	No
Road Closed	No	**Major Artery**	N
Track Closed	No	**Media Interest**	NONE
Medium Desc	LAND	**Additional Medium Info**	CONTAINMENT AREA
Release Secured	Yes	**Desc Remedial Action**	ABSORBENTS APPLIED
State Agency On Scene	CO DEPT OF HEALTH	**Weather Conditions**	CLEAR
Air Temperature	24.00	**Water Supply Contaminated**	U
Community Impact	N	**Offshore**	No

Material Involved

Chris Code	JPE	**Cas Number**	000000-00-0
Amount Of Material	80	**Unit Of Measure**	GALLON(S)
Name Of Material	JET FUEL: JP-8	**If Reached Water**	NO

1B Type: Leaking Underground Storage Tanks (LUST)
Source: U.S. EPA's Region 8 Leaking Underground Storage Tank list on Tribal lands
Record ID: NAR8INLU-1010022

Record Details

Site Datails

Tribe	Southern Ute	**Eventid**	36
Lustlastmilestone	Site Cleanup Completed	**Lustcloseddate**	11/15/1993 12:00:00 AM

Tribe	Southern Ute	**Eventid**	263
Lustlastmilestone	LUST Cleanup Initiated: Petroleum		

1C Type: Underground Storage Tank Sites (UST)
Source: U.S. EPA's Region 8 Underground Storage Tank list on Tribal lands
Record ID: NAR8INUS-1010022

Record Details

Site Datails

Tribe	Southern Ute	**Tankstatusdesc**	Permanently Out of Use

EnviroCheck Radius Search Report

Subject Property Sites

Leakdetectedorcleanclosure	Evidence of Leak Detected	**Dateinstalled**	4/1/1961 12:00:00 AM
Dateclosed	7/21/1993 12:00:00 AM	**Name**	Durango-La Plata County Airport
Address	100 Airport Rd. P.O. Box 2677	**Tblowner City**	Durango
Tblowner County	La Plata	**Tblowner State**	CO
Tblowner Zip	81302		

Tribe	Southern Ute	**Tankstatusdesc**	Permanently Out of Use
Leakdetectedorcleanclosure	Evidence of Leak Detected	**Dateinstalled**	4/1/1951 12:00:00 AM
Dateclosed	7/21/1993 12:00:00 AM	**Name**	Durango-La Plata County Airport
Address	100 Airport Rd. P.O. Box 2677	**Tblowner City**	Durango
Tblowner County	La Plata	**Tblowner State**	CO
Tblowner Zip	81302		

Tribe	Southern Ute	**Tankstatusdesc**	Permanently Out of Use
Leakdetectedorcleanclosure	Evidence of Leak Detected	**Dateinstalled**	4/1/1951 12:00:00 AM
Dateclosed	7/21/1993 12:00:00 AM	**Name**	Durango-La Plata County Airport
Address	100 Airport Rd. P.O. Box 2677	**Tblowner City**	Durango
Tblowner County	La Plata	**Tblowner State**	CO
Tblowner Zip	81302		

Tribe	Southern Ute	**Tankstatusdesc**	Permanently Out of Use
Leakdetectedorcleanclosure	Evidence of Leak Detected	**Dateinstalled**	4/1/1977 12:00:00 AM
Dateclosed	7/21/1993 12:00:00 AM	**Name**	Durango-La Plata County Airport
Address	100 Airport Rd. P.O. Box 2677	**Tblowner City**	Durango
Tblowner County	La Plata	**Tblowner State**	CO
Tblowner Zip	81302		

Tribe	Southern Ute	**Tankstatusdesc**	Permanently Out of Use
Leakdetectedorcleanclosure	Evidence of Leak Detected	**Dateinstalled**	4/1/1977 12:00:00 AM
Dateclosed	7/21/1993 12:00:00 AM	**Name**	Durango-La Plata County Airport
Address	100 Airport Rd. P.O. Box 2677	**Tblowner City**	Durango
Tblowner County	La Plata	**Tblowner State**	CO
Tblowner Zip	81302		

Tribe	Southern Ute	**Tankstatusdesc**	Permanently Out of Use
Leakdetectedorcleanclosure	Evidence of Leak Detected	**Dateinstalled**	4/1/1961 12:00:00 AM
Dateclosed	7/21/1993 12:00:00 AM	**Name**	Durango-La Plata County Airport
Address	100 Airport Rd. P.O. Box 2677	**Tblowner City**	Durango
Tblowner County	La Plata	**Tblowner State**	CO
Tblowner Zip	81302		

Tribe	Southern Ute	**Tankstatusdesc**	Currently In Use
Dateinstalled	11/1/1989 12:00:00 AM	**Name**	Durango-La Plata County Airport
Address	100 Airport Rd. P.O. Box 2677	**Tblowner City**	Durango
Tblowner County	La Plata	**Tblowner State**	CO
Tblowner Zip	81302		

EnviroCheck Radius Search Report

Subject Property Sites

Tribe	Southern Ute	**Tankstatusdesc**	Permanently Out of Use
Dateinstalled	4/1/1986 12:00:00 AM	**Dateclosed**	1/15/1999 12:00:00 AM
Name	Durango-La Plata County Airport	**Address**	100 Airport Rd. P.O. Box 2677
Tblowner City	Durango	**Tblowner County**	La Plata
Tblowner State	CO	**Tblowner Zip**	81302

Tribe	Southern Ute	**Tankstatusdesc**	Permanently Out of Use
Dateinstalled	4/1/1977 12:00:00 AM	**Dateclosed**	12/15/1998 12:00:00 AM
Name	Durango-La Plata County Airport	**Address**	100 Airport Rd. P.O. Box 2677
Tblowner City	Durango	**Tblowner County**	La Plata
Tblowner State	CO	**Tblowner Zip**	81302

Tribe	Southern Ute	**Tankstatusdesc**	Currently In Use
Dateinstalled	11/1/1989 12:00:00 AM	**Name**	Durango-La Plata County Airport
Address	100 Airport Rd. P.O. Box 2677	**Tblowner City**	Durango
Tblowner County	La Plata	**Tblowner State**	CO
Tblowner Zip	81302		

Tribe	Southern Ute	**Tankstatusdesc**	Currently In Use
Dateinstalled	11/1/1989 12:00:00 AM	**Name**	Durango-La Plata County Airport
Address	100 Airport Rd. P.O. Box 2677	**Tblowner City**	Durango
Tblowner County	La Plata	**Tblowner State**	CO
Tblowner Zip	81302		

2 DURANGO - LA PLATA COUNTY AIRPORT-TSA-DURANGO-LAPLATA COUNTY AIRPORT
1000 AIRPORT RD, DURANGO, CO
Records: 2A,2B,

Site ID: 7324829
Distance: 0 ft, West

2A Type: Small and Large Quantity Generators (GENERATOR)
Source: U.S. Environmental Protection Agency's Hazardous Waste Generator list

Record ID: NARCRA00-COR000208900

Record Details

Generator Status Universe	Conditionally Exempt Small Quantity Generator	**Found Violation**	No

Handler Information

Handler Sequence Number	1	**Receive Date**	20040805
Current Site Name	TSA-DURANGO-LAPLATA COUNTY AIRPORT	**Acknowledge Flag**	No
Location Zip Code	81303	**Mailing City**	DURANGO
Mailing State	CO	**Mailing Zip Code**	81303
Federal Waste	HQ	**Federal Waste**	Conditionally Exempt Small Quantity

EnviroCheck Radius Search Report

Subject Property Sites

Generator Code Owner		**Generator Code**	Generator
State Waste Generator Code Owner	CO	**Short Term Generator**	No
Mixed Waste Generator	No	**Transporter Activity**	No
Transfer Facility	No	**Treatment, Storage, Disposal Facility Activity**	No
Recycler Activity	No	**Onsite Burner Exemption**	No
Underground Injection Activity	No	**Receives Waste From Off-Site**	No
Universal Waste Destination Facility	No	**Used Oil Transporter**	No
Used Oil Transfer Facility	No	**Used Oil Processor**	No
Used Oil Refiner	No	**Used Oil Fuel Burner**	No
Used Oil Fuel Marketer To Burner	No	**Used Oil Specification Marketer**	No
Location Street	1000 AIRPORT RD	**Mailing Street**	1000 AIRPORT RD BOX 8
Contact Street	2828 WALKER FIELD DR STE 209 TSA-GJCT-WALKER FIELD AIRPORT	**State Waste Generator Description**	Same as Federally Defined
Contact Name	RALPH HAMBLIN		

North American Industry Classification System

Naics Description	OTHER AIRPORT OPERATIONS

Site Owners

Owner/Operator Name	CITY OF DURANGO	**Date Became Current**	8/5/2004 12:00:00 AM
Street	949 E 2ND AVE		

Owner/Operator Name	TSA-DURANGO-LAPLATA COUNTY AIRPORT	**Date Became Current**	8/5/2004 12:00:00 AM
Street	AIRPORT RD		

Site Type

Current Site Name	TSA-DURANGO-LAPLATA COUNTY AIRPORT	**Non-Notifier**	Not a non-notifier
Receive Date	20040805	**Land Type**	Other land type
Owner Name	CITY OF DURANGO	**Operator Name**	TSA-DURANGO-LAPLATA COUNTY AIRPORT
Short Term Generator	No	**Importer Activity**	No

EnviroCheck Radius Search Report

Subject Property Sites

Transfer Facility	No	**Receives Waste From Off-Site**	No
Univ Waste Dest Facility	No	**Federal Universal Waste**	No
Hazardous Secondary Material Indicator	No	**Tsd Type**	Not in a universe
Post-Closure Workload Universe	Not in a universe	**Tsdfs Potentially Subject To Corrective Action Under 3004 (U)/(**	No
Inst Control Indicator	No	**Human Exposure Indicator**	N/A
Groundwater Controls Indicator	N/A	**State Waste Generator Description**	Same as Federally Defined
Location Street	1000 AIRPORT RD	**Mailing Street**	1000 AIRPORT RD BOX 8
Contact Street	2828 WALKER FIELD DR STE 209 TSA-GJCT-WALKER FIELD AIRPORT		

Waste Code

Waste Description IGNITABLE WASTE

Waste Description CORROSIVE WASTE

Waste Description REACTIVE WASTE

2B Type: Small and Large Quantity Generators (GENERATOR)
Source: U.S. Environmental Protection Agency's Hazardous Waste Generator list
Record ID: NARCRA00-COR000223024

Record Details

Generator Status Universe	Conditionally Exempt Small Quantity Generator	**Found Violation**	No

Client Monitoring and Enforcement Data

Evaluation Start Date	1/31/2013 12:00:00 AM	**Evaluation Agency**	State
Sampling Flag	No	**Evaluation Type Description**	COMPLIANCE EVALUATION INSPECTION ON-SITE
Handler Name	DURANGO - LA PLATA COUNTY AIRPORT		

Evaluation Start Date	8/10/2012 12:00:00 AM	**Evaluation Agency**	State
Sampling Flag	No	**Evaluation Type Description**	FACILITY SELF DISCLOSURE
Handler Name	DURANGO - LA PLATA COUNTY AIRPORT		

EnviroCheck Radius Search Report

Subject Property Sites

Evaluation Start Date	8/3/2011 12:00:00 AM	**Evaluation Agency**	State
Sampling Flag	No	**Evaluation Type Description**	FACILITY SELF DISCLOSURE
Handler Name	DURANGO - LA PLATA COUNTY AIRPORT		

Handler Information

Handler Sequence Number	1	**Receive Date**	20100316
Current Site Name	DURANGO - LA PLATA COUNTY AIRPORT	**Location Zip Code**	81301
Mailing City	DURANGO	**Mailing State**	CO
Mailing Zip Code	81301	**Mailing Country**	US
Contact Title	AVIATION DIRECTOR	**Federal Waste Generator Code Owner**	HQ
Federal Waste Generator Code	Small Quantity Generator	**State Waste Generator Code Owner**	CO
Short Term Generator	No	**Mixed Waste Generator**	No
Transporter Activity	No	**Transfer Facility**	No
Treatment, Storage, Disposal Facility Activity	No	**Recycler Activity**	No
Onsite Burner Exemption	No	**Underground Injection Activity**	No
Receives Waste From Off-Site	No	**Universal Waste Destination Facility**	No
Used Oil Transporter	No	**Used Oil Transfer Facility**	No
Used Oil Processor	No	**Used Oil Refiner**	No
Used Oil Fuel Burner	No	**Used Oil Fuel Marketer To Burner**	No
Used Oil Specification Marketer	No	**Location Street**	1000 AIRPORT RD BOX 1
Mailing Street	1000 AIRPORT RD BOX 1	**Contact Street**	1000 AIRPORT RD BOX 1
State Waste Generator Description	Same as Federally Defined	**Contact Name**	RON DENT

Handler Sequence Number	2	**Receive Date**	20130627
Current Site Name	DURANGO - LA PLATA COUNTY AIRPORT	**Location Zip Code**	81301
Mailing City	DURANGO	**Mailing State**	CO
Mailing Zip Code	81301	**Mailing Country**	US
Contact Title	AVIATION DIRECTOR	**Federal Waste Generator Code Owner**	HQ
Federal Waste Generator Code	Conditionally Exempt Small Quantity Generator	**State Waste Generator Code Owner**	CO

EnviroCheck Radius Search Report

Subject Property Sites

Short Term Generator	No	**Mixed Waste Generator**	No
Transporter Activity	No	**Transfer Facility**	No
Treatment, Storage, Disposal Facility Activity	No	**Recycler Activity**	No
Onsite Burner Exemption	No	**Underground Injection Activity**	No
Receives Waste From Off-Site	No	**Universal Waste Destination Facility**	No
Used Oil Transporter	No	**Used Oil Transfer Facility**	No
Used Oil Processor	No	**Used Oil Refiner**	No
Used Oil Fuel Burner	No	**Used Oil Fuel Marketer To Burner**	No
Used Oil Specification Marketer	No	**Opting Into Or Currently Operating Under**	No
Part 262 Teaching Hospital	No	**Part 262 Non-Profit Research Institute**	No
Withdrawal From 40 Cfr Part 262 Subpart K	No	**Location Street**	1000 AIRPORT RD BOX 1
Mailing Street	1000 AIRPORT RD BOX 1	**Contact Street**	1000 AIRPORT RD BOX 1
State Waste Generator Description	Same as Federally Defined	**Contact Name**	LUKE SKAFLEN

North American Industry Classification System

Naics Description	AIRPORT OPERATIONS
Naics Description	AIRPORT OPERATIONS

Site Owners

Owner/Operator Name	DURANGO-LA PLATA COUNTY AIRPORT	**Date Became Current**	3/16/2010 12:00:00 AM
Street	1000 AIRPORT RD BOX 1		
Owner/Operator Name	DURANGO-LA PLATA COUNTY AIRPORT	**Date Became Current**	3/16/2010 12:00:00 AM
Street	1000 AIRPORT RD BOX 1		
Owner/Operator Name	CITY OF DURANGO-LA PLATA COUNTY	**Date Became Current**	3/16/2010 12:00:00 AM
Street	1000 AIRPORT RD BOX 1		
Owner/Operator Name	CITY OF DURANGO-LA PLATA COUNTY	**Date Became Current**	3/16/2010 12:00:00 AM
Street	1000 AIRPORT RD BOX 1		

EnviroCheck Radius Search Report

Subject Property Sites

Site Type

Current Site Name	DURANGO - LA PLATA COUNTY AIRPORT	**Non-Notifier**	Not a non-notifier
Receive Date	20130627	**Land Type**	Municipal
Contact Title	AVIATION DIRECTOR	**Owner Name**	CITY OF DURANGO-LA PLATA COUNTY
Operator Name	DURANGO-LA PLATA COUNTY AIRPORT	**Short Term Generator**	No
Importer Activity	No	**Transfer Facility**	No
Receives Waste From Off-Site	No	**Univ Waste Dest Facility**	No
Federal Universal Waste	Yes	**Hazardous Secondary Material Indicator**	No
Tsd Type	Not in a universe	**Post-Closure Workload Universe**	Not in a universe
Tsdfs Potentially Subject To Corrective Action Under 3004 (U)/(	No	**Inst Control Indicator**	No
Human Exposure Indicator	N/A	**Groundwater Controls Indicator**	N/A
State Waste Generator Description	Same as Federally Defined	**Location Street**	1000 AIRPORT RD BOX 1
Mailing Street	1000 AIRPORT RD BOX 1	**Contact Street**	1000 AIRPORT RD BOX 1

Additional Waste Data

Universal Waste Type	Batteries	**Accumulated**	Yes
Universal Waste Type	Lamps	**Accumulated**	Yes
Universal Waste Type	Pesticides	**Accumulated**	Yes
Universal Waste Type	Mercury containing equipment	**Accumulated**	Yes
Universal Waste Type	Mercury containing equipment	**Accumulated**	Yes
Universal Waste Type	Batteries	**Accumulated**	Yes
Universal Waste Type	Pesticides	**Accumulated**	Yes
Universal Waste	Lamps	**Accumulated**	Yes

EnviroCheck Radius Search Report

Subject Property Sites

Type

Waste Code

Waste Description	IGNITABLE WASTE
Waste Description	CORROSIVE WASTE
Waste Description	IGNITABLE WASTE
Waste Description	2,4-D (2,4-DICHLOROPHENOXYACETIC ACID)
Waste Description	ALUMINUM PHOSPHIDE (R,T)
Waste Description	BENZENE, METHYL- (OR) TOLUENE

3 DURANGO LA PLATA COUNTY AIRPORT–Unknown
1000 AIRPORT ROAD, DURANGO, CO
Records: 3A,3B,
Site ID: -385064536
Distance: 0 ft, West

3A Type: Emergency Response Notification System (ERNS)
Source: U.S. EPA and National Response Center's 2009 Emergency Response Notification System list
Record ID: NAERNS09-919283

Record Details

Description Of Incident	CALLER STATED THERE WAS A DRIP OF MATERIALS FROM AN OUT OF SERVICE UNDERGROUND STORAGE TANK DUE TO UNKNOWN CAUSES. CALLER STATED THERE WAS A LOOSE FITTING ON THE STORAGE TANK. CALLER STATED THE SPILL WENT INTO AN EXCAVATION PIT.	**Type Of Incident**	STORAGE TANK
Incident Cause	UNKNOWN	**Incident Date Time**	9/29/2009 3:00:00 PM
Incident Dtg	DISCOVERED		

Special Program Information

Date Time Received	9/30/2009 1:09:12 PM	**Date Time Complete**	9/30/2009 1:19:16 PM
Calltype	INC	**Responsible Org Type**	UNKNOWN
Responsible State	XX	**On Behalf Of**	N
Source	TELEPHONE		

Incidents

Power Generating Facility	U	**Npdes Compliance**	U

EnviroCheck Radius Search Report

Subject Property Sites

Dot Regulated	U	**Pipeline Above Ground**	ABOVE
Exposed Underwater	N	**Pipeline Covered**	U
Grade Crossing	U	**Device Operational**	U
Brake Failure	U	**Description Of Tank**	12000 GALLON UNDERGROUND FIBERGLASS TANK
Tank Above Ground	BELOW	**Transportable Container**	N
Tank Regulated	U	**Capacity Of Tank**	12000
Capacity Of Tank Units	GALLON(S)	**Allision**	U
Structure Operational	U	**Airbag Deployed**	U
Sub Part C Testing Req	XXX	**Passenger Route**	XXX
Passenger Delay	XXX		

Incident Details

Fire Involved	N	**Fire Extinguished**	U
Any Evacuations	N	**Any Injuries**	N
Any Fatalities	N	**Any Damages**	N
Air Corridor Closed	N	**Waterway Closed**	N
Road Closed	N	**Major Artery**	N
Track Closed	N	**Media Interest**	NONE
Medium Desc	LAND	**Additional Medium Info**	INTO THE GROUND
Release Secured	Y	**Desc Remedial Action**	CALLER STATED THE SOIL WILL BE REMOVED AND PLACED ON PLASTIC AND PROFILED. THE SOIL WILL THEM BE TRUCKED TO AN APPROVED LANDFILL.
State Agency On Scene	NONE	**State Agency Report Num**	NONE
Weather Conditions	SUNNY	**Air Temperature**	55
Water Supply Contaminated	U	**Additional Info**	CALLER DID NOT HAVE ANY ADDITIONAL INFORMATION.
State Agency Notified	EPA REGION 8	**Federal Agency Notified**	NONE
Offshore	N	**Passengers Transferred**	NO

Material Involved

Chris Code	JPE	**Cas Number**	000000-00-0
Amount Of Material	0	**Unit Of Measure**	UNKNOWN AMOUNT
Name Of Material	JET FUEL: JP-8	**If Reached Water**	NO

EnviroCheck Radius Search Report

Subject Property Sites

3B

Type: Emergency Response Notification System (ERNS)
Source: U.S. EPA and National Response Center's 1990 to 2005 Emergency Response Notification System list

Record ID: NAERNS90-96-361793

Record Details

Description Of Incident	AIRPORT FUEL FARM STORAGE TANK / TANK OVERFILL	**Incident Cause**	OPERATOR ERROR
Incident Date Time	9/18/1996 9:00:00 PM	**Incident Dtg**	OCCURRED
Type Of Incident	FIXED		

Special Program Information

Date/Time Received	9/20/1996 3:14:13 PM	**Date/Time Complete**	9/20/1996 3:19:38 PM
Call Taker	JJB0993	**Calltype**	INC
Responsible Party Last Name	ENGEL	**Responsible Party First Name**	DON
Responsible Party Phone	9702470306	**Responsible Party Phone Type**	PRIMARY
Responsible Party Company Name	GROENDYDE TRANSPORT	**Responsible Party Organization Type**	PRIVATE ENTERPRISE
Responsible Party Company Address	2411 DELLWOOD	**Responsible Party City**	DURANGO
Responsible Party State Name	CO	**Responsible Party Zip Code**	81302
Source	UNAVAILABLE		

Incidents

Aircraft Type	UNKNOWN	**Type Of Fixed Object**	UNKNOWN
Power Generating Facility	Unknown	**Npdes Compliance**	Unknown
Pipeline Type	UNKNOWN	**Dept Of Transportation Regulated**	Unknown
Pipeline Aboveground	ABOVE	**Exposed Underwater**	Unknown
Pipeline Covered	Unknown	**Grade Crossing**	No
Railroad Milepost	UNKNOWN	**Type Vehicle Involved**	UNKNOWN
Device Operational	Y	**Brake Failure**	N
Tank Aboveground	ABOVE	**Transportable Container**	Unknown
Tank Regulated	Unknown	**Allision**	No
Structure Operational	Yes		

Incident Details

Fire Involved	No	**Any Evacuations**	No

EnviroCheck Radius Search Report

Subject Property Sites

Any Injuries	Unknown	**Any Fatalities**	Unknown
Any Damages	No	**Air Corridor Closed**	N
Road Closed	No	**Medium Desc**	LAND
Additional Medium Info	SOIL		

Material Involved

Chris Code	JPV	**Amount Of Material**	300
Unit Of Measure	GALLON(S)	**Name Of Material**	JET FUEL: JP-5 (KEROSENE, HEAVY)
If Reached Water	YES	**Amount In Water**	0
Unit Of Measure Reach Water	NONE		

4 Unknown
1300 AIRPORT DRIVE, DURANGO, CO
Records: 4A,

Site ID: -61779228
Distance: 0 ft, West

4A Type: Emergency Response Notification System (ERNS)
Source: U.S. EPA and National Response Center's 2010 Emergency Response Notification System list

Record ID: NAERNS10-930038

Record Details

Description Of Incident	CALLER STATED THAT 10 GALLONS OF HYDRAULIC OIL WAS RELEASED FROM AN AIRPORT MAINTENANCE TRUCK DUE TO AN E RETENTION POND. A SHEEN WAS DISCOVERED IN THE RETENTION POND. THE POND ALSO RECEIVES STORM WATER FROM TH SPILLED OR FROM THE PARKING LOT.
Incident Cause	EQUIPMENT FAILURE
Incident Dtg	OCCURRED
Subtable	NAerns10_Calls,NAerns10_Derailed_units,NAERNS10_Incidents,NAERNS10_Incident_details,NAERNS10_Material_Involved,NAERNS1

Special Program Information

Agencyid	930038	**Date Time Received**	1/29/2010 7:42:27 PM
Date Time Complete	1/29/2010 7:53:42 PM	**Calltype**	INC
Responsible Company	A/V FLIGHT	**Responsible Org Type**	PRIVATE ENTERPRISE
Responsible City	DURANGO	**Responsible State**	CO
Responsible Zip	81303	**On Behalf Of**	Y
Source	TELEPHONE		

Incidents

Agencyid	930038	**Power Generating Facility**	U
Npdes Compliance	U	**Dot Regulated**	U

EnviroCheck Radius Search Report

Subject Property Sites

Pipeline Above Ground	ABOVE	**Exposed Underwater**	N
Pipeline Covered	U	**Grade Crossing**	U
Device Operational	U	**Brake Failure**	U
Tank Above Ground	ABOVE	**Transportable Container**	U
Tank Regulated	U	**Allision**	N
Structure Operational	U	**Airbag Deployed**	N
Sub Part C Testing Req	XXX	**Passenger Route**	XXX
Passenger Delay	XXX		

Incident Details

Agencyid	930038	**Fire Involved**	N
Fire Extinguished	U	**Any Evacuations**	N
Any Injuries	N	**Any Fatalities**	N
Any Damages	N	**Air Corridor Closed**	N
Waterway Closed	N	**Road Closed**	N
Major Artery	N	**Track Closed**	N
Media Interest	NONE	**Medium Desc**	WATER
Additional Medium Info	STORM WATER RETENTION POND	**Body Of Water**	STORM WATER RETENTION POND
Tributary Of	UNNAMED CREEK	**Release Secured**	Y
Desc Remedial Action	BOOM APPLIED TO RETENTION POND AND NEAR STORM DRAIN OPENING, SPREAD ABSORBANTS ON THE WATER AND NEAR THE STORM DRAIN.	**State Agency On Scene**	NONE
State Agency Report Num	NONE	**Weather Conditions**	OVERCAST
Water Supply Contaminated	U	**Additional Info**	CALLER STATED THAT HE WILL CONTACT THE STATE DEPT OF HEALTH EMERGENCY RESPONSE. THE REPORTING COMPANY COLLECTED WATER SAMPLES FROM THE RETENTION POND AND FROM THE STREAM TO CHECK FOR VOC'S.
State Agency Notified	WATER QUAL BOARD	**Federal Agency Notified**	NONE
Offshore	N	**Passengers Transferred**	NO

Material Involved

Agencyid	930038	**Chris Code**	OHY
Cas Number	000000-00-0	**Amount Of Material**	10
Unit Of Measure	GALLON(S)	**Name Of Material**	HYDRAULIC OIL
If Reached Water	YES	**Amount In Water**	0
Unit Of Measure Reach Water	UNKNOWN AMOUNT		

EnviroCheck Radius Search Report

Subject Property Sites

Mobile Details

Agencyid	930038	**Vehicle Number**	AIRPORT MAINT TRUCK
Hazmat Carrier	N	**Carrier Licensed**	U
Noncompliance With Hazmat	U	**Mobile Type**	OTHER

EnviroCheck Radius Search Report

Surrounding Sites Details

5 DURANGO OPERATIONS CENTER–Unknown
380 AIRPORT RD, DURANGO, CO
Records: 5A,5B,5C,5D,5E,5F,

Site ID: 1019235288
Distance: 1304 ft, North West

5A Type: Aboveground Storage Tanks (AST)
Source: Colorado Oil and Public Safety Division's Storage Tank list

Record ID: COASTLIS-15744

Record Details

Tank Details

Tank Id	34340	**Tanktag**	'15744-1
Capacity	3000	**Product Name**	1 - Unleaded Regular (RUL)
Tank Type Description	AST	**Facilityowner**	BP AMOCO CO - ATTN FIELD ENVIRONMENTAL COORDINATOR
Tank Id	34341	**Tanktag**	'15744-2
Capacity	5500	**Product Name**	1 - Unleaded Regular (RUL)
Tank Type Description	AST	**Facilityowner**	BP AMOCO CO - ATTN FIELD ENVIRONMENTAL COORDINATOR
Tank Id	34342	**Tanktag**	'15744-3
Capacity	1000	**Product Name**	4 - Diesel
Tank Type Description	AST	**Facilityowner**	BP AMOCO CO - ATTN FIELD ENVIRONMENTAL COORDINATOR
Tank Id	34343	**Tanktag**	'15744-4
Capacity	10000	**Product Name**	7 - Lube Oil
Tank Type Description	AST	**Facilityowner**	BP AMOCO CO - ATTN FIELD ENVIRONMENTAL COORDINATOR
Tank Id	34344	**Tanktag**	'15744-5
Capacity	13000	**Product Name**	6 - Used Oil (Waste Oil)
Tank Type Description	AST	**Facilityowner**	BP AMOCO CO - ATTN FIELD ENVIRONMENTAL COORDINATOR

5B Type: Leaking Underground Storage Tanks (LUST)
Source: Colorado Oil and Public Safety Division's Leaking Underground Storage Tank list

Record ID: COLUSTIS-15744

Record Details

Estimated Status Closed case or No Further Action

EnviroCheck Radius Search Report

Surrounding Sites Details

Site Details

Event Id	10819	**Log Date**	Tuesday, March 10, 2009
Category	Commercial/Industrial	**Release Source**	Dispenser
Status	Closed	**Classification**	3.1
Agencyid	15744	**Estimated Status**	Closed case or No Further Action

5C

Type: Emergency Response Notification System (ERNS)
Source: U.S. EPA and National Response Center's 1990 to 2005 Emergency Response Notification System list

Record ID: NAERNS90-91-91428

Record Details

Description Of Incident	6\" PIPELINE / LEAKING, UNKNOWN	**Incident Cause**	UNKNOWN
Incident Date Time	10/8/1991 9:00:00 AM	**Incident Dtg**	DISCOVERED
Type Of Incident	PIPELINE		

Special Program Information

Date/Time Received	10/8/1991 12:37:49 PM	**Date/Time Complete**	10/8/1991 12:40:56 PM
Call Taker	TJW9515	**Calltype**	INC
Responsible Party Last Name	JENSEN	**Responsible Party First Name**	JOHN
Responsible Party Phone	3032476815	**Responsible Party Phone Type**	PRIMARY
Responsible Party Company Name	AMOCO PRODUCTION CO.	**Responsible Party Organization Type**	PRIVATE ENTERPRISE
Responsible Party Company Address	380 COUNTY ROAD 309	**Responsible Party City**	DURANGO
Responsible Party State Name	CO	**Responsible Party Zip Code**	81301
Source	UNAVAILABLE		

Incidents

Aircraft Type	UNKNOWN	**Type Of Fixed Object**	UNKNOWN
Power Generating Facility	Unknown	**Npdes Compliance**	Unknown
Pipeline Type	UNKNOWN	**Dept Of Transportation Regulated**	Unknown
Pipeline Aboveground	ABOVE	**Exposed Underwater**	Unknown
Pipeline Covered	Unknown	**Grade Crossing**	No
Railroad Milepost	UNKNOWN	**Type Vehicle Involved**	UNKNOWN
Device Operational	Y	**Brake Failure**	N
Tank Aboveground	ABOVE	**Transportable**	Unknown

EnviroCheck Radius Search Report

Surrounding Sites Details

		Container	
Tank Regulated	Unknown	Allision	No
Structure Operational	Yes		

Incident Details

Fire Involved	No	Fire Extinguished	Unknown
Any Evacuations	No	Any Injuries	Unknown
Any Fatalities	Unknown	Any Damages	No
Air Corridor Closed	N	Waterway Closed	No
Road Closed	No	Major Artery	N
Track Closed	No	Medium Desc	WATER
Additional Medium Info	IRRIGATION DITCH WHICH WAS IN USE.	Release Secured	Unknown
Desc Remedial Action	MATERIAL ENTERED A FARMERS IRRIGATION DITCH. PIPELINE WAS SHUT IN.	Water Supply Contaminated	U
Community Impact	N	Additional Info	MATERIAL IS NON-HYDROCARBON.
Offshore	No		

Material Involved

Chris Code	NCC	Amount Of Material	50
Unit Of Measure	BARREL(S)	Name Of Material	FRUITLAND COAL WATER (PRODUCED WATER)
If Reached Water	YES	Amount In Water	50
Unit Of Measure Reach Water	BARREL(S)		

5D Type: Emergency Response Notification System (ERNS)
Source: U.S. EPA and National Response Center's 1990 to 2005 Emergency Response Notification System list
Record ID: NAERNS90-94-265548

Record Details

Description Of Incident	GAS WELL / MECHANICAL FAILURE	Direction From City	SE
Distance From City	15	Distance Units	MI
Incident Cause	EQUIPMENT FAILURE	Incident Date Time	10/15/1994 2:30:00 PM
Incident Dtg	DISCOVERED	Type Of Incident	FIXED

Special Program Information

Date/Time Received	10/16/1994 3:28:47 PM	Date/Time Complete	10/16/1994 3:31:43 PM
Call Taker	AJM5909	Calltype	INC
Responsible Party Last Name	JENSON	Responsible Party First Name	JOHN
Responsible Party	3032476800	Responsible Party	PRIMARY

EnviroCheck Radius Search Report

Surrounding Sites Details

Phone		**Phone Type**	
Responsible Party Company Name	AMOCO PRODUCTION	**Responsible Party Organization Type**	PRIVATE ENTERPRISE
Responsible Party Company Address	380 COUNTY RD 309	**Responsible Party City**	DURANGO
Responsible Party State Name	CO	**Responsible Party Zip Code**	81301
Source	UNAVAILABLE		

Incidents

Aircraft Type	UNKNOWN	**Type Of Fixed Object**	UNKNOWN
Power Generating Facility	Unknown	**Npdes Compliance**	Unknown
Pipeline Type	UNKNOWN	**Dept Of Transportation Regulated**	Unknown
Pipeline Aboveground	ABOVE	**Exposed Underwater**	Unknown
Pipeline Covered	Unknown	**Grade Crossing**	No
Railroad Milepost	UNKNOWN	**Type Vehicle Involved**	UNKNOWN
Device Operational	Y	**Brake Failure**	N
Tank Aboveground	ABOVE	**Transportable Container**	Unknown
Tank Regulated	Unknown	**Allision**	No
Structure Operational	Yes		

Incident Details

Fire Involved	No	**Any Evacuations**	No
Any Injuries	Unknown	**Any Fatalities**	Unknown
Any Damages	No	**Medium Desc**	WATER
Additional Medium Info	FLORIDA RIVER	**Desc Remedial Action**	SHUT IN WELL / WATER FLOWED INTO RIVER

Material Involved

Chris Code	NCC	**Amount Of Material**	275
Unit Of Measure	BARREL(S)	**Name Of Material**	PROCESS COAL WATER
If Reached Water	YES	**Amount In Water**	275
Unit Of Measure Reach Water	BARREL(S)		

Chris Code	NCC	**Amount Of Material**	275
Unit Of Measure	BARREL(S)	**Name Of Material**	PROCESS COAL WATER
If Reached Water	YES	**Amount In Water**	275
Unit Of Measure Reach Water	BARREL(S)		

EnviroCheck Radius Search Report

Surrounding Sites Details

5E

Type: Emergency Response Notification System (ERNS)
Source: U.S. EPA and National Response Center's 1990 to 2005 Emergency Response Notification System list

Record ID: NAERNS90-95-311675

Record Details

Description Of Incident	6 INCH TRANSFER PIPELINE / FAULTY REPAIR	**Incident Cause**	OPERATOR ERROR
Incident Date Time	10/23/1995 11:00:00 AM	**Incident Dtg**	OCCURRED
Type Of Incident	PIPELINE		

Special Program Information

Date/Time Received	10/23/1995 5:23:07 PM	**Date/Time Complete**	10/23/1995 5:25:25 PM
Call Taker	GEB4899	**Calltype**	INC
Responsible Party Last Name	JENSEN	**Responsible Party First Name**	JON
Responsible Party Phone	9702476800	**Responsible Party Phone Type**	PRIMARY
Responsible Party Company Name	AMOCO PRODUCTION CO	**Responsible Party Organization Type**	PRIVATE ENTERPRISE
Responsible Party Company Address	380 AIRPORT RD	**Responsible Party City**	DURANGO
Responsible Party State Name	CO	**Responsible Party Zip Code**	81301
Source	UNAVAILABLE		

Incidents

Aircraft Type	UNKNOWN	**Type Of Fixed Object**	UNKNOWN
Power Generating Facility	Unknown	**Npdes Compliance**	Unknown
Pipeline Type	UNKNOWN	**Dept Of Transportation Regulated**	Unknown
Pipeline Aboveground	ABOVE	**Exposed Underwater**	Unknown
Pipeline Covered	Unknown	**Grade Crossing**	No
Railroad Milepost	UNKNOWN	**Type Vehicle Involved**	UNKNOWN
Device Operational	Y	**Brake Failure**	N
Tank Aboveground	ABOVE	**Transportable Container**	Unknown
Tank Regulated	Unknown	**Allision**	No
Structure Operational	Yes		

Incident Details

EnviroCheck Radius Search Report

Surrounding Sites Details

Fire Involved	No	**Any Evacuations**	No
Any Injuries	Unknown	**Any Fatalities**	Unknown
Any Damages	No	**Air Corridor Closed**	N
Road Closed	No	**Medium Desc**	WATER
Additional Medium Info	FLORIDA RIVER	**Desc Remedial Action**	LEAK IS SECURED / MATERIAL WAS NOT CONTAINED

Material Involved

Chris Code	OTH	**Amount Of Material**	10
Unit Of Measure	BARREL(S)	**Name Of Material**	OTHER OIL (PRODUCED WATER)
If Reached Water	YES	**Amount In Water**	10
Unit Of Measure Reach Water	BARREL(S)		

5F Type: Emergency Response Notification System (ERNS)
Source: U.S. EPA and National Response Center's 1990 to 2005 Emergency Response Notification System list
Record ID: NAERNS90-96-351230

Record Details

Description Of Incident	6\"PIPELINE / VALVE LEAK	**Incident Cause**	EQUIPMENT FAILURE
Incident Date Time	7/9/1996 4:00:00 PM	**Incident Dtg**	OCCURRED
Type Of Incident	FIXED		

Special Program Information

Date/Time Received	7/10/1996 5:11:16 PM	**Date/Time Complete**	7/10/1996 5:14:50 PM
Call Taker	TXP3025	**Calltype**	INC
Responsible Party Last Name	JENSON	**Responsible Party First Name**	JOHN
Responsible Party Phone	9702476800	**Responsible Party Phone Type**	PRIMARY
Responsible Party Company Name	AMOCO PRODUCTION CO	**Responsible Party Organization Type**	PRIVATE ENTERPRISE
Responsible Party Company Address	380 AIRPORT RD	**Responsible Party City**	DURANGO
Responsible Party State Name	CO	**Responsible Party Zip Code**	81301
Source	UNAVAILABLE		

Incidents

Aircraft Type	UNKNOWN	**Type Of Fixed Object**	UNKNOWN
Power Generating Facility	Unknown	**Npdes Compliance**	Unknown
Pipeline Type	UNKNOWN	**Dept Of Transportation**	Unknown

EnviroCheck Radius Search Report

Surrounding Sites Details

		Regulated	
Pipeline Aboveground	ABOVE	**Exposed Underwater**	Unknown
Pipeline Covered	Unknown	**Grade Crossing**	No
Railroad Milepost	UNKNOWN	**Type Vehicle Involved**	UNKNOWN
Device Operational	Y	**Brake Failure**	N
Tank Aboveground	ABOVE	**Transportable Container**	Unknown
Tank Regulated	Unknown	**Allision**	No
Structure Operational	Yes		

Incident Details

Fire Involved	No	**Fire Extinguished**	Unknown
Any Evacuations	No	**Any Injuries**	Unknown
Any Fatalities	Unknown	**Any Damages**	No
Air Corridor Closed	N	**Waterway Closed**	No
Road Closed	No	**Major Artery**	N
Track Closed	No	**Medium Desc**	WATER
Additional Medium Info	BEAVER CREEK	**Release Secured**	Unknown
Desc Remedial Action	NONE	**Water Supply Contaminated**	U
Community Impact	N	**Additional Info**	CALLER STATES MATERIAL HAS NO HYDROCARBONS => NO CLEAN UP OPERATIONSREQUIRED.
Offshore	No		

Material Involved

Chris Code	NCC	**Amount Of Material**	1
Unit Of Measure	BARREL(S)	**Name Of Material**	PRODUCED WATER
If Reached Water	YES	**Amount In Water**	1
Unit Of Measure Reach Water	BARREL(S)		

EnviroCheck Radius Search Report

List of Unlocatable Sites

There are no unlocated sites that appear to have an impact on this property

EnviroCheck Radius Search Report

About This Report

The databases searched to compile the enclosed report are gathered from numerous federal, state and local governing environmental entities. All of the databases required to be searched by ASTM Standard E 1527-13, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process - Section 8.2, Standard Environmental Records Sources, have been included in this report, and searched to the required distances from the subject property. Additionally, EnviroCheck Solutions, Inc (ECS) has acquired other valuable databases and integrated them into this report in order to provide more valuable information to our clients regarding hazardous materials storage and release sites within a onemile radius from the subject property.

ECS has created a sophisticated data update system, keeping our report databases as current as possible (surpassing ASTM E1527 requirements). ECS consistently requests and updates data from each of the government agencies used to create this report. Depending on the type of database, records are updated at the agencies at varying intervals (daily, monthly, quarterly, semi-annually, or annually). An overall data update (including all available updates) is loaded into our specialized software on a quarterly basis.

It should be clearly understood that this database/map report lists only reported and accurately entered sites. Numerous sites have yet to be discovered and therefore are not yet listed by any governmental agency. The most effective way to determine if a site may be listed by a government agency in the future is by performing a Transaction Screen or Phase I Environmental Site Assessment, which include a professional site inspection and review of historical records. This radius report satisfies only one subsection requirement found within the ASTM Phase I Environmental Site Assessment reporting requirements. This report should not be considered a Phase I Environmental Site Assessment. If no sites are found for a database searched, the database and its description are excluded from the report details so as to report recorded sites only. Sites that include erroneous or incomplete address information may not show up on the report. Every attempt is made to include a listing of these unlocated sites in the report where there is a possibility of their impacting the subject property, but no guarantee can be made.

ECS has used a technology called Geocoding to locate the sites on the map. While this technology is the standard of care in the industry and is generally reliable for well formatted, complete and correct addresses, due to the limitations of this technology no guarantee of the accuracy of site placement can be made.

For specific data inquiries, interpretations or environmental consultation contact us via email at service@envirochecksolutions.com, or via telephone at 866-517-5513. A full summary of our firm, including services offered and pricing can be viewed at www.envirochecksolutions.com.

DISCLAIMER

ECS has researched and obtained certain State and Federal environmental databases (Data) to assist its client's in meeting the requirements of ASTM E 1527-13. ECS has obtained Data that is readily available and of adequate quality to be included in this report. As of the date of this report, there are certain Data that are either not yet available or are not of adequate quality and therefore are not included in this Report.

This report contains data obtained from multiple governmental agencies. EnviroCheck Solutions, Inc. cannot insure the accuracy of the enclosed information. ECS is in no way responsible for errors and/or omissions occurring in data, data conversion, or for the client's use of the information (report). ECS and its affiliates cannot be held liable for accuracy, storage, loss or expense suffered by customers resulting directly or indirectly from any data provided by ECS. No warranty expressed or implied is made in any way in connection with this report.

EnviroCheck Radius Search Report

Searched Databases

NPL: National Priority List Sites

Sites found on the NPL database or the Proposed NPL database. NPL sites are a special category among National Superfund (CERCLA) Sites listed in the EPA"s CERCLIS database. NPL sites are of serious, high concern and priority based on a national comparison to sites needing investigations and contamination cleanup activities (remediation). These sites, some of the worst in the nation, normally contain high levels of various contaminants that have spread over relatively long distances and usually require long term, highly expensive remediation technologies. Proposed NPL sites are of serious concern and are in the process of being evaluated for categorization as National Priority List sites. Delisted NPL sites have been removed (delisted) from the NPL if no further response or action is appropriate at the site, per EPA guidelines.

- **U.S. Environmental Protection Agency's National Priority List**
- **U.S. Environmental Protection Agency's Proposed National Priority List**

CORRACTS: Corrective Action Sites

CORRACTS is subsets of data found within the Federal RCRA database (RCRIS) or other state database. RCRA Corrective Action is the process by which areas at a hazardous waste facility are evaluated and, if necessary, are cleaned up. TSD facilities are often also listed as CORRACTS facilities.

- **U.S. Environmental Protection Agency's Corrective Action list**

TSD: Treatment, Storage and Disposal Sites

TSDs are subsets of data found within the Federal RCRA database (RCRIS) or other state database. TSD sites treat, store and/or dispose of hazardous materials and are federally permitted. TSD facilities are often also listed as CORRACTS facilities.

- **U.S. Environmental Protection Agency's Treatment, Storage and Disposal list**

DEFENSE: FUDS and DOD Sites

These sites are Formerly Used Defense Sites (FUDS) and Department of Defense (DOD sites). The U.S. Army Corps of Engineers and/or the U.S. Department of Defense is actively working or will be taking the necessary steps to address any cleanup activities needed on these properties.

- **Army Corps of Engineers' Formerly Used Defense Munition Response Sites Layer**
- **Army Corps of Engineers' Formerly Used Defense Munitions Response Area Layer**
- **Army Corps of Engineers' Formerly Used Defense Properties Layer**

BROWN: Brownfields Cleanup and Reuse Database

The U.S. Environmental Protection Agency (EPA) defines a Brownfield site as "real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant." Common examples of Brownfield sites are abandoned gas stations and dry cleaners, railroad properties, factories, and closed military bases. Brownfield sites are located throughout the country, and the U.S. EPA as well as state governments have compiled a listing of these sites. Voluntary Cleanup Program Sites are sometimes also included in this category.

- **Colorado Department of Public Healtth and Environment's Voluntary Cleanup Sites Database**

EnviroCheck Radius Search Report

Searched Databases

DEED: List of Deed Restrictions

The implementation of recorded land use restrictions within property deeds is one of the methods agencies use to protect the public from unsafe exposures to hazardous substances and wastes. Sites with deed restrictions are often contaminated, however levels of contaminants and methods used to control migration of contaminants are controlled and approved by the agency. These are also called Environmental Covenants or Use Restrictions

- **Colorado Department of Public Healtth and Environment's Environmental Covenants List**

CERCLIS: CERCLIS/Superfund Database

The below-listed sites are found on the CERCLIS database. The CERCLIS database contains information on hazardous waste sites, site inspections, preliminary assessments, and remediation of hazardous waste sites under CERCLA (Superfund). The database contains general information on sites including location, status, contaminants, and actions taken. This database includes those CERCLIS sites not included on the NPL or Proposed NPL databases. This includes sites determined to be "No Further Remedial Action Planned" (NFRAP) sites are contained within this database. NFRAP sites may be properties where, following an initial investigation, no contamination was found, contamination was removed quickly, or the contamination was not serious enough to require Federal Superfund action.

- **U.S. Environmental Protection Agency's CERCLIS list**
- **U.S. Environmental Protection Agency's CERCLIS No Further Action list**

CONTROLS: Institutional and Engineering Controls

U.S. EPA's and State Engineering Control Sites List and/or Institutional Control Sites List. The Engineering Control Sites list are facilities that have engineered controls in place, such as capping, containment, slurry walls, extraction wells and/or treatment methods that are intended to manage environmental and health risks by reducing contamination levels at a site, or limiting exposure pathways. The Institutional Control Sites list are administrative or legal devices, such as deed restrictions, to ensure that engineering controls stay in place and/or to ensure that land use restrictions stay in place.

- **U.S. Environmental Protection Agency's Engineering Controls list**
- **U.S. Environmental Protection Agency's Institutional Controls list**

LUST: Leaking Underground Storage Tanks

The below-listed sites are found on LUST databases. LUST records contain an inventory of reported leaking underground fuel storage tank incidents. Thousands of underground storage tanks have leaked within the United States, and both open and closed cases are reported on this list. These leaks can affect subsurface soils and groundwater. Both state and local agencies oversee and track these sites.

- **Colorado Oil and Public Safety Division's Leaking Underground Storage Tank list**
- **U.S. EPA's Region 1 Leaking Underground Storage Tank list on Tribal lands**
- **U.S. EPA's Region 10 Leaking Underground Storage Tank list on Tribal lands**
- **U.S. EPA's Region 5 Leaking Underground Storage Tank list on Tribal lands**
- **U.S. EPA's Region 6 Leaking Underground Storage Tank list on Tribal lands**
- **U.S. EPA's Region 7 Leaking Underground Storage Tank list on Tribal lands**
- **U.S. EPA's Region 8 Leaking Underground Storage Tank list on Tribal lands**
- **U.S. EPA's Region 9 Leaking Underground Storage Tank list on Tribal lands**

EnviroCheck Radius Search Report

Searched Databases

SWIS - Solid Waste Information System

The SWLF database contains information on solid waste facilities, operations, and disposal sites throughout the United States. The types of facilities found in this database include landfills, transfer stations, material recovery facilities, composting sites, transformation facilities, waste tire sites, and closed disposal sites.

- City and County of Denver Historic Landfill Database
- Colorado Deparment of Public Health and Environment's Landfill list

HAZMAT: Hazardous Materials Storage and Incident Records

Data is gathered from local fire and health departments where available. This data includes information on hazardous materials storage, use and disposal sites as well as incident reports, hazardous materials inventory and business plan documents, spills and releases.

- Drug Enforcement Administration's Clandestine Drug Labs List
- U.S. Environmental Protection Agency's Toxics Release Inventory Database

ERNS: Emergency Response Notification System

Sites listed as having a reported release of oil and hazardous substances that have been called into the Federal and/or state agencies. Minor to major spills are reported and these cases are sometimes turned over to other regulatory agencies for further investigation.

- Office of Hazardous Materials' Hazardous Materials Incident Database, 1993-2004
- Office of Hazardous Materials' Hazardous Materials Incident Database, 2005-2006
- Office of Hazardous Materials' Hazardous Materials Incident Database, 2007-2008
- Office of Hazardous Materials' Hazardous Materials Incident Database, 2009
- Office of Hazardous Materials' Hazardous Materials Incident Database, 2010
- Office of Hazardous Materials' Hazardous Materials Incident Database, 2011
- Office of Hazardous Materials' Hazardous Materials Incident Database, 2012
- Office of Hazardous Materials' Hazardous Materials Incident Database, 2013
- U.S. EPA and National Response Center's 1987-1988 Emergency Response Notification System list
- U.S. EPA and National Response Center's 1989 Emergency Response Notification System list
- U.S. EPA and National Response Center's 1990 to 2005 Emergency Response Notification System list
- U.S. EPA and National Response Center's 2006 Emergency Response Notification System list
- U.S. EPA and National Response Center's 2007 Emergency Response Notification System list
- U.S. EPA and National Response Center's 2008 Emergency Response Notification System list
- U.S. EPA and National Response Center's 2009 Emergency Response Notification System list
- U.S. EPA and National Response Center's 2010 Emergency Response Notification System list
- U.S. EPA and National Response Center's 2011 Emergency Response Notification System list
- U.S. EPA and National Response Center's 2012 Emergency Response Notification System list

GENERATOR: Small and Large Hazardous Materials Generators

GENERATORS is a subset of data found within the Federal RCRA database (RCRIS) or other state GENERATORS list. RCRA GENERATORS are federally permitted generators of varying amounts of hazardous materials. A listing on the GENERATOR database does not directly indicate a release has occurred, only that the site generates hazardous materials.

- U.S. Environmental Protection Agency's Hazardous Waste Generator list

EnviroCheck Radius Search Report

Searched Databases

UST: Underground Storage Tank Sites

The databases include permitted active, inactive and closed UST facilities recorded with the below mentioned agencies. A listing on the UST databases does not directly indicate a release has occurred, only that the site currently or historically contained an underground storage tank.

- Colorado Oil and Public Safety Division's Storage Tank list
- U.S. EPA's Region 1 Underground Storage Tank list on Tribal lands
- U.S. EPA's Region 10 Underground Storage Tank list on Tribal lands
- U.S. EPA's Region 4 Underground Storage Tank list on Tribal lands
- U.S. EPA's Region 5 Underground Storage Tank list on Tribal lands
- U.S. EPA's Region 6 Underground Storage Tank list on Tribal lands
- U.S. EPA's Region 7 Underground Storage Tank list on Tribal lands
- U.S. EPA's Region 8 Underground Storage Tank list on Tribal lands
- U.S. EPA's Region 9 Underground Storage Tank list on Tribal lands

AST: Aboveground Storage Tank Facilities

Permitted active, inactive and closed AST facilities recorded with the state or local agencies are included. A listing on the AST database does not directly indicate a release has occurred, only that the site currently or historically contained an aboveground storage tank.

- Colorado Oil and Public Safety Division's Storage Tank list

EMISSIONS: Air Emissions Sites

Sites found on various air emissions databases like dry cleaners and related facilities that have air emissions permits with the state and/or local air quality district.

- Colorado Department of Public Healtth and Environment's CAIS Database

HAZNET: Hazardous Waste Information System

HAZNET databases track hazardous materials from "cradle to grave". Some of the sites listed are licensed transportation companies but most are facilities that have had hazardous materials transported off the site or have received hazardous materials

- California Department of Toxic Substance Controls's Hazardous Waste Transportation System 1993-2012 Tanner List. Includes Nationally relevant data!
- New Jersey Dept of Environmental Protection's Manifest Database

1000 Airport Rd - Google Maps

Imagery ©2014 Google, Map data ©2014 Google 2000 ft

1 of 1 8/11/2014 5:38 PM

Appendix C: Site Photographs Taken During Reconnaissance Survey

Photograph 1. Airport AVGAS Tanks

Photograph 2. Airport AVGAS Tank Dispenser area

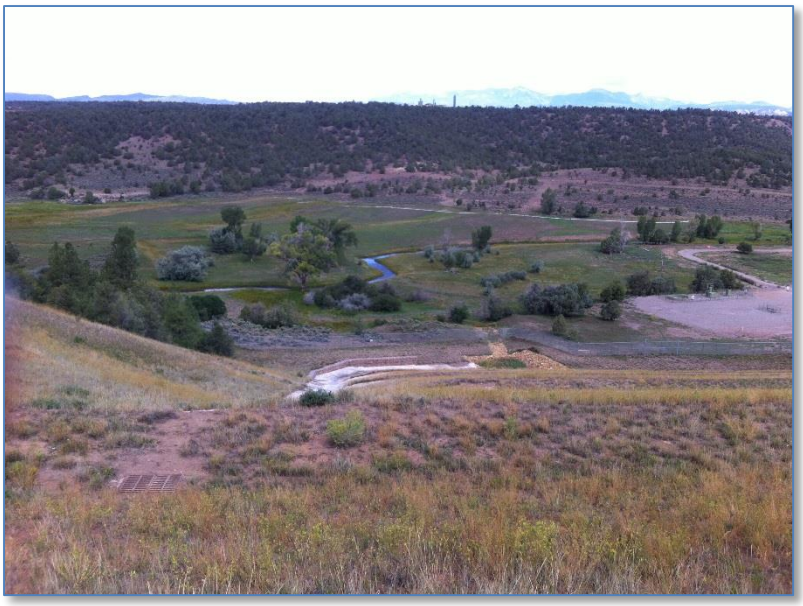
Photograph 3. Airport hangars and "green box" transformers

Photograph 4. Airport boneyard

Photograph 5. Airport boneyard

Photograph 6. Airport boneyard

Photograph 7. Dump in arroyo



Photograph 8. Stormwater outlet near southwest corner of airport

Appendix D: Qualifications of the Environmental Professional

KEITH FOX

ENVIRONMENTAL SCIENTIST & PROJECT MANAGER

776 E. Second Avenue
Durango, CO 81301
fox@ecosphere-services.com
(970) 382-7256

QUALIFICATIONS SUMMARY

Keith Fox brings two decades of experience in the environmental/regulatory compliance field to the Ecosphere team. For over 16 years, Keith has performed environmental compliance work for public and private sector clients in the western United States, working extensively on electric power transmission line projects in Colorado, New Mexico, and California. He also provides consulting services for the oil and gas and mining industries in the Four Corners region. Areas of environmental consulting expertise include:

- Environmental Compliance and Permitting, particularly National Environmental Policy Act (NEPA), Clean Water Act (CWA) and Resource Conservation and Recovery Act (RCRA)
- Due Diligence review/Phase 1 and Phase 2 Environmental Site Assessments
- Health and Safety
- Soil and Groundwater Contamination
- Electricity Transmission and Distribution Utilities
- Renewable Energy
- Extractive industries (oil and gas, mining)Transportation Sector (government and private sector)
- Real Estate/Financial Institutions
- Water and Waste Water Utilities

Years Experience: 22

Years w/Ecosphere: 8

Trainings • Certifications • Professional Affiliations

HAZWOPER 40 Hour Training, current with 8 Hour Refresher ▪ 1990

HAZWOPER 24 Hour Site Supervisor Training ▪ 1992

MSHA 24 Hour Surface Coal Miner Training ▪ 2011

EDUCATION

Organic Chemistry, MS 1990
University of New Mexico, Albuquerque

Chemistry, BA 1987
University of Colorado, Boulder

PROFESSIONAL EXPERIENCE

Ecosphere Environmental Services 2003 – Present
Durango, Colorado

Plateau Environmental Services, Inc. 1995 – 2004
Durango, Colorado

New Mexico Environment Department 1990 – 1995
Albuquerque, New Mexico

REPRESENTATIVE PROJECT EXPERIENCE

Transmission Line Permitting Project Experience

For the past five years, Mr. Fox has focused his project work on electric power transmission line projects in Colorado, New Mexico, and California. The projects have included transmission line siting constraints and opportunity analysis for major transmission line right of way (ROW) projects, NEPA documentation for ROW grants and construction projects on federal and private lands, and NEPA documentation for ROW projects (transmission lines and distribution lines) for projects on the Southern Ute Indian Reservation. For these projects, Mr. Fox was the project manager and primary author for the documents, and provided research and analysis for technical sections. Specific projects and clients include:

- Project manager and primary author for NEPA documentation for LE1 Transmission Line and Substation project for El Paso Electric Company. The LE1 transmission line project requires NEPA document preparation for a 14-mile transmission line construction project crossing a combination of public (BLM and NM State Land Office) and private lands in Doña Ana County, New Mexico. Leading development of the Environmental Assessment (EA) to evaluate environmental impacts to biological, physical, social, and economic elements of the environment and preparation of the Certificate of Public Convenience and Necessity (CCN) and local permitting for the project.
- Project manager and technical lead for preparation of an Environmental Assessment for a 36-mile transmission line reauthorization project as a third party NEPA contractor for the San Juan National Forest and Tri State Generation and Transmission Association. Project activities included field evaluation of proposed access routes, preparation of Construction, Operation and Maintenance Plan, coordination of contractors and preparation of EA and associated technical reports.
- Project manager, technical editor, and primary author for an Environmental Summary Report for a 65-mile transmission line project associated with a proposed Tessera Solar power plant in San Bernardino, California. The Environmental Summary Report described the affected environment for all social, socioeconomic, and physical resources present within the project area, and provided a general description of the potential impacts of the proposed project on each resource.
- Technical lead and primary author for preparation of an opportunity and constraints analysis for the proposed Tri-State Generation and Transmission Association - San Juan Basin Energy Connect project. The proposed project is an 80-mile 230 kV transmission line located in northwest New Mexico and southwest Colorado. The report analyzed constraints and opportunities for construction of the transmission line utilizing publicly available Geographic Information System data and existing utilities and infrastructure.
- Project manager and primary author for an Environmental Assessment (EA) prepared as a BLM third party contractor for a Tri-State Generation and Transmission Association 16-mile transmission line project in southwest Colorado (under sub contract to View Point West, Montrose, Colorado). Evaluated resource impacts and current management emphasis for all BLM sections of the project. Managed permitting process through BLM and compiled and edited project Plan of Development (POD).
- Project manager and primary author for an EA for a La Plata Electric Association – 4-

mile transmission line construction project on the Southern Ute Indian Reservation, Ignacio Colorado. The EA was prepared for the Bureau of Indian Affairs, Southern Ute Agency, with review by the Southern Ute Indian – Department of Natural Resources.

- Archuleta County Transmission Line Feasibility Project (constraints analysis) – La Plata Electric Association and Tri State Generation and Transmission Association (under sub contract to View Point West, Montrose, Colorado).
- Technical review for an EA and BA for the Kinder Morgan – Blanco Compressor Station, 23-mile transmission line project. The project was located in northwest New Mexico, and it traversed a combination of public and private lands. Primary approval for the project was from the Bureau of Land Management in the form of a Right-of-Way grant for construction and operation of the transmission line on public lands.

NEPA Compliance/Document Preparation

- Project manager and primary author for Environmental Assessment (EA) for a Kinder Morgan mineral resource (CO2) development project within Canyons of the Ancients National Monument; Montezuma County, Colorado.
- Primary author and project manager for Pagosa Area Water and Sanitation District – Highlands Lagoon sewer project. Prepared EA and technical review for BA and Clean Water Act permit for 7-mile sewer line construction project; Archuleta County, Colorado.
- Project Manager for 181 square miles BP America seismic exploration project completed on BLM, state and private land in NW New Mexico – 2004 and 2005. Principal author for the EA—describing the project and potential impacts of the project to critical elements of the natural environment. Supervisor for the 10-member biological survey team that provided threatened and endangered and sensitive species surveys for the proposed project area, and biological compliance during project implementation. Managed team health and safety activities and represented environmental team at project progress meetings.
- Primary author for an EA for the Rock Creek Second Addition Project; Town of Ignacio, Colorado. Mr. Fox completed resource investigations and prepared the EA following federal NEPA requirements. The EA evaluated the resources present in the 30-acre project area and resources surrounding the area. Specific resource issues included potential wetland areas present at the site; potential historic irrigation ditch structures; and noise and visual issues associated with the construction of the proposed project. Consultation with the US Army Corps of Engineers and the State Historic Preservation Office (SHPO) was performed to ensure project compliance with the federal regulations.

Due Diligence

- Completed Phase 1 Environmental Site Assessments (ESA) for over 100 real estate transaction projects in Colorado and New Mexico. Property sizes range from small commercial parcels to thousand acre ranches.
- Managed and the primary author for a Phase 1 ESA for the Rocky Mountain Oil Testing Center/Naval Petroleum Reserve #3 facility in Casper, Wyoming. Under contract to the Department of Energy, a Phase 1 ESA was completed on the 10,000-acre facility in compliance with ASTM 1527-05 standard. Fieldwork was completed with a staff of 6 field crew members, all inspection data was collected electronically and input into a priority matrix for ease of data review and analysis. Project was completed in support of property transfer plans for the facility.

Health and Safety

- Health and Safety Coordinator for Ecosphere Environmental Services – 2004 to present. Coordinate all health and safety training, documentation and compliance. Attend safety meetings and trainings, maintain company safety program, and perform routine internal and subcontractor safety audits.
- Completed industrial health and safety inspections at heavy equipment shops located throughout New Mexico. The inspections covered all aspects of facility compliance with local and federal fire regulations, state, and federal OSHA regulations and general environmental compliance. Inspections were performed quarterly and followed up with verbal and written reports to the local facility managers and client health and safety officer.

Soil, Groundwater, and Air Contamination

- Self employed environmental consultant (1995 – 2004), contracting for approximately 30 hours per week on soil, groundwater, and air contamination issues, UST investigations and reclamations, Phase 1 and 2 Environmental Site Assessments (ESAs) and NEPA compliance work in the Four Corners area. Projects included investigation and reclamation activities at LUST sites; groundwater flow monitoring and sampling as part of an oil and gas development impact study and coordination and analysis of indoor air quality sampling at a solvent impacted public facility. Phase 2 investigation activities included soil and water sampling and radiation screening for private and public sites developed with Uranium mill tailings material.
- Project Manager for numerous petroleum product contamination investigation and remediation sites located in southwest Colorado. Completed soil and groundwater sampling activities to document the extent and magnitude of soil and groundwater contamination as required by Colorado Petroleum Storage Tank Regulations. Prepared and implemented soil and groundwater reclamation plans to address contamination issues and to avoid risk and exposure to the public as a result of hydrocarbon spills and releases.
- Project manager for investigation and reclamation activities at a Colorado Voluntary Cleanup Program site located in southwest Colorado. Completed initial response and immediate investigation and emergency response activities for a solvent spill at a commercial facility. Coordinated and supervised investigation activities and short and long term reclamation of contaminated soils. Prepared groundwater contamination investigation report documenting on site and off site levels of contamination. Assisted in the design and implementation of a groundwater reclamation strategy. Performed long term monitoring and implementation for reclamation of contaminated groundwater. Performed indoor air monitoring at residences adjacent to the project area, to assure no public health exposure limits were being exceeded due to the shallow groundwater contamination.

KRISTA DEARING, RG

SENIOR GEOLOGIST/PROJECT MANAGER

11 W Briarwood Terrace
Phoenix, AZ 85045

kdearing@ecosphere-services.com

(623) 910-6898

QUALIFICATIONS SUMMARY

Krista Dearing is a senior geologist and project manager possessing extensive experience in environmental geology projects, hydrogeological investigations, and environmental compliance. Her strengths include being a strategic, intellectual, focused researcher with in-depth experience in field techniques and data interpretation; capable of maximizing investigations for efficiency and best results. She is diplomatic, social, versatile team player, flexible, and knowledgeable.

EDUCATION

Geology, MS — 1993
University of Cincinnati, Cincinnati, Ohio

Geology, BS — 1991
University of Cincinnati, Cincinnati, Ohio

PROFESSIONAL EXPERIENCE

Ecosphere Environmental Services — 2014 – Present
Durango, Colorado / Phoenix, Arizona

Tetra Tech, Inc. — 2006 – 2014
Phoenix, Arizona

Miller Brooks Environmental, Inc. — 2004 – 2006
Phoenix, Arizona

SWCA — 2002 – 2004
Phoenix, Arizona

Parsons Group — 1999 – 2002
Cincinnati, Ohio / Phoenix, Arizona

Dames & Moore Group — 1993 - 1999
Cincinnati, Ohio

Years of Experience: 21

Years w/Ecosphere: <1

Trainings • Certifications • Professional Affiliations

OSHA 1910.120 40-Hour HAZWOPER Training

OSHA 1910.120 8-Hour Supervisory Training

MSHA Part 46 24-Hour Training

RCRA Hazardous Waste Management

DOT Hazardous Waste Materials Transport

American Institute of Professional Geologists (AIPG)

Society of Mining, Metallurgy, and Exploration (SME)

Arizona Hydrological Society (AHS)

Arizona Mining and Industry Get Our Support (AMIGOS)

Arizona Registered Geologist No. 41784

REPRESENTATIVE PROJECT EXPERIENCE

Representative Mining, Hydrogeology, and Remediation

- Project Manager for Oracle Ridge Mining (ORM) LLC Environmental Permitting and NEPA Analysis, Tucson, AZ. Responsible for supporting the ORM Feasibility Study and Mine Closure Plan, preparing NEPA EIS documentation, Aquifer Protection Plan (APP) Significant Amendment, CWA 404 permit application, as well as all environmental permitting/consultation required by local, state, and federal agencies.
- Project Manager for Characterization and Reclamation of a Former Smelter Site is Pinal County, Arizona. Prepared Sampling and Analysis Plan (SAP), conducted soil survey to characterize the nature and extent of RCRA metals in soil in and around the approximately 200-acre site, evaluated soil analytical data to determine if a Risk Assessment was necessary, developed and implemented detailed reclamation procedures, prepared Closure Plan.
- Project Manager, Bureau of Indian Affairs, Acid Mine Drainage Study to evaluate regional groundwater quality related to acid mine drainage from the United Verde Mine located in Jerome, Arizona. The study included the evaluation of heavy metals in the sediment of Bitter Creek, which bisects Yavapai-ApacheTribal land; the analysis of drinking water from several domestic wells; and evaluation of regional groundwater quality.
- Hydrologist, Exelon Generation, Victoria, Texas, U.S. Nuclear Regulatory Commission Combined Operating License Environmental Report. Prepared groundwater and surface quality characterization sampling and analysis plan (SAP), lead field team to conduct quarterly water quality data to be included in Exelon's NEPA Environmental Report.
- Project Manager, Shell Oil Products, Sarawak, Malaysia, Borneo. Lead the environmental restoration of Shell Malaysia's 115-acre Lutong Refinery. Relocated to Malaysia for 1 year; prepared the remedial action plan (RAP); oversaw preparation of USEPA Tier II risk assessment to establish site-specific risk-based cleanup levels for total petroleum hydrocarbon-contaminated soil and groundwater; prepared the quality assurance project plan and sampling and analysis plan (QAPP/SAP) and project execution plan; and obtained all required permits. Site restoration included the demolition of remaining refinery structures, and land farming (bioremediation and aeration) of contaminated soil and groundwater.

Representative NEPA

Project Manager for the following Applicants' Environmental Report (ER) – U.S. Nuclear Regulatory Commission (NRC) Operating License Renewal Stage in accordance with NRC 10 CFR Part 51 and NEPA:

- Palo Verde Nuclear Generating Station (PVNGS), Arizona
- Perry Nuclear Generating Station, Perry , Ohio
- LaSalle Nuclear Generating Station, Central Illinois
- Byron and Braidwood Generating Stations; Exelon; Central Illinois
- Callaway Unit 1 Nuclear Power Plant, Fulton, Missouri
- South Texas Project (STP) Nuclear Generating Station, Bay City, Texas

Managed and/or supported various federal agency NEPA Environmental Impacts Statements (EIS) including:

- Federal Aviation Administration and the State of New Mexico, Spaceport America NEPA EIS.
- Bureau of Indian Affairs: EIS for the Land Title Transfer of 1,200 acres of fee land to the United States in trust for the Yavapai-Apache Nation, Camp Verde, AZ.
- National Parks Service: EIS for the Colorado River, Grand Canyon Reach, to update the 1989 Colorado River Management Plan.
- Federal Energy Regulatory Commission: EIS for an underground natural gas storage facility including a 45-mile natural gas pipeline corridor in Kingman, Arizona.
- U.S. Fish and Wildlife Service: EIS's and Comprehensive Conservation Plans for the Desert National Wildlife Refuge and four other National Wildlife Refuges in southern Nevada.

APPENDIX E

DNL AND INM INPUT DATA – KB ENVIRONMENTAL SCIENCES, INC.

DRO Noise Analysis

The extent of existing noise resulting from aircraft operations at DRO was determined using the FAA-approved computer simulation model—the Integrated Noise Model (INM-Version 7.0d). The INM produces Day-Night Average Sound Level (DNL) contours (i.e., lines of equal noise exposure). The following provides an overview of the DNL metric and the INM input data used to prepare the DNL contours for DRO.

DNL Overview

The DNL metric represents a time-weighted 24-hour average of sound energy, or decibels (dB) measured on the A-weighted scale (dB(A)). The levels are time-weighted such that noise events occurring during sensitive time periods (from 10 pm to 7 am) are penalized (i.e., weighted more heavily than those occurring from 7 am to 10 pm). This penalty accounts for a greater sensitivity to noise and a decrease in background sound levels during nighttime hours. Use of the DNL in evaluating aircraft noise is standard for the evaluation of cumulative aircraft noise effects due to aviation activities.

INM Input Data

In the development of DNL contours, the INM uses both default and airport-specific factors. The default factors include engine noise levels, thrust settings, aircraft arrival and departure flight profiles and aircraft speed. The airport-specific factors include the number of aircraft operations, the type of aircraft, the airport elevation, runway use, the assignment of specific aircraft to individual arrival and departure flight tracks, operational time (day/night), and, for departures, the stage (i.e., trip) length from DRO to destination airports. The following describes these DRO-specific data.

2013 Aircraft Operations, Fleet Mix, Operational Time of Day

An aviation activity forecast for DRO was prepared as part of the Master Plan with a baseline year of 2013. The overall forecast of aviation activity was divided into categories of aircraft. The 2013 aircraft operations by category is provided in **Table 1.** As shown, in 2013 there were 27,928 operations at DRO (an average of approximately 77 operations per day).

For the purposes of preparing DNL contours, operational data must be segregated by aircraft type and by type of operation. Aircraft operations are further segregated as being local and itinerant. An itinerant operation is defined as an aircraft departure where the aircraft leaves the airport vicinity and lands at another airport, or an aircraft landing where the aircraft arrives from another airport. Local operations are aircraft touch-and-go training operations. A touch-and-go operation occurs when an aircraft departs an airport, lands on a runway and then departs again without stopping.

The FAA's Traffic Flow Management System Count (TFMSC) for calendar year 2013 was used to develop the 2013 INM aircraft fleet mix for DRO. TFMSC data provides information on traffic counts by airport and includes the specific aircraft types operating at that airport. TFMSC source data are created when pilots file flight plans.

The INM includes a number of individual aircraft types as well as a number of FAA-approved substitute aircraft. The TFMSC data for DRO was reviewed and each aircraft type was assigned an INM aircraft type (or substitute).

As previously stated, DNL is calculated such that aircraft operations that occur after 10 pm and before 7 am (i.e., during the nighttime) are penalized by the addition of 10 dB(A) to each operation.

For noise modeling purposes, it was estimated that approximately 20 percent of the itinerant, and 10 percent of the local operations at the airport occur during the nighttime hours.

The 2013 aircraft fleet of itinerant and local operations, by time of day, are provided in **Tables 2** and **3** respectively.

TABLE 1 – 2013 ANNUAL AIRCRAFT OPERATIONS

Year	Commercial	GA Itinerant	GA Local	Military	Total
2013	7,128	6,902	13,398	500	27,928

Source: Jviation

TABLE 2 – 2013 AVERAGE DAY ITINERANT OPERATIONS

Aircraft Category	Aircraft Types	INM Aircraft	Daytime Operations	Nighttime Operations	Total Operations
Commercial	Bombardier Q-400	DHC830	6.92	1.73	8.65
	Bombardier CRJ	CL601	4.48	1.12	5.61
	Embraer Regional Jet 135/145	EMB145	2.26	0.57	2.83
	Airbus A-319	A319-131	1.09	0.27	1.37
	Embraer Regional Jet 145 EX	EMB14L	0.73	0.18	0.92
	Embraer 190	EMB190	0.12	0.03	0.16
Jet	Bombardier Learjet 35/45/55	LEAR35	1.05	0.26	1.32
	Cessna Citation II/Bravo	CNA55B	0.34	0.08	0.42
	Mitsubishi Diamond I	MU3001	0.29	0.07	0.36
	Cessna Citation CJ2/3	CIT3	0.28	0.07	0.35
	Bombardier Challenger 600/601	CL600	0.25	0.06	0.31
	Cessna Citation Ultra/Encore	CNA560E	0.51	0.13	0.64
	Eclipse 500	ECLIPSE500	0.24	0.06	0.30
	Cessna Citation Sovereign	CNA680	0.16	0.04	0.20
	Cessna 500/Citation I	CNA500	0.14	0.03	0.17
	Cessna Citation X	CNA750	0.12	0.03	0.15
	Dassault Falcon 900	F10062	0.11	0.03	0.13
	Cessna Citation Jet/CJ1	CNA525C	0.10	0.03	0.13
	IAI Astra 1125	IA1125	0.07	0.02	0.08
	Bombardier Global Express	GV	0.06	0.02	0.08
	Gulfstream IV	GIV	0.06	0.01	0.07
	Cessna Citation Mustang	CNA510	0.04	0.01	0.05
	Gulfstream II/III	GIIB	0.01	0.00	0.02
	Learjet 25	LEAR25	0.00	0.00	0.01
Turboprop	Cessna 208 Caravan/Pilatus PC-12	CNA208	2.64	0.66	3.30
	Cessna 441/Super King Air 200/300	CNA441	3.83	0.96	4.79
	Dash-6/Swearingen Merlin IV	DHC6	1.22	0.30	1.52
	Shorts 330	SD330	0.06	0.02	0.08
ME Piston	Beech Baron 55/58 Cessna 401/402/414/421	BEC58P	1.07	0.27	1.34
SE Piston	Piper P-46 Malibu/Beech 33/Mooney M20K/M20L/M20J/Cirrus SR-22	GASEPV	1.79	0.45	2.23
	Cessna 180/185/206/210	CNA206	0.43	0.11	0.54
	Cessna 182	CNA182	0.18	0.05	0.23
	Cessna 172/177	CNA172	0.06	0.02	0.08
	AA5A Grumman Cheetah	GASEPF	0.03	0.01	0.04
Military	C-130	C130E	1.10	0.27	1.37
	Total Itinerant Operations		**31.85**	**7.96**	**39.81**

Note: Numbers may not sum due to rounding

Source: FAA Traffic Flow Management System Count, KB Environmental Sciences, Inc., INM 7.0d

TABLE 3 – 2013 AVERAGE DAY LOCAL OPERATIONS

Aircraft Category	Aircraft Types	INM Aircraft	Daytime Operations	Nighttime Operations	Total Operations
ME Piston	Beech Baron 55/58 Cessna 401/402/414/421	BEC58P	9.94	1.10	11.04
SE Piston	Piper P-46 Malibu/Beech 33/Mooney M20K/M20L/M20J/Cirrus SR-22	GASEPV	16.55	1.84	18.39
	Cessna 180/185/206/210	CNA206	3.98	0.44	4.42
	Cessna 182	CNA182	1.70	0.19	1.88
	Cessna 172/177	CNA172	0.58	0.06	0.65
	AA5A Grumman Cheetah	GASEPF	0.29	0.03	0.32
Total Local Operations			**33.04**	**3.67**	**36.71**

Note: Numbers may not sum due to rounding

Source: FAA Traffic Flow Management System Count, KB Environmental Sciences, Inc., INM 7.0d

Aircraft Flight Tracks

Because it was assumed that the aircraft noise contours would not extend far beyond the airport property boundary, the locations of the existing aircraft arrival and departure flight paths (i.e., tracks) in the immediate vicinity of DRO were modeled straight in/out from each runway end with one exception. Commercial and general aviation jet aircraft departures were modeled following a climbing right turn from both runway ends. Local tracks were modeled following a standard left-traffic pattern from both runway ends.

Stage Lengths for Departures

For modeling purposes, it was assumed that aircraft departing DRO travel a distance of 501 nautical miles or less.

2013 DNL Contours

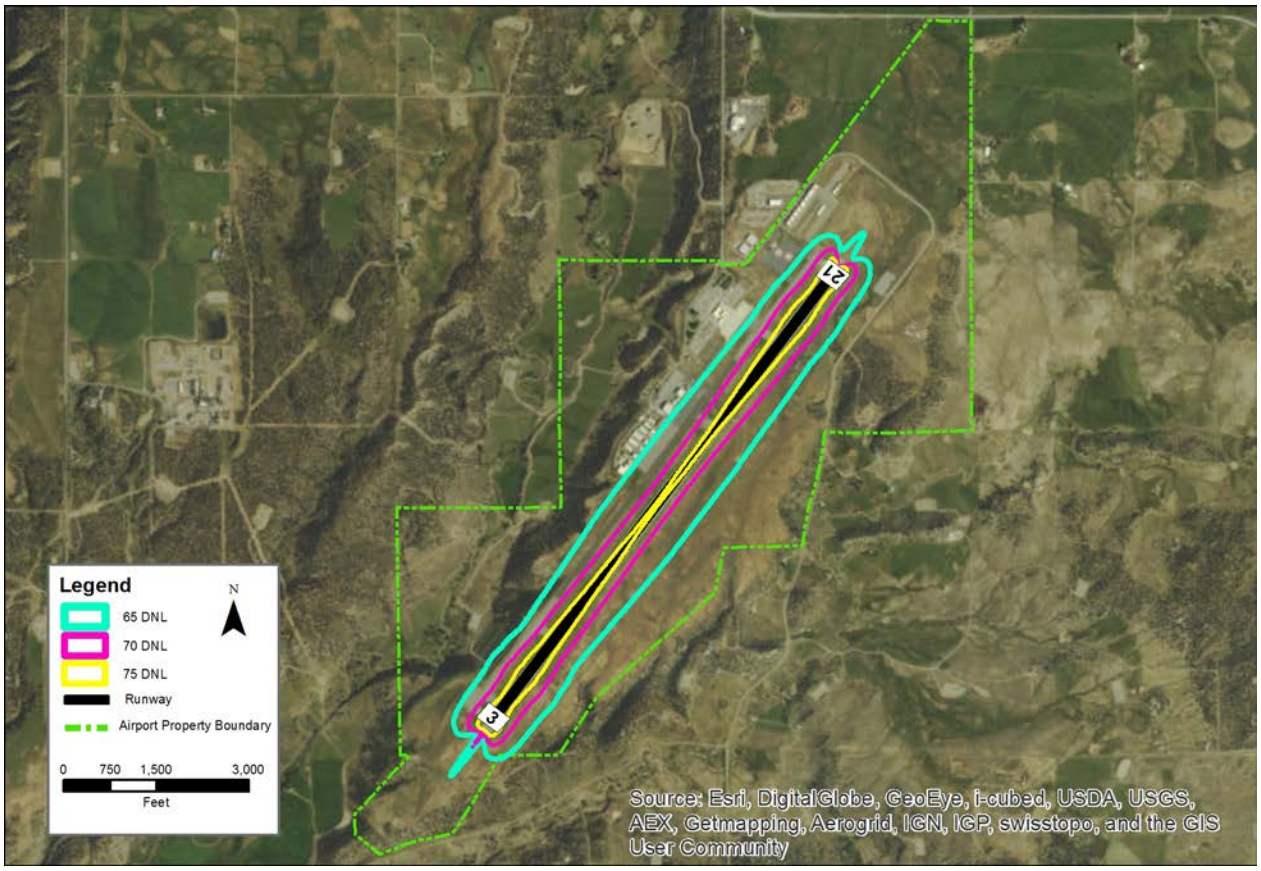
The 2013 65-75 DNL contours are provided on **Exhibit 1**. **Table 4** identifies the acreages within the DNL contour ranges. As shown in the table, the total area within the 65 and greater DNL contour is 283 acres. The 65 DNL contour largely remains within the limits of the airport property boundary. Notably, there are no residences or other noise sensitive land uses within the 2013 65 DNL.

TABLE 4 – 2013 DNL CONTOUR AREAS

DNL (dB(A))	Area (Acres)
65 - 69	155
70 - 74	83
75 +	45
Total	**283**

Source: KB Environmental Sciences, Inc.

EXHIBIT 1
2013 65-75 DNL Contours



Source: KB Environmental Sciences, Inc.

Future (2035) Aircraft Operations

A forecast of aviation activity for DRO was prepared as part of the Master Plan. The forecast of operations for the year 2035 by aircraft category is presented in **Table 5.** As shown, the 2035 forecast includes 39,989 operations at DRO (an average of approximately 110 operations per day).

TABLE 5 – 2035 ANNUAL AIRCRAFT OPERATIONS

Year	Commercial	GA Itinerant	GA Local	Military	Total
2035	10,192	11,719	17,578	500	39,989

Source: Jviation

Future (2035) Aircraft Fleet Mix

The Commercial fleet of aircraft modeled for the 2035 condition included a mix of larger regional jets, represented by the Bombardier CRJ 900 and Embraer E195 aircraft, and a narrow body air carrier size aircraft, represented by the Boeing 737-800. For GA aircraft, the 2035 fleet mix was determined by multiplying the percentages by aircraft type that occurred in 2013 by the total GA operations forecasted to occur at the airport in 2035. Two GA jet aircraft that operated at the airport in 2013 were not carried through to the 2035 fleet – the Lear 25 and the Gulfstream II. Both of the jets are classified as Noise Stage 2. As per Federal Rule, these Noise Stage 2 aircraft (under 75,000lbs) will be banned from operating in the United States after December 31, 2015. The 2035 aircraft fleet of itinerant and local operations, by time of day, are provided in **Tables 6** and **7** respectively.

Future (2035) Operational Time of Day

The percentages of operations that were modeled during daytime/nighttime hours for 2035 were the same as those for the Baseline 2013 condition.

Future (2035) Aircraft Flight Tracks

The flight tracks, flight track use, and profiles modeled for 2035 were the same as those for the Baseline 2013 condition.

TABLE 6 – 2035 AVERAGE DAY ITINERANT OPERATIONS

Aircraft Category	Aircraft Types	INM Aircraft	Daytime Operations	Nighttime Operations	Total Operations
Commercial	Bombardier CRJ 900	CRJ9-ER	17.87	4.47	22.34
	Embraer E195	EMB195	2.23	0.56	2.79
	Boeing 737-800	737800	2.23	0.56	2.79
Jet	Bombardier Learjet 35/45/55	LEAR35	1.79	0.45	2.23
	Cessna Citation II/Bravo	CNA55B	0.57	0.14	0.71
	Mitsubishi Diamond I	MU3001	0.50	0.12	0.62
	Cessna Citation CJ2/3	CIT3	0.48	0.12	0.60
	Bombardier Challenger 600/601	CL600	0.42	0.10	0.52
	Cessna Citation Ultra/Encore	CNA560E	0.86	0.22	1.08
	Eclipse 500	ECLIPSE500	0.40	0.10	0.50
	Cessna Citation Sovereign	CNA680	0.27	0.07	0.33
	Cessna 500/Citation I	CNA500	0.23	0.06	0.29
	Cessna Citation X	CNA750	0.20	0.05	0.25
	Dassault Falcon 900	F10062	0.18	0.04	0.22
	Cessna Citation Jet/CJ1	CNA525C	0.18	0.04	0.22
	IAI Astra 1125	IA1125	0.11	0.03	0.14
	Bombardier Global Express	GV	0.11	0.03	0.13
	Gulfstream IV	GIV	0.10	0.03	0.13
	Cessna Citation Mustang	CNA510	0.10	0.02	0.12
Turboprop	Cessna 208 Caravan/Pilatus PC-12	CNA208	4.48	1.12	5.60
	Cessna 441/Super King Air 200/300	CNA441	6.50	1.63	8.13
	Dash-6/Swearingen Merlin IV	DHC6	2.07	0.52	2.59
	Shorts 330	SD330	0.10	0.03	0.13
ME Piston	Beech Baron 55/58 Cessna 401/402/414/421	BEC58P	1.82	0.46	2.28
SE Piston	Piper P-46 Malibu/Beech 33/Mooney M20K/M20L/M20J/Cirrus SR-22	GASEPV	3.03	0.76	3.79
	Cessna 180/185/206/210	CNA206	0.73	0.18	0.91
	Cessna 182	CNA182	0.31	0.08	0.39
	Cessna 172/177	CNA172	0.11	0.03	0.13
	AA5A Grumman Cheetah	GASEPF	0.05	0.01	0.07
Military	C-130	C130E	1.10	0.27	1.37
	Total Itinerant Operations		**49.12**	**12.28**	**61.40**

Source: DRO Airport Master Plan, KB Environmental Sciences, Inc., INM 7.0d; Numbers may not sum due to rounding

TABLE 7 – 2035 AVERAGE DAY LOCAL OPERATIONS

Aircraft Category	Aircraft Types	INM Aircraft	Daytime Operations	Nighttime Operations	Total Operations
ME Piston	Beech Baron 55/58 Cessna 401/402/414/421	BEC58P	13.04	1.45	14.49
SE Piston	Piper P-46 Malibu/Beech 33/Mooney M20K/M20L/M20J/Cirrus SR-22	GASEPV	21.71	2.41	24.12
	Cessna 180/185/206/210	CNA206	5.22	0.58	5.80
	Cessna 182	CNA182	2.22	0.25	2.47
	Cessna 172/177	CNA172	0.77	0.09	0.85
	AA5A Grumman Cheetah	GASEPF	0.38	0.04	0.43
Total Local Operations			**43.34**	**4.82**	**48.16**

Source: DRO Airport Master Plan, KB Environmental Sciences, Inc., INM 7.0d; Numbers may not sum due to rounding

2035 DNL Contours

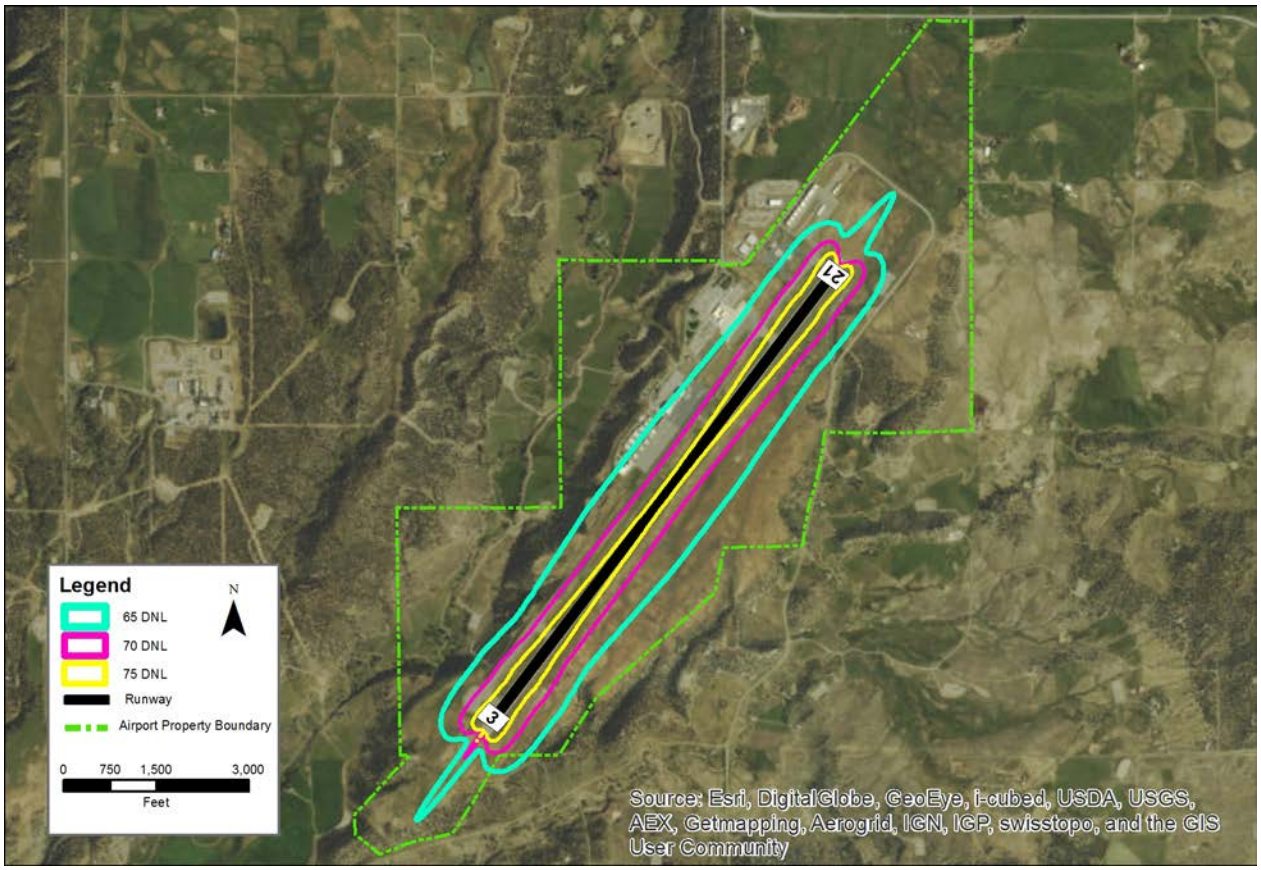
The 2035 65-75 DNL contours are provided on **Exhibit 2**. **Table 8** identifies the acreages within the DNL contour ranges. As shown in the table, the total area within the 65 and greater DNL contour is 379 acres. The 65 DNL contour largely remains within the limits of the airport property boundary. Notably, there are no residences or other noise sensitive land uses within the 2035 65 DNL.

TABLE 8 – 2035 DNL CONTOUR AREAS

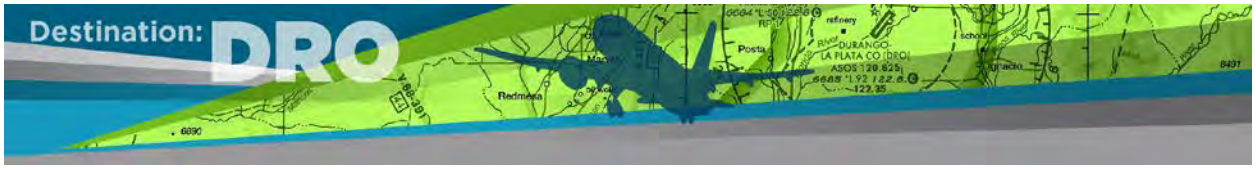
DNL (dB(A))	Area (Acres)
65 - 69	199
70 - 74	105
75 +	75
Total	**379**

Source: KB Environmental Sciences, Inc.

EXHIBIT 2
2035 65-75 DNL Contours



Source: KB Environmental Sciences, Inc.



APPENDIX F

PRELIMINARY JURISDICTIONAL DELINEATION REPORT – ECOSPHERE ENVIRONMENTAL SERVICES

Durango-La Plata County Airport

Wetland and Waters of the U.S. Preliminary Jurisdictional Delineation Report

Prepared for:

Jviation, Inc.
900 South Broadway, Suite 350
Denver, CO 30326

October 2014

Ecosphere
Environmental Services

Durango, CO
Cortez, CO
Pagosa Springs, CO
Santa Fe, NM
Farmington, NM

TABLE OF CONTENTS

1. Introduction 1

1.1 Project Description 1

1.2 Scope of Services 1

1.3 Site Location 1

2. Existing Conditions 2

2.1 Vegetation Conditions 2

2.2 Soils 2

2.3 Hydrology 3

3. Methodology 4

3.1 Wetlands and Waters of the U.S. 4

3.1.1 Hydrophytic Vegetation 5

3.1.2 Hydric Soils 5

3.1.3 Wetland Hydrology 6

4. Results 6

4.1 Wetlands and Other Waters of the U.S. in the Survey Area 6

4.1.1 Fallow Pasture, Northeast Corner 7

4.1.2 Wetlands within the Secured, Fenced Interior of the Durango - La Plata County Airport 8

4.1.3 Wetlands near Administrative Buildings and Main Terminal Parking 8

4.1.4 The Florida River, Valley Floor and Tributary Waters 8

4.1.5 Tributary Drainage to Salt Creek 9

5. References 9

LIST OF TABLES

Table 1. USDA Soil Types in the Project Area 3

Table 2. Delineated Verification Wetlands within the Survey Area 6

LIST OF FIGURES

Figure 1. Vicinity Map of Durango-La Plata County Airport....A-2
Figure 2. Survey Area Boundary....A-3
Figure 3. Wetland Determinations Map Book, page 1 of 7....A-4
Figure 4. Wetland Determinations Map Book, page 2 of 7....A-5
Figure 5. Wetland Determinations Map Book, page 3 of 7....A-6
Figure 6. Wetland Determinations Map Book, page 4 of 7....A-7
Figure 7. Wetland Determinations Map Book, page 5 of 7....A-8
Figure 8. Wetland Determinations Map Book, page 6 of 7....A-9
Figure 9. Wetland Determinations Map Book, page 7 of 7....A-10

LIST OF PHOTOGRAPHS

Photograph 1. Looking north at Wetland M, a stormwater detention basin.... D-2
Photograph 2. Looking northwest at Wetland J, a stormwater detention basin.... D-2
Photograph 3. View looking west at Wetland G.... D-3
Photograph 4. View looking north at Wetland G.... D-3
Photograph 5. View looking southeast from airport storm drain into Wetland F.... D-4
Photograph 6. View looking northeast at Wetland F.... D-4
Photograph 7. View looking northeast along Wetland F boundary, dominated by Canada thistle.... D-5
Photograph 8. View looking north across excavated pond at the Wetland I boundary.... D-5
Photograph 9. Typical ditch/lateral in northeast agricultural field.... D-6
Photograph 10. Typical irrigated wetland habitat, northeast agricultural field.... D-6
Photograph 11. Typical seep wetland forming below the rim in a natural drainage.... D-7
Photograph 12. Looking upstream at Florida River, typical cross section.... D-7
Photograph 13. Looking upstream at the bench wetland east of the airport.... D-8
Photograph 14. Looking upstream at the CR 309a roadside drainage conveying irrigation return flows to the Florida River valley floor.... D-8

ACRONYMS AND ABBREVIATIONS

Ecosphere	Ecosphere Environmental Services, Inc.
GIS	Geographic Information System
NRCS	Natural Resource Conservation Service
NWI	National Wetland Inventory
OHWM	Ordinary High Water Mark
USACE	U. S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USGS	U.S. Geologic Survey
WDDF	Wetland Determination Data Form
WRCC	Western Regional Climate Center
WUS	waters of the U.S.

1. INTRODUCTION

1.1 Project Description

Ecosphere Environmental Services, Inc. (Ecosphere) was contracted by Jviation, Inc. to determine the presence of wetlands and other jurisdictional waters of the U.S. (WUS) located on property owned by the city of Durango, where the Durango-La Plata County Airport resides. Ecosphere delineated wetlands in the survey area and mapped wetlands and other (WUS using the National Wetland Inventory (NWI) mapping standards. All work was done to support planning efforts for the Durango - La Plata County Airport Master Plan. Future development at the airport may include relocation of the terminal or expansion of the existing terminal and expansion of other facilities, though exact locations are not currently known.

1.2 Scope of Services

The scope of work for the wetland delineations includes the following:

- Review existing Geographic Information System (GIS) data, including the National Hydrologic Dataset, NWI, and U.S. Geological Survey (USGS) soil data that identifies hydric soils
- Conduct pedestrian field surveys to delineate wetlands and WUS
- Verify and modify (as needed) the existing NWI mapping within the survey area
- Prepare a Wetland Delineation Report suitable for submittal to the U.S. Army Corps of Engineers (USACE)

1.3 Site Location

The airport is situated in the foothills of the San Juan Mountains in southwestern Colorado, approximately 14 miles southeast of the City of Durango (Figure 1, Appendix A). The airport is located in La Plata County on the Loma Linda, Colorado, 7.5-minute United States Geological Survey quadrangle. About 35 percent of the survey area is improved or paved as part of the runway and airport infrastructure. The airport is accessed via Colorado 172 and Airport Road.

The survey area is defined as the Durango – La Plata County Airport boundary comprising about 1,258 acres (Figure 2). The airport boundary is the survey area for this wetland delineation report. The mesa top is the portion of the property that includes the footprint of the airport proper, but the property boundary extends down to the Florida River to the west and to highway 172 to the north. The legal coordinates for the airport are as follows:

Sections 20, 29, 30, 31, 32 Township 34 North, Range 8 West
Section 6, Township 33 North, Range 8 West
Section 1, Township 33 North, Range 9 West

New Mexico Principal Meridian
La Plata County, Colorado

2. EXISTING CONDITIONS

2.1 Vegetation Conditions

According to SWReGAP (Southwest Regional Gap Analysis Project), the primary vegetation community in the survey area is mapped as agriculture both on the mesa top and in the Florida River valley. Although current uses at the airport are private, commercial, and industrial, the historical land use was agriculture. Agriculture, especially ranching, continues to dominate the surrounding area. The second most prominent vegetation community mapped is Colorado Plateau piñon-juniper (*Pinus edulis-juniperus scopulorom*) woodlands, covering the slopes leading up to the mesa and the slope across the Florida River above the valley floor. Other vegetation types include Inter-Mountain Basin big sagebrush (*Artemisia tridentata*) shrublands interspersed within the piñon–juniper woodlands and Inter-Mountain Basin semi-desert shrub steppe. The airport facilities and buildings occur in an area mapped as Inter-Mountain Basin greasewood flats, yet none of that habitat remains.

Eight Colorado-listed and La Plata County-listed noxious[1] and enforceable weed species were observed throughout the survey area. Enforceable Colorado List B species observed in the survey area include: bull thistle (*Cirsium vulgare*), Canada thistle (*Cirsium arvense*), houndstongue (*Cynoglossum officinale*), musk thistle (*Carduus nutans*), oxeye daisy (*Chrysanthemum leucanthemum*), Russian knapweed (*Acroptilon repens*), salt cedar (*Tamarix sp*.), and scotch thistle (*Onopordum acanthium*).

A list of plants observed during field work in the survey area is provided in Appendix B.

2.2 Soils

The surface geology of the project area includes the Nacimiento Formation, Gravels and Alluviums (Pinedale and Bull Lake Age), and San Jose Formation. About 5 to 10 percent cryptobiotic soils were observed in the piñon-juniper woodlands. Slopes within the survey area range from 0 to 20 degrees. A northwestern aspect occurs on the west side of the mesa and a southeastern aspect occurs on the eastern side of the mesa.

Based on the Soil Survey of La Plata County, Colorado, there are seven soil-mapping units present in the survey area as shown in Table 1 (NRCS[2] 2014). Three soil types—Falfa clay loam, Tefton loam, and Arboles clay—are partially hydric. Wetlands were observed predominantly in the Falfa clay loam soil type.

[1] Noxious weeds are non-native plants that disrupt native vegetation and ecosystems.

[2] NRCS = Natural Resource Conservation Service

Table 1. USDA Soil Types in the Project Area

Soil Type	Description and Slope	Erosion Hazard
Falfa clay loam	Well drained, prime farmland if irrigated, not hydric, 1 to 3 percent slopes	Slight
Falfa clay loam	Well drained, partially hydric, 3 to 8 percent slopes	Moderate
Tefton loam	Somewhat poorly drained, partially hydric, prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season	Slight
Ustic Torriorthents-Ustollic	Well drained, not hydric, 12 to 60 percent slopes	Severe
Arboles clay	Well drained, partially hydric, 3 to 12 percent slopes	Moderate
Zyme-Rock outcrop complex	Well drained, not hydric, 12 to 65 percent slopes	Severe
Bodot clay	Well drained, not hydric, 3 to 10 percent slopes	Moderate

Source: NRCS, US Department of Agriculture (USDA) 2014

2.3 Hydrology

The airport is located on a plateau above the Florida River with an elevation range of 6,450 to 6,690 feet above mean sea level. The south-flowing Florida River, a tributary of the Animas River, is located about three-tenths of a mile west of the runway facility and is the predominant water feature within the airport vicinity. Salt Creek, an intermittent tributary of the Florida River, is located approximately on-half mile east of the airport. The Animas River is located approximately 6.5 miles west of the airport.

The project area is located in an arid landscape; annual precipitation at the airport is 12.6 inches per year (WRCC[3] 2014). The survey area includes lands that support agriculture and animal husbandry, particularly in the Florida River valley, and includes fallow agricultural lands in the northeastern corner. One active irrigation ditch located in the northeastern survey area conveys irrigation water across the airport property to support agricultural practices downstream. Pastures irrigated by center pivot and flood irrigation are located directly west and north of the northeastern survey area. These lands are up gradient and drain onto the fallow agricultural lands of the survey area. Many abandoned sub-lateral irrigation ditches in the northeastern survey area capture irrigation return flows from neighboring pastures and

[3] WRCC = Western Regional Climate Center

distribute water throughout. Irrigation in the region returns water to local streams and plays a significant role in supporting wetland hydrology in the survey area.

Irrigation return flows and surface drainage flow west into the Florida River and east into Salt Creek, depending on the side of the mesa. Salt Creek is tributary to the Florida River; the confluence is approximately one mile downstream of the proposed survey area. The Florida River is a perennial stream located within the San Juan Watershed (HUC 14080104).

3. METHODOLOGY

Wetlands in the project area were mapped on August 26, 27, and September 4 and 25, 2014, using the methodologies defined below.

3.1 Wetlands and Waters of the U.S.

Due to the large survey area and significant influence to the landscape from irrigation practices, and because available NWI mapping of the area was erroneous, two delineation methodologies were applied to delineate potentially jurisdictional wetlands and WUS in the airport planning area. The initial screening method consisted of review of 6-inch resolution color infrared aerial imagery from 2012 applying NWI Classification standards (Cowardin, et. al. 1979). In addition to mapping the boundaries of existing (accurate) NWI polygons, this approach served to calibrate and re-delineate apparent wetland areas according to NWI Classification standards. Approximately 57 acres of potentially jurisdictional wetlands were delineated and mapped in the survey area. The NWI classification is used by the U.S. Fish & Wildlife Services to inventory wetlands and deepwater habitats of the United States and may be used as a guide to inform development planning within the survey area. This wetland mapping approach is in conformance with Part IV, Section D, Subsection 3 of the Wetlands Delineation Manual (USACE 1987) for routine preliminary jurisdictional determinations of wetland complexes greater than 5 acres in size.

Once this initial delineation and mapping was completed, approximately 20 acres of the potentially jurisdictional 57 acres of wetlands were delineated using the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE 2008a) and the Wetlands Delineation Manual. The delineation of this 20 acre subset using the referenced manuals was intended to validate the delineation boundaries mapped according to the NWI classification method. This amount of acreage represents a significant proportion of the total potential jurisdictional wetlands in the study area and is an appropriate validation methodology as defined by Part IV, Section D, Subsection 3 of the Wetlands Delineation Manual. Under the delineation procedures in these manuals, an area must exhibit characteristic wetland hydrology, hydric soils, and hydrophytic vegetation to be considered a wetland. Any area that appeared to display these characteristics was investigated using an approved USACE Arid West Wetland Determination Form. The delineation of these approximately 20 acres of wetlands were flagged in the field using pin flags and flagging tape to facilitate USACE field verification, and serves to validate wetland areas mapped by Ecosphere according to the NWI classification standards. The flag

locations and all mapped wetland boundaries may be relocated using a sub-meter Trimble GeoXT® global positioning system unit.

Results of the wetland survey (including wetland boundaries, flag points, photo points, and soil pits) are shown on detailed maps in Appendix A, Figures 3-9. Any plant species observed and hydric plant status may be found on the forms included in Appendix B. Completed determination forms are included in Appendix C; representative photographs are included in Appendix D.

Ordinary High Water Mark (OHWM) evaluations were prepared in accordance with the methodology identified in the USACE Field Guide to the Identification of OHWM (USACE 2008b). The National Hydrography Dataset, a general surface water database that contains features such as lakes, ponds, streams, rivers, canals, dams and stream gauges, was referenced prior to conducting the project fieldwork (USGS 2008).

This report provides the Minimum Standards for Acceptance of Preliminary Wetlands Delineations (USACE 2001). It should be noted that the methods applied to delineate study area wetlands and WUS represents a very conservative estimate of jurisdictional areas present in the planning area.

3.1.1 Hydrophytic Vegetation

The USACE Manual defines hydrophytic vegetation as “the community of macrophytes that occurs in areas where inundation or soil saturation is either permanent or of sufficient frequency and duration to exert a controlling influence on the plant species present” (USACE 2008a). Hydrophytic vegetation decisions are based primarily on the wetland indicator status, as defined by the USACE National Hydric Plant List (Lichvar 2013). Wetland indicator status ratings include obligate (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), upland (UPL), no indicator (NI), and not listed (NL). Scientific nomenclature of all plant species follows that of the PLANTS database (USDA 2012).

The locations of sampling points were selected to capture the primary vegetation communities of the wetland and adjacent upland areas. Points were sometimes located near each other to highlight the transition from wetland to upland. At each sample plot, trees and shrubs within a 25-foot radius and graminoids and forbs within a 5-foot radius were identified and recorded on the wetland determination form. The Dominance Test is the basic hydrophytic vegetation indicator that was applied to every point sampled. The Dominance Test identifies the most abundant species in the community and uses a repeatable and objective procedure for selecting dominant plant species. The Prevalence Index was calculated if the Dominance Test failed. The Prevalence Index takes into consideration the percent cover of all plants identified at the sampling point.

3.1.2 Hydric Soils

The National Technical Committee for Hydric Soils defines a hydric soil as “a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part” (USACE 1987). Most hydric soils exhibit characteristic

morphologies that result from repeated periods of saturation or inundation for more than a few days. Saturation or inundation combined with microbial activity in the soil causes the depletion of oxygen. These processes are evident in the field and can include high organic contents, gley formations, development of redoximorphic features, and other hydric indicators as outlined in the Arid West Supplement (USACE 2008a).

Soil samples were obtained at each data point by digging a pit to a depth of sufficient depth to determine hydric characteristics. Soil samples were then examined for soil texture and hydric soil indicators. Soil colors were evaluated using a Munsell® soil color chart (Gretag/Macbeth 2000).

3.1.3 Wetland Hydrology

Hydrophytic vegetation and hydric soil indicators typically represent a site's medium- to long-term history. Wetland hydrology indicators provide evidence that the "site has a continuing wetland hydrologic regime and that hydric soils and hydrophytic vegetation are not relics of a past hydrologic regime" (USACE 2008a). Hydrology indicators are the most inconsistent of wetland indicators, especially in the arid west where extended dry seasons are common and precipitation within a year has extreme temporal and spatial variability.

Assessment of the hydrologic criterion was based on primary and secondary indicators, as described in the Arid West Supplement (USACE 2008a). Primary indicators include observation of surface water or saturation, as well as evidence of recent inundation (e.g., oxidized rhizospheres along living roots) or current or recent soil saturation (e.g., hydrogen sulfide odor, oxidized rhizospheres). Secondary indicators also include some indicators of recent inundation or saturation (e.g., drainage patterns, saturation visible on aerial imagery).

4. Results

4.1 Wetlands and Other Waters of the U.S. in the Survey Area

Six wetland verification areas were delineated within the study area totaling over 20 acres. These wetland areas are described in detail in Sections 4.1.1 thru 4.1.5 below. Table 2 contains a summary of all the wetlands delineated according to the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE 2008a) and the Wetlands Delineation Manual (USACE 1987) within the survey area.

Table 2. Delineated Verification Wetlands within the Survey Area

Name	NWI Classification[1]	Latitude[2]	Longitude[2]	Area (Acre)	Method Used
Wetland	PEM1C	37.16	-107.7424	2.61	Field

Name	NWI Classification[1]	Latitude[2]	Longitude[2]	Area (Acre)	Method Used
Wetland	PEM1F	37.1668	-107.7443	0.57	Field
Wetland I	PEM1C	37.1655	-107.7377	16.42	Field
Wetland	PEM1F	37.1618	-107.7493	0.06	Field
Wetland L	PEM1F	37.1618	-107.7487	0.004	Field
Wetland	PEM1F	37.1579	-107.7532	0.45	Field
			Total	**20.1**	

[1] PEMC1C = Palustrine emergent, seasonal, seasonally flooded; PEM1F = palustrine emergent, persistent, semi-permanently flooded (Cowardin, et al. 1979)

[2] North American Datum 83, decimal degrees

Other wetlands within the study area were identified using the NWI classification method described above. An additional 36.9 acres were delineated and mapped in the study area as potentially jurisdictional wetlands using NWI classification standards. In total, approximately 57 acres of potentially jurisdictional wetlands were delineated and mapped in the study area.

4.1.1 Fallow Pasture, Northeast Corner

Roughly 17 acres of wetlands were delineated north of County Road 309a (Wetlands G and I) (Figure 3). Another 26.9 acres were classified as wetlands based on color infrared imagery, NWI classification standards (collectively, these are labeled H1 through H16). Wetlands in this pasture persist in part due to irrigation return flows from adjacent land use. Irrigation runoff from neighboring pastures introduce a seasonal supply of water to the fallow pasture. A network of ditches and laterals convey this water throughout and disperse water into mapped wetland areas (Photo 9). A total of 1.8 miles of ditches and laterals were measured from the color IR imagery in the northeast corner alone. This network of ditches and laterals flow into and out of three ponds (Photo 8). For some perspective, a review of historic aerial imagery shows surrounding land uses employed flood irrigation since 1993. A center pivot was added in an adjoining, tributary field by 2005, likely reducing irrigation return flows onto the property since that time. However, flood irrigation is still employed in the adjacent, tributary pasture.

Dominant hydrophytic vegetation in the fields included redtop (*Agrostis gigantea*), inland sedge (*Carex interior*), cattails (*Typha latifolia*), arctic rush (*Juncus arcticus*), barnyard grass (*Echinochloa crus-galli*) and creeping meadow foxtail (*Alopecurous arundinaceus*) (WDDF 1h-3h) (Photo 10). Hydric soils in the field were predominantly red parent material with a low chroma and evidence of reducing conditions.

4.1.2 Wetlands within the Secured, Fenced Interior of the Durango - La Plata County Airport

Wetlands found within the secured, fenced interior of the Durango - La Plata County Airport were commonly observed below the mesa rim within drainages (Photo 11; Figure 7, 8 & 9). Wetland hydrology generally included saturated soil. All but one of the areas lacked surface flow, but instead included persistent hydrophytic vegetation such as cattails, arctic rush and redtop. One seep was observed below a sandstone outcrop, also in a natural drainage (Figure 6). Downstream of the seep, a wetland is formed on a narrow bench below the mesa rim within the piñon-juniper woodland (Photo 13). Once the gradient increases in the drainage, a narrow, wetland fringe buffers the stream. A jurisdictional ephemeral wash forms the headwater of this minor drainage.

4.1.3 Wetlands near Administrative Buildings and Main Terminal Parking

Wetlands J and M are man-made palustrine emergent wetlands designed to manage stormwater runoff from developed airport facilities (Photos 1 and 2; Figures 4 and 7). A concrete spillway and excavated basin collects and detains stormwater for treatment. Larger precipitation events will fill and eventually spill over the concrete structure into a man-made earthen channel to the Florida valley floor below. Hydrophytic vegetation was predominantly cattails. A narrow band of coyote willows (*Salix exigua*) was observed growing along the northwest shoreline. There are three storm inlets to Wetland M and two storm inlets into Wetland J. Hydric soil includes red parent material (WDDF 1m).

4.1.4 The Florida River, Valley Floor and Tributary Waters

The Florida River is a managed, perennial stream tributary to the Animas River. Surrounding floodplains, as a result, infrequently flood, unless as the result of a lower elevation, localized precipitation event. Lemon Reservoir is located roughly 20 miles upstream. Lemon reservoir is managed by the U.S. Bureau of Reclamation as a Colorado River Storage Project. The outflow from the reservoir on September 27, 2014, was 10 cubic feet per second. The Florida Water Conservancy District manages irrigation water deliveries from the reservoir. Irrigation return flows increase streamflow in the Florida River along its course and until its confluence with the Animas River.

Within the survey area, cattle have access to most all the river corridor, perhaps limiting establishment of woody riparian species, such as coyote willow. A few palustrine scrub shrub communities were identified, however. These were small, scattered communities of coyote willow and/or hawthorne (*Cratageus* spp).

Over 11.8 acres of palustrine emergent wetlands were mapped as wetlands west of the airport based on the color infrared imagery (Figures 4, 6, 7 & 8). Most wetlands have origin from the mesa top, as irrigation return flows and active ditches convey water from the mesa to the valley floor. Irrigation water is actively managed in ditches and laterals throughout this portion of the survey area. Approximately 1.1 miles of ditches were mapped west of the airport as part of this survey. Some ponds may be found throughout the valley floor, typically excavated areas fed by ditch laterals. Land uses on the valley floor include active agricultural (hay), animal husbandry (cows) and natural gas development.

Some palustrine emergent wetlands may be found adjacent to the Florida River. These are supported by a high groundwater table and often are found in abandoned oxbows or low river terraces (Photo 2). Pastures close to the river also receive supplemental irrigation return flows from flood irrigation of upper pastures.

4.1.5 Tributary Drainage to Salt Creek

The unnamed tributary to Salt Creek east of the airport (Wetland F) collects a significant portion of irrigation return flows from the fallow pasture in the northeast corner of the survey area. One airport stormwater drain outlet contributes to the stream flow (Photo 3). The drainage in most sections support a defined and active (vegetated) channel approximately 2 feet wide by 6 inches deep, depending on location. The upper portion of the drainage is low-gradient (Photos 6 and 7). The gradient does increase the further south it travels. The drainage supports a palustrine emergent wetland community along its course. Approximately 2.61 acres were delineated as part of this mapping effort (Figures 3 & 5). Another 0.44 acre was classified as wetland using the NWI classification standard (Figure 9). Dominant hydrophytic vegetation near the active channel included cattails with intermittent and sparing communities of northwest territory sedge (*Carex utriculata*). Hydrophytic vegetation near the wetland boundary was typically dominated by bluejoint (*Calamagrostis canadensis*) and Canada thistle (*Cirsium arvense*). Hydric soil near the wetland boundary included a depleted matrix with low chroma and a soil matrix containing redoxymorphic features (WDDF 1F through 5f). Portions of the drainage support coyote willow, typically when the stream gradient increases and the flood-prone area decreases.

5. REFERENCES

Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Fish and Wildlife Service, Office of Biological Services, Washington, D.C. FWS/OBS-79/31.

Gretag/Macbeth. 2000. Munsell® color. New Windsor, New York.

Lichvar, R.W. 2013. The National Wetland Plant List: 2013 wetland ratings. Phytoneuron 2013-49: 1-241. (http://rsgisias.crrel.usace.army.mil/NWPL/). Accessed October 11, 2013.

Natural Resources Conservation Service, United States Department of Agriculture (NRCS, USDA). 2014. Web Soil Survey. Available online at: http://websoilsurvey.nrcs.usda.gov/. Accessed September 23, 2014.

United States Army Corps of Engineers (USACE). 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.

USACE. 2001. Minimum Standards for Acceptance of Preliminary Wetlands Delineations. General memorandum from A. Champ, Chief, Regulatory Branch, Sacramento District. November 30,
2001.

USACE. 2008a. Regional Supplement to the U.S. Army Corps of Engineers: Arid West Region. Technical Report ERDC/EL TR-08-28, U.S. Army Engineer Research and Development Center, Vicksburg, Mississippi.

USACE. 2008b. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. Cold Regions Research and Engineering Laboratory: Hanover, NH.

U.S. Department of Agriculture (USDA). 2012. National Plants Database. Available online at: http://plants.usda.gov. Accessed September 23, 2014.U.S. Geological Society (USGS). 2008. National Hydrography Dataset, High Resolution. Reston, Virginia, USA: U.S. Geological Society.

Western Regional Climate Center (WRCC). 2014. Annual Climate Summary for Durango-La Plata County Airport, Colorado. Period of Record: 7/1/1996 to 12/1/2008. Available online at: http://www.wrcc.dri.edu/summary/dro.co.html Accessed September 23, 2014.

Appendix A: Wetland Delineation Maps and Figures

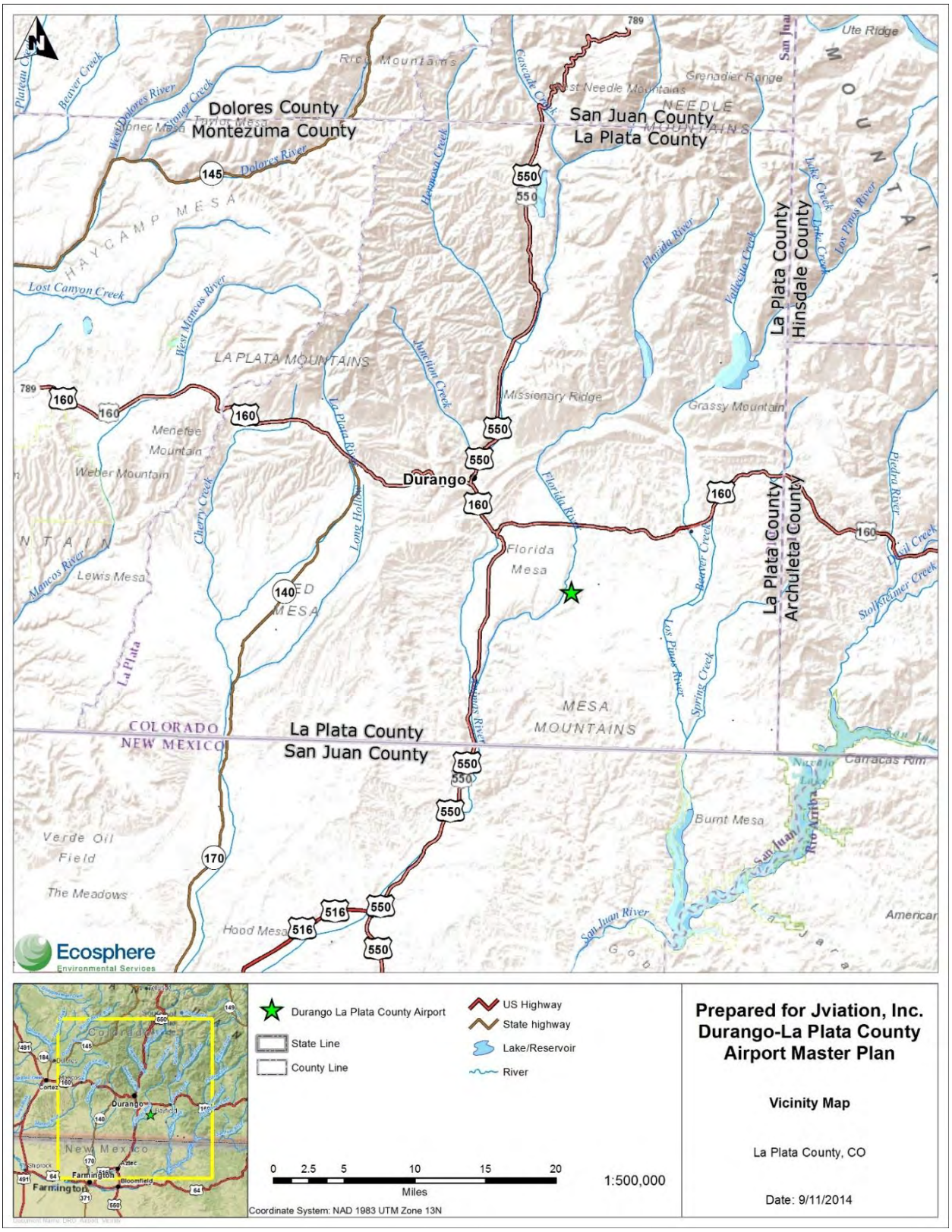


Figure 1. Vicinity Map of Durango-La Plata County Airport

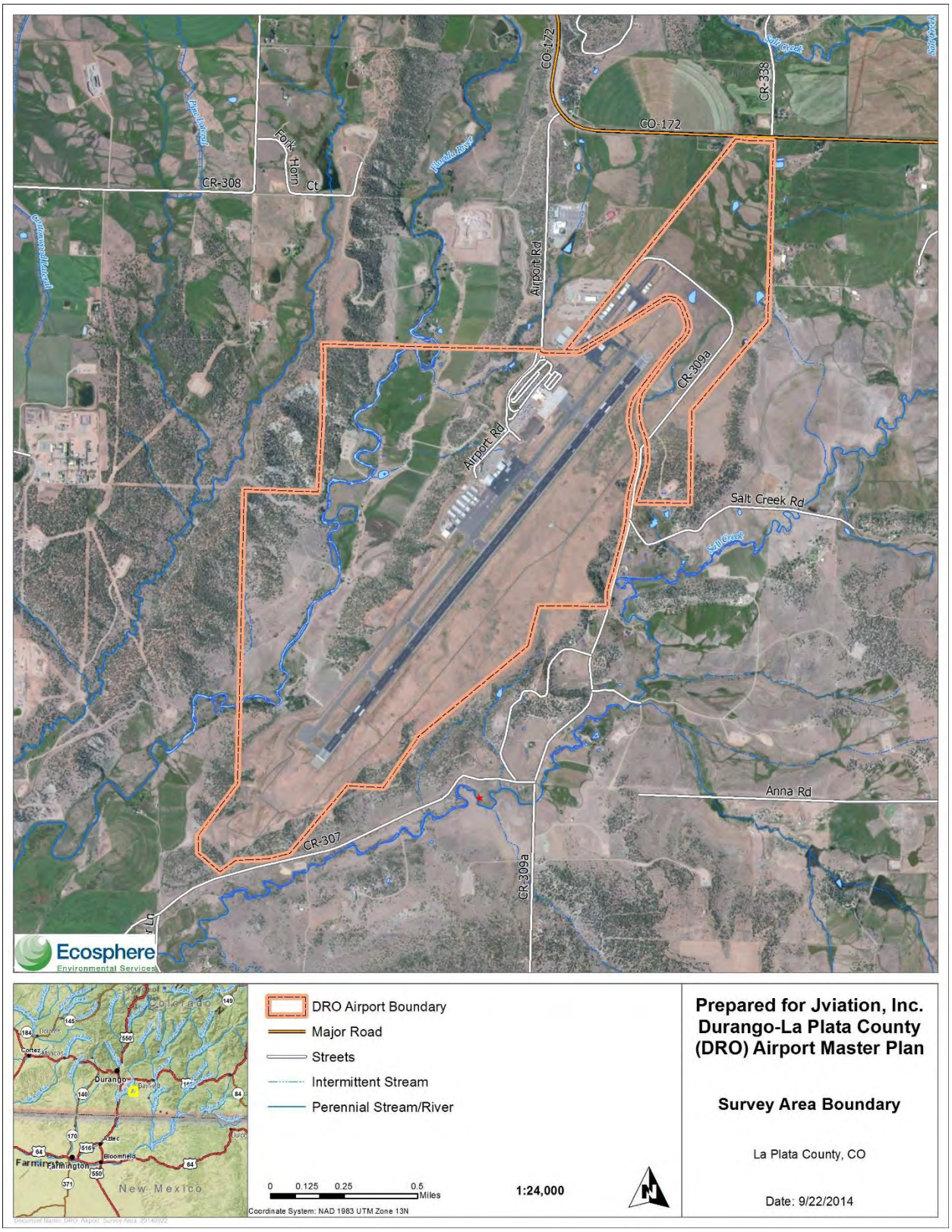


Figure 2. Survey Area Boundary

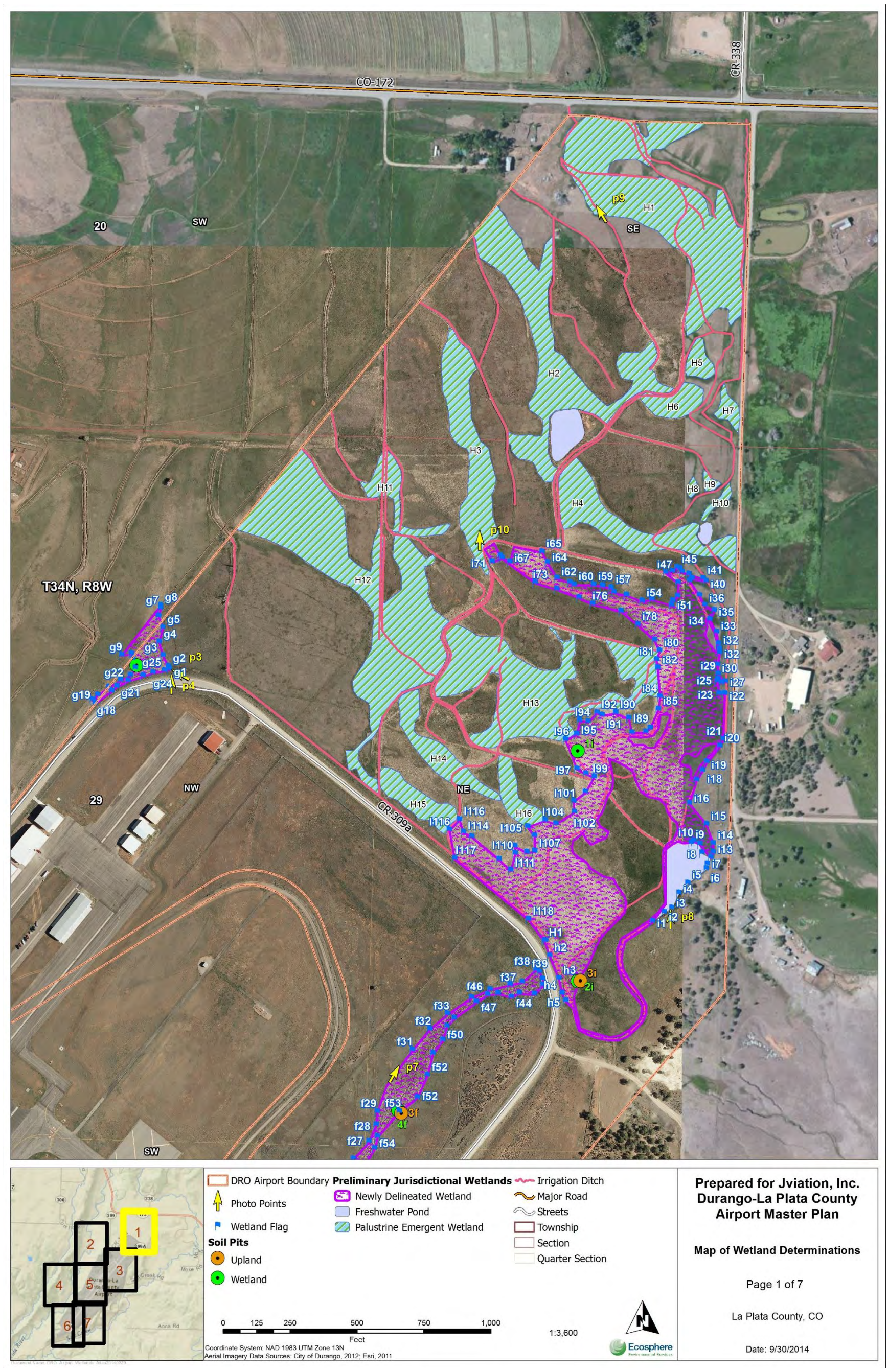


Figure 3. Wetland Determinations Map Book, page 1 of 7

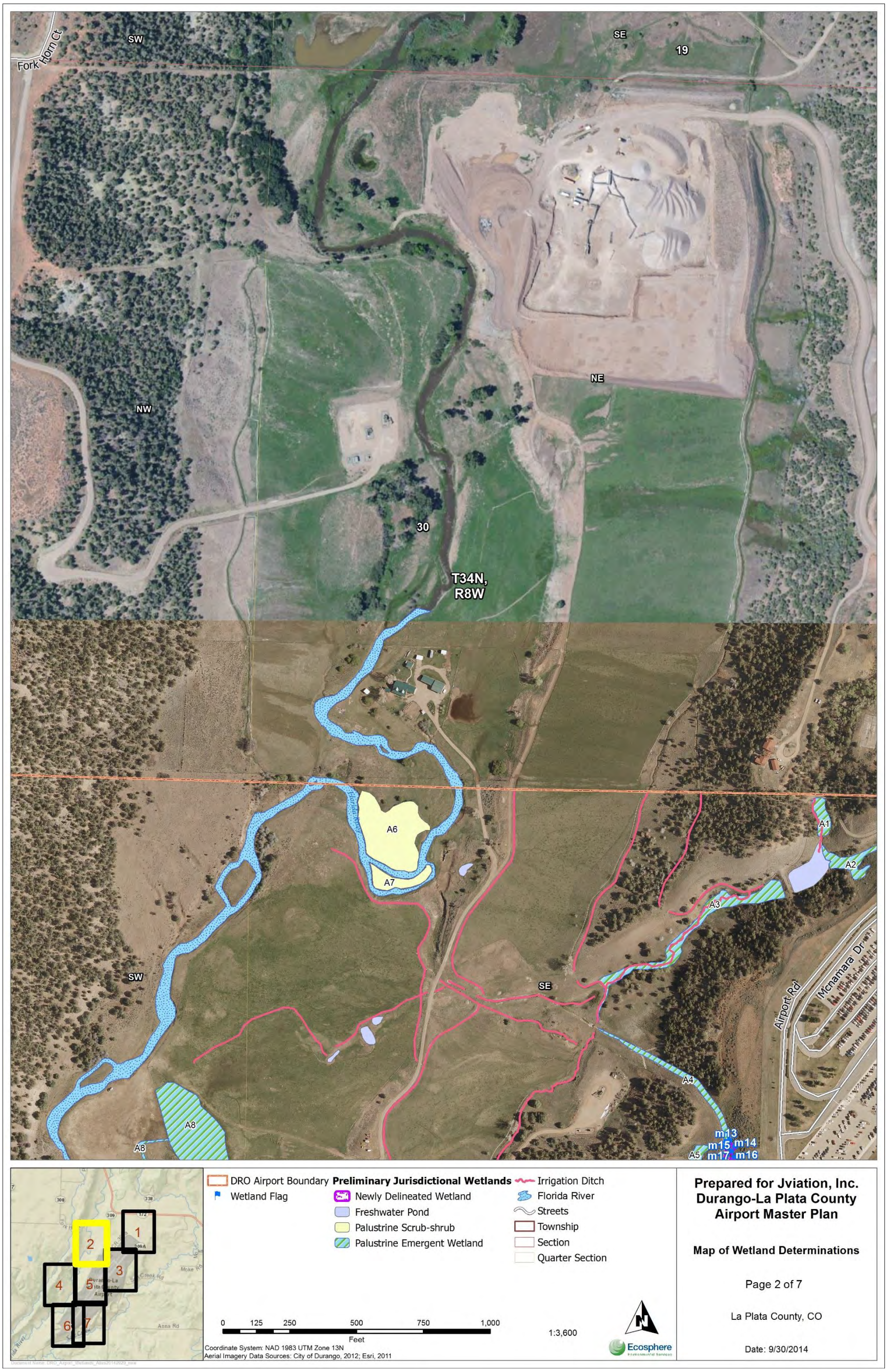


Figure 4. Wetland Determinations Map Book, page 2 of 7

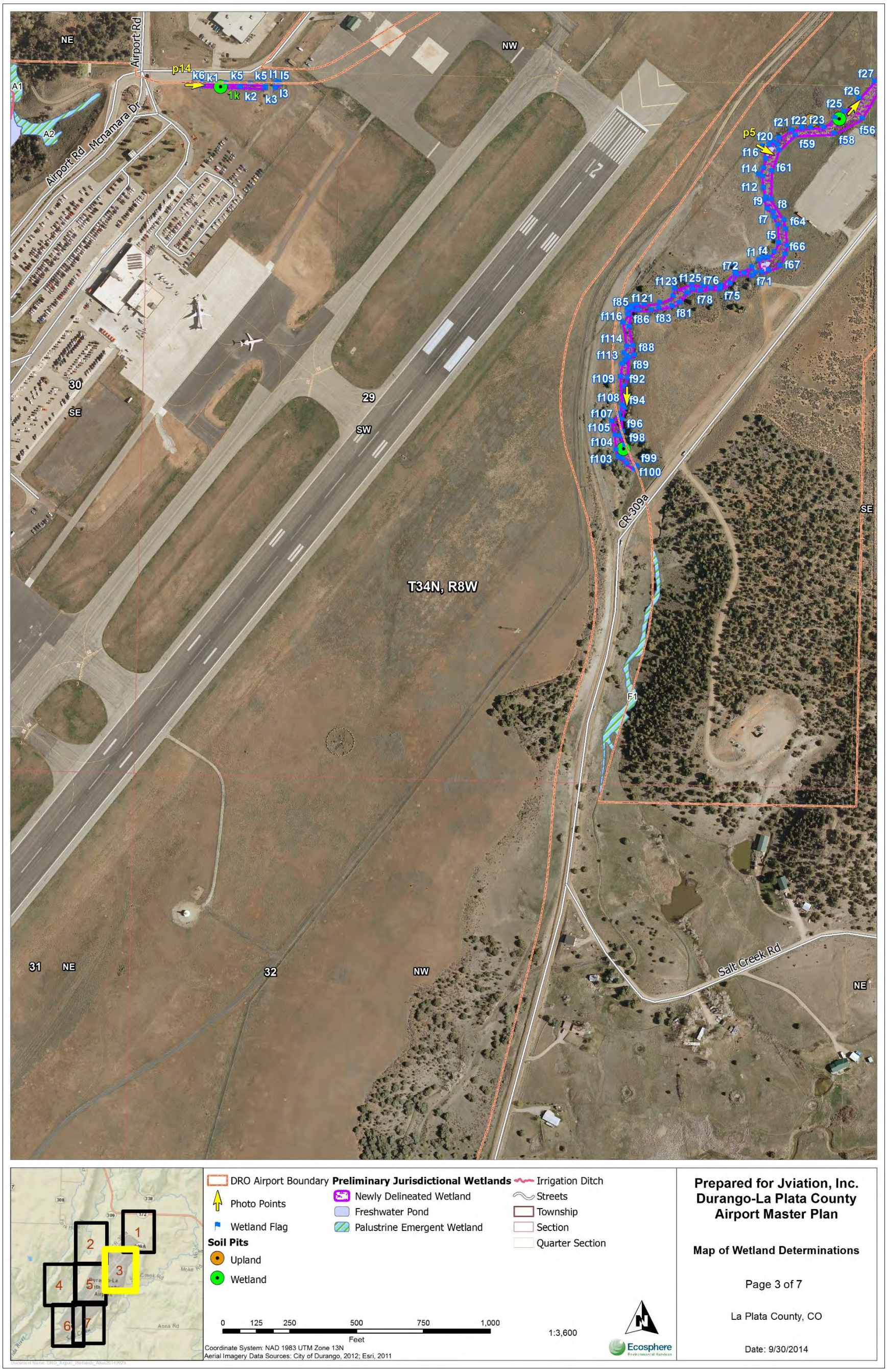


Figure 5. Wetland Determinations Map Book, page 3 of 7

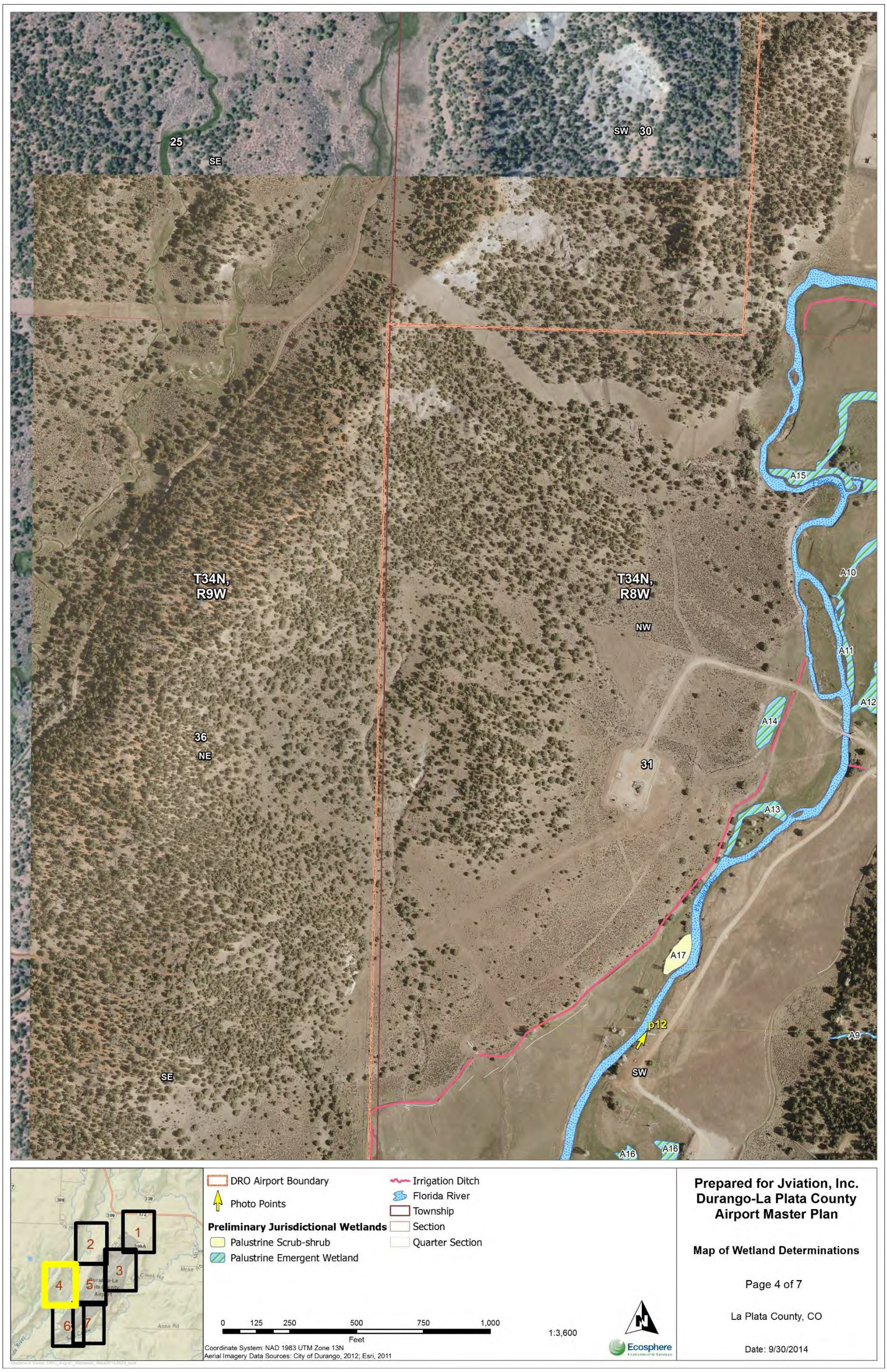


Figure 6. Wetland Determinations Map Book, page 4 of 7

Figure 7. Wetland Determinations Map Book, page 5 of 7

Figure 8. Wetland Determinations Map Book, page 6 of 7

Figure 9. Wetland Determinations Map Book, page 7 of 7

Appendix B: Plant Species Observed

Scientific Name	Common Name	Family	Wetland Indicator Status[1]
TREES			
Juniperus osteosperma	Utah juniper	Cupressaceae	NI
Pinus edulis	twoneedle pinyon	Pinaceae	NI
Populus fremontii	Fremont cottonwood	Salicaceae	FAC
Populus angustifolia	Narrowleaf cottonwood	Salicaceae	FACW
Ulmus pumila	Siberian elm	Ulmaceae	UPL
SHRUBS			
Juniperus communis	common juniper	Cupressaceae	FACU
Ribes aureum	golden currant	Grossulariaceae	FAC
Rosa woodsii	Wood's rose	Rosaceae	FACU
Salix amygdaloides	peach-tree willow	Salicaceae	FACW
Salix exigua	narrowleaf willow	Salicaceae	FACW
FORBS			
Agrostis gigantea	redtop	Poaceae	FACW
Asclepias speciosa	Showy milkweed	Asclepiadaceae	FAC
Cirsium arvense	Canada thistle	Asteraceae	FACU
Carduus nutans	Nodding plumeless thistle	Asteraceae	FACU
Convolvulus arvensis	bindweed	Convolvulaceae	NI
Cynoglossum officinale	Houndstongue	Boraginaceae	FACU
Epilobium ciliatum	Fringed willowherb	Onagraceae	FACW
Helianthus annuus	sunflower	Asteraceae	FACU
Hordeum jubatum	Foxtail barley	Poaceae	FAC
Lepidium spp.	pepperweed	Brassicaceae	UPL
Melilotus officinalis	sweet clover	Fabaceae	FACU
Plantago lanceolata	plantain	Plantaginaceae	FAC
Plantago major	common plantain	Plantaginaceae	FAC
Polygonum amphibium	Water smartweed	Polygonaceae	OBL
Rumex crispus	curly dock	Polygonaceae	FAC
Sagittaria cuneata	Arumleaf arrowhead	Alismataceae	OBL
Symphiotrichum lanceolatum	White panicle aster	Poaceae	OBL
Typha latifolia	broadleaf cattail	Typhaceae	OBL
Verbascum thapsus	great mullein	Scrophulariaceae	FACU

Scientific Name	Common Name	Family	Wetland Indicator Status[1]
Viola nephrophylla	northern bog violet	Violaceae	FACW
Xanthium strumarium	rough cocklebur	Asteraceae	FAC
GRAMINOIDS			
Alopecurus arundinaceus	Creeping meadow foxtail	Poaceae	FAC
Agrostis gigantea	Redtop	Poaceae	FACW
Bromus inermis	smooth brome	Poaceae	FACU
Calamagrostis canadensis	Bluejoint	Poaceae	FACW
Carex bebbii	Bebb's sedge	Cyperaceae	OBL
Carex interior	Inland sedge	Cyperaceae	OBL
Carex utriculata	Northwest territory sedge	Cyperaceae	OBL
Echinochloa crus-galli	Barnyard grass	Poaceae	FACW
Eleocharis palustris	common spikerush	Cyperaceae	OBL
Equisetum hyemale	scouringrush horsetail	Equisetaceae	FACW
Glyceria striata	Fowl mannagrass	Poaceae	OBL
Hordeum jubatum	foxtail barley	Poaceae	FAC
Juncus arcticus	Arctic rush	Juncaceae	FACW
Phleum pratense	timothy	Poaceae	FACU
Poa palustris	Fowl bluegrass	Poaceae	FAC
Poa pratensis	Kentucky bluegrass	Poaceae	FAC
Puccinellia nuttalliana	Nuttall's alkaligrass	Poaceae	FACW
Scirpus americanus	American threesquare	Cyperaceae	OBL
Scirpus tabernaemontani	softstem bulrush	Cyperaceae	OBL

1: OBL=obligate, FACW=facultative wetland, FAC=facultative, FACU=facultative upland, UPL-upland, NI= no indicator, NL=not listed

Appendix C: Wetland Delineation Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: La Plata County Airport City/County: La Plata Sampling Date: 08/27/2014
Applicant/Owner: La Plata County/City of Durango State: CO Sampling Point: 1f
Investigator(s): Ryan Unterreiner Section, Township, Range: Sec.29, T34N, R82
Landform (hillslope, terrace, etc.): Drainageway Local relief (concave, convex, none): concave Slope (%): 2
Subregion (LRR): Interior Deserts (LRR D) Lat: 1.00000000 Long: 1.00000000 Datum: WGS84
Soil Map Unit Name: Falfa Clay Loam, 3-8% NWI classification:
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil __, or Hydrology __ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation __, Soil __, or Hydrology __ naturally problematic? (if needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland?** No
Remarks: This is a fan-like feature with surface runoff from the airport that supports willows, but lacks persisent water supply to develop hydric soil characteristics.	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0) 1. 2. 3. 4. Total Cover = 0			
Sapling/Shrub Stratum (Plot size: 0) 1. Salix exigua 2. 3. 4. 5. Total Cover = 40	40	Yes	FACW
Herb Stratum (Plot size: 0) 1. Carduus nutans 2. Cynoglossum officinale 3. 4. 5. 6. 7. 8. Total Cover = 25	5 20	No Yes	FACU FACU
Woody Vine Stratum (Plot size: 0) 1. 2. Total Cover = 0			

% Bare Ground in Herb Stratum: 75
% Cover of Biotic Crust: 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1(A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	40	x 2 =	80
FAC species	0	x 3 =	0
FACU species	25	x 4 =	100
UPL species	0	x 5 =	0
Column Totals:	65 (A)		180 (B)

Prevalence Index = B/A = 2.77

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
X Prevalence Index is ≤ 3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: Willow community adjacent to creek, but dying. Understory is disturbed primarily due to the presence of thistle.

Wetlands data compiled using Electronic Data Solutions' Everglade™ wetland delineation software. Arid West Region

SOIL Sampling Point 1f

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/4	100		0			Loam	
10-16	10YR 3/4	80	10YR 5/8	20	C	M	Loam	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (LRR C)
___ 1 cm Muck (A9) (LRR D)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (LRR C)
___ 2 cm Muck (A10) (LRR B)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type:
Depth (inches): 0

Hydric Soil Present? No

Remarks: Falfa clay loam is partially hydric.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (Nonriverine)
___ Sediment Deposits (B2) (Nonriverine)
___ Drift Deposits (B3) (Nonriverine)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (two or more required)

___ Water Marks (B1) (Riverine)
___ Sediment Deposits (B2) (Riverine)
___ Drift Deposits (B3) (Riverine)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? No Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: None

Remarks: There is some surface runoff from the airport into this fan-like feature. Periodic flooding possible given geomorphic position (depressional).

Wetlands data compiled using Electronic Data Solutions' Everglade™ wetland delineation software. Arid West Region

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: La Plata County Airport City/County: La Plata Sampling Date: 08/27/2014
Applicant/Owner: La Plata County/City of Durango State: CO Sampling Point: 1g
Investigator(s): Ryan Unterreiner Section, Township, Range: Sec.29, T34N, R8W
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): concave Slope (%): 1
Subregion (LRR): Interior Deserts (LRR D) Lat: 1.00000000 Long: 1.00000000 Datum: WGS84
Soil Map Unit Name: Falfa clay loam, 3-8% NWI classification: PEM
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation __, Soil __, or Hydrology __ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation __, Soil __, or Hydrology __ naturally problematic? (if needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks: This is a depressional wetland that collects and channels water into a roadside ditch adjacent to CR 309a. Heavily influenced by irrigation return flows.	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
Total Cover = 0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover = 0			
Herb Stratum (Plot size: 0)			
1. Hordeum jubatum	20	Yes	FAC
2. Rumex crispus	10	No	FAC
3. Poa pratensis	30	Yes	FAC
4. Alopecurus aequalis	20	Yes	OBL
5. Agrostis gigantea	30	Yes	FACW
6.			
7.			
8.			
Total Cover = 100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover = 0			
% Bare Ground in Herb Stratum: 0			
% Cover of Biotic Crust: 0			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4(A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	20	x 2 =	40
FAC species	60	x 3 =	180
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		240 (B)

Prevalence Index = B/A = 2.40

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤ 3.0[1]
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: Cattails predominant in the middle of the wetland area.

Wetlands data compiled using Electronic Data Solutions' Everglade™ wetland delineation software. Arid West Region

SOIL Sampling Point 1g

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14	7.5YR 4/3	70	5YR 4/6	30	C	M	Clay Loam	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
X Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type:
Depth (inches): 0

Hydric Soil Present? Yes

Remarks: Falfa clay loam, 3-8% is partially hydric. Red parent material predominant in northeastern study area (fallow agricultural field). Redoxymorphic features evident up to soil surface.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

X Surface Water (A1)
___ High Water Table (A2)
X Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (two or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
X Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
X Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes Depth (inches): 6
Water Table Present? No Depth (inches):
Saturation Present? Yes Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Area frequently flooded from runoff by adjacent flood irrigation practices. Up to 6 inches of water was present in the middle of the wetland area. Saturation more common along the wetland boundary.

Wetlands data compiled using Electronic Data Solutions' Everglade™ wetland delineation software. Arid West Region

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: La Plata County Airport City/County: La Plata Sampling Date: 09/25/2014
Applicant/Owner: La Plata County/City of Durango State: CO Sampling Point: 1i
Investigator(s): Ryan Unterreiner Section, Township, Range: Sec.29, T34N, R8W
Landform (hillslope, terrace, etc.): Drainageway Local relief (concave, convex, none): concave Slope (%): 1
Subregion (LRR): Interior Deserts (LRR D) Lat: 12.00000000 Long: 12.00000000 Datum: WGS84
Soil Map Unit Name: Falfa clay loam, 3-8% NWI classification: PEM
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation __, Soil __, or Hydrology __ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation __, Soil __, or Hydrology __ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
Total Cover = 0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover = 0			
Herb Stratum (Plot size: 0)			
1. Alopecurus arundinaceus	60	Yes	FAC
2. Carex bebbii	10	No	OBL
3. Carex interior	15	No	OBL
4. Typha latifolia	3	Yes	OBL
5. Echinochloa crus-galli	3	No	FACW
6.			
7.			
8.			
Total Cover = 91			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover = 0			
% Bare Ground in Herb Stratum: 9			
% Cover of Biotic Crust: 0			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2(A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:	
OBL species	28	x 1 =	28
FACW species	3	x 2 =	6
FAC species	60	x 3 =	180
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	91 (A)		214 (B)

Prevalence Index = B/A = 2.35

Hydrophytic Vegetation Indicators:
_X_ Dominance Test is >50%
_X_ Prevalence Index is ≤ 3.0[1]
_X_ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: Pit located approximately 10 feet below abandoned ditch lateral with some standing water. Adjacent upland grasses include crested wheatgrass.

Wetlands data compiled using Electronic Data Solutions' Everglade™ wetland delineation software. Arid West Region

SOIL Sampling Point 1i

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 4/2	80	7.5YR 6/8	20	C	M	Clay Loam	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2] Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)	___ Sandy Redox (S5)	___ 1 cm Muck (A9) (**LRR C**)
___ Histic Epipedon (A2)	___ Stripped Matrix (S6)	___ 2 cm Muck (A10) (**LRR B**)
___ Black Histic (A3)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)
___ Hydrogen Sulfide (A4)	___ Loamy Gleyed Matrix (F2)	X Red Parent Material (TF2)
___ Stratified Layers (A5) (**LRR C**)	___ Depleted Matrix (F3)	___ Other (Explain in Remarks)
___ 1 cm Muck (A9) (**LRR D**)	___ Redox Dark Surface (F6)	
___ Depleted Below Dark Surface (A11)	___ Depleted Dark Surface (F7)	
___ Thick Dark Surface (A12)	___ Redox Depressions (F8)	[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
___ Sandy Mucky Mineral (S1)	___ Vernal Pools (F9)	
___ Sandy Gleyed Matrix (S4)		

Indicators for Problematic Hydric Soils[3]:

Restrictive Layer (if present):
Type:
Depth (inches): 0

Hydric Soil Present? Yes

Remarks: Falfa clay loam, 3-8% is partially hydric

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (two or more required)
___ Surface Water (A1)	___ Salt Crust (B11)	___ Water Marks (B1) (**Riverine**)
___ High Water Table (A2)	___ Biotic Crust (B12)	___ Sediment Deposits (B2) (**Riverine**)
X Saturation (A3)	___ Aquatic Invertebrates (B13)	___ Drift Deposits (B3) (**Riverine**)
___ Water Marks (B1) (**Nonriverine**)	___ Hydrogen Sulfide Odor (C1)	___ Drainage Patterns (B10)
___ Sediment Deposits (B2) (**Nonriverine**)	X Oxidized Rhizospheres along Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3) (**Nonriverine**)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Surface Soil Cracks (B6)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Inundation Visible on Aerial Imagery (B7)	___ Thin Muck Surface (C7)	___ Shallow Aquitard (D3)
___ Water-Stained Leaves (B9)	___ Other (Explain in Remarks)	___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	No	Depth (inches):
Water Table Present?	No	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	Depth (inches): 10

Wetland Hydrology Present? Yes

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Nearby abandoned lateral has some standing water.

Wetlands data compiled using Electronic Data Solutions' Everglade™ wetland delineation software. Arid West Region

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: La Plata County Airport City/County: La Plata Sampling Date: 09/25/2014
Applicant/Owner: La Plata County/City of Durango State: CO Sampling Point: 1k
Investigator(s): Ryan Unterreiner Section, Township, Range: Sec.29, T34N, R8W
Landform (hillslope, terrace, etc.): Channel Local relief (concave, convex, none): concave Slope (%): 2
Subregion (LRR): Interior Deserts (LRR D) Lat: 11.00000000 Long: 11.00000000 Datum: WGS84
Soil Map Unit Name: Falfa clay loam, 3-8% NWI classification: R2SB7x
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation __, Soil __, or Hydrology __ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation __, Soil __, or Hydrology __ naturally problematic? (if needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks: Uniform, linear excavated channel adjacent to CR 309a conveying irrigation return flows to the Florida River valley floor.	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0)			
1. Populus angustifolia	5	Yes	FACW
2.			
3.			
4.			
Total Cover = 5			
Sapling/Shrub Stratum (Plot size: 0)			
1. Salix exigua	10	Yes	FACW
2.			
3.			
4.			
5.			
Total Cover = 10			
Herb Stratum (Plot size: 0)			
1. Typha latifolia	70	Yes	OBL
2. Juncus balticus	10	No	FACW
3. symphiotrychum lanceolatum	5	No	OBL
4. Asclepias incarnata	10	Yes	OBL
5.			
6.			
7.			
8.			
Total Cover = 95			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover = 0			
% Bare Ground in Herb Stratum: 0			
% Cover of Biotic Crust: 0			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4(A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:	
OBL species	85	x 1 =	85
FACW species	25	x 2 =	50
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	110 (A)		135 (B)

Prevalence Index = B/A = 1.23

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤ 3.0[1]
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: Abrupt transition to upland with steep, 2:1 sideslopes.

Wetlands data compiled using Electronic Data Solutions' Everglade™ wetland delineation software. Arid West Region

SOIL Sampling Point 1k

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)	___ Sandy Redox (S5)	___ 1 cm Muck (A9) (**LRR C**)
___ Histic Epipedon (A2)	___ Stripped Matrix (S6)	___ 2 cm Muck (A10) (**LRR B**)
___ Black Histic (A3)	___ Loamy Mucky Mineral (F1)	___ Reduced Vertic (F18)
___ Hydrogen Sulfide (A4)	___ Loamy Gleyed Matrix (F2)	___ Red Parent Material (TF2)
___ Stratified Layers (A5) (**LRR C**)	___ Depleted Matrix (F3)	_X_ Other (Explain in Remarks)
___ 1 cm Muck (A9) (**LRR D**)	___ Redox Dark Surface (F6)	
___ Depleted Below Dark Surface (A11)	___ Depleted Dark Surface (F7)	
___ Thick Dark Surface (A12)	___ Redox Depressions (F8)	[3]Indicators of hydrophytic vegetation and
___ Sandy Mucky Mineral (S1)	___ Vernal Pools (F9)	wetland hydrology must be present, unless
___ Sandy Gleyed Matrix (S4)		disturbed or problematic.

Indicators for Problematic Hydric Soils[3]:

Restrictive Layer (if present):
Type:
Depth (inches): 0

Hydric Soil Present? Yes

Remarks: No soil pit, riverine wetland. Hydric soil assumed, or developing.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (two or more required)
_X_ Surface Water (A1)	___ Salt Crust (B11)	___ Water Marks (B1) (**Riverine**)
___ High Water Table (A2)	___ Biotic Crust (B12)	___ Sediment Deposits (B2) (**Riverine**)
_X_ Saturation (A3)	___ Aquatic Invertebrates (B13)	___ Drift Deposits (B3) (**Riverine**)
___ Water Marks (B1) (**Nonriverine**)	___ Hydrogen Sulfide Odor (C1)	_X_ Drainage Patterns (B10)
___ Sediment Deposits (B2) (**Nonriverine**)	___ Oxidized Rhizospheres along Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3) (**Nonriverine**)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Surface Soil Cracks (B6)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Inundation Visible on Aerial Imagery (B7)	___ Thin Muck Surface (C7)	___ Shallow Aquitard (D3)
___ Water-Stained Leaves (B9)	___ Other (Explain in Remarks)	___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	Depth (inches): 2
Water Table Present?	No	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	Depth (inches): 0

Wetland Hydrology Present? Yes

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Flow may be perennial, but at a minumum seasonal due to irrigation return flows.

Wetlands data compiled using Electronic Data Solutions' Everglade™ wetland delineation software. Arid West Region

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: La Plata County Airport City/County: La Plata Sampling Date: 09/25/2014
Applicant/Owner: La Plata County/City of Durango State: CO Sampling Point: 1m
Investigator(s): Ryan Unterreiner Section, Township, Range: Sec.30, T34N, R8W
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): concave Slope (%): 1
Subregion (LRR): Interior Deserts (LRR D) Lat: 10.00000000 Long: 10.00000000 Datum: WGS84
Soil Map Unit Name: Falfa clay loam, 3-8% NWI classification: PEM
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation __, Soil __, or Hydrology __ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation __, Soil __, or Hydrology __ naturally problematic? (if needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes

Remarks: This is a man-made, stormwater detention basin with a controlled outlet. Area recieves stormwater runoff from airport facilities, including parking areas, runways, commercial and private aviation facilities. Abrupt transition to upland with steep sideslopes.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
Total Cover = 0			
Sapling/Shrub Stratum (Plot size: 0)			
1. Salix exigua	10	Yes	FACW
2.			
3.			
4.			
5.			
Total Cover = 10			
Herb Stratum (Plot size: 0)			
1. Typha latifolia	70	Yes	OBL
2. Agrostis gigantea	15	No	FACW
3. Glyceria striata	10	No	OBL
4. Juncus balticus	5	No	FACW
5.			
6.			
7.			
8.			
Total Cover = 100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover = 0			

% Bare Ground in Herb Stratum: 0
% Cover of Biotic Crust: 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2(A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:	
OBL species	80	x 1 =	80
FACW species	30	x 2 =	60
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	110 (A)		140 (B)

Prevalence Index = B/A = 1.27

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤ 3.0[1]
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: Abrupt transition to upland species, including smooth brome and rubber rabbitgrass.

Wetlands data compiled using Electronic Data Solutions' Everglade™ wetland delineation software. Arid West Region

SOIL Sampling Point 1m

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
12	7.5YR4/3	80	5YR4/6	20	C	M	Clay Loam	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2] Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
X Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
X Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type:
Depth (inches): 0

Hydric Soil Present? Yes

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

X Surface Water (A1)
___ High Water Table (A2)
X Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (two or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes Depth (inches): 1
Water Table Present? No Depth (inches):
Saturation Present? (includes capillary fringe) Yes Depth (inches): 0

Wetland Hydrology Present? Yes

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Area frequently flooded.

Wetlands data compiled using Electronic Data Solutions' Everglade™ wetland delineation software. Arid West Region

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: La Plata County Airport City/County: La Plata Sampling Date: 08/27/2014
Applicant/Owner: La Plata County/City of Durango State: CO Sampling Point: 2f
Investigator(s): Ryan Unterreiner Section, Township, Range: Sec.29, T34N, R8W
Landform (hillslope, terrace, etc.): Drainageway Local relief (concave, convex, none): concave Slope (%): 1
Subregion (LRR): Interior Deserts (LRR D) Lat: 2.00000000 Long: 2.00000000 Datum: WGS84
Soil Map Unit Name: Falfa Clay Loam, 3-8% NWI classification: PEM
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation __, Soil __, or Hydrology __ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation __, Soil __, or Hydrology __ naturally problematic? (if needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks: Slightly unusual depressional area with a less defined wetland boundary, as compared to elsewhere along the drainage.	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
Total Cover = 0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover = 0			
Herb Stratum (Plot size: 0)			
1. Calamagrostis canadensis	80	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover = 80			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover = 0			

% Bare Ground in Herb Stratum: 20
% Cover of Biotic Crust: 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1(A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	80	x 2 =	160
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	80 (A)		160 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤ 3.0[1]
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: Monoculture of bluejoint just away from the typical, narrow wetland band along the creek. Depressional area likely gets periodic flooding.

Wetlands data compiled using Electronic Data Solutions' Everglade™ wetland delineation software. Arid West Region

SOIL Sampling Point 2f

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 5/2	80	5YR 4/6	20	C	PL	Silt Loam	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type:
Depth (inches): 0

Hydric Soil Present? Yes

Remarks: Falfa clay loam is partially hydric.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
X Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (two or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? Yes Depth (inches): 6
(includes capillary fringe)

Wetland Hydrology Present? Yes

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Depressional area below but away from streambed likely gets peridocially flooded.

Wetlands data compiled using Electronic Data Solutions' Everglade™ wetland delineation software. Arid West Region

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: La Plata County Airport City/County: La Plata Sampling Date: 08/27/2014
Applicant/Owner: La Plata County/City of Durango State: CO Sampling Point: 3f
Investigator(s): Ryan Unterreiner Section, Township, Range: Sec.29, T34N, R8W
Landform (hillslope, terrace, etc.): Drainageway Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Interior Deserts (LRR D) Lat: 1.00000000 Long: 1.00000000 Datum: WGS84
Soil Map Unit Name: Falfa Clay Loam, 3-8% NWI classification: PEM
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil __, or Hydrology __ significantly disturbed? Are "Normal Circumstances" present? No
Are Vegetation X, Soil __, or Hydrology __ naturally problematic? (if needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland?** No

Remarks: Vegetation is disturbed simply due to the presence of Canada thistle and evidence of dead cattails. Perhaps when the upgradient pasture was actively managed and irrigated, there was more irrigation runoff that cuased this depressional area to flood more regularly. Lack of hydric soil or hydrology removed this area from wetland consideration.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
Total Cover = 0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover = 0			
Herb Stratum (Plot size: 0)			
1. Cirsium arvense	70	Yes	FACU
2. Poa palustris	10	No	FAC
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover = 80			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover = 0			
% Bare Ground in Herb Stratum: 20			
% Cover of Biotic Crust: 0			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0(A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	70	x 4 =	280
UPL species	0	x 5 =	0
Column Totals:	80 (A)		310 (B)

Prevalence Index = B/A = 3.88

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index is ≤ 3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: Dead cattails in this low-lying, depressional area adjacent to the channel indicates this a potential relic wetland. Canada thistle may be more "facultative" than "facultative upland," depsite its listed indicator status in the Arid West Supplement. In the nearby Western Mountains Supplement, the wetland indicator status is "facultative." The growth habit along this drainage would suggest this to be true here.

Wetlands data compiled using Electronic Data Solutions' Everglade™ wetland delineation software. Arid West Region

SOIL Sampling Point 3f

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 4/3	85	7.5YR 5/8	15	C	M	Loam	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type:
Depth (inches): 0

Hydric Soil Present? No

Remarks: Falfa clay loam, 3-8% is partially hydric.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (two or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? No Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Low-lying area adjacent to the drainage...may recieve periodic flooding.

Wetlands data compiled using Electronic Data Solutions' Everglade™ wetland delineation software. Arid West Region

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: La Plata County Airport City/County: La Plata Sampling Date: 08/27/2014
Applicant/Owner: La Plata County/City of Durango State: CO Sampling Point: 4f
Investigator(s): Ryan Unterreiner Section, Township, Range:
Landform (hillslope, terrace, etc.): Drainageway Local relief (concave, convex, none): concave Slope (%): 1
Subregion (LRR): Interior Deserts (LRR D) Lat: 4.00000000 Long: 4.00000000 Datum: WGS84
Soil Map Unit Name: _ NWI classification: pem
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil __, or Hydrology __ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation X, Soil __, or Hydrology __ naturally problematic? (if needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
Total Cover = 0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover = 0			
Herb Stratum (Plot size: 0)			
1. Cirsium arvense	90	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover = 90			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover = 0			

% Bare Ground in Herb Stratum: 10
% Cover of Biotic Crust: 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0(A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	90	x 4 =	360
UPL species	0	x 5 =	0
Column Totals:	90 (A)		360 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index is ≤ 3.0[1]
_X_ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: Dead cattails in this low-lying, depressional area adjacent to the channel indicates this a potential relic wetland. Canada thistle may be more "facultative" than "facultative upland," depsite its listed indicator status in the Arid West Supplement. In the nearby Western Mountains Supplement, the wetland indicator status is "facultative." The growth habit along this drainage would suggest this to be true here. Therefore, vegetation is assumed to be hydric for this reason.

Wetlands data compiled using Electronic Data Solutions' Everglade™ wetland delineation software. Arid West Region

SOIL Sampling Point 4f

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/2	80	7.5YR 5/8	20	C	M	Loam	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)	___ Sandy Redox (S5)	**Indicators for Problematic Hydric Soils[3]:**
___ Histic Epipedon (A2)	___ Stripped Matrix (S6)	___ 1 cm Muck (A9) (**LRR C**)
___ Black Histic (A3)	___ Loamy Mucky Mineral (F1)	___ 2 cm Muck (A10) (**LRR B**)
___ Hydrogen Sulfide (A4)	___ Loamy Gleyed Matrix (F2)	___ Reduced Vertic (F18)
___ Stratified Layers (A5) (**LRR C**)	X Depleted Matrix (F3)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9) (**LRR D**)	___ Redox Dark Surface (F6)	___ Other (Explain in Remarks)
___ Depleted Below Dark Surface (A11)	___ Depleted Dark Surface (F7)	
___ Thick Dark Surface (A12)	___ Redox Depressions (F8)	[3]Indicators of hydrophytic vegetation and
___ Sandy Mucky Mineral (S1)	___ Vernal Pools (F9)	wetland hydrology must be present, unless
___ Sandy Gleyed Matrix (S4)		disturbed or problematic.

Restrictive Layer (if present):
Type:
Depth (inches): 0

Hydric Soil Present? Yes

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (two or more required)
___ Surface Water (A1)	___ Salt Crust (B11)	___ Water Marks (B1) (**Riverine**)
___ High Water Table (A2)	___ Biotic Crust (B12)	___ Sediment Deposits (B2) (**Riverine**)
___ Saturation (A3)	___ Aquatic Invertebrates (B13)	___ Drift Deposits (B3) (**Riverine**)
___ Water Marks (B1) (**Nonriverine**)	___ Hydrogen Sulfide Odor (C1)	X Drainage Patterns (B10)
___ Sediment Deposits (B2) (**Nonriverine**)	X Oxidized Rhizospheres along Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3) (**Nonriverine**)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Surface Soil Cracks (B6)	___ Recent Iron Reduction in Tilled Soils (C6)	X Saturation Visible on Aerial Imagery (C9)
___ Inundation Visible on Aerial Imagery (B7)	___ Thin Muck Surface (C7)	___ Shallow Aquitard (D3)
___ Water-Stained Leaves (B9)	___ Other (Explain in Remarks)	___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	No	Depth (inches):
Water Table Present?	No	Depth (inches):
Saturation Present? (includes capillary fringe)	No	Depth (inches):

Wetland Hydrology Present? Yes

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetlands data compiled using Electronic Data Solutions' Everglade™ wetland delineation software. Arid West Region

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: La Plata County Airport City/County: La Plata Sampling Date: 08/27/2014
Applicant/Owner: La Plata County/City of Durango State: CO Sampling Point: 5f
Investigator(s): Ryan Unterreiner Section, Township, Range: Sec.29, T34N, R8W
Landform (hillslope, terrace, etc.): Stream terrace Local relief (concave, convex, none): convex Slope (%): 3
Subregion (LRR): Interior Deserts (LRR D) Lat: 5.00000000 Long: 5.00000000 Datum: WGS84
Soil Map Unit Name: Falfa clay loam, 3-8% NWI classification: PEM
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation __, Soil __, or Hydrology __ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation __, Soil __, or Hydrology __ naturally problematic? (if needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks: A high terrace/wet meadow adjacent to the drainage.	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0) 1. 2. 3. 4. Total Cover = 0			
Sapling/Shrub Stratum (Plot size: 0) 1. 2. 3. 4. 5. Total Cover = 0			
Herb Stratum (Plot size: 0)			
1. Juncus balticus	40	Yes	FACW
2. Panicum virgatum	30	Yes	FACW
3. Asclepias speciosa	3	No	FAC
4. Epilobium ciliatum	10	No	FACW
5. Poa palustris	5	No	FAC
6. 7. 8. Total Cover = 88			
Woody Vine Stratum (Plot size: 0) 1. 2. Total Cover = 0			

% Bare Ground in Herb Stratum: 12
% Cover of Biotic Crust: 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2(A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	80	x 2 =	160
FAC species	8	x 3 =	24
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	88 (A)		184 (B)

Prevalence Index = B/A = 2.09

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤ 3.0[1]
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks:

Wetlands data compiled using Electronic Data Solutions' Everglade™ wetland delineation software. Arid West Region

SOIL Sampling Point 5f

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 3/2	95	7.5YR 4/6	5	C	PL	Loam	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)	___ Sandy Redox (S5)	**Indicators for Problematic Hydric Soils[3]:**
___ Histic Epipedon (A2)	___ Stripped Matrix (S6)	___ 1 cm Muck (A9) (**LRR C**)
___ Black Histic (A3)	___ Loamy Mucky Mineral (F1)	___ 2 cm Muck (A10) (**LRR B**)
___ Hydrogen Sulfide (A4)	___ Loamy Gleyed Matrix (F2)	___ Reduced Vertic (F18)
___ Stratified Layers (A5) (**LRR C**)	X Depleted Matrix (F3)	___ Red Parent Material (TF2)
___ 1 cm Muck (A9) (**LRR D**)	___ Redox Dark Surface (F6)	___ Other (Explain in Remarks)
___ Depleted Below Dark Surface (A11)	___ Depleted Dark Surface (F7)	
___ Thick Dark Surface (A12)	___ Redox Depressions (F8)	[3]Indicators of hydrophytic vegetation and
___ Sandy Mucky Mineral (S1)	___ Vernal Pools (F9)	wetland hydrology must be present, unless
___ Sandy Gleyed Matrix (S4)		disturbed or problematic.

Restrictive Layer (if present):
Type:
Depth (inches): 0

Hydric Soil Present? Yes

Remarks: Falfa clay loam, 3-8% is partially hydric

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (two or more required)
___ Surface Water (A1)	___ Salt Crust (B11)	___ Water Marks (B1) (**Riverine**)
___ High Water Table (A2)	___ Biotic Crust (B12)	___ Sediment Deposits (B2) (**Riverine**)
___ Saturation (A3)	___ Aquatic Invertebrates (B13)	___ Drift Deposits (B3) (**Riverine**)
___ Water Marks (B1) (**Nonriverine**)	___ Hydrogen Sulfide Odor (C1)	___ Drainage Patterns (B10)
___ Sediment Deposits (B2) (**Nonriverine**)	X Oxidized Rhizospheres along Living Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3) (**Nonriverine**)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Surface Soil Cracks (B6)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Inundation Visible on Aerial Imagery (B7)	___ Thin Muck Surface (C7)	___ Shallow Aquitard (D3)
___ Water-Stained Leaves (B9)	___ Other (Explain in Remarks)	___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	No	Depth (inches):
Water Table Present?	No	Depth (inches):
Saturation Present? (includes capillary fringe)	No	Depth (inches):

Wetland Hydrology Present? Yes

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Evidence of a high water table.

Wetlands data compiled using Electronic Data Solutions' Everglade™ wetland delineation software. Arid West Region

Appendix D: Photographs

Photograph 1. Looking north at Wetland M, a stormwater detention basin.

Photograph 2. Looking northwest at Wetland J, a stormwater detention basin.

Photograph 3. View looking west at Wetland G.

Photograph 4. View looking north at Wetland G.

Photograph 5. View looking southeast from airport storm drain into Wetland F.

Photograph 6. View looking northeast at Wetland F

Photograph 7. View looking northeast along Wetland F boundary, dominated by Canada thistle.

Photograph 8. View looking north across excavated pond at the Wetland I boundary.

Photograph 9. Typical ditch/lateral in northeast agricultural field.

Photograph 10. Typical irrigated wetland habitat, northeast agricultural field.

Photograph 11. Typical seep wetland forming below the rim in a natural drainage.

Photograph 12. Looking upstream at Florida River, typical cross section.

Photograph 13. Looking upstream at the bench wetland east of the airport.

Photograph 14. Looking upstream at the CR 309a roadside drainage conveying irrigation return flows to the Florida River valley floor.

APPENDIX G

USER SURVEYS

AIRCRAFT OWNER/OPERATOR SURVEY

The Durango-La Plata County Airport (DRO) is in the process of updating its Master Plan.

Thank you for taking time to complete this survey!

Your input will help shape the future of DRO.

The Master Plan will guide the Airport through the next twenty years of development. Input is being solicited from aircraft owners and operators to determine facility adequacy and desired improvements. If you have questions regarding this survey or would like to discuss any issues regarding the airport facility, please contact Kip Turner, Director of Aviation at 970.382.6068.

1. This form was completed by:

First Name (optional): _____

Last Name (optional): _____

Email Address (optional): _____

2. Aircraft Type 1
   - ☐ Single Engine Piston
   - ☐ Multi Engine Piston
   - ☐ Turbo-prop
   - ☐ Jet
   - ☐ Helicopter
   - ☐ Other

3. Aircraft Type 2
   - ☐ Single Engine Piston
   - ☐ Multi Engine Piston
   - ☐ Turbo-prop
   - ☐ Jet
   - ☐ Helicopter
   - ☐ Other

4. Aircraft Type 3
   - ☐ Single Engine Piston
   - ☐ Multi Engine Piston
   - ☐ Turbo-prop
   - ☐ Jet
   - ☐ Helicopter
   - ☐ Other

5. Please list the make(s) and model(s) of your aircraft regardless of where they are stored the majority of the year.

   _____

6. Including Touch-and-Go operations (counts as two operations, both a landing and a takeoff), approximately how many operations (takeoffs and landings) would you estimate that you conduct at DRO in a typical year? _____

7. Are any of your aircraft stored the majority of the year at DRO?
   - ☐ Yes

   If yes, please indicate your current lease expiration date: _____
   - ☐ No

   If no, where is/are your aircraft primarily based? _____

8. Do you desire any additional hangar space at DRO?
   - ☐ Yes
   - ☐ No

Continued on next page...

9. If so, please describe the ownership arrangement, size, and type of hangar. T-Hangar, conventional box hangar (60x60 or less), conventional box hangar (larger than 60x60), that you desire
   - ☐ Lease a T-hangar unit
   - ☐ Construct a T-hangar and lease out units
   - ☐ Construct a conventional box hangar 60'x60' or smaller
   - ☐ Construct a conventional box hangar larger than 60'x60'
   - ☐ Lease space

10. Is the existing runway length adequate for your requirements?
    - ☐ Yes
    - ☐ No

    Pleases provide any comments regarding runway length. _____

11. Are the FBO services provided adequate for your needs?
    - ☐ Yes
    - ☐ No

12. Are there additional services that the FBO should provide to better serve you or other members of the flying community? _____

13. What facilities, activities, or capabilities do you consider essential for the Airport to provide?
    - ☐ Aircraft Fueling Services (Self-Service, FBO Fueling)
    - ☐ Aircraft Maintenance
    - ☐ GA Terminal Facilities
    - ☐ Aircraft Tie-downs/Hangars
    - ☐ Rental Cars
    - ☐ Fire & Rescue
    - ☐ Tourism/Entertainment Related Activities
    - ☐ Precision Instrument Approach (e.g. ILS, GPS)
    - ☐ Flight Instruction, aircraft rentals, aircraft Charter or Other Activities
    - ☐ Restaurant
    - ☐ Other (Please Specify) _____

Continued on next page...

AIRCRAFT OWNER/OPERATOR SURVEY

14. Please rate the following categories based on your experience at DRO:

	(Poor) 1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10 (Excellent)*
Runway Orientation	1	2	3	4	5	6	7	8	9	10
Runway Length	1	2	3	4	5	6	7	8	9	10
Condition of Pavements	1	2	3	4	5	6	7	8	9	10
Instrument Approaches	1	2	3	4	5	6	7	8	9	10
Visual Aids	1	2	3	4	5	6	7	8	9	10
Navigational Aids	1	2	3	4	5	6	7	8	9	10
Hangar Space	1	2	3	4	5	6	7	8	9	10
Hangar/Pad Lease Rates	1	2	3	4	5	6	7	8	9	10
FBO Services	1	2	3	4	5	6	7	8	9	10
Unicom Services	1	2	3	4	5	6	7	8	9	10
Apron Space	1	2	3	4	5	6	7	8	9	10

Based on the above categories, which should get the highest priority? _____

15. How important do you feel the Airport is to the local community and businesses? Please rate on the following scale (1=no value, 5 = high value).

Importance of the Airport 1 2 3 4 5

16. Please provide any additional thoughts or concerns regarding the facilities or services at DRO.

_____

_____

_____

_____

_____

17. Please share something where, based upon your experience, A) DRO does particularly well and B) DRO could use improvement.

A) _____

_____

B) _____

_____

_____

Thank you!

We appreciate your time. Thank you for your response.
Every survey response received will greatly help our efforts on helping the Airport plan for the future.

For more information about the Airport Master Plan, please visit **flyDurango.com**

RENTAL CARS

The Durango-La Plata County Airport (DRO) is in the process of updating its Master Plan.

Thank you for taking time to complete this survey!

Your input will help shape the future of DRO.

The Master Plan will guide the Airport through the next twenty years of development. Input is being solicited from airport tenants to determine facility adequacy and desired improvements.
If you have questions regarding this survey or would like to discuss any issues regarding the airport facility, please contact Kip Turner, Director of Aviation at 970.382.6068.

1. This form was completed by:

First Name: _____ Last Name: _____

Title: _____ Company Name: _____

Phone Number: _____ Email Address: _____

2. Are the rental car facilities meeting your operational demands?

☐ Yes

☐ No

If not, what is needed? _____

_____

3. Do the maintenance facilities adequately meet your needs?

☐ Yes

☐ No

If not, what is inadequate? _____

_____

4. Is adequate parking available for Ready/Return and staging requirements?

☐ Yes

☐ No

Please explain. _____

_____

5. Are rental car Ready/Rental facilities offered, on airport, adequate for your needs?

☐ Yes

☐ No

If not, please explain. _____

_____

Continued on next page…

6. Please provide any additional thoughts or concerns regarding the facilities or services at DRO:_____

_____

_____

_____

_____

Thank you!

We appreciate your time. Thank you for your response.
Every survey response received will greatly help our efforts on helping the Airport plan for the future.

For more information about the Airport Master Plan, please visit **flyDurango.com**

PASSENGER SURVEY

The Durango-La Plata County Airport (DRO) is in the process of updating its Master Plan.

Thank you for taking time to complete this survey!

Your input will help shape the future of DRO.

The Master Plan will guide the Airport through the next twenty years of development. Input is being solicited from passengers to determine facility adequacy and desired improvements.
If you have questions regarding this survey or would like to discuss any issues regarding the airport facility, please contact Kip Turner, Director of Aviation at 970.382.6068.

1.This form was completed by:

First Name: _____ Last Name: _____

Title: _____ Company Name: _____

Phone Number: _____ Email Address: _____

2. Where do you currently reside?

☐ Local

☐ In –State

☐ Out – of – State _____

☐ International Country _____

3. Is your trip for business or leisure?

☐ Business

☐ Personal/Leisure

☐ Both

4. If DRO is your destination, where did you visit? (Check all that apply)

☐ Durango and nearby attractions

☐ Cortez/Mesa Verde

☐ Farmington

☐ Four Corners region

☐ Ft. Lewis College

☐ Other _____

5. If you are traveling from DRO, Where is your final destination?

(Please indicate airport) _____

PASSENGER SURVEY

6. How much *more* were you willing to pay to fly to/from DRO?

- ☐ Up to $100
- ☐ $100 - $200
- ☐ $200 - $300
- ☐ Over $300

7. Was cost or convenience the primary consideration in choosing DRO as your origin/destination, versus flying from another airport or driving?

- ☐ Cost
- ☐ Convenience

8. If you chose convenience as your primary consideration in choosing DRO, what were your secondary considerations when you chose to fly to/from DRO?

- ☐ Airfare
- ☐ Cost
- ☐ Reliability
- ☐ Other _____

9. How long was your stay?

- ☐ 1 day
- ☐ 1 – 3 days
- ☐ 3 – 5 days
- ☐ 5 – 7 days
- ☐ More than 1 week

10. What airline did you fly?

- ☐ American
- ☐ United
- ☐ U.S Airways
- ☐ Frontier

PASSENGER SURVEY

11. How did you travel to/from the Airport?

- ☐ Car Rental
- ☐ Taxi/Shuttle/Limo
- ☐ Friend/Family
- ☐ Personal Vehicle

12. We know you have a choice when traveling to drive to an alternate airport. In the past, if you've chosen to drive to an alternate airport, what were the reasons?

- ☐ Reliability (delays/cancellations)
- ☐ Cost of Airfare
- ☐ Schedule
- ☐ Convenience
- ☐ Seat Availability
- ☐ Connecting Flights
- ☐ N/A
- ☐ Other _____

13. How would you rate the following at DRO?

	Excellent	Fair	Poor	N/A
Cost of Airfare	☐	☐	☐	☐
Seat Availability	☐	☐	☐	☐
Convenience	☐	☐	☐	☐
Connecting Flights	☐	☐	☐	☐
Reliability	☐	☐	☐	☐

14. Is the cost of auto parking a factor in your choice of airports from which you choose to fly?

- ☐ Yes
- ☐ No

PASSENGER SURVEY

15. How would you rate the following?

	Excellent	Fair	Poor	N/A
Ease of access to the Airport	☐	☐	☐	☐
Directions and signage to the Airport	☐	☐	☐	☐
Signage for parking, passenger drop – off/ pick – up, rental cars	☐	☐	☐	☐
Availability of parking spaces	☐	☐	☐	☐
Traffic flow within terminal parking area, passenger drop – off/ pick – up	☐	☐	☐	☐

16. On a scale from 1 to 5, with 5 being the best, how would you rate the following areas within the terminal?

	Curbside Check – In Area						Ticketing/Check – In Counter Area						Baggage Claim Area						Security Screening, Queuing and Exit					
	1	2	3	4	5	N/A	1	2	3	4	5	N/A	1	2	3	4	5	N/A	1	2	3	4	5	N/A
Quality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Cleanliness	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Customer Service	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Passenger flow/ circulation	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Accessibility/signage	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Spaciousness	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

PASSENGER SURVEY

17. On a scale from 1 to 5, with 5 being the best, how would you rate the following areas within the terminal (continued)?

	Gift Shop						Coffee Shop					
	1	2	3	4	5	N/A	1	2	3	4	5	N/A
Quality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Cleanliness	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Customer Service	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Product/Menu Choices	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Passenger flow/ circulation	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Accessibility/signage	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Spaciousness	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

18. On a scale from 1 to 5, with 5 being the best, how would you rate the following areas within the terminal (continued)?

	Gate Waiting Area						Restrooms						Terminal Overall					
	1	2	3	4	5	N/A	1	2	3	4	5	N/A	1	2	3	4	5	N/A
Quality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Cleanliness	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

PASSENGER SURVEY

19. Which car rental agency did you use?

- ☐ Avis
- ☐ Budget
- ☐ Enterprise
- ☐ Hertz
- ☐ National
- ☐ N/A
- ☐ Other _____

20. On a scale from 1 to 5, with 5 being the best, how would you rate car rental service?

	1	2	3	4	5	N/A
Vehicle Choice/ Quality	☐	☐	☐	☐	☐	☐
Cleanliness	☐	☐	☐	☐	☐	☐
Customer Service	☐	☐	☐	☐	☐	☐
Signage	☐	☐	☐	☐	☐	☐
Accessibility/ Easy to find	☐	☐	☐	☐	☐	☐

21. Which ground transportation agency did you use?

- ☐ Animas Transportation
- ☐ Buck Horn Limousine
- ☐ Doubletree Hotel
- ☐ Durango Transportation
- ☐ Road Runner Transit
- ☐ Telluride Express
- ☐ Wilderness Journeys
- ☐ Other _____

PASSENGER SURVEY

22. On a scale from 1 to 5, with 5 being the best, how would you rate ground transportation service?

	1	2	3	4	5	N/A
Vehicle Choice/ Quality	☐	☐	☐	☐	☐	☐
Cleanliness	☐	☐	☐	☐	☐	☐
Customer Service	☐	☐	☐	☐	☐	☐
Signage	☐	☐	☐	☐	☐	☐
Accessibility/ Easy to find	☐	☐	☐	☐	☐	☐

23. Comments:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

AIRLINE SURVEY

The Durango-La Plata County Airport (DRO) is in the process of updating its Master Plan.

Thank you for taking time to complete this survey!

Your input will help shape the future of DRO.

The Master Plan will guide the Airport through the next twenty years of development. Input is being solicited from airline tenants to determine facility adequacy and desired improvements.
If you have questions regarding this survey or would like to discuss any issues regarding the airport facility, please contact Kip Turner, Director of Aviation at 970.382.6068.

This survey has been prepared to provide airline tenants the opportunity to share perspectives and suggestions on how DRO can improve the passenger terminal facilities. These facilities should function well at peak times of activity and it is expected that these peaks will be larger and more frequent over the next 20 years. Making sure DRO's investment in terminal facilities meet both current and future airline and passenger needs is a top objective. Your input is vital to that success. Thank you in advance for your thoughtful responses to the following questions.

1. This form was completed by:

   First Name: _____ Last Name: _____

   Title: _____ Company Name: _____

   Phone Number: _____ Email Address: _____

2. Do you feel the space you currently lease from the Airport meets your airline's overall needs?

   ☐ Yes

   ☐ No

   If not, please suggest improvements that are needed/desired. _____

3. Do you feel there is a need for any improved or expanded terminal facilities that will help you better meet the needs of your customers?

   ☐ Yes

   ☐ No

   If so, please suggest improvements that are needed/desired. _____

4. Are baggage and passenger screening facilities and procedures adequate and efficient in your opinion?

   ☐ Yes

   ☐ No

   If not, please suggest improvements that from your perspective are needed/desired. _____

Continued on next page…

5. Are the current facilities for outbound and inbound baggage processing adequate for you needs?
   - ☐ Yes
   - ☐ No

   If not, please suggest improvements that are needed/desired. _____

6. Are the airport's facilities in the departure lounge adequate for your customer's needs? (overall size, seating, circulation, restrooms, displays, etc.)
   - ☐ Yes
   - ☐ No

   If not, please suggest improvements that are needed/desired. _____

7. Do you envision a departure lounge capacity problem during peak periods in the future?
   - ☐ Yes
   - ☐ No

   If yes, when do you anticipate a departure lounge capacity problem occurring?
   - ☐ Already a problem
   - ☐ Within 5 years
   - ☐ Within 5-10 years
   - ☐ B eyond 10 years

8. Are there any elements of the current PASSENGER processing system that have caused or could cause delayed or canceled flights?
   - ☐ Yes
   - ☐ No

   If so, please offer some suggestions to improve the passenger processing system. _____

9. Are there any elements of the current BAGGAGE processing system that have caused or could cause delayed or canceled flights?
   - ☐ Yes
   - ☐ No

   If so, please offer some suggestions to improve the baggage processing system. _____

Continued on next page...

AIRLINE SURVEY

10. Do you feel the ramp is efficiently utilized at peak times?

- ☐ Yes
- ☐ No

If not, please offer some suggestions to improve the ramp efficiency. (i.e. procedures, space reallocation, GSE storage, additional area, etc.) _____

_____

_____

11. Please provide any additional thoughts or concerns regarding the facilities or services at DRO:

_____

_____

_____

_____

_____

_____

_____

_____

Thank you!

We appreciate your time. Thank you for your response.
Every survey response received will greatly help our efforts on helping the Airport plan for the future.

For more information about the Airport Master Plan, please visit flyDurango.com

AIRLINE TERMINAL TENANT SURVEY

The Durango-La Plata County Airport (DRO) is in the process of updating its Master Plan.

Thank you for taking time to complete this survey!

Your input will help shape the future of DRO.

The Master Plan will guide the Airport through the next twenty years of development. Input is being solicited from tenants and employees to determine facility adequacy and desired improvements. If you have questions regarding this survey or would like to discuss any issues regarding the airport facility, please contact Kip Turner, Director of Aviation at 970.382.6068.

1. This form was completed by:

Company: _____

Name (optional): _____

2. Please rate your experience on each of the following items:

	(Poor) 1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10 (Excellent)*
Transportation										
Access roads to airport	1	2	3	4	5	6	7	8	9	10
Adequate public transportation service	1	2	3	4	5	6	7	8	9	10
Parking Factors										
Convenience/walking distance to terminal	1	2	3	4	5	6	7	8	9	10
Security in parking lots	1	2	3	4	5	6	7	8	9	10
Space availability	1	2	3	4	5	6	7	8	9	10
Terminal Building										
Condition of infrastructure	1	2	3	4	5	6	7	8	9	10
Cleanliness of terminal	1	2	3	4	5	6	7	8	9	10
Cleanliness of washrooms	1	2	3	4	5	6	7	8	9	10
Availability of washrooms	1	2	3	4	5	6	7	8	9	10
Directional signage in terminal	1	2	3	4	5	6	7	8	9	10
Food & Beverage Facilities										
Selection of food & beverage facilities	1	2	3	4	5	6	7	8	9	10
Quality of food & beverage	1	2	3	4	5	6	7	8	9	10
Quality of service	1	2	3	4	5	6	7	8	9	10
Quality of concessions	1	2	3	4	5	6	7	8	9	10

Continued on next page…

AIRLINE TERMINAL TENANT SURVEY

3. Are there other concessions or services you believe should be offered at DRO? If so, what are they?

_____

_____

_____

_____

_____

4. How important do you feel the Airport is to the local community and businesses? Please rate on the following scale (1=no value, 5 = high value).

Importance of the Airport 1 2 3 4 5

5. Please provide any additional thoughts or concerns regarding the facilities or services at DRO.

_____

_____

_____

_____

_____

_____

Thank you!

We appreciate your time. Thank you for your response.
Every survey response received will greatly help our efforts on helping the Airport plan for the future.

For more information about the Airport Master Plan, please visit **flyDurango.com**

APPENDIX H

FAA Traffic Flow Management System Counts (TFMSC)

Data CY 2013: DRO

FAA TFMSC Report - DRO Airport - CY 2013

Aircraft	Departures	Arrivals	Total Operations	Total Departure Seats	Average Departure Seats	Total Arrival Seats	Average Arrival Seats
-1 - unknown	9	22	31	0	0	0	0
A319 - Airbus A319	252	252	504	32,760	130	32,760	130
A320 - Airbus A320 All Series	1	1	2	153	153	153	153
AC11 - North American Commander 112	0	4	4	0	0	16	4
AC12 - Rockwell Commander 112	0	1	1	0	0	4	4
AC30 - unknown	0	1	1	0	0	0	0
AC90 - Gulfstream Commander	13	13	26	52	4	52	4
AEST - Piper Aero Star	4	5	9	16	4	20	4
ASTR - IAI Astra 1125	1	1	2	6	6	6	6
B350 - Beech Super King Air 350	23	27	50	138	6	162	6
B36T - Allison 36 Turbine Bonanza	3	3	6	18	6	18	6
B429 - Bell 429	1	1	2	0	0	0	0
B462 - BAe 146 -200	0	1	1	0	0	80	80
BE10 - Beech King Air 100 A/B	1	1	2	4	4	4	4
BE20 - Beech 200 Super King	652	658	1,310	3,260	5	3,290	5
BE30 - Raytheon 300 Super King Air	12	12	24	96	8	96	8
BE33 - Beech Bonanza 33	3	9	12	15	5	45	5
BE35 - Beech Bonanza 35	1	9	10	4	4	36	4
BE36 - Beech Bonanza 36	8	26	34	32	4	104	4
BE40 - Raytheon/Beech Beechjet 400/T-1	62	64	126	310	5	320	5
BE55 - Beech Baron 55	4	6	10	24	6	36	6
BE58 - Beech 58	3	3	6	12	4	12	4
BE60 - Beech 60 Duke	2	15	17	12	6	90	6

BE9L - Beech King Air 90	67	69	136	402	6	414	6
BE9T - Beech F90 King Air	13	14	27	52	4	56	4
BL17 - Bellanca Viking	0	1	1	0	0	4	4
C10T - Cessna P210 (Turbo)	1	0	1	4	4	0	0
C130 - Lockheed 130 Hercules	8	8	16	0	0	0	0
C172 - Cessna Skyhawk 172/Cutlass	3	5	8	12	4	20	4
C177 - Cessna 177 Cardinal	0	2	2	0	0	8	4
C17A - Boeing Globemaster 3	0	1	1	0	0	4	4
C180 - Cessna 180	2	2	4	8	4	8	4
C182 - Cessna Skylane 182	9	19	28	36	4	76	4
C185 - Cessna Skywagon 185	0	1	1	0	0	6	6
C206 - Cessna 206 Stationair	12	14	26	48	4	56	4
C208 - Cessna 208 Caravan	519	324	843	56	0	126	0
C210 - Cessna 210 Centurion	12	22	34	72	6	132	6
C25A - Cessna Citation CJ2	10	9	19	80	8	72	8
C25B - Cessna Citation CJ3	38	39	77	190	5	195	5
C30J - C-130J Hercules ; Lockheed	1	0	1	0	0	0	0
C310 - Cessna 310	6	6	12	36	6	36	6
C337 - Cessna Turbo Super Skymaster	0	1	1	0	0	4	4
C340 - Cessna 340	27	28	55	162	6	168	6
C402 - Cessna 401/402	0	1	1	0	0	4	4
C414 - Cessna Chancellor 414	7	11	18	42	6	66	6
C421 - Cessna Golden Eagle 421	10	19	29	80	8	152	8
C425 - Cessna 425 Corsair	5	6	11	20	4	24	4
C441 - Cessna Conquest	9	12	21	54	6	72	6
C500 - Cessna 500/Citation I	1	1	2	6	6	6	6
C501 - Cessna I/SP	19	16	35	114	6	96	6
C510 - Cessna Citation Mustang	10	10	20	60	6	60	6
C525 - Cessna CitationJet/CJ1	24	23	47	120	5	115	5

C550 - Cessna Citation II/Bravo	62	62	124	620	10	620	10
C551 - Cessna Citation II/SP	12	13	25	72	6	78	6
C560 - Cessna Citation V/Ultra/Encore	56	54	110	448	8	432	8
C56X - Cessna Excel/XLS	60	62	122	900	15	930	15
C650 - Cessna III/VI/VII	15	18	33	90	6	108	6
C680 - Cessna Citation Sovereign	36	36	72	432	12	432	12
C750 - Cessna Citation X	27	26	53	378	14	364	14
C82R - Cessna Skylane RG	0	1	1	0	0	4	4
CL30 - Bombardier (Canadair) Challenger 300	17	17	34	136	8	136	8
CL60 - Bombardier Challenger 600/601/604	6	6	12	90	15	90	15
COL3 - Lancair LC-40 Columbia 400	0	2	2	0	0	8	4
COL4 - Lancair LC-41 Columbia 400	5	6	11	20	4	24	4
CRJ1 - Bombardier CRJ-100	1	1	2	50	50	50	50
CRJ2 - Bombardier CRJ-200	1,024	1,027	2,051	51,200	50	51,350	50
CRJ7 - Bombardier CRJ-700	8	7	15	560	70	490	70
CRJ9 - Bombardier CRJ-900	3	3	6	270	90	270	90
D328 - Dornier 328 Series	1	0	1	32	32	0	0
DA40 - Diamond Star DA40	0	1	1	0	0	6	6
DA42 - Diamond Twin Star	2	4	6	0	0	0	0
DC10 - Boeing (Douglas) DC 10-10/30/40	0	1	1	0	0	300	300
DC3 - Boeing (Douglas) DC 3	0	1	1	0	0	22	22
DH6 - De Havilland Canada DHC-6 Twin Otter	0	1	1	0	0	10	10
DH8B - Bombardier DHC8-200	0	1	1	0	0	37	37
DH8D - Bombardier Q-400	1,582	1,582	3,164	110,740	70	110,740	70
DHC7 - De Havilland DHC-7	3	2	5	162	54	108	54
E120 - Embraer Brasilia EMB 120	1	1	2	30	30	30	30
E135 - Embraer ERJ 135/140/Legacy	246	246	492	8,610	35	8,610	35
E145 - Embraer ERJ-145	274	270	544	13,700	50	13,500	50
E190 - Embraer 190	18	18	36	1,620	90	1,620	90

E45X - Embraer ERJ 145 EX	167	167	334	8,350	50	8,350	50
E50P - Embraer Phenom 100	45	45	90	270	6	270	6
E55P - Embraer Phenom 300	8	8	16	64	8	64	8
EA18 - EA-18G Growler	1	0	1	0	0	0	0
EA50 - Eclipse 500	8	10	18	12	1	12	1
EPIC - Dynasty	1	1	2	0	0	0	0
EXPR - Express 2000	0	1	1	0	0	4	4
F2TH - Dassault Falcon 2000	12	12	24	144	12	144	12
F900 - Dassault Falcon 900	18	18	36	263	14	263	14
FA20 - Dassault Falcon/Mystère 20	5	5	10	50	10	50	10
FA50 - Dassault Falcon/Mystère 50	6	6	12	72	12	72	12
G150 - Gulfstream G150	6	5	11	24	4	20	4
GALX - IAI 1126 Galaxy/Gulfstream G200	10	10	20	80	8	80	8
GLAS - New Glasair	0	1	1	0	0	4	4
GLEX - Bombardier BD-700 Global Express	14	14	28	154	11	154	11
GLF2 - Gulfstream II/G200	2	2	4	24	12	24	12
GLF3 - Gulfstream III/G300	1	1	2	15	15	15	15
GLF4 - Gulfstream IV/G400	12	12	24	168	14	168	14
GLF5 - Gulfstream V/G500	1	1	2	15	15	15	15
H25A - BAe HS 125-1/2/3/400/600	1	1	2	12	12	12	12
H25B - BAe HS 125/700-800/Hawker 800	51	50	101	612	12	600	12
H64 - Boeing AH-64 Longbow Apache	0	1	1	0	0	0	0
HA4T - Hawker 4000	6	6	12	0	0	0	0
HXB - Experimental Aircraft	0	3	3	0	0	0	0
J328 - Fairchild Dornier 328 Jet	1	1	2	32	32	32	32
L39 - Aero L-139 Albatross	0	2	2	0	0	4	2
LEG2 - Lancair Legacy 2000	1	2	3	2	2	4	2
LJ25 - Bombardier Learjet 25	1	1	2	8	8	8	8
LJ31 - Bombardier Learjet 31/A/B	28	26	54	224	8	208	8

LJ35 - Bombardier Learjet 35/36	77	77	154	616	8	616	8
LJ40 - Learjet 40; Gates Learjet	3	3	6	30	10	30	10
LJ45 - Bombardier Learjet 45	13	12	25	130	10	120	10
LJ55 - Bombardier Learjet 55	56	55	111	448	8	440	8
LJ60 - Bombardier Learjet 60	6	7	13	48	8	56	8
LMC2 - unknown	0	1	1	0	0	0	0
LNC2 - Lancair 360	1	0	1	4	4	0	0
LNC4 - Lancair 4	0	1	1	0	0	4	4
M20P - Mooney M-20C Ranger	7	8	15	28	4	32	4
M20T - Turbo Mooney M20K	8	10	18	32	4	40	4
M7 - Maule M-7-235 Orion	0	1	1	0	0	5	5
MO20 - Mooney M-20	1	5	6	4	4	20	4
MU2 - Mitsubishi Marquise/Solitaire	51	50	101	306	6	300	6
MU2B - Marquise/Solitaire; Mitsubishi	0	1	1	0	0	6	6
MU30 - Mitsubishi MU300/ Diamond I	3	3	6	12	4	12	4
P180 - Piaggio P-180 Avanti	13	15	28	117	9	135	9
P2 - Lockheed SP-2 Neptune	0	1	1	0	0	2	2
P210 - Riley Super P210	1	2	3	6	6	12	6
P28A - Piper Cherokee	1	2	3	4	4	8	4
P28R - Cherokee Arrow/Turbo	14	8	22	56	4	32	4
P28T - Piper Arrow 4	2	1	3	8	4	4	4
P32R - Piper 32	1	0	1	4	4	0	0
P32T - Embraer Lance 2	0	2	2	0	0	12	6
P46T - Piper Malibu Meridian	36	38	74	216	6	228	6
PA24 - Piper PA-24	0	3	3	0	0	15	5
PA28 - Piper Cherokee	0	1	1	0	0	28	28
PA30 - Piper PA-30	1	3	4	6	6	18	6
PA31 - Piper Navajo PA-31	4	8	12	32	8	64	8
PA32 - Piper Cherokee Six	0	7	7	0	0	42	6

PA34 - Piper PA-34 Seneca	10	9	19	60	6	54	6
PA44 - Piper Seminole	0	4	4	0	0	16	4
PA46 - Piper Malibu	33	29	62	198	6	174	6
PAY1 - Piper Cheyenne 1	1	1	2	4	4	4	4
PAY2 - Piper Cheyenne 2	4	3	7	24	6	18	6
PAY3 - Piper PA-42-720 Cheyenne 3	3	3	6	18	6	18	6
PAY4 - Piper Cheyenne 400	3	3	6	12	4	12	4
PC12 - Pilatus PC-12	90	71	161	810	9	639	9
PRM1 - Raytheon Premier 1/390 Premier 1	13	14	27	78	6	84	6
RV10 - Experimental	0	1	1	0	0	0	0
RV7 - Experimental RV-7	1	1	2	2	2	2	2
RV9 - Experimental	1	1	2	2	2	2	2
RV98 - unknown	0	1	1	0	0	0	0
SF34 - Saab SF 340	1	1	2	35	35	35	35
SR20 - Cirrus SR-20	0	2	2	0	0	8	4
SR22 - Cirrus SR 22	35	43	78	140	4	172	4
SW3 - Fairchild Swearingen SA-226T/TB Merlin 3	5	7	12	100	20	140	20
SW4 - Swearingen Merlin 4/4A Metro2	274	282	556	5,480	20	5,640	20
TBM7 - Socata TBM-7	4	3	7	16	4	12	4
TBM8 - Socata TBM-850	56	58	114	7	0	7	0
TRIN - Socata TB-21 Trinidad	1	1	2	4	4	4	4
UC35 - Cessna UC-35	0	1	1	0	0	0	0
V22 - Bell V-22 Osprey	2	1	3	48	24	24	24
VELO - Velocity	1	1	2	4	4	4	4
WW24 - IAI 1124 Westwind	9	8	17	90	10	80	10
ZZZZ - Equipment not specified	1	0	1	0	0	0	0
Total	**6,580**	**6,554**	**13,134**				
TOTAL C-III OPS			**550**				
TOTAL C-II OPS			**4,102**				

APPENDIX I

FAA Terminal Area Forecast (TAF)

APO TAF Quick Data Summary Report - Facility

For National Forecast 2013 -- 2013 Scenario

Region State: ANM-CO **LOCID: DRO Non-FAA Facility**

City: DURANGO **Airport: DURANGO-LA PLATA COUNTY**

2012 Based Aircraft: 70

	-- ENPLANEMENTS --			-- AIRPORT OPERATIONS --									-- TRACON --
				-- Itinerant Operations --					-- Local Operations --				
Fiscal Year	Air Carrier	Commuter	Total	Air Carrier	AT & Comm	GA	Military	Total	Civil	Military	Total	Total OPS	Total OPS
2009	77	141,931	142,008	8,760	3,200	13,000	500	25,460	21,000	0	21,000	46,460	-
2010	0	163,052	163,052	8,760	3,200	13,000	500	25,460	21,000	0	21,000	46,460	-
2011	21	171,046	171,067	8,699	3,213	13,088	500	25,500	21,149	0	21,149	46,649	-
2012	48	180,817	180,865	8,657	3,226	13,176	500	25,559	21,299	0	21,299	46,858	-
2013 *	17,408	181,973	199,381	8,615	3,239	13,265	500	25,619	21,449	0	21,449	47,068	-
2014 *	17,408	186,696	204,104	8,573	3,252	13,355	500	25,680	21,601	0	21,601	47,281	-
2015 *	17,408	191,068	208,476	8,632	3,265	13,445	500	25,842	21,754	0	21,754	47,596	-
2016 *	17,408	195,542	212,950	8,692	3,278	13,536	500	26,006	21,909	0	21,909	47,915	-
2017 *	17,408	200,121	217,529	8,752	3,291	13,627	500	26,170	22,065	0	22,065	48,235	-
2018 *	17,408	204,807	222,215	8,813	3,304	13,719	500	26,336	22,221	0	22,221	48,557	-
2019 *	17,408	209,603	227,011	8,874	3,317	13,813	500	26,504	22,378	0	22,378	48,882	-
2020 *	17,408	213,778	231,186	8,962	3,330	13,907	500	26,699	22,537	0	22,537	49,236	-
2021 *	17,408	218,037	235,445	9,050	3,343	14,002	500	26,895	22,697	0	22,697	49,592	-
2022 *	17,408	222,382	239,790	9,140	3,356	14,098	500	27,094	22,858	0	22,858	49,952	-
2023 *	17,408	226,811	244,219	9,230	3,369	14,194	500	27,293	23,020	0	23,020	50,313	-
2024 *	17,408	231,328	248,736	9,322	3,383	14,291	500	27,496	23,183	0	23,183	50,679	-
2025 *	17,408	235,936	253,344	9,414	3,397	14,389	500	27,700	23,347	0	23,347	51,047	-
2026 *	17,408	240,636	258,044	9,507	3,411	14,488	500	27,906	23,512	0	23,512	51,418	-
2027 *	17,408	245,430	262,838	9,601	3,425	14,587	500	28,113	23,678	0	23,678	51,791	-
2028 *	17,408	250,318	267,726	9,696	3,439	14,687	500	28,322	23,846	0	23,846	52,168	-
2029 *	17,408	255,304	272,712	9,792	3,453	14,788	500	28,533	24,015	0	24,015	52,548	-
2030 *	17,408	260,389	277,797	9,889	3,468	14,889	500	28,746	24,185	0	24,185	52,931	-
2031 *	17,408	265,575	282,983	9,987	3,483	14,991	500	28,961	24,356	0	24,356	53,317	-
2032 *	17,408	270,866	288,274	10,086	3,498	15,093	500	29,177	24,528	0	24,528	53,705	-
2033 *	17,408	276,262	293,670	10,185	3,513	15,196	500	29,394	24,702	0	24,702	54,096	-
2034 *	17,408	281,764	299,172	10,286	3,528	15,300	500	29,614	24,877	0	24,877	54,491	-
2035 *	17,408	287,376	304,784	10,388	3,543	15,404	500	29,835	25,053	0	25,053	54,888	-
2036 *	17,408	293,100	310,508	10,491	3,558	15,509	500	30,058	25,230	0	25,230	55,288	-

2037	*	17,408	298,939	316,347	10,595	3,573	15,615	500	30,283	25,409	0	25,409	55,692	-
2038	*	17,408	304,895	322,303	10,699	3,589	15,722	500	30,510	25,589	0	25,589	56,099	-
2039	*	17,408	310,967	328,375	10,805	3,605	15,829	500	30,739	25,770	0	25,770	56,509	-
2040	*	17,408	317,162	334,570	10,912	3,621	15,937	500	30,970	25,952	0	25,952	56,922	-
GR1		23.42	2.02	2.22	0.83	0.41	0.68	0.00	0.68	0.70	0.00	0.70	0.69	0.00
GR2		0.00	2.07	1.93	0.87	0.41	0.68	0.00	0.70	0.70	0.00	0.70	0.70	0.00

GR1: Growth Rate from 2012 to 2040 GR2: Growth Rate from 2013 to 2040

Report created 11/17/2014 18:11

APPENDIX J

DRO Traffic Analysis Report – Felsburg Holt & Ullevig

DURANGO-LA PLATA COUNTY AIRPORT MASTER PLAN: TRAFFIC ANALYSIS REPORT

Prepared for:

Jviation
900 South Broadway, Suite 350
Denver, CO 80209
(303) 524-3030

Prepared by:

Felsburg Holt & Ullevig
6300 South Syracuse Way, Suite 600
Centennial, CO 80111
(303) 721-1440

Project Manager: Lyle DeVries, PE, PTOE
Project Engineer: Shea Suski

FHU Reference No. 14-228-01

October 2015

TABLE OF CONTENTS

Page

INTRODUCTION ---------- **1**
TRAFFIC CONDITIONS ---------- **1**
Traffic Safety ---------- 1
Existing & Historical Daily Traffic ---------- 1
Future Daily Traffic ---------- 3
STAKEHOLDER OUTREACH ---------- **3**
TERMINAL ALTERNATIVES ---------- **3**
ACCESS OPTIONS ---------- **4**
ALTERNATIVES EVALUATION ---------- **7**

LIST OF FIGURES

Figure 1. Existing Daily Traffic Volumes ---------- 2
Figure 2. Access Options – West Side Terminal ---------- 5
Figure 3. Access Options – East Side Terminal ---------- 6

LIST OF TABLES

Table 1. Airport Access Options by Terminal Alternative ---------- 4
Table 2. Alternative Evaluation Summary ---------- 8

INTRODUCTION

In support of the Durango-La Plata County Airport Master Plan, vehicle access to and from the airport was analyzed to determine future needs relative to increased enplanements and terminal design alternatives. This analysis provides the documentation of traffic conditions (both existing and future forecast) relative to vehicle access to the airport, summary of stakeholder input pertaining to how access is provided today and what changes might be desired or planned, and analyses of terminal alternatives and access options to assist with alternative evaluation and selection of the Preferred Alternative.

TRAFFIC CONDITIONS

The Durango-La Plata County Airport lies approximately 15 miles southeast of the City of Durango and is accessed by La Plata County Road (CR) 309 via Colorado State Highway (SH) 172. Although CR 309 ends within the airport area, it also provides access to a few other industrial businesses, the largest being British Petroleum, which lies on the east side of CR 309 approximately halfway between the airport terminal and SH 172. CR 309 is intersected by CR 309A just north of the airport's parking lots, which runs east and loops around the airport's runway to the north before running south just east of the airport property. CR 309A provides access to non-commercial airport services along the perimeter of the airport, and provides access to a small number of homes and oil/gas wells southeast of the airport, ending at CR 318.

Traffic Safety

The existing SH 172 / CR 309 intersection has been identified as a traffic safety problem by both La Plata County and the Colorado Department of Transportation (CDOT). La Plata County Staff has rated the intersection #1 on a listing of intersections in need of improvement, and CDOT Staff agree that the configuration and location of the intersection causes sight distance limitations and increased crash potential. A brief survey of available crash information revealed that four crashes occurred along SH 172 and CR 309 in the vicinity of the intersection, many of them involving wild animal strikes. While the intersection crash data do not necessarily indicate an elevated safety risk, it is evident that safety concerns exist.

Existing & Historical Daily Traffic

The road network surrounding the airport and the daily traffic volumes along SH 172, CR 309, and SH 309A are shown in **Figure 1**. The most currently available count data shows approximately 7,800 vehicles per day (vpd) travel SH 172 west of CR 309, while approximately 5,500 vpd travel SH 172 east of CR 309. Roughly 3,100 vpd access CR 309, with 2,500 vpd counted just north of the airport. Approximately 900 vpd use CR 309A to access the non-commercial airport services, homes, and oil/gas wells, leaving approximately 1,600 vpd accessing the terminal and other airport services south of the terminal.

Historically, traffic accessing the terminal area via CR 309 has fluctuated between approximately 1,000 to 1,700 vpd since 2003, with exceptions during the previous reconstruction of the entrance to the airport in 2010. Since that reconstruction, daily traffic volumes have been around 1,600 vpd.

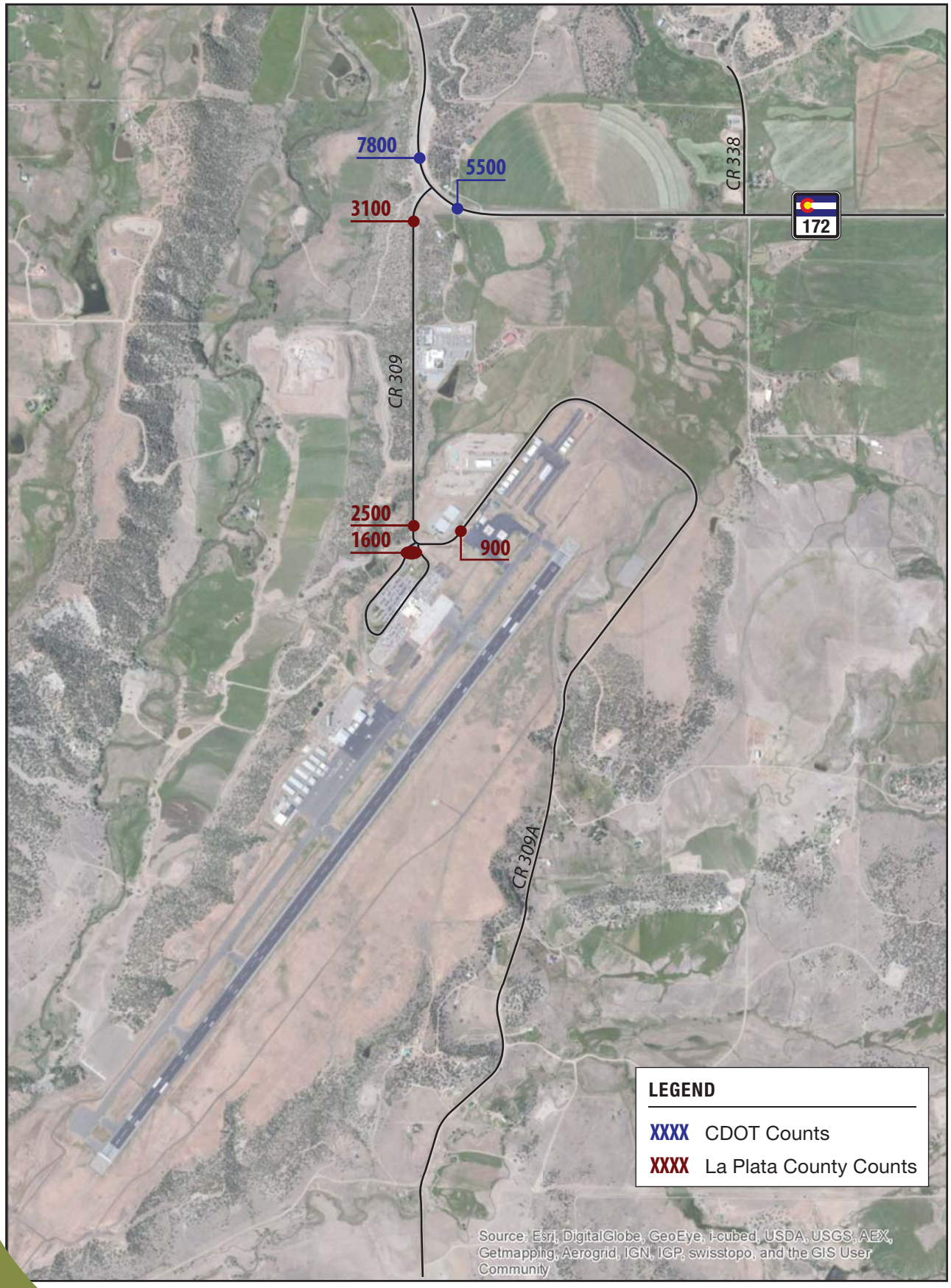


Figure 1

Existing Daily Traffic Volumes

FELSBURG HOLT & ULLEVIG

NORTH

Future Daily Traffic

As part of the master planning process, Jviation has estimated enplanements at the airport to rise from 192,797 in 2013 to 390,941 in 2035 – an increase of 198,144 enplanements or 103 percent. Although the Institute of Transportation Engineers' (ITE) *Trip Generation Manual 9th Edition* does provide trip generation estimates for airports, it was concluded that the airports used within the studies that formed the ITE trip generation rates are too large and in different environments compared to the Durango-La Plata County Airport. Instead, the relationship between historical daily traffic counts and enplanements was analyzed in an attempt to project future traffic volumes

The projected growth in enplanements continues the steady trend of growth that the airport has experienced since 2003. However, historical traffic volumes accessing the terminal during the same time period have not shown a similar consistent growth pattern. Daily traffic volumes have varied over this time period, generally growing over the past decade, but a decreasing trend has been observed since 2011. In contrast, enplanements have grown each year since 2003, with an average of 8 percent growth per year. Because of the discrepancy, a range of 3,400 to 4,800 vpd was developed for the 2035 projected traffic related to the airport. The low range uses the traffic growth experienced over the past decade to project growth over the next two decades, while the high range uses the average trips per enplanement (during years with available count data and no known construction occurring) multiplied by the projected enplanements for 2035. Even when using the conservative high range volume, a two-lane roadway will provide enough capacity for traffic in 2035 and beyond, assuming no additional significant development occurs in the area, of which little to none is expected.

Using CDOT's web based future traffic estimation tool, traffic using SH 172 by 2035 is estimated to be 6,200 vpd east of the airport and 11,100 vpd west of the airport.

STAKEHOLDER OUTREACH

CDOT and La Plata County were contacted to obtain the history, known issues, and plans or preferences for the roadways surrounding the airport. Jim Horn, the CDOT Region 5 Access Manager, noted that the intersection of SH 172 and CR 309 had been recently reconstructed to improve accel/decel lanes for safety purposes, but CDOT prefers that the access to the airport be moved east to the intersection of SH 172 and CR 338 since this intersection does not lie on a curve, and the existing SH 172 / CR 309 intersection could be closed or limited, such as a ¾ movement with no left turns permitted from CR 309 to SH 172. Jim Davis, the County Engineer for La Plata County, stated that the movement of airport access further east along SH 172 was also a top priority for the County and provided traffic count data for CR 309 and CR 309A.

TERMINAL ALTERNATIVES

Three terminal alternatives have been developed as part of the Master Plan: Alternative 1 assumes that the current terminal building be modified to handle additional enplanements, Alternative 2 assumes a new terminal building would be built next to the existing terminal, and Alternative 3 assumes a new terminal building would be constructed east of the runway. Since Alternatives 1 and 2 keep a future terminal within the same general area west of the runway served by existing roadways and future traffic projections do not warrant roadway expansion,

the two alternatives were analyzed as one when looking at roadway access to the airport. The moving of the terminal to the east side of the airport property in Alternative 3 would require new roadway to access the relocated terminal. The following section presents the access options available for the terminal alternatives.

Regardless of which terminal alternative is chosen, the existing CR 309A will be moved further north to be outside of the runway protection zone (RPZ) to comply with FAA guidance and regulations.

ACCESS OPTIONS

Two basic roadway options were developed based on input from the master planning team and contacted stakeholders: retain the existing access to the airport via CR 309 from SH 172 or move the access east along SH 172 to align with CR 338. Each of these options was adjusted for whether the terminal remains west of the runway or moves to the east side of the airport property, resulting in four access options. A fifth option was developed to further improve access should the existing access remain and the terminal moves to the east side of the airport property. **Table 1** lists the five joint terminal alternatives and access options along with descriptions of each. **Figure 2** illustrates the access options available for the first two terminal alternatives, while **Figure 3** illustrates the access options for Alternative 3.

Table 1. Airport Access Options by Terminal Alternative

Terminal Alternative	Access Options	Description*
West side of runway (1/2)	1/2A	Future terminal building remains west of the runway and existing access remains unchanged
	1/2B	Future terminal building remains west of the runway, access to the airport is moved to a new facility as an extension of CR 338 south of SH 172, and the existing SH 172 / CR 309 intersection is modified to not be a primary access to the airport (either closed or limited movements)
East side of runway (3)	3A	Future terminal building moves to the east side of the airport property and existing access remains unchanged, and CR 309A must be altered to provide access to the new terminal
	3B	Future terminal building moves to the east side of the airport property, access to the airport is moved to a new facility as an extension of CR 338 south of SH 172, and the existing SH 172 / CR 309 intersection is modified to not be a primary access to the airport (either closed or limited movements)
	3C	Future terminal building moves to the east side of the airport property and existing access remains unchanged but a new segment is constructed north of the British Petroleum site to connect to CR 309A and reduce visitor travel time, and CR 309A must be altered to provide access to the new terminal

*All options include moving CR 309A further north out of the RPZ to comply with FAA guidance and regulations

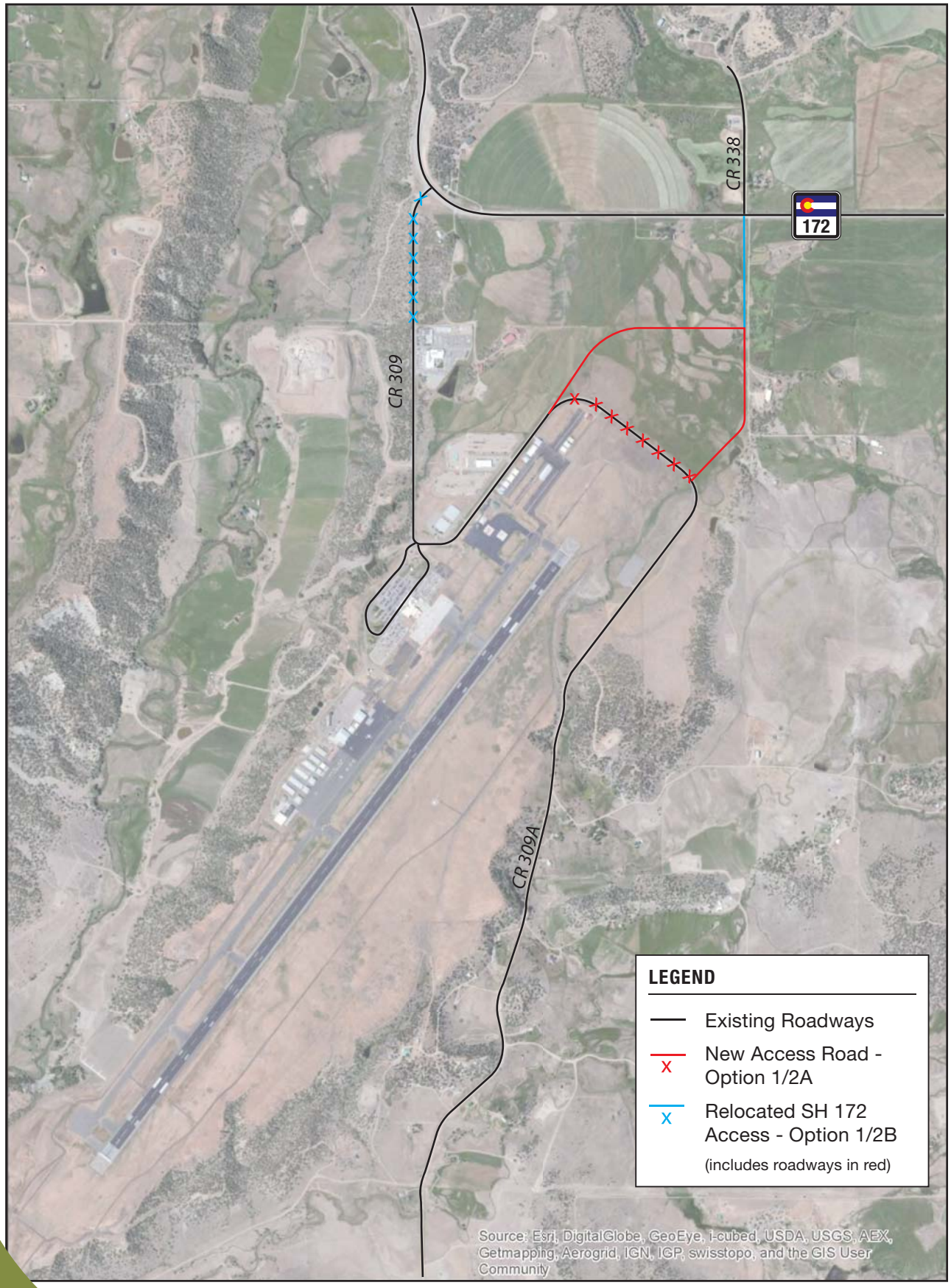


Figure 2

Access Options - West Side Terminal

FELSBURG HOLT & ULLEVIG

NORTH

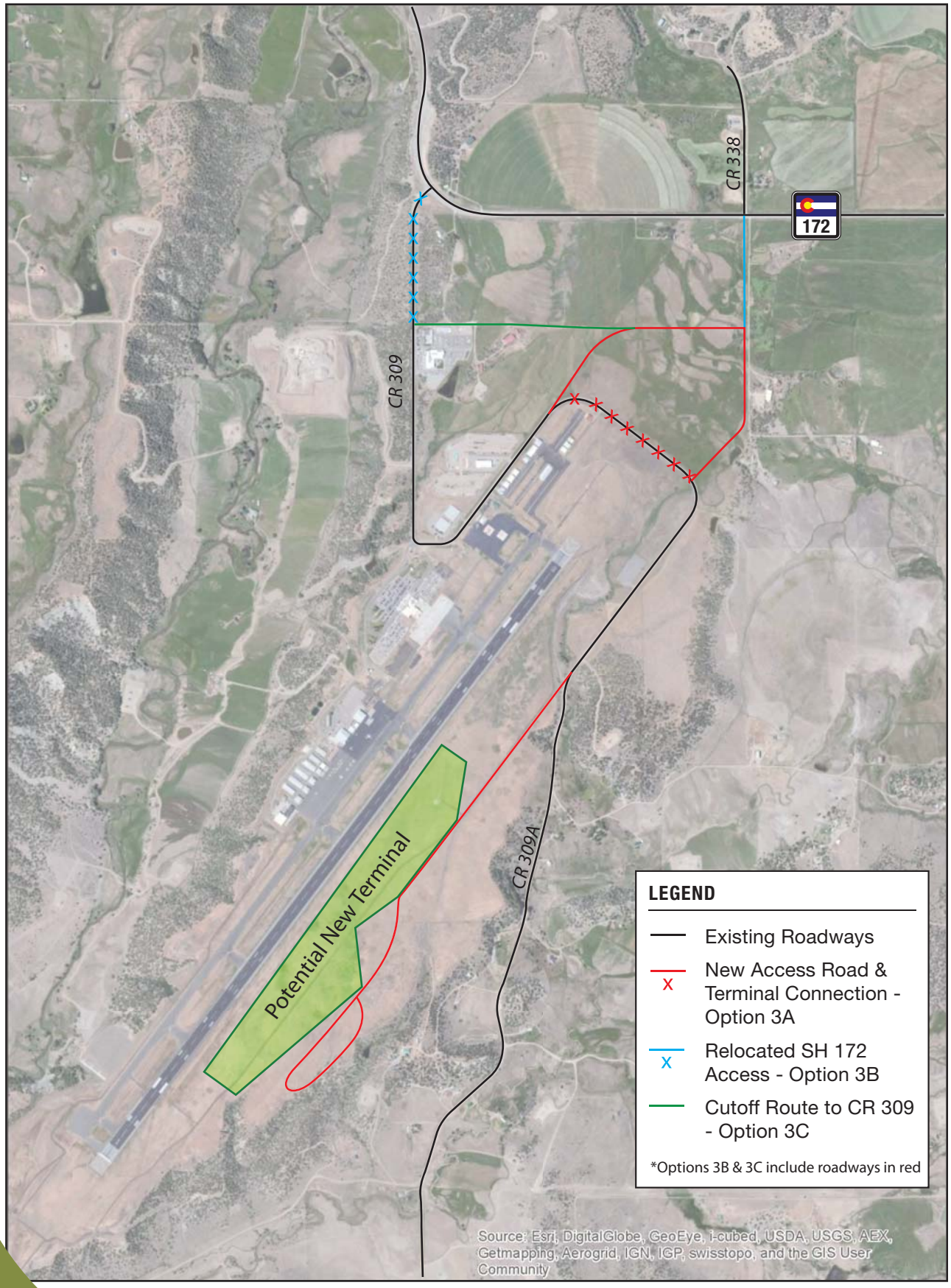


Figure 3

Access Options - East Side Terminal

FELSBURG HOLT & ULLEVIG

NORTH

ALTERNATIVES EVALUATION

To assist with screening of the alternatives and eventual identification of the Preferred Alternative, the terminal alternatives were matched with the access options and evaluated based on four measures: Traffic Safety, Traffic Efficiency, Estimated Construction Cost and Access Code considerations.

Traffic Safety was measured as the ability of each alternative to improve upon known roadway and intersection safety issues. As previously discussed, it is known that the existing SH 172 / CR 309 intersection raises safety concerns due to its location on the outside edge of a curve, and both CDOT and County Staff have expressed the importance of addressing these concerns.

Traffic Efficiency was measured as the ability of each alternative to provide for direct airport access to the regional roadway network and minimize out-of-direction travel.

Access Code considerations serve to provide a means of evaluating the CDOT process associated with implementing any of the access options. SH 172 is a state facility owned and managed by CDOT, and the CDOT Access Code outlines a particular set of criteria that apply to SH 172 and how other roadways access the highway. The access options were compared based on compatibility with these criteria.

Estimated Construction Costs were prepared for each of the access options to allow for comparison. Costs were prepared at a conceptual level, with simplifying assumptions for the amount of earthwork that would be required. A contingency of 20 percent was applied to each estimate to provide some allowance for higher than expected expenditures.

Table 2 outlines the performance of each terminal alternative / access option pairing in these categories.

Table 2. Alternative Evaluation Summary

Terminal Alternative	Access Option	Evaluation Category						
		Traffic Safety	Traffic Efficiency	Access Code	Estimated Construction Cost ($M)			
					New Access Road	New Site roadway	Connect to SH 172	Total
West side of runway (1/2)	1/2A	No safety improvement	Direct SH 172 access	Minimal CDOT coordination	2.54	0	0	2.54 [1]
	1/2B	Safety benefit with relocated SH 172 access	Indirect access to SH 172	Permitting process required		0	0.97	3.51 [1]
East side of runway (3)	3A	No safety improvement	Indirect access to SH 172	Minimal CDOT coordination		3.71	0	6.25[2]
	3B	Safety benefit with relocated SH 172 access	Direct SH 172 access	Permitting process required		3.71	0.97	7.22[2]
	3C	No safety improvement	Moderate out of direction travel	Minimal CDOT coordination		3.71	1.65	7.90[2]

[1]Cost does not include improvements to existing CR 309A west of runway, estimated at $1.21 M
[2]Cost does not include improvements to existing CR 309A east of runway, estimated at $2.40 M

The cost columns provide a breakdown of components. All of the options require the new access road to re-route CR 309A farther north of the runway. Relocating the terminal east of the runway would require approximately $3.71 Million in new site roadway to be constructed. The cost to connect to SH 172 is zero when the existing access is maintained and would cost approximately $0.97 Million to construct when relocated east.

As shown in **Table 2**, the “A” options that preserve the existing access to SH 172 via CR 309 are less costly, but do not provide safety benefits. The “B” options are more costly, but bring about safety benefits. Traffic would operate most efficiently when the terminal alternative is paired with an access option that lies on the same side of the runway.

These considerations are provided to assist in selecting a preferred alternative, and should be considered alongside other evaluation criteria being reviewed by the project team. Based on this limited, vehicular traffic-focused analysis of terminal alternatives and access options, keeping the terminal on the west side of the runway and relocating the SH 172 access east is the most cost-effective alternative.

APPENDIX L

AIRPORT RECYCLING, REUSE, AND WASTE REDUCTION PLAN

AIRPORT RECYCLING, REUSE, AND WASTE REDUCTION PLAN

The Federal Aviation Administration (FAA) issued a memorandum on September 30, 2014 to provide guidance on preparing airport recycling, reuse, and waste reduction plans as an element of a master plan, master plan update, within a sustainability document, or as a standalone document. The guidance is mandatory when preparing a master plan or update.

The purpose of this document is to review the Durango-La Plata County Airport's recycling, reuse, and waste program and provide guidance on ways to reduce waste and improve recycling and reuse at the facility as part of the Master Plan in compliance with the FAA's memorandum. This document serves to meet that requirement and will:

- Review existing practices and solid waste sources (waste audit)
- Review the feasibility of solid waste recycling at the Airport
- Summarize operation and maintenance (O&M) requirements
- Review waste management contracts
- Identify potential cost savings or revenue generation
- Provide recommendation to minimize solid waste generation

I. FACILITY DESCRIPTION AND BACKGROUND

The Durango-La Plata Airport (DRO or Airport) is located in the Four Corners region of Colorado, approximately 14 miles southeast of the Central Business District (CBD) of Durango. DRO is co-owned by the City of Durango and La Plata County. Through an intergovernmental agreement (IGA), the Airport functions as a city department with direct oversight by the City of Durango. Pursuant to the IGA, the Airport Commission serves in an advisory capacity with its members appointed by the city and county. Additional facility information is contained in Chapter 1, Introduction, and Chapter 2, Inventory, of the Master Plan.

As a vital player in the growth of local businesses and the tourism industry, DRO has seen a steady increase in operations with a total of 27,928 in 2013. As discussed in Chapter 3, Aviation Activity Forecasts, DRO is expected to have approximately 39,989 operations by 2035. DRO serves both general aviation and commercial service aircraft, and currently supports two commercial passenger airlines (American/American Eagle/US Airways and United Express)[1]. Similar to the number of operations, DRO has experienced a

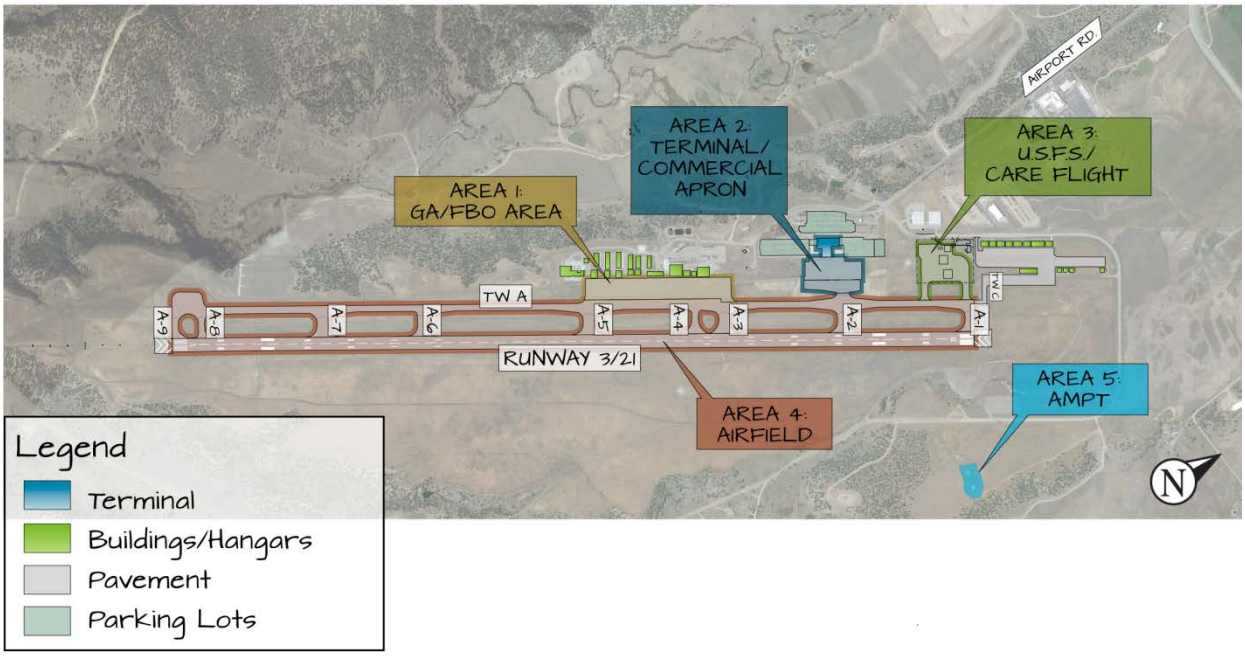
[1] DRO supported three airlines at the onset of this Master Plan but Frontier Airlines stopped service in 2014.

steady increase in enplanements with a total of 192,797 in 2013. A significant increase is to 304,784 operations is forecasted by 2035. Based aircraft are also forecasted to grow from 70 (2013) to 93 by 2035.

I.1 Existing Waste Sources

The identification and evaluation of airport waste sources can be complicated. There are many different groups, agreements, operational styles, and collection/disposal processes that play into the overall generation of waste. Through a waste audit, conducted by airport staff in 2015, five primary areas generating waste were identified: the General Aviation (GA)/Fixed Base Operator (FBO) Area, the Terminal/Commercial Apron Area, the U.S. Forest Service (USFS) Area, the Active Airfield, and the Advanced Mobile Propulsion Test (AMPT) site (see **Figure 1**). Of these five areas, the commercial passenger terminal and associated tenants generate the most solid waste.

FIGURE 1 - PRIMARY WASTE SOURCE AREAS



Sources: Durango-La Plata County Airport staff and Jviation

The waste source areas can be further broken down by how much control the Airport has on the generation and disposal of waste. The three levels of control are:

1. Areas the Airport has direct control of waste management (public space, office space, terminal building, and airfield). These areas are controlled by the Airport and they are able to introduce recycling, reuse, and waste reduction programs directly.

2. Areas the Airport has no direct control but can influence waste management (tenants). These are areas owned by the Airport; however, they are leased out to tenants. The Airport can recommend recycling, reuse, and waste reduction programs be used and can include language in the tenant contracts, but realistically cannot control what is done.
3. Areas the Airport has no control or influence over waste management. These are areas the Airport neither owns or leases (none of which are included in this document).

Table 1 shows the identified areas of waste generation, what waste is generated, how the waste is collected, if any reduction and/or recycling programs are in places, and what level of control the Airport has.

TABLE 1 – EXISTING WASTE SOURCES

	Waste Generated	Current Solid Waste Collection	Current Waste Reduction/Recycling	Control
Area 1: GA/FBO				
FBO	Plastic/glass bottles, aluminum cans, paper, cardboard, oil, batteries, misc. trash	City of Durango Dumpster (trash), City Recycling Center (recyclables/batteries), Used Oil	Use of City's Recycling Center; oil is reclaimed	Indirect Control
Hangars	Plastic/glass bottles, aluminum cans, paper, cardboard, misc. trash	Hangar owners responsible for collection and disposal	NA	Indirect Control
Other GA Tenants	Plastic/glass bottles, aluminum cans, paper, cardboard, misc. trash	Trash collected and deposited into dumpsters via tenant. Recyclables collected on individual basis and taken to Durango Recycling center as applicable.	Use of City's Recycling Center	Indirect Control
Area 2: Terminal				
Airlines Offices	Plastic/glass bottles, aluminum cans, paper, cardboard, misc. trash	Collected by airport staff, deposited into onsite dumpsters and recycling bins as applicable.	Waste voluntarily sorted in provided recycling bins	Indirect Control
Airport Administration	Plastic/glass bottles, aluminum cans, paper, cardboard, misc. trash	Collected by airport staff, deposited into onsite dumpsters and recycling bins as	Waste voluntarily sorted in provided recycling bins	Direct Control

	Waste Generated	Current Solid Waste Collection	Current Waste Reduction/Recycling	Control
		applicable		
Baggage Claim	Plastic/glass bottles, aluminum cans, paper, cardboard, misc. trash	Collected by airport staff, deposited into onsite dumpsters and recycling bins as applicable	Waste voluntarily sorted in provided recycling bins	Direct Control
Cafe	Cardboard, glass, paper and plastic food and beverage containers, paper napkins, plastic utensils, food remnants	Collected by airport staff, deposited into onsite dumpsters and recycling bins as applicable	Waste voluntarily sorted in provided recycling bins	Direct Control
Departure Lounge	Plastic/glass bottles, aluminum cans, paper, cardboard, misc. trash	Collected by airport staff, deposited into onsite dumpsters and recycling bins as applicable	Waste voluntarily sorted in provided recycling bins	Direct Control
News/Gift Shop	Plastic/glass bottles, aluminum cans, paper, cardboard, misc. trash	Collected by airport staff, deposited into onsite dumpsters and recycling bins as applicable	Waste voluntarily sorted in provided recycling bins	Direct Control
Parking Lots	Plastic/glass bottles, aluminum cans, paper, cardboard, misc. trash	Collected by airport staff, deposited into onsite dumpsters and recycling bins as applicable	None	Direct Control
Rental Cars (Offices and Counter)	Plastic/glass bottles, aluminum cans, paper, cardboard, misc. trash	Collected by airport staff, deposited into onsite dumpsters and recycling bins as applicable	Waste voluntarily sorted in provided recycling bins	Indirect Control
Restrooms	Paper towels, misc. waste	Collected by airport staff, deposited into onsite dumpsters and recycling bins as applicable	Waste voluntarily sorted in provided recycling bins	Direct Control
Ticketing	Plastic/glass bottles, aluminum cans, paper, cardboard, misc. trash	Collected by airport staff, deposited into onsite dumpsters and recycling bins as	Waste voluntarily sorted in provided recycling bins	Direct Control

	Waste Generated	Current Solid Waste Collection	Current Waste Reduction/Recycling	Control
		applicable		
TSA	Plastic/glass bottles, aluminum cans, paper, cardboard, misc. trash	Collected by airport staff, deposited into onsite dumpsters and recycling bins as applicable	Waste voluntarily sorted in provided recycling bins	Direct Control
Area 3: U.S. Forest Service/Care Flight				
USFS	Plastic/glass bottles, aluminum cans, paper, cardboard, misc. trash	Trash deposited into private dumpsters and collected weekly through WCA. Recycling is collected and taken to Durango Recycling center by tenants.	Use of City's Recycling Center	Indirect Control
Care Flight	Plastic/glass bottles, aluminum cans, paper, cardboard, misc. trash	Trash collected/deposited into dumpsters via tenant and removed by Waste Management. Recyclables collected on individual basis and taken to Durango Recycling center as applicable.	Use of City's Recycling Center	Indirect Control
Area 4: Active Airfield	General debris found on airfield. Construction material (asphalt, concrete, wood, metal)	Collected by airport Staff, unusable waste deposited into Airport Dumpsters.	Excavated dirt and pavement millings are reused on airport property, concrete is stockpiled for reuse or recycled, scrap metal is salvaged, and lumber is reused when possible.	Direct Control
Area 5: AMPT	Plastic/glass bottles, aluminum cans, paper, cardboard, misc. trash	Trash collected and deposited into AMPT dumpsters via Tenant and collected through a contract with Waste Management. Recyclables collected on individual basis and taken to Durango Recycling center as applicable.	Use of City's Recycling Center	Indirect Control

Sources: Durango-La Plata County Airport staff and Jviation

I.2 CURRENT WASTE MANAGEMENT PROGRAMS

The City of Durango, La Plata County, and DRO all have recycling and waste reduction programs in place for their residents and customers. These programs and services include the following items:

I.2.1 City of Durango

The City of Durango provides both recycling and waste disposal services for the Durango community, surrounding communities, and the La Plata County as a whole. The City has implemented the following waste reduction and recycling programs and strategies[2]:

- All City facilities participate in recycling programs
- Implementation of an Environmental Purchasing Policy[3]
- Multi-family complexes are required to provide recycling opportunities for tenants
- New businesses are required to provide space for recycling bins
- Electronic distribution of the City's Annual Report and Budget
- Automotive waste from city vehicles is recycled
- City hall has an employee compost
- Implementation of Single Stream Recycling Program
- Availability of Durango Recycling Center
    - Recycling Opportunities for batteries, commercial waste, electronics, fluorescent light bulbs, hazardous waste, recycled mulch, glass, plastics, paint, and numerous other items

I.2.2 La Plata County

La Plata County, similar to the City of Durango, provides its residents with recycling and waste disposal services. The County has two Convenience Centers, the Bayfield Center and the Marvel Center, where residents can drop of trash and recyclables. The Bayfield Center collects the following items: household waste, aluminum cans, plastic, newspaper, motor oil, car batteries, green yard waste, branches under 8 inches in diameter, Freon free refrigerators, and mattress/box springs (for a fee). The Marvel center collects: household waste, aluminum cans, mixed glass, and newspaper. The County also works with the City of Durango and shares many of the City's resources and services.

---

[2] City of Durango Colorado, Waste Reduction and Recycling http://www.durangogov.org/index.aspx?NID=768, Accessed July 2015

[3] An Environmental Purchasing Policy recommends entities purchase recycled and other environmentally preferable products whenever possible.

I.2.3 Durango-La Plata County Airport

The Airport, as discussed previously, is also an active participant in a recycling program. DRO strives to participate in the City and County programs, when applicable. The Airport, and its tenants, has recycling bins and dumpsters available - see **Figures 2**, **3**, **4**, and **5** for bin and dumpster locations, respectively - for passengers, employees, and tenants to utilize. The Airport provides one recycling dumpster and five garbage dumpsters. Numerous trash and recycling bins are located throughout the terminal. Both recycling and trash dumpsters are picked up weekly by the City of Durango. The U.S. Forest Service, AMPT, and Care Flight are contracted with other waste services (WCA and Waste Management) and have their own dumpsters. Construction materials are handled by contractors and are not disposed of through the Airport. The following items are accepted by the City of Durango's recycling program[4] and therefore the Airport has the option to recycle:

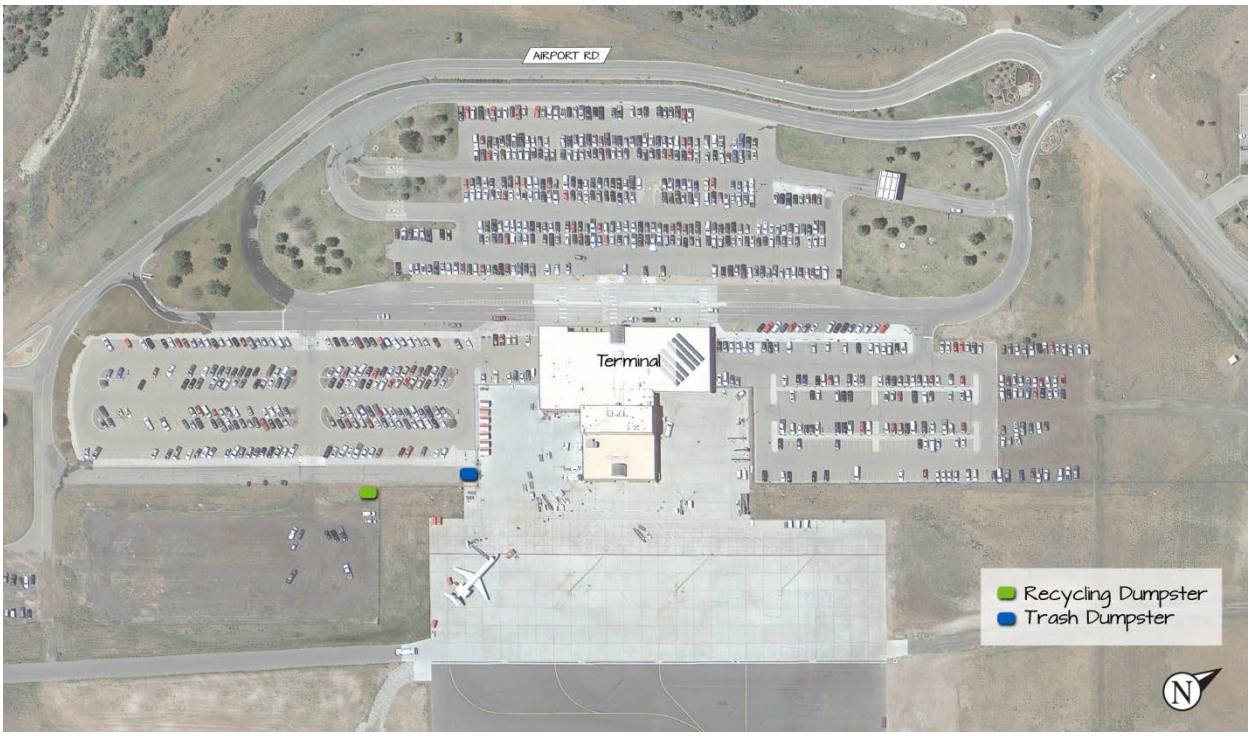
- Cardboard and Mixed Paper (newspaper, magazines/catalogs, corrugated cardboard, mixed paper, paperboard, cartons, junk mail, phone books, paper bags, and other miscellaneous items)
- Metals (steel cans, aluminum cans/foils/pie plates, loose metal jar lids/bottle caps
- Plastics (#1-#7 plastic bottles/tubs/jugs/trays/containers
- Glass
- Batteries (Airport does not currently collect, but has the option)
- Electronics/Cell phone (Airport does not currently collect, but has the option)
- Fluorescent light bulbs (Airport does not currently collect, but has the option)
- Mulch (Airport does not currently collect, but has the option)

[4] City of Durango Colorado, Recycling http://www.durangogov.org/index.aspx?NID=363, Accessed July 2015

FIGURE 2 - INTERIOR TERMINAL AREA RECYCLING AND TRASH BINS

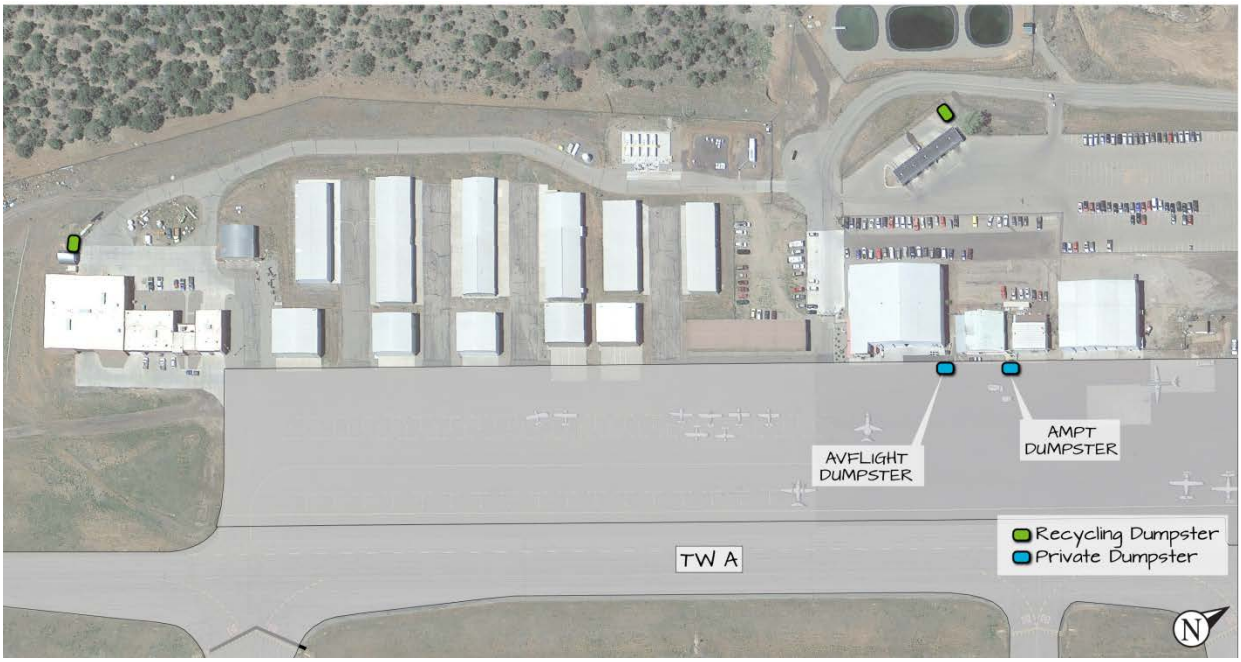
Sources: Durango-La Plata County Airport staff and Jviation

FIGURE 3 - EXTERIOR TERMINAL AREA RECYCLING AND TRASH DUMPSTER LOCATION



Sources: Durango-La Plata County Airport staff and Jviation

FIGURE 4 – GA/FBO AREA RECYCLING DUMPSTER LOCATION



Sources: Durango-La Plata County Airport staff and Jviation

FIGURE 5 - USFS AND CARE FLIGHT DUMPSTER LOCATIONS

Sources: Durango-La Plata County Airport staff and Jviation

II. WASTE AUDIT

The DRO Environmental Department completed a waste audit in 2015 that investigated the patterns of waste disposal and recycling. Two bags of recyclables (from non-secure side of the terminal) and four bags of trash (from terminal dumpsters) were analyzed during the audit. The four bags of trash were taken from the deli, a commercial aircraft, front of terminal, and commercial air carrier agents. Of the four trash bags assessed, the bags belonging to the commercial air carrier agents and commercial aircraft contained the largest amount of recyclable items. The bag from the deli contained the least amount of recyclable material as most of the contents had been contaminated by food waste. The contents of the trash bags are detailed in Table 2.

TABLE 2 – WASTE AUDIT DETAILS

Bag Source	% Trash	% Recyclables
Commercial Air Carrier Agents	20% (food waste)	75% (paper, paperboard, plastic bottles, aluminum cans)
Commercial Aircraft	25% (food waste)	75% (paper)
Deli	90% (plates, cups, utensils, plastic wrap, condiment wrappers – all contaminated with food)	10% (plastic bottles)
Terminal Front	50%	50% (plastic bottles, aluminum cans, paper, cardboard)

Sources: Durango-La Plata County Airport Environmental Department, 2015

Two recycling bags were taken from inside the terminal building. These bags contained 90% plastic bottles; however, 20% of the bottles still contained liquid making them un-recyclable. They also contained 5% mixed paper and 5% general contaminants (fast food trash, cigarette lighter, aerosol can, and Styrofoam cups).

In conclusion, it was found that the Airport produces a large amount of recyclable waste which is not recycled. Although the audit only assessed a small proportion of the total waste it can be assumed that the rest of the Airport produces similar types of waste.

III. REVIEW OF RECYCLING FEASIBILITY

The waste audit completed by the DRO's Environmental Department identified areas where the Airport can improve on the amount of waste that is recycled. The challenges identified were:

- Recyclable bags collected by janitorial staff were often discarded as trash to expedite routine trash collection

- One recycling dumpster contained only cardboard and was missing many other known recyclable materials

Additional constraints expressed by the Airport are:

- DRO does not require tenants to have recycling containers in place or participate in local initiatives
- Passengers are uneducated on what materials can and cannot be recycled

DRO recognizes these limitations and plans to educate and post education material for staff, tenants, and passengers on what waste can be recycled.

IV. OPERATION AND MAINTENANCE REQUIREMENTS

The operations and maintenance staff (including janitorial staff) are currently responsible for the collection and disposal of all waste throughout the Airport. The janitorial staff is instructed to deposit recycling and trash from terminal bins in the appropriate dumpsters; however, recycling is not sorted to look for contamination. Additionally, and as previously noted, recycling is occasionally placed in trash dumpsters to expedite collection.

DRO should implement a defined recycling plan to include strategies for each department to reduce waste and offer education on what material can be recycled. Each department should review the plan and establish goals to improve the amount of waste generated and recycled.

V. REVIEW OF WASTE MANAGEMENT CONTRACTS

DRO currently has a contract in place with the City of Durango to remove recyclables and other solid waste. The waste is collected on a weekly basis and taken to the City Recycling Center or landfill as applicable.

Contracts with existing tenants do not require tenants to participate in any recycling programs or provide recycling bins for customers and employees. It is recommended that the Airport add language to future contracts that requires tenants to provide recycling bins and participate in the city's program.

VI. POTENTIAL FOR COST SAVINGS OR REVENUE GENERATION

The Airport contracts with the City of Durango to rent the recycling and trash dumpsters. The following fees are associated with the trash and recycling collection and removal:

- $580 per month for trash dumpsters and removal

- $45 per month for recycling dumpsters and removal

As the amount of recyclable material and waste increases, the costs associated with removal will also increase. As such, the best way to reduce waste while also minimizing costs would be to keep as much material on-airport as possible. Without adding much implementation costs, the Airport could collect on-site the following materials:

- Green waste such as grass clippings, leaves, and small branches for composting. Compost could be used by the Airport or sold as a revenue stream.

VII. PLAN TO MINIMIZE SOLID WASTE GENERATION

DRO, as an active member of the Durango and La Plata County communities, voluntarily participates in a variety of recycling programs. However, the Airport is aware that their recycling, reuse, and waste reduction programs can be improved through a few simple practices such as:

- Provide adequate signage with recycling bins clearly showing type of materials accepted.
- Provide educational material to tenants and airport employees on what material should be recycled and the appropriate business contacts.
- Add recycling, reuse, and reduce waste objectives to future tenant leases.
- When feasible, purchase products made from recycled material and encourage tenants to do so as well.
- Install air hand dryers in terminal and request tenants to consider doing the same.

The above mentioned practices are relatively basic; however, the success of implementing a long-term recycling, reuse, and waste reduction program requires management buy-in, staff commitment, planning, and follow-up. **Figure 6** outlines "10 Steps to Design and Implement an Effective Airport Recycling/Waste Minimization Program" as recommended by the FAA in their *Recycling, Reuse and Waste Reduction at Airports – A Synthesis Document*[5]. The Airport should follow these steps when implementing their recycling program.

[5] FAA, Recycling, Reuse and Waste Reduction at Airport – A Synthesis Document, 2013

FIGURE 6 - 10 STEPS TO DESIGN AND IMPLEMENT RECYCLING PROGRAM

10 Steps to Design and Implement an Effective Airport Recycling/Waste Minimization Program
1. Commitment from Management
2. Program Leadership
3. Waste Identification
4. Waste Collection and Hauler
5. Waste Management Plan Development
6. Education and Outreach
7. Monitor and Refine
8. Performance Monitoring
9. Promote Success
10. Continuous Improvements

Source: FAA, Recycling, Reuse and Waste Reduction at Airport – A Synthesis Document, 2013

VIII. CONCLUSION

The Airport has a basic recycling program in place; however, with minimal effort and expense they could implement some very basic procedures to improve their program and reduce the amount of solid waste they generate. Through coordination with local entities and ongoing local initiatives DRO could play a more active role in recycling, reusing, and reducing solid waste.

APPENDIX M

ALTERNATIVE EVALUATION MATRIX

DURANGO –LA PLATA COUNTY AIRPORT

ALTERNATIVE EVALUATION MATRIX

	Alternative 1	Alternative 2	Alternative 3
Quantitative			
Complies with FAA safety & design standards			
Maximizes operational efficiency			
Meets the 20-year facility requirements, plus room to grow			
Balances benefits and costs			
Qualitative			
Promotes safety and efficiency of airport operations			
Enhances security of airport and airline operations			
Improves customer satisfaction/convenience			
Fosters Durango/Four Corners' Image			
Minimizes construction phasing impacts to tenants and users			
Incorporates sustainable design elements where appropriate			
Sensitive to environmental resources			

☑ - More ability to meet

☐ - Some ability to meet

☒ - Less ability to meet

Qualitative Evaluation Criteria - considered to be subjective; despite their subjectivity they are valuable to the evaluation process as they seek to measure the long-term effects and benefits of an alternative

Promotes safety and efficiency of airport operations – Does the terminal space allow for efficient and safe operations of the airlines and maintenance staff? Does the roadway and public access system provide clear and efficient routes for the traveling public? Is the commercial aircraft apron laid out in a manner that allows safe and efficient aircraft operations? Is the auto parking and pedestrian access located in areas that minimize distances from the terminal?

Enhances security of airport and airline operations – Does the alternative provide adequate space for airport and airline operations? Are TSA space requirements met?

Improves customer satisfaction/convenience – The alternatives weighed the benefits in terms of ease of use by those using the facility with a goal to achieve Level of Service "C".

Fosters Durango/Four Corners' Image – The Airport serves an area that has a mix of tourism, business development, and industry (oil and gas) and the Airport serves as the gateway to the region for many. Therefore, the aesthetic and visual impacts of the public facility are critical to express the area's image.

Minimizes construction phasing impacts to tenants and users – This criterion mainly revolves around the implications that phasing of facilities will have on airport operations and the traveling public.

Incorporates sustainable design elements where appropriate – Sustainability is a broad term that encompasses a wide variety of practices applicable to the management of airports.[1] The overall goal of this criterion in reference to DRO is for the development to:

- Maintain economic stability with room for growth (Economic Growth)
- Conserve natural resources (Environmental Stewardship)
- Recognize the needs of the community and region (Social Responsibility)
- These three components are referred to as the "Triple Bottom Line"

Sensitive to environmental resources – development that provides for minimal environmental disruption (wetlands, endangered species habitat, cultural resources, water quality, air quality, noise impacts, etc.).

[1] Airport Cooperative Research Program, Synthesis 10, *Airport Sustainability Practices, A Synthesis of Airport Practice*, 2008.

Quantitative Evaluation Criteria - those that are objective and verifiable

Complies with FAA safety and design standards – This is a non-negotiable criterion but it is included here to highlight the fact that there are elements of these concepts that are sized and located to comply with critical design standards that airports must meet. The most easily recognized design element resulting from this criterion is the distance the buildings, aircraft, and other objects must remain from the runway. However, for various concepts it also stipulates the need for other airfield facilities, the protection of those facilities, and the protection of airspace that surrounds the runway.

Maximizes operational efficiency – This criterion speaks to the fact that for a system to work well, the elements that make up the system should be located, sized, and situated to allow for that element to operate at its peak capacity. An example of this would be that auto parking should be designed and situated to allow for passengers to quickly find parking within a minimum distance to the terminal entrance.

Meets the 20 year facility requirements with room to grow – There are quantifiable performance measures that each alternative concept must be able to meet. This allows for the "apples to apples" comparison to have meaning. Thus, if a concept is considered for analysis and it is not able to meet the 20-year facility requirements of PAL 2, or it is not reasonably feasible to do so, then the concept is eliminated.

However, this criterion goes a bit farther in that the concept should also offer additional feasible growth opportunities for all airport uses beyond the planning period. This captures the thinking that given the size of the investment, better concepts will propose facilities that remain useful for meeting demand levels much longer than 20 years by offering additional expansion opportunities.

Balances benefits with costs – This criterion is very important considering the relatively high costs associated with each alternative. The costs are certainly a quantifiable way to compare alternatives and those costs have been estimated and are included in this chapter. The key to using this criterion well is in understanding the costs and then comparing concepts to consider what opportunities might be gained from a concept that has a higher estimated cost. Conversely, concepts can be compared as to whether lower investment in the near term ultimately limits revenue opportunities and removes feasible growth options in both the short and the long range. The balancing of benefits and costs will come in the form of deciding whether there is enough potential benefit derived from the selection of a particular alternative.

As a final note on costs – For this analysis the study team has prepared estimates that allow for the comparison of alternatives. There will be further refinement of estimates in the upcoming study phase as the preferred concept is broken down into individual projects that comprise a development program. These individual projects have varying eligibility for grant assistance. The financial implementation analysis and narrative text (to be performed after the preferred alternative is selected) has much to add on this topic. The reason to point this out is that a valid question to pose when considering costs is, "How much does this alternative cost the local community?" Until this analysis is performed and grant applications submitted, this would be pure speculation only.

PAC Matrix Results

	Alternative 1			Alternative 2			Alternative 3		
	More Ability to Meet	Some Ability to Meet	Less Ability to Meet	More Ability to Meet	Some Ability to Meet	Less Ability to Meet	More Ability to Meet	Some Ability to Meet	Less Ability to Meet
QUANTITATIVE									
Complies with FAA safety & design standards	7	4	5	9	7	0	16	0	0
Maximizes operational efficiency	0	2	13	4	10	1	12	3	0
Meets the 20 year facility requirements, plus room to grow	2	2	12	5	6	5	15	1	0
Balances benefits and costs	1	4	10	4	6	4	6	5	4

JVIATION

PAC Matrix Results

	Alternative 1			Alternative 2			Alternative 3		
	More Ability to Meet	Some Ability to Meet	Less Ability to Meet	More Ability to Meet	Some Ability to Meet	Less Ability to Meet	More Ability to Meet	Some Ability to Meet	Less Ability to Meet
QUALITATIVE									
Promotes safety and efficiency of airport operations	3	8	4	7	8	0	14	1	0
Enhances security of airport and airline operations	2	8	5	4	10	1	10	5	0
Improves customer satisfaction/convenience	3	3	9	8	4	3	12	1	2
Fosters Durango./Four Corners' Image	2	7	5	6	8	0	11	2	1
Minimizes construction phasing impacts to tenants and users	1	2	13	3	9	4	13	1	2
Incorporates sustainable design elements where appropriate	3	5	7	8	5	2	12	2	1
Sensitive to Environmental Resources	5	6	3	5	7	1	4	6	4
Totals:	29	51	86	63	80	21	125	27	14

APPENDIX N

OPEN HOUSE COMMENTS AND RESPONSES

Durango – La Plata County Airport

Public Open House, September 18, 2014, Comment Responses

In an effort to respond to comments received at both the Planning Advisory Committee (PAC) meeting and Public Open House, both held on September 18, 2014, comments have been consolidated into overarching themes. Original copies of the received comments are located on-line. The number of comments received on each topic is reflected in parentheses following the comment.

1. Plans should include an Air Traffic Control Tower (ATCT). (1)
   Based upon the current economy and funding structure, an ATCT is not likely to be constructed at the Durango-La Plata County Airport in the near term. Should the Airport opt to construct an ATCT the cost of the building as well as controller salaries would be the Airport's responsibility as current and projected future volumes do not warrant the installation of an ATCT at this time. The vast majority of the world's airports are non-towered.

   However, it should be noted that Durango is one of four Colorado airports that has wide area multilateration (WAM), a cooperative surveillance technology that works by employing multiple small remote sensors throughout an area to compensate for terrain obstructions and is also a tool that enhances air traffic surveillance. The data from multilateration sensors is fused to determine an aircraft's location and identification. This data is then transmitted to air traffic control for use in providing surveillance separation services.

2. Options/Plans did not illustrate facilities to be provided in terminal. (1)
   Terminal facilities will be detailed further in the chapter narrative (i.e. airline space, vendor space, restrooms, holdrooms, etc.).

3. Funding and construction schedule should be added to Project Timeline. (1)
   Thank you for your comment. The current Project Timeline's intent is to illustrate the timing of the Master Plan. Funding is a component of the Master Plan that will be discussed following the selection of the preferred alternative. Unfortunately, a detailed construction schedule will not be available until the project has moved into the design process. However, a general discussion of the project timing (by year) will be depicted in the Financial Implementation Plan chapter of the document.

4. Crosswind runway option should be included although cost prohibitive at this time. (1)
   A crosswind wind analysis performed as part of this study determined the single runway provides adequate coverage.

5. Would it be possible to move runway to east and use existing runway as future taxiway? (3)
   Many factors would need to be considered to relocate the runway to the east. The most critical item would be the need to maintain operations on the current runway while the new runway was being constructed. Thus, the new runway would have to be outside the existing safety areas of the current operational runway. As the Airport is located on a mesa top the buildable areas are limited without fill. In order to construct a new runway to the east several areas would require fill which drives the cost of a project up significantly. In addition, in order to accommodate the amount of embankment that would be needed, land acquisition would be required. Relocation of the existing County Road 309A would also be necessary along with other site preparation and pavement needs to construct an equivalent runway (9,200' long by 150' wide). Additionally, demolition of the current parallel taxiway and partial demolition of the existing runway width to meet taxiway design standards would be required. Consequently, moving the runway is not considered feasible when other alternatives exist.

6. If the terminal were to move to the east side construct tunnel/tram to move passengers to west side to board to save costs on new parallel taxiway/apron. (1)
   Should the Master Plan process determine the east side be the best option for the community and Airport it would be most feasible to locate associated facilities on the east side as well to maintain safe and efficient operations. A tunnel would have to take into account loading from the aircraft above it, ventilation, shut down of the runway for open excavations in the runway safety area, and numerous other items. Consequently, the construction of a tunnel or transportation to the west side may not result in a cheaper option compared to constructing a new parallel taxiway and apron.

7. General Aviation (GA) development was not depicted; what are the future plans? (1)
   General aviation development will be analyzed but future expansion of GA is dependent upon the location of the terminal. Options of the GA expansion will be presented in the narrative and at the next scheduled open house in January.

8. What general aviation rules will exist in future? (1)
   Many rules and regulations are required to remain in compliance with federal (FAA) law and assurances in order to receive federal grants. When federal requirements do change, it is often due to safety and security enhancements at all airports.
   The Airport's Minimum Standards and Rules and Regulations are administered by airport management and any changes to the existing would be announced.

9. Suggestion to implement left turn lane for general aviation gate 'D' access or installation of a gate 'E' to avoid stopping traffic. (1)
   Thank you for this suggestion. A review of the current access will be analyzed to see if this is a feasible option.

10. Will the Master Plan address handicap accessibility? (1)
    The Master Plan covers a broader spectrum of overall development and needs and addresses handicap accessibility in the context of providing guidance to designers on community concerns. However, renovation of the existing terminal or construction of a new terminal would be required to comply with the Americans with Disabilities Act. Please feel free to contact the airport administration with any concerns or ideas for improvements.

11. Request for forecast justification. (1)
    Chapter 3, Aviation Demand Forecast details the justification for the projected demand activity. Revisions to the chapter are currently being worked on per FAA comment. Once complete the chapter will be uploaded to the website, www.flydurango.com.

12. Request of aviation activity forecast range of high and low. (1)
    A high and low forecast range has been added to the forecast chapter. A revised chapter will be available on-line prior to the next scheduled open house in January.

13. Plans to improve/pave CR 309A? (1)
    Yes, improvements are anticipated, but paving of CR 309A is limited to only what is required to access terminal facilities from the north. There are no plans to pave CR 309A south of a proposed new airport entrance. Any improvements to the southern portion of the road would be decided by the County as it is a county road.

14. Any plan that requires a tax increase is most likely a non-starter. (1)
    Thank you for your comment.

15. Plan should make Durango-La Plata County Airport the regional airport. (2)
    The Airport is a very important asset to both the surrounding community and region. Currently, it is the airport of choice for the Four Corner's region and in order to maintain this it is critical to develop facilities that meet the existing needs and future demands of the region at the Durango-La Plata County Airport.

16. Disappointed presentation did not include costs and impacts to tax payers. (3)
    Costs were not presented at the September 18th Open House as the alternatives presented were still in a preliminary phase. It would not have been fair to include costs for the alternatives prior to final analysis of the alternatives to understand all items that would impact costs, i.e. grading,

drainage, utilities, environmental impacts, etc. Costs will be presented at the next scheduled open house in January.

17. Twenty years is actually short-term, we should be looking out 30-50 years. (1)
    Per FAA guidance, the Master Plan looks at a 20 year period; however, in the case of DRO we are definitely thinking beyond that 20 year period to ensure the alternative selected best meets the needs of the community well beyond 20 years.

18. Consideration should be given to move the U.S. Forest Service base or general aviation to east side. Why is moving terminal better? (2)
    This alternative was examined but not carried forward for further consideration. One of the hurdles to having aviation activity on the east side of the Airport is the requirement for a parallel taxiway between the development and the runway. This is a significant cost item that the Airport would seek partnership from the Federal Aviation Administration (FAA) to fund. However, it is far less likely that FAA funding would be available to relocate another federal installation or general aviation facilities compared to terminal facilities. Thus, the cost to implement this alternative would likely be borne locally and would also be additional to alternatives 1 or 2 to meet the program requirements.

19. Support of improving existing terminal based upon local voter opinion and cost. (3)
    Community outreach and opinion is a critical element of this Master Plan. Consequently, the selected alternative will consider public comment.

20. Support of keeping terminal on west side but building new and maximizing west side. (1)
    Thank you for your comment. The alternatives are currently under analysis and based upon the selection criteria and advantages/disadvantages the best option will be selected for further analysis.

21. Advantages and disadvantages of alternatives should be based upon facts, explained in more detail, and based on practical items (i.e. more flights, more competition, etc.) (2)
    Thank you for your comment. We felt it important to capture some feedback on preliminary alternatives before fully developing them. By design, the complete analysis was not available and thus not presented. Please stay tuned!

22. Comparable alternative board should have shown existing square footage of each as well as the size and enplanements 10 years ago.
    Thank you for this suggestion. We will make an effort to obtain the past information and add to the board. The existing square footage of each was depicted on the board.

23. Will change in aircraft size by carriers be met with each alternative? (1)
    Yes, the forecasted demand developed for the Master Plan took into consideration the changes in aircraft sizes by carriers. Therefore, the each alternative considered would meet the demand over the planning period.

24. How does each alternative rank in terms of sustainability/environmental and financial? (1)
    These items will be discussed in the narrative document and presented at the next scheduled open house in January.

25. Please promote "Go Where Your Bag Goes" tour heavily. (2)
    The tours are promoted on the website, www.flydurango.com and sign-up was available at the September 18th open house and will be promoted more in the coming weeks.

26. Will potential of a business park be addressed in Master Plan? (1)
    Having the ability to put the Airport's land to productive use is a strong qualitative objective. The Master Plan will not be examining the demand for such development but will advocate for the diversification of revenue sources as a hedge against the somewhat volatile airline market. One of the alternatives includes the ability to open up parcels for aviation and non-aviation expansion and new construction. This is a strong positive advantage.

27. Ground transportation to/from the airport was not discussed. Is it currently adequate? (1)
    Ground transportation provided by private companies currently meets the demand. It is assumed that should demand increase the companies would increase operations to accommodate.

28. Consideration to mass transit (bus/shuttle service) should be given instead of only building more parking lots. (1)
    We appreciate your comment and understand the desire for Durango to have mass transit. However, the feasibility of mass transit would require a separate study involving the County and City. The Airport is does not currently meet the demand for existing parking needs and with the forecasted growth projected, more parking is necessary.

29. Additional direct flights to major cities. (2)
    Airport management continually promotes additional flights to air carriers in service to the community. Due to the current airline facilities at the Airport the ability to accommodate new activity during peak times is severely constrained. Also, initiation of new service is heavily dependent upon the airline carriers and their decision to operate or not to operate out of Durango.

30. Request for more jet aircraft in place of the Q400/turbo-prop planes. (1)
    The airlines make the decisions about type of aircraft operated at Durango. However, based upon the information received from the airlines that operate the Q400 aircraft, they do plan on phasing them out and replacing them with jet aircraft in the future.

31. Suggestion that airport layout drawings include an enlargement of terminal area. (1)
    A Terminal Area Plan will be part of the Airport Layout Drawing Set. The drawing set will be drafted once the preferred alternative has been selected.

32. An overview should have been given at beginning of open house so attendees understood background of information being presented. (3)
    Thank you for your comment. Based upon the number of comments received, both verbal and written, the next scheduled public open house will begin with an introduction and background of what is being presented.

33. Alternative boards contained too much information and were too small. (1)
    Thank you for bringing this to our attention. In the future the boards will contain less detail so that the information is easily seen and understood.

34. Presentation contained too many acronyms. (4)
    Thank you for this comment. Future presentations will be sure to spell out items instead of using acronyms.

35. Moving the terminal to the east is the best option for long-term success of the airport. (10)
    Thank you for your comment. The alternatives are currently under analysis and based upon the selection criteria and advantages/disadvantages the best option will be selected for further analysis.

36. Discuss parking, roads, etc. issues in all three alternatives. (1)
    Parking, access, airside needs, etc. is being analyzed in all three alternatives. The chapter narrative will discuss and further detail is to be presented at the second public open house.

37. Projected timing of plan?
    As the existing terminal does not meet current needs, it is the intent of the Airport to move as quickly as possible on the solution. However, Federal Aviation Administration processes/regulations must be followed which include the completion of the Master Plan (scheduled for completion in September 2015, funding, and environmental review (National Environmental Policy Act compliance). Design and construction timing will depend on the alternative selected. The next phase of this master plan will prepare a complete schedule of projects, timeframes, and funding requirements to implement the preferred alternative.

38. Concern that facility depicted on east side does not seem large enough to meet demand. (1)

    The drawings presented at the September 18th Public Open House were broad based and did not necessarily depict the true sizes. However, it should be noted that the east side terminal option has ample room to meet current and projected needs beyond the 20-year planning horizon.

Durango – La Plata County Airport

Public Open House, January 21, 2015, Comment Responses

Comments received at the January 21, 2015 Public Open House and responses are reflected below.

1. Please contact the young Professionals of Durango regarding a presentation regarding the Master Plan.
   Your interest in the Master Plan and future of the Durango-La Plata Airport is greatly appreciated. The Airport Manager will be in contact.

2. We should not build a church for Easter. It would be better to spread out landing and take-off times with an auction process or let the market dictate who gets premium times. The Airport is idle the majority of the times
   Thank you for your comment. Peak travel times are dictated by passenger demand. Airlines set schedules based upon demand. With the exception of a few major hub airports that manage peak activity with slot allocations, airline business models do not support an airport dictating arrival and departure times.

3. I much support the expansion of the Airport. It will get us more air carriers and which may lead to lower fares. It will attract new major business here with well-paying jobs we really need for our community to prosper. Residents will benefit even if they never fly as the economic stimulus will help their businesses.
   Thank you for your comment and support of your Airport. Improved terminal facilities will definitely support additional carriers and destinations. Airport management continually promotes additional flights to air carriers in service to the community.
   It is feasible to think a better Airport will support existing and future businesses in the area and help boost the economy of Durango, La Plata County, and the Four Corners Region.

4. Bonds are the only fair way. Certainly 20-30 year bonds should be able to pay for airport needs and people who use the airport can pay the needed fees.
   La Plata County is reviewing the feasibility of bonds to aid in the terminal improvements. A detailed financial analysis is underway as part of the Master Plan. This analysis will consider all available funding opportunities, including but not limited to the Federal Aviation Administration, Colorado Department of Transportation, Aeronautics, Airport, and City/County.

5. Great presentation, great plan! I have lived here 20 years (very happily) and am 100% behind the plan. Thank you!
   Thank you for your comment and continued support of your Airport!

6. Durango has potential to attract European tourists in droves to make Durango the hub of their exploration of U.S. national parks and the western U.S. All that's lacking is a better airport, better transportation from the airport (rental car, charter bus), and better international/national marketing.
   The Airport is a very important asset to both the surrounding community and region. Currently, it is the airport of choice for the Four Corner's region. We agree that in order to maintain this and market to a broader base it is critical to develop facilities that meet the existing needs and future demands of the region at the Durango-La Plata County Airport.

7. Alternative #3 is clearly the best. Cheaper and better in the long run. If demand is less than projected it can be scaled back, if more, expanded. Not so with Alternatives 1 and 2. Would love to hear projected revenue, taxes included, generated by a bigger airport to Durango and surrounding county.
   Thank you for your comment. A detailed financial analysis is underway as part of the Master Plan study to determine funding opportunities and future revenue. Once completed, the analysis will be available on the project website, www.flydurango.com.