# GRANT COUNTY REGIONAL AIRPORT MASTER PLAN DECEMBER 2018





#### Prepared for:

Grant County Regional Airport Federal Aviation Administration Oregon Department of Aviation

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#### 1.0 INTRODUCTION

#### 1.1 GENERAL

The purpose of the airport master planning process for Grant County Regional Airport (GCD) is to assist Grant County to ensure that the airport is developed in a manner that coincides with current and future aviation demand. The local community initiated this airport planning effort with the desire to continue to meet the needs of the existing airport users as well as to understand the demands that future users will place upon the facility and reconcile the necessary improvements that need be made to the airport facilities in order to meet the expected demands. This planning process intends to address these local needs while maintaining compliance with the Federal Aviation Administration (FAA) and Oregon Department of Transportation – Oregon Department of Aviation (ODA) requirements.

This airport master plan incorporates information from the previous Airport Layout Plan completed in 2009 and identifies new airport planning and development recommendations that are consistent with the airport's present and future needs for a "20-year planning horizon" long-range plan. The recommendations included in this plan were developed using sound variables based on the best current practices in the airport planning discipline.

#### 1.2 PROJECT BACKGROUND

This airport master plan was originally identified and programmed through the FAA. Grant County endeavors to identify sound planning recommendations in this airport master plan in order to meet the FAA's requirements for safe and efficient facilities as well as provide for a well-planned airport that is vital to the health and vitality of the Grant County community. This is the first master plan since the airport has become part of the National Plan of Integrated Airport System (NPIAS).

#### 1.1.1 PUBLIC OUTREACH

Over the course of the planning process, project meetings were held at the airport to discuss project goals, ideas and status. Public outreach efforts for this master plan included the following: formal Project Advisory Committee (PAC) coordination, public information and involvement meetings. Attendance at the public involvement meeting was decent for an airport this size and ample feedback was received.

All public meetings were advertised according to requirements, providing ample notice to the community regarding the planning project. Comments from the Public, PAC, and Airport Commission were incorporated as appropriate into the planning documents.

#### 1.3 PROJECT GOALS

The project goals include:

- ★ Document existing airport facilities and activity levels.
- ★ Update aircraft activity and fleet mix forecasts for the airport.
- ★ Identify the present and future role(s) of the airport.
- ★ Identify the size and layout of airside and landside facilities to accommodate projected aircraft demand and FAA airport design standards.
- ★ Integrate firefighting activity of the US Forest Services (USFS) and Oregon Department of Forestry (ODF).
- ★ Identify optimum landside uses that enhance the economic benefits of the airport and are compatible with airside operations.
- ★ Quantify the airport's economic contribution to the community.
- ★ Prepare compatible land-use and height restriction plans consistent for the airport vicinity including recommended zoning protection within the airport influence area.
- ★ Involve the public throughout the planning process in a meaningful, efficient and productive manner.
- ★ Develop realistic phased development and maintenance plans for the airport that provides the basis for future federal, state, local government and private investment in the airport.
- ★ Screen proposed development projects for potential environmental impacts.
- ★ Prepare an Airport Layout Plan drawing set and associated Master Plan narrative report that meets current FAA standards.

#### 1.4 FUNDING AND ADMINISTRATION

This planning study is funded in part with FAA Airport Improvement Program (AIP) funds; ODA and ODT funds, as well as with local funds. FAA funding for this project was 90 percent of the total project cost with the remaining 10 percent split equally between state and local funds. The master plan update document and Airport Layout Plan were prepared in accordance with the current regional FAA ALP checklist and guidance provided in FAA:

- ★ Advisory Circular (AC) 150/5070-6B, Change 2 [Airport Master Plans]
- ★ AC 150/5300-13A, Change 1, [Airport Design]
- ★ AC 150/5060-5, [Airport Capacity and Delay]
- ★ AC 150/5325-4C, [Runway Length Recommendations for Airport Design]
- ★ FAR Part 77, [Safe, Efficient Use and Preservation of the Navigable Airspace]
- ★ FAA Order 5100.38D, [AIP Handbook]
- ★ FAA Order 1050.1F, [Environmental Impacts: Policies and Procedures]
- ★ Other applicable Advisory Circulars (ACs) and changes, FAA Orders and Federal Aviation Regulations (FARs)
- ★ State of Oregon Guidance

#### 1.5 PLAN PROCESS

Development of the airport master plan with ALP requires a series of specific steps. The planning process will address several basic elements in the following chapters.

#### 1.5.1 INVENTORY

The airport inventory is a collection of information about the existing airport facilities, including characteristics of the existing runway and taxiways, airport access, property holdings, airport users, airport services, hangars and aircraft parking aprons, population changes, land uses, development trends, and changes in employment and income and future trends in the study area.

#### 1.5.2 **AVIATION ACTIVITY FORECASTS**

The development of the aviation activity forecast for GCD provides a prediction of future aircraft operation levels and the types of aircraft that will operate at the airport. All predictions are made based on the accepted statistical methods practiced within the aviation planning industry, recognizing that no method for predicting future events exists which produces 100 percent accurate results. Forecasts are developed using various mathematical, market share and trend projection techniques to develop a statistically justifiable estimate of the future number of based aircraft, type of aircraft, and the total number of aircraft operations that should be expected at this airport. Anticipated levels of airport activity at the airport are organized in set intervals describing the expected future users. The FAA must approve aviation activity forecasts.

#### 1.5.3 FACILITY REQUIREMENTS ANALYSIS

This section compares existing airport conditions to the expected future condition and recommends what is needed to sustain the current activity levels and the levels of activity forecast for the future. Using this comparison, it is possible to identify where there are deficiencies or excesses within the airport facility. The output of this section is a list of facility improvements that the airport endeavors to achieve.

#### 1.5.4 ENVIRONMENTAL OVERVIEW

This chapter provides an overview of the environmental conditions at GCD. It summarizes the various environmental categories as defined in the FAA Order 1050.1F. As part of the environmental process for this planning study, contractors also conducted a wetland assessment, a cultural resources survey, and a wildlife hazard site visit. Results are shown in **Appendix B**.

#### 1.5.5 AIRPORT ALTERNATIVES ANALYSIS

This portion of the master plan update compares the possible actions that may be taken to meet the needs of the airport. The options considered in the alternatives analysis can range from minor to major undertakings on the airport property and its facilities. The various alternatives designated for this project will form the basis for future airport development at GCD.

#### 1.5.6 DEVELOPMENT PLAN

The development plan and the associated airport Capital Improvement Program (CIP) is a key plan for airport decision makers. It is a realistic listing of the projects required to satisfy the facilities requirements including the most viable manner of meeting these needs. The CIP includes a cost estimate based on current construction costs for each development. The CIP also identifies sources of funding and the phasing of the required improvements.

#### 1.5.7 AIRPORT COMPLIANCE AND LAND USE POLICY REVIEW AND RECOMMENDATIONS

This section provides GCD with a clear understanding of its federal and state regulatory requirements and grant assurances. The management best practices the airport should have in place in order to ensure compliance with grant assurances and other policies are discussed.

In addition, compatible land use and zoning has become increasingly important for airports over the last decade and the FAA has stressed that each airport should have appropriate measures in place to ensure appropriate development occurs within the airport environs. This portion of the airport master plan will review existing policy and zoning in place in Grant County and the nearby cities of John Day and Burns, OR, regarding airport land use and future development. Recommendations for improved policy to prevent incompatible land use surrounding the airport are also identified.

#### 1.5.8 AIRPORT LAYOUT PLAN (ALP) DRAWING SET

A series of drawings depicting the existing airport and the proposed changes to the airport over the next 20 years is tied to the development of the airport master plan. It is commonly referred to as the ALP. A description of each drawing included in the ALP drawing set for GCD is included in this chapter with a complete drawing set.

#### 2.0 INVENTORY OF EXISTING CONDITIONS

#### 2.1 INTRODUCTION AND PLANNING CONTEXT

#### 2.1.1 GENERAL

The purpose of the inventory section of the Airport Master Plan is to summarize existing conditions of all the facilities at Grant County Regional Airport (GCD); as well as summarize other pertinent information relating to the community, the airport background, airport role, surrounding environment and various operational and other significant characteristics.

The information in this chapter describes the current status of Grant County Regional Airport and provides the baseline for determining future facility needs. Information was obtained through various sources including: consultant research, review of existing documents, interviews and conversations with airport stakeholders including the airport sponsor (Grant County), the airport manager, airport tenants, Oregon Department of Aviation (ODA) and other knowledgeable sources.

# 2.1.2 FEDERAL AVIATION ADMINISTRATION NATIONAL PLAN OF INTEGRATED AIRPORT SYSTEMS (NPIAS) AND ASSET STUDY

The United States has developed a national airport system. Known as the National Plan of Integrated Airport Systems (NPIAS), this system identifies public-use airports considered by the Federal Aviation Administration (FAA), state aviation agencies, and local planning organizations to be in the national interest and essential for the U.S air transportation system. Per the 2015-2019 NPIAS Report to Congress, guiding principles of the NPIAS include:

- ★ The NPIAS will provide a safe, efficient and integrated system of airports;
- ★ The NPIAS will ensure an airport system that is in a state of good repair, remains safe and is extensive, providing as many people as possible with convenient access to air transportation
- ★ The NPIAS will support a variety of critical national objectives such as defense, emergency readiness, law enforcement, and postal delivery.

In addition, this system plan helps promote airport permanence to ensure these airports will remain open for aeronautical use over the long term. The plan also ensures development remains compatible with the surrounding communities, and maintains a balance between the needs of aviation, the environment and the requirements of the residents.

Only airports in the NPIAS are eligible for financial assistance and Federal Grants under the Airport Improvement Program (AIP). The NPIAS is updated and published biennially by the FAA. The updated NPIAS report is submitted to Congress and both identifies and reaffirms airports in the system and the amounts and types of airport development eligible for AIP funds over the next 5 year period.

Currently there are 3,331 public-use airports included in the NPIAS. The airports included in the NPIAS are classified into different categories:

- ★ <u>Primary Commercial Service Airports</u>: At least 10,000 annual enplanements, they are divided in four categories including Large Hub, Medium Hub, Small Hub, and Non-Hub.
- ★ <u>Non Primary Commercial Service Airports</u>: Less than 10,000 but more than 2,500 enplanements per calendar year.
- ★ <u>General Aviation (GA) Airports</u>: Less than 2,500 enplanements or without commercial services.
- ★ Relievers: GA airports designated as relievers for major congested airports.

Furthermore, GA airports are usually classified as:

- ★ Basic Utility: Design to handle single-engine and small twin-engine propeller aircraft.
- ★ General Utility: Design to accommodate larger aircraft than basic utility facilities

<u>Note</u>: Small aircraft are aircraft of 12,500 lbs. or less maximum certificated take-off weight, while large aircraft are those of more than 12,500 lbs. maximum certificated take-off weight.

All commercial service airports and selected GA airports are included in the NPIAS. The FAA also released a study providing a deeper classification of the GA airports included in the NPIAS. In this study, known as *General Aviation Airports: A National Asset* (Asset Study), the FAA further classifies the General Aviation airports into the following categories: National Airports, Regional Airports, Local Airports and Basic Airports.

Grant County Regional Airport is part of the NPIAS and is recognized as a General Utility GA airport. In addition, in the Asset Study, GCD Airport is classified as a Local Airport, which are the airports serving local and regional markets with moderate levels of activity.

#### 2.1.3 OREGON AVIATION PLAN

In 2007, ODA developed the Oregon Aviation Plan (OAP) to ensure that the state's airport system is designed to meet all of the state aviation transportation needs. During this comprehensive study each airport in the system was evaluated to gauge its role, activity and needs for infrastructures, in order to:

- ★ Improve individual airports as part of the larger state system, and meet the needs of economic development, transportation services and tourism.
- ★ Understand the economic impact of each airport to local communities and the total economic value of the state aviation system.

The 2007 OAP assessed 97 public-use airports, including 85 publicly-owned and 12 privately owned airports. The airports included in the 2007 OAP are divided according to their role in the state system. Five different functional roles are identified: Commercial Service (Category I), Business or High Activity General Aviation (Category II), Regional GA (Category III), Community GA (Category IV), and Low Activity GA (Category V).

The 2007 OAP identifies the role for GCD to be Regional GA (Category III). Regional GA airports support a regional transportation need. They support most twin and single-engine aircraft and may accommodate occasional business jets (2007 OAP). **Table 2-1** presents the minimum criteria for this airport category.

The 2007 OAP recommends the following improvements for GCD:

- ★ Widen Runway to 75 feet
- ★ Install Medium Intensity Taxiway Lighting (MITL)
- ★ Improve runway line of sight
- ★ Provide a partial taxiway to Runway 9-27
- ★ Review local land use plans and coordinate development with local agencies
- ★ Extend runway to 5,000 feet
- ★ Develop precision approach to one runway end
- ★ Construct hangars

TABLE 2-1 - OAP 2007 CRITERIA CATEGORY III AIRPORTS

Facilities	Minimum Criteria	Desired Criteria
	AIRSIDE	
FAA-Airport Reference Code	B-II	Varies
Runway Length	4,000'	Varies
Runway Width	75'	Varies
Runway Pavement Type	Bituminous, Concrete	Bituminous, Concrete
Taxiways	Partial or Turnarounds	Full Parallel
Approach Type	Non-Precision	Precision
Visual Approach Aids	One Runway End	Both Runway Ends
Runway Lighting	MIRL	HIRL
Taxiway Lighting	MITL	HITL
	GENERAL	
Rotating Beacon	Yes	Yes
Lighted Wind Indicator	Yes	Yes
Weather Reporting	AWOS/ASOS	AWOS/ASOS
Hangar Aircraft Storage	75% of Based Aircraft	100% of Based Aircraft
Apron Parking/Storage	30% of Daily Transient	50% of Daily Transient
Terminal Building	Small Meeting Area	Yes
Auto Parking	Minimal	Moderate
Fencing	Terminal Area	Perimeter
Cargo	Space on Existing Apron	Designated
	SERVICES	
Fuel	100 LL & Jet A	100 LL & Jet A 24/7
FBO	Full Service	Full Service 24/7
Ground Transportation	Courtesy/Offsite Rental	Rental, Taxi, or Other
Food Service	Vending	Vending
Pilot Lounge	Yes w/ Weather Reporting	Yes w/ Weather Reporting
Snow Removal	Yes	Yes
Telephone	Yes	Yes
		Source: 2007 OAP

Source: 2007 OAP

#### 2.1.4 **AIRPORT DESIGN STANDARDS**

FAA Advisory Circular (AC) 150-5300-13A - Airport Design describes airport design standards that must be verified by every airport included in the NPIAS and receiving federal funds.

This document encompasses dimensional standards for runways, taxiways, aprons, as well as the associated safety areas. Dimensions are based on airport characteristics such as the type of aircraft accommodated and the type of approach procedures available.

The **Design Aircraft** (or Critical Aircraft) is an aircraft (or composite of several) that uses the airport on a regular basis (at least 500 annual operations), with characteristics that determine the application of airport design standards.

Aircraft are typically classified using the following groups and categories.

 Aircraft Approach Category (AAC): A grouping of aircraft based on 1.3 times their stall speed in their landing configuration at their maximum certificated landing weight (VRef).
 The categories are defined as shown in Table 2-2. The AAC for GCD is shown in bold.

TABLE 2-2: AIRCRAFT APPROACH CATEGORY (AAC)

Group	VRef
А	< 91kts
В	91kts - < 121kts
С	121kts - < 141kts
D	141kts - < 166kts
E	>= 166kts

Source: FAA AC 150/5300-13A Change 1

 Airplane Design Group (ADG): A classification of airplanes based on their wingspan or tail height. The groups are depicted in Table 2-3 below. The ADG for GCD is shown in bold.

TABLE 2-3: AIRPLANE DESIGN GROUP (ADG)

Group	Tail Height	Wingspan
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'
		Course: EAA AC 150/5200 124 Change 1

Source: FAA AC 150/5300-13A Change 1

The **Runway Design Code (RDC)** is a runway codification determining the dimensions of a specific runway and associated safety areas. It is composed of the AAC and ADG of the critical aircraft using the runway. A third visibility component is added based on the type of approach procedure serving the runway and is defined as follows:

- Visibility Minimums: A grouping of Runway Visual Range (RVR) values based on flight visibility category (statute mile). The RVR for GCD is shown in bold. The RVR's are as follows:
  - ★ 5000: Not Lower than 1 mile.
  - ★ 4000: Lower than 1 mile but not lower than ¾ mile (Approach Procedure with Vertical Guidance (APV) ≥ ¾ but < 1 mile).
  - ★ 2400: Lower than ¾ mile but not lower than ½ mile (CAT-I PA).
  - ★ 1600: Lower than ½ mile but not lower than ¼ mile (CAT-II PA).
  - ★ 1200: Lower than ¼ mile (CAT-III PA).
  - ★ VIS: Visual approach only

The **Approach Reference Code (APRC)** is composed of the same elements as the RDC and determines which aircraft can operate on taxiways adjacent to a runway under particular meteorological conditions with no operational procedures necessary.

The **Departure Reference Code (DPRC)** is composed of two components, AAC and ADG, and characterizes the aircraft that can take off from a runway while any aircraft are using an adjacent taxiway.

The **Airport Reference Code (ARC)** is a codification used to plan for the appropriate dimensions of the airport infrastructures and safety areas. It is equal to the highest Runway Design Code (RDC) of all runways at the airport minus the visibility component.

The **Taxiway Design Group (TDG)** is a design standard for taxiways based on the dimensions of the critical aircraft using the taxiways.

The most recent planning study conducted at GCD (2008 ALP) lists an ARC of B-I with the critical aircraft being the Cessna 402. More details about RDC, APRC, DPRC, and TDG at GCD are presented in the Section 2.4.

#### 2.2 AIRPORT AND COMMUNITY BACKGROUND

#### 2.2.1 GENERAL

Grant County Regional Airport is located in Grant County, Oregon, approximately one nautical mile southwest of the central business district of John Day, Oregon. The Airport covers an area of approximately 335 acres. It serves the Grant County region and adjacent regions. In this local, the Highest Average of Monthly Temperature is 88.2°F.

The nearby attractions include John Day Fossil Beds National Monument, Kam Wah Chung and Company Museum, and the John Day River. Grant County, Oregon is a land of scenic contrasts and has been described as "Gold and Cattle County" in reference to historic background.

#### 2.2.2 **AIRPORT LOCATION**

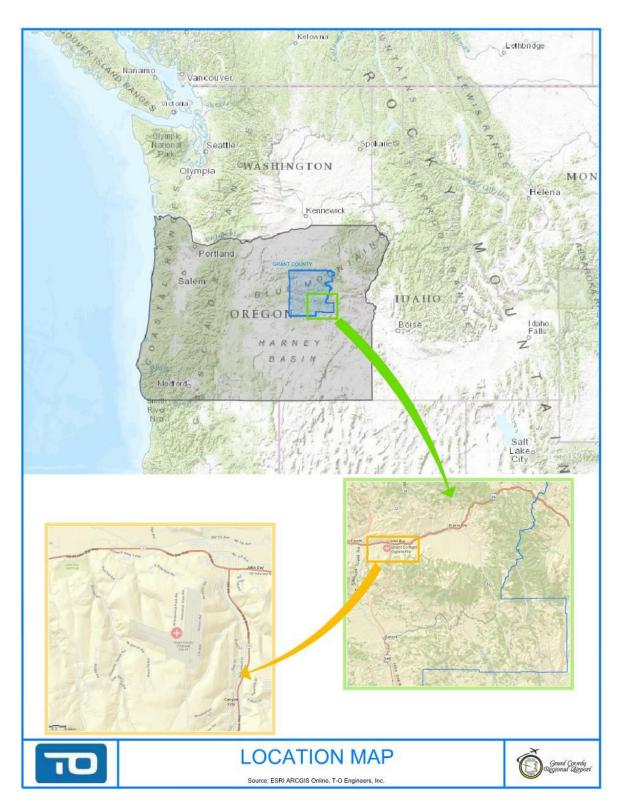
The airport is located in eastern Oregon at 44° 24' 10.32" North Latitude and 118° 58' 04.38" West Longitude. This point is called the Airport Reference Point (ARP), which is the geometric center of the airport's two crossing runways, 9-27 and 17-35. The airport elevation is 3702.5 feet AMSL (Above Medium Sea Level) and the magnetic declination at this location is 14 °32' East changing by 7' West per year.

GCD Airport is situated at the crossing of U.S Route 26 and U.S Route 395 passing through John Day, OR. U.S Route 26 is an east-west highway, which extends from Idaho to the west coastline of Oregon. It provides access west to Portland, OR and east to Boise. U.S. Route 395 is a north-south highway which crosses the United States from Los Angeles, CA to the Canadian border.

The Airport is located in a valley floor surrounded by the Aldrich Mountains to the south and the Rudo Mountains to the north. The airport property is situated above the cities of John Day and Canyon City in the John Day River canyon below. The airport terrain is globally bumpy and rocky with steep elevation drops to the canyon below.

Figure 2-1 depicts the location and vicinity map for reference

FIGURE 2-1 - LOCATION MAP



#### 2.2.3 **AIRPORT OWNERSHIP AND MANAGEMENT**

The Airport is currently owned, operated, and managed by Grant County. A full-time airport manager is located on site and oversees day-to-day operations at the airport. An airport commission is responsible for the administration of the airport and formulates recommendations regarding airport policy and direction. The commission is made of 6 members, all volunteers.

#### 2.2.4 AIRPORT HISTORY, PROJECTS AND MILESTONES

The Grant County Regional Airport opened in 1940 and turned into a public use facility in a joint venture between the FAA and the former Oregon Board of Aeronautics in 1961. It originally had one runway, Runway 9-27, located at the north end of the field. This runway was relocated at its current location and a second runway, Runway 17-35, was added in the early 1980s. A new terminal building was built in 2010.

GCD has a long history of serving the community. In 1971, the airport became the airbase of the United States Forest Services (USFS) Malheur Rappel Crew. Since then, it has become the national training center for all USFS rappel crews and hosts a full Helitack/Rappel crew for firefighting.

Some recently completed projects at the airport include:

- ★ Reconstruction of Runway 9-27 in 2014,
- ★ Runway extensions and construction of Taxiway B,
- ★ Construction of new terminal building in 2010,
- ★ Fuel farm improvements.

#### 2.2.5 **AIRPORT CHARACTERISTICS**

**Table 2-4** summarizes the existing characteristics for GCD.

**TABLE 2-4: EXISTING AIRPORT CHARACTERISTICS** 

Item	Existing Data
Airport Role - NPIAS	General Aviation – General Utility
Airport Role - Oregon Aviation Plan	Regional GA – Category III
ICAO Identification	KGCD
Airport Property (Acres)	335
ARC	B-I
ARP Coordinates (NAD83)	44°24'10.32"N – 118°58'04.38"W
Elevation	3,702.5' AMSL
Magnetic Declination (10/02/2015)	14°32'E – Changing 7'W/year
Runway Configuration	Two Converging Runways: 9-27 and 17-35
Instrument Approach	Non Precision Instrument RWY 09
Mean Daily Maximum Temperature of Hottest Month (10 years)	90.5°F

Source: National Flight Data Center, T-O Engineers, Inc.

#### 2.2.6 SOCIOECONOMIC CONDITIONS

According to sources including the U.S. Bureau of Economic Analysis and the Census Bureau, after the census of 2010, the total population of Grant County was approximately 7,445 (0.2% total Oregon population). In 2014, the per capita personal income is reported to be approximately \$36,392 with a median household income at approximately \$37,258. In comparison, the per capita income and median household income for the state of Oregon are respectively \$41,220 and \$50,229, while being \$46,049 and \$53,046 for the U.S.

Based on 2010 data from Portland State University, the City of John Day, Oregon is inhabited by approximately 1,744 people (23.4% total County population) in 895 households. Canyon City, Oregon, located 2 miles south of John Day, has a population of 703 persons in 355 households. Approximately 10 miles east of John Day, Prairie City, Oregon is inhabited by 909 people in 476 households.

Grant County has a total area of approximately 4,529 square miles. Government, agriculture, retail, healthcare, education, and construction industries provide the foundation for the local economy. Additional economic contributors include manufacturing, transportation, real estate, oil and gas production, mining, entertainment, finance, and insurance. In 2015, government (local, state, and federal) accounted for 45 percent of total employment in Grant County, trade for 14 percent, healthcare and education for 7 percent

As one of the prominent governmental entities in Grant County, the U.S. Forest Services (USFS), alongside the Oregon Department of Forestry (ODF), plays an important role during the wildfire season in Oregon. USFS and ODF generate employment and an important aeronautical

activity. The proximity of the Pendleton Unmanned Aircraft Systems (UAS) Range in neighboring Umatilla County is a source of potential UAS business development at the Airport.

**Table 2-5** summarizes the population, households and median household income of the major cities in Grant County, Oregon.

TABLE 2-5: SOCIOECONOMIC CONDITIONS

City	Population*	Percentage of County*	Number of Households*	Median Household Income**
<b>Grant County</b>	7,445	100%	4,344	\$35,051
John Day	1,744	23.4%	895	\$34,479
Canyon City	703	9.4%	355	N/A
Prairie City	909	12.2%	476	\$31,613
Long Creek	197	2.6%	112	\$31,563
Seneca	199	2.7%	128	\$29,063

\*2010 Census

\*\* 2014 Data

Source: T-O Engineers, Inc., United States Census Bureau, Portland State University

#### 2.3 AVIATION ACTIVITY

#### 2.3.1 EXISTING AIRPORT ACTIVITIES AND USERS

GCD Airport provides for a variety of aviation uses and activities. The airport predominantly serves single-engine aircraft, with occasional use by small multi-engine aircraft, turboprop as well as some small jet traffic. The Airport also accommodates extensive helicopter operations during fire season between July and October.

Principal aviation activities occurring at this airport include recreational, corporate/business, air taxi, medical related transport, and government firefighting (Oregon Department of Forestry (ODF) and/or U.S. Forest Service). The airport reports an average of 26 operations per day with 52 percent as transient GA, 32 percent as local GA, 16 percent as air taxi and 1 percent as military. More than 25 percent of the whole airport activity is done by the USFS and ODF.

Most of the aircraft using the airport are single-engine aircraft, such as Cessna 150, Cessna 172, and Piper PA28. In addition, turboprop aircraft and light jets occasionally use the airport.

Aircraft used by the USFS and ODF include Single Engine Air Tankers (SEATs) AT-802A, Cessna 182 and helicopters such as Airbus B-3 A-Star, Bell 210, Bell L4, Bell UH-1H, and Sikorsky UH-60. These aircraft are based on the airport seasonally and are operated under

contract<sup>1</sup>. Other aircraft including Boeing 234 Chinook, Boeing 107 Vertol, Sherpa Smoke Jumper and Beechcraft King Air occasionally use the airfield for fire support.

#### 2.3.2 EXISTING ACTIVITY LEVELS



**SEAT**Source: T-O Engineers, Inc.

Airport activity levels include a number of aircraft operations and based aircraft. The FAA's 5010-1 Airport Master Record is the official record kept by the FAA for public-use airport activities and facility conditions. The 5010 activity data is populated by the reporting actions taken by the airport management and ODA. The activity is reported in operations where a single aircraft operation is defined as either an aircraft take-off or landing; therefore, a "touch-and-go" counts as two operations.

Airport records identify a total of 16 single-engine aircraft and one helicopter based at GCD Airport. The 16 based single-engine aircraft include Cessna 150 and 172, Beech 35, and Piper PA28. The helicopter is a Robinson R44. In addition, 8 aircraft are based seasonally at the airport, including 5

helicopters, 1 Cessna 182 and 2 SEATs for firefighting purposes. The FAA 5010 records dated November 2015 identify 15 single-engine aircraft and 3 ultra-light aircraft.

Based on 5010 records, 8,925 operations occur annually at the airport (operations for 12 months ending 6-30-13). Approximately 55 percent of all the operations are itinerant GA and 28 percent are local GA<sup>2</sup>. Itinerant Air Taxi and Military operations account for 16.8 percent and 0.2 percent respectively of the total annual operations.

**Table 2-6** summarizes the 2013 data from the FAA Terminal Area Forecast (TAF) and 5010 records. More details of airport activity are given in **Chapter 3** (Forecasts of Aviation Activity).

<sup>&</sup>lt;sup>2</sup> Local operations include aircraft operating in the local traffic pattern or within a 20-mile radius of the airport, or executing simulated approaches or low passes at the airport. Itinerant operations are operations other than local.



**Grant County Regional Airport-GCD** 

<sup>&</sup>lt;sup>1</sup> Not owned by USFS or ODF. 5-year contract cycle for USFS and 10-year contract cycle for ODF.

**TABLE 2-6: EXISTING ACTIVITY LEVEL (2013)** 

Aircraft Operation Type	Operations	Percentage Of Total Activity
	ITINERANT	
General Aviation	4,900	55%
Air Taxi	1,500	16.8%
Military	25	0.2%
	LOCAL	
General Aviation	2,500	28%
TOTAL	8,925	100%
Based Aircraft		17
Seasonally Based Aircraft		8

Source: FAA TAF, 5010 Records, GCD Airport

According to the FAA, local operations are performed by aircraft which:

- ★ Operate in the local traffic pattern or within sight of the airport, or
- ★ Are known to be departing for, or arriving from, flight in local practice areas located within a 20-mile radius of the airport, or
- ★ Execute simulated instrument approaches or low passes at the airport.

Itinerant operations are all aircraft operations, other than local operations. With the absence of an Air Traffic Control Tower, or other regular means of counting operations, it is important to recognize that current usage is an estimate. More detailed analysis of airport based aircraft and activity is included in Chapter 3, Aviation Activity Forecasts.

#### 2.4 EXISTING AIRSIDE FACILITES

Airside facilities encompass all airport infrastructures used for aircraft operations including runways, taxiways, navigational and visual aids, and aprons. **Figure 2-2** provides an aerial view of existing airport airside facilities.

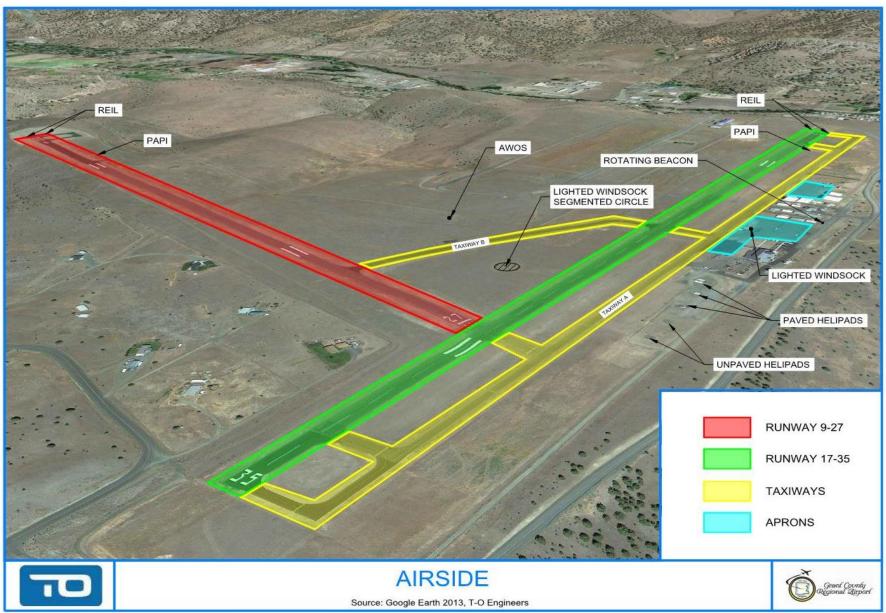


FIGURE 2-2: AIRPORT AIRSIDE FACILITIES

#### 2.4.1 RUNWAYS



Runway 27 End Source: T-O Engineers, Inc.

Runways are the main component of all airports. Aircraft use them for taking off and landing. The existing airfield configuration at GCD consists of two active converging runways. These runways are identified as Runway 9-27 and Runway 17-35.

With a length of 5,220 feet, Runway 17-35 is the primary runway at GCD. At 4,471 feet, Runway 9-27 is the secondary runway and is equipped with a non-precision instrument approach. Runway 9-27was partially reconstructed in 2014.

**Table 2-7** shows the dimensions and characteristics of all protections associated with the runways at GCD. These protections are depicted on **Figure 2-3** and include:

#### Runway Safety Area (RSA)

The RSA is a defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway. It is designed to minimize damages in case of aircraft missing or leaving the runway, but also to provide greater accessibility for emergency equipment. The RSA should be cleared and graded and not have potentially hazardous ruts, humps, depressions, or other surface variations. It should be free of objects, except for objects that need to be there because of their function, such as navigational aids.

#### Runway Object Free Area (ROFA)

The ROFA is a defined surface surrounding the runway that is required in order to keep above ground objects from protruding above the RSA edge area. Objects can be located in the ROFA for air navigation or aircraft ground maneuvering purposes including taxiing or holding aircraft. Parked aircraft are not allowed in the ROFA.

#### **Runway Obstacle Free Zone (OFZ)**

The Runway Obstacle Free Zone (OFZ) is a three-dimensional volume of airspace. When an aircraft is taking-off or landing, nothing can protrude into the OFZ including signs, tails or wingtips of aircraft.

#### **Runway Protection Zones (RPZ)**

The RPZ is defined as an area at ground level beyond the runway ends or prior to the thresholds that are maintained clear of incompatible objects and activity (land use) in order to enhance the safety and protection of people and property on the ground. The FAA recommends that airport sponsors control the RPZs by acquiring sufficient property interest in the RPZ. This property interest can be either fee simple ownership or acquisition of an avigation easement. The RPZ must be cleared and maintained free of incompatible uses or objects.

GCD airport owns the land under the RPZ limits for Runway 9-27 but not for Runway 17-35.

#### Runway Visibility Zone (RVZ)

The Runway Visibility Zone (RVZ) is an area between two crossing runways into which any point 5 feet above ground must be mutually visible at corresponding points of both runways. The RVZ at GCD applies because both runways are crossing. It is shown on **Figure 2-3**. **Table 2-8** depicts the existing physical characteristics of each runway.

**TABLE 2-7: RUNWAY PROTECTION STANDARDS** 

Item	FAA Standards (B-I-VIS / B-I-5000)	Existing (RWY 9/27)	Existing (RWY 17/35)		
Runway Design Code (RDC)	-	B-I-5000	B-I-VIS		
Runway Width	60	60	60		
Shoulder Width	10	10	-		
Runway I	Protection Standards				
RSA Length beyond each runway end	240	240	240		
RSA Width	120	120	120		
ROFA Length beyond each runway end	240	240	240		
ROFA Width	400	400	400		
RPZ Length	1000	1000	1000		
RPZ Inner and Outer Width	500 / 700	500 / 700	500 / 700		
ROFZ Width	400	400	400		
ROFZ Length beyond runway end	200	200	200		
RVZ	Clear	n/a	n/a		
Penetrations	None except if object is Fixed by Function	None	None		
Runway Separation Standards					
Runway Centerline to Partial Parallel Taxiway Centerline	225	254	-		
Runway Centerline to Holding position	200	200	200		
Runway Centerline to Edge of Aircraft Parking	200	270-355	-		

Source: FAA AC 150/5300-13A Change 1, Airport Layout Plan 2008, T-O Engineers, Inc.

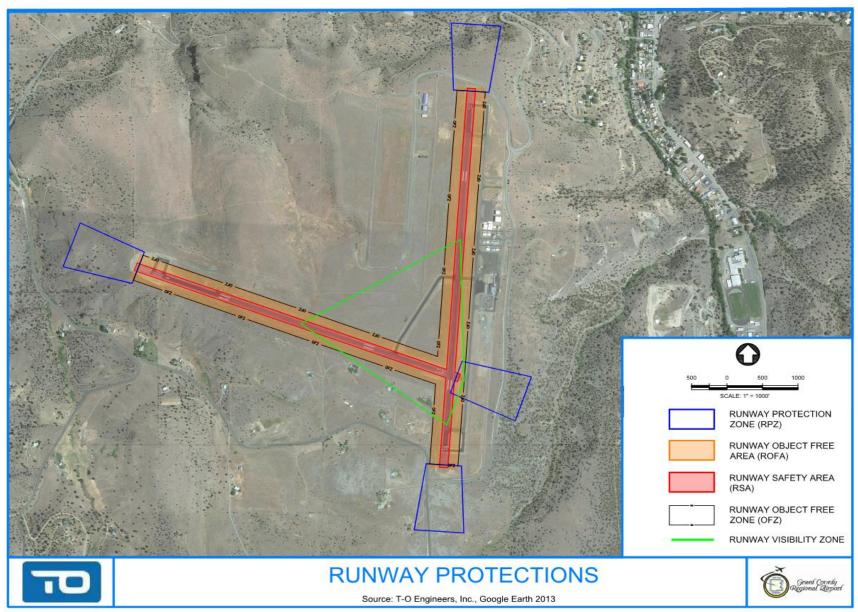


FIGURE 2-3: RUNWAY PROTECTIONS

**TABLE 2-8: EXISTING RUNWAY CHARACTERISTICS** 

D	Runway 9-27		Runway 17-35		
Runway Elements	RWY 9	RWY 27	RWY 17	RWY 35	
Utilization Rate	35%	20%	25%	20%	
Critical Aircraft	Cessn	a 402	Cessr	na 402	
Runway Design Code	B-I-5000		B-I-VIS		
Runway Length	4,4	4,471'		5,220'	
Approach Reference Code	B-II-5	5000	n/a		
Departure Reference Code	B-	B-II		n/a	
Runway Width	60'		60'		
Surface Type	Asphalt		Asphalt		
Surface Condition	Good		Good		
Pavement Strength	SW 20,500lbs PCN 17/F/C/Y/T		SW 20,500lbs PCN 7/F/C/Y/A		
True Alignment	110°	290°	182°	002°	
Traffic Pattern	Left	Right	Left	Left	
Markings	Non-Precision Instrument (NPI)	Basic		sic ig Points	
Marking Condition	Good	Good	Good	Good	
Runway Edge Lights	Medium Intensity	Medium Intensity	Medium Intensity	Medium Intensity	
Latitude*	44°24'14.29"N	44°23′59.30″N	44°24'39.08"N	44°23'47.60"N	
Longitude*	118°58'49.87"W	118°57'51.94"W	118°57'48.66"W	118°57'51.78"W	
Elevation	3647.7' AMSL	3695' AMSL	3675.1' AMSL	3702.5' AMSL	
Threshold Crossing Height	45' AGL	n/a	52' AGL	n/a	
Visual Glide Path Angle	3°	n/a	4°	n/a	
Visual Slope Indicator	4-Light PAPI on left	No	4-Light PAPI on left	No	
Runway End Identifier Lights	Yes	No	Yes	No	
TDZE	3669.2' AMSL	3695' AMSL	3686.2' AMSL	3702.5' AMSL	
Instrument Approach	RNAV	No	No	No	

<sup>\*</sup>These coordinates appear to be inaccurate and will be updated by survey Source: National Flight Data Center, T-O Engineers, Inc., FAA Form 5320

#### 2.4.2 TAXIWAY SYSTEM

Taxiways are a crucial element of the airport because they allow traffic to move to and from the runway safely and efficiently by decreasing the time aircraft are on the runway. They are also an important link providing access to the runway from aircraft aprons and parking areas. Taxilanes are taxiways designed for lower speed. They are usually located outside the movement area (area used for aircraft operations excluding loading aprons and aircraft parking areas), to provide a link between taxiways and aprons.

Runway 17-35 at Grant County Regional Airport is currently equipped with a full parallel taxiway. It has two entrance taxiways at each runway end and four connector taxiways providing additional access to the runway. The full parallel taxiway and connectors to Runway 17-35 allow access from the apron to the thresholds of Runway 17 and 35 and intermediate locations along the runway.

Runway 9-27 is served by an aligned taxiway at the Runway 27 end and an additional connector approximately 730 feet from the same end. The Runway 9 end is equipped with a turnaround taxiway for aircraft maneuvers.

Both accesses to Runway 9-27 require crossing Runway 17-35. The aligned taxiway to Runway End 27 is common with a connector to Runway 17-35. It is important to note that the FAA prohibits aligned taxiways due to the high risk of runway incursion and this configuration should be eliminated at GCD.

**Table 2-9** shows the existing physical characteristics, as well as the dimensions and penetrations of all protections associated with the taxiways at GCD. Existing taxiway protections are depicted on **Figure 2-4** and include:

#### Taxiway/Taxilane Safety Area (TSA)

The Taxiway Safety Area (TSA) is a defined surface centered on a taxiway centerline. This surface should be cleared and graded, free of obstructions, capable under dry conditions of supporting aircraft, snow removal equipment and aircraft rescue and firefighting equipment. The TSA is designed to reduce the risk of damage to an airplane unintentionally departing the taxiway and to provide room for rescue and fire-fighting operations.

#### Taxiway/Taxilane Object Free Area (TOFA)

The Taxiway Object Free Area (TOFA) is a defined surface centered on a taxiway centerline. This area prohibits roads, service vehicle, parked aircrafts and other objects except for those objects that need to be located in the TOFA for air navigation or aircraft ground maneuvering purposes. Vehicles may operate in the TOFA provided they give right of way to oncoming aircraft by either maintaining a safe distance ahead or behind the aircraft or by exiting the TOFA to let the aircraft pass.

TABLE 2-9: EXISTING TAXIWAYS CHARACTERISTICS AND PROTECTIONS

Taxiway Elements / Protections	FAA Standards	Full Parallel Taxiway A and Connectors	Taxiway B	
Critical Aircraft	-	Cessna 402	Cessna 402	
ADG	Ι	I	I	
TDG	2	n/a*	n/a*	
Taxiway Width	35'	<b>25'</b> -50'	35'	
Shoulder Width	10'	-	-	
Surface Type	-	Asphalt	Asphalt	
Surface Condition	-	Satisfactory	Good	
Pavement Strength	-	SW 20,500lbs	SW 20,500lbs	
Lighting	Edge (blue)	Blue Reflectors	Blue Reflectors	
Marking	Centerline and Holding Position	Faded	Good	
Taxiway Protection Standards				
TSA Width	49'	49'	49'	
TOFA Width	89'	89'	89'	
Taxilane OFA	79'	79'	79'	
Penetrations	None except if object is Fixed by Function	None	None	

\*New standards published in 2014

Source: National Flight Data Center, Airport Layout Plan 2008, T-O Engineers, Inc.

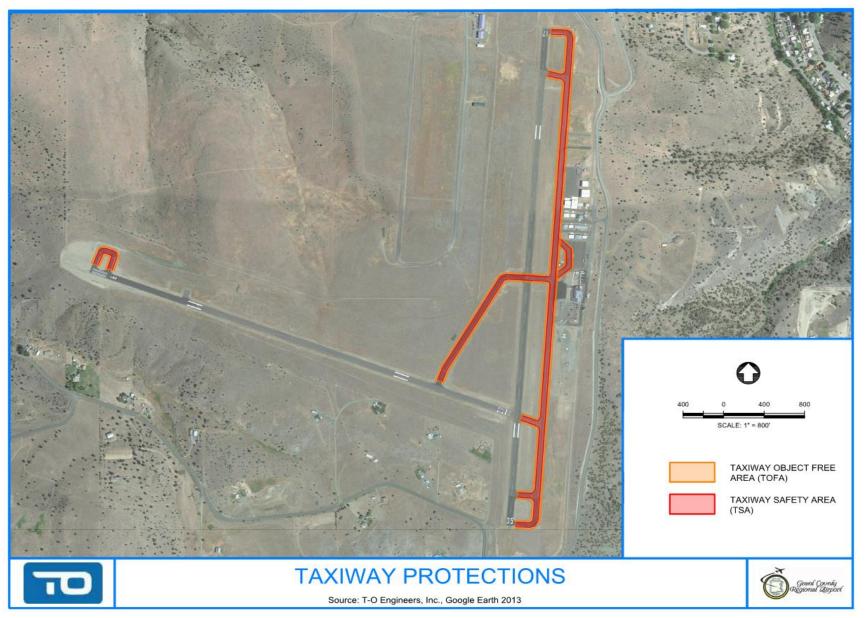


FIGURE 2-4: TAXIWAY PROTECTIONS

#### 2.4.3 AIRPORT PAVEMENT CONDITION

The Pavement Condition Index (PCI) and Pavement Condition Rating (PCR) are solely based on a visual inspection of pavement condition. PCI computation follows a specific methodology and provides a numerical evaluation of pavement condition with a scale ranging from 0 to 100. The PCR is a qualitative evaluation of pavement associated with ranges of PCI values.

The last PCI inspection conducted at GCD was in 2014. **Figure 2-5** depicts the pavement condition for various areas of the airport.

The pavement of Runway 9-27 is in good condition while the pavement of Runway 17-35 is generally in a satisfactory state. Taxiway pavements are evaluated as satisfactory to good. Apron pavements are generally in worse condition with a PCR evaluated at "poor" or "fair". The area-weighted PCN for all airport pavements is 84, corresponding to a PCR of "satisfactory"

#### 2.4.4 HELIPAD

Grant County Regional Airport regularly accommodates helicopters. The main helicopter activity is done by USFS and ODF. The airport is currently equipped with one 30'x30' and two 20'x20' paved helipads leased to USFS for helicopter parking. There are also two additional grass/gravel pads. Helipads are located as shown on **Figure 2-2**.

#### 2.4.5 AIRCRAFT APRON AND TIE-DOWNS

GCD has three aircraft parking aprons located as depicted on **Figure 2-6**. Aprons are mainly used by itinerant GA aircraft as well as USFS and ODF aircraft. The airport is equipped with a total of 16 tie-downs. **Table 2-10** summarizes apron space usage and characteristics.

Tie Downs Area (S.F.) Condition Apron 21,000 Terminal 3 Good Fair Main 13 41,000 Corporate 0 21,000 Fair (Needs to be rehabilitated) TOTAL 16 82,000 **Apron Usage** % of Total Apron Space USFS and ODF 10% **GA** Itinerant 90%

TABLE 2-10: APRON USAGE AND CHARACTERISTICS

Source: GCD Airport, T-O Engineers, Inc.

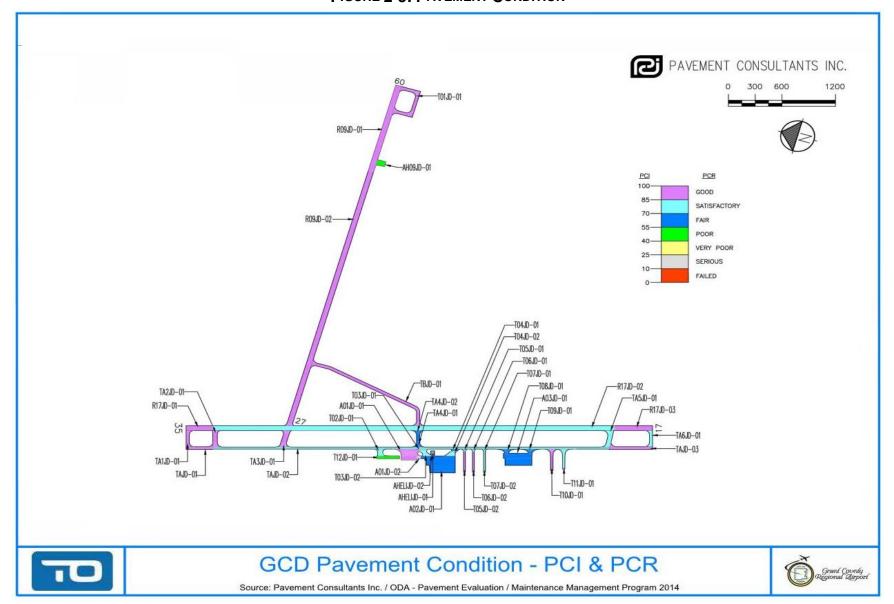


FIGURE 2-5: PAVEMENT CONDITION

RUNWAY 17-35 TERMINAL APRON 21,000 S.F. MAIN APRON TERMINAL BUILDING 41,000 S.F. CORPORATE APRON 21,000 S.F. TIE-DOWNS (16) AIRCRAFT APRON Source: GCD Airport and T-O Engineers, Inc., Google Earth 2013

FIGURE 2-6: AIRCRAFT APRONS

### 2.4.6 AIRFIELD LIGHTING, VISUAL AIDS AND NAVAIDS

A NAVAID is defined by the FAA as any facility used in the aid of air navigation, including landing areas, lights, any apparatus or equipment for disseminating weather information, for signaling, for radio direction-finding, or for radio or other electronic communication and any other structure or mechanism having similar purpose and controlling flight in the air or the landing or takeoff of aircraft.

**Table 2-11** summarizes the existing visual aids and NAVAIDs available at Grant County Regional Airport. Their location on the airfield is as depicted on **Figure 2-2**. GCD Airport owns and is responsible for maintaining all the NAVAIDS except the VOR/DME.

TABLE 2-11: GCD VISUAL AND NAVIGATION AIDS

#### General

UNICOM - 122.8 MHz

#### Rotating Beacon

Lighted Windsock and Segmented Circle – Additional Lighted Windsock on Main Apron

Automated Weather Observing System (AWOS) 3 - 118.375 MHz - (541) 575-1122

## Runway 9/27 And Runway 17/35

Medium Intensity Runway Lighting (MIRL)

Pilot Controlled Lighting (PCL): activated via Common Traffic Advisory Frequency (CTAF) - 122.8 MHz

4-light PAPI Runway 9 and Runway17

REIL Runway 9 and Runway 17					
Nearby NAVaids					
Type:	<u>ID</u> :	<u>Name</u> :	Frequency:	Distance:	Bearing:
VOR/DME	IMB	Kimberly	115.6MHz	35.2 Nm	114.6°

Source: T-O Engineers, Inc., 5010, NFDC

## 2.4.7 INSTRUMENT APPROACH CAPABILITIES

Grant County Regional Airport has instrument approach capability on Runway 9. Runway 9 is served by two Area Navigation (RNAV) Global Positioning System (GPS) procedures and is classified as a non-precision instrument runway:

- ★ <u>Lateral Navigation (LNAV)</u>: Minimum Descent Altitude of 4280 feet and visibility minima greater or equal to 1 statute mile.
- ★ Localizer Performance with Vertical Guidance (LPV): Decision Altitude (DA) of 4269 feet and visibility minima greater or equal to 2 statute miles.

Instrument procedures plates are shown on **Figure 2-7**. Runway 27 is served by a circling from the Runway 9's approach and is classified as a non-precision instrument runway (by TERPS standards). Runway 17-35 is visual only.

#### 2.4.8 AIR TRAFFIC CONTROL

Grant County Regional airport is not permanently equipped with an Airport Traffic Control Tower (ATCT). During wildfire season, the USFS helibase based at GCD requires Air Traffic Control (ATC) when fires are in close proximity of the airport. Temporary facilities are used to provide ATC services.

The airport is located in the service area of Mc Minnville Flight Service Station (FSS) and in the jurisdiction of the Seattle's Air Route Traffic Control Center (ARTCC)..

JOHN DAY, OREGON AL-9264 (FAA) 14121 Rwy Idg TDZE RNAV (GPS) Y RWY 9 GRANT COUNTY RGNL/OGILVIE FIELD (GCD) AL-9264 (FAA) APP CRS 0830 WAAS Rwy Idg 4471 TDZE 3669 APP CRS RNAV (GPS) Z RWY 9 CH 73010 091° When local altimeter setting not received, procedure NA. Circling NA south of Rwy 9-27. DME/DME RNP-0.3 NA. Helicopter visibility reduction below ¾ SM W09A Apt Elev 3703 GRANT COUNTY RGNL/OGILVIE FIELD (GCD) turn to 12000 direct OXVEN and hold MISSED APPROACH: Climb to 12000 direct YERPU When local altimeter setting not received, procedure NA. continue climb in hold to 12000. DME/DME RNP-0.3 NA. Helicopter visbility reduction below 3/4 SM and on track 0.57° to OXVEN and hold, continue climb-in-hold to 12000. AWOS-3 SEATTLE CENTER not authorized. 118.375 128.15 257.75 122.8 (CTAF) 0 118.375 128.15 257.75 122.8 (CTAF) 0 MISSED APCH FIX MISSED APCH FIX ASA TERJE 25 A OXVEN OXVEN 0 2015 to 10 DEC 2015 NW-1, 12 NOV 2015 to 10 DEC 2015 A3964 YAGER UDEYI (FAF) JUVUL 10 DEC 2 WIMOL SUHRO ZABMU 2.7 NM to (MAP) A 3964 (WIXOX) YERPU 3779 12 NOV 2015 to 6100 0 (MAP) TERJE 12 ELEV 3703 TDZE 3669 ELEV 3703 TDZE 3669 VGSI and descent angles not coinciden (VGSI 3.00/TCH 45). 12000 △5063 Δ WIMO ZABMU 2.7 NM to 12000 OXVE 9000 VECUC TERJE 057° UDEY 8000 6700 VGSI and RNAV alidepath not 6100 coincident (VGSI 3.00/TCH 45) NA 4700 CATEGORY GP 3.40° TCH 54 6300 4280-13/4 4280-1 611 (600-1) LNAV MDA 611 (600-1%) REIL Rwys 17 and 9 **1** MIRL Rwys 9-27 and 17-35 **1** 4280-4520-11/4 4520-21/2 CATEGORY CIRCLING 577 (600-1) 817 (900-1%) 817 (900-21/2) REIL Rwy 17 and 90 LPV DA 4269-2 600 (600-2) MIRL Rwys 9-27 and 17-35 0 JOHN DAY, OREGON GRANT COUNTY RGNL/OGILVIE FIELD (GCD) Orig-D 01MAY14 JOHN DAY, OREGON GRANT COUNTY RGNL/OGILVIE FIELD (GCD) 44°24′N-118°58′W RNAV (GPS) Y RWY 9 Orig-D 01MAY14 44°24′N-118°58′W RNAV (GPS) Z RWY 9 INSTRUMENT APPROACH PROCEDURES Source: National Flight Data Center 2015, T-O Engineers, Inc.

FIGURE 2-7: INSTRUMENT APPROACH PROCEDURES

# 2.5 EXISTING LANDSIDE FACILITES

Landside facilities encompass all airport infrastructure not used for aircraft operation, including hangars, terminal building, car parks, access and other facilities. The following **Figure 2-8** provides an aerial view of existing airport landside facilities.

INDUSTRIAL PARK AUTOMOBILE PARKING SPACE TERMINAL BUILDING USFS SEAT BASE HANGARS ACCESS ROAD LANDSIDE Source: T-O Engineers, Inc., Google Earth 2013

FIGURE 2-8 - AIRPORT LANDSIDE FACILITIES

### 2.5.1 GENERAL AVIATION TERMINAL

The GA Terminal Building at GCD Airport was built in 2010 following the specifications for Leadership in Energy and Environmental Design (LEED) certification. The 17,752-square-foot building is owned by Grant County and is used by the airport, the USFS fire base, and the county/city for public activities. The terminal generates revenue through the rental of the conference room and profits are shared equally between the Airport and the USFS.

**Table 2-11** shows the usage repartition between the different entities.

TABLE 2-11: GA TERMINAL BUILDING USAGE

User	Area of Building Used (SF)	% of Total Building Area
Airport	2,580	15%
USFS	6,963	39%
City/County	8,209	46%
ODF	Seas	onal

Source: GCD Airport, T-O Engineers, Inc.

Several services and amenities are offered to users, including Wi-Fi, Satellite TV, and vending and soda machines. The 3-story Terminal Building includes:

- ★ USFS space with offices, operational room, crew quarters, and hangar
- ★ Airport manager office and additional airport offices
- ★ One conference room
- ★ One pilot's lounge
- ★ One public lounge
- ★ Common space areas and restrooms
- ★ One observation deck on the third floor



Conference Room Source: T-O Engineers, Inc.



View from Observation Deck Source: T-O Engineers, Inc.



**Public Lounge** Source: T-O Engineers, Inc.

#### **Terminal Building Characteristics**



Even if not LEED certified, the Terminal Building was built in compliance with LEED requirements. LEED stands for green building leadership and the LEED green building certification program is the nationally accepted benchmark for the design, construction, and operation of green buildings.

#### Storage / Collection of Recyclables

The Terminal is equipped with accessible recycling areas that can be used by all persons working in the building.

#### **Alternative Transportation**

The building is equipped with bicycle storage and showers to encourage the use of alternative means of transport to and from the airport.

#### Water Efficient Landscaping

Drought resistant plants were used in order to minimize the use of potable water for landscape irrigation.

#### Water Use Reduction

A 35-percent water use reduction is achieved by the use of low-flow plumbing fixtures.

#### Recycled Content

10 percent of the materials used in construction of the building have recycled content.

#### Construction Waste Management

Approximately 75 percent of the nonhazardous construction and demolition debris were recycled.

#### **Enhanced Commissioning**

Commissioning helps reduce repairs, and maintenance and operations costs.

#### Regional Materials

At least 10 percent of the materials used in construction of the building were manufactured within 500 miles of John Day, OR.

#### **Low-Emitting Materials**

Materials were chosen with preference given to products with low emission of indoor air contaminants, such as Volatile Organic Compound (VOC).

#### Controllability of Systems

The building is equipped with an efficient lighting control system that can override occupancy sensors. The conference room has multiple lighting level options to minimize use of electricity.

#### **Davlight and Views**

90 percent of regularly occupied spaces are illuminated by natural daylight and 90 percent of occupants have a direct view to the outside.

#### Innovation in Design

A bio-mass boiler fired by wood pellets provides cost-effective heating to the building. The wood pellets are produced from forestry waste that are clean burning and support local economy.

#### **Energy Performance**

Cooling tower, high efficiency heat recovery units, a night purge system, occupancy sensors, daylight harvesting, and photo sensors improve energy performance by 37 percent.

#### **Indoor Chemical and Pollutant Source Control**

The entrance of pollutants into the building is minimized and controlled by appropriate design measures.

#### Stormwater Design

A storm water management plan was implemented to help limit the storm water runoff that contains sediment and other contaminants.

## Pilot's Lounge

The pilot's lounge provides a 383-square-foot space for pilots to relax and rest between flights. It is equipped with:

- ★ A bunk bed
- ★ A computer
- ★ A satellite TV
- ★ A bathroom
- ★ A shower
- ★ A microwave
- ★ A refrigerator
- ★ A sofa
- ★ A recliner



**Pilot's Lounge** Source: T-O Engineers, Inc.

# 2.5.2 AIRCRAFT HANGARS

There are 17 privately-owned hangars on the airport property, all located between the main apron and the corporate apron as shown on **Figure 2-8**. Most of the hangars are more than 20 years old but are still in good condition. Two hangars have been built in the past 10 years.

There is a 100-percent occupancy rate with one person on a waiting list for hangar space. One new hangar will soon be built and two people have inquired about building additional hangars.

**Table 2-12** shows the various hangar characteristics. The most recent box hangar (not shown in table) is 60 feet per 60 feet and was built in 2016. It is located north of the corporate apron, as shown on **Figure 2-8**.

TABLE 2-12: AIRCRAFT HANGARS



Hangar	Туре	Dimensions	Condition
1	Conventional/Box	40'x30'	Satisfactory
2	Conventional/Box	65'x40'	Satisfactory
3	Conventional/Box	50'x40'	Satisfactory
4	T-Hangar	125'x30'	Satisfactory
5	Conventional/Box	40'x30'	Satisfactory
6	Conventional/Box	40'x30'	Satisfactory
7	T-Hangar	40'x30'	Satisfactory
8	Conventional/Box	50'x35'	Satisfactory
9	Conventional/Box	45'x35'	Satisfactory
10	Conventional/Box	55'x40'	Satisfactory
11	Conventional/Box	40'x30'	Satisfactory
12	Conventional/Box	40'x30'	Satisfactory
13	Conventional/Box	60'x60'	Satisfactory
14	Conventional/Box	60'x50'	Satisfactory
15	Conventional/Box	80'x80'	Satisfactory
16	Conventional/Box	60'x60'	Good (3 years old)

### 2.5.3 USFS/ODF FACILITIES





The US Forest Services and the Oregon Department of Forestry (ODF) use part of the Terminal Building for firefighting operations at GCD. As mentioned in **Section 2.5.1**, they use approximately 39 percent of the building for offices, operation room, crew quarters, and

hangar space. They also use an old apron adjacent to the Terminal for vehicle parking. The USFS owns two storage buildings south of the Terminal (chainsaw shop and helicopter rigging shop).

In addition, a Single Engine Air Tanker (SEAT) base is located at the northeast corner of the corporate apron as shown on **Figure 2-8**. It is used and maintained by the USFS and ODF for SEAT operations, including fire retardant refilling and parking. The current area has a single loading pit, one 10,000 retardant tank, one 6,000 water tank as well as one temporary trailer office and multiple storage sheds. The current space allows for two SEAT tie-down locations. The USFS and ODF use the airport helipads described in **Section 2.4.4** for helicopter parking. Throughout the season, 2 to 9 additional landing areas are used for helicopters.

The USFS John Day fire base is home the Malheur Rappel Crew and has become the national training center for all USFS rappel crews. To facilitate crew training, the USFS have a rappel training tower located near the Terminal building.



Rappel training Structure Source: GCD Airport Website





USFS SEAT Base Source: T-O Engineers, Inc.



**USFS Chinook** Source: GCD Airport website

#### 2.5.4 INDUSTRIAL PARK

An industrial park of approximately 116 acres is located northwest of the Airport as shown on **Figure 2-8.** 

The entire industrial park area is zoned for commercial/industrial building development. According to the Grant County Airport Industrial Park (GCAIP) website, there are 30 lots total. Of these lots, 25 one-acre parcels and two bigger lots are available for purchase or lease. Two lots are already occupied (Lots 14 and 15), and two other lots were acquired by the airport (Lots 26 and 27) to control the line-of-sight between the mid-points of the runways. **Figure 2-9** shows the GCAIP configuration.

The current price of each lot is estimated at \$5,000 per acre with the benefit of tax exemptions. Given the unobstructed location of the park combined with the year-round sunshine, solar power is encouraged for every new structure through State tax incentives. Due to the proximity of the airport, solar panels would have to follow specific requirements to avoid creating a glare hazard for pilots using the airfield.

Table 2-13 summarizes the characteristics of the GCAIP.

TABLE 2-13: GCAIP CHARACTERISTICS

Item	Data
Total Number of Lots	30
Lots Available for Lease/Purchase	27
Lot Size	25 at 1 acre 5 from 1.354 acres to 60.261 acres
Lot Price	\$5,000 / acre
Electricity	Single-Phase 120/240V Three-Phase 480V <u>Provider</u> : Oregon Trail Electric Co-op
Water	Water and Waste water Treatment <u>Provider</u> : City
Telecommunication	High-Speed DSL Telecommunication Bundles Provider: CenturyTel Inc., Oregon Telephone Corp.
	Source: GCAIP Website, T-O Engineers, Inc.

88\*28'01'W 233.98 588°28'01'W 218.95 GRANT COUNTY REGIONAL AIRPORT NB9108'45"E 202.B1 (504°02'00°W -5URVEY 382) (504°01'08°W 3003.18-SURVEY 1659) 502\*56'00"W 3002.97' **SCALE** 1.000 AG. I INCH FOUALS 200 FEFT 217.70 BASIS OF BEARINGS - FD. 5/8" IRON ROD (SEE SURVEY 324) HELD POSITION OF MON. AS FOUND. LOT4 8 LOT6 588\*42'14"W ALONG THE SOUTH LOTE 500 42 IN ALOND THE SOUTH BOUNDARY OF BEANT CO. PARTITION PLAT NO. 2000-12. PER CITED PLAT-TO OBTAIN TRUE BEARINGS, ROTATE PLAT BEARINGS +1"08"42" AT THE SOUTH 1/4 SEC. 27 § LOT8 SE LOT 8 SELOT 10 LOT 12 LOT 13 1.000 AC. 59/3139'E 588\*44'11"W -588 28 9 W 588 28 0 I'W 586\*42'14"W 1387.67-5URVEY 1659) 1387.74-5URVEY 382) REFERENCE MATERIAL LOT 28 77'23'43'W\ SRANT COUNTY PARTITION PLAT NO. 2000-12 SRANT COUNTY SURVEYS: NO. 324 NO. 352 NO. 515 NO. 1659 - NB7'04'04'W BEARINGS OCCUPIED LOTS PUBLIC DRAINAGE EASEMENT 20.027 AC. LEGEND BETWEEN LOTS 10 4 11 g LOT 20 FD. MONUMENT AS DESCRIBED **BASIS** NORTH LINE FD. 5/B" IRON ROD WITH ALLMINUM
CAP, MCD. "BGB SURVEY MARKER" AND O
ROAD STATION AND OFFSET. REFER
TO SURVEY NO. 1659 \$1/2-N1/2-5W1/4-NE1/4-5EC.27 GRANT COUNTY AIRPORT INDUSTRIAL PARK SUBDIVISION SET 5/8" IRON ROD (CONCRETE -PUBLIC ACCESS AND UTILITY EASEMENT SET 5/6" IRON ROP (CONCRETE
REINFORCHIS ROP) WITH PLASTIC
CAP MCD. "APA". THESE MONUMENTS TO
BE SET UNDER THE PROVISIONS OF
ORS 92.060(3)-SEE POST-MONUMENTATION CERTIFICATE ON SHEET I. ACQUIRED BY AIRPORT -91.28 CENTER 1/4 CORNER N-S CENTERLINE ,SEC. 27 2425.59 ) RECORD DIMENSIÓN PER SURVEY 1659 (NOO\*13\*34\*W 2662.88-5URVEY 1659. (NOO\*12\*26\*W 2663.58-5URVEY 324) NO1°18'42"W 2662.78' UNLESS CITED OTHERWISE NO1°17'24"W RECORD DIMENSION PER SURVEY 515 UNLESS CITED OTHERWISE SEE DETAIL A BELOW -CENTRAL ANGLE CENTRAL ANGLE CURVE PADIUS LENGTH CHOPD CI2 16\*59'12 1/5.65 N52'34'44' 115.2 CI3 N62"21"50"E 501°31'59'E 668.44' (500°26'47'E 668.52) 40.00 CI4 128,05 40'57'0. CI5 588°44'11"W 1321.85 SURVEYED FOR: C5 42755 N0041582 CI6 48°28'00 THE CITY OF JOHN DAY, OREGON 450 E. MAIN ST. JOHN DAY, OR 97845 SURVEY DATE: 2003 1040.00 C6 12.33 C17 17°28'43 04045 NO1"11'37") N6948385 EXACT COPY STATEMENT I. HARMON E. MCLENDON, OREGON 200.34 OREGON MALES, 1993 HABITON E, IN-LENDON REGISTERED LAND SURVEYOR NO. 2537, DO HEREBY STATE THAT THIS DRAWING IS AN EXACT COPY OF THE ORIGINAL THEREOF. C20 renews 12/81/04 **anderson** N13\*20'13\*E 140.83 C21 65'57'54 555°42'13°W 261.30 SAID ORIGINAL WAS PREPARED AND SIGNED BY ME ON THE <u>1314</u> DAY OF <u>OCTOBOOL</u> INITIAL POINT DETAIL A 20\*20\*36 138.47 C22 35328 HARMON E. MCLENDON, PLS 2537 SOUTH 1/4 COR-SEC. 27 FD. 1 1/2" GALV. IRON PIPE W/ GRANT CO. SURVEYOR BRASS CAP (SEE SURVEY 1659) SHEET 2 OF 2 \*Drawing Not To Scale GRANT COUNTY AIRPORT INDUSTRIAL PARK Source: GCAIP Website, T-O Engineers, Inc.

FIGURE 2-9 – AIRPORT INDUSTRIAL PARK

### 2.5.5 AIRPORT ROADSIDE ACCESS

The primary mode of transportation in Grant County is private automobile. The terminal building offers amenities to encourage the use of alternative modes of transportation such as bicycles.

The main access to the airport is a paved road named "Airport Road" as shown on **Figure 2-8**. This road allows direct access to the City of John Day and Canyon City, OR, and to a road network surrounding the airport and serving the adjacent areas. In addition, "Airport Road" is connected to "Industrial Park Road", a paved road providing access to the industrial park located west of the Airport.

## 2.5.6 Perimeter Fencing and Perimeter Road

The airport perimeter is currently fenced with a 6.5-foot woven wire fence. A new fence will be needed within the next five years.

GCD Airport has a full unpaved perimeter road that allows for airport property and fence inspection. However, the road conditions are not passable after a rain or snow event. Moreover, the profile of the road requires a vehicle with high ground clearance and all-wheel drive.

## 2.5.7 AUTOMOBILE PARKING AND GROUND TRANSPORTATION

Figure 2-8 depicts the location and configuration of the existing vehicle parking areas at the Airport.

GCD Airport has a total of 12 dedicated paved automobile parking spaces north of the Terminal Building. Two of these spaces are handicap accessible parking spots. This parking area is available for public use, free of charge.

For additional parking, the USFS uses an old apron area located south of the Terminal Building. There are a total of 37 marked spaces available for USFS vehicle parking on this apron.

The Airport is not served by public transportation but three courtesy cars are available for airport users, at no cost. As previously mentioned, specific amenities in the Terminal Building encourage the use of bicycles. These include one bicycle rack, dressing room and showers.

## 2.6 SUPPORT FACILITIES

Support facilities at the airport include infrastructure and equipment used for airport maintenance, as well as providing services to airport users. These include fuel facilities, emergency response, snow removal, airport maintenance, and utilities. Support facilities at GCD airport, except for utilities, are depicted on **Figure 2-10**.

## 2.6.1 FUEL FACILITIES

Fuel facilities at the airport are managed by the County. The airport currently provides Avgas (100LL) and Jet A. Each type of fuel is stored in separate 4,000-gallon underground tanks. Self-service fuel is available 24/7.

The fuel island at the airport is located as shown on **Figure 2-10**. A new 100LL dispenser and pump was installed in 2015.

#### 2.6.2 UTILITIES

The airport is equipped with all common utilities. These include water, sewer, electricity, phone, internet, and trash service. There is no natural gas at the airport.

**Table 2-14** summarizes the current utilities and service providers at Grant County Regional Airport.

TABLE 2-14: AIRPORT UTILITIES AND SERVICE PROVIDERS

Utility	Source and Provider
Water	City of John Day
Sewer	City of John Day
Electricity	Oregon Trail Electric Cooperative
Phone	Century Link
Internet	Grant County Education Service District (ESD)
Natural Gas	Not Available
Trash Service	Clark's Disposal
Emergency Response	City of John Day
	Source: T-O Engineers, Inc., GCD Airport

AIRPORT MAINTENANCE SHOP FUEL ISLAND \*Drawing Not To Scale SUPPORT FACILITIES Source: GCD Airport, T-O Engineers, Inc.

FIGURE 2-10 - SUPPORT FACILITIES

### 2.6.3 **EMERGENCY RESPONSE**

Currently emergency response and security efforts are conducted by the John Day Volunteer Fire Department in John Day, OR. There are approximately 18 volunteer firefighters and 8 volunteer personnel serving in one station located two miles from the airport. The location of the station is shown on **Figure 2-10**. Dispatch is provided through the John Day Emergency Communication Center. The fire department has a total of four trucks: two engine trucks, one rural tender truck, and one rural structure engine.



Rural Tender Truck
Source: John Day Fire Department



Attack Engine Truck
Source: John Day Fire Department

Search and Rescue (SAR) efforts are directed by the Grant County Sheriff's office and depend on a list of volunteers. SAR is augmented by the Grant County Air Search group (GCAS), and the Grant County Snowballers Snowmobile Club during the wintertime. The GCAS group provides first-response air search for the Sheriff's office and Oregon State Aeronautics Division, and is available 24/7.

GCD airport does not have dedicated ARFF equipment at the airport since general aviation airports are not required to provide this service onsite. The GCAS group operates from the airport.

#### 2.6.4 SNOW REMOVAL



ODOT Truck Source: GCD Airport

GCD Airport Manager and staff provide snow removal at the airport on an as-needed basis. They use a 50-year-old former Oregon Department of Transportation (ODOT) dump truck with a fixed-position plow based at the airport. Grant County Road Department crew provides back up as needed. There is currently no storage building for the plow truck, so it is stored outside.

#### 2.6.5 **AIRPORT MAINTENANCE**

The airport staff provides most of the maintenance activities for the airport, such as vehicle and grounds keeping. Weed spraying is done by the Grant County Soil & Water District on an asneeded basis.

As previously mentioned, the airport owns a former ODOT plow truck. It also recently acquired a new LS XG3037 tractor, with loader and mower for general airport maintenance and mowing. There is currently no equipment storage building and the new tractor is stored in the airport shop as shown on **Figure 2-10**.



Airport Maintenance Shop Source: GCD Airport

The airport shop is a 15' x 26' building located near the terminal building. It is in good condition but too small to store snow removal equipment (SRE).

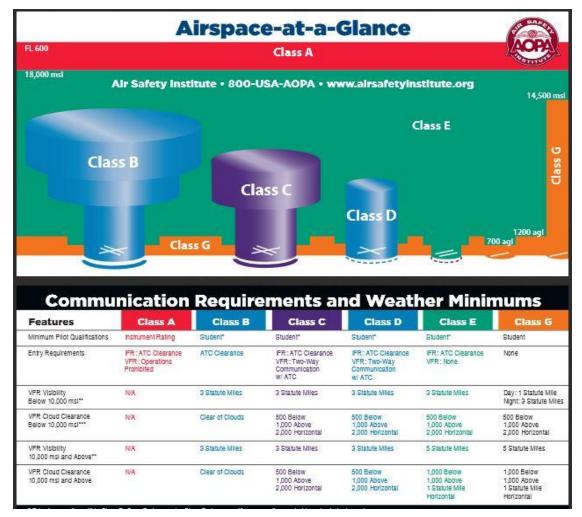
All pavement maintenance, including pavement crack sealing and seal coating, is completed on a contract basis by private contractors.

## 2.7 AIRSPACE

The National Airspace System (NAS) is a combination of the various airspace, navigational facilities, and airports in the U.S. An airspace is a volume in the national sky in which aircraft operations have to follow a certain set of rules.

The NAS consists of airspace controlled by Air Traffic Control facilities (ATC), as well as uncontrolled airspace. The NAS has established operating procedures and requirements in both controlled and uncontrolled airspace. Controlled airspace includes more stringent requirements in terms of ATC procedures, aircraft equipment and pilot certification. Typically, the busier the airport and airspace, the more restrictive the airspace is and the more stringent the operating requirements.

## 2.7.1 **SURROUNDING AIRSPACE**



Airspace at a Glance Source: AOPA-2011

Grant County Regional Airport is currently in Class G uncontrolled airspace from the ground to a height of 700' Above Ground Level (AGL), and in Class E airspace from 700' AGL up to 18,000' Above Medium Sea Level (AMSL).

As mentioned in Section 2.4.8, the airport does not have ATC services but a temporary ATCT controls USFS operations during the wildfire season. The airport is under the jurisdiction of the Seattle Air Route Traffic Control Center (ARTCC).

Pilots using GCD Airport should be diligent and understand the airspace environment before operating in the vicinity of the airport. No special use airspaces, such as restricted areas, prohibited areas, warning area, military operation areas or alert areas exist in the immediate vicinity of the airport. A special conservation area for the Strawberry Mountain Wilderness Area is located southeast of the airport. **Figure 2-11** depicts the airspace sectional in the immediate vicinity of the airport.



FIGURE 2-11: GRANT COUNTY REGIONAL AIRPORT SURROUNDING AIRSPACE

## 2.7.2 CODE OF FEDERAL REGULATIONS PART 77 IMAGINARY SURFACES

Code of Federal Regulations (14 CFR) *Part 77, Safe, Efficient Use, and Preservation of the Navigable Airspace,* provides airspace protection requirements at public-use airports. It defines surfaces around the airport that will limit the height of objects in the vicinity (zoning), in order to protect aircraft operations.

Airspace requirements and surfaces are determined by the weight of the aircraft that predominantly operates at an airport and the type of instrument approach, if any, that exists or is planned at this airport.

Airport runways which predominantly accommodate aircraft of less than or equal to 12,500 pounds maximum gross takeoff weight (MGTOW) are known as "Utility" runways. Runways accommodating aircraft of greater than 12,500 pounds MGTOW are known as "Other Than Utility" runways. Either "Utility" or "Other Than Utility" CFR Part 77 runway designations can include visual only runways, runways with a precision instrument approach or runways with a non-precision instrument approach.

Once a runway has been designated as either 'Utility or "Other Than Utility" and the type of approach identified, specific airspace surface dimensions can be determined. For public-use civilian airports, CFR Part 77 identifies the following "imaginary" airport airspace surfaces:

- ★ Primary Surface
- ★ Approach Surface
- ★ Transitional Surface
- ★ Horizontal Surface
- ★ Conical Surface

For purposes of CFR Part 77, Runways 17/35 and 9/27 at Grant County Regional Airport are considered "Other than Utility" runways. Runway 17-35 and Runway 27 have only visual approaches. By CFR Part 77 definitions, with RNAV (GPS). non-precision instrument approaches, Runway 9 is classified as a NPI runway. Runway 27 served by circling and Runway 17-35 having visual approaches only are classified as visual runways.

A description of each CFR Part 77 airspace surface and specific dimensions for GCD Airport are included below. **Figure 2-12** depicts the airspace "imaginary" surfaces as defined in CFR Part 77.

CONICAL SURFACE HORIZONTAL SURFACE APPROACH SURFACES GROUND PENETRATION TRANSITIONAL SURFACE RWY 17-35 TRANSITIONAL SURFACE RWY 9-27 PRIMARY SURFACES **CFR PART 77 IMAGINARY SURFACES** Source: Google Earth, T-O Engineers, Inc.

FIGURE 2-12: CFR PART 77 IMAGINARY SURFACES

## **Primary Surface**

The Primary Surface is a rectangular surface longitudinally centered on the runway. For hard surfaced runways, the surface extends a distance of 200 feet beyond each runway end. Its elevation is the same as that of the closest point of the runway centerline. The width of the Primary Surface is set by the most demanding type of approach, existing or planned, for either end of the runway.

The width of the Primary Surface for "Other than Utility" runways with visual approach and non-precision instrument approach (with minima greater than ¾ miles) is 500 feet and extending 200 feet beyond each runway end.

#### **Approach Surface**

The Approach Surface is trapezoidal in shape. It begins at the ends of the Primary Surface and slopes upward and outward. An Approach Surface is applied to each runway end and is based upon the type of approach planned for that runway end.

As "Other Than Utility" visual runways, the Approach Surfaces for Runway 17, 35, and 27 has a slope of 20:1 extending for a distance of 5,000, with a final width of 1,500 feet.

As "Other Than Utility" non-precision instrument runway, the approach surface to Runway 9 extends to a distance of 10,000 feet with a slope of 34:1, and a final width of 3,500 feet.

#### **Transitional Surface**

The Transitional Surface is a sloping area that begins at the edge of the primary surface and slopes upward at a ratio of 7:1 until it intersects the horizontal surface.

#### **Horizontal Surface**

The Horizontal Surface is an oval-shaped, level plane situated 150 feet above the airport elevation, the perimeter of which is established by swinging arcs of specified radii from the center of each end of the Primary Surface of each runway and connecting the adjacent arcs by lines tangent to those arcs. The arcs at either end will have the same value. The radius of each arc is:

- ★ 5,000 feet for all runways designated as "Visual"
- ★ 10,000 feet for all other runways.

The elevation of the Horizontal Surface at Grant County Regional Airport is 3852.5 feet MSL

#### **Conical Surface**

The Conical Surface is a sloping area whose inner perimeter conforms to the shape of the Horizontal Surface. It extends outward for a distance of 4,000 feet measured horizontally, while sloping upward at a 20:1 ratio resulting in an additional 200 feet of height around the Horizontal Surface.

The elevation at the outer edge of the conical surface at GCD Airport is 4,052.5ft. MSL.

## 2.7.3 APPROACH/DEPARTURE STANDARDS

Mitigation of obstructions to the CFR Part 77 Imaginary Surfaces, as defined previously, is not required by the FAA. However, additional Obstacle Clearance Surfaces (OCS) are defined to evaluate the minimum required obstruction clearance for approach and departure procedures:

- ★ Threshold Siting Surface (TSS): characteristics based on the type of approach and aircraft category. Determines the location of a runway threshold.
- ★ <u>Departure Surface</u>: same dimensions for all runways with instrument operations. Determines the Take Off Distance Available (TODA).
- ★ Glide Path Qualification Surface (GQS): applies to runways having instrument approaches with vertical guidance.

#### **TSS**

The runway threshold should be located in order to avoid any penetration of the TSS. For GCD airport, the TSS is defined as follow:

★ Visual Runway 17-35 and Runway 9 serving large aircraft day and night:

20:1 slope and extends 10,000 feet from the runway threshold. The inner width if 400 feet and outer width is 1,000 feet.

★ NPI Approach Runway 9 serving AAC A, B, and C, day and night:

Trapezoid with a 20:1 slope, and extending 10,000 starting 200 feet after the runway threshold. The inner width is 800 feet and outer width is 3,800 feet<sup>1</sup>.

#### **Departure Surface**

A departure surface is defined for any runway with instrument operations. The only way to mitigate penetration to this surface is to modify the TODA for the given runway. Instrument departures are not allowed from Runways 9, 17, and 35 at GCD Airport.

At GCD, the departure surface is a trapezoid defined with a slope of 40:1 and extending 10,200 feet from the end of the TODA. The inner and outer widths are respectively 1,000 feet and 6,466 feet.

#### Glide Path Qualification Surface (GQS)

The GQS exists for runways having an instrument approach with vertical guidance and applies to Runway 9 LPV Approach.

For Runway 9 at GCD, the standard GQS is a trapezoid defined with a slope of 30:1 and extending 10,000 feet from the runway threshold. The inner width is 260 feet and outer width is 1,520 feet<sup>2</sup>. **Figure 2-13** depicts the TSS, GQS and Departure surfaces at Grant County Regional Airport.

<sup>1-</sup> FAA Order 8260.3B-TERPS. Computation based on a Visual Descent Point (VDP) position for the Non-Precision Approach (NPA-LNAV) Runway 9 with a MDA of 4280', vertical descent slope of 3.03° and Threshold Crossing Height (TCH) of 40' give a surface of 800' x 10,931' x 3,800'.

<sup>2-</sup> FAA Order 8260.3B-TERPS. Computation based on a DA Point position for the LPV Runway 9 with a DA of 4269', glide path angle of 3° and Threshold Crossing Height (TCH) of 45' give a surface of 260' x 9,549' x 1474'

TSS DEPARTURE SURFACE GQS GROUND PENETRATION TSS, GQS, AND DEPARTURE SURFACES Source: Google Earth, T-O Engineers, Inc.

FIGURE 2-13: TSS, GQS, AND DEPARTURE SURFACES

#### 2.7.4 OBSTRUCTIONS TO AIR NAVIGATION

Any existing or future object penetrating a CFR Part 77 Imaginary Surface, or OCS will be considered an obstruction. Obstructions to OCS must be mitigated. **Table 2-15** lists the obstructions to air navigation in the vicinity of the runways at GCD Airport.

**TABLE 2-15: OBSTRUCTION DATA** 

Runway End	Obstructions	Height Above RW end	Distance from RW end	Clearance Slope	Surface Penetrated	Close In Obstruction?*
9	Fence	6'	350'	25:1 starting 200' form runway end	Part 77 Approach Surface (34:1)	No
All	Ground	802.3' Max	6,170' Min	-	Part 77 Conical Surface	No
35	Ground	665'	8,700'	13:1	TSS RWY 35	No

\*Obstruction inside the Primary Surface

Source: FAA Form 5010, T-O Engineers, Inc.

The airport being located on top of a plateau, there are no major obstructions to air navigation. The only existing obstruction identified in the FAA form 5010 is the airport fence located west of the end of Runway 9.

The fence is a controlling obstruction located 350 feet from Runway 9 end at a height of 6 feet. Controlling obstructions are those obstructions located in the limits of the approach surface (as defined in the CFR Part 77). This obstruction is cleared with a slope of 25:1 starting 200 feet from the runway end. It penetrates the Part 77 Approach Surface for Runway 9 (34:1 slope) but does not affect any OCS.

Some ground located approximately 1 to 1.5 miles south of the airport is a penetration of the TSS for Runway 35 and of the CFR Part 77 Conical Surface.

# 2.8 LAND USE COMPATIBILITY

Airports not only play an important role in their region's economy but also at a national level, and so is the case for Grant County Regional Airport. Compatible land use around the airport aims to avoid land uses that could conflict with aircraft activity and airport infrastructures. Incompatible land use could lead to unjustified constraints to the airport's development and jeopardize its economical role.

Effective land use planning via mechanisms such as zoning protects airspace, defines use of land and considers aircraft noise impacts. Currently the FAA considers airport compatible land use planning to be a top priority for airport sponsors to be aware of, concerned with, and prepared to address through local planning and the airport planning process.

Following is a summary of the land use planning related to the airport per Grant County and surrounding jurisdictions in close proximity to GCD airport.

## 2.8.1 GRANT COUNTY COMPREHENSIVE PLAN AND ZONING ORDINANCE

Grant County Regional Airport is located within the jurisdiction of Grant County and is owned and operated by the County. The County's current Comprehensive Plan (GCCP) was adopted in January 1996. Transportation Element (page 37), briefly discusses the importance of protecting the county's public use airports:

"Identified public airports shall be protected from incompatible uses through the application of an appropriate airport zone."

"The function of airports within the County should be protected through the application of appropriate land use designations to assure future land uses are compatible with continued operation at the airport."

Source: Grant County Comprehensive Plan, 1996

The GCCP mentions the *Grant County Transportation System Plan* (GCTSP) adopted in June 1997. This transportation plan describes two public airports in the County, including the Monument Airport owned by the City of Monument, OR, and the Grant County Regional Airport owned by Grant County.

In Oregon, Section 660-12-045 of the *Implementation of the Transportation System Plan* describes the Transportation Planning Rule (TPR). The GCTSP requires local government to implement the TPR by adopting "*land use or subdivision ordinance measures, consistent with federal and state regulation*" to protect public use airports.

The lands adjacent to the airport are under the jurisdiction of Grant County and are mainly zoned as Recreational, Suburban Residential, and Industrial (Industrial Park). A specific zone is dedicated to the airport.

#### **Zoning Ordinances**

According to the GCCP, Grant County adopted an Airport Overlay Zone (AOZ), as described in the *Oregon Airport Land Use Compatibility Guidebook*, in order to prevent airspace obstructions. The zoning ordinance within the limits of this overlay includes land use and height restrictions. The AOZ enforced at GCD Airport encompasses the limits of the CFR Part 77 Imaginary Surfaces, Runway Protection Zones, and airport noise impact boundaries.

# 2.8.2 **Surrounding Jurisdictions**

Communities in close proximity to the airport include John Day and Canyon City, OR. When existing, a review of the comprehensive plans for these cities was conducted. The current comprehensive plan for the City of John Day was last updated in 2012. Even though GCD Airport is not within the city limits, it is described in general terms in the "Air Service" section on page 13.

The City of John Day defines different land use zones including a zone entitles "Airport Approach". The city zoning is shown on **Figure 2-14**.

#### **Zoning Ordinance**

Zoning ordinances for the City of John Day and Canyon City do not include zoning restrictions related to the airport.

#### 2.8.3 FUTURE LAND USE PLANNING

Per Oregon Statewide Land Use Legislation, all cities or counties with "planning authority for one or more airport shall adopt comprehensive plan and land use regulations for airports" consistent with the requirements of Oregon Administrative Rules (OAR) Division 13 and Oregon Revised Statutes (ORS) 836.600 through 836.630.

Additional information and recommendations regarding land use and airport zoning around the airport can be found in **Chapter 8.** 

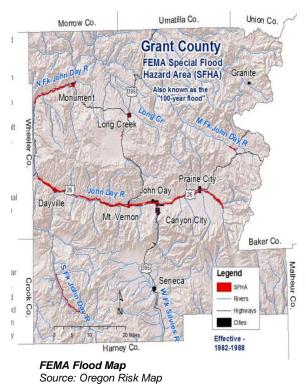
#### 2.8.4 THROUGH-THE-FENCE (TTF)

Through-the-fence activities are those which reside on property outside of the airport property boundary that have an access directly onto airport property. Even though the County has considered TFF in the past, no TTF activities currently exist at the airport.

GRANT COUNTY, OREGON SEPTEMBER 2012 CITY LIMITS RG CITY LIMITS CITY LIMITS CITY LIMITS CITY LIMITS UGB LAND USE DESIGNATIONS GC GENERAL COMMERCIAL PR PARK RESERVE CG (COUNTY) COMMERCIAL GENERAL D DOWNTOWN COMMERCIAL SR (COUNTY) GI GENERAL INDUSTRIAL MG (COUNTY) INDUSTRIAL GENERAL RL RESIDENTIAL LIMITED RG RESIDENTIAL GENERAL A-A AIRPORT APPROACH SISUL ENGINEERING AIP AIRPORT INDUSTRIAL PARK CITY OF JOHN DAY - ZONING MAP Source: City of John Day Comprehensive Plan

FIGURE 2-14: CITY OF JOHN DAY ZONING MAP

## 2.9 FLOODWAY/FLOODPLAIN IMPACTS ON THE AIRPORT



An examination of the Flood Insurance Rate Maps (FIRM) shows that Grant County Regional Airport is in a mapped area and that there are Federal Emergency Management Agency (FEMA) Flood Maps available for the area.

The map shows the John Day River basin as a FEMA Special Flood Hazard Area (SFHA), also known as the "100-year flood". This map has not been updated to a digital version by FEMA yet and was effective between 1982 and 1988. Grant County is in the process of updating their Flood Ordinance to stay in compliance with FEMA.

The airport is not directly impacted by this area, given its location. Occasional summer thunderstorms of high intensity rainfall can cause local flash flood.

#### 2.10 WEATHER AND CLIMATE

#### 2.10.1 LOCAL WEATHER AND CLIMATE

The climate in eastern Oregon is different from the maritime rainforest of western Oregon, with a drier continental climate. In John Day, however, the climate can be classified as oceanic, despite its dry conditions and inland location. The city also experiences relative aridity and cold winter temperatures.

According to the Western Regional Climate Center, over a century, the coldest month is January with minimum temperatures in the 20's and maximums in the 40's. It is also the snowiest month with an average of 5.9 inches of snowfall. The hottest month appears to be July with maximum temperatures in the high 80's and minimums in the 50's. Rainfalls are relatively consistent from October to January (average of 1.2 inches) and from March to June (average of 1.4 inches). February and the summer months are drier with July being the least rainy with an average of 0.5 inches. The rainiest month is May with an average rainfall of 1.8 inches.

## 2.10.2 TEMPERATURE AND PRECIPITATION

The National Climatic Data Center, from the National Oceanographic and Atmospheric Administration (NOAA), gathers data for temperature and precipitation available from a weather station in John Day, OR, located approximately 3 miles north of the airport.

**Table 2-16** and **Table 2-17** summarize the data available, for a 10-year period between 2005 and 2015, for temperature and precipitation respectively.

**TABLE 2-16: TEMPERATURE HISTORY** 

Temperature-10 years	Value
Average Annual	48.2°F
Average Maximum Annual	62.4°F
Average Minimum Annual	34°F
Hottest Month	July
Mean Daily Maximum of Hottest Month	90.5°F
Coolest Month	January
Mean Daily Minimum of Coolest Month	20.2°F
Average Minimum Annual  Hottest Month  Mean Daily Maximum of Hottest Month  Coolest Month	July 90.5°F January

Source: NCDC NOAA 2005-2015

**TABLE 2-17: PRECIPITATION HISTORY** 

Precipitation-10 years	Value
Average Annual Precipitation (in.)	12.1
Average Annual Snowfall (in.)	1.1
Month with Most Precipitation	May
Month with Most Snowfall	January
	0 NODO NO A A 0005 0045

Source: NCDC NOAA 2005-2015

## 2.10.3 AUTOMATED WEATHER

Grant County Regional Airport is equipped with a FAA certified Automated Weather Observing System III (AWOS III). This system provides the following meteorological parameters 24/7:

- ★ Barometric Pressure
- ★ Altimeter
- ★ Wind Speed and Direction
- ★ Temperature/Dew Point
- ★ Visibility
- ★ Sky Condition
- ★ Cloud Ceiling Height
- ★ Precipitation

The ceilometer is outdated and will need to be replaced. Another automatic station is located at Burns Municipal Airport (BNO) 48.6 Nm south of John Day, OR.

## 2.10.4 WIND DATA AND WIND ROSE

Wind direction and speed observations were collected from the airport AWOS data available on the National Oceanic and Atmospheric Administration (NOAA) website. The data cover the last 10 years, from 2005 to 2015.

These data were summarized in FAA format, counting the number of observations in 10-degree increments by standard wind speed increments. The observations from the 10-year period were then entered into the FAA's Wind Analysis design tool on the FAA Airport GIS Program website to produce the wind roses.

A minimum wind coverage of 95 percent must be achieved for the primary runway, or combined with a crosswind runway, for a maximum allowable crosswind component based on the runway design code.

In all weather conditions, the wind roses indicate 94.45 percent wind coverage for Runway 17-35, 93.86 percent wind coverage for Runway 9-27 and 99.11 percent wind coverage for both runways, with a crosswind component of 10.5 knots (for a RDC of B-I). In these conditions, the primary Runway 17-35 does not offer the recommended wind coverage. It justifies the crosswind Runway 9-27 to reach the minimum requirement.

During instrument meteorological conditions, the wind roses indicate 90.79 percent wind coverage for Runway 17-35, 97.76 percent wind coverage for Runway 9-27 and 99.35 percent wind coverage for both runways, with a crosswind component of 10.5 knots (for a RDC of B-I).

Wind roses for Runway 9/27, Runway 17/35 and both runways are depicted in **Figures 2-15** and **Figure 2-16**.

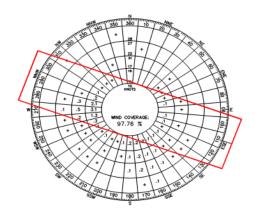
FIGURE 2-15 – WIND ROSES – ALL WEATHER

# ALL WEATHER - CROSSWIND 10.5 KTS RUNWAY 9-27 **RUNWAY 17-35** COMBINED WIND ROSES-ALL WEATHER Source: NOAA AWOS, T-O Engineers, Inc.

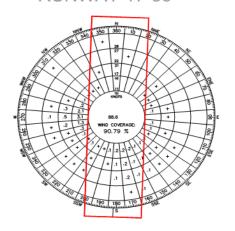
FIGURE 2-16 -WIND ROSES - IFR

## IFR - CROSSWIND 10.5 KTS

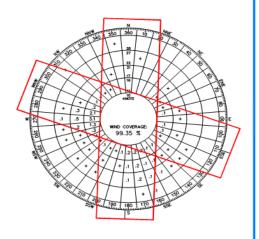
RUNWAY 9-27



**RUNWAY 17-35** 



## COMBINED





# WIND ROSES-IFR

Source: NOAA AWOS, T-O Engineers, Inc.



#### 3.0 AVIATION ACTIVITY FORECASTS

#### 3.1 INTRODUCTION

This chapter discusses the findings and methodologies used to project aviation demand at Grant County Regional Airport (GCD). The forecasts developed in the airport master plan provide a framework to guide the analysis for future development needs and alternatives. It should be recognized that there are always short- and long-term fluctuations in an airport's activity due to a variety of factors. These fluctuations cannot be anticipated but this forecast attempts to account for them using industry accepted standards.

Projections of aviation activity for the airport were prepared for the 20-year planning horizon, including near-term (2016-2020), mid-term (2021-2025), and long-term (2026-2035) timeframes, with 2015 as the base year. These projections are generally unconstrained and assume the airport will be able to develop the various facilities necessary to accommodate based aircraft and future operations. The projections of aviation demand developed for Grant County Regional Airport are documented in the following sections:

- ★ Historic Aviation Activity
- ★ Trends/Issues Influencing Future Growth
- ★ Projections of Aviation Demand
- ★ Peaking Analysis
- ★ Instrument Approach Operations
- ★ Critical Aircraft
- ★ Summary

## 3.1 HISTORIC AVIATION ACTIVITY

#### 3.1.1 FEDERAL AVIATION ADMINISTRATION (FAA) TERMINAL AREA FORECAST

Historic aviation activity data for an airport typically provides the baseline from which future activity can be projected. Historic aviation activity and aviation activity projections are based on FAA 5010 Master Records and available FAA Terminal Area Forecast (FAA TAF) data.

While historic trends are not always reflective of future periods, historic data does usually provide insight into how local, regional, and national demographic and aviation-related trends may be tied to the Airport.

2015

1,500

4.992

Aviation activity is measured in operations where an operation is defined as either a takeoff or a landing. There are air taxi, general aviation (GA), and military operations at GCD Airport. These operations are divided into local and itinerant.

Historic aircraft operations data for GCD Airport, based on the TAF, are summarized in **Table 3-1** and depicted on **Figure 3-1**.

**ITINERANT OPERATIONS LOCAL OPERATIONS** TOTAL **BASED** YEAR Air General General **OPS AIRCRAFT** Military Total Military Total **Aviation Aviation** Taxi 2005 0 0 6,465 1,226 1,226 7,691 6,465 0 33 2006 0 6,587 6,587 1,249 1,249 7,836 33 0 0 2007 0 6,712 0 6,712 1,272 0 1,272 7,984 33 2008 1,500 4,900 6,500 3,000 3,000 9,500 100 0 24 9,500 2009 1.500 4,900 100 6,500 3,000 0 3,000 24 2010 1,500 4,900 100 6,500 3,000 3,000 9,500 21 0 2011 1,500 4,900 100 6,500 3,000 0 3,000 9,500 21 2012 1,500 4,900 100 6,500 3,000 0 3,000 9,500 21 2013 8,925 1.500 4.900 25 6,425 2,500 0 2,500 20 2014 1,500 4,900 25 6,425 2,500 0 2,500 8,925 17

2,547

TABLE 3-1 - HISTORIC AIRCRAFT OPERATIONS AND BASED AIRCRAFT

Source: FAA Terminal Area Forecast (TAF)

9,064

17

2.547

#### 3.1.2 Variation Between FAA TAF and Airport Records

25

6,517

Grant County Regional Airport is a non-towered airport and does not have official records of operations. The current FAA 5010 Master Record dated 2013 indicates a total of 8,925 operations including 1,500 air taxi, 2,500 GA local, 4,900 GA itinerant, and 25 Military operations. The GCD Airport website reports an average of 26 operations per day, which is consistent with the FAA TAF records presented in **Table 3-1**. Both the airport and the TAF report a total of 17 aircraft based on the airfield, including 16 single-engine aircraft and one helicopter.

Interviews with the airport staff reveal an estimate of 5,000 operations for 2015, which is lower than the value indicated in the FAA TAF. Specific activities at the airport include aerial firefighting by the US Forest Services (USFS) and the Oregon Department of Forestry (ODF) that is foreseen to grow<sup>1</sup>. According to the most recent USFS records, this activity accounts for approximately 2,400 annual operations at the airport.

<sup>&</sup>lt;sup>1</sup> USFS and ODF aircraft based at GCD Airport are operated under contract and do not belong to these agencies.



**Grant County Regional Airport-GCD** 

Due to the lingering effect of the recent economic downturn on Grant County, the consultant T-O Engineers believes that the greatest estimation of the airport operations should be considered. In addition, because of the absence of official records (for activities other than aerial firefighting), the FAA TAF is considered to be the most reliable source of historic aircraft activity available at GCD Airport.

The FAA TAF will be used as the reference for the historic aviation activity and the values for 2015 will be used as the baseline for predictions of future aircraft activity at the airport.

# 3.1.3 TOTAL OPERATIONS

As shown, according to the FAA TAF and FAA 5010 records, total annual operations have globally increased over the last 10 years. The Compound Annual Growth Rate (CAGR) is 1.6 percent between 2005 and 2015.

Local and itinerant operations also follow an ascending curve but with different CAGR. Over the past decade, itinerant operations have remained mostly the same with a CAGR of approximately 0.08 percent. On the other hand, local operations have increased significantly since 2005 with a CAGR of 7.6 percent.

Between 2005 and 2008, the ratio between Local and Itinerant operations remained fairly constant with approximately 80 percent consisting of transient aircraft. Since 2008, an increase in local operations has brought the percentage of local operations to approximately 35 percent for 65 percent of transient aircraft. Those figure are similar to the one estimated by the airport.

#### 3.1.4 AIR TAXI OPERATIONS

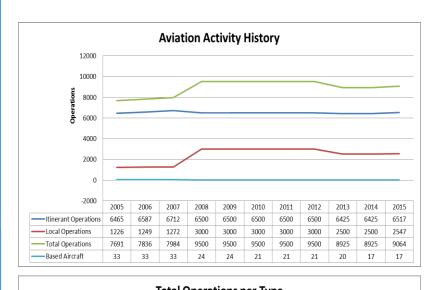
Air Taxi operations include aircraft making commercial flights on demand. They operate under the CFR Part 135. There is no specific record of air taxi operations at Grant County Regional Airport. However, according to the FAA TAF, air taxi operations have grown to represent approximately 23 percent of the total itinerant operations, which equals 15 percent of the total operations at the airport.

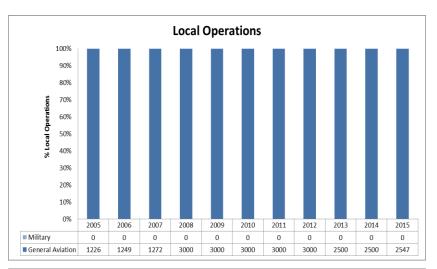
The airport staff estimates the percentage of air taxi operations to be between 5 and 10 percent of total aircraft operations at the airport.

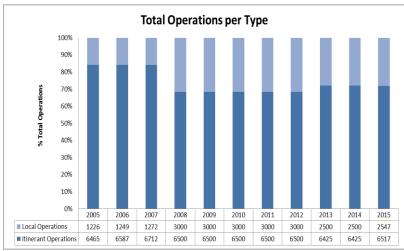
#### 3.1.5 MILITARY OPERATIONS

Grant County Regional Airport has experienced a minimal amount of military operations in the past decade peaking at 100 annual itinerant operations. It represents less than 1% of the total itinerant operations at the airport.

FIGURE 3-1 - HISTORIC AVIATION ACTIVITY











# HISTORIC AVIATION ACTIVITY

Source: FAA Terminal Area Forecast (TAF), T-O Engineers



# 3.1.6 GENERAL AVIATION OPERATIONS

General aviation operations are those not done by airlines, charter operators or military. They include but are not limited to: business, sightseeing, search and rescue, training, recreational, or air ambulance flights.

Local general aviation operations have globally increased over the last 10 years with a CAGR of 7.5 percent. Operations peaked at 3,000 between 2008 and 2012 before lowering to approximately 2,500 annual operations for the last three years. On the other hand, itinerant general aviation operations have continuously decreased with a CAGR of -2.5 percent between 2005 and 2015.

This decrease in itinerant GA follows the national trend for GA operations. The opposite pattern for local GA operations indicates that local factors, such as firefighting activity, influence aircraft operations at the airport. Based on USFS 2015 records, annual firefighting flight operations conducted by the USFS and ODF represent approximately 1,800 local operations and 600 itinerant operations (for fire support). USFS and ODF contract all the fire aircraft based on the airport. Some of the other aircraft used for fire support are owned by the USFS (federal agency) and the ODF (state agency).

For the last 10 years, GA operations have consistently represented 100% of local operations at the airport. In 2008, GA operations fell from 100 percent to approximately 76 percent of total itinerant operations at GCD Airport. Air Taxi and Military operations represent the remaining 24 percent.

#### 3.1.7 BASED AIRCRAFT

Historically, the number of aircraft based at Grant County Regional Airport has experienced a constant decrease with a CAGR of -6.4 percent over the last 10 years. There are currently 16 single-engine aircraft and one helicopter based at the airport with one pilot on a waiting list for hangar space.

Eight additional aircraft are based at the airport seasonally, including five helicopters, two Single Engine Air Tankers (SEAT) and one Cessna 182, all contracted by USFS/ODF for air firefighting operations.

# **3.1.8 FLEET MIX**

Grant County Regional Airport accommodates a great variety of aircraft from single engine airplanes to helicopters. All based airplanes are single-engine pistons, including Cessna 150, Cessna 172, Cessna 182, Beechcraft Bonanza, and Piper Cherokee.

In addition to one based helicopter, the USFS and ODF contract various helicopters such as the Airbus B3 A-Star, Bell 210, Sikorsky UH-60, Bell L4 (ODF), and Bell UH-1H (ODF). The Forest Services and ODF also contract two SEATs and a Cessna 182 (ODF) at GCD airport, on a seasonal basis. Other aircraft such as Sherpa SmokeJumper, Boeing 234 Chinook, Boeing 107 Vertol or Beechcraft King Air can use GCD occasionally for fire support.

USFS/ODF annual aviation activity is estimated to represent 27 percent of the total annual airport operations (based on the FAA TAF value for 2015 and USFS 2015 records). This activity occurs during the wildfire season, mainly during summer months. Consequently, helicopter and SEAT operations represent a significant segment of airport activity.

The majority of the activity is split between light single-engine aircraft and occasional twinengine turboprops and light jets. **Table 3-2** summarizes the estimated fleet mix of aircraft using Grant County Regional Airport.

TABLE 3-2 - FLEET MIX

Aircraft Type	Engine	AAC	ADG	TDG	MTOW** (lbs)	% Total Operations*
Common Single Engine Aircraft	Single Piston	Α	I	1A	< 12,500	60%
SEAT-AT802A	Single Piston	В	11	1A	16,000	7%
Common Twin Engine Aircraft	Twin Piston or Turboprop	В	II	2	< 12,500	10%
Common Light Jets	Jets	В	II	2	< 22,000	5%
Helicopter Robison R44	Single Piston	Α	Rotor Diameter = 4 Overall Length = 38	-	2,500	1%
Helicopter Bell L4	Single Turboshaft	Α	Rotor Diameter = 3 Overall Length = 3		3,200	
Helicopter Bell 210	Single Turboshaft	Α	Rotor Diameter = 6 Overall Length = 5	57'	10,500	
Helicopter Bell UH-1H	Single Turboshaft	Α	Rotor Diameter = 6 Overall Length = 6		9,500	17%
Helicopter Sikorsky UH-60	Twin Turboshaft	Α	Rotor Diameter = 5 Overall Length = 6		23,500	
Helicopter AS350 B-3E	Single Turboshaft	Α	Rotor Diameter = 3 Overall Length = 4		6,172	
			Summary			
Small Single En (MTOW < 12				60%		
Large Single En	gine Piston			7%		
Small Twin Pist (MTOW < 12				15%		
Jets			5%			
Helicopters				18%		
A-I Small			60%			
B-II Sm	nall			10%		
B-II				12%		

<sup>\*</sup> Estimation Based on FAA TAF Value for 2015 Total Annual Operations

\*\*Maximum Take-Off Weight

Source: T-O Engineers, Inc., GCD Airport, USFS Records

# 3.2 TRENDS/ISSUES INFLUENCING FUTURE AIRPORT GROWTH

There are several factors, independent of airport activity, which may influence aviation activity. It is worthwhile to review outside influences to determine how they may impact future growth. These factors include regional demographics and outlook, national aviation trends and local factors.

### 3.2.1 SERVICE AREA

The service area is defined as the geographic area that generates demand for aviation services at the airport. GCD Airport is located in a rural environment with demand for general aviation consisting mainly of recreational and medical evacuation/air ambulance, as well as firefighting operations.

Based on a ninety-minute-driving perimeter around the airfield, the service area for GCD Airport is Grant County in eastern Oregon. Grant County is a rural county comprised with nine main cities including Canyon City (county seat), Dayville, Granite, John Day, Long Creek, Monument, Mount Vernon, Prairie City, and Seneca. This perimeter also includes parts of national protected areas such as John Day Fossil Beds National Monument, Malheur National Forest, Ochoco National Forest, Umatilla National Forest and Wallowa-Whitman National Forest.

**Figure 3-2** depicts the service area for Grant County Regional Airport. A summary of historic and projected socioeconomic trends for the service area is presented in the next section.

RITTER MONUMENT GRANITE KIMBERLY HAMILTON LONG CREEK GALENA SUSANVILLE COURTROCK BEECH CREEK AUSTIN LEGEND GCD Airport DAYVILLE PRAIRIE CITY Cities MT VERNON JOHN DAY A CANYON CITY **Grant County** LOGDELL SENECA SILVIES 0 3 6 12 18 SERVICE AREA Source: ESRI ArcGIS, T-O Engineers

FIGURE 3-2 - SERVICE AREA

# 3.2.2 REGIONAL DEMOGRAPHICS

Socioeconomic characteristics are collected during the airport planning process and examined to derive an understanding of the dynamics of historic and projected growth within the geographic area served by an airport. This information is then typically used as one tool to forecast aviation demand. The types of socioeconomic data that are presented include population, employment, and per capita personal income.

#### **Grant County's Population**

As shown on **Figure 3-3**, the population of Grant County decreased from 7,971 to 7,180 persons between 1994 and 2014 (CAGR of -0.5%).

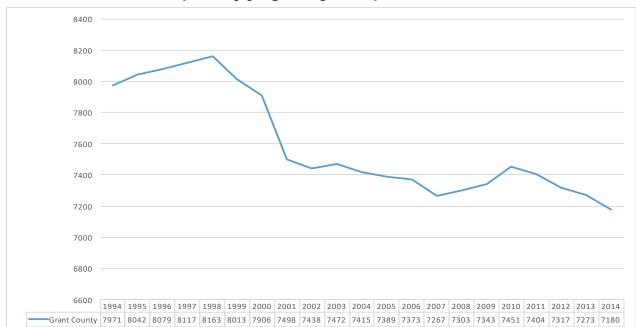


FIGURE 3-3 - GRANT COUNTY POPULATION

Source: U.S. Bureau of Economic Analysis

In two decades, the population of Grant County has been reduced by approximately 10 percent. This local trend is not following the 27-percent increase of population witnessed in Oregon as a whole during the same time period (CAGR of 1.2%).

Maintaining a steady population seems to be a challenge for the county. This trend is most likely due to the variability of employment in the geographic area, as explained in the following section.

### **Grant County's Employment**

According to the Oregon Employment Department and Bureau of Economic Analysis (BEA), Grant County's labor force has been decreasing steadily for the past 20 years.

The civilian labor force decreased by 27.5 percent between 1994 and 2014; from 3,912 to 2,837 with a CAGR of -1.6 percent. In 1994, the unemployment rate in Grant County was 9.6 percent and 5.4 percent in Oregon. In 2014, the unemployment rates were 10.8 percent and 6.8 for Grant County and the State of Oregon, respectively.

During the past two decades, the unemployment rate in Grant County fluctuated with a CAGR of -0.6 percent. It peaked in 1998 and 2012 at 14.2 and 14 percent respectively. Grant County's unemployment rate is higher than in the state of Oregon and the U.S, as shown on **Figure 3-4**.

More recently, sectors impacted by job losses in the county include manufacturing, leisure and hospitability, and professional and business services. In 2015, state and local government added 10 jobs while the only private sector industry to add jobs was mining and logging (+20 jobs) (Source: Oregon Employment Department).



FIGURE 3-4 - UNEMPLOYMENT RATE

Source: Oregon Employment department

#### **Grant County's Per Capita Income**

In 2014, the per capita personal income (PCPI) of Grant County was \$36,392. The PCPI has grown over the last 20 years (1994-2014) with a CAGR of 3.5 percent.

The PCPI growth for Grant County is close to that of Oregon (3.3% CAGR) and of the U.S. (3.6% CAGR) for the same time period. However, the level of the PCPI in Grant County remains lower than that of Oregon and of the United States, as shown on **Figure 3-5** 

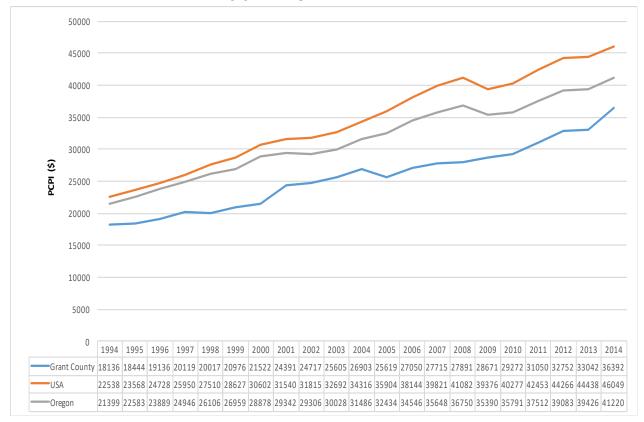


FIGURE 3-5 - PER CAPITA PERSONAL INCOME

Source: Oregon Employment Department

### **Grant County's Industry Mix**

The largest job industry in Grant County is governmental agencies including, federal, state and local governments. The main private sector industries offering jobs in the service area include Mining and Logging, Trade, Transportation, Utilities, Leisure and Hospitability, Educational and Health Services, and Professional and Business Services.

In 2015, public jobs accounted for 45 percent of total employment in Grant County, Trade, Transportation and Utilities accounted for 14 percent. Educational and Health Services, as well as Leisure and Hospitality accounted for 7 percent each

**Figure 3-6** shows the breakdown of the payroll jobs in Grant County in 2015.

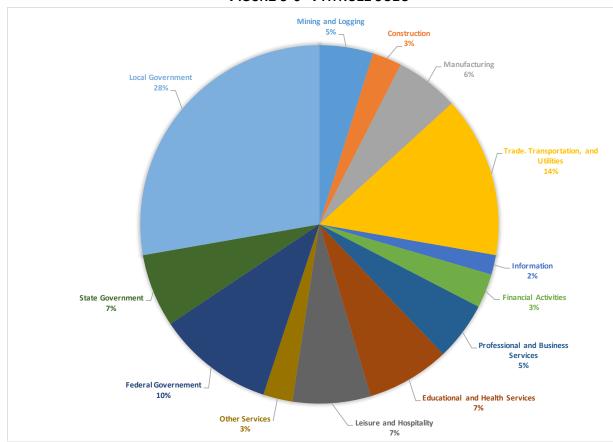


FIGURE 3-6 -PAYROLL JOBS

Source: Oregon Employment Department (2015 Data), T-O Engineers, Inc.

### 3.2.3 NATIONAL AVIATION TRENDS

Historic and anticipated trends related to general aviation will be important considerations in developing forecasts of demand for Grant County Regional Airport. National trends can provide insight into the potential future of aviation activity and anticipated facility needs. The aviation industry has experienced significant changes over the last 30 years. This section will briefly discuss the tendencies and factors that have influenced those trends in the U.S.

#### **National General Aviation Industry Trends**

At the national level, fluctuating trends regarding general aviation usage and economic upturns/downturns resulting from the nation's business cycle have impacted general aviation demand. Slow economic recovery and economic uncertainties will continue to impact demand for general aviation at many airports throughout the U.S., including Grant County Regional Airport for the next several years.

- ★ General Aviation Fleet Changes: While single-engine piston aircraft still account for the majority (61%) of the U.S. general aviation aircraft fleet in 2015, the national historic trends indicate that multi-engine turboprop and business jet fleets grew at a faster rate than the single-engine piston fleet. The most active growth in the fleet size has been in turbine aircraft and rotorcraft. According to the FAA General Aviation and Air Taxi Activity Surveys, as a result of the recent recession, the total U.S. general aviation aircraft fleet has declined 12.6% from 228,664 aircraft in 2008 to 199,927 in 2013. The general aviation industry began to show signs of recovery in 2014 and the aircraft fleet increased to 203,880 in 2015, with especially strong growth in turbine aircraft (both rotorcraft and turbo jet) deliveries.
- ★ Active Pilots: According to the FAA U.S. Civil Airmen Statistics, there were 435,309 active pilots in the United States at the end of 2015 (do not include airline transport pilots). An active pilot is a person with a pilot certificate and a valid medical certificate. There was a -1.4% CAGR in GA pilot population between 2010 and 2015. Recreational and private pilot certificates accounted for the largest declines. On the other hand, the number of sport and rotorcraft pilots has continuously increased over the last 5 years.
- ★ General Aviation Operations: According to FAA air traffic activity, between 2010 and 2015, general aviation operations experienced a -1.5% CAGR. In 2015, there were approximately 33.3 million general aviation operations at 514 towered airports, 65% of which were itinerant operations. General aviation operations at combined FAA and contract towers were down 1.8% between 2014 and 2015.

#### **National Projections of Demand**

On an annual basis, the FAA publishes aerospace forecasts that summarize anticipated trends in all components of aviation activity. Each published forecast revisits previous aerospace forecasts and updates them after examining the previous year's trends in aviation and economic activity. Many factors are considered in the FAA's development of aerospace forecasts, some of the most important of which are U.S. and international economic forecasts and anticipated trends in fuel costs. The recent projections found in *FAA Aerospace Forecast Fiscal Years* 2015-2035 are summarized below.

- ★ Between 2016 and 2019, U.S. economic growth is projected to grow at a CAGR of 2.6%. For the remaining years of the forecast period, real Gross Domestic Product (GDP) growth is assumed to slow to around 2.4% annually.
- ★ The FAA estimates that the U.S. general aviation aircraft fleet will grow from an estimated 198,860 aircraft in 2014 to 214,260 aircraft in 2035. This is equal to a CAGR of 0.4 percent. This growth is mainly driven by the growth of the turbine-powered aircraft fleet, while the piston-powered aircraft fleet is expected to decrease at a CAGR of 0.5 percent.

- ★ Strong growth is anticipated in the turbine-powered aircraft fleet (including rotorcraft), estimated to grow at a CAGR of 2.4% between 2014 and 2035.
- ★ General aviation hours flown are anticipated to increase at a CAGR of 1.4% between 2014 and 2035.
- ★ It is anticipated that general aviation aircraft operations will grow at a CAGR of 0.5% through 2035.

# 3.2.4 LOCAL FACTORS AFFECTING DEMAND

There are other factors unique to Grant County Regional Airport that have the potential to impact the forecasts developed in this chapter.

### **Fuel Price and Availability**

The type and price of fuel available can play an important role in the development of the aviation activity at the airport. Currently, GCD Airport has a self-service pump for AVGAS 100-LL. This type of gasoline is used for piston-powered aircraft. Jet A fuel, used by turbine and jet aircraft, is also available in self-service. This fuel availability has the potential to help develop aircraft activity at the airport. Further needs in term of fuel services will be studied in the Facility Requirements chapter of this report.

The retail fuel price is also a factor in the level of aviation activity at the airport. The most recent fuel price available for the airport is \$4.59 per gallon for AVGAS 100LL and \$3.15 per gallon for Jet A (Source: AOPA Airports - August 2016).

Variation of local fuel prices will be based on the fuel prices in the US and the local supply chain. **Figure 3-7** depicts the variation of AVGAS and JET A fuel prices in the U.S. between 2005 and 2014. Fuel prices at GCD are competitive with national averages and therefore are not foreseen to be a limiting factor to aviation activity.



FIGURE 3-7 -AVGAS/JET PRICES IN THE U.S. (2005-2014)

Source: U.S. Energy Information Administration

**Narrative Report-Aviation Activity Forecasts** 

# **Proximity to Competing Airports**

The proximity to competing airports is one of the key determinants of the demand and size of an airport's service or catchment area. For comparative purposes, only the airports equipped with paved runways have been included hereafter. As depicted with **Figure 3-8**, there are 21 airports within a radius of 100 nautical miles from GCD Airport.

GCD has the fifth longest runway after one primary airport, one non-primary airport, and two general aviation airports those being: Robert's Field, Eastern Oregon Regional, La Grande/Union County, and Prineville respectively. Those airports are located at more than 50Nm from Grant County Regional Airport.

Within the same 100-Nm radius from the airport, there is a total of 822 based aircraft. With 17 based aircraft in 2015, GCD represents approximately 2 percent of the based GA fleet in the area. According to the FAA 5010 Master Records, GCD Airport is the tenth busiest airport in terms of annual operations, in this 100-Nm radius.

All these results show that Grant County Regional Airport has adequate airside facilities to compete with other local airports but does not generate as much traffic as it could. Other more active airports in the area are located in more populated and economically active zones.

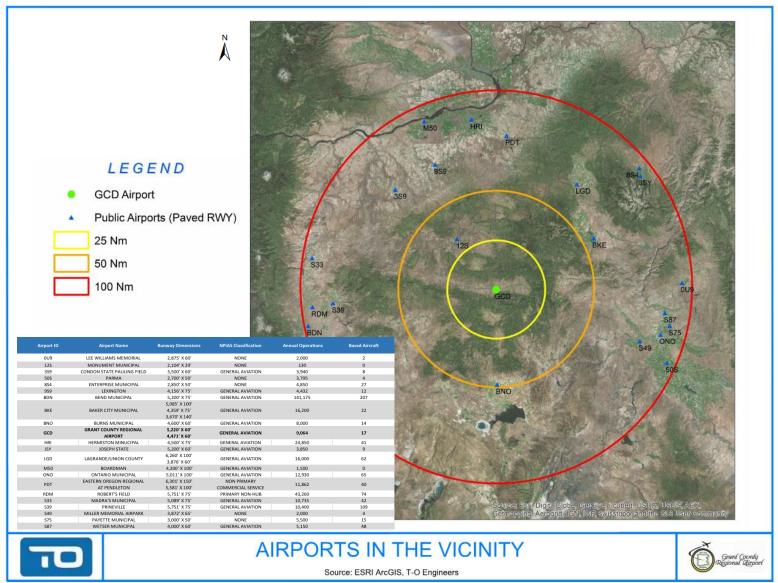


FIGURE 3-8 - AIRPORTS IN THE VICINITY

#### **Local Business and Tourism Usage**

Grant County Regional Airport does not have any local businesses located directly on the airfield. However, the industrial park located next to the airfield could facilitate potential business development that requires the available infrastructure.

The main sector of employment in the County consists of public agencies (local, state, and federal). This sector of activity does not typically generate aviation activity. However, as explained in the next section, GCD Airport is a base of the USFS for air firefighting operations.

There is potential for tourism in the area surrounding the airport with the presence of the John Day Fossil Beds National Monument and national forests. General aviation activity specifically related to tourism is unknown but it is an asset that drives seasonal aviation activity at the airport.

# **Aerial Firefighting**

On GCD Airport, the USFS John Day fire base is home the Malheur Rappel Crew and has become the national training center for all USFS rappel crews. The base generates significant aircraft activity during the wildfire season (2,800 annual operations estimated based on USFS 2015 records). This activity is mainly helicopter and Single Engine Air Tanker (SEAT) operations and requires temporary air traffic control. USFS and ODF contract all fire aircraft based at GCD Airport, including helicopters and SEATs.

Aerial firefighting represents more than a quarter of the airport annual activity and is a main service to the community. This activity is projected to increase and will require additional facilities, especially for helicopter and air tanker operations.

#### **UAS**

Unmanned Aerospace Systems (UAS) do not currently operate at the airport. However, the Grant County officials express interest in developing this type of activity by attracting UAS users and industries. The proximity of the Pendleton UAS Range in neighboring Umatilla County is also a source of potential UAS business development at the Airport.

UAS would provide additional activity on the airfield and help bring a new sector of activity in the area. In addition, it could offer valuable support for wildfire detection and surveillance.

#### **Other Activities**

There is no flight school based on the airport and no development of this activity is foreseen for the planning period. Even though the Airport expressed interest in developing passenger service, at the time of this airport master plan, there is no commercial service and air taxi operations are limited. Additional services GCD Airport provides to the community include medevac flights, disaster relief, search and rescue facilities, as well as serving as an alternate or emergency landing location for air carrier, cargo, charter, or federal agencies.

# **Summary of local factors**

The use of Grant County Regional Airport for general aviation and aerial firefighting is considered to be an important function of the airport during the 20-year planning horizon. The USFS operations justify the important role the airport fulfills for the community. In addition, UAS integration would allow GCD to embrace and participate in the development of new aviation technologies while serving the community.

These activities represent both opportunities and challenges. The airport has potential to develop and maintain aviation activity for the next 20 years and its development should encompass the diverse operations. Future activity at the airport should be based on a *quality versus quantity* basis in terms of accommodating future demand and the development of new improvements.

Although the activities previously described have the potential to increase at GCD, it is difficult to quantify how these activities will impact future demand. Recommended facilities and strategies to address these potential impacts are considered in later chapters of this report.

# 3.3 PROJECTIONS OF AVIATION DEMAND

According to the FAA TAF, Grant County Regional Airport has experienced a general increase in its number of operations (CAGR of 1.6%) over the past 10 years. It is anticipated that this pattern will continue over the forecasted period.

Beginning in 2008, it is most likely that the firefighting activity at the airport helped maintain aircraft operations during the following years of recession in the U.S. The airport will most likely experience growth during the next 20-year forecast period. The rate of this growth will be somewhat dependent on future facilities and services provided at the airport.

Various methodologies were used to develop projections of aviation demand at Grant County Regional Airport for the 20-year planning period. The results of these different methodologies are compared in order to select a preferred projection.

The following assumptions were made in developing the projections of aviation demand at GCD:

★ The national and local economies will continue to grow through the overall forecast period.

- ★ Economic disturbances may cause year-to-year traffic variations, but the long term projections will likely be realized.
- ★ Aviation at GCD Airport will generally reflect the national aviation industry. The FAA projects growth in all aspects of aviation.
- ★ Airport facilities will keep pace with and meet the demand for aviation use and a lack of facilities will not be a limiting factor to the number of based aircraft that can be accommodated in the future.
- ★ 2015 constitutes the base year for all forecasts of aircraft operations.

#### 3.3.1 Forecasting methodologies

There are two basic approaches to forecasting: top-down or bottom-up. The top-down approach forecasts aviation demand for the nation or for a region and allocates portions of the total demand to geographic areas, based on historical shares or assumed growth rate. The bottom-up approach consists in forecasting aviation demand for an airport using data for a specific geographic area.

When forecasting aviation demand, it is assumed there is a relationship between historical events and conditions, and that this relationship will continue into the future. The following methods were used to predict future activity levels at GCD Airport.

#### **Market Share (Top-Down)**

This method of forecasting is relatively easy to use and the required data are often available in the FAA's Terminal Area Forecast (TAF). It assumes a top-down relationship between national, regional, and local forecasts. It considers that local forecasts are a percentage (market share) of regional or national forecasts. Historical market shares are calculated for a given time period (often a 5- or 10-year period) and used as a basis for projecting future market shares.

### Regression Analysis - Trend Analysis (Bottom-Up)

A regression analysis is a type of econometrics analysis, and uses mathematical and statistical tools. The value being estimated or forecasted (here aviation activity) is called the dependent variable, while the value used to prepare the forecast is called the independent variable. A simple regression analysis uses one independent variable, while multiple regression analyses use two or more independent variables.

A regression equation is computed with historical values and is used to project future values. It is possible to use socioeconomic data as independent variables, such as population, per capita income, or employment. It is also possible to use time as the independent variable to perform a

Trend Analysis. This method is a basic technique, which can capture economic growth and recession.

# **Compound Annual Growth Rate (Bottom-Up)**

The Compound Annual Growth Rate (CAGR) can be defined as the year-over-year growth rate. It is an imaginary number that describes the rate at which a data series would have grown if it had grown at a steady rate.

It is computed with the following formula:

$$CAGR = -1 + \left(\frac{Ending\ Value}{Beginning\ Value}\right)^{\left(\frac{1}{number\ of\ years}\right)}$$

It is possible to forecast future values based on the CAGR of a data series, assuming that the rate will remain the same in the future. As with every forecasting method, uncertainties remain.

#### **Summary**

These different methodologies can be used in an infinite number of ways, with several distinct variables and historical time periods considered. The choice of the historical data and variables is critical for the interpretation of the forecasts.

A 10-year historical period will capture the trends for the last 10 years, closer to the current national, regional, and local situations. A greater historical time period would probably indicate trends impacted by factors that are not relevant. Employment rate and PCPI are good economic variables to indicate the general health of the local economy. Thus, they are most likely relevant to evaluate aviation activity.

The following methodologies and variables were used to predict the number of based aircraft and operations at Grant County Regional Airport:

#### ★ Linear Regression

- With Regional Employment as the independent variable (Based on 10-year historical period)
- Trend Analysis (Based on 10-year historical period)

#### **★** CAGR

- Historic Growth (Last 10 years)
- Projected Employment Growth (Last 10 years)
- Historic PCPI growth (Last 10 years)

#### ★ Market Share

- Northwest Mountain Region (5-year average)
- Northwest Mountain Region (10-year average)
- State of Oregon (5-year average)
- State of Oregon (10-year average)

Only the most relevant and reasonable forecasts are presented in the following sections for:

- ★ Based Aircraft
- ★ Fleet Mix
- ★ Air Taxi Itinerant Operations
- ★ General Aviation Itinerant Operations
- ★ Military Itinerant Operations
- ★ Local General Aviation Operations
- ★ Local Military Operations
- ★ Critical Aircraft

Not all methodologies described can apply to each of these forecasted elements because each of them could be influenced by different parameters.

#### 3.3.2 BASED AIRCRAFT

Based aircraft are aircraft permanently stored at the airport. Estimating the number and type of aircraft expected to be based at Grant County Regional Airport over the next 20 years is crucial to evaluate the need for future facility and infrastructure requirements.

As discussed in the Inventory chapter, there are 17 aircraft currently based at GCD. This number will be used as the base year (2015) based aircraft number from which projections are developed.

Based aircraft were projected using some of the methodologies previously described. A summary of the methodologies yielding coherent and reasonable results is below:

- ★ Scenario 1: Historic 5-Year Based Aircraft Growth. This scenario projects based aircraft to change at an average annual rate of growth of -4.1 percent, equal to the historic CAGR in based aircraft at GCD Airport between 2010 and 2015. A five-year period reflects more significantly the historic trend in based aircraft at the airport.
- ★ Scenario 2: Oregon Market Share (5 years). This scenario assumes that the market share of GCD Airport for based aircraft in the state of Oregon will remain the same over the planning period and be equal to the 5-year historic average (2010-2015).

2035 Variation from TAF

★ Scenario 3: Projected Employment Growth in Oregon. This scenario assumes that the number of based aircraft will increase at a CAGR of 2.25 percent equal to the average of the projected growth rate of employment in Oregon for the next five years (Oregon Economic and Revenue Forecast – March 2016).

The results of these forecasting methodologies were compared and are listed and depicted in **Table 3-3 and Figure 3-9**.

Year Scenario 1 Scenario 2 Scenario 3 **FAA TAF** 2015-Base Year 17 17 17 17 2020 14 21 19 20 2025 11 23 21 24 2035 7 25 27 34 **CAGR** -4.1% 2.0% 2.25% 3.2% 2020 Variation from TAF -31.2% 6.5% -5.0% -5.9% -11.5% 2025 Variation from TAF -53.6%

**TABLE 3-3 BASED AIRCRAFT PROJECTIONS** 

Source: T-O Engineers, Inc., FAA TAF

-22.0%

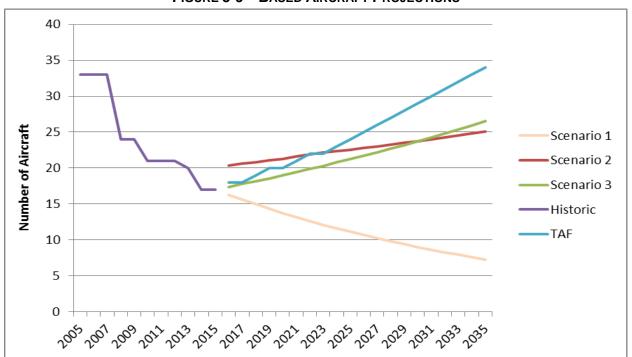


FIGURE 3-9 - BASED AIRCRAFT PROJECTIONS

-26.3%

-78.5%

Source: T-O Engineers, Inc., FAA TAF

The results of the three scenarios examined in this analysis were compared to the FAA's Terminal Area Forecast (TAF) for Grant County Regional Airport.

Scenario 2 and Scenario 3 remain close to the TAF forecast during the short-, and mid-terms (0-10 years). For the long-term (10-20 years), the TAF increases significantly and ends with 34 based aircraft in 2035. Scenario 2 and Scenario 3 predict 25 and 27 based aircraft in 2035 respectively. Scenario 1 indicates a constant decrease of the number of based aircraft at GCD and ends at 7 based aircraft in 2035.

With a waiting list for hangars at the airport, Scenario 1 is unrealistic. The airport in unlikely to experience a decrease in based aircraft and should be able to maintain at least its existing level. On the other hand, the TAF seems optimistic and would most likely lead to oversized infrastructure.

Scenario 2 and Scenario 3 foresee similar results over the planning period and are both coherent. However, aviation demand is considered to be a derived demand; one that depends upon the level of business and leisure activity in the economy. The projected employment growth as noted by the State of Oregon points to a better economy, which can correlate to an increasing number of based aircraft at the airport.

Based on this analysis, as well as the consultant's professional opinion, Scenario 3 is the preferred forecast for based aircraft with a CAGR of 2.25 percent

# 3.3.3 AIRCRAFT OPERATIONS

Aircraft operations are divided into two types: local and itinerant. Local operations are classified as operations by aircraft that:

- ★ Operate in the local traffic pattern or within sight of the airport, or
- ★ Are known to be departing for or arriving from flights in local practice areas within a 20-mile radius of the airport, or
- ★ Execute simulated approaches or low passes at the airport.

Itinerant operations are defined as:

★ Operations performed by an aircraft that lands at an airport, arriving from outside the airport area, or departs an airport and leaves the airport area.

The current ratio of local to itinerant aircraft operations at GCD is 28 percent local and 72 percent itinerant.

Different factors impact the number of operations at an airport including but not limited to: the total based aircraft, area demographics, activity and policies of neighboring airports and national trends. These factors were examined and projections were developed for local and itinerant operations as well as for the total number of operations.

# **Local Operations**

Local operations at GCD Airport are GA operations only. There is currently no local military activity and none is planned for the next 20 years.

A summary of the methodologies used to develop the projected GA aircraft local operations are below and shown in **Table 3-4** and **Figure 3-10**.

- ★ Scenario 1: Trend Analysis. This scenario assumes that local operations at GCD will continue to follow the same trend as of between 2005 and 2015. Trend analysis will capture specific events that could have influenced the traffic during the historic period used as a reference. A longer period of time would have most likely captured events that are not relevant anymore.
- ★ Scenario 2: Projected Employment Growth. This scenario projects local operations to increase at a CAGR of 2.25 percent, equal to the projected CAGR of employment in Oregon for the next 5 years.
- ★ Scenario 3: Historic 10-year Local Operations Growth This scenario projects local operations to continue growing at an average annual growth rate of 7.6 percent, equal to the historic CAGR between 2005 and 2015.

TABLE 3-4 - GENERAL AVIATION LOCAL OPERATIONS PROJECTIONS

Year	Scenario 1	Scenario 2	Scenario 3	FAA TAF
2015-Base Year	2,547	2,547	2,547	2,547
2020	3,781	2,847	3,671	2,799
2025	4,476	3,182	5,291	3,080
2035	5,866	3,975	10,993	3,752
CAGR	4.2%	2.25%	7.6%	1.9%
2020 Variation from TAF	35.1%	1.7%	31.2%	-
2025 Variation from TAF	45.3%	3.3%	71.8%	-
2035 Variation from TAF	56.3%	5.9%	193%	-

Source: T-O Engineers, Inc. FAA TAF

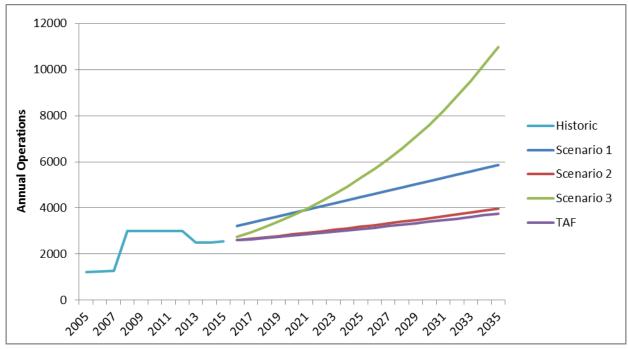


FIGURE 3-10 - GENERAL AVIATION LOCAL OPERATIONS PROJECTIONS

Source: T-O Engineers, Inc., FAA TAF

Scenario 1 and Scenario 3 exceed the tolerance for comparison to the FAA TAF of 10 percent at 5 years and 15 percent at 10 years. They both forecast significantly more local operations with Scenario 3 being the most optimistic.

Local GA operations are considered to be a derived demand that will depend upon local factors and the local dynamic of the airport. The trend analysis presented in Scenario 1 forecasts a CAGR of 4.2%. This analysis captures fluctuations in the historical data and provides a trend that encompasses specific conditions and events that occurred during the last 10 years at the airport. It is therefore most likely to capture the increase in USFS/ODF operations for firefighting activity. Scenario 1 offers a plausible forecast on the high end that considers a continuous growth of airport activity that considers the local dynamic.

Scenario 3 is based on the fact that local aircraft operations at GCD will continue to grow with the same historic CAGR of 7.6 percent for the next 20 years. This assumptions leads to a high forecast and seems unrealistic. It would most likely result in oversized infrastructure. This analysis considers historic local evolution but does not encompass fluctuations over the years like the trend analysis of Scenario 1.

Scenario 2 provides the forecast closest to the FAA TAF with a CAGR of 2.25 percent equal to the projected growth rate of employment in Oregon. As mentioned in a previous section, the evolution of the unemployment rate in Grant County tends to follow that of the State of Oregon. It is therefore assumed that County employment will follow the same trend as the State. Local aircraft operations are linked to the local economy and a better employment situation in the

county would lead to more local activity at the airport. Local GA activity is also highly correlated to the number of based aircraft on the Airport, which are forecasted to grow at a similar CAGR.

Based on this analysis, as well as the consultant's professional opinion, Scenario 2 is the preferred forecast for local GA operations with a CAGR of 2.25 percent.

#### **Itinerant Operations**

Itinerant operations at Grant County Regional Airport consist of Air Taxi, Military and GA operations.

#### Military and Air Taxi Itinerant Operations

Because GA operations constitute the bulk of itinerant traffic at GCD, only one scenario is presented in **Table 3-5** for military itinerant operations and one for air taxi operations:

★ Scenario 1: Oregon Market Share (5 years). For both kinds of aircraft operations, it is assumed that GCD will have a constant market share of Oregon operations equal to the historic average market share over the last 5 years: 1.10 percent for air taxi and 0.12 percent for military operations.

TABLE 3-5 – AIR TAXI & MILITARY ITINERANT OPERATIONS PREFERRED PROJECTIONS

Vacu	Air Taxi		Military	
Year	Scenario 1	FAA TAF	Scenario 1	FAA TAF
2015-Base Year	1,500	1,500	25	25
2020	1,288	1,500	55	25
2025	1,278	1,500	55	25
2035	1,448	1,500	55	25
CAGR	-0.2%	0%	4%	0%
2020 Variation from TAF	-14.2%	-	119%	-
2025 Variation from TAF	-14.8%	-	119%	-
2035 Variation from TAF	-3.4%	-	119%	-

Source: T-O Engineers, Inc., FAA TAF

Scenario 1 for air taxi operations forecasts slightly fewer operations than the FAA TAF, with 1,448 operations at the end of the planning period versus 1,500 for the TAF. Given this comparison, the preferred forecast for air taxi operations at GCD Airport is the FAA TAF. Even though the airport wishes to develop passenger and air taxi service, no signs currently point to significant changes in these services at the airport.

The forecast for military operations is doubled in comparison to the FAA TAF. Given the absence of airport records and the difficulty in predicting military activity, the preferred forecast is the FAA TAF.

# General Aviation Itinerant Operations

A summary of the methodologies used to develop the projections for GA itinerant operations is listed below and results are shown in **Table 3-6** and **Figure 3-11**.

- ★ Scenario 1: Oregon Market Share (5 years). This scenario projects GA itinerant operations to match the same market share of 0.67 percent with that of the State of Oregon between 2010 and 2015.
- ★ Scenario 2: Projected Employment Growth. This scenario assumes that itinerant GA operations will increase at a CAGR of 2.25 percent, equal to the projected employment growth developed for Oregon.
- ★ Scenario 3: Projected GA Activity Growth in the U.S. This scenario assumes that the GA itinerant activity at GCD Airport will follow a CAGR of 0.4% equal to the projected growth of the GA activity in the U.S. as shown in the FAA Aerospace Forecast-FY 2015-2035.

TABLE 3-6- GENERAL AVIATION ITINERANT OPERATIONS PROJECTIONS

Year	Scenario 1	Scenario 2	Scenario 3	FAA TAF
2015-Base Year	4,992	4,992	4,992	4,992
2020	5,284	5,579	5,093	5,483
2025	5,602	6,236	5,195	6,024
2035	6,319	7,790	5,407	7,281
CAGR	1.2%	2.2%	0.4%	1.8%
2020 Variation from TAF	-3.6%	1.8%	-7.1%	-
2025 Variation from TAF	-7.0%	3.5%	-13.8%	-
2035 Variation from TAF	-13.2%	7.0%	-25.7%	-

Source: T-O Engineers, Inc., FAA TAF

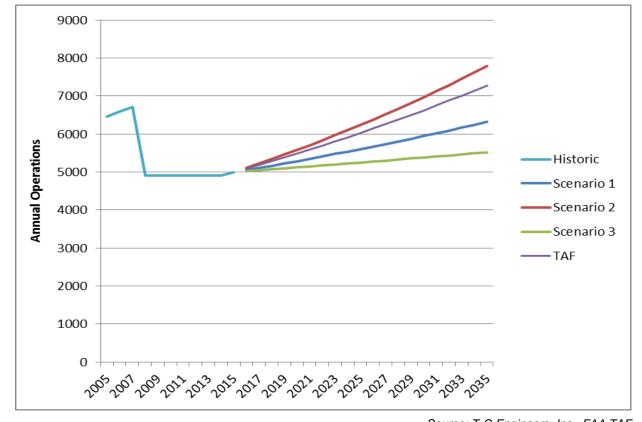


FIGURE 3-11 – GENERAL AVIATION ITINERANT OPERATIONS PROJECTIONS

Source: T-O Engineers, Inc., FAA TAF

All three scenarios presented are within the tolerance for comparison to the FAA TAF. Scenario 3 predicts the lowest growth rate while Scenario 2 shows the highest growth rate for itinerant GA activity at the airport.

Scenario 3 assumes that the CAGR at the airport will be the same as the projected CAGR in the U.S for GA activity. This assumption is coherent but does not account for local parameters and might underestimate the airport development, especially with the demand USFS/ODF places on the infrastructure.

Scenario 2 links the airport activity to the projected employment growth in the State of Oregon. It assumes that a better statewide economy will lead to an increase in aviation activity and that GCD airport will be able to capture a portion of it and see its number of operations increase. A better regional economy will also most likely lead to a better local economy with the development of local businesses better able to attract traffic to the airport. This analysis results in a forecast with the highest growth rate that leads to an estimated total of 7,790 annual itinerant GA operations at the airport in 2035.

Scenario 1 ties the airport itinerant GA activity to the overall activity in Oregon and assumes a constant market share for the planning period. Itinerant GA operations are a derived demand

that will typically depend more upon regional than local factors and the trend of the State of Oregon will play a significant role. However local factors specific to the airport, such as firefighting activity or desire for UAS development, might trigger an increase in the market share of the airport above that of the State of Oregon. In this context, Scenario 1 might underestimate the airport development.

Based on this analysis, Scenario 2 is the preferred forecast for itinerant GA operations with a CAGR of 2.2 percent between 2015 and 2035.

**Table 3-7** summarizes the projection for all itinerant operations at Grant County Regional Airport. It includes the preferred forecast for Air Taxi, Military and General Aviation itinerant operations.

TABLE 3-7 - TOTAL ITINERANT OPERATIONS PREFERRED PROJECTION

Year	GA	Air Taxi	Military	Total Itinerant	FAA TAF
2015-Base Year	4,992	1,500	25	6,517	6,517
2020	5,579	1,500	25	7,104	7,008
2025	6,236	1,500	25	7,761	7,549
2035	7,790	1,500	25	9,315	8,806
CAGR	2.2%	0%	0%	1.8%	1.5%
20		1.4%	-		
20		2.8%	-		
20	5.8%	-			

Source: T-O Engineers, Inc., FAA TAF

### **Total Operations**

The total aircraft operations projection was derived by combining the local and itinerant operations preferred forecasts. The total aircraft operations were also compared to the FAA TAF, as shown in **Table 3-8** and **Figure 3-12**.

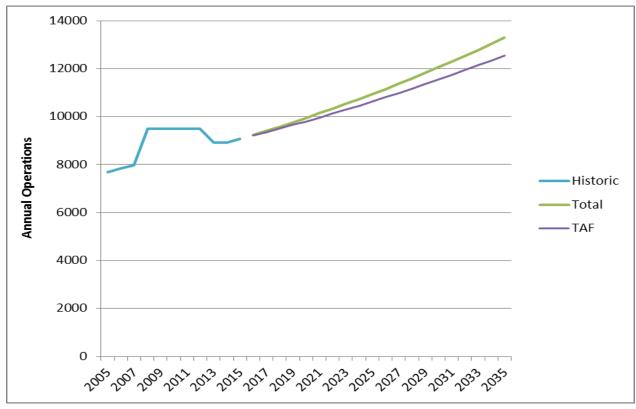
This methodology results in an annual growth rate of 1.83 percent, which is slightly greater than the FAA TAF annual growth rate of 1.56 percent, for total annual aircraft operations at Grant County Regional Airport.

TABLE 3-8 -TOTAL AIRCRAFT OPERATIONS PREFERRED PROJECTION

Year	Itinerant	Local	Total Operations	FAA TAF
2015-Base Year	6,517	2,547	9,064	9,064
2020	7,104	2,847	9,951	9,807
2025	7,761	3,182	10,943	10,629
2035	9,315	3,975	13,031	12,558
CAGR	1.80%	2.25%	1.83%	1.64%
2020 Va	1.46%	-		
2025 Variation from TAF			2.95%	-
2035 Variation from TAF			5.50%	-

Source: T-O Engineers, Inc., FAA TAF

FIGURE 3-12 – TOTAL AIRCRAFT OPERATIONS PREFERRED PROJECTION



Source: T-O Engineers, Inc.

According to these projections, 13,031 aircraft operations are expected to occur at GCD Airport, by the end of the forecast period in 2035. This is 3.8 percent more than the FAA TAF projections with 12,558 total operations in 2035. The preferred aviation activity projections for Grant County Regional Airport are carried forward in the master planning process and are used to examine future airport facility needs.

#### 3.3.4 FLEET MIX

The aircraft fleet mix using the airfield is important in determining the facilities required and in evaluating the capacity of the airport.

#### **Based Aircraft**

Projected based aircraft were allocated to five aircraft categories – single-engine, multi-engine, jet, helicopter and other – to develop a projection of the airport's based aircraft fleet mix through the planning period.

The fleet mix projections developed for GCD Airport were based on the preferred forecast for based aircraft and on the fleet mix percentages exhibited at the airport and in the FAA Aerospace Forecast, Fiscal Years 2015-2035 projection of active general aviation aircraft.

According to the waiting list for hangar space at GCD, the airport should gain at least one based single engine aircraft in the next 5 years (short-term). However, the national trend indicates a decrease in the fleet for this type of aircraft (CAGR of -0.6 percent). It is therefore assumed that the airport will witness slight growth in based single-engine piston aircraft with an estimated total of 18 aircraft in 2035.

The evolution of the national fleet mix will most likely lead to new types of based aircraft at GCD. With the anticipated national growth in turbine aircraft through the forecast period (*FAA Aerospace Forecast*), turboprop and jet aircraft are foreseen to be based at Grant County Regional Airport. By 2035, it is anticipated that two of these will be twin turboprops and one a turbojet.

Helicopters experience the largest national growth in their fleet with a CAGR of 2.5 percent (FAA Aerospace Forecast). In addition, due to the high rotorcraft activity at GCD, it is assumed that additional helicopters will be based at the airport over the 20-year planning period with an estimated total of 3 based helicopters in 2035.

Other aircraft include experimental aircraft, sport aircraft, ultra-lights, military aircraft and gliders. Sport and ultra-light aircraft are predicted to be based at the airport within 20 years with a total of 3 additional aircraft in 2035. The preferred based aircraft fleet mix projections are shown in **Table 3-11**.

**Aircraft Type** 2020 2025 2035 CAGR 2015 Single-Engine 17 0.6% 16 17 18 Multi-Engine 0 0 1 2 7.18%\* Jet 0 0 1 1 0%\* Helicopter 1 1 1 3 5.65% Other 1 0 1 3 7.60%\* **Total** 17 19 21 27 2.25%

TABLE 3-11 - PROJECTED BASED AIRCRAFT FLEET MIX

\*Exclude years with 0 aircraft Source: T-O Engineers, Inc.

#### **Aircraft Operations**

The aircraft mix using an airport is essential in determining its capacity. For the purposes of determining the projections of the aircraft mix using Grant County Regional Airport, aircraft operations were divided into four classes:

- ★ Class A: Small Single-Engine (Gross Weight 12,500 lbs. or less)
- ★ Class B: Small Twin-Engine (Gross Weight 12,500 lbs. or less)
- ★ Class C: Large Aircraft (Gross Weight 12,500 to 300,000 lbs.)
- ★ Class D: Heavy Aircraft (Gross Weight more than 300,000 lbs.)

Based on the results presented in Section 3.1.8, Class A represents 78 percent of the aircraft operations at the airport (including helicopters). Class B and Class C represent 10 percent and 12 percent of the aircraft operations respectively .There are no Class D operations at the airport.

As noted previously for the based aircraft mix and according to trends in the national GA fleet presented in the *FAA Aerospace Forecasts*, the airport will most likely experience slow growth in single-engine piston aircraft operations and greater growth for helicopter, turbine, and other aircraft (sport and ultra-light aircraft) activities. This would lead to a change in the aircraft mix with a higher percentage of helicopters (Class A), light multi-engine turboprops (Class B), turbojets (Class C), and other aircraft (Class A) in comparison to single-engine piston (Class A).

Considering the preferred forecast of aviation activity at the airport, as well as the national fleet mix evolution, the projected aircraft mix for GCD Airport is as summarized in **Table 3-12**. These results are computed assuming that the percentage of Class C aircraft at GCD will follow the same trend as for the national GA fleet (+1% / 5 years). The Class B percentage reflects a small growth in the share of operations for these aircraft at the airport.

TABLE 3-12 - PROJECTED AIRCRAFT FLEET MIX

Aircraft Type	2015	2020	2025	2035
Class A	78%	77%	75%	72%
Class B	10%	10%	11%	12%
Class C	12%*	13%	14%	16%
Class D	0%	0%	0%	0%

\*Include turbojets (5%) and Air Tractor (7%)

Source: T-O Engineers, Inc.

# 3.4 PEAKING ANALYSIS

Another primary consideration for facility planning at airports relates to peak hour, also referred to as design level activity. This operational characteristic is decisive because some facilities, such as the aircraft apron, should be sized to accommodate the peaks in activity. Facility requirements for GCD Airport are presented in the corresponding chapter.

In calculating the number of aircraft operations occurring during the peak hour, it was assumed that the peak day was 20 percent higher than the average day and that the peak hour was 20 percent of the peak day operations. **Table 3-13** presents peak factors for the 20-year planning period.

TABLE 3-13 – OPERATIONS FORECASTS – PEAKING FACTORS

Year	Total Annual Operations	Average Daily Total	Peak Day	Peak Hour
2015 Base Year	9,064	25	30	6
2020	9,951	28	34	7
2025	10,943	30	36	8
2035	13,031	36	44	9

Source: T-O Engineers, Inc.

# 3.5 INSTRUMENT APPROACH OPERATIONS

Forecasts of annual instrument approaches are used by the FAA in evaluating an airport's requirements for navigational aid facilities. The FAA defines an instrument approach as an approach to an airport with the intent to land an aircraft in accordance with an Instrument Flight Rule (IFR) flight plan when visibility is less than three miles and/or when the ceiling is at or below the minimum initial approach altitude.

Grant County Regional Airport is equipped with two RNAV-GPS procedures for Runway 9 (LNAV an LPV). Because of the absence of ATCT at GCD, there is no specific record of IFR

activity readily accessible. Due to the lack of solid information about IFR activity at the airport no forecasts for instrument approach operations were developed.

Data from the AWOS located on the airfield indicate that Instrument Meteorological Conditions (IMC) represent an average of 3.2 percent of the usable observations over the last 10 years. However, it is important to note that IFR flight plans can be filled for all meteorological conditions.

It is believed that the procedure is used on an occasional basis for recreational/individual fliers, flight training, aerial firefighting and medivac.

### 3.6 CRITICAL AIRCRAFT

### 3.6.1 AIRPLANE ACTIVITY

The development of airport facilities is impacted by both the demand and the type of aircraft expected to make use of those facilities. Airport infrastructure is designed to accommodate the most demanding aircraft (or combination of aircraft), which will utilize the facilities on a regular basis, also referred to as the critical or design aircraft.

The factors used to determine the design aircraft are the Aircraft Approach Category (AAC) and Airplane Design Group (ADG) of the most demanding class of aircraft anticipated to perform at least 500 annual operations at the airport during the 20 year planning period.

The existing Airport Reference Code for Grant County Regional Airport is B-I with the Cessna 406 as the critical aircraft. As presented in Section 3.1.8, the bulk of the aircraft using the airport today include piston-driven single engine aircraft and helicopters. There is occasional use by turbine aircraft (turboprops and jets).

According to USFS records and as described in Section 3.1.8, it appears that the USFS/ODF Single Engine Air Tanker (SEAT) aircraft generates a significant amount of operations that represent approximately 7 percent of the airport annual operations. It is currently the most demanding aircraft having at least 500 annual operations at the airport. The SEAT had a total of approximately 650 operations in 2015 (local and itinerant). USFS and ODF contract the SEATs for 60 to 90 days annually. The aircraft is based at the airport during this time period.

Considering the current importance of firefighting activity at the airport and its continued development, the SEATs are foreseen to maintain activity above 500 annual operations over the 20-year planning period. SEATs are Air Tractor AT-802A models. They are B-II (AAC-ADG) aircraft with a MTOW greater than 12,500 pounds and a Taxiway Design Group (TDG) of 1A.

There is currently no strong data indicating that aircraft larger than the SEAT are or will be operating above the threshold of 500 annual operations. However, the airport should experience a growth in turbine-driven aircraft operations with some of them ultimately based on the airfield. Proactive planning encourages accounting for this type of traffic in the future design of the airfield to ensure a safe and efficient development of the airport. Typical turbine aircraft include, but or not limited to, Beechcraft turboprops (King Air series), Cessna turbojets (Citation series), or Gulfstream turbojets. These airplanes typically require airport design standards defined for up to ADG II, AAC B, and TDG 2.

Based on this analysis, as well as the consultant's professional opinion, the **Air Tractor AT-802A** was chosen as the new **critical aircraft** for Grant County Regional Airport. However, it is recommended that future taxiway designs follow TDG 2 standards to account for taxiing of turbine-driven aircraft. **Table 3-14** summarizes the characteristics of the selected critical aircraft.

TABLE 3-14 - CHARACTERISTICS OF DESIGN AIRCRAFT

Air Tractor AT-802A				
Approach Speed	103 knots			
Wing Span	59.2 feet			
Length	35.7 feet			
Tail Height	n/a			
Maximum Take Off Weight	16,000 lbs.			
ADG	II			
TDG	1A – <b>Use 2</b> (Hybrid)			
AAC	В			
B30 NB02SG				

Source: azaerophoto.com, T-O Engineers, Inc.

Grant County Regional Airport should plan future airfield infrastructure development for an ARC of B-II and remain in compliance with **A/B-II and TDG 2 design standards**. Even if not anticipated in the short-term, this ARC will also encompass any potential improvements necessary to accommodate larger aircraft with respect to prudent and proactive planning practices.

# 3.6.2 HELICOPTER ACTIVITY

Helicopter operations are an important part of airport activity. Helicopter facilities, including helipads or parking pads, are designed based on the dimensions of the largest helicopter planned to use them.

Helicopters regularly operated at GCD airport include Robinson R44, Airbus B-3 A-Star, Bell 210, Bell L4, Bell UH-1H and Sikorsky UH-60. The largest aircraft most likely to drive the design of future helicopter facilities at GCD is the Sikorsky UH-60 whose dimensions are summarized in **Table 3-15**.

TABLE 3-15 – CHARACTERISTICS OF DESIGN HELICOPTERS

Sikorsky UH-60				
Maximum Take Off Weight	23,500 lbs.			
Overall Length	64.8 feet			
Main Rotor diameter	53.7 feet			
Fuselage Length	50.1 feet			
Fuselage Width	7.75 feet			
Main Rotor Blades	4			
Height	16.8 feet			



## 3.7 FORECAST SUMMARY

Aviation activity projections were developed using 2015 as a base year. The FAA TAF was used as a reference for historic operation data at GCD Airport.

It is anticipated that Grant County Regional Airport will see some growth in all activity areas during the 20-year planning period. By 2035, approximately 13,031 aircraft operations are projected to occur and 27 aircraft are projected to be based at the airport. It was also identified that the airport will need to follow design standards for ADG II and TDG 2 within the 20-year planning period.

**Table 3-16** summarizes the projections made in this chapter.

TABLE 3-16 - SUMMARY OF AVIATION ACTIVITY FORECASTS 2015-2035

Year	Itinerant Operations	Local Operations	Total Operations	Based Aircraft
2015 – Base Year	6,517	2,547	9,064	17
2020	7,104	2,847	9,951	19
2025	7,761	3,182	10,943	21
2035	9,315	3,975	13,031	27
CAGR	1.80%	2.25%	1.83%	2.25%
2020 Variation from TAF	1.4%	1.7%	1.5%	-5.0%
2025 Variation from TAF	2.8%	3.3%	2.95%	-11.5%
2035 Variation from TAF	5.8%	5.9%	3.8%	-22.0%
Future Airport Reference Code			В-	II
Future Taxiway Design Group			2	

Source: T-O Engineers, Inc.

# 4.0 FACILITIES REQUIREMENTS

## 4.1 INTRODUCTION

## 4.1.1 GENERAL

The purpose of this chapter of the Grant County Regional Airport (GCD) Master Plan is to identify the needs for additional facilities, or improvements to existing facilities over the 20-year planning horizon. Using the 20-year forecasts presented in **Chapter 3, Aviation Activity Forecasts**, and validated by the FAA in September 2016, this chapter assesses the relationship between the current and projected demand and the facility needs.

By comparing current demand to projected demand, it is possible to identify the need for new or expanded facilities at the airport, as well as the ability for existing facilities to meet projected demand for each planning horizon year (2020, 2025 and 2035).

Facilities improvements can be justified to meet FAA design standards, most of which relate to airport safety, but also based on criteria set forth by the FAA in Advisory Circulars (AC). Specific recommendations for improvements developed as part of the Oregon Aviation Plan (OAP) for GCD in 2007 will also be taken into consideration.

The following operational areas are evaluated to determine existing and future facilities requirements for Grant County Regional Airport; these include:

- ★ Airside Facilities (Capacity, Runways, Taxiway, Aircraft Parking Aprons, Design Standards, Part 77 Surfaces, Navigational Aid, and Approaches)
- ★ Landside Facilities (Aircraft Storage, Terminal Building, FBO, Auto Parking, Fuel)
- ★ Support Facilities (Access Roads, Infrastructure/Utilities, Fencing and Security, Snow Removal Equipment)
- ★ Other Requirements (Airport Property)

Unless dictated by design standards and safety, the identification of recommended facilities does not constitute a requirement, but rather an option to resolve facility, operational or safety inadequacies, or to make improvements to the airside or landside components as aviation demand warrants.

#### 4.1.2 OREGON AVIATION PLAN RECOMMENDATIONS

The Oregon Aviation Plan (OAP) was published by the Oregon Department of Aviation in 2007. The 2007 OAP provides the state with a top-down analysis of its airports and recommendations

to improve the overall airport system. The plan recommends facility improvements at each public airport in Oregon, including Grant County Regional Airport. Whether or not recommended improvements can be implemented at an airport must still be analyzed and justified during an airport specific planning process.

The 2007 OAP recommends the following improvements for GCD:

- ★ Widen Runway to 75 feet
- ★ Install Medium Intensity Taxiway Lighting (MITL)
- ★ Improve runway line of sight
- ★ Provide a partial taxiway to Runway 9-27
- ★ Review local land use plans and coordinate development with local agencies
- ★ Extend runway to 5,000 feet
- ★ Develop precision approach to one runway end
- ★ Construct hangars

Some of these items have already been addressed since the publication of the plan, including: line of sight improvement, partial taxiway to Runway 9-27, and a non-precision instrument approach to Runway 9. Other items will be analyzed and considered based on the aircraft demand and needs at the airport.

## 4.2 AIRSIDE FACILITY REQUIREMENTS

Like other small communities in Oregon, John Day and the towns around the airport are rural communities. Transportation infrastructures, including airports, are essential because they provide vital connectivity to the outside community. Airports sustain economic development and support critical services that directly affect the well-being of the community it serves.

Examples of these services include:

- Emergency medical evacuation (Life Flight)
- Wildland firefighting
- Search and Rescue
- Recreation

The location and elevation of the airport also present significant challenges not common to airfields at less remote locations and lower altitude. The cost to maintain and improve remote airports at higher elevation is greater than at comparable sized airports throughout the country. This increased cost is due to short construction season and higher construction prices as well as weathering, oxidation and faster deterioration.

When considering the needs of GCD over the next twenty years, the above dynamics are important.

## 4.2.1 AIRFIELD CAPACITY ANALYSIS

A formal capacity analysis was conducted at GCD to assess the capacity of the airport. Primary factors that affect capacity include:

- ★ Runway/Taxiway Configuration and Use
- ★ Aircraft Fleet Mix Index
- ★ Percentage of Touch & Go Operations
- ★ Weather Conditions
- ★ Arrival and Departure Percentage
- ★ Airspace

Airport capacity can be expressed by the maximum number of aircraft per hour or per year. When capacity is provided on an annual basis, it is referred to as the airport's Annual Service Volume (ASV), defined as "a reasonable estimate of an airport's annual capacity." Methods to determine airport capacity and delay are discussed in the FAA Advisory Circular (AC) 150/5060-5, Airport Capacity and Delay. As part of this capacity analysis, the consultant used the long-term range methodology presented in the AC to determine the ASV for GCD. This method uses assumptions for the factors influencing capacity, as explained below.

#### Runway/Taxiway Configuration and Use

FAA AC 150/5060-5 categorizes runway configurations typical of those at airports throughout the United States in order to determine the ASV. There are 19 runway-use configurations available. The long-term range methodology assumes that the existing airport layout can be approximate by one of these configurations. The configuration of GCD most closely reflects the operational and physical characteristics of configuration Number 9, two crossing active runways<sup>1</sup>, as depicted in AC 150/5060-5.

Other assumptions are made for the taxiway layout including: a full parallel taxiway, ample runway entrance/exit taxiways and no taxiway crossing problems conflicts. It is assumed that GCD taxiway layout assumptions are true for Runway 17-35 but not Runway 9-27. Thus, the capacity will be reduced by 20 percent.

<sup>&</sup>lt;sup>1</sup> The two runways are not physically crossing but because the RSA are overlapping, they are considered intersecting runways.

#### Aircraft Mix Index

For capacity purposes, the aircraft mix is defined by four classes:

- ★ Class A: Small Single-Engine (Gross Weight 12,500 lbs. or less)
- ★ Class B: Small Twin-Engine (Gross Weight 12,500 lbs. or less)
- ★ Class C: Large Aircraft (Gross Weight 12,500 lbs. to 300,000 lbs.)
- ★ Class D: Heavy Aircraft (Gross Weight more than 300,000 lbs.)

The Aircraft Mix Index is defined by %C+3\*%D. The Aircraft Mix for GCD was determined in **Chapter 3 - Aviation Activity Forecasts** and is summarized in **Table 4-1**.

TABLE 4-1 - GCD AIRCRAFT MIX INDEX

Aircraft Type	2015	2020	2025	2035
Class A	78%	77%	75%	72%
Class B	10%	10%	11%	12%
Class C	12%	13%	14%	16%
Class D	0%	0%	0%	0%
Aircraft Mix Index	12%	13%	14%	16%

Source: T-O Engineers, Inc., Chapter 3-Aviation Activity Forecasts

### Percentage of Touch & Go Operations

The long-term range methodology assumes that the percentage of Touch & Go operations represents between 0 and 50 percent of the airport operations for an aircraft mix index below 20 percent. GCD conforms with this assumption.

#### Arrival and Departure Percentage

The methodology assumes that there is an equal distribution between arrivals and departures, which is believed to be true at GCD.

#### Airspace

There should not be any airspace limitations that could adversely impact flight operations. Also, missed approach protection should be assured for all converging operations in Instrumental Meteorological Conditions (IMC). This assumption is verified at GCD.

#### Weather Conditions

Wind speed and direction, cloud ceiling conditions and visibility are additional factors that affect airport capacity, as they typically dictate which runway pilots can use or whether a pilot can operate in Visual Flight Rules (VFR) or Instrument Flight Rules (IFR) conditions. IFR conditions greatly impact airport capacity due to specialized aircraft and airspace procedures.

The long-term range methodology assumes that IMC only occur less than 10 percent of the time and that at least one runway is equipped with an ILS. Also, Air Traffic control (ATC) facilities

should carry out operations in a radar environment. As explained in **Chapter 3 - Aviation Activity Forecasts**, Grant County Regional Airport currently experiences IMC 3.2 percent of the time. Also, the airport has one non-precision approach with no ILS capabilities and no ATC, so the IFR capacity will be reduced by 20 percent.

## **Existing Airfield Capacity**

The existing capacity of GCD is summarized in **Table 4-2**.

TABLE 4-2 - GCD EXISTING CAPACITY

Capacity	Normal*	Adjustment**	GCD***
VFR (Ops/Hr)	98	0.8	78
IFR (Ops/Hr)	59	0.64	37
ASV (Ops/Year)	230,000	0.74	170,200

\*Runway-Use Configuration #9 in AC 150/5060-5, all assumptions verified and mix index < 20%

\*\*Adjustment for differences from assumptions

\*\*\*Estimated capacity for GCD

Source: T-O Engineers, Inc., FAA AC 150/5060-5

### **Future Capacity Requirements**

The aircraft mix index is forecasted to stay under 20 percent during the 20-year planning period. In this condition and assuming that the current airspace and airport layout will not be improved, the estimated capacity at GCD will remain the same, as shown in **Table 4-2**, for the next 20 years.

Development projects can be justified for capacity reasons when the demand at the airport exceeds 60 percent of the ASV. **Table 4-3** summarizes the demand-ASV ratio for the planning period.

TABLE 4-3 - GCD FUTURE CAPACITY REQUIREMENTS

	ADEL TO GODIONE	OAI AOITT ILLGOIRLIN	
Year	Demand	ASV	Ratio Demand/ASV
2015	9,064	170,200	5.3%
2020	9,951	170,200	5.8%
2025	10,943	170,200	6.4%
2035	13,031	170,200	7.6%

Source: T-O Engineers, Inc., Chapter 3-Aviation Activity Forecasts

Aircraft operations at GCD are forecasted to grow at a constant compound annual growth rate (CAGR) of 1.83 percent. Considering that this CAGR will remain constant after the 20-year planning period, it is forecasted that GCD will reach 60 percent of its capacity in 2275.

**<u>Recommendations</u>**: Since demand at the airport is not expected to reach 60 percent of the ASV within the 20-year planning period, no airfield development projects are recommended for capacity purposes.

## **Capacity Analysis for One-Runway Configuration**

The purpose of this section is to evaluate the need of two runways for capacity purposes. Considering only one runway at GCD, the configuration of the airport would be identical to Configuration Number 1, single runway, depicted in AC 150/5060-5.

It is assumed that only Runway 9-27 would be available with its non-precision instrument approach, for IFR operations. The same adjustments from the assumptions of the long-term range methodology would apply.

Using the mix index as shown in **Table 4-1**, **Table 4-4** summarizes the capacity considering only Runway 9-27 at GCD. **Table 4-5** shows the forecasted capacity in this configuration assuming no change in layout.

TABLE 4-4 - ONE-RUNWAY CONFIGURATION CAPACITY

Capacity	Normal*	Adjustment**	GCD***
VFR (Ops/Hr)	98	0.8	78
IFR (Ops/Hr)	59	0.64	37
ASV (Ops/Year)	230,000	0.74	170,200

\*Runway-Use Configuration #1 in AC 150/5060-5, all assumptions verified and mix index between 0 and 20%

\*\*Adjustment for differences from assumptions

\*\*\*Estimated capacity for GCD in one-runway configuration

Source: T-O Engineers, Inc., FAA AC 150/5060-5

TABLE 4-5 - ONE-RUNWAY CONFIGURATION FUTURE CAPACITY REQUIREMENTS

Year	Demand	ASV	Ratio Demand/ASV
2015	9,064	170,200	5.3%
2020	9,951	170,200	5.8%
2025	10,943	170,200	6.4%
2035	13,031	170,200	7.6%

Source: T-O Engineers, Inc., Chapter 3-Aviation Activity Forecasts

A one-runway configuration would not affect the overall capacity of the airport and GCD would not reach 60 percent of its capacity before 2275. Therefore, a secondary runway, such as Runway 17-35, is not required for capacity reasons, and thus will not be eligible for federal funding, before this date. Runway requirements for wind coverage are described later in this report.

### 4.2.2 INSTRUMENT PROCEDURES

## **Instrument Approach Procedures**

GCD currently has visual approach capabilities only to Runway 17-35. Non-precision approaches are available to Runway 9-27. The instrument procedures already available at the airport enable aircraft to operate in IMC with minima as low as 1 mile.

IMC occur 3.2 percent of the time at GCD (AWOS data). Considering that IFR flight plans can be filled even in VMC (visual) and based on historical data for flight plans filled to and from GCD (www.flightwise.com), it is assumed that IFR operations represent less than 5 percent of the airport activity. Based on the forecasted operations at GCD, **Table 4-6** shows the forecasted number of IFR operations in comparison with the airport IFR capacity. Based on these results, the development of additional instrument procedures is not required.

TABLE 4-6 – GCD IFR DEMAND AND CAPACITY

Years	IFR Capacity (Ops/Hr)*	IFR Demand (Annual Ops)**	IFR Demand (Ops/Hr)***	Ratio
2015	37	453	0.06	0.16%
2020	37	498	0.06	0.16%
2025	37	548	0.07	0.19%
2035	37	652	0.08	0.22%

\*Assume no change in airport configuration and instrument procedures

\*\*5% of forecasted operations at GCD. Chapter 3 - Aviation Activity Forecasts

\*\*\*Average hourly operations derivate from forecasts of annual operations

Source: T-O Engineers. Inc.

In addition, the FAA Flight Procedure Office (FPO) provided an evaluation for new instrument procedures at the airport. The main conclusions are:

- ★ Runway 17: For ILS, LPV, and LNAV/VNAV minima, the terrain in the final & intermediate segments raise the required final approach angle to 4 degrees, limiting the approach to CAT A & B aircraft only. The terrain in the Missed Approach controls the minima:
  - ILS or LPV minima: CAT A = 500' DA, CAT B = 600' DA
  - LNAV/VNAV minima: CAT = A 400' DA, CAT = B 500' DA.
- ★ Runway 27: ILS and LPV are not feasible due to terrain in the final segment raising descent gradients above permissible values for all approach categories. Also, there are potential environmental issues with the Strawberry Mountain Wilderness LNAV/VNAV approaches appear feasible with a 15 degree offset toward the north, and with a 4.1 degree approach angle. However, it limits the approach to CAT A and B aircraft only.

The terrain in the Missed Approach controls the minima:

- LNAV/VNAV Minima: CAT A and B = 500' DA
- ★ Runway 35: ILS, LPV, and LNAV/VNAV approaches are not feasible due to terrain in the final segment raising descent gradients above permissible values for all approach categories.
- ★ Runway 9: ILS or LPV (existing) minima are controlled by terrain in the Missed Approach (MA). The existing MA climb gradient is standard but the existing minima could be lowered with a higher MA climb gradient. However, a greater MA climb gradient would generate minimum climbing requirements that could limit the type of aircraft using the procedure.

The existing glidepath angle for the instrument approach exceeds 3.1 degrees and prevents the publication of minima for CAT D aircraft. The published glidepath angle for the Vertical Glide Slope Indicator (VGSI) is 3 degrees. With an appropriate survey of obstacles, it would be possible to lower the approach glideslope angle to match the VGSI glideslope angle and allow CAT D aircraft. In this case, the airport would have to relocate the existing VGSI.

<u>Recommendations</u>: Based on capacity analysis, there is no need for additional instrument approaches at the airport. As explained in **Chapter 2 - Inventory of Existing Conditions**, wind coverage for Runway 9-27exceeds the minimum requirement of 95 percent during IMC. In addition, the airspace surfaces and design standards associated with new procedures would significantly increase impact to the surrounding environment of the airport.

Even though the development of a precision approach is possible, this is not recommended. It would lead to the installation of ground equipment with associated costs and specific critical areas. It is possible for the airport to improve the minima published for its existing RNAV-LPV procedure to Runway 9 by increasing the MA climb gradient. The existing published minimum is 1 mile for CAT A, B, and C aircraft. Based on data from the AWOS located on the airport, visibilities lower than 1 mile occur only in less than 1 percent of the time. Publishing a greater MA climb gradient would put operational limitations on aircraft in order to fulfill the climbing requirements, and therefore, lower minima are not recommended at GCD.

However, matching the approach glidepath angle with the VGSI glidepath angle would allow CAT D aircraft to utilize the RNAV LPV approach to Runway 9. This would require a modification/relocation of the VGSI as well as an obstacle obstruction survey. Also, any modification of the existing procedure would require the airport to submit an amendment of the procedure to the FAA FPO. However, the updated TERPS regulation (Order 8260.3C) mentions that no new instrument procedure should be approved unless the runway meets the design standards for the type of aircraft using the approach. Instrument approach procedure alternatives are discussed in **Chapter 6 - Alternative Analysis**.

### **Departure Procedures**

Instrument departures are currently only available from Runway 27. Based on the results of a preliminary analysis by the FAA FPO, a departure procedure from Runway 35 appears to be feasible. Adding a departure procedure to this runway would provide longer take-off distance to larger aircraft operating IFR at the airport.

<u>Recommendations</u>: It is recommended that consideration be given to the implementation of a new instrument departure procedure from Runway 35. It is also recommended that a study be performed on the impact of adding departure surface protection to this runway end. Any penetrations of the departure surface would have to be noted or mitigated as recommended by the FPO (See Section 4.2.10 for departure surface requirements).

### 4.2.3 DESIGN STANDARDS AND ACCOMMODATING FUTURE DESIGN AIRCRAFT

The FAA design standards are requirements to provide an acceptable level of safety at the airport. The design standards include the runway protection standards and the runway separation standards.

The existing Airport Reference Code (ARC) for GCD is B-I. Common aircraft using the airport today include single-engine aircraft and helicopters with occasional use by multi-engine, turboprop and jet aircraft. It is the policy of the FAA to meet design standards for the design aircraft determined for the 20-year planning period. **Table 4-7** summarizes the future design requirements for GCD, as approved in **Chapter 3 - Aviation Activity Forecasts**. As explained in the previous section, the development of new instrument approaches with lower minima is not anticipated.

TABLE 4-7 – GCD FUTURE DESIGN REQUIREMENTS

Standard	Requirements*
Airplane Design Group (ADG)	II
Aircraft Approach Category (AAC)	В
Pavement Strength	16,000 lbs. or more
Taxiway Design Group (TDG)	2
Visibility	Visual for RWY Ends 17 and 35 5000 for RWY Ends 9 and 27(circling)
ARC	B-II

\*Design Aircraft Air Tractor AT-802A and TDG approved by FAA on 9/26/2016 Source: T-O Engineers, Inc., Chapter 3-Aviation Activity Forecasts It should be noted that actions taken to attract larger aircraft on a regular basis (over the substantial use threshold of 500 annual operations) should not be pursued until Grant County Regional Airport is ready to meet these more demanding FAA dimensional standards.

Accommodating ADG II/TDG 2 for taxiways and Runway Design Codes (RDC) B-II-VIS for Runway 17-35 and Runway 27, as well as B-II-5000 for Runway 9 will have little impact on existing facilities. Future FAA design standards are described in **Table 4-8.** Alternatives that address these new standards are included in **Chapter 6 - Alternatives Analysis**. New configurations, timelines and general scale of the cost are also included in the analysis. **Figure 4-1** depicts the application area of the proposed changes to design standards.

TABLE 4-8 - GCD FUTURE DESIGN STANDARDS

TABLE 4-8 – GCD FUTURE DESIGN STANDARDS						
		Runway 9-27	7		Runway 17-35	5
Item	Existing FAA Standards	Existing Conditions	Future FAA Standards	Existing FAA Standards	Existing Conditions	Future FAA Standards
Runway Design Code (RDC)	B-I-5000 (RWY 9) B-I-VIS (RWY 27)	Same	B-II-5000 (RWY 9) B-II-VIS (RWY 27)	B-I-VIS	Same	B-II-VIS
Runway Width	60'	Same	75'	60'	0053ame	75'
Shoulder Width (unpaved)	10'	Same	10'	10'	Same	10'
		Runway P	rotection Standard	s		
RSA Length beyond each Runway End	240'	Same	300'	240'	Same	300'
RSA Width	120'	Same	150'	12 0'	Same	150'
ROFA Length beyond each Runway End	240'	Same	300'	240'	Same	300'
ROFA Width	400'	Same	500'	400'	Same	500'
RPZ Length	1000'	Same	1000'	1000'	Same	1000'
RPZ Inner and Outer Width	500'-700'	Same	500'-700'	500'-700'	Same	500'-700'
ROFZ Width	400'	Same	400'	400'	Same	400'
ROFZ Length beyond runway end	200'	Same	200'	200'	Same	200'
		Runway S	eparation Standard			
Runway Centerline to Partial Parallel Taxiway Centerline	225'	240'	240'	225'	240'	240'
Runway Centerline to Holding position	200'	200'	200'	200'	200'	200'
Runway Centerline to Edge of Aircraft Parking	200'	200'	250'	200'	200'	250'
		Taxi	way Geometry			
TDG/ADG	-/I		Same	•	2/	/II
Taxiway Width	25'		Same	•	39	5'
Shoulders	10'		Same		15	5'
Taxiway Protection Standards						
TSA Width	49'		Same		79	9'
Taxiway OFA Width	89'		Same		13	31'
Taxilane OFA Width	79'		Same		11	5'
Parallel Taxiway Separation (180° / no 180°)	70'		Same	1	162' /	<sup>'</sup> 105 <sup>'</sup>

Source: FAA AC 150/5300-13A Change 1, T-O Engineers, Inc.



FIGURE 4-1 - FUTURE DESIGN STANDARDS APPLICATION AREAS

### 4.2.4 RUNWAY DESIGN

Runways are the single most important element of the airfield and have the most impact on overall airport accessibility and safety. The Runway Design Code (RDC) is a coding system signifying the design standards to which a runway is built. It has three components based on the approach speed, the wingspan and tail height of the critical aircraft, and the designated or planned visibility minimum. Further, the Airport Reference Code (ARC) is an airport designation that signifies the airport's highest RDC, minus the third component (visibility). The ARC is used for planning and design only and does not limit the type of aircraft that may be able to operate on the airport. The ARC and RDC are used during the airport planning process to design and determine the dimensions of most airfield pavements.

The ARC planned for GCD over the 20-year planning period is B-II with an RDC of B-II-VIS for Runway 17-35 and Runway 27, and B-II-5000 for Runway 9. Future taxiway layout should follow design standards for TDG 2 and ADG II.

### **Runway Length**

Airport function, elevation, mean maximum temperature of the hottest month, aircraft take-off weight, aircraft performance, runway gradient and runway surface condition are some of the criteria used when calculating required runway length. These factors affect the performance of departing aircraft and thus the length necessary to take-off. Aircraft manufacturer's performance curves or calculations based on FAA Advisory Circulars are common methods of determining runway length for airport planning purposes.

As previously discussed, GCD is predominately used by small propeller-driven aircraft (MTOW 12,500 lbs or less), large propeller-driven aircraft (MTOW more than 12,500 lbs), light jets, and helicopters. The runway length requirement at Grant County Regional Airport was evaluated following two methodologies:

- ★ FAA AC 150/5325-4C methodology for small aircraft. This method covers runway length requirements for small aircraft using the airport.
- ★ Aircraft manufacturer's performance manual for the forecasted designed aircraft at GCD.

#### Runway Length for Small Propeller Driven Aircraft

The runway length requirement was determined for small propeller-driven airplanes with an approach speed of 50 knots or more, using the runway length curves provided in the Advisory Circular AC 150/5325-4C. **Table 4-9** presents the results based on an airport elevation of 3,702.5 feet MSL and a mean maximum temperature of 90.5 degrees Fahrenheit for the hottest month of the year (National Oceanographic and Atmospheric Administration).

TABLE 4-9: RUNWAY LENGTHS RECOMMENDED FOR AIRPORT DESIGN

Airport and Runway Data	Inputs
Airport Elevation	3,702.5' MSL
Mean Maximum Temperature of the hottest month	90.5° F
Small airplanes with less than 10 passer	nger seats
95 percent of these small airplanes	5,000'
100 percent of these small airplanes	5,200'
Small airplanes with 10 or more passengers	5,200

Source: T-O Engineers Inc., FAA AC 150/5325-4C

## Runway Length for Design Aircraft and Common Aircraft

As discussed in **Chapter 3**, **Aviation Activity Forecasts**, the approved design aircraft for is the Air Tractor AT-802A. **Table 4-10** presents the runway length requirements for this aircraft at GCD.

TABLE 4-10: RUNWAY LENGTHS RECOMMENDED FOR DESIGN AIRCRAFT

Data	Inputs
Airport Elevation	3,702.5' MSL
Mean Maximum Temperature of the hottest month	90.5° F
Design Aircraft	AT-802
MTOW	16,000 lbs.
Take Off Distance	4,600'
Take Off Ground Roll	3,450'
Landing Distance	1,781'
Landing Roll Distance	1,010
Accelerated Stop Distance	n/a
Recommended Runway Length	4,600'

Source: T-O Engineers, Inc., Air Tractor Pilot's Operational Handbook for Paved Runway and No Wind

**Table 4-11** shows runway length requirements for typical aircraft operating at GCD.

TABLE 4-11: RUNWAY LENGTHS RECOMMENDED FOR TYPICAL AIRCRAFT

Data	Runway Length
Air Tractor AT 802	4,600'
Beechcraft BE20	3,800'
Beechcraft BE58	4,100'
Cessna C182	2,200'
Pilatus PC 12	4,000'

Source: T-O Engineers, Pilot's Operational Handbook

Runway 9-27 at GCD is 4,471-foot long and Runway 17-35 is 5,220-foot long, both without declared distances. The full length of each runway is are available for takeoff, landing or acceleration stop.

According to the previous analysis, Runway 17-35 can accommodate the design aircraft. All small airplanes can use Runway 17-35 but some of them might be limited when using Runway 9-27 for take-off. Except for the critical aircraft, the most common aircraft using the airport can use both runways.

At GCD, the Air Tractor (design aircraft) is used for firefighting activity as Single Engine Air Tankers (SEAT). SEAT operators mentioned that their maximum temperature allowed for operating at GCD was 42° C (108° F) for takeoff and 48° C (118° F) for landing. They typically use Runway 17-35 because of its longer length. However, with more than 20 knots of crosswind, they choose the shorter Runway 9-27. Their typical aircraft landing weight is between 8,500 lbs and 10,000 lbs depending on fuel load and they do not allow loaded landings. The Maximum Take Off Weight (MTOW) is 16,000 lbs.

<u>Recommendations</u>: Between the two runways, GCD offers enough runway length to accommodate the typical aircraft currently using the airport. The forecasted design aircraft for the next 20 years is the Air Tractor AT-802. It is recommended to have runways long enough to accommodate this critical aircraft. With a minimum take-off distance of 4,600 feet, the AT-802 can use Runway 17-35 at its current length without major restrictions. Also, the location of the airfield and the property's terrain does not offer easy options for runway extensions. Based on these conditions, it is recommended to keep, at a minimum, the existing runways at their current length.

However, for maximum operational flexibility and depending on future runway developments, it is desirable to study the feasibility of extending Runway 9-27 to a minimum length of 4,600 feet. Alternatives are discussed in **Chapter 6 – Alternatives Analysis**.

### **Runway and Shoulder Width**

Per FAA airport design standards, runway width for RDC B-II-VIS and B-II-5000 is 75 feet. The width of both runways at GCD is 60 feet. The existing unpaved shoulders are 10 feet in width and meet future requirements.

<u>Recommendation:</u> Both runways need to be widened by 15 feet to meet new design standards at 75 feet.

# **Runway Strength and Pavement**

Current pavement strength is reported to be 20,500 pounds single wheel loading for both runways with PCN 17/F/C/Y/T for Runway 9-27 and 7/F/C/Y/A for Runway 17-35 as published on the FAA 5320 Form (*T-O Engineers, Inc.*)<sup>2</sup>. The critical aircraft for GCD, Air Tractor AT-802, has a maximum gross weight of 16,000 lbs.

Runway 9-27 was last reconstructed in 2014 and the pavement is in good condition. Runway 17-35 pavement is in satisfactory shape but will require maintenance in the near future.

<u>Recommendation:</u> It is recommended that the FAA 5010 master data record be updated to report the pavement strength as shown in the FAA 5320 Form. Current pavement strength is sufficient to accommodate existing as well as the forecasted aircraft activity expected to operate at the airport on a regular basis throughout the planning period. Foreseeable conditions do not indicate the need for additional runway pavement strength.

It is also recommended that pavement maintenance include at least one overlay and regular crack maintenance (every 5 years) for each runway over the 20-year planning period.

### **Runway Markings**

Runway 17-35 is a visual only runway with basic markings (with aiming points) in good condition. Runway 9 has a non-precision approach markings and Runway 27 has a basic marking, both in good condition. There is no change in the type of approaches to these runways anticipated over the 20-year planning period.

According to the National Geophysical Data Center, the magnetic declination is changing by 7' W per year at GCD, equating to a change of 133' W (2°13' W) at the end of the planning period. The current declination is 14°32' E (2016). In 2035 the new declination will be 12°19' E. **Table 4-12** summarizes the impact of magnetic declination shift on runway designation.

<sup>&</sup>lt;sup>2</sup> The FAA 5010 master data record indicates a strength of 12,500 lbs single wheel for both runways.



TABLE 4-12 - RUNWAY DESIGNATOR

17.522 1 12 1.60mm 520.0mm on							
Item	2016		2035*				
Runway	17-35	9-27	17-35	9-27			
True Orientation	002°-182°	110°-290°	002°-182°	110°-290°			
Magnetic Declination	14°:	32'E	12°19'E				
Magnetic Orientation	168°28'-347°28'	95°28'-275°28'	169°41'-349°41'	97°41'-277°41'			
Landing Designator	17-35	10-28	17-35	10-28			

\*End of 20-year Planning Period (2015-2035)

Source: T-O Engineers, Inc., National Geophysical Data Center 2016

<u>Recommendation:</u> The existing markings are appropriate for the type of existing and forecasted approaches at GCD. It is recommended that the runway markings be re-painted as needed during runway maintenance. The landing designators for Runway 9-27 do not match its magnetic orientation and should be modified to 10-28 in the short term.

### **Runway Visual Aids**

Runway visual aids give pilots awareness of their location on the airport and assistance for landing. They include signs, marking, and lighting. Both Runways at GCD are equipped with Medium Intensity Runway Lighting (MIRL). In addition Runway 9 and Runway 17 ends have four-light PAPIs (Precision Approach Path Indicators) and standard holding position signs. Requirements for runway markings are described in the previous section.

The PAPI at the Runway 9 end has slope of 3° with a Threshold Crossing Height (TCH) of 40 feet, while the PAPI at the Runway 17 end has a slope of 4° and a TCH of 52 feet.

Based on the siting criteria defined in AC 150/5340-30H, the Runway 9 PAPI appears to be approximately 80 feet too close to the runway threshold. In addition, its glide path angle and TCH does not match that of the instrument approach to Runway 9. The Runway 17 PAPI also appears to be too close to the runway threshold by 60 feet.

**Figure 4-2** depicts the existing Obstacle Clearance Surfaces (OCS) and shows no obstruction. Future design standards will not affect these OCS. A new study will be required if the PAPIs are relocated. The slope of the OCS equals the PAPI's slope minus one degree.

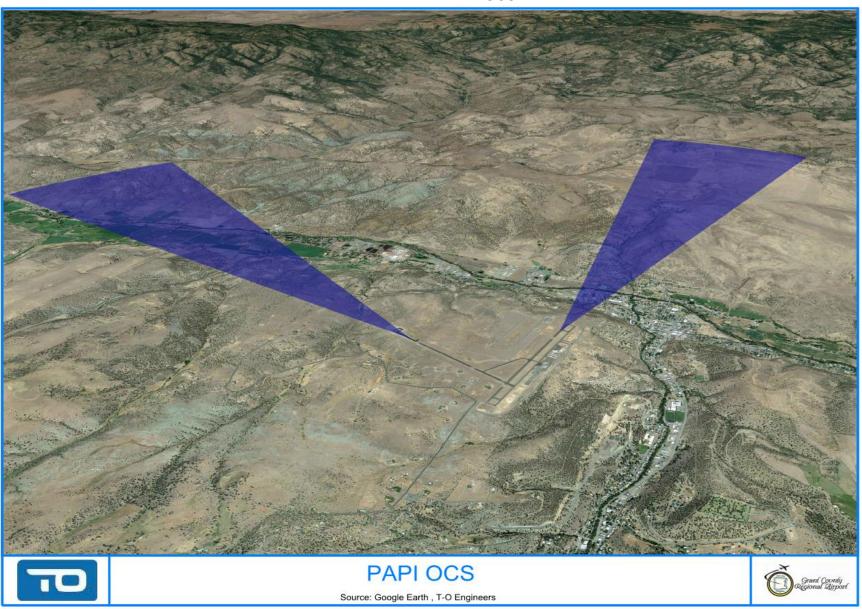
Runway 9 and Runway 17 ends also have Runway End Identifier Lights (REIL). REILs improve the runway visibility for pilots and must be installed when there is a circling approach to a runway end.

<u>Recommendation:</u> The marking and main lighting system for both runways are adequate and no improvements are recommended. However, it is recommended to add REILs to the Runway 27 end due to the circling approach available. If feasible with the surrounding terrain, a PAPI

should also be added to the future Runway 27 end. Alternatives are shown in **Chapter 6 - Alternative Analysis**.

It is recommended to adjust the location of both existing PAPIs according to their current slopes and TCH. Another alternative would be to adjust their TCH and slope to match their current location. It is highly recommended to match the TCH and Slope of Runway 9 PAPI to that of the instrument approach. Also, the OCS should be reevaluated if the PAPIs are relocated.

FIGURE 4-2 - PAPI OCS



### Wind Coverage and Crosswind Analysis

The wind coverage is the percentage of time when the crosswind component does not exceed the limit for the design aircraft using the runway. FAA criteria recommend a minimum of 95 percent wind coverage for all airports. The wind coverage is also used to justify the need for a secondary runway when the primary runway does not have the appropriate wind coverage.

Wind data from the Automated Weather Observing System (AWOS) located at the airport were reviewed and used to evaluate the wind coverage at GCD. **Table 4-13** summarizes the wind coverage for the existing B-I standards and the future B-II standards.

TABLE 4-13 - WIND COVERAGE

Runway	Crosswind Component B-I / B-II	Wind Coverage B-I / B-II					
	All Weather						
9-27	10.5 / 13 Knots	93.86% / 96.41%					
17-35	10.5 / 13 Knots	94.45% / 96.9%					
Combined	10.5 / 13 Knots	99.11% / 99.79%					
Instrument Meteorological Conditions							
9-27	10.5 / 13 Knots	97.76% / 98.38%					
17-35	10.5 / 13 Knots	90.79% / 94.09%					
Combined	10.5 / 13 Knots	99.35% / 99.82%					

Source: AWOS NOAA 2005-2015, FAA AGIS Wind Rose Tool

In all weather conditions, both runways must meet the 95% wind coverage required by the FAA for B-I standards. Considering B-II standards, each runway offers the minimum required wind coverage. In IMC, Runway 9-27 alone provides wind coverage requirements for both B-I and B-II standards.

<u>Recommendation</u>: Even though the future RDC of B-II for each runway leads to better wind coverage because of a less restrictive crosswind component, it is recommended to retain both runways to ensure the wind coverage for smaller A/B-I aircraft that constitute the bulk of the traffic at GCD (over 60 percent<sup>3</sup>).

### **Runway Configuration**

As noted, GCD Airport is currently equipped with two runways: Runway 9-27 and Runway 17-35. Both runways have distinct advantages and are complementary to one another.

<sup>&</sup>lt;sup>3</sup> See Chapter 3 - Aviation Activity Forecasts.



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Runway 17-35 is the longest runway at the airport. Due to the location of the airport and to the general terrain of the property, an extension of Runway 9-27 would be limited and is not recommended. Runway 9-27 is the only one usable for instrument operations (approaches and departures). The development of instrument procedures to Runway 17-35 is very limited and not recommended. Furthermore, both runways are required to offer the minimum wind coverage for A/B-I aircraft that constitute at least 60 percent of the operations at the airport.

<u>Recommendation:</u> Terrain around the airport contributes to a limited length for Runway 9-27 and no instrument procedures for Runway 17-35. Also, the combination of both runways offers the appropriate wind coverage for smaller aircraft. In these conditions, it is recommended to retain both runways at GCD.

### 4.2.5 TAXIWAY DESIGN

Airfield taxiways provide the primary connection route between airside and landside facilities. As an important airfield feature, most taxiway geometry is defined by FAA design guidance. Improvements to an airport taxiway system are generally undertaken to increase runway capacity or to improve safety and efficiency. An efficient taxiway system increases the ability of an airport to handle arriving and departing aircraft and to expedite aircraft ground movement.

### **Taxiway and Taxilane Layout**

The taxiway system at GCD was analyzed to determine potential deficiencies. As depicted on **Figure 2-4** in **Chapter 2 - Inventory of Existing Conditions**, this system consists of a full parallel taxiway (Taxiway A) along Runway 17-35 with a total of six connectors, including two entrances at each runway end. One connector crosses Runway 17-35 in the middle and provides access to Runway 9-27 through Taxiway B. One connector taxiway is aligned taxiway with the Runway 27 end. Two taxiways to Runway 17-35 do not connect with the runway at the recommended 90-degree angle. Taxilanes serve the existing aprons and hangars on the airfield.

<u>Recommendations:</u> A full-length parallel taxiway, parallel to Runway 17-35, contributes to an increased level of safety by reducing the need for back-taxi operations on the runway. It is recommended to retain the parallel taxiway.

The existing airfield configuration exhibits deficiencies including a runway crossing in the middle portion of Runway 17-35. This is a high-energy zone for the runway and crossing in the middle third of a runway is not recommended by the FAA. A study of alternatives to relocate and provide another crossing option to access Runway 9-27 is recommended. In addition, the aligned taxiway access to the Runway 27 end should be removed to improve safety. Access to Runway 9-27 should be improved, and building a full parallel taxiway along this runway is recommended. This would limit backtaxiing on the runway, especially during IMC. This is a critical improvement, as only Runway 9-27 has instrument capabilities.

As appropriate, new taxiway/taxilane centerline markings should be considered to provide access to existing facilities and future new development. Alternatives that address these issues are presented in **Chapter 6 - Alternatives Analysis.** 

### **Taxiway Geometry**

Taxiway and taxilane geometry, including width and the design of pavement fillets at intersections, must consider aircraft undercarriage dimensions and is based on the Taxiway Design Group (TDG), a coding system based on the Main Gear Width (MGW) and the Cockpit to Main Gear Distance (CMG). The approved TDG for the design of taxiways and taxilanes at GCD is TDG 2. All the associated design standards are shown in **Table 4-8**.

The existing taxiway system was designed before the new FAA guidance for taxiway fillet design, published in AC 150/5300-13A-Change 1 (AC). The current width of Taxiway A, B and associated connectors is 35 feet except for the central portion of Taxiway A at width 25-feet. The minimum width for TDG 2 is 35 feet. Also, all taxiways should have unpaved shoulders with a 10-foot width.

**Recommendation**: It is recommended that Taxiway A be widen to 35 feet for its entire length. Existing taxiway fillets should also be redesigned in accordance with FAA standards. This geometry adjustment could occur during the next taxiway reconstruction or rehabilitation project. All new taxiways/taxilanes should meet design geometry as defined in the latest AC including the appropriate shoulders.

#### **Taxiway Strength and Pavement Condition**

The current strength of Taxiway A, Taxiway B and associated connectors is 20,500 lbs for Single-Wheel loading. These taxiway pavements accommodate the activities of existing general aviation aircraft using the facility on a regular basis, as well as the forecasted aircraft activity expected to operate at GCD throughout the planning period. Additionally, these taxiway pavement strengths match the pavement strength of both runways. Foreseeable conditions do not indicate the need for additional taxiway pavement strength.

As shown on **Figure 2-5** in **Chapter 2 - Inventory of Existing Conditions**, Taxiway A and Taxiway B pavements are in in good condition with the exception of the central portion of Taxiway A that is in satisfactory shape.

**Recommendation**: It is recommended that future taxiways continue to match the existing runway strength. Based on the latest Pavement Condition report published in 2014 for GCD, major rehabilitation of the central portion of Taxiway A is recommended within the next 5 years. Taxiway B and the remaining part of Taxiway A should be rehabilitated within 10 years. It is also recommended that the structural integrity of existing and future taxiway pavement sections correlate with the strength of the aprons and runways throughout the planning period.

## **Taxiway Visual Aids**

Taxiway visual aids include marking, lighting, and signs. Taxiway A and Taxiway B are properly marked with adequate signs and blue reflectors at their edges. One connector on Taxiway A is aligned with the Runway 27 end and is indicated by Runway Guard Lights (RGL) and holding position signs and markings on Taxiway A. The marking on Taxiway B and end connectors of Taxiway A are in good condition. The remaining marking on Taxiway A is weathered and faded.

**Recommendation**: It is recommended to maintain the appropriate marking and signs on all taxiways to ensure pilot awareness and improve safety. Marking maintenance should be included with pavement maintenance projects. Installation of a medium-intensity taxiway lighting system to match the lighting system of the runway is recommended in order to improve safety during night operations.

### 4.2.6 PROTECTION AND SEPARATION STANDARDS

Design standards include not only the geometry of the pavement at the airport but also protection and separation requirements between runways, taxiways, taxilanes, aprons, buildings, and objects. This section details the requirements for the following standards:

- Runway Safety Area (RSA)
- Runway Object Free Area (ROFA)
- Runway Obstacle Free Zone (ROFZ)
- Runway Protection Zones (RPZ)
- Runway Centerline to Taxiway Centerline Separation
- Runway Centerline to Taxiway Holding Position
- Runway Centerline to Edge of Aircraft Parking Separation
- Taxiway Safety Area (TSA)
- Taxiway and Taxilane OFA (TOFA)

These separations and protection standards will drive the location of facilities, aids, signs and markings at GCD. Recommendations for runway protection and separation requirements to accommodate RDC B-II-VIS for Runway 17-35 and Runway 27, RDC B-II-5000 for Runway 9, as well as ADG II standards for taxiways and taxilanes, are included below. Standard dimensions associated with these protections are summarized in **Table 4-8**. It is important to note that the exact location of the future runway protection zones and areas will depend on the future location of the runway ends, if change is needed.

#### **Runway Protection Standards**

The runway protection standards include the Runway Safety Area (RSA), Runway Object Free Area (ROFA), Runway Obstacle Free Zone (OFZ) and the Runway Protection Zone (RPZ).

### Runway Safety Area (RSA)

The RSA dimensions for runways accommodating B-II aircraft with visual approaches and minima greater than 1 mile are the same. This area extends 300 feet beyond the departure end and prior to the landing threshold at a width of 150 feet. The existing RSA beyond the Runway 27 end overlaps with the RSA and ROFA of Runway 17-35. With larger RSA dimensions associated with a B-II arc, this issue will persist, as shown on **Figure 4-3**.

The FAA AC 150/5300-13A states that "if possible, safety areas should not overlap since work in the overlapping area would affect both runways. In addition, operations on one runway may violate the critical area of a NAVAID on the other runway. This condition should exist only at existing constrained airports where non-overlapping safety areas are impracticable. Configurations where runway thresholds are close together, should be avoided, as they can be confusing to pilots, resulting in wrong-runway takeoffs. If the RSA of one runway overlaps onto the full-strength pavement of a second runway or taxiway, the chance of runway/taxiway incursion incident is increased."

<u>Recommendations</u>: It is recommended that the existing dimensions of the RSA be increased to meet B-II standards at the airport and that the RSA be cleared of unauthorized penetrations. In addition, it is essential to decouple both runways and to avoid overlapping RSAs. The extended RSAs do not require any modification of existing facilities.

### Runway Object Free Area (ROFA)

The future ROFA for B-II-VIS/5000 runways is 500-foot wide and extends 300 feet beyond departure end and prior to the landing threshold. **Figure 4-3**.depicts the new ROFA at the airport.

<u>Recommendations</u>: It is recommended that the existing dimensions of the ROFA be increased to meet B-II standards and that the ROFA be cleared of unauthorized penetrations. The extended ROFA is penetrated by roads and the airport fence at both ends of Runway 17-35. Also, part of a private property along the airport is impacted by the future ROFA. Alternatives to mitigate these penetrations are discusses in **Chapter 6 - Alternative Analysis**.

### Runway Obstacle Free Zone (ROFZ)

The current ROFZ extends 200 feet beyond each end of the runways and is 400 feet wide for operations by large aircraft (MTOW > 12,500lbs), with an approach speed of 50 knots or more. The future standards at GCD do not modify the ROFZ dimensions. as shown on **Figure 4-3**.

**Recommendations**: It is recommended that the existing ROFZ be maintained. The ROFZ is clear of any penetration for both runways and does not impact existing infrastructure. It is recommended that the ROFZ be kept clear of future development.

### Runway Protection Zone (RPZ)

For both runways at GCD, arrival and departure RPZs have identical dimensions. The total area of the existing RPZs at each end of the runways is currently 13.77 acres. The new design standards have similar dimensions for RPZs.

As depicted on **Figure 4-3**, the RPZs for Runway 17-35 and the Runway 27 end are penetrated by Airport Road. The FAA considers this an incompatible land use within an RPZ.

<u>Recommendations</u>: It is recommended that the dimensions of existing RPZs be maintained to meet future B-II design standards. It is also recommended that any incompatible land use within the RPZs be avoided. When possible, the portions of the RPZs not currently under the airport control should be acquired via fee simple acquisition or protected by an avigation easement. Disposition of RPZ penetrations and dimensions are discussed in **Chapter 6**, **Alternatives Analysis**.

### **Runway Separation Standards**

Runway separation standards ensure operational safety at the airport. They are based on the Runway Design Code. The runway separation standards include the runway centerline to parallel taxiway centerline separation, the runway centerline to holdline separation and the runway centerline to edge of aircraft parking separation.

#### Runway/Taxiway Separation

The current separation distance between Runway 17-35 and parallel Taxiway A is 250 feet. The future required separation between any runway at GCD and a parallel taxiway is 240 feet. This separation prevents any part of an aircraft from penetrating the ROFZ.

<u>Recommendations</u>: It is recommended that the existing separation between Taxiway A and Runway 17-35 be maintained. All future parallel taxiway should be built at a minimum of 240 feet from the runway centerline.

#### Runway Centerline to Holding Position Distance

The current runway centerline to holding position distance is 200 feet for all runways at GCD. It meets the future requirements of 200 feet for RDC B-II-VIS and RDC B-II-5000.

<u>Recommendations</u>: It is recommended that the existing separation between the holding lines and runway centerlines at GCD be maintained. All future holding position markings should be located a minimum of 200 feet form a runway centerline.

# Runway Centerline to Edge of Aircraft Parking Distance

The required separation distance between the runway centerline and the edge of parked aircraft is 250 feet for the future RDC at GCD. The current Runway/Edge of Aircraft Parking is 260 feet or more.

<u>Recommendations</u>: The existing separation distance between the runway centerline and the edge of the aircraft parking is greater than the minimum required. Future apron areas should not be located less than 250 feet from the runway centerlines.

## Runway Decoupling, RVZ, LOS

Runway Visibility Zone (RVZ) criteria applies to intersecting runways. The existing RVZ at GCD is not obstructed and meet line-of-sight (LOS) requirements. Each runway individually meets LOS requirements along their centerlines. In the proposed configuration, both runways at GCD will not cross anymore.

<u>Recommendation:</u> As mentioned earlier, it is recommended to decouple the runways and remove the overlapping RSAs. This will also remove the requirement for a RVZ, as there is no RVZ between non-intersecting runways. Alternatives for decoupling these runways are discussed in **Chapter 6, Alternatives Analysis**. Relocation of a runway end or threshold may affect the location of protection zones and areas. This may, in turn, impact both on and off airport facilities.

### Taxiway/Taxilane Protection Standards

Taxiway/taxilane protections include the Taxiway and Taxilane Object Free Area (TOFA) and the Taxiway and Taxilane Safety Area (TSA). At GCD, the standard dimensions for these protections are driven by an ADG II design standard for all taxiways.

### Taxiway/Taxilane Object Free Area (TOFA)

The TOFA standard dimensions for ADG II are 131 feet for taxiways and 115 for taxilanes. All existing TOFAs at GCD are clear of unauthorized obstructions. The future TOFA is also clear of obstructions.

<u>Recommendation:</u> It is recommended that the existing and future TOFA be kept clear of all future airport development.

### Taxiway/Taxilane Safety Area (TSA)

The TSA standard dimension for ADG II is 79 feet for both taxiways and taxilanes. There are no obstructions of the TSAs at GCD that would impact future standards.

<u>Recommendation:</u> It is recommended that the existing and future TSA be kept clear of all future airport development.

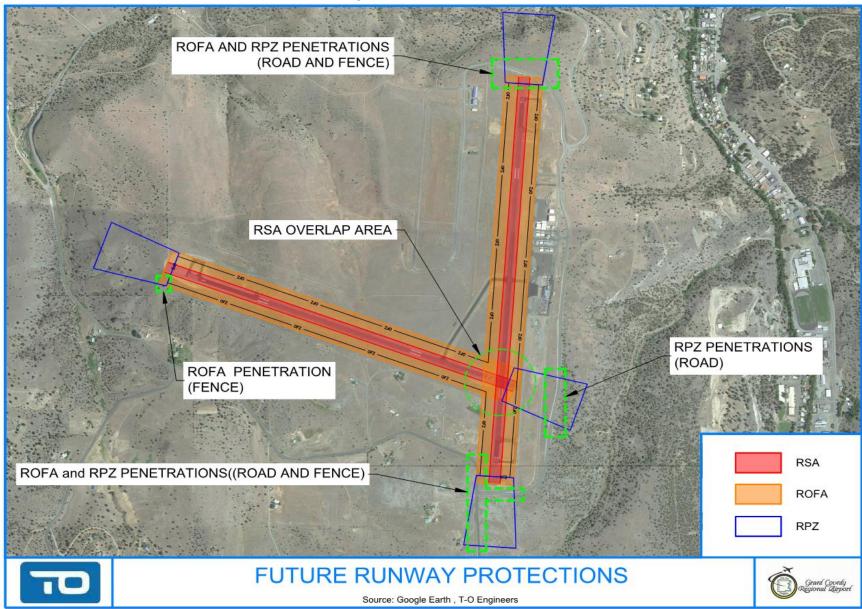


FIGURE 4-3 - FUTURE RUNWAY PROTECTIONS

### **4.2.7 HOTSPOTS**

There are no official hotspots identified at GCD. However, the aligned taxiway serving the Runway 27 end presents a real safety issue at the airport. Also, the intersection to Taxiway B is located in the high-energy segment of Runway 17-35.

<u>Recommendation:</u> It is recommended that alternate geometry, marking and/or signage be evaluated in these two areas, to identify solutions to potential safety issues. Alternatives will be discussed in **Chapter 6 - Alternatives Analysis**.



Hot Spot 1 Source: Google Earth, 2016



Hot Spot 2 Source: Google Earth, 2016

# 4.2.8 NAVIGATIONAL AIDS

Navigational Aids (NAVAIDS) are defined as any kind of aids used for air navigation. They include navigational beacons, weather stations and any visual aids. Visual aids requirements including runway and taxiway lighting, marking, and signage, are presented in the previous sections. This section explains the requirements for the weather station, navigational beacons, windcone, rotating beacon and segmented circle.

#### **Automated Weather**

GCD is equipped with an AWOS 3 weather station. This station provides weather information to pilots using the airport, independent of the runway. For AWOS siting criteria, Runway 9, having the lowest minima, is considered the primary runway. The AWOS is located 800 feet from the runway centerline and approximately 3,200 feet from the threshold of Runway 9. This exceeds the maximum distance of 3,000 feet recommended in the FAA Order 6560.20B for AWOS Siting Criteria. The AWOS critical area consists of a 500-foot radius. All obstacles within this radius should be at least 15 feet lower than the wind sensor. No obstacle 10-foot higher than the sensor should be located within the 1,000 foot radius.

<u>Recommendations</u>: There is no need to upgrade the weather reporting system. Its current location on the airfield does not meet requirements as defined by the FAA and might limit airport

development in this area. It is recommended to relocate the AWOS closer to the Runway 9 end in an area compatible with future airport development. Alternatives are discussed in **Chapter 6 - Alternatives Analysis**.

### **Navigational Beacons**

There is currently no navigational beacon on the airport and there is no forecasted need for it in the next 20 years.

### **Rotating Beacon, Windcone and Segmented Circle**

The windcone and segmented circle at GCD are located between the two runways, north of the intersection. Both the windcone and segmented circle are lighted and in good condition, and can be seen by pilots using either runway. An additional lighted windcone is located on the GA apron.

The rotating beacon is located approximately 560 feet east of Runway 17-35's centerline near the airport's hangars.

<u>Recommendations</u>: No improvement is recommended for either the rotating beacon or the segmented circle. Relocation will be evaluated as needed in **Chapter 6 - Alternative Analysis**. It is recommended that windcones and segmented circles be kept out of the protection zones and areas associated with the runways, taxiways and taxilanes.

#### 4.2.9 AIRCRAFT APRON

GCD has three main aircraft aprons used by itinerant General Aviation aircraft, as well as the US Forest Service and the Oregon Department of Forestry (DOF). Tie-downs and apron space are available for based and transient aircraft. The development of this area should allow general aviation (GA) aircraft access to both runways. Design standards for the apron area should be compatible with ADG II and TDG 2 standards, similar to those of the taxiway system.

### **Apron Configuration**

As shown in **Figure 4-4**, there are three apron areas available to aircraft at GCD with a total of 16 tie-down spaces and a total area of approximately 82,000 square feet.

<u>Recommendation</u>: It is recommended that the apron be reconfigured to accommodate ADG II and TDG 2 aircraft in accordance with the existing and future hangar layout, as well as the number of apron spaces and tie-downs needed. Alternatives for future apron layouts are discussed in **Chapter 6 - Alternative Analysis**.

# **Apron Condition and Strength**

The terminal apron is in good condition and has a strength of 20,500 lbs for single-wheel (SW) loading. The main apron is in fair condition and has a strength of 20,500 lbs SW. The corporate apron has a lower strength of 18,000 lbs SW and is also in fair condition.

<u>Recommendation</u>: It is recommended that future aprons match the existing strength of 20,500 lbs SW similar to that of the taxiway system and the runways. Major rehabilitation is recommended in the short-term period for the main and corporate aprons. Major rehabilitation is also recommended for the terminal apron within the mid-term period. Regular maintenance of cracks and markings should be done on a periodic basis all over the 20-year planning period.

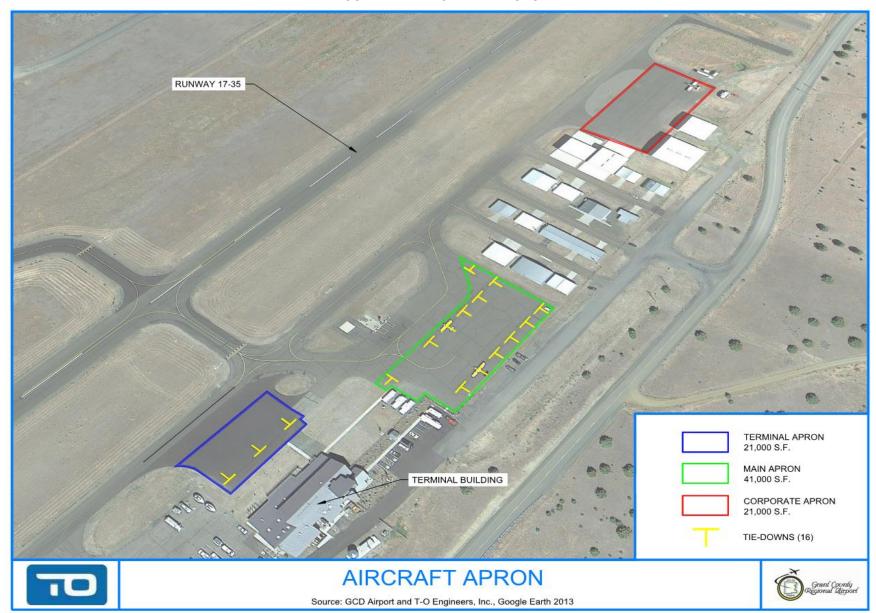


FIGURE 4-4: AIRCRAFT APRONS

### **Based Aircraft Apron Requirements**

It is usually assumed, for planning purposes, that approximately 80 percent of based aircraft are stored in hangars. However, based on historical trends at GCD and due to specific climate conditions, as well as recommendation of the 2007 OAP4, it was assumed that 100 percent of based aircraft would be stored in hangars through the planning period.

**Recommendation:** Because 100 percent of the based aircraft will be stored in hangars, no tiedowns or apron spaces should be designed for based aircraft.

### **Transient Aircraft Apron Requirements**

When determining the capacity of aircraft tie-downs a distinction must be made between those aircraft departing from, or returning to, the airport and those temporarily visiting. A transient operation originates at another airport and temporarily requires tie-down space. This distinction is defined as transient versus itinerant operations.

Transient operations are a subset of itinerant operations. It is typically assumed that transient aircraft operations are conducted by larger aircraft and that they are unfamiliar with the airport. Thus it is prudent to provide extra space for these aircraft to operate.

The following assumptions were made to evaluate the number of tie-downs required for transient GA aircraft:

- ★ Space should be provided for 80% of the peak day transient aircraft.
- ★ Transient operations represent approximately 50% of the operations, and thus peak day operations, at the airport<sup>5</sup>.
- ★ The tie-down spaces will be used by all types of airplanes using GCD, including Class A, Class B, and Class C aircraft<sup>6</sup>.
- ★ The percentage of tie-downs for small single-engine aircraft with ADG I is equal to the percentage of Class A aircraft.
- ★ The percentage of tie-downs for twin-engine aircraft with ADG II is equal to the percentage of Class B and Class C aircraft.
- ★ 3 extra Tie-Downs for contracted firefighter aircraft operating at GCD including SEAT (ADG II) and light single-engine aircraft (ADG I).

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<sup>&</sup>lt;sup>4</sup> The 2007 OAP recommends storing 100% of the based aircraft in hangars on Category III airports in Oregon.

<sup>&</sup>lt;sup>5</sup> As shown by the approved forecasts of aviation activity, itinerant operations represent an average of 71% of the total operations (including peak hour operations) at GCD, over the planning period. Transient operations are also assumed to be 70% of the itinerant operations.

<sup>&</sup>lt;sup>6</sup> As defined in **Table 4-1.** Class A gathers small single-engine aircraft. Class B groups small twin-engine aircraft. and Class C includes large aircraft.

**Recommendations:** It is recommended that the airport provide the number of tie-down spaces as summarized in Table 4-14. The size and location of these tie-downs are discussed in **Chapter 6 - Alternative Analysis.** 

**TABLE 4-14: AIRCRAFT APRON REQUIREMENTS** 

Items	2015*	2020	2025	2035	
Existing Number of Tie-Downs	16	16	16	16	
Peak Day Operations at GCD	30	34	36	44	
Transient Tie-Downs Required**	15	17	18	21	
Tie-Down Surplus (+)/Shortfall (-)	+1	-1	-2	-5	
Percentage of Class A, Aircraft	78%	77%	75%	72%	
Single-Engine Tie-Downs (ADG I)***	10	12	12	14	
Percentage of Class B and Class C Aircraft	22%	23%	25%	28%	
Multi-Engine Tie-Downs (ADG II)****	5	5	6	7	
Apron Space Required	To accommodate all tie downs and Meet ADG II				

and TDG 2 standards

\*Base Year

#### **Helicopter Parking**

The USFS and ODF contract five helicopters for firefighting activity at GCD. These aircraft are temporarily based at the airport for an extended period of time during the wildfire season. This period typically extends from 120 to 150 days. USFS/ODF currently lease three paved helipads at the airport. One additional helicopter is based permanently at the airport.

A significant amount of debris is generated from the helicopter downwash, which introduces the potential for adverse impacts from these debris on fixed wing aircraft located on the ramp and other adjacent areas of the airfield. It is preferable to operate helicopters in a separate area that will minimize impact on fixed wing aircraft.

Local and itinerant helicopter activities at GCD justify the need for an area dedicated to helicopter operations. Currently, helicopters operating at GCD can use the helipads located south of the terminal building. Helicopter operations are forecasted to increase at a average annual growth of 6% with 3 helicopters based permanently at GCD7 by the end of the 20-year planning period.

<sup>\*\*</sup>Provide tie-downs to 80% of transient aircraft. Transient operations represent 50% of peak day itinerant operations at GCD. Include 3 extra tie-downs.

<sup>\*\*\*</sup>Include 1 extra tie-down.

<sup>\*\*\*\*</sup>Include 2 extra tie-downs. Source: TO Engineers, Inc.

<sup>&</sup>lt;sup>7</sup> See Chapter 3 –Aviation Activity Forecasts

<u>Recommendations</u>: It is recommended that at least six paved helipad locations be reserved at the airport to accommodate helicopter activity within the next 10 years (mid-term). These helipads should be separate from fixed wing aircraft, due to the generally incompatible nature of helicopters and fixed wing aircraft. Also, at least two more helipads should be built in the long-term if the demand warrants. The helipad dimensions should be based on the design helicopter, as defined in **Chapter 3 –Aviation Activity Forecasts**, and common helicopter using the airport. Dimensions and location of helipads are discussed in **Chapter 6 - Alternative Analysis**.

### **4.2.10 AIRSPACE AND OBSTRUCTIONS**

Airspace can be defined as a volume of air surrounding the airport in which aircraft have to follow specific rules for communication and separations. Those rules depend on the classification of the airspace. Several factors can affect airspace, such as special use airspaces, obstacle constraints, and other operational constraints.

Special use airspaces, also known as special area of operations (SAO), accommodate particular activities that may require limitations on aircraft not involved in these activities. Special area of operations includes prohibited areas: restricted areas, warning areas, military operation areas (MOAs), alert areas and controlled firing areas (CFAs). CFR Part 77 defines imaginary surfaces to restrict the height of objects in the airport's airspace so that these objects do not affect aircraft operations. Additional surfaces such as the Threshold Siting Surface (TSS) and Departure Surface also further restrict object heights in the vicinity of the airport.

It is important to remember that the exact location of the airspace surfaces are based on the future location of the runway ends and threshold. If existing airport configuration changes, the airspace surfaces will also change.

#### **Airspace Analysis**

GCD currently has uncontrolled Class G airspace from the ground to a height of 700 feet Above Ground Level (AGL), and Class E above and up to 18,000 feet Above Mean Sea Level (AMSL). There are currently no restrictions to the airspace that could affect operations at the airport. A temporary Airport Traffic Control Tower (ATCT) is used during the wildfire season to accommodate the operations by USFS/ODT.

<u>Recommendations</u>: Changes to the surrounding airspace are not anticipated during the 20-year planning period.

#### **Obstructions**

The following section summarizes requirements for obstructions on and around the airfield.

### **Threshold Siting Requirements**

FAA AC 150/5300-13A-Change 1 (AC) states that the threshold should be located at the beginning of the full-strength runway pavement or surface. Displacement of the threshold may be required when an object that obstructs the airspace required for landing airplanes is beyond the airport owner's power to remove, relocate or lower. Thresholds may also be displaced for environmental considerations, such as noise abatement, or to provide the standard RPZ, RSA and ROFA lengths. When a hazard to air navigation exists, threshhold displacement length should be based on the operational requirements of the most demanding aircraft using the facility.

Displacement of a threshold reduces the length of the runway available for landings in a given direction. Depending on the reason for displacement of the threshold, the portion of the runway behind a displaced threshold may be available for takeoffs in either direction or landings from the opposite direction using declared distances.

These standards are not meant to take the place of identifying objects affecting navigable airspace (CFR Part 77) or zoning. The standard shape, dimensions, and slope of the Threshold Siting Surface (TSS) used for locating a threshold is dependent upon the type of instrumentation available or planned for that runway. Table 3-2 of the AC, identifies the runway end/threshold siting requirements.

The new Runway Design Codes for both runways at GCD do not affect the sizing of the TSS as shown in **Chapter 2 – Inventory of Existing Conditions**. Also, development of additional instrument approaches at GCD is not expected, nor is improvement the minima that would necessitate a change in TSS dimensions (see Section 4.2.2).

Future TSS requirements for RDC B-II-VIS (Runway 17-35 and Runway 27) and B-II/5000 (Runway 9) are similar to those that currently exist at GDC. Future TSS requirements are summarized in **Table 4-15.** 

**TABLE 4-15: FUTURE TSS REQUIREMENTS** 

Item	RWY 9	RWY 17-35 and RWY 27
RDC	B-II-5000	B-II-VIS
TSS Type	Type 5: Approach end of runways expected to support instrument night operations serving greater than approach Category B aircraft	Type 3: Approach end of runways expected to serve large airplanes (Visual day/night)
Inner Width	800'*	400'
Outer Width	1000'	1000'
Total Length	10,000'	10,000'
Slope	20:1	20:1
Starting Point	200' from Runway Threshold	Runway Threshold

<sup>\*</sup>The surface defined in TERPS and used by the FAA Flight Procedure Office to evaluate obstacles in the approach is 400' wide.

Source: TO Engineers, AC 150/5300-13A Change 1

**Recommendation:** The airport already meets the threshold siting requirements for Runway 9, Runway 27, and Runway 17. The TSS for Runway 35 is penetrated by terrain as explained in Section 2.7.4 of **Chapter 2 – Inventory of Existing Conditions**. The exact amount of penetration should be evaluated to determine the impact on the threshold location of Runway 35. In addition, re-evaluation of a TSS is recommended if the associated threshold is moved as part of airfield improvements. The TSS should remain clear of all future development at the airport.

During construction, a displaced threshold may be required if construction equipment penetrates the TSS and/or RSA and ROFA. Displaced thresholds might also be necessary to meet RSA and ROFA requirements after runway decoupling. Alternatives for threshold locations at GCD are explained in **Chapter 6 – Alternatives Analysis**.

## Glide Path Qualification Surface (GQS)

The GQS only applies to Runway 9 end due to its vertically guided instrument approach. As presented in **Chapter 2 – Inventory of Existing Conditions**, the standard GQS is defined as a trapezoid defined with an inner width of 260 feet and outer width is 1,520 feet, extending 10,000 feet from the runway threshold at a slope of 30:1.

<u>Recommendation</u>: The airport meets GQS requirements with no penetrations for Runway 9. Because additional vertically guided instrument procedures are not anticipated for other runways at GCD, no new GQS will be evaluated. Re-evaluation of the GQS for Runway 9 at

GCD is recommended if the threshold is moved. The surface should remain clear of all future development at the airport.

## **Departure Surface**

The only runway with a departure surface at GCD is Runway 27. The departure surface is a trapezoid with inner and outer widths are respectively 1,000 feet and 6,466 feet, respectively, extending 10,2000 feet from the end of the TODA at a slope of 30:1.

The potential development of an instrument departure from Runway 35 would require to protect the departure surface from the departure end of the runway.

**Recommendation**: There is no penetration of the existing departure surface for Runway 27. There is a potential for penetration of the departure surface from Runway 35 by vehicles using Airport Road. If development of a departure surface from Runway 35 is pursued, penetrations should be addressed in accordance with the FPO recommendations.

There is no change of dimensions in the departure surface for the future standards. Reevaluation of departure surfaces is recommended if the runway dimensions are modified. It is important to note that any penetration of a departure surface may affect the take-off run distance available for the associated runway. The departure surface should remain clear of all future development at the airport.

#### CFR Part 77 Imaginary Surfaces

The dimensions for the CFR Part 77 Imaginary Surfaces associated with the future RDC B-II-5000 for Runway 9 and B-II-VIS for Runway 17-35 and Runway 27 are summarized in **Table 4-16.** 

TABLE 4-16: FUTURE PART 77 DIMENSIONAL STANDARDS

ltem	RWY 9	RWY 17-35 & RWY 27		
Part 77 Runway Classification	Other than Utility-NPI	Other than Utility -VIS		
Primary Surface	500' wide starting 200' from runway ends			
Approach Surface	500' x 10,000' x 3.500' 34:1 Slope	500' x 5,000' x 1,500' 20:1 Slope		
Transitional Surface	7:1 Slope  Reach Horizontal Surface from Primary Surface edges			
Horizontal Surface*	10,000' arc radius from Primary Surface ends Elevation = 3,852.5'	5,000' arc radius from Primary Surface ends Elevation = 3,852.5'		
Conical	20:1 Slope Extends 4,000' form Horizontal Surface			
	*Greatest radius applies to both ends of a same runway			

Source: CFR Part 77

The future CFR Part 77 Imaginary Surfaces are similar in shape and dimension to the existing ones depicted in **Chapter 2 – Inventory of Existing Conditions**. The Conical Surface is penetrated by terrain south of the airport. The approach surface for Runway 9 is penetrated by the airport fence.

<u>Recommendations</u>: Enforcement CFR Part 77 Imaginary Surfaces in the land use and zoning guidance for the City and County properties around the airport is recommended. It is not mandatory to mitigate existing penetrations of CFR Part 77 surfaces, but it is recommended to evaluate alternatives to eliminate them if possible.

## 4.3 LANDSIDE FACILITY REQUIREMENTS

As part of this airport master plan, requirements and needs for the following landside facilities were evaluated:

- ★ Aircraft Hangars
- ★ FBO Facilities
- ★ Airport Terminal
- ★ Automobile Parking and Ground Transportation
- ★ Airport Roadside Access
- ★ Perimeter Fencing and Perimeter Road
- ★ Airport Traffic Control Tower (ATCT)
- ★ U.S. Forest Services (USFS)<sup>8</sup>
- ★ Industrial Park

#### 4.3.1 AIRCRAFT HANGARS

As presented in **Chapter 2 – Inventory of Existing Conditions**, there are currently 17 privately-owned hangars on the airport. These hangars are located north of the main apron. Most of these structures are more than 20 years old but are still in satisfactory condition. The latest hangar was built in 2016.

It should be noted that construction of new hangars is demand driven and should only be considered when and if demand at the airport warrants. Actual demand can and should dictate need. The current hangar utilization rate is 100 percent at GCD and two new hangars are planned for construction within the next 10 years.

**<u>Recommendations</u>**: Based on historical trends at GCD and due to specific climate conditions, as well as recommendation of the 2007 OAP<sup>9</sup>, it is recommended that 100 percent of based

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<sup>&</sup>lt;sup>8</sup> Infrastructure for USFS will not be eligible for AIP funding. Future USFS development needs to be considered for better integration into overall airport development.

aircraft be stored in hangars through the planning period. Prudent and proactive planning dictates the need to protect areas for the construction of potential new hangars. **Table 4-17** summarizes hangar need at the airport. It is further recommended that future hangars, and associated hangar access taxilanes, be developed for ADG II/TDG 2 aircraft. Alternatives for hangar development are presented in **Chapter 6 - Alternative Analysis**.

**TABLE 4-17: AIRCRAFT HANGAR REQUIREMENTS** 

Items	2015*	2020	2025	2035
Based Aircraft**	17	19	21	27
Hangars Requirement***	17	19	21	27
Current Hangars	17	17	17	17
Hangar Requirement Surplus (+)/Shortfall (-)	0	-2	-4	-10

\*Base Year

\*\*See Chapter 3 - Aviation Activity Forecasts

\*\*\* 100% of the Based Aircraft at GCD Source: T-O Engineers, Inc.

## 4.3.2 FIXED BASED OPERATOR (FBO)

There is currently no full service FBO at GCD, but the 2007 OAP recommends it for category 3 Airports in Oregon (including GCD). FBO facility requirements are driven primarily by market conditions and the particular needs of the FBO and its customers. Because future FBO facility demand is difficult to quantify, the best planning approach is to identify and reserve an area that could accommodate new FBO facilities. General areas for expanded operations, maintenance hangar, vehicle parking and apron should also be reserved.

<u>Recommendations</u>: Prudent and proactive planning dictates reservation of at least a 20,000-square-foot area to accommodate a new FBO at GCD. Economic factors for both the FBO and the airport will largely determine the type of facilities that are ultimately developed. Alternatives are presented in **Chapter 6 -Alternatives Analysis**.

#### 4.3.3 GENERAL AVIATION TERMINAL BUILDING

As explained in **Chapter 2 - Inventory of Existing Conditions**, the existing GA terminal building was built in 2010 per specifications for Leadership in Energy and Environmental Design (LEED). It is in good condition and includes multiple facilities, such as offices, conference rooms, pilot's lounge, public lounge, common space areas, and restrooms. The total building area is 17,752 square feet, with 2,580 being used by the airport. The remaining space is used by the USFS and the City or County.

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<sup>&</sup>lt;sup>9</sup> The 2007 OAP recommends that 100% of the based aircraft on Category III airports in Oregon be stored in hangars (including GCD).

General Aviation terminal space is required to meet users' needs, including pilots, passengers and visitors. Also, space is needed for administrative and operational uses. Basic criterion published by the FAA requires 49 square-feet per design hour passenger. For modern GA terminals it is recommended to have 80 square feet per design hour passenger. Table 4-18 summarizes the space requirements for the GA terminal building at GCD.

TABLE 4-18: GA TERMINAL SPACE REQUIREMENT

2015*	2020	2025	2035
6	7	8	9
3	3	3	3
18	21	24	27
80	80	80	80
1,440	1,680	1,920	2,160
2,580	2,580	2,580	2,580
+1,140	+900	+660	+420
	6 3 18 80 <b>1,440</b> 2,580	6 7 3 3 18 21 80 80 1,440 1,680 2,580 2,580	6       7       8         3       3       3         18       21       24         80       80       80         1,440       1,680       1,920         2,580       2,580       2,580

\*Base Year

\*\*See Chapter 3 - Aviation Activity Forecasts

\*\*\* Include 1 pilot, 1 passenger and 1 visitor

Source: T-O Engineers, Inc.

<u>Recommendations</u>: The existing terminal building facilities are in good condition and adequate to meet the needs of the airport, based on current and foreseeable activity. Recommended improvements could include restaurant space or other food service facilities as desired. Future expansion and improvements should be considered when demand warrants them.

## 4.3.4 AUTOMOBILE PARKING AND GROUND TRANSPORTATION

As presented in **Chapter 2 - Inventory of Existing Conditions**, GCD Airport has a total of 12 dedicated paved automobile parking spaces north of the Terminal Building. Even though the airport is not served by public transportation, three courtesy cars are available at no cost to airport users. Specific amenities are also available in the terminal building to encourage the use of bicycles. Additional spaces are available for the USFS south of the terminal building but are not accessible to the public.

Parking space requirements for general aviation areas vary depending on the specific needs of airport users. The following assumptions where made for GCD to determine parking space requirements:

- ★ 1 parking space required for each peak hour person near the terminal building
- ★ 3 people per peak hour operation, including one pilot, one passenger, and one visitor
- ★ 1 parking space for each conventional hangar
- ★ 400 square feet per parking space.

<u>Recommendations</u>: It is recommended that the airport provide the number of automobile parking spaces as presented in **Table 4-19**. Additionally, any new hangars built in the planned future hangar area should be easily accessible to, and integrated with, the current roadway infrastructures.

**TABLE 4-19: FUTURE AUTOMOBILE PARKING REQUIREMENTS** 

Items	2015*	2020	2025	2035
Peak Hour Operations at GCD**	6	7	8	9
People per Peak Hour Operation***	3	3	3	3
Total People at Peak Hour	18	21	24	27
Parking Space Terminal/ Total Area (SF)	18/7,200	21/8,400	24/9,600	27/10,800
Existing Parking Space Terminal	12	12	12	12
Parking Space Terminal Requirement Surplus (+) / Shortfall (-)	-6	-9	-12	-15
Hangar Requirement	17	19	21	27
Parking Space Hangars / Total Area (SF)	17/6,800	19/7,600	21/8,400 SF	27/10,800

\*Base Year

\*\*See Chapter 3 - Aviation Activity Forecasts

\*\*\* Include 1 pilot, 1 passenger and 1 visitor

Source: T-O Engineers. Inc.

## 4.3.5 AIRPORT ROADSIDE ACCESS

The existing roadside access infrastructure at GCD consists of a paved road, "Airport Road". Airport Road provides access to all airport facilities.

<u>Recommendations:</u> The existing roadside access at GCD appears to be adequate for current activity at the airport. It is recommended that the road infrastructure around the airport be improved to provide access to all future infrastructures. Alternatives are discussed in **Chapter 6** - Alternative Analysis.

## 4.3.6 PERIMETER FENCING AND PERIMETER ROAD

The existing fence surrounding the airport property is 6.5-foot tall and is a mixture of chain link and with woven wire fabric. Some sections of the fence are damaged and leaning, contributing to wildlife intrusion. In addition, this fence is lower than the minimum height of 11 feet recommended by the FAA.

GCD has a full unpaved perimeter road, whose conditions are not passable after a rain or snow event. Moreover, the profile of the road requires a vehicle with high ground clearance and all-wheel drive.

<u>Recommendations:</u> The existing fence should, at a minimum, be repaired in the short-term period (within 5 years). It is recommended that a new wildlife fence with a minimum height of 11 feet be installed. In addition, the perimeter road should be paved and its geometry improved and updated based on existing and future airfield development.

## 4.3.7 AIRPORT TRAFFIC CONTROL TOWER (ATCT)

The airport does not have a permanent ATCT and a temporary facility is put in place during the wildfire season to manage USFS/ODF operations. There is currently no specific threshold triggering the construction of an ATCT at an airport. FAA approval is based on several characteristics including, but not limited to:

- ★ Number of operations
- ★ Complexity of the airport
- ★ Complexity of the airspace
- ★ Specific activities
- ★ Integration of the airport in the National Plan of Integrated Airport System (NPIAS)
- ★ Airport of public use
- ★ Cost efficiency of the ATCT

An ATCT can either be Federal, part of the FAA Federal Contract Tower (FCT) program, or non-federal. Funding by the FAA for such facilities is limited.

**Recommendations**: Considering the current activity at the airport, there is no need for a permanent ATCT within the 20-year planning period. It is recommended that the use of a temporary facility operated by USFS for firefighting operations continue on an as-needed basis.

## 4.3.8 USFS/ODF FACILITIES

As mentioned in **Chapter 2 - Inventory of Existing Conditions**, USFS and ODF use approximately 39 percent of the terminal building for firefighting operations at GCD, including operations rooms, offices and hangar space. In addition, they use an old apron adjacent to the terminal for vehicle parking. USFS owns two storage building south of the terminal building. USFS and ODF also use and maintain a Single Engine Air Tanker (SEAT) base located at the northeast corner of the corporate apron



At the time of this study, USFS and the Bureau of Land Management is in the process of designing and financing a new SEAT base on the airport. This SEAT base will be similar in size and shape to existing SEAT bases in the area. It should be able to handle and store three SEAT during the wildfire season.

SEAT Base - Burns Airport, OR Source: USFS

USFS/ODF also makes extensive use of helicopters on the airport. Considerations for helipad development at the airport are discussed in Section 4.2.9.

<u>Recommendations</u>: USFS and ODF conduct a large number of operations at the airport. Given their specific nature, it is essential to consider these operations and their impact on airport safety as well as other activities at the airport. For this reason, a study of potential locations for the new SEAT base is recommended in order to integrate the new facility as much as possible into the future development at the airport. Alternatives are studied in **Chapter 6 - Alternative**Analysis. It is also recommended that the USFS/ODF facilities are kept out of any protection zones or areas associated with the runways, taxiways and airspace.

## 4.4 SUPPORT FACILITY REQUIREMENTS

Requirements for the support facilities were evaluated for:

- ★ Fuel Facilities
- ★ Utilities
- ★ Emergency Response
- ★ Airport Maintenance

#### 4.4.1 FUEL FACILITIES

The current fuel facilities at GCD supply AVGAS 100LL and Jet A stored in two 4,000-gallon underground tanks. A new dispenser and pump for the AVGAS 100LL was installed in 2015. The airport expressed concerns about the access to the fuel island due to its location on the main apron.

The following assumptions were made to determine the minimum fuel storage capacity required at the airport:

- ★ Class A aircraft consume an average of 8 gallons per flight hour.
- ★ Class B aircraft consume an average of 20 gallons per flight hour.
- ★ Class C Aircraft consume an average of 120 gallons per flight hour.

- ★ The average flight time per operation at GCD is 1 hour.
- ★ Class C aircraft use Jet A fuel.
- ★ .Class A and B aircraft use AVGAS 100 LL fuel.
- ★ The airport should be able to store one month of fuel.

<u>Recommendations</u>: It is recommended that the fuel island be relocated as needed and to provide the best access to fuel according to existing and future airport development. Alternatives are shown in **Chapter 6 - Alternative Analysis**.

It is recommended that the airport acquire tanks with enough capacity to store the required amount of fuel, as summarized in **Table 4-20**. Also, the airport should be able to store a minimum of 12,000 gallons of Jet A in the short-term. This amount corresponds to the capacity of a fully loaded fuel delivery truck and would avoid the necessity of buying partial loads. It will also provide the airport with a greater capacity for jet and firefighting activities. It is also recommended that the airport acquire an AVGAS tank with a minimum capacity of 6,000 gallons.

**TABLE 4-20: FUEL STORAGE REQUIREMENTS** 

Items	2015*	2020	2025	2035
Annual Operations at GCD**	9,064	9,951	10,943	13,031
Percentage of Class A Aircraft**	78%	77%	75%	72%
Annual AVGAS Consumption of Class A	56,560	61,304	65,656	75,064
Percentage of Class B Aircraft**	10%	10%	11%	12%
Annual AVGAS Consumption of Class B	18,128	19,902	24,075	31,275
Total AVGAS 100 LL Fuel Requirements (Gallons/Month)	6,224	6,767	7,478	8,861
Percentage Class C Aircraft**	12%	13%	14%	16%
Annual Jet A Consumption of Class C	130,522	143,295	183,842	250,195
Total Jet A Fuel Requirements (Gallons/Month)	10,876	11,942	15,320	20,850

\*Base Year

\*\*See Chapter 3 - Aviation Activity Forecasts

\*\*\* Include 1 pilot, 1 passenger and 1 visitor

Source: T-O Engineers. Inc.

#### 4.4.2 UTILITIES

As explained in **Chapter 2 - Inventory of Existing Conditions**, the airport has all the common utilities necessary to serve the airport's needs. No specific improvements are currently necessary. It is recommended that all utilities be updated and expanded in accordance with future development at GCD.

Depending on the location and scope of future airport development, it will be necessary to provide adequate water flow and pressure as required by fire flow demands.

## 4.4.3 EMERGENCY RESPONSE

Because GCD does not offer regular commercial operations, it is not required to have specific emergency response services on the airport. Emergency services at the airport as well as Search And Rescue (SAR) services are offered by local volunteers Grant County. There is no need, in the foreseeable future, of providing dedicated emergency services on the airport, such as an Aircraft Rescue Fire Fighting (ARFF) station.

## 4.4.4 AIRPORT MAINTENANCE AND SNOW REMOVAL EQUIPMENT (SRE)

As presented in **Chapter 2 - Inventory of Existing Conditions**, GCD has two pieces of equipment, one for airport maintenance and one for snow removal. There is an airport maintenance shop that only accommodates the maintenance truck. The 50-year-old snow removal truck is parked outside.

<u>Recommendations</u>: It is recommended that a multi-utility piece of equipment be acquired. This is typically a front-end loader or multi-directional tractor with attachments. A new SRE building with a minimum area of 5,240 square feet is also recommended. AC 150/5220-18A provides guidance for the site selection and design of SRE buildings.

## 4.5 OTHER REQUIREMENTS

## 4.5.1 PAVEMENT MAINTENANCE

It is recommended that all airport pavements be monitored closely for deterioration and maintenance performed accordingly. The higher elevation of the airport combined with seasonal harsh weather conditions leads to faster pavement deterioration. Therefore, the airport needs to be proactive in pavement maintenance practices. A routine of crack seal and seal coat treatment every three to five years will significantly extend life of the airport pavements. For more significant maintenance and repairs, nominal overlays will likely be required on various airport pavements to ensure pavement integrity and quality throughout the planning period.

#### 4.5.2 INDUSTRIAL PARK AND LAND USE

As presented in Chapter 2 - Inventory of Existing Conditions, there is an industrial park located northwest of the airport adjacent to the airport property. Several lots are available for acquisition

and are zoned for industrial and commercial use. Grant County, the primary owner of the airport, has expressed interest in attracting new airport related businesses to the area. It is important to ensure that all future development of the industrial park be compatible with airport activities as well as existing and the airspace protections.

Zoning ordinances that limit airspace obstructions at GCD are in place. It is necessary to ensure that the land use of properties surrounding the airport is not incompatible with operations of the airport. Further guidance on land use is provided in **Chapter 8**.

## 4.5.3 WILDLIFE AND ENVIRONMENTAL CONSIDERATIONS

The airport should follow the recommendations published in the Wildlife Hazard Site Visit Report shown in **Appendix B** for all wildlife mitigation measures. Also, it is important to minimize the impact of future development on the environment. **Chapter 5 - Environmental Overview** summarizes all environmental concerns at GCD.

## 5.0 ENVIRONMENTAL OVERVIEW

### 5.1 INTRODUCTION

Federal Aviation Administration (FAA) guidance encourages environmental factors in airport master planning to "help the sponsor thoroughly evaluate airport development alternatives and to provide information that will help expedite subsequent environmental processing." However, it is not the intent of a Master Plan to complete the federal environmental review processes or double as a National Environmental Policy Act (NEPA) approval. This review lays the baseline conditions for understanding the need for future environmental studies. Chapter 5.0 provides an overview of environmental resources considered during the development of in accordance with the Master Plan update. Environmental resources addressed in this chapter are coincident to those reviewed in the National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions and FAA Order 1050.1F, Environmental Impacts: Policies and Procedures. The cursory analysis does not constitute an environmental evaluation satisfactory to NEPA; instead, it recommends potential NEPA actions which may be required by the FAA during implementation of the Master Plan alternatives.

Grant County Regional Airport is located in Grant County near the city of John Day, Oregon. John Day is at the intersection of US Hwy 26 and US Hwy 395 connecting from Portland to the east and from Spokane Washington south to California. The airport is located ½ mile southwest of downtown John Day and is elevated on a low butte, sitting approximately 500 feet higher than the center of town.

## 5.2 AIR QUALITY

The federal Clean Air Act, as amended, required the U.S. Environmental Protection Agency (EPA) to establish National Ambient Air Quality Standards (NAAQS) for principle air pollutants considered harmful to public health and the environment. Grant County is in attainment, which means the county meets all NAAQS air quality standards set by the EPA for emissions.

Sources of emissions include aircraft engines, support equipment, auxiliary power units, motor vehicles, construction equipment, and various stationary sources. Stationary sources include back-up power generators and fuel storage tanks. Future airport development projects that require NEPA review will consider the project's effect on air quality, however, routine operations are likely to be exempt from air quality requirements, and unlikely to affect air quality or cause a raise in pollutants that exceeds NAAQS.

## 5.3 BIOLOGICAL RESOURCES

FAA Order 1050.1F identifies factors which determine impacts on biological resources such as plant communities, wildlife and protected species and their habitat. These include:

- ★ A long-term or permanent loss of unlisted plant or wildlife species.
- ★ Adverse impacts to special status species or their habitats.
- ★ Substantial loss, reduction, degradation, disturbance, or fragmentation of native species' habitats or their populations.
- ★ Adverse impacts on a species' reproductive success rates, natural mortality rates, unnatural mortality, or ability to sustain the minimum population levels required for population maintenance.

In addition to assessing impacts under NEPA, airport development projects are subject to other federal and state laws associated with wildlife and protected species. Most notable is the federal Endangered Species Act, which protects and recovers imperiled species and the ecosystems upon which they depend. In Oregon, if a project might impact a species that the state has listed as threatened or endangered, the Oregon Department of Fish and Wildlife (ODFW) and/or the Oregon Department of Agriculture (ODA) must be consulted. ODFW regulates state- listed fish and wildlife species through ORS 496.171 to 496.192. ODA regulates state- listed plants through ORS 564.100 to 564.135.

Two Endangered species are found in Grant County Oregon, the Grey Wolf and the Bull Trout. The Grey Wolf is endangered in the western 2/3rds of the state, defined as west of Hwy 395 which puts the airport less than one mile inside the area of listing. The Bull Trout has potential to spawn in Canyon Creek (1 mile east of airport) and the John Day River (1 mile north of the airport). (FWS, 2016)

#### FWS.2016

https://ecos.fws.gov/ipac/location/XJG3XYSRZFCW3EHHTFX64GIBRA/resources#endangered -species Is this a footnote?

No federal ESA- listed wildlife species or species proposed for ESA listing are documented within the ownership of the Grant County Airport. Land uses in the majority of the study area are urban and modified-mixed habitats. Commercial and residential land uses with buildings, pavement, ornamental gardens, lawns, and scattered trees do not provide suitable habitat for listed wildlife species. Wildlife habitat in the study area is generally limited to the riparian areas along Canyon Creek east of the airport, yet outside of the airport project area. Drainage from the airport is contained to swales and settling ponds before leaving the site, therefore it is unlikely that sediment or other pollutants would affect water quality in either waterway or

"unlikely to affect" Bull Trout. The complete Wildlife Hazard Site Visit report is available in **Appendix B**.

## 5.4 CLIMATE

The Green House Gas (GHG) emissions at the Airport are primarily linked to fuel burn associated with aircraft operations. An increase in operations would, therefore, result in an increase in emissions. Additionally, short-term increases in GHGs would result from construction activities (i.e., vehicular activity in support of construction, movement of construction vehicles along haul routes and construction worker commuting). There are no significance thresholds for aviation GHG emissions, nor has the FAA identified specific factors to consider in making a significance determination for GHG emissions. Aircraft use increase is only anticipated during firefighting activities and would be inconsequential in the regional or statewide increases to GHG. Acquisition of property would not contribute to GHG emissions.

## 5.5 COASTAL RESOURCES

John Day is located approximately 500 miles inland from the Pacific Ocean, however; Steelhead Trout, an anadromous fish (ocean spawning) can be found in the John Day River and are protected under the National Marine Sanctuaries Act. As the FAA project would not change or contribute to water quality discharges into the John Day River or Canyon Creek, Coastal Resources would not be affected.

# 5.6 DEPARTMENT OF TRANSPORTATION ACT: SECTION 4(F) AND OTHER ENVIRONMENTALLY SENSITIVE PUBLIC LANDS

Section 4(f) of the Department of Transportation Act of 1966 (re-codified and renumbered as Section 303(c) of 49 United States Code) states that the Secretary of Transportation will not approve any program or project that requires the use of publicly-owned land of a public park, recreation area; or wildlife and waterfowl refuge of national, state, or local significance; or land of an historic site of national, state, or local significance as determined by the officials having jurisdiction thereof, unless:

- ★ There is no feasible and prudent alternative to use of such land and such program, and
- ★ The program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

There are no Section 4(f) resources located on the Grant County Airport property. U.S. Park Service (NPS), ODFW, and city of John Day data were reviewed. NPS National Register of Historic Places(NRPH) inquiries shows historic resources listed on the NRHP within the vicinity of the airport. There are no wildlife and waterfowl refuges located on or in the immediate vicinity of John Day, Oregon. Section 4(f) resources located within one-half mile of the airport property are depicted on **Figure 5-1**. Six resources of note are shown on the Figure, with the Old Humbolt Diggings, a retired gold mine cut, being the closest to the airport. The remaining NHRP listed properties are not "used" nor have "constructive use" as defined by Section 4(f) regulation.



FIGURE 5-1 - SECTION 4(F) RESOURCES

## 5.7 FARMLANDS

The Farmland Protection Policy Act (FPPA) addresses all farmlands converted from agriculture to another use as well as state, unique, or prime farmland soils. The Natural Resource Conservation Service has not mapped this area of Grant County as it is not actively farmed for row or production crops. A review of soils in the area show a range of stony, silty clay soils which are not prime, unique or of statewide importance, therefore it is unlikely that airport development projects are subject to the FPPA.

## 5.8 HAZARDOUS MATERIALS AND WASTE MANAGEMENT

## 5.8.1 HAZARDOUS MATERIALS

Federal, state, and local laws regulate hazardous materials use, storage, transport, or disposal. Major laws and issue areas include:

- ★ Resources Conservation and Recovery Act (RCRA) hazardous waste management.
- ★ Hazardous and Solid Waste Amendments Act hazardous waste management.
- ★ Comprehensive Environmental Response, Compensation, and Liability Act cleanup of contamination. National Priority List (NPL) sites, also referred to as "Superfund" sites, are considered by EPA to have the most significant public health and environmental risks to neighboring areas.
- ★ Superfund Amendments and Reauthorization Act (SARA) cleanup of contamination.
- ★ Emergency Planning and Community Right-to-Know (SARA Title 111) business inventories and emergency response planning.

According to the US EPA Envirofacts multi-system search (EPA, 2016), there are three sites reporting waste management within ½ mile of the airport. The Grant County Airport itself is a hazardous materials waste generator with a storage facility in the industrial park located north of the airport and west of county road 80. There are no superfund sites in Grant County and no active cleanup of contamination sites within ½ mile of the airport.

## (EPA,2016)

http://iaspub.epa.gov/enviro/efservice/multisystem/minLatitude/44.408121/maxLatitude/44.4240 1/minLongitude/-119.1051/maxLongitude/-118.94344/rows/1:500 footnote?

#### **5.8.2 WASTE MANAGEMENT**

The FAA Modernization and Reform Act of 2012 included a new requirement for airport master plans to address recycling by:

- ★ Assessing the feasibility of solid waste recycling at the airport;
- ★ Minimizing the generation of waste at the airport;
- ★ Identifying operations and maintenance requirements;
- ★ Reviewing waste management contracts; and
- ★ Identifying the potential for cost savings or generation of revenue.
- ★ The Grant County and the City of John Day municipal waste is serviced by Clark's Transfer Station in John Day. These services include sanitary and recyclable waste which is transferred to the sanitary landfill outside of Baker City, Oregon. All waste is controlled and permitted by the Oregon Department of Environmental Quality.
- ★ Onsite initiatives for the airport to consider would include:
- ★ Formalize and broaden the recycling program including incentivizing waste diversion and recycling and formally tracking key performance indicators.
- ★ Develop an awareness campaign to educate passengers and employees about proper recycling practices.
- ★ Periodic monitoring of the waste reduction and recycling program.

# 5.9 HISTORICAL, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

The National Historic Preservation Act of 1966 (NHPA) was enacted to preserve historical and archaeological sites. Section 106 of the NHPA requires Federal agencies to consider the effects of their actions on properties on or eligible for inclusion in the National Register of Historic Places (NRHP). Compliance with Section 106 requires consultation with the Advisory Council on Historic Preservation (ACHP), the State Historic Preservation Officer (SHPO) and/or and the Tribal Historic Preservation Officer (THPO) if there is a potential adverse effect to historic properties on or eligible for listing on the NRHP. These and numerous other statutes listed in FAA Order 1050.1F require that impacts to historical, architectural, archaeological, and cultural resources be considered.

Historic, architectural, archaeological, and cultural resources may include archaeological sites, buildings, structures, objects, districts, works of art, architecture, and natural features that were important in past human events. They may consist of physical remains, but also may include areas where significant human events occurred, even though evidence of the events no longer exists. An Archaeological and Historic Resource Survey was conducted; known sites are shown in **Table 5-1**. Mapped sites are also shown above in Section 5.5, Section 4(f).

An additional intensive ground survey was conducted for the four parcels considered for acquisition and for future development at the Grant County Regional Airport. The background research found no evidence of Traditional Cultural Properties, (Native American). No historic-period structures, archaeological resources, or high-probability areas for buried archaeological resources were identified. Based on the negative results of the pedestrian survey and the extent of previous ground alteration for most of the Area of Potential Effect, a recommendation of a finding of "No Historic Properties Affected" was recommended.

**TABLE 5-1 - CULTURAL RESOURCE INVESTIGATION** 

TABLE 1
CULTURAL RESOURCE INVESTIGATIONS
PREVIOUSLY PERFORMED WITHIN ONE MILE OF THE APE

REFERENCE	DESCRIPTION	LOCATION (Township, Range, Section)
Goheen and Hosford 1982	Archaeological Survey of the Proposed John Day/ Canyon City Community Expansion Project	T13S,R31E,§28; T13S,R31E,§26,35
O'Grady 2005	Region 5: US 26 Grant County Line- Malheur County Line, Grant, Baker, and Malheur Counties	T13S,R31E,§21,22
Patterson 1979*	Cultural Resources Survey, John Day Airport (no cultural resources were identified)	T13S,R31E,§27,34
Ramirez, Butler, and Schlenker 2007*	Cultural Resources Inventory for the Grant County Regional Airport Expansion (no cultural resources were identified)	T13S,R31E,§27,34
Schablitsky 2002	Archaeological Survey of Region 5, WCL Mt. Vernon- John Day Section, US 26: MP 153.79 to 161.50	T13S,R31E,§21,22
Schablitsky and Connolly 2005	Archaeological Inventory of the Kam Wah Chung State Heritage Site	T13S,R31E,§23
Schablitsky, Connolly, and Ruiz 2006	Exploratory Archaeological Study of the Kam Wah Chung State Heritage Site	T13S,R31E,§23
Schablitsky, Connolly, and Ruiz 2007	Archaeological Testing at the Kam Wah Chung State Heritage Site	T13S,R31E,§23
Swanson 1976	Archaeological Reconnaissance of Proposed Sewage Facilities at John Day and Canyon City	T13S,R31E,§23,26
Zancanella 1998	Cultural Resources Survey for the Northeast Oregon Assembled Land Exchange	T13S,R31E,§28; T14S,R31E,§3

<sup>\*</sup>Covers portions of APE.

The full cultural Resource Survey report is available in **Appendix B**.

#### **5.10 LAND USE**

Existing land use patterns typically follow an established zoning code, with the exception of those areas that are currently vacant and for which future development is contemplated under the existing zoning. According to the City of John Day Zoning Map shown in **Figure 5-2**, the airport is zoned separate as an airport district. South and west are large lot county residential uses. East of the Airport are medium-density general residential and general commercial land uses along US 395. Grant County properties are regulated by the Grant County Comprehensive Land Use Plan, which protects airports from incompatible development, in section XI Transportation.

All development would need to be reviewed by the county board and in cooperation with annexations through the city of John Day. All existing land uses are compatible, with the exception of isolated residential located along Meadowlark Lane south of the Airport. However, these uses are also largely isolated by topography as the airport sits above the city on a plateau.

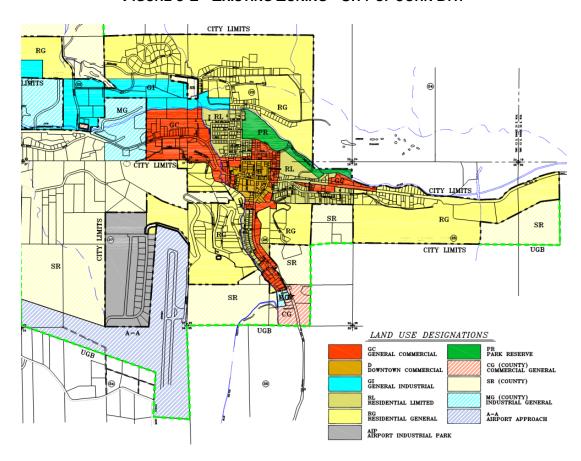


FIGURE 5-2 - EXISTING ZONING - CITY OF JOHN DAY

## 5.11 NATURAL RESOURCES AND ENERGY SUPPLY

Natural resources and energy supply discussions provide an evaluation of a project's consumption of natural resources (such as water, asphalt, aggregate, wood, etc.) and use of energy supplies (such as coal for electricity; natural gas for heating; and fuel for aircraft, commercial space launch vehicles, or other ground vehicles). Limited Federal guidance exists to guide evaluation of this category of impacts. Most are directed towards maximizing energy efficiency and minimizing natural resource consumption in Federal facilities. Oregon Trail Electric Co-op provides the electrical, primarily from the hydroelectric facilities on the Columbia River Basin, delivered by the Bonneville Power Association.

Although a threshold has not been specifically identified by the FAA, it is not anticipated that the airport improvements or development projects being considered would have a significant impact on natural resources and energy supplies. Since the hydroelectric facilities are renewable, there would be adequate supply for future demands.

## 5.12 NOISE AND NOISE-COMPATIBLE LAND USES

Airport noise is among the most controversial environmental impact at airports. The FAA examines airport development actions that would change airport runway configurations, aircraft operations and/or movements, aircraft types using the airport or aircraft flight characteristics. The noise analysis conducted by the FAA primarily focuses on how proposed airports actions would change the cumulative noise exposure of individuals to aircraft noise in areas surrounding the airport.

Per FAA Order 1050.1F Appendix B, Section B-1:

"No noise analysis is needed for projects involving Design Group I and II airplanes (wingspan less than 79 feet) in Approach Categories A through D (landing speed less than 166 knots) operating at airports whose forecast operations in the period covered by the NEPA document do not exceed 90,000 annual propeller operations (247 average daily operations) or 700 annual jet operations (2 average daily operations). Also, no noise analysis is needed for projects involving existing heliports or airports whose forecast helicopter operations in the period covered by the NEPA document do not exceed 10 annual daily average operations with hover times not exceeding 2 minutes."

Grant County Regional Airport falls into this category and no noise analysis will be conducted as part of this Airport Master Plan.

# 5.13 SOCIOECONOMICS, ENVIRONMENTAL JUSTICE, AND CHILDRENS HEALTH AND SAFETY RISKS

## 5.13.1 SOCIOECONOMICS AND CHILDRENS HEALTH AND SAFETY RISKS

Social impacts must be evaluated by the FAA and include the effects on health and safety risks to children and socioeconomic impacts. Social impacts encompass:

- ★ Moving home or businesses,
- ★ Dividing or disrupting established communities,
- ★ Disrupting orderly, planned development,
- ★ Or creating a notable change in employment.

The area surrounding the Grant County Airport is sparsely populated, as previously mentioned in the Section 5-10 - Land Use. No reasonably foreseeable actions at the airport will require moving home or business, dividing established communities, disrupting orderly or planned development or will create a notable negative change in employment.

## **5.13.2 ENVIRONMENTAL JUSTICE**

Environmental justice is a public policy goal of promoting the fair treatment and meaningful involvement of all people in the decision-making process. Satisfying this goal means ensuring that minority and low-income communities receive an equitable distribution of the benefits of a project without suffering disproportionate adverse impacts. According to the U.S. Census Bureau (2010), Grant County airport is located within census tract 960200, census blocks 3004 and 3030.

Census data shows a total of 93 persons located in these blocks which make up over 1110 acres. Populations are centered to the north along Phillips Lane, a large lot executive density subdivision located on a bench below the airport and along Meadow Lark Lane, a rural subdivision in Grant County. There are no known concentrations of low-income or minority groups within these census blocks. Properties identified for acquisition are vacant land with no residents.

## **5.14 VISUAL IMPACTS**

Although there are no special purpose laws for light emissions and visual impacts, FAA Order 1050.1F recommends that consideration to these factors be given. Airport facilities and operations cause light emissions that can affect light sensitive land uses such as homes, parks, or recreational areas near an airport. Typical sources of disturbing light emissions include airfield and apron lighting, visual navigational aids, terminal lighting, employee/customer parking

lighting, airborne and ground-based aircraft operations, and roadway lighting. Sources of light at the Grant County Regional Airport include the following:

- ★ Rotating beacon
- ★ Lighted wind cone and segmented circle
- ★ Pilot-controlled Medium Intensity Runway Lighting—
- ★ Precision Approach Path Indicator
- ★ Runway End Identifier Light System
- ★ Various security lights and interior lights at the Airport terminal and hangars

Visual effects deal with the extent to which airport development contrasts with the existing environment, architecture, historic or cultural setting, or land use planning. Visually sensitive resources (Traditional, cultural, or unique biologic) are not present in the vicinity of the airport, zoning for industrial and very low density residential also reduce the visual receptors. As the airport sits above most receptors, a natural buffer and shielding occurs, further reducing potential for visual effects.

## **5.15 WATER RESOURCES**

An environmental survey was completed for the presence of water resources in the vicinity of the airport, specifically wetlands to satisfy both EO 11990- Protection of Wetlands and EO 11988- Floodplain Management, the Clean Water Act under the authority of the Army Corps of Engineers, and FAA Orders 1050.1F and 5050.4B

#### **5.15.1 WETLANDS**

The airport is located over 500 feet above the city of John Day, Oregon. It is a dry area characterized by steep gradients on the eastern, southern, and western boundaries of the Site, and additional plateau land is present to the north. Numerous ravines and canyons are present at the base of the plateau and due to the topography and soil characteristics most precipitation is either absorbed into the soil profile or runs off with very little ponding. No existing wetlands are present on the Site or within the study areas targeted for future potential development. None of the three wetland components (i.e., hydric vegetation, hydric soil, or site hydrology) occur within the areas examined. The complete Wetland Assessment report is presented in **Appendix B**.

#### **5.15.2 FLOODPLAINS**

Department of Transportation Order 5650.2, Floodplain Management and Protection, and FAA Orders 1050.1F and 5050.4B contain policies and procedures for implementing the Executive Order and evaluating potential floodplain impacts.

As the airport property and properties considered for acquisition are located above all waterways and outside of flood prone areas. The airport is located on a plateau above the John Day River and Canyon Creek, as the site also includes stormwater management facilities, no effects to floodplains would occur.

## 5.16 SECONDARY (INDUCED) IMPACTS

Secondary impacts are impacts that occur in a community as a response to major developments. Examples include shifts in patterns of population growth and movement, public service demands, and changes in business and economic activity influenced by airport development.

Induced impacts are not normally significant except where there are significant impacts to other categories, particularly noise, land use, or direct social impacts. No reasonably foreseeable actions at the airport will lead to shifts in patterns of population movement and growth, negative changes in business and economic activities, or affect public service demand.

## 6.0 ALTERNATIVES ANALYSIS

The Alternative Analysis section of the airport master plan identifies options to meet the projected facility requirements at Grant County Regional Airport (GCD) It assesses each alternative to select a preferred development plan that accommodates the demand, facilities requirements, and recommendations previously identified as part of tis study.

Multiple options for both airside and landside alternatives were considered by the planning team and the airport to determine the preferred alternatives. These preferred alternatives serve as the basis for the Airport Layout Plan (ALP) drawing set shown in **Chapter 9 - Airport Layout Plan**.

## 6.1 AIRPORT DEVELOPMENT ASSUMPTIONS

Chapter 3 - Aviation Activity Forecasts, and Chapter 4 - Facilities Requirements identified the future demand and the need for improvements at the airport. This chapter will take the process a step further and outline specific development alternatives as well as the rationale behind the selection of specific alternatives.

The following sections describe specific considerations for development of the selected alternatives.

## **6.1.1 AIRPORT USERS**

Currently, single-engine piston aircraft and helicopters are the primary users of the airport, with occasional use by twin-engine turboprops and light jets. Although single-engine piston aircraft will continue to dominate the demographic of the airport during the planning period, the forecast predicts a slight increase in multi-engine, including turbine aircraft.

Also, the airport is base of the US Forest Services (USFS) and the Oregon Department of Forestry (ODF) for firefighting activity during the wildfire season. This specific activity drives the number of operations by aircraft such as the Air Tractor AT802 that was identified as the design aircraft for the next 20 years.

#### **6.1.2 ACTIVITY LEVELS**

The level of activity at GCD is predicted to slowly increase during the planning period. The growth of both based aircraft and total number of operations reflects national and state trends in aviation activity. Details of projected growth are reflected in **Chapter 3 - Aviation Activity Forecasts**.

#### **6.1.3 FACILITIES CONFIGURATION**

The configuration of existing facilities at GCD was also a determining factor when analyzing the potential layout of future facilities. The layout of new aprons, taxiways and hangars must be complementary to existing facilities to provide useable and cost effective options to the airport. This airport master plan seeks to make use of existing facilities to the greatest extent possible and enhance them for future development.

## 6.2 AIRPORT DEVELOPMENT GOALS

Realistic goals for development, which reflect the role of Grant County Regional Airport in the community, have been identified in this planning effort. These goals were developed with consideration of both the short-term and long-term needs of the airport including interest of airport users, compatibility with the surrounding land use, safety, noise, financial and economic conditions.

#### These goals include:

- ★ Preparation of a logical development program for the airport that provides a realistic vision for the future.
- ★ Analysis that provides financially feasible projects that enhance the self-sustaining capability of the airport.
- ★ Adherence to minimum design standards, rules and regulations.
- ★ Preservation of existing private and public investment in the airport and related facilities through land use compatibility.
- ★ Minimize environmental impacts of future development.

It is understood that the need for *full* build-out of the airport as depicted on the ALP drawing set will be driven by the actual demand at the airport at the time of the projects. Nevertheless, recommendations and alternatives have been developed based on a proactive planning approach to assist the airport in facilitating logical and orderly development over the planning period, and beyond.

When such a plan does not exist, it is not uncommon to make development decisions based on what is most convenient and expedient at the time. For example, a new tenant may wish to build a hangar at a certain location at the airport. In the short-term, this location may work fine and be expedient. In the long-term, however, this location might have been better suited for other future development. The alternatives and plan presented provide the roadmap and guidance to GCD to avoid falling into this trap. Further, it is understood that inclusion of the identified projects on the ALP do not indicate a commitment on the part of the FAA or the State of Oregon to provide

funding for any or all of the projects. This said projects are *not* eligible if *not* shown on the airport's approved ALP.

As previously stated, many of the recommendations contained in this planning study are demand driven and will only be considered when and if demand at the airport warrants.

#### 6.3 EVALUATION CRITERIA

In order to assess and evaluate the different alternatives, several evaluation criteria were used:

- ★ Operational
- ★ Environmental
- ★ Feasibility
- ★ Compatibility with future needs
- ★ Cost

#### **Operational and Safety**

The operational criterion assesses the ability to accommodate current and forecast demand in a safe and efficient manner.

#### **Environmental**

This criterion assesses the preliminary level of environmental impacts and environmental disruptions needed for a project. The type of environmental documentations required to meet NEPA (National Environmental Policy Act) regulation will be determined by the FAA before the beginning of each project.

#### **Feasibility**

The feasibility criterion assesses the construction feasibility of each alternative, with special attention given to the wetlands and farmlands.

## Compatibility with future needs

This criterion assesses the compatibility with future short- and long-term needs.

#### Cost

This evaluation criterion provides an estimation of the project expenses and assesses the ability to answer the needs costs-effectively.

In order to evaluate all alternatives and pick a preferred one, each criteria will be graded on a scale of 5.

## **6.4 AIRPORT FACILITIES REQUIREMENTS**

**Table 5-1** lists all the facilities and actions recommended at the airport, as previously identified in **Chapter 4 - Facility Requirements.** 

TABLE 5-1: SUMMARY OF FACILITY REQUIREMENTS

TABLE 5-1: SUMMARY OF FACILITY REQUIREMENTS						
Facility	Existing		Recommended			
Facility	17-35	9-27	17-35	9-27		
	Airside Alternati	ves				
Runway Design Code (RDC)	B-I-VIS	B-I-5000 B-I-VIS	B-II-VIS	B-II-5000 B-II-VIS		
Runway Length	5,220'	4,471'	Same	4,600'		
Runway Width	60	,	7	5'		
Taxiway	Full Parallel	Connector	Full Parallel -	35' with MITL		
Tiedowns	16	3	2	1		
Helicopter Parking Pad	3 Paved - 2	unpaved	6 Pa	aved		
L	andside Alternat	ives				
Terminal/pilot's lounge	2,500	SF	Sa	me		
Hangars	17			7		
Fuel Facility	4,000 Gallo 4,000 Gallo		6,000 Gallons 100LL 12,000 Gallons Jet A			
FBO	Nor		Yes - 20,000 SF			
Access Road and Automobile Parking	Paved 12 for Terminal 37 for USFS		Paved 27 for Hangars 27 for Terminal 37 for USFS			
Utilities Extension	-			essary		
Seat Base (US Forest Services)	No	)	Ye	es		
	Other Requireme	ents				
Automated Weather	AWOS 3		Relocate			
REILs	RWY 17	RWY 9	Same	RWY 9 RWY 27		
Precision Approach Path Indicator (PAPI)	RWY 17 4-Light	RWY 9 4-Light	Relocate	Relocate RWY 9. Install RWY 27		
Lighting System	MIR	RL	MI	RL		
Segmented Circle	Yes		Relocate			
Wind Cone	Wind Cone Lighted		Relo	cate		
Airport Beacon	Yes		Same			
SRE and Maintenance	Yes		New SRE	Building		
Renumber Runways	-		17-35	10-28		
Perimeter Fence	Yes		11-Foot Wi	ldlife Fence		
Runway Object Free Area (ROFA)	Road and Fence Penetrations		Clear			
Runway Safety Area (RSA)	Overlap		Decouple Runway			
Runway Protection Zone (RPZ)	Incompatible Land Use		Clear			
			Source: T-	O Engineers, Inc.		

The facilities and actions that will be detailed in the following sections of this Airport Master Plan are:

#### ★ Airside

- Meet B-II Standards: B-II-5000 for Runway 9-27 and B-II-VIS for Runway 17-35
- Runway Protection Zones (RPZ)
- Decouple Runways
- Taxiway System
- Relocate Wind cone and segmented circle
- Relocate Automated Weather (AWOS)

#### ★ Landside

- Fuel Facility
- Aircraft Apron, Hangars and FBO
- Automobile Parking
- US Forest Services Seat Base

Other facilities, not listed above, do not require a detailed analysis of alternatives. However, they will be listed and depicted on the ALP as appropriate.

## 6.5 AIRSPACE AND OBSTRUCTIONS

## 6.5.1 CFR PART 77 IMAGINARY SURFACES

CFR Part 77 Imaginary Surfaces are surfaces defined by law to identify obstructions to air navigation on and around airports. It is not mandatory to mitigate such obstructions but it is recommended to remove or light obstructions when feasible, as shown on the **Airport Layout Plan - Airspace Drawing**.

When feasible, all future alternatives presented in this chapter were developed so that future infrastructures do not constitute an obstruction to air navigation by Part 77 standards for the ultimate imaginary surfaces. A 10-foot clearance for private roads, and 15-foot clearance for public roads, as well as differences in terrain elevation were used to determine optimal location or relocation of infrastructures.

#### 6.5.2 THRESHOLD SITING SURFACE (TSS)

The Threshold Siting Surface (TSS) dictates the location of the runway threshold based on existing obstructions. When feasible, all future alternatives presented in this chapter were

developed so that future infrastructures do not constitute an obstruction to the ultimate TSS. All existing and future TSS are depicted on the Airport Layout Plan Set.

## Runway 35

As presented in **Chapter 4 - Facilities Requirements**, the existing TSS for Runway 35 is penetrated by a hill located approximately 8,700 feet south of the airport. The amount of penetration is over 200 feet, which would require displacing the Runway 35 threshold by over 4,000 feet. Considering this value, it was deemed unpractical to implement a reduced Landing Distance Available (LDA) on Runway 35. Refer to **Appendix C** for a more detailed analysis.

## Other Runways

There is not any existing penetration of the TSS for Runway 17, Runway 9, and Runway 27. All future threshold locations will ensure that the associated TSS remain clear.

## 6.5.3 GLIDE PATH QUALIFICATION SURFACE (GQS)

The GQS only applies to Runway 9 because of it vertically-guided approach. Because additional vertically guided instrument procedures are not anticipated for other runways at GCD, no new GQS will be evaluated. Future alternatives for Runway 9 will ensure that the GQS remains clear of obstacles. The existing and future GQS are depicted on the Airport Layout Plan Set.

#### 6.5.4 DEPARTURE SURFACE

The only existing departure surface applies to Runway 27 departure end. It is currently clear of any penetration and future alternatives will ensure it stays this way.

The need for an instrument departure from Runway 35 was identified in **Chapter 4 - Facilities Requirements**. Future alternatives for this runway will ensure that the associated departure surface is cleared of obstacles. More details about the departure surfaces at GCD can be found on the **Airport Layout Plan - Departure Surface** drawing

## 6.6 AIRSIDE ALTERNATIVES

Primary airside facilities recommendations include:

- ★ Protect Runways to Meet B-II Standards as Defined in the FAA AC 150/5300-13A
- ★ Decouple Runways
- ★ Clear RPZs of all Incompatible Land Uses
- ★ Provide an Optimized Apron Layout to Accommodate Future Needs
- ★ Provide a more Efficient Taxiway System

This section summarizes the various airside development alternatives considered and describes the selected alternative in each case. When analyzing and developing the various alternatives, several basic development principles and goals were considered to guide the process:

- ★ Future development will be planned in a manner whereby phased development is possible over the planning period thus providing flexibility to the County to accommodate growth as demand warrants.
- ★ The need for *full* build-out of the airport as depicted on the ALP drawing set should be achieved if demand warrants.
- ★ Future development should take into consideration and be mindful of environmental issues at the airport, including the presence of wetlands, historic resources and farmlands in the vicinity of the airport and on airport property. In addition, future development should minimize potential effect on the environment.

**Figure 5-1** depicts the consequences of implementing B-II standards at GCD considering the existing runway configuration. Any change in runway length will shift the protections. In this case, the alternative chosen will ensure that all protections and surfaces are cleared. The change of ARC will not impact the protections for existing taxiways.

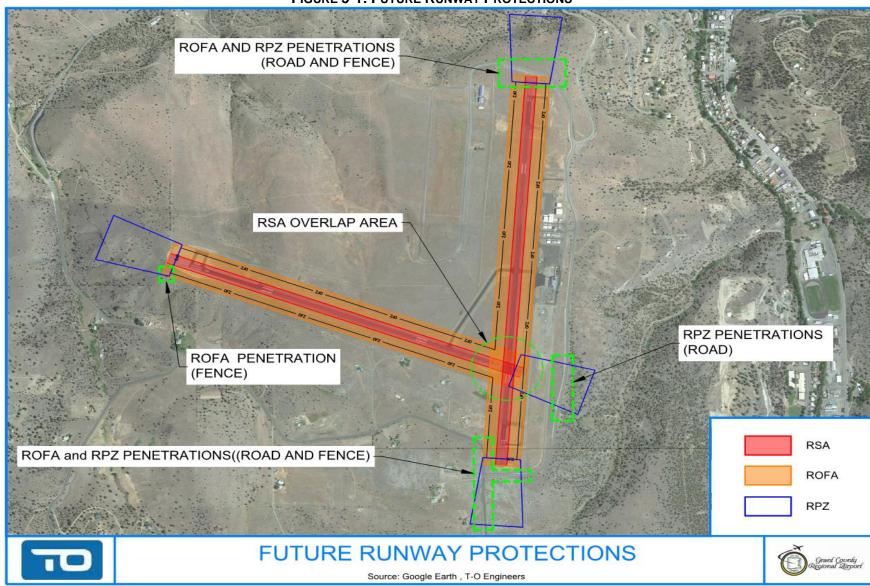


FIGURE 5-1: FUTURE RUNWAY PROTECTIONS

#### 6.6.1 RUNWAY DECOUPLING

Safety is a primary concern on every airport. The runway configuration at GCD presents a safety issue due to the overlapping Runway Safety Areas (RSA) of the two runways, as shown on **Figure 5-1**. The Federal Aviation Administration (FAA) recommends decoupling the two runways to avoid this situation.

The current configuration at GCD consists of two converging runways with an aligned taxiway to Runway 27 end that makes for crossing pavement. In addition to the RSA issue, the aligned taxiway is also considered a safety concern that should be mitigated.

## **Runway Decoupling Alternatives**

Considering the existing airfield developments, the ground profile around the airport, and the limited space available to the east side of the airport, only two alternatives were evaluated to decouple the runways:

- ★ No-Action Alternative
- ★ Alternative 1: Shift the end of Runway 27 to the west

#### **No-Action Alternative**

This alternative consists of doing nothing. This is not considered as a viable alternative nor is it desirable to the airport considering the poor safety of the current runway configuration. The goal of this planning study is to provide the airport's sponsors with options for necessary improvements and for future development. A "No-action" alternative does not meet this goal.

#### Alternative 1

Alternative 1 is depicted on **Figure 5-2**. It involves shifting the Runway 27 end 370 feet west of its existing position to remove the overlap of the two RSAs having a width of 150 feet (B-II dimensions). The aligned taxiway to Runway 27 end is also removed, which eliminates all crossing pavement and the requirements for a Runway Visibility Zone (RVZ). Unless extraordinary circumstances arise, this alternative does not appear to lead to any environmental impacts.

#### **Preferred Alternative**

**Table 5-1** summarizes the evaluation of each alternative based on the criteria defined earlier. According to this evaluation, **Alternative 1** was chosen as the preferred alternative for the decoupling of both runways at GCD.

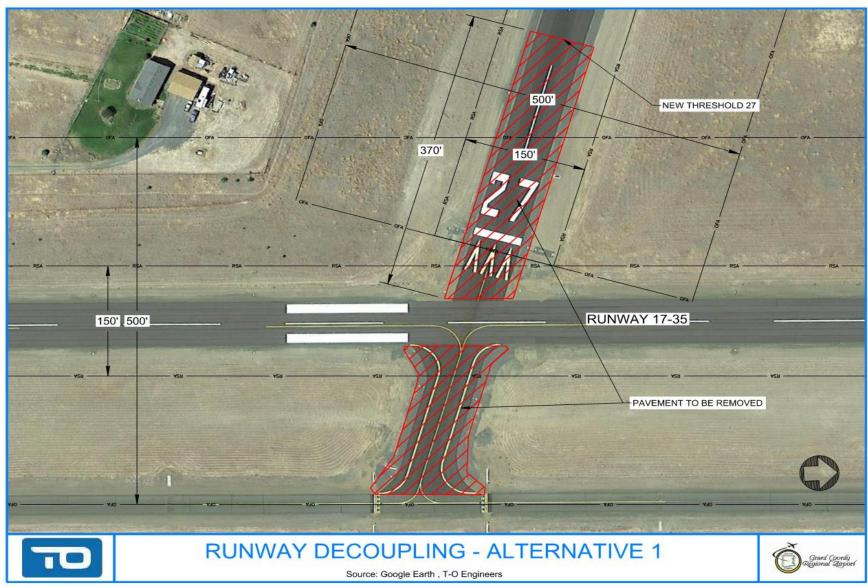


FIGURE 5-2: RUNWAY DECOUPLING ALTERNATIVE 1

TABLE 5-1: RUNWAY DECOUPLING ALTERNATIVES EVALUATION

TABLE 5-1: RUNWAY DECOUPLING ALTERNATIVES EVALUATION					
Criteria	"No-Action" Alternative	Alternative 1 West Shift of Runway 27 End			
Operational and Safety	Poor safety due to the overlapping RSAs and aligned taxiway.  0	Reduces the length of runway 9-27 by 370 feet and might require compensation. Improve the overall runway configuration and provides for safer operations			
Environmental	No additional environmental impacts. 5	No additional environmental impacts. Additional environmental evaluation might be required.  4			
Feasibility	No Action 5	Move the Runway 27 end. and remove exisitng pavement. Publish new runway length and update runway marking and lighting, as well as associated visual aids.			
Compatibility with future needs	Does not meet safety needs.  0	A shorter length may limit the type of aircraft using Runway 9-27 that is the only one with an instrument approach.  2			
Costs	No additional costs.  5	Costs Estimate: \$300,000			
Total Score	15	17			

Source: T-O Engineers, Inc.

#### 6.6.2 RUNWAY 17-35

Requirements identified for Runway 17-35 include:

- ★ Clear Runway Object Free Area for B-II Standards
- ★ Remove Incompatible Land Use within the Runway Protection Zones
- ★ Widen Runway to 75 feet
- ★ Develop an Instrument Departure for Runway 35
- ★ Relocate PAPI Runway 17

## Runway Object Free Area (ROFA) / Runway Safety Area (RSA)

As shown on **Figure 5-1**, there are several unauthorized penetrations in the future ROFA:

- ★ <u>Roads</u>: Alternatives to mitigate road penetrations are addressed and include the relocation of the roads, or implement declared distances for the runways.
- ★ <u>Fence</u>: Alternatives to address fence penetrations include the relocation of the fence as needed or the implementation of declared distances for the runways. The final fence layout is depicted on the ALP.

The overlap between the RSA of the two runways will be mitigated after having decoupled both runways, as explained in the previous section. No other significant impacts on the ROFA and RSA are expected from meeting B-II design standards.

#### **Runway Protection Zone (RPZ)**

The change in the ARC at GCD from B-I to B-II will trigger a review of the land use in the RPZ by the Federal Aviation Administration (FAA). Roads are considered incompatible land use within an RPZ.

Both RPZs for Runway 17 and Runway 35 ends are penetrated by public roads located in the immediate vicinity of the airport. Alternatives to mitigate this incompatible land use include declared distances or road relocation.

Also, it is recommended that the airport controls all the land within the RPZ limits by acquiring it or having an avigation easement.

#### Runway 17-35 Alternatives

Three alternatives were evaluated for Runway 17-35:

★ No-Action Alternative

★ Alternative 1: Declared Distances

★ Alternative 2: Road Relocation

All the alternatives presented for Runway 17-35 consider the implementation of the preferred alternative for decoupling both runways and as depicted on **Figure 5-2**. They ensure that the airspace and surfaces associated with the runway are cleared of obstacles. They also assume full control of the RPZs by avigation easements or fee simple acquisition.

## **No-Action Alternative**

This alternative consists of doing nothing and let Runway 17-35 in its current configuration. This is not considered as a viable alternative nor is it desirable to the airport. The goal of this planning study is to provide the airport's sponsors with options for necessary improvements and for future development. A "No-action" alternative does not meet this goal.

#### Alternative 1

Alternative 1 is depicted on **Figure 5-3**. It uses declared distances to offset RPZs and the ROFA in order to avoid penetrations and incompatible land uses. This alternative should lead to minimal environmental impacts.

**Table 5-2** summarizes the impact on declared distances to clear the ROFA and RPZs for Runway 17-35.

TABLE 5-2: ALTERNATIVE 1 DECLARED DISTANCES

Runway End	TORA	TODA	LDA	ASDA
		Existing		
RWY 17	5,220'	5,220'	5,220'	5,220'
RWY 35	5,220'	5,220'	5,220'	5,220'
		Alternative 1		
RWY 17	3,920'	5,220'	3,860'	4,880'
RWY 35	4,200'	4,740'*	3,845'	5,145'

\*Reduced TODA to remove road obstruction to proposed Departure Surface Source: T-O Engineers, Inc.

<u>Note</u>: Based on ground data available, the road off the end of Runway 17 would be a 12-foot obstruction to the departure surface, which will reduce the TODA by 480 feet to mitigate the obstruction. In addition, if a 11-foot high wildlife fence is added as recommended, the fence would also be a 8-foot obstruction, reducing the TODA for Runway 35 by 320 feet. A dedicated survey should be conducted to refine these values if this alternative is chosen and the instrument departure is implemented.

#### Alternative 2

Alternative 2 is depicted on **Figure 5-4**. It considers the relocation of the roads and fence identified as obstructions and incompatible land uses. And it does not impact the existing usable length of the runway. The relocation of the roads also considers clearing ultimate Part 77 Imaginary surfaces and Departure Surfaces.

This alternative might require a more extensive environmental study due to the road relocation outside of the airport property.

<u>Note</u>: A survey should be conducted before any relocation of the roads and fence in order to optimize the future location of these items.

## Preferred Runway 17-35 Alternative

**Table 5-3** summarizes the evaluation of each alternative based on the criteria defined earlier. Based on this evaluation, **Alternative 2** was chosen as the preferred alternative for Runway 17-35.

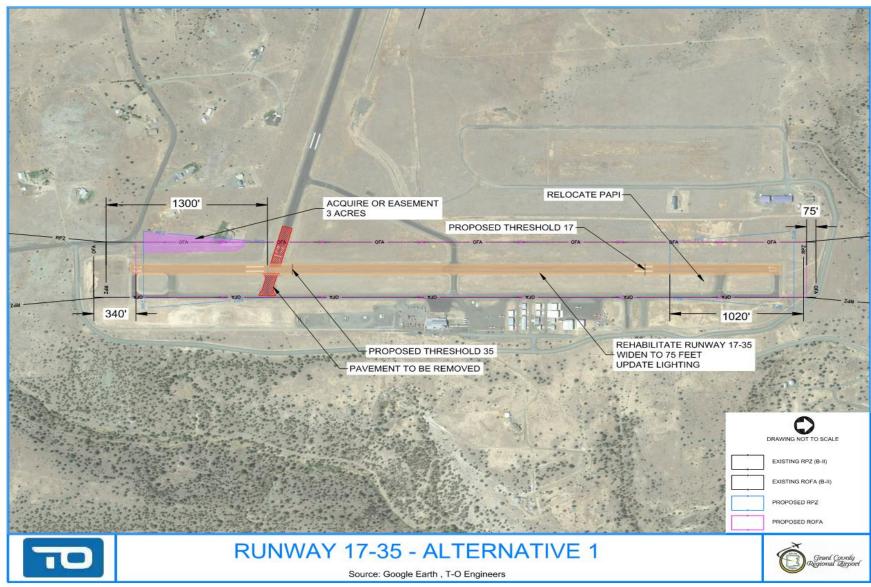


FIGURE 5-3: RUNWAY 17-35 ALTERNATIVE 1

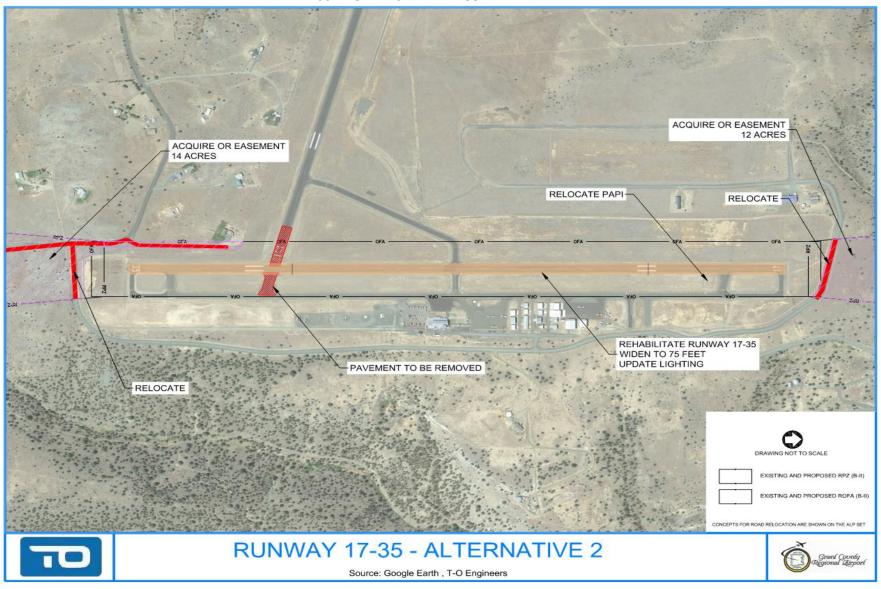


FIGURE 5-4: RUNWAY 17-35 ALTERNATIVE 2

TABLE 5-3: RUNWAY 17-35 ALTERNATIVES EVALUATION

TABLE 3-3. RUNWAY 17-33 ALTERNATIVES EVALUATION					
Criteria	"No-Action" Alternative	Alternative 1 Declared Distances	Alternative 2 Relocation		
Operational and Safety	Maintains existing operational capabilities. Does not meet safety standards due to incompatible land uses in RPZ and ROFA obstructions.  Does not meet B-II design standards.  No instrument departure.	Reduces the declared distances for Runway 17-35. Limits the runway use for bigger aircraft and may limit SEAT* operations in summer. Add an instrument departure from Runway 35.  Meets safety and design standards.	Maintains existing operational capabilities and add an instrument departure from Runway 35.  Meets safety and design standards.		
Environmental	No additional environmental impacts.	No additional environmental impacts. 5	The road relocation might require additional environmental documents to evaluate the potential impact on the environment. Area not surveyed for wetlands and cultural resources  3		
Feasibility	No Action <b>5</b>	Publish new declared distances, and update Runway marking and lighting, as well as associated visual aids. Acquire land to control RPZ and ROFA as needed. Widen runway to 75 feet and rehabilitate pavement.	Requires the relocation of several local roads on public lands and acquiring lands to control RPZs and ROFA as needed. Widen runway to 75 feet and rehabilitate pavement.		
Compatibility with future needs	Does not meet safety needs.	May limit the type of aircraft using the airport (especially jet aircraft and multi-engine aircraft) as well as SEAT operations in Summer.  2	Meet all the requirements for the future demand at the airport.  5		
Costs	No additional costs. <b>5</b>	Costs Estimate: \$5,200,000 <b>3</b>	Cost Estimates: \$7,400,000 <b>2</b>		
Total Score	16	16	17		

\*Single Engine Air Tanker- Air Tractor Contracted for Firefighting Activity



## 6.6.3 RUNWAY 9-27

Considering the preferred alternative for runway decoupling presented in **Section 6.5.1**, the remaining requirements identified for Runway 9-27 include:

- ★ Extend the Runway 9-27
- ★ Widen Runway to 75 feet
- ★ Clear Runway Object Free Area for B-II Standards
- ★ Remove Incompatible Land Use within the Runway Protection Zones
- ★ Relocate PAPI of Runway 9 as needed and Update the Instrument Approach and Departure

# **Runway Extension**

It was identified in **Chapter 4 - Facilities Requirements** that Runway 9-27 should be lengthened to 4,600 feet to provide a better operational flexibility to the airport, especially in the summer. In addition, the preferred alternative for decoupling the runways reduces the existing length by 370 feet from 4,471 feet to 4,101 feet.

Considering operational restrictions and the need to balance the runway length reduction because of the runway decoupling, the alternatives for Runway 9-27 will consider an extension to a total length of 4,600 feet and an extension back to its current length of 4,471 feet.

# Runway Object Free Area (ROFA) / Runway Safety Area (RSA)

As shown on **Figure 5-1** and with the existing layout, the penetrations of the future ROFA (B-II standards) are limited to the west fence, In the case of a runway extension, new penetrations will likely occur and will need to be mitigated as part of the alternatives.

As explained earlier, the overlap between the RSA of the two runways will be mitigated after having decoupled both runways.

#### **Runway Protection Zone (RPZ)**

The change in the ARC at GCD from B-I to B-II will trigger a review of the land use in the RPZ by the Federal Aviation Administration (FAA). Roads are considered incompatible land use within an RPZ.

With the current layout and as shown on **Figure 5-1**, the RPZ for Runway 27 end is penetrated by a public road east of the airport. The decoupling of both runways will trigger a shift of the Runway 27 and the associated RPZ to the west. As depicted on **Figure 5-2**, this shift is not enough to mitigate the RPZ penetration.

Alternatives to mitigate this incompatible land use include declared distances or road relocation. Considering the shorter length of Runway 9-27, the implementation of declared distances is not realistic. Only the road relocation will be evaluated in the following Runway 9-27 alternatives.

Also, it is recommended that the airport controls all the land within the RPZ limits by acquiring it or with an avigation easement.

## **Runway 9-27 Alternatives**

Three alternatives were evaluated for Runway 9-27:

- ★ No-Action Alternative
- ★ Alternative 1: Extend Runway 9-27 to 4,471 Feet
- ★ Alternative 2: Extend Runway 9-27 to 4,600 Feet

All the alternatives presented for Runway 9-27 consider the implementation of the preferred alternative for decoupling both runways and as depicted on **Figure 5-2**. They ensure that the airspace and surfaces associated with the runway are cleared of obstacles. They also assume full control of the RPZs by avigation easements or fee simple acquisition.

## **No-Action Alternative**

This alternative consists of doing nothing and let Runway 9-27 in the configuration obtained after runway decoupling as shown on **Figure 5-2**. This is not considered as a viable alternative nor is it desirable to the airport. This configuration does not consider any improvement in the dimensions of the runway and provides a runway shorter than its existing length.

## Alternative 1

Alternative 1 is depicted on **Figure 5-5**. It includes a shift of Runway 9-27 back at its current length of 4,471 feet. All future runway protections and surfaces are cleared of any obstacles. After appropriate road relocations, the RPZs associated with each runway ends do not have incompatible land uses within their limits.

## Alternative 2

Alternative 2 is depicted on **Figure 5-6**. It considers extending Runway 9-27 to 4,600 feet for better operational capabilities. All future runway protections and surfaces are cleared of any obstacles. After appropriate road relocations, the RPZs associated with each runway ends do not have incompatible land uses within their limits.

## **Preferred Runway 9-27 Alternative**

**Table 5-4** summarizes the evaluation of each alternative based on the criteria defined earlier. Based on this evaluation, **Alternative 2** was chosen as the preferred alternative for Runway 9-27.

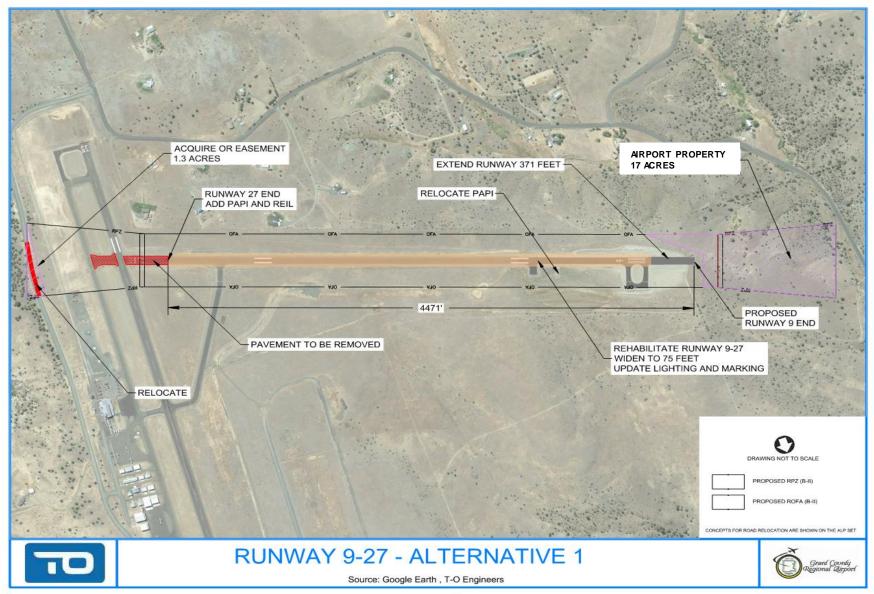


FIGURE 5-5: RUNWAY 9-27 ALTERNATIVE 1

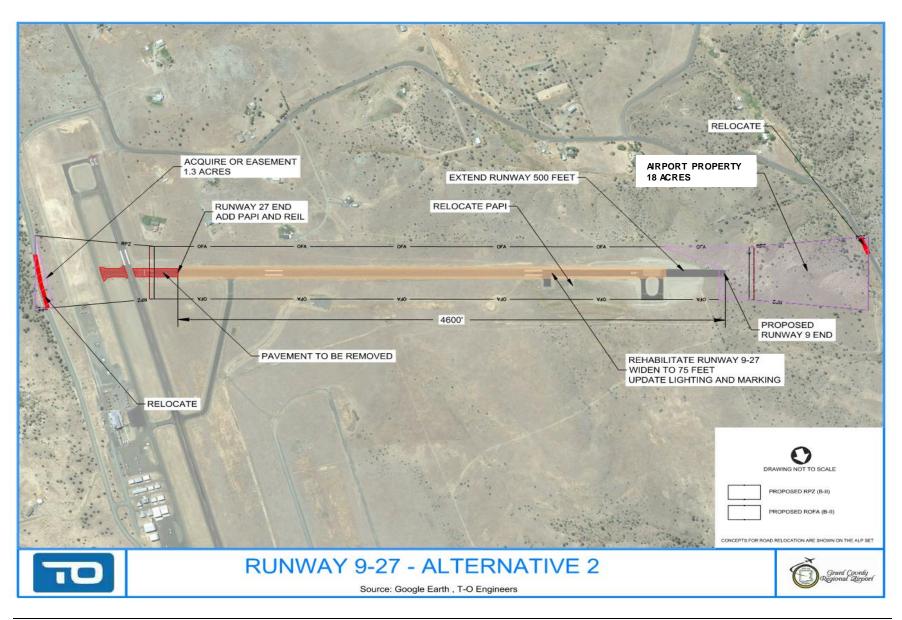


TABLE 5-4: RUNWAY 9-27 ALTERNATIVES EVALUATION

TABLE 5-4: RUNWAY 9-27 ALTERNATIVES EVALUATION				
Criteria	"No-Action" Alternative	Alternative 1 Shift Runway at 4,471'	Alternative 2 Extend Runway to 4,600	
Operational and Safety	Does not meet safety standards due to incompatible land uses in RPZ and ROFA obstructions (fence).  Does not meet B-II design standards for width. Shorter runway length.  0	Meets safety and B-II design standards. Brings back the runway to its current length.	Meets safety and B-II design standards. Extend the runway to an optimal length for design aircraft operation*.	
Environmental	No additional environmental impacts.	The area impacted was not evaluated for wetlands or cultural resources	The area impacted was not evaluated for wetlands or cultural resources	
	5	2	2	
Feasibility	No Action 5	Shift runway 370 feet with important grading work to the west. Widen runway to 75 feet. Update runway marking and lighting, as well as associated visual aids. Modify existing Instrument procedures. Requires the relocation of a public road and the acquisition of more airport property.	Extend runway 500 feet with important grading work to the west. Widen Runway to 75 feet. Update runway marking and lighting, as well as associated visual aids.  Modify existing Instrument procedures. Requires the relocation of several public roads and the acquisition of more airport property.	
		3	2	
Compatibility with future needs	Does not meet safety and operational needs.	The length may limit the type of aircraft using the runway, as well as SEAT* operations, especially in summer.	Meet all the requirements for the future demand at the airport.	
	0	2	5	
Costs	No additional costs.	Cost Estimate: \$3,550,000	Cost Estimates: \$4,550,000	
	3			
Total Score	15	14	16	

\*Single Engine Air Tanker- Air Tractor Contracted for Firefighting Activity Source: T-O Engineers, Inc.

# 6.6.4 TAXIWAY SYSTEM

GCD has currently one full parallel taxiway (Taxiway A) to Runway 17-35 with five connectors. There is also one taxiway (Taxiway B) accessing Runway 9-27 approximately 700 feet form Runway 27 threshold.

Principal recommendations made for the taxiway system include:

- → Protect and Build Taxiways and Taxilanes for Airplane Design Group (ADG) II and Taxiway Design Group (TDG) 2 Standards
- ★ Widen Existing Taxiways to 35 Feet and Install a Medium Intensity Taxiway Lighting (MITL) System
- ★ Remove "Hot Spots"
- ★ Build a Parallel Taxiway to Runway 9-27
- ★ Build Additional Taxiways/Taxilanes to Access Future Developments

# "Hot Spots"

Two taxiway locations on the airport were identified as hazardous. They do not meet FAA recommendations for safe and efficient design:

- ★ Crossing of Taxiway B in the Middle Third of Runway 17-35
- ★ Aligned Taxiway to Runway 27 End

The aligned taxiway is removed as part of the preferred alternative for runway decoupling. The proposed taxiway layout at the airport will address the crossing of Taxiway B.





Source: Google Earth 2017

## **Taxiway Alternatives**

The airport has expressed interest in expanding infrastructures to the west side of Runway 17-35, along the industrial park. Also, the existing private properties south of Runway 9-27 limit potential development of airport infrastructures in this area, unless major land acquisitions are made.

For these reasons, only two alternatives were evaluated for future taxiways at the GCD:

- ★ No-Action Alternative
- ★ Alternative 1: Northwest Development

#### No-Action Alternative

This alternative consists of doing nothing and keeps the existing taxiway layout. This is not considered as a viable alternative as it does not offer a better taxiway system to improve the efficiency and safety of aircraft ground operations.

#### Alternative 1

Alternative 1 is depicted on **Figure 5-7** and shows a full parallel taxiway to the north side of Runway 9-27 to access the ultimate locations of the runway ends as defined in the preferred alternative for Runway 9-27. Alternative 1 includes the removal of existing Taxiway B to avoid the dangerous crossing in the middle of Runway 17-35. This alternative also anticipates development to the north side of Runway 17-35 to access potential aeronautical development on this part of the airport.

The location of the proposed connectors is flexible and the construction of the parallel taxiways can be phased out in different portions, starting with partial taxiways for instance. Also, the existing lighted windcone and segmented circle will be relocated out of the Taxiway Object Free Area (TOFA) of the ultimate taxiways as shown on the **Airport Layout Plan** drawing. This alternative also includes the installation of a MITL system. The development area was not evaluated for cultural resources and the project could require additional environmental study if extraordinary circumstances arise.

#### **Preferred Alternative**

**Table 5-5** summarizes the evaluation of each alternative based on the criteria defined earlier. Based on this evaluation, **Alternative 1** was chosen as the preferred alternative for taxiway layout at GCD.

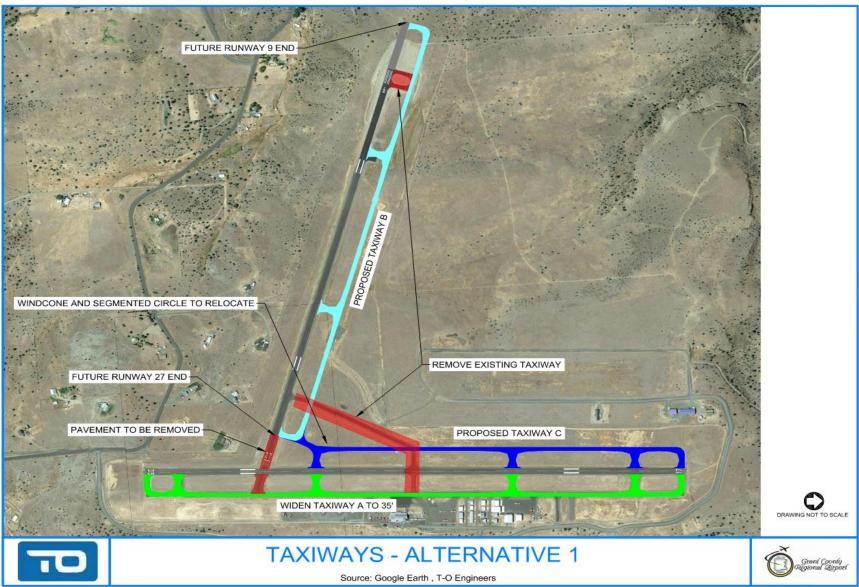


FIGURE 5-7: TAXIWAY ALTERNATIVE 1

TABLE 5-5: TAXIWAY ALTERNATIVES EVALUATION

TABLE 3-3. TAXIWAY ALTERNATIVES EVALUATION					
Criteria	"No-Action" Alternative	Alternative 1 Northwest Development			
Operational and Safety	Does not meet design standards for taxiway width. Dangerous runway crossing and limited access to Runway 9-27.  0	Meet recommended future design standards. Provides better access for an optimal use of Runway 9-27 and potential developments west of Runway 17-35.  5			
Environmental	No additional environmental impacts.	No wetlands were identified on the airport property.  Develop an area of the airport (northeast) not evaluated in the cultural resource survey and might require additional environmental study.  3			
Feasibility	No Action 5	Widen exisiting taxiways and build new taxiways based on ADG II and TDG 2 standards on airport property with MITL. Construction would not present challenges.Relocate windcone and segmented circle.			
Compatibility with future needs	Does not meet safety and operational needs.  Does not provide access to potential development area at the airport	Answers to all future needs in terms of safe and optimal aircraft operations at the airport. Allows for additional developments in all areas of the airport.  5			
Costs	No additional costs.	Costs Estimate: \$5,600,000			
Total Score	15	17			

# 6.6.5 AUTOMATED WEATHER OBSERVING SYSTEM (AWOS)

As mentioned in **Chapter 4 - Facility Requirements**, the existing location of the AWOS at GCD does not meet requirements as defined but he *FAA Order 6560.20C*. The preferred location for the AWOS is depicted on the **Airport Layout Plan** drawing.

In accordance with the FAA Order 6560.20C, Siting Criteria for Automated Weather Observing Systems, the AWOS has a 500-foot radius critical area, which needs to be protected to provide accurate wind and weather information.

The proposed location is 1,000 feet from the threshold of Runway 09 and 500 feet from the runway centerline. In this case, Runway 9 is considered to be the primary runway because it has the lowest minima. This location considers the future instrument procedures available at GCD and the preferred alternative for Runway 9-27 extension. Based on the proposed location the airport will have to acquire some property (approximately 18 acres), as shown on **Figure 5-8**.

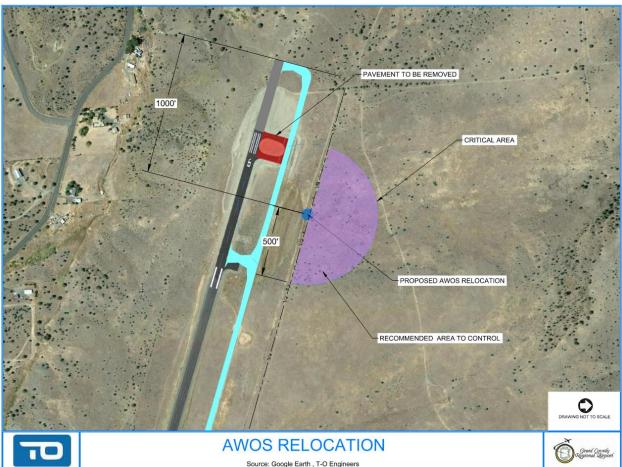


FIGURE 5-8: AWOS

## 6.7 LANDSIDE ALTERNATIVES

The following section discusses the alternatives considered during the landside development alternatives process.

Landside facilities development at GCD includes:

- ★ Fuel Facility
- ★ Aircraft Apron, Hangars and FBO
- ★ Automobile Parking
- ★ US Forest Services Seat Base
- ★ Paved Helipads

This section summarizes the various landside development alternatives considered and describes the selected alternative in each case. When analyzing and developing the various landside alternatives, several basic development principles and goals were considered to guide the process:

- ★ Future development will be planned in a manner whereby phased development is possible over the planning period thus providing flexibility to the County to accommodate growth as demand warrants.
- ★ The need for full build-out of the airport as depicted on the ALP drawing set should be achieved if demand warrants.
- ★ Future development of the airport should be mindful of various aircraft and activity types:
  - Uses such as helicopter traffic should be located in areas that ensure compatibility with other surrounding aviation uses (due to the potential of foreign object debris (FOD)).
  - Orderly development of hangar areas to ensure compatibility with FAA design standards based on current and anticipated aircraft use (i.e. aircraft design groups)
- ★ Future development of the airport should be done in a manner that best optimizes access to public infrastructure including:
  - Vehicle/road access
  - Utilities
  - Available land/surrounding uses
- ★ Future development should take into consideration and be mindful of environmental issues at the airport, including the presence of wetlands, historic resources and

farmlands in the vicinity of the airport and on airport property. In addition, future development should minimize potential effect on the environment.

# 6.7.1 FUEL FACILITY

The airport currently has two 4,000-gallon tanks for 100LL and Jet A fuels. The fueling station is located on the existing apron near the terminal building, between the taxiway and the tie-downs. The current location does not provide for an easy access by the fuel truck during delivery.

## Chapter 4 - Facilities Requirements identified the need for two bigger tanks:

- ★ 6,000 Gallons for 100L
- ★ 12,000 Gallons for Jet A

For safety and environmental issues, the future tanks will have to be above the ground.

## **Fuel Facility Alternatives**

The airport is currently in charge of fuel sales and has expressed interest in keeping the fuel station close to the terminal building.

For this reason, only two alternatives were evaluated for future a fuel facility at GCD:

- ★ No-Action Alternative
- ★ Alternative 1: Terminal Apron

#### No-Action Alternative

This alternative consists of doing nothing and keeps the existing location for the fuel pump. This is not considered as a viable alternative as it does not provide for more fuel capacity at the airport.

# Alternative 1

Alternative 1 is depicted on **Figure 5-9**. It shows a relocation of the fuel pump and associated new tanks at the edge of the terminal apron on the existing car parking area. This location ensures an easy access for fuel delivery and provides for more apron space for a new layout.

## **Preferred Alternative**

**Table 5-6** summarizes the evaluation of each alternative based on the criteria defined earlier. Based on this evaluation, **Alternative 1** was chosen as the preferred alternative.

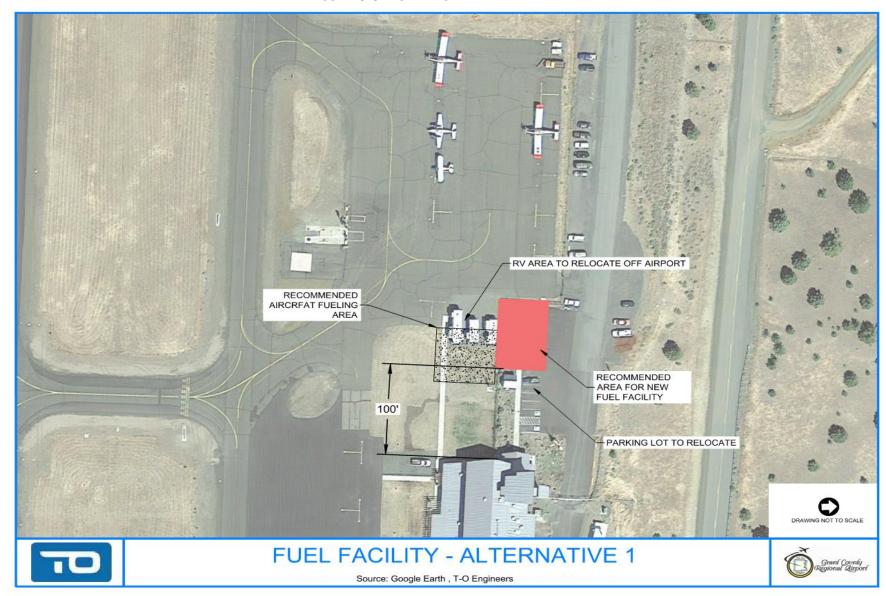


FIGURE 5-8: FUEL FACILITY ALTERNATIVE 1

TABLE 5-6: FUEL FACILITY ALTERNATIVES EVALUATION

TABLE 3-0. FUEL FACILITY ALTERNATIVES EVALUATION					
Criteria	"No-Action" Alternative	Alternative 1 Terminal Apron			
Operational and Safety	The current fuel pump location limits apron expansion and requires fuel delivery trucks to enter the airport.	Provides the most flexibility for fuel delivery and space for new fuel tanks.			
Environmental	No additional environmental impacts.	No environmental impacts. Would require minimal environmental study.			
Feasibility	No Action 5	Requires new tanks and a relocation of the car parking area.			
Compatibility with future needs	Does not meet fuel capacity required for the airport within the 20-year planning period  0	Answers to all future needs in terms of fuel storage for the airport.			
Costs	No additional costs.  5	Costs Estimate: \$3,000,000  2			
Total Score	17	19			

## 6.7.2 APRON AND AIRCRAFT HANGARS

This section presents combined alternatives for aircraft aprons that are part of the airside, as well as hangars, a Fixed Base Operator (FBO), and Snow Removal Equipment Building (SRE) that are part of the landside. It was chosen to study combined alternatives for these facilities because they are highly dependent on each other.

The existing aircraft apron area at GCD is divided into two distinct areas and configured to accommodate a total of 16 apron tie-down positions. As identified **in Chapter 4 - Facilities Requirements**, the apron should at least accommodate 21 tie-downs at the end of the planning period.

The airport currently has 17 hangars located in a common area north of the terminal building. It was identified that GCD will need 27 hangars by the end of the planning period. It was also determined that an SRE building should be built, and some space should be reserved for an FBO if demand warrants.

Three areas were studied for development opportunities at Grant County Regional Airport:

- ★ Terminal Apron
- ★ Northeast Part of the Airport
- ★ Northwest Part of the Airport

Except for the northwest area, all areas are located in the vicinity of existing taxiways. Development to the northwest of the airport would require additional taxiway access, as considered in the preferred alternative for taxiways, shown on **Figure 5-7.** 

#### **Apron and Hangars Alternatives**

All the alternatives proposed remain on airport property and most of the future buildings are located beyond the 25-foot Building Restriction Line (BRL), when possible. If buildings are located within the BRL, they might be limited in height based on the actual ground elevation. Coordination with the FAA, using the Form 7460-1, will have to be made prior to construction. A total of three alternatives were evaluated for future apron and hangars at the airport:

- ★ No Action Alternative
- ★ Alternative 1: Northeast Developments
- ★ Alternative 2: Northwest Developments

All the alternatives consider a common new layout for the terminal apron encompassing the preferred alternative for the future fuel facility at the airport. They could be easily phased in several stages to answer demand if and when needs warrant.

#### **No-Action Alternative**

This alternative consists of doing nothing and keeps the existing apron layout and number of hangars at the airport. This is not recommended as it will not prepare the airport for its future growth as identified in **Chapter 3 – Forecasts of Aviation Activity**.

## Alternative 1

Alternative 1 is depicted on **Figure 5-9**. It shows a new development and extension of the terminal apron in front of the terminal building. It also considers the development of a new apron northeast of the airport with a new building for an FBO. Additional hangars are planned on the northeast side of the airport. The total number of tie-downs and hangars match the requirements for the next 20 years. Proposed developments are located in the developed portion of the airport.

Not wetlands or cultural resources were identified in the development areas proposed by this alternative. Hence, no major environmental impacts are expected.

## Alternative 2

Alternative 2 is depicted on **Figure 5-10**. It proposes a similar development of the terminal apron as the one shown for alternative 1. Future hangars and FBO with an additional apron are proposed on the northwest side of the airport, near the industrial park owned by the City of John Day, OR. The total number of tie-downs and hangars match the requirements for the next 20 years.

Because this alternative offers to develop an area not surveyed for cultural resources, a more comprehensive environmental study might be necessary if anything is found in the area.

#### **Preferred Alternative**

**Table 5-7** summarizes the evaluation of the proposed alternatives based on the different criteria chosen. Based on this evaluation, Alternative 1 is the preferred alternative for hangars and aprons at GCD.

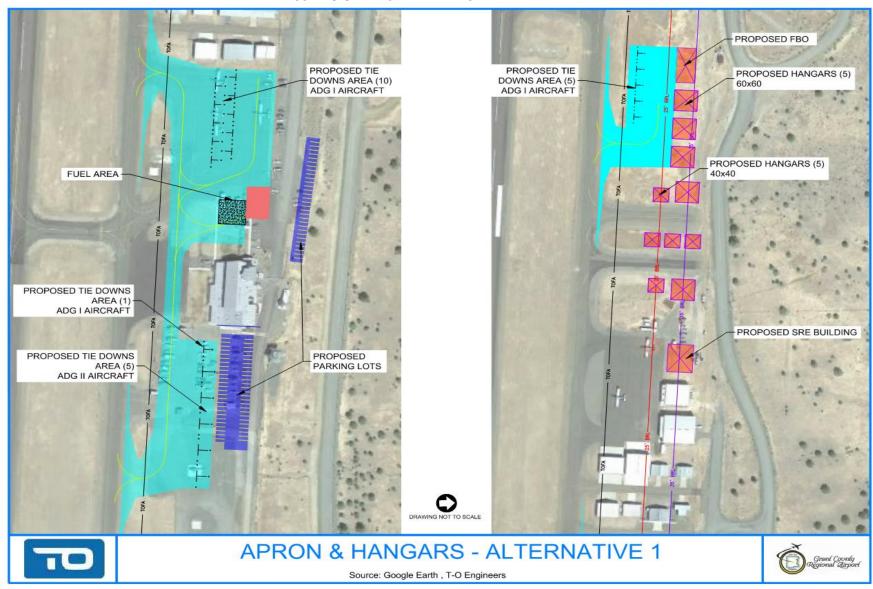


FIGURE 5-9: APRON AND HANGAR ALTERNATIVE 1

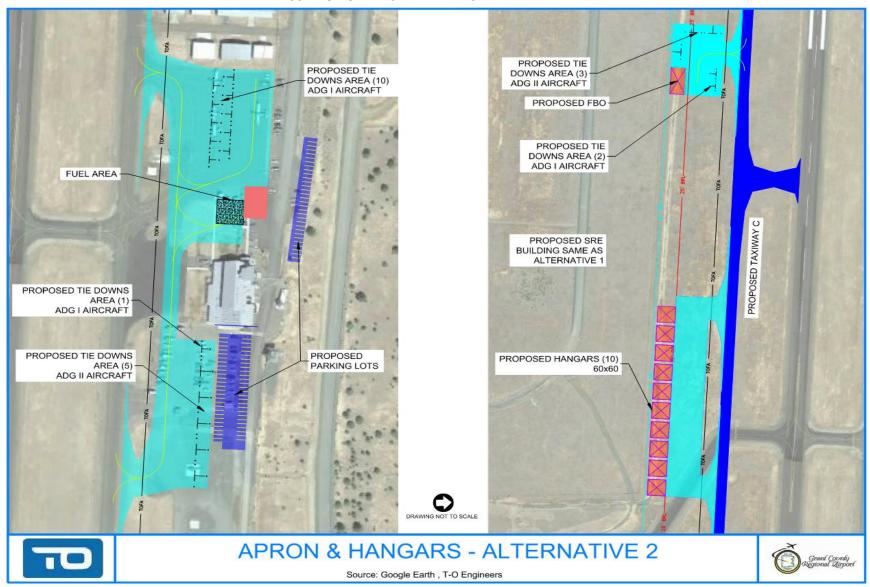


FIGURE 5-10: APRON AND HANGAR ALTERNATIVE 2

TABLE 5-7: APRON AND HANGAR ALTERNATIVES EVALUATION

		AND HANGAN ALTERNATIVES EVALUATIO	
Criteria	"No-Action" Alternative	Alternative 1 Northeast	Alternative 2 Northwest
Operational and Safety	Does not provide for safer and more operational operations. Does not meet new design standards	Meets future design standards for the airport. Offers a safe and operational environment.	Meets future design standards for the airport. Offers a safe and operational environment.
	0	5	5
Environmental	No additional environmental impacts.	No environmental impacts expected. Would require minimal environmental study	Developments in an area not surveyed for cultural resources. Might require additional environmental study before implementation.
	5	4	3
Feasibility	No Action 5	All developments on airport property and in an already developped area. Important fill and grading might be reuiqred for the new apron northeast of the airport.	All developments on airport property.Limited ground work for construction but would require additional taxiways to access future developments* and new access road.
		3	2
Compatibility with future needs	Does not meet requirements for hangars and tie-downs for the planning period.	Answers to all future needs in terms of hangars and tie-downs.	Answers to all future needs in terms of hangars and tie-downs.
	0	5	5
Costs	No additional costs.	Costs Estimate: \$2,000,000**	Costs Estimate: \$2,000,000**
0000	5	3	3
Total Score	15	20	18

 $<sup>{}^*</sup> The\ preferred\ alternative\ for\ taxiway\ includes\ access\ to\ the\ northwest\ part\ of\ the\ airport\ fo\ r\ potential\ developments.$ 

<sup>\*\*</sup>Costs of access roads to private hangars and costs of apron immediately adjacent to private hangars are at the charge of owners. These costs only include the development of a new apron with tie-downs for airport need.

## 6.7.3 AUTOMOBILE PARKING

Chapter 4 - Facilities Requirements identified the need for additional car parking at GCD:

- ★ 27 spaces for the terminal area
- ★ 27 spaces for the hangars area
- ★ 37 spaces for the US Forest Services (USFS)

The proposed extension of the terminal apron south of the terminal would trigger the need for an inside-the-gate parking area to replace the area currently in used. The proposed car parking areas are shown on the **ALP-ALP Sheet** and match the preferred development areas for all landside and airside facilities at GCD.

All proposed development stay on airport property and will have limited impact on environment and cultural resources.

# 6.7.4 US FOREST SERVICE (USFS) SEAT BASE

The USFS are a primary user of the airport. They contract Air Tractor AT 802F as Single Engine Air Tanker (SEAT) for firefighting activity during the wildfire season. The USFS are in the process of designing and building a dedicated SEAT Base at GCD, for aircraft storage, refueling and loading with retardant products.

#### **SEAT Base Alternatives**

The USFS and the airport expressed interest in two potential locations at the airport. For this reason, only three alternatives were evaluated:

- ★ No-Action Alternative
- ★ Alternative 1: Northwest Location
- ★ Alternative 2: Southeast Location

The design and construction of the SEAT Base will be financed by the USFS, that will also be in charge of conducted the appropriate environmental studies, if needed.

#### No-Action Alternative

This alternative consists of not providing the USFS with an optimal location for their future SEAT Base. The goal of this airport master plan is to provide the County with optimal solutions for future developments of the airport. Therefore, it is highly recommended to guide the USFS and County by providing them with a preferred location for the future SEAT Base.

#### Alternative 1

Alternative 1 is depicted on **Figure 5-12**. It shows the proposed SEAT Base located on the west side of Runway 17-35 along the industrial park. This location offers an easy access to existing utilities in the industrial park, as well as ample room for off-airport parking and access by trucks for fuel and retardant delivery. In this scenario, the USFS would need to find an agreement with the City of John Day, OR for leasing a lot in the industrial park, and with the airport for through-the-fence operations.

The proposed SEAT Base is located next to the corner lots of the industrial park owned by the airport. These lots are kept unused for potential airport infrastructures development. Also, it would require a new taxiway access. The preferred alternative for taxiways shows a new parallel taxiway west of Runway 17-35. The construction can be phased to provide initial access to the proposed SEAT Base and it is assumed that the USFS would provide funds for a partial access to their base from the existing taxiway system.

## Alternative 2

Alternative 2 is drawn on **Figure 5-13**. It considers locating the SEAT Base at the southeast corner of the airport, just south of the Runway 27 approach. The main advantage of this location is the fact that all USFS facilities would remain together, on the same side of the airport. On the other hand, the southeast part of the airport has limited space for development and utilities are not readily available.

Building the base close to the main parallel taxiway to Runway 17-35 could lead to safety issues considering the type and number of the USFS operations and the regular use of Taxiway A. Regular penetrations of the Taxiway Object free Area is an example of incidents that could occur if the base is too close to the existing taxiway.

#### **Preferred Alternative**

**Table 5-8** summarizes the evaluation of the proposed alternatives based on the different criteria chosen. Based on this evaluation, Alternative 1 was chosen as the preferred alternative for a SEAT Base at GCD.

PROPOSED TAXIWAY B EXISTING RUNWAY VISIBILITY ZONE INDUSTRIAL PARK AIRPORT PROPERTY PROPOSED SEAT BASE LAYOUT PROPOSED TAXIWAY C RUNWAY 17-35 PAVEMENT TO BE REMOVED PROPOSED TAXIWAY A DRAWING NOT TO SCALE **SEAT BASE - ALTERNATIVE 1** Source: Google Earth , T-O Engineers

FIGURE 5-12: SEAT BASE ALTERNATIVE 1

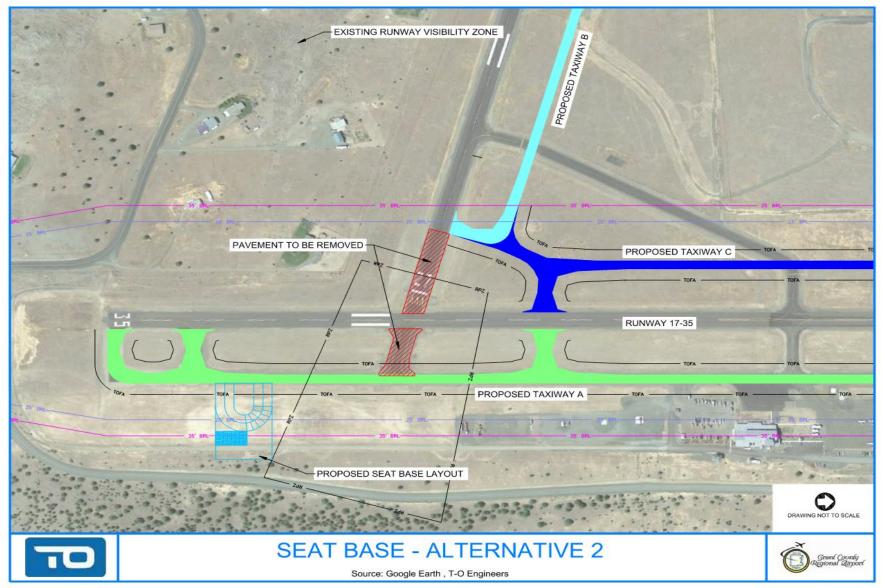


FIGURE 5-13: SEAT BASE ALTERNATIVE 2

TABLE 5-8: SEAT BASE ALTERNATIVES EVALUATION

	TABLE 5-0. OLAT BASE ALTERNATIVES EVALUATION				
Criteria	"No-Action" Alternative	Alternative 1 Northwest Location	Alternative 2 Southeast Location		
Operational and Safety	Does not provide for a safe area for SEAT operations at the airport.	Provides with the safest isolated and dedicated location on the airport.  Segregate SEAT operations from normal activity at the airport.	Proposed located might be constrained for future expansion due to the limited space. Would likely generate safety issues		
		3	3		
Environmental	No additional environmental impacts.	Develop an area not surveyed for cultural resources. Might need additional environmental study.	No impact on environment or cultural resources anticipated.  4		
Feasibility	No Action 5	Would require a through-the-fence agreement between the USFS and the airport USFS would need to lease a lot in the industrial park. Utilities readily available and easy access.  3	All developments on airport property.Limited ground work for construction. No utilities available.		
Compatibility with future needs	Does not provide for SEAT facilities as recommended by this study	Provides an appropriate location for a SEAT Base and compatible with future airport developments.	Provide the airport with a dedicated area for SEAT operations but with limited extension potential.		
	, , , , , , , , , , , , , , , , , , ,	USFS will finance design and	USFS will finance design and		
Conto	No additional costs.	construction.	construction.		
Costs	5	5	5		
Total Score	15	21	20		

## 6.7.5 HELIPADS

Grant County Regional Airport has a significant amount of helicopter operations (See **Chapter 3** - **Forecasts of Aviation Activity**), most of which are for firefighting activities by the USFS. The airport currently has 3 paved and 2 unpaved helipads. It was identified in **Chapter 4 - Facilities Requirements** that the airport would need 6 paved helipads by the end of the planning period.

## **Helipad Alternatives**

It is recommended to put helipads away from aircraft apron areas because of foreign object damage (FOD) risks. Also, because of the high number of USFS helicopter operations, it is recommended to locate the helipads near USFS facilities. For these reasons, three alternatives were evaluated for helipads at GCD:

★ No-Action Alternative

★ Alternative 1: Southeast Location

★ Alternative 2: Northwest Location

## No-Action Alternative

This alternative consists of not building any new helipads at GCD. This is not recommended as it would compromise the safety of all users at the airport.

#### Alternative 1

Alternative 1 is depicted on **Figure 5-14**. It shows the proposed helipads south of the terminal building. It keeps all helicopter operations away form the General Aviation apron and hangars. Also, it allows for the USFS smoke jumpers to park their contracted helicopters next to their headquarters and operational hangar located in the terminal building. The future construction of helipads in the proposed area should not impact significantly the environment.

#### Alternative 2

Alternative 2 is shown on **Figure 5-15**. It considers locating the helipads on the northwest side of the airport, along Runway 9-27. This provides for an isolated and safe location for helicopter operations but quit far from the existing terminal for transient aircraft. Also, the helipads would be located away from the USFS smoke jumper base. The future construction of helipads in the proposed area should not impact significantly the environment.

#### **Preferred Alternative**

**Table 5-9** shows the results of the evaluation of the proposed alternatives based on the different criteria presented earlier. Based on this evaluation, Alternative 1 was chosen as the preferred alternative for helipads at GCD.

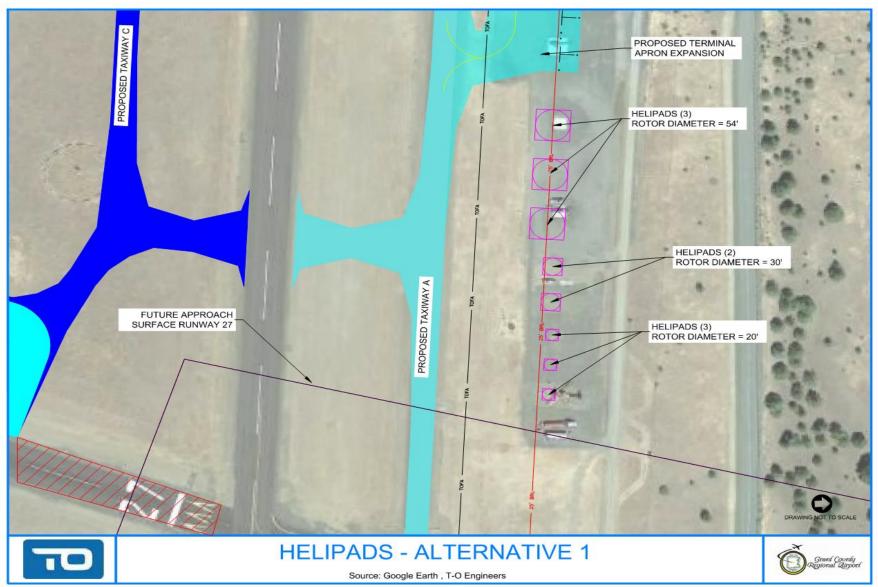


FIGURE 5-14: HELIPADS ALTERNATIVE 1

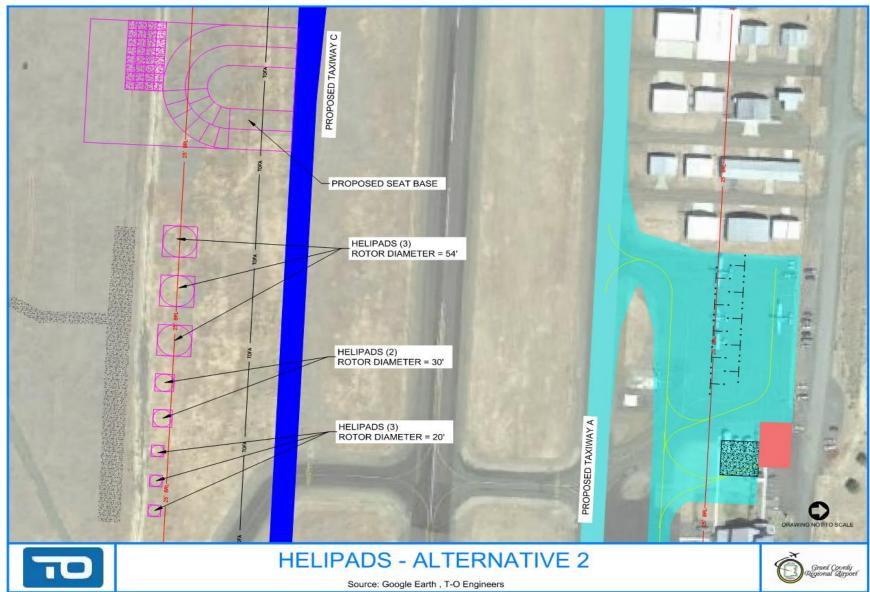


FIGURE 5-15: HELIPADS ALTERNATIVE 2

TABLE 5-9: HELIPADS ALTERNATIVES EVALUATION

Criteria	"No-Action" Alternative	Alternative 1 Southeast Location	Alternative 2 Northwest Location
Operational and Safety	Does not provide for a safe area for growing helicopter operations at the airport. The proposed expansion of the terminal apron impact existing helipads.	Provides with a safe isolated and dedicated location on the airport. Segregate helicopter operations from normal activity at the airport. Keeps helicopters close to the Smoke Jumper base.	Provides with the safest isolated and dedicated location on the airport. Completely segregate helicopter operations from normal activity at the airport. Separates helicopters from the Smoke Jumper base.
		5	4
Environmental	No additional environmental impacts.	No impact on environment or cultural resources anticipated.	No impact on environment or cultural resources anticipated.
	5	4	4
Feasibility	No Action	All developments on airport property Limited ground work for implementation and close to existing developed area.	All developments on airport property.Limited ground work for construction. Far from existing developments
		4	3
Compatibility with future needs	Does not provide the airport with enough helipads for the planning period	Answers the future needs for helipads at the airport but limited potential for expansion.	Answers the future needs for helipads at the airport. Good potential for expansion.
	0	4	5
Costs	No additional costs.	Estimated Costs \$500,000	Estimated Costs \$600,000
0000	5	3	3
Total Score	15	21	19

# 6.8 ENVIRONMENTAL CONSIDERATIONS AND PERMITTING PRIOR TO DEVELOPMENT

A detailed overview of the environmental setting and potential environmental consequences at GCD is provided in **Chapter 4 - Environmental Overview**; additional details on the wetlands in the vicinity of the airport are provided in **Appendix B**.

A more detailed environmental analysis will be required before proceeding with actual construction. This should include coordination with agencies such as FAA, United States Army Corps of Engineers, U.S. Fish and Wildlife Service, State Historical Preservation Office and others as deemed necessary.

The FAA will determine the level of environmental study needed for each project before construction. Detailed impact on wetlands, farmlands, historic resources or Section 4f resources will be evaluated at this time. In addition, before any hangar construction, the form 7460-1, Notice of Proposed Construction or Alteration, must be submitted to the FAA and an environmental clearance for development must be obtained.

A determination on the necessary action will be completed at the appropriate time to best facilitate the proposed project(s). The majority of new development at the airport is expected to be demand driven and will only be considered when, and if, demand at the airport warrants.

## 6.8.1 CLEAN WATER ACT PERMITTING

According to the USFWS online wetlands mapper tool, there are no wetlands in the vicinity of the airport and in the proposed development areas. This result is confirmed by the Wetland Determination Memo (**Appendix B**) conducted in May 2016 as part of this airport master plan.

Prior to construction and development in areas not covered by the Wetland Determination Report, a wetland delineation should be performed to determine if wetlands are present in the project area.

A Clean Water Act Section 404 permit might be necessary and a wetland mitigation might be required if wetlands are impacted by development or construction. It is unlikely that such permitting will be necessary, for most projects.

Lastly, construction activities that disturb one acre or more of land (including clearing, grading, and excavating) require coverage by a National Pollutant Discharge Elimination System (NPDES) stormwater permit. Future projects at GCD that impact more than 1 acre of land, will require a NPDES permit. In addition, and a Storm Water Pollution Prevention Plan (SWPPP) will be required to describe the site controls.

# 6.8.2 **STATE LEGISLATION**

If wtelands happen to be impacted by any of the proposed projects at GCD, the state of Oregon has it own legislature defined by the Oregon Removal-Fill Law (ORS 196.600-605). An Oregon Division of state Lands (DSL) permit is required for any proposals that involve more than 50 cubic yards of fill, or removal from "waters of the state of Oregon".

# 6.8.3 LOCAL BUILDING PERMIT

A building permit has to be obtained, prior to the construction of any structure, throughout Grant County.

## 7.0 DEVELOPMENT PLAN/FINANCIAL OVERVIEW

## 7.1 INTRODUCTION

Previous sections of this airport master plan reviewed the requirements and alternatives necessary for Grant county Regional Airport (GCD) to meet the identified current and future demand. The next step is to analyze the financial commitment needed to implement the recommendations over the next 20 years. This chapter:

- ★ Outlines the Grant County Regional Airport development plan (or capital improvement program)
- ★ Discusses the potential sources of funding for implementing the projects outlined in the development plan
- ★ Presents an evaluation of the airport's current financial operating environment
- ★ And recommends enhancements to increase airport revenue

The Oregon Aviation Plan, initiated by the Oregon Department of Aviation (ODA), in 2007, evaluated the economic impact of GCD. The economic benefits related to the-airport was evaluated in terms of number of jobs, wages generated, and related business sales. The overall economic impact of GCD in eastern Oregon is summarized in **Table 7-1**.

TABLE 7-1: GCD ECONOMIC IMPACT

Airport	Jobs	Wages	Business Sales
GCD	77	\$1,647,000	\$5,174,000

Source: Oregon Aviation Plan 2007

When considering the financial implications of implementing this master plan and the possible increases or new fees needed to support development, it is important to discuss the inherent value of the airport to the community and the airport's economic contribution. The airport's economic value should be articulated to airport users, county decision-makers, and the general public to help understand why such fees and investment are justified and necessary.

## 7.2 DEVELOPMENT PLAN AND COST ESTIMATES

A list of capital improvement projects has been assembled based on the preferred development alternatives established in **Chapter 6 - Alternatives Analysis**. This project list has been coordinated with the **Airport Layout Plan** (ALP) drawing set and the development plan used to create the airport's Capital Improvements Program (CIP). The airport's CIP should be routinely updated by airport management and submitted to the Federal Aviation Administration (FAA) through ODA. In addition to identifying improvement projects, this CIP also presents a reasonable order of implementation along with estimated total costs and anticipated funding sources of the projects.

The plan was developed utilizing a phased approach rather than assigning projects to a specific year. Due to the fluid nature of FAA funding, ODA and the Seattle Airport District Office (SEA-ADO) cannot accurately determine where each of the projects identified in the "phases" will eventually fit into the Federal CIP. Proposed projects from this development plan are generally prioritized by project and timeframe.

When formulating the following development plan, only FAA and Local funding sources were considered. At this time, no private or other revenue sources have been identified to assist with any airport development. Although State funding sources are available through the ConnectOregon Program and the Critical Oregon Airport Relief (COAR) program, these programs are attributed on a competitive basis and cannot be guaranteed. Thus, they were not included in the cost shares showed in the CIP.

All FAA cost shares are based on the current 90 percent Federal participation for eligible projects, with local funding making up the difference. Cost estimates were prepared using 2017 dollars.

It is important to note that inclusion of a project in a CIP provides no guarantee a project will be funded in that timeframe or year. Additionally, all or some component of a project, shown on the **ALP**, may not be eligible for federal grant participation. The detailed funding plan for an individual project is typically defined during the predesign or formulation phase of the project.

Projects are organized by phases with Phase I (Short Term) in the 0-5 year timeframe; Phase II (Mid Term) in the 6-10 year timeframe; and Phase III (Long Term) in the 11-20 year timeframe. Project descriptions which relate to development based on demand are by nature general as projects will need to be planned in greater detail as specific project goals and need become more defined.

It should also be noted that the projects below are shown as individual projects however due to the high cost of completing small projects, multiple projects should be combined into larger projects to reduce the overall cost.

# 7.2.1 SHORT TERM DEVELOPMENT - PHASE 1 (0-5 YEARS)

All projects listed are shown on the approved ALP-ALP Sheet.

TABLE 7-2: SHORT-TERM DEVELOPMENT PROJECTS AND COST ESTIMATES- PHASE I

		5.1.	F	Funding Source*		
ID	Year	Project Description	Federal (90%**)		Local	Project
			Entitlement	Discretionary	(10%**)	Costs
1-1	2018	Aprons Rehabilitation (Environment&Design)	\$150,000	\$423,000	\$47,000	\$620,000
1-2	2019	Apron Reconstruction (Construction)	\$150,000	\$3,350,000	\$500,000	\$4,000,000
1-3	2020	Environmental Assessment	\$150,000	\$75,000	\$25,000	\$250,000
1-4	2022	Runway 17-35 Rehabilitation and Decoupling (Design)	\$150,000	\$390,000	\$60,000	\$600,000
1-5	2023	Runway 17-35 Reconstruction and Decoupling (Construction)	\$150,000	\$5,565,000	635,000	\$6,350,000
		SHORT-TERM TOTAL	\$750,000	\$9,803,000	\$1,267,000	\$11,820,000

\*Given the competitive nature of state funding, no funds from the state were included \*\*Of AIP-Eligible Projects. Total local match include costs of non AIP-eligible projects

Note: All estimates are in 2017 dollars

Source: T-O Engineers Inc.

## 1-1 Aprons Rehabilitation (Environment&Design)

This project includes the design phase of a full rehabilitation project of the existing terminal and GA aprons. The design includes the pavement section design. The relocation of the fuel island should also be studied at this time.

## 1-2 Apron Reconstruction (Construction)

This project encompasses the reconstruction of both existing aprons at GCD and the relocation of the fuel island, following the design phase. It also includes the construction of a new parking lot northeast across the street from the terminal building. Both the fuel island relocation and parking construction are not AIP-eligible.

#### 1-3 Environmental Assessment

This project encompasses an environmental assessment of the potential impacts for the remaining projects at GCD, including items 1-4 and 1-5.

## 1-4 Runway 17-35 Rehabilitation and Decoupling (Design)

This project consists of the design phase for the full rehabilitation of Runway 17-35 and the decoupling of the RSA for both runways at GCD, as explained in **Chapter 6 -Alternatives Analysis** for the preferred runway alternative. It also includes the relocation of Taxiway B to the new end of Runway 27.

## 1-5 Runway 17-35 Reconstruction and Decoupling

This project is the construction phase of the Runway 17-35 rehabilitation, following the design phase. The cost includes widening runway 17-35 to 75 feet and the decoupling of both runways as described in the preferred alternative in **Chapter 6 - Alternatives Analysis**. All fillets at connecting taxiways (not to be removed) will be reconstructed to meet current FAA design. It also includes the relocation of Taxiway B to the new end of Runway 27.

## 7.2.2 MID-TERM DEVELOPMENT - PHASE 2 (5-10 YEARS)

All projects listed are shown on the approved **ALP-ALP Sheet**.

TABLE 7-3: MID-TERM DEVELOPMENT PROJECTS AND COST ESTIMATES- PHASE II

	Project	Funding Source		Total Project
ID	Description	Federal (90%*)	Local (10%)	Costs
2-1	Environmental Assessment	\$225,000	\$25,000	\$250,000
2-2	Construct Helipads	\$450,000	\$50,000	\$500,000
2-3	Land Acquisition	\$360,000	\$40,000	\$400,000
2-4	Relocate Roads	\$2,700,000	\$300,000	\$3,000,000
2-5	Taxiway A Rehabilitation (Design)	\$450,000	\$50,000	\$500,000
2-6	Acquire Snow Removal Equipment and Building	\$270,000	\$30,000	\$300,000
2-7	Install PAPIs and REILs	\$180,000	\$20,000	\$200,000
2-8	Install Wildlife Fence and Perimeter Road	\$1,350,000	\$150,000	\$1,500,000
2-9	Extend Terminal Apron (Design)	\$450,000	\$50,000	\$500,000
2-10	Construct Full Parallel Taxiway C (Design)	\$360,000	\$40,000	\$400,000
2-11	Construct Full Parallel Taxiway C (Construction)	\$4,140,000	\$460,000	\$4,600,000
	MID TERM TOTAL	\$10,935,000	\$1,215,000	\$12,150,000

\*Of AIP-Eligible Projects. Total local match include costs of non AIP-eligible projects

Note: All estimates are in 2017 dollars

Source: T-O Engineers Inc.

#### 2-1 Environmental Assessment

This project includes an environmental analysis through an environmental assessment for all the construction projects at GCD in the mid-term period.

## 2-2 Construct Helipads

This project encompasses the construction of new helipads as shown on the approved ALP-ALP Sheet.

## 2-3 Land Acquisition

This project includes the acquisition of land not already owned in the current RPZs off of each Runway 17-35 ends. It also includes additional land for control of the Runway Object Free Area (B-II standards). The amount of property necessary to own all areas is approximately 26 acres.

#### 2-4 Relocate Roads

This project includes all the road relocation to clear incompatible land uses in the RPZs for Runway 17-35 and Runway 27 End.

## 2-5 Taxiway A Rehabilitation (Design)

This project is the design phase of the rehabilitation of Taxiway A with installation of a new Medium Intensity Taxiway Lighting System. It includes the widening of the taxiway to 35 feet with additional connectors as needed.

# 2-6 Snow Removal Equipment (SRE) and Building

This project will consist in acquiring a multi-directional tractor with implements such as plow, broom, and blower. It also includes the construction of a new storage building for the new SRE equipment.

#### 2-7 Install PAPIs and REILs

This project includes the installation of Precision Approach Path Indicators (PAPI) as well as Runway End Identifier Lights (REILs) on the Runway 27 end. It also includes the relocation of the PAPI on Runway 17 end to its optimal location.

#### 2-8 Install Wildlife Fence and Perimeter Road

This project includes the installation of a new 11-foot wildlife fence around the airport. It also includes the rehabilitation of the paving of perimeter road for better access year round.

#### 2-9 Terminal Apron Extension (Design)

This project includes the design phase for an extension of the terminal apron to add more tiedowns south of the existing apron. It includes the design of a new car parking area south of the terminal building (not AIP eligible).

### 2-10 Construct Full Parallel Taxiway C (Design)

This project includes the design phase for the construction of a new parallel Taxiway C to the west side of Runway 17-35 with associated connectors. This project will allow for additional developments in this area, and through-the-fence operations from the industrial park.

## 2-11 Construct Full Parallel Taxiway C (Construction)

This project includes the construction of a new parallel Taxiway C west of Runway 17-35 for better access in this area, following the design phase (Project 2-10). It will allow for additional developments in this area, and through-the-fence operations from the industrial park.

# 7.2.3 Long Term Development - Phase 3 (11-20 Years)

All projects listed are shown on the approved **ALP-ALP Sheet**.

TABLE 7-4: LONG-TERM DEVELOPMENT PROJECTS AND COST ESTIMATES- PHASE III

Project		Funding Source		Total Project
ID	Description	Federal (90%*)	Local (10%)	Costs
3-1	Environmental Assessment	\$225,000	\$25,000	\$250,000
3-2	Taxiway A Reconstruction (Construction)	\$3,150,000	\$350,000	\$3,500,000
3-3	Extend Terminal Apron (Construction)	\$1,800,000	\$200,000	\$2,000,000
3-4	Build New Apron (Design)	\$360,000	\$40,000	\$400,000
3-5	Build New Apron (Construction)	\$1,800,000	\$200,000	\$2,000,000
3-6	Extend Runway 9-27 (Design)	\$450,000	\$50,000	\$500,000
3-7	Extend Runway 9-27 (Construction)	\$3,600,000	\$400,000	\$4,000,000
3-8	Relocate PAPI Runway 9	\$45,000	\$5,000	\$50,000
3-9	Relocate AWOS, Windcone, and Segmented Circle	\$90,000	\$10,000	\$100,000
3-10	Acquire Land and Relocate Road	\$450,000	\$50,000	\$500,000
3-11	Extend Full Parallel Taxiway B	\$2,700,000	\$300,000	\$3,000,000
3-12	Aeronautical Survey	\$175,000	\$25,000	\$200,000
3-13	Airport Master Plan	\$225,000	\$25,000	\$250,000
	LONG TERM TOTAL	\$15,075,000	\$1,675,000	\$16,750,000

\*Of AIP-Eligible Projects. Total local match include costs of non AIP-eligible projects

Note: All estimates are in 2017 dollars

Source: T-O Engineers Inc.

#### 3-1 Environmental Assessment

This project includes an environmental analysis through an environmental assessment for all the construction projects at GCD in the long-term period.

#### 3-2 Taxiway A Reconstruction (Construction)

This project includes the reconstruction of Taxiway B, following the design phase (Project 2-9).

## 3-3 Extend Terminal Apron (Construction)

This project includes the reconstruction of the terminal apron, following the design phase (Project 2-8).

#### 3-4 Build New Apron (Design)

This project will build a new General Aviation Apron to the northeast of the airport for additional tie-downs and available space for a potential Fixed Base Operator (FBO). It includes a new parking lot for vehicles (not AIP-eligible).

# 3-5 Build New Apron (Construction)

This project includes the construction of the new GA apron, following the design phase (Project 3-4).

### 3-6 Extend Runway 9-27 (Design)

This project is the design phase of a project to extend Runway 9-27 by 500 feet to the west to a total length of 4,600 feet and to widen the runway to 75 feet.

### 3-7 Extend Runway 9-27 (Construction)

This project will extend Runway 9-27 by 500 feet to the west to a total length of 4,600 feet, following the design phase (Project 3-6).

#### 3-8 Relocate PAPI Runway 9

Following the runway extension, this project will relocate the PAPI on Runway 9 end to its optimal location according to the ultimate Runway 9 end position.

#### 3-9 Relocate AWOS

Following the runway extension, this project will relocate the AWOS to its optimal location according to the ultimate Runway 9 end position.

# 3-10 Acquire Land and Relocate Road

This project encompasses the acquisition of land west of the airport to control the ultimate RPZ for Runway 9 and allow for the runway extension. It also includes the acquisition of land to protect the AWOS critical area after relocation. The total acreage required is 18 acres.

## 3-11 Extend Full Parallel Taxiway B

This project includes the design and construction phase for the extension of Taxiway B to a full parallel taxiway north of Runway 9-27. It should be considered if demand warrants.

## 3-12 Aeronautical Survey

This project will provide the airport with an aeronautical survey using Airport GIS (AGIS) requirements. It will be used to develop the instrument departure procedure from Runway 35.

## 3-13 Airport Master Plan

This project includes an update of the Airport Master Plan and Airport Layout Plan.

## 7.2.4 Cost Estimate Summary

**Table 7-5** summarizes the total costs to implement the proposed development plan. The proposed 20-year development plan depicts the need for an average of approximately \$1,878,500 of funding per year.

It is important to reiterate that the development plan (and the Master Plan Update process in general) is a 20-year plan created using present day information and variables relevant at the time of its drafting. The funding and CIP process is very fluid in nature and changes frequently. To be successful, GCD must work very closely with FAA and ODA to schedule the projects presented in this ALP Update into the Federal CIP when appropriate and revise the plan as circumstances at the airport warrant.

TABLE 7-5: 20 YEAR DEVELOPMENT PLAN SUMMARY FOR GRANT COUNTY REGIONAL AIRPORT

	Cost Estimate and Funding Source			
Phases	Federal	Local	Total Project Costs	
Phase I (0-5 Years)	\$9,503,000	\$1,167,000	\$10,670,000	
Phase II (6-10 Years)	\$6,795,000	\$755,,000	\$7,550,000	
Phase III (11-20 Years)	\$17,415,000	\$1,935,000	\$19,350,000	
TOTAL 20 YEAR	\$33,093,000	\$3,677,000	\$37,570,000	

Note: All estimates are in 2017 dollars

Source: T-O Engineers Inc.

## 7.3 CAPITAL IMPROVEMENT FUNDING

This section describes the sources available to GCD to fund the proposed projects included in the development plan. As previously noted, the FAA's AIP is expected to be the primary source of funding for all of the eligible projects. FAA, the State of Oregon, local, and other funding sources will be described in greater detail below.

## 7.3.1 FAA FUNDING

The current FAA funding program, known as the Airport Improvement Program (AIP), was initially established by the Airport and Airway Improvement Act of 1982. Since 1982, the AIP program has been authorized and appropriated on a continuous basis. Funding for this program is located in a dedicated Trust Fund with revenues generated from a tax on airline tickets, freight waybills, international departure fees, a tax on general aviation fuel, and a tax on aviation jet fuel. This is a user fee-based program.

Current FAA legislation funds eligible airports and eligible projects up to a maximum of 90% of total project costs for general aviation airports. GCD is an eligible airport and has received FAA funds for previous projects. Recent project funding has been at the 90% level. The remaining 10% of capital construction costs are required to come from State or local sources.

The current AIP legislation funds the following programs: Non-Primary Entitlement (NPE) program, State Apportionment funds, and Discretionary funds. Since its inception in 2001, the NPE program has provided small General Aviation airports, on average, \$150,000 a year in the form of an entitlement for eligible projects. This program has given these airports the opportunity to enhance their facilities via maintenance and small capital improvement projects. The recommended development plan assumes the continuation of the NPE program throughout the planning period.

In the event that the U.S. Congress changes the FAA NPE program, to the extent that this development plan is rendered ineffective, the airport sponsor should take immediate action to revise the development plan in order to satisfy the funding requirements resulting from the most current legislation in effect. Airports have the ability to carry over their NPE funds for three years so that they can be accumulated to accomplish a single larger project.

FAA State Apportionment (ST) funding is formulated for each of the 50 states. ST funding is a discretionary fund available to all eligible Non-Primary airports in Oregon. State Apportionment funding is typically reserved for large scale, high priority projects. It is anticipated that ST funding will be necessary to complete some or most of the projects included in the proposed development plan. As noted above, ST funds are often combined with NPE funds to accomplish larger projects. The FAA determines which airports receive ST project funding.

FAA Discretionary (DI) funding is typically reserved for high cost, high priority projects at primary airports and large General Aviation Reliever airports. Such projects and airports compete for Discretionary funds on a national and regional basis. It is anticipated DI funding may be necessary to complete project at GCD. As noted above, DI funds are often combined with ST and NPE funds to accomplish larger projects.

# 7.3.2 STATE FUNDING

The state of Oregon has two main programs to provide funds to airports in Oregon:

- ★ <u>ConnectOregon</u>: Oregon Department of Transportation (ODT) program, it is a lottery-bond-based initiative approved by the Oregon Legislative Assembly. It is available for investments in air, rail, marine, and transit infrastructure to improve the Oregon's transportation system.
- ★ <u>Critical Oregon Airport Relief Program (COAR)</u>: Oregon Department of Aviation (ODA) program that uses 50 percent of the amounts for fuel taxes for the following purposes:
  - Assist airport in Oregon with match requirements for the FAA AIP
  - Make grants for emergency preparedness and infrastructure projects.
  - Make grants for services critical to aviation (utilities, fuel, weather equipment...), aviation-related business developments, amd airport development for local economy benefits.

Both programs attribute funds on a competitive basis and airports have to apply for selection. These funds are not guaranteed. It is highly recommended that GCD applies for such funds when needed for eligible projects.

#### 7.3.3 LOCAL FUNDING

Local funds are those derived from income resulting from the operation of the airport itself, or contributions by the sponsoring agency (or agencies) of the airport from general or other funds. Local funds are typically used for FAA AIP grant local match requirements and to fund airport operations; including administration, maintenance, or other projects not eligible for FAA or State funding support. FAA Grant Assurance #25 requires revenue generated by the airport be expended for the capital or operating costs of the airport.

### 7.3.4 PRIVATE FUNDING

Private funding sources are typically financial contributions to the airport or airport sponsor by an individual(s) or business entity. Typically such donors make extensive use of the airport and are contributing to the maintenance, expansion, and operation of the facility to further enhance their use of the facility. Considering the many expensive needs of airports and the limited amount of public funding available to meet these needs, the use of private funds to offset airport costs is a concept that continues to receive attention.

Improvements such as water, sewer, and electrical extension and paving necessary to construct hangars and other privately owned facilities on the airport should be fully funded by the lessee. If the airport funds any of these improvements then an additional fee should added to the lease fee to include an amortized recovery of these expenses over a reasonable period of time.

# 7.4 GCD FINANCIAL OVERVIEW

# 7.4.1 AIRPORT GRANT HISTORY

Receipt of airport improvement grants is an important piece of the financial puzzle at the airport. Such grants are the backbone for important capital improvement/development and maintenance projects. GCD has an established history of receiving grants from the FAA AIP fund and State fundings through the ConnectOregon program.

According to FAA records, since 2005, GCD has received over \$3.1 million from FAA AIP. Over the same period, the County has used airport revenue to invest substantially into the airport for such things as a local financial match for grants and standard operations and maintenance expenses. Available FAA grant history at the airport is summarized in **Table 7-6**.

**TABLE 7-6: GCD FAA AIP GRANT HISTORY** 

Year	Amount	Project
2005	\$447,280	Construct and Rehabilitate Taxiway
2007	\$60,000	Extend Runway 17-35
2008	\$228,335	Extend runway 9-27
2008	\$348,236	Extend runway 17-35
2009	\$112,968	Install PAPI and Signs
2009	\$366,419	Runway Lighting 9-27
2010	\$198,693	Expand Apron, Extend Taxiway, Perimeter Fencing
2013	\$1,182,261	Rehabilitate runway 9-27 and Taxiway
2015	\$155,632	Update Master Plan
		Source: EAA

Source: FAA

### 7.4.2 CURRENT FISCAL POLICY

To gain a perspective of the future financial outlook of the airport, it is important to provide a brief summary of current fiscal policy.

# **Revenues and Expenses**

Airport revenues are typically generated through user fees for airport facilities and services. Airport operating revenues are collected at GCD from hangar leases and fuel sales. Airport revenues are offset by airport expenses, which include utilities, supplies, maintenance, and grant match. GCD expenses also include the local capital costs associated with airport improvements.

#### **Fee Structure**

User fees at the GCD are established by the Airport Commission and approved by the County Commissioners.

### 7.5 POTENTIAL REVENUE ENHANCEMENT

It is the responsibility of an airport sponsor under Grant Assurance #24 Fee and Rental Structure to maintain a fee and rental structure for the facilities and services at the airport which will make the airport as self-sustaining as possible under the circumstances existing at the airport, taking into account such factors as the volume of traffic and economy of collection. Further discussion of the Grant Assurances can be found in Chapter 8 - FAA Compliance Overview and Land Use Compatibility Review and Recommendations. FAA Order 5190.6b states that fair market value fees are required for non-aeronautical use of the airport. e.g., lease of land. Fair market pricing of airport facilities can be determined by reference to negotiated fees charged for similar uses of the airport or by an appraisal of comparable properties.

However, in view of the various restrictions on the use of property on an airport (i.e., limits on the use of airport property, height restrictions, etc.), it may be ideal for the airport to develop an Airport Business Plan. A business plan is a dynamic document created to assist an airport with current and future business decisions. A business plan provides airport-specific information, analysis, and recommendations for improved airport operation. Goals of a business plan often include:

- ★ To operate as a financially self-supporting airport.
- ★ To attract and retain a base of personal and business/corporate aircraft
- ★ To promote the airport for use by transient and business/corporate aircraft operations
- ★ To implement the airport's capital improvement plan.
- ★ Support the region's economic development goals.

At a minimum, the airport should continually evaluate the regional market value for similar services and fees at competing airports annually. This evaluation should compare the airport's cost of providing services with the compensation it receives for providing these services with the goal of maintaining the profit margin necessary to continue to provide for these services and identifying the resources required to conduct the daily business of the airport. To this end, this section briefly explores the revenue enhancement options available to Grant County.

## 7.5.1 RATES AND CHARGES

**Landing Fees** - The airport does not currently have any landing fees. But many airports charge landing fees to aircraft over 7,000 lbs. Maximum Take Off Weight. FAA recognized the difficulty of collecting landing fees in this type of environment and normally does not expect that a GA airport like GCD would implement an aircraft landing fee.

In the future, if the airport is successful in attracting larger aircraft operations, a graduated landing fee could be considered to reflect the true cost of the size and type of aircraft using the airport. Faster and heavier turboprop and jet aircraft cause a higher cost to the airport and therefore could be charged a higher fee to utilize the airport. A sliding scale landing fee schedule could be considered in the future based on maximum certified take-off weight. The benefit of landing fees may be offset by the difficulty and cost of tracking and collecting such fees.

**Tie-Down Fees** - The airport currently charges fees for tiedowns for based or transient aircraft and should continue to do so. The rate should be monitored and regularly updated based on market conditions and surrounding airports.

**Fuel Flowage Fee** - The airport does charge a fuel flowage fee for inclusion in the airport fund. This rate should also be updated as needed.

**Hangar Lease and Land Lease** - FAA expects that a Consumer Price Index (CPI) is applied to land lease fees at least every five years. These fees should be reviewed and discussed with the hangar owners to assure that they receive a value and that they place an appropriate monetary value on their use and benefit from using airport property. Construction of new hangars may require extra permitting as compared to other airports including possible wetlands permitting.

**New Hangar Land Leases** - FAA Order 5190.6b states that if the airport owner or operator and a person who owns an aircraft agree that a hangar is to be constructed at the airport for the aircraft at the aircraft owner's expense, the airport owner or operator will grant to the aircraft owner for the hangar a long term lease that is subject to such terms and conditions on the hangar as the airport owner or operator may impose.

**Hangar Owners Maintenance Fee** - This fee works similar to a homeowner fee to collect from hangar owners fees for the maintenance and improvement to the aprons and taxiways that are either exclusively or predominantly beneficial to them. It is recommended that GCD implements such a fee for its hangar users.

**Concession Fees** - If there were car rentals, goods sold, or privately owned vehicles parked at the airport for extended periods of time, a fee could be analyzed to see if it was appropriate and if it could be economically collected.

**Summary** - It is strongly recommended that GCD regularly monitor changing financial needs at the airport and consider adjustments to all fees on an annual basis or as airport activity and needs dictate. It is common for various state aviation agencies and other airports to conduct regular Rates and Charges studies to provide guidance on appropriate fees. It is recommended that the County utilize such resources as available to assist them in evaluating their fees. Hangar rental rates should be adjusted annually per the CPI.

## **Operating Licenses**

On an as-needed basis, GCD could consider charging an annual fee for certain types of businesses to operate at the airport. Airports often charge a fee for the following types of on-airport businesses and activities:

- ★ Fixed base operators
- ★ Agriculture operations
- ★ Aerial ambulance operations
- ★ Firefighting operations
- ★ Skydiving operations

Annual fees could range from \$100 to \$500.

#### **Commercial Use Fees**

If the airport were to provide products, property, and services to businesses, fees associated with these businesses could present a potential revenue source. Current lack of many services does not warrant charging such a fee at this time.

In the future, if a business is interested in using the airport facilities, the County should examine the cost of providing services to airport businesses, the income generated by current sales and their existing profit margin as a source of revenue.

- ★ A percentage of gross sales of services offered by FBO's, flight schools, aircraft powerplant and avionics shops, and other similar types of aviation businesses
- ★ Rental car fees (if ever needed or made available at the airport)
- ★ Retail sales (aeronautical charts, clothing, aviation accessories)
- ★ Vending machines

### 7.5.2 EXPENSES

The airport, as part of a public entity, is eligible to purchase supplies and equipment on state and federal contracts in most cases. The Federal Surplus Equipment Program has many avenues for procurement of used government equipment, mostly military, ranging from computers to firefighting vehicles and heavy equipment. The savings can be substantial, especially on big-ticket items such as airport vehicles and other large equipment.

A review of yearly maintenance costs should be performed to see if there are any tasks that can be done at lower cost by having those contracted or vice versa, current contracted work to be done by the County instead. Examples may include pavement maintenance such as crack sealing or airfield painting.

## 7.5.3 REVENUE ENHANCEMENT SUMMARY

In summary, it is often difficult for airports and communities like Grant county to generate significant airport related revenues to become self-sufficient. It is recommended that the County continue to monitor changing financial demands at the airport and consider adjustments to existing fees and new fees as airport activity and needs dictate.

### 7.6 SUMMARY

This chapter presents a development plan for recommended airport improvements including project descriptions and estimated costs. Some projects are needed to correct deficiencies in existing facilities ability to solve existing users; while other projects are driven by anticipated demand. Revenue sources for financing of projects are also reviewed. The FAA/AIP grant program has been and will remain this primary source for funding eligible facility improvements. The applicability of this source to all desired airport improvements must be closely monitored. Some components of aircraft hangar development such as access roads, utilities, and the hangars are not AIP eligible and will require a private funding source or some form of a private/public partnership to finance.

It should be a priority of Grant county Regional Airport to continue maintaining and operating the airport as self-sufficiently as possible. Doing so will serve to protect current investment and continue the airport's valuable role as an economic contributor to the community and region. To do so will require monitoring of rates and charges in comparison to services provided and the aviation industry as a whole, as well as seeking opportunities to enhance revenues consistent with management practices at peer airports. Suggestions are presented in the chapter for consideration.

# 8.0 FAA COMPLIANCE OVERVIEW AND LAND USE COMPATIBILITY REVIEW AND RECOMMENDATIONS

#### 8.1 INTRODUCTION

As a recipient of federal airport improvement funds, the airport's sponsor, Grant County, is bound by various sponsor obligations. This chapter provides a general overview of the Federal Aviation Administration (FAA) airport compliance considerations as they pertain to sponsor obligations and Grant County Regional Airport (GCD).

For the purposes of this planning study, a detailed review of existing compatible land use policy, which is a high priority compliance issue, was conducted. A master plan update is the ideal time to develop and adopt policies that will protect both the airport and future population, and prevent more severe conflicts down the road. Recommendations to improve existing policies are made in the subsequent sections. Review and analysis of other common sponsor compliance related issues was limited to providing a general understanding and recommendations on methods and tools to ensure compliance with sponsor obligations.

# 8.2 AIRPORT COMPLIANCE

As previously mentioned, the airport's sponsor, Grant County, is bound by various sponsor obligations. These obligations are described in detail in federal grant assurances. They express the commitment made by the airport sponsor to fulfil the intent of the grantor (FAA) required as a result of accepting federal and/or state funding for airport improvements.

The purpose of the grant assurances and other requirements are to protect the significant investment made by the FAA, and ultimately the taxpayer, to develop and maintain the airport leaving it accessible to the general flying public. Failure to comply with the grant assurances may result in the request for a full reimbursement to the grantor and/or forfeiture of future funding. Currently there are 39 FAA grant assurances; a copy of FAA grant assurances is included in **Appendix D**.

# 8.2.1 FAA COMPLIANCE PROGRAM AND FAA GRANT ASSURANCES

Policies and procedures as well as interpretation, administration, and oversight of federal sponsor obligations are generally carried out by the FAA through its Airport Compliance Program. Currently, FAA Order 5190.6B, Airport Compliance Manual, sets forth policies, federal obligations and procedures for the Airport Compliance Program.

Order 5190.6B, states that the FAA Airport Compliance Program is, "...designed to monitor and enforce obligations agreed to by airport sponsors in exchange for valuable benefits and rights granted by the United States in return for substantial direct grants of funds and for conveyances of federal property for airport purposes. The Airport Compliance Program is designed to protect the public interest in civil aviation. Grants and property conveyances are made in exchange for binding commitments (federal obligations) designed to ensure that the public interest in civil aviation will be served. The FAA bears the important responsibility of seeing that these commitments are met. This Order addresses the types of these commitments, how they apply to airports, and what FAA personnel are required to do to enforce them."

It should be noted that Order 5190.6B is not regulatory and is not controlling with regard to airport sponsor conduct; rather, it establishes the policies and procedures for FAA personnel to follow in carrying out the FAA's responsibilities for ensuring airport compliance.

To better understand the intent of the sponsor obligations and the FAA Compliance Program, it is important to understand the FAA's goals for a national airport system of which GCD is a part of. The national airport system is known as the FAA National Plan of Integrated Airport Systems (NPIAS). The guiding principles of the NPIAS have been in place since 1946 and, for the most part, have remained unchanged since.

According to the FAA Order 5090.3C, Field Formulation of the National Plan of Integrated Airport Systems, cooperation between the FAA, state and local agencies should result in an airport system with the following attributes:

- ★ Airports should be safe and efficient, located at optimum sites, and be developed and maintained to appropriate standards.
- ★ Airports should be operated efficiently both for aeronautical users and the government, relying primarily on user fees and placing minimal burden on the general revenues of the local, state, and federal governments.
- ★ Airports should be flexible and expandable, able to meet increased demand and accommodate new aircraft types.
- ★ Airports should be permanent, with assurance that they will remain open for aeronautical use over the long term.
- ★ Airports should be compatible with surrounding communities, maintaining a balance between the needs of aviation and the requirements of residents in neighboring areas.
- ★ Airports should be developed in concert with improvements to the air traffic control system.
- ★ The airport system should support national objectives for defense, emergency readiness, and postal delivery.
- ★ The airport system should be extensive, providing as many people as possible with convenient access to air transportation, typically not more than 20 miles of travel to the nearest NPIAS airport.
- ★ The airport system should help air transportation contribute to a productive national economy and international competitiveness.

While sponsor obligations are contractually based and Order 5190.6B is a primary tool providing guidance to FAA personnel in carrying out the FAA Compliance Program, the program does not attempt to control or direct the operation of airports. As the airport sponsor, Grant County is responsible for the direct control and operation of the airport. Familiarity and proper implementation of the sponsor obligations, the FAA grant assurances in particular, is key to the future compliance success. Order 5190.6B and communication with the FAA Northwest Mountain Region Compliance Office are excellent resources for the county to help maintain compliance.

As previously mentioned, there are currently 39 FAA grant assurance associated with receipt of federal Airport Improvement Program (AIP) funding. The assurances are classified by type in **Table 7-1**. While sponsors should understand and comply with all grant assurances, there are several assurances that are common "stumbling blocks" or recurring issues for airport sponsors throughout the country. These are highlighted in the table and discussed in more detail below. All 39 grant assurances in their entirety can be found in **Appendix D**.

TABLE 7-1: THE FAA'S AIRPORT SPONSOR GRANT ASSURANCES

Project Planning/Design & Contracting	General Airport	Land Use	Day-to Day Airport Management
2- Sponsor Responsibility 3- Sponsor Fund Availability 7- Local Interest Consideration 8- User Consultation 9- Public Hearings 10-Air & Water Quality Standards 13- Project Accounting/	1-Federal Requirements 4- Good Title 5-Preserving Rights 29- Up to Date Airport Layout Plan 31- Disposal of Land	6- Consistent with Local Plans 20-Hazard Removal & Mitigation 21- Compatible Land Use	22- Economic Nondiscrimination 23- Exclusive Rights Prohibition 26- Reporting Requirements 38- Hangar Construction
Reporting	Airport Operations	Leases & Financial	Other
14- Minimum Wage Rates 15- Veteran Preference 16- Plan Conformity 18- Planning Projects 30- Civil Rights 33- Foreign Market Restrictions 34- Following FAA Policy 35- Property Acquisition & Relocation 37- DBE Program	11- Pavement Maintenance 19-Operation and Maintenance  Project Construction  17-Construction Approval 32-Contracting Engineering Services	24- Fee and Rental Structure 25- Airport Revenue	12-Air Carrier Terminal Development 27-Use by Government Aircraft 28-Land for Federal Facilities 36- Access by Intercity Buses 39- Air Carrier Access

Note: Highlighted assurances represent common airport stumbling blocks.

Source: FAA Order 5190.6B

The airport sponsor should have a clear understanding of and comply with all assurances. The following sections describe the selected assurances highlighted in **Table 7-1** in more detail.

#### Duration

The terms, conditions and assurance of a grant agreement with the FAA remain in effect for the useful life of a development project, which is typically 20 years from the receipt of the last grant. Terms, conditions and assurances associated with land purchased with federal funds do not expire.

### **Project Planning/Design and Contracting**

#### Sponsor Fund Availability (Assurance #3)

Once a grant is given to an airport sponsor, the receiving sponsor commits to providing the funding to cover their portion of the project. Currently this amount is typically 10% of the total eligible project cost, although it may be lower depending on the particular project components or makeup. Once the project has been completed, the receiving airport also commits to having adequate funds to maintain and operate the airport in the appropriate manner to protect the investment in accordance with the terms of the assurances attached to and made a part of the grant agreement.

# Accounting System, Audit, and Record Keeping (Assurance #13)

All project accounts and records must be made available at any time. Records should include documentation of cost, how grant funds were spent, funding paid by other sources and any other financial record associated with the project at hand. Any books, records, documents, or papers that pertain to the project should be available at all times for an audit or examination.

#### **General Airport**

#### Good Title (Assurance #4)

The airport owner must have a Good Title to affected property when considering projects associated with land, building or equipment. Good Title meaning the sponsor can show complete ownership of the property without any legal questions, or show it will soon be acquired.

#### Preserving Rights and Powers (Assurance #5)

No actions are allowed which might take away any rights or powers which are necessary for the sponsor to perform or fulfill any condition set forth by the assurance included as part of the grant agreement. If there is an action that might hinder any of those rights or powers, it should be discontinued. An example of an action which could hinder the rights and powers of the airport is a Through-the-Fence (TTF) activity. TTF activities allow access to airport facilities from off-airport users. In many instances, the airport sponsor cannot control the activities of those operating off the airport resulting in less sponsor control. Furthermore, many times TTF users do not pay the same rates and charges as on-airport users resulting in an unfair competitive advantage.

## Airport Layout Plan (ALP) (Assurance #29)

The airport should keep an up-to-date ALP. An ALP should include current and future airport boundaries, facilities/structures, the location of any non-aviation areas, and improvements. No changes should be made at the airport to hinder the safety of operations; also no changes should be made to the airport that is not in conformity with the ALP. Any changes of this nature could adversely affect the safety, utility, or efficiency of the airport. If any adverse changes are made to the airport without authorization, the changes must be altered back to their original condition or the airport will have to bear all cost associated with moving or altering the change to an acceptable design or location. Additionally, no federal participation will occur for improvement projects not shown on an approved ALP.

## Disposal of Land (Assurance #31)

Land purchased with the financial participation of an FAA Grant cannot be sold or disposed of by the airport sponsor at their sole discretion. Disposal of such lands are subject to FAA approval and a definitive process established by the FAA. If airport land is no longer considered necessary for airport purposes, and the sale is authorized by the FAA, the land must be sold at fair market value. Proceeds from the sale of the land must either be repaid to the FAA or reinvested into another eligible airport improvement or noise compatibility project. Land disposal requirements typically arise when a community is building a new airport, the land on which the airport was located is sold, and the proceeds used to offset costs of the new airport. In general, land purchased with FAA funds is rarely sold by a sponsor.

# **Airport Operations**

## Pavement Preventative Maintenance (Assurance #11)

Since January 1995, the FAA has mandated that it will only give a grant for airport pavement replacement or reconstruction projects if an effective airport pavement maintenance-management program is in place. The program should identify the maintenance of all pavements funded with federal financial assistance. The Oregon department of Aviation (ODA) has an active statewide pavement maintenance program. ODA provides airports with a report of their pavement conditions every year to assist airports in making decisions regarding pavement maintenance and ensure compliance with the federal mandate. The report provides a pavement condition index (PCI) rating (0 to 100) for various sections of aprons, runways, taxiways.

# Operations and Maintenance (Assurance #19)

All federally funded airport facilities must operate at all times in a safe and serviceable manner. The airport sponsor should not allow for any activities which inhibit or prevent this. The airport sponsor must always promptly mark and light any hazards on the airport, and promptly issue Notices to Airmen (NOTAMs) to advise users of any conditions which could affect safe aeronautical use. Exceptions to this assurance include when temporary weather conditions make it unreasonable to maintain the airport. Furthermore, this assurance does not require the airport sponsor to repair conditions which have resulted due to a situation beyond the control of the sponsor.

#### **Land Use**

#### Local Plans (Assurance #6)

All projects must be consistent with City and County comprehensive plans, transportation plans, zoning ordinances, development code, and hazard mitigation plans. The airport sponsor and planners should all familiarize themselves with local planning documents before a project is considered and ensure that all projects follow local plans and ordinances.

In addition to understanding local plans, airport sponsors should be proactive in order to prevent noncompliance with this assurance. The airport sponsor should assist in the development of local plans that incorporate the airport and consider its unique aviation related needs. Sponsor efforts should include the development of goals, policies, and any implementation strategies to protect the airport as part of local plans and ordinances.

## Airspace (Assurance #20)

Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use, and Preservation of the Navigable Airspace (Part 77), provides the basis for airspace protection requirements at public-use airports at the federal level by identifying and defining critical airspace surfaces. Airspace requirements are determined by the weight of the aircraft that predominantly operate at an airport and the type of instrument approach, existing or planned.

FAA Grant Assurance #20 states, "Hazard Removal and Mitigation. Airport sponsors will take appropriate action to assure that such terminal airspace as is required to protect instrument and visual operations to the airport will be adequately cleared and protected..." Communities protect the Part 77 airspace surfaces by defining them in the ALP and further identifying them in ordinance or code and requiring that no object penetrates these airspace surfaces as a result of development.

Communities also protect airspace by encouraging those land uses that are likely to be compatible with the airport operations and prohibiting those uses that are likely to be incompatible with the airport operations. Per Part 77, proponents proposing development at certain height above the ground or within a certain proximity to the airport are required to submit FAA Form 7460-1 to the FAA for determination that such development will not adversely impact airspace or the safety of aircraft operators. For on airport development, Form 7460-1 must either be submitted by the airport sponsor or the sponsor must assure that the leaseholder submits the form appropriately.

#### Compatible Land Use (Assurance #21)

Land uses around an airport should be planned and implemented in such a manner that ensures surrounding development and activities are compatible with the airport. FAA Grant Assurance #21 states, "It (sponsor) will take appropriate action, to the extent reasonable, including the adoption of zoning laws, to restrict the use of land adjacent to or in the immediate vicinity of the airport to

activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft. In addition, if the project is for noise compatibility program implementation, it will not cause or permit any change in land use, within its jurisdiction, that will reduce its compatibility, with respect to the airport, of the noise compatibility program measures upon which Federal funds have been expended."

To ensure compatibility, the sponsor will take appropriate action, to the extent reasonable, including the adoption of zoning laws. Incompatible land uses surrounding airports represents one of the greatest threats to the future viability of airports today. Further discussion of compatible land use is included later in this chapter.

The FAA does not have statutory authority to mandate to airport sponsors the specific land use methods they must implement in order to meet this grant assurance. Rather, the action(s) taken by the sponsor must be considered reasonable to the FAA.

## **Day to Day Airport Management**

## Economic Non-Discrimination (Assurance #22)

Any reasonable aeronautical activity offering service to the public should be permitted to operate at the airport as long as the activity complies with airport established standards for that activity. Any contract or agreement made with the airport will have provisions ensuring the person, firm or corporation will not be discriminatory when it comes to services rendered as well as rates or prices charged to customers. Provisions include:

- ★ All FBOs on the airport should be subject to the same rate fees, rentals and other charges.
- ★ All persons, firms or corporations operating aircraft can work on their own aircraft with their own employees.
- ★ If the airport sponsor exercises the rights and privileges of this assurance they will be under all of the same conditions as any other airport user would be.
- ★ The sponsor has the ability to establish fair conditions which need to be met by all airport users to make the airport safer and more efficient.

The sponsor can prohibit any type, kind or class of aeronautical activity for the safety of the airport. An example of an activity which may be considered for prohibition is sky diving. It is important to point out that the FAA will review such prohibitions and will make the final determination as to whether a particular activity is deemed unsafe at the airport based on current operational dynamics.

### Exclusive Rights (Assurance #23)

Exclusive Rights at an airport is a subject which can be complicated and is usually specific to individual airport situations. The assurance states the sponsor "will permit no exclusive right for the use of the airport by any person providing, or intending to provide, aeronautical services to the public…", There are exceptions to this rule. If the airport sponsor can prove that bringing in similar

business would be unreasonably costly, impractical or result in a safety concern, the sponsor may consider granting an exclusive right. To deny a business opportunity because of safety, the sponsor must demonstrate how that particular business will compromise safety at the airport. Exclusive rights are very often found in airport relationships with an FBO but exclusive rights may also be established with any other business at the airport which could assist in the operation of an aircraft at the airport. If an unapproved exclusive rights agreement exists, it must be dissolved before a future federal grant is awarded to the airport.

If a sponsor is contemplating denial of a business use at the airport, it is strongly encouraged that they contact their FAA Airport District Office (ADO) in order to ensure that they have all necessary information and that denial of access is not going to be seen as unjust discrimination. For more in depth information on exclusive rights reference Advisory Circular 150/5190-6, Exclusive Rights at Federally Obligated Airports.

#### **Leases and Financial**

#### Fee and Rental Structure (Assurance #24)

Simply put, the fee and rental structure at the airport must be implemented with the goal of generating enough revenue from airport related fees and rents to become self-sufficient in funding the airports day to day operational needs. The airport sponsor should be constantly monitoring its fee and rental structure to ensure reasonable fees are being charged to meet this financial goal. Common fees and rents charged by airports include fuel flowage fees, tie-down fees, landing fees, and hangar rent.

#### Airport Revenue (Assurance #25)

Revenue generated by airport activities must be used to support the continued operation and maintenance of the airport. Use of airport revenue to support or subsidize other non-aviation activities or functions of the sponsor is not allowed and is considered revenue diversion. Revenue diversion is considered a significant compliance issue and is subject to scrutiny by the FAA.

#### 8.2.2 OTHER FAA COMPLIANCE REQUIREMENTS

## **Other Federal Contracting and Procurement Documents**

Whenever an airport sponsor accepts an AIP grant from the FAA, the sponsor agrees to adhere to various federal contracting and procurement requirements. Advisory circulars are required for use in AIP funded projects. Included in each grant request is a federal funding checklist that identifies the requirements an airport should take into consideration before accepting the grant.

The following items are noted in the checklist:

- ★ ALPs should be up to date
- ★ Exhibit A Property Map may need to be updated after the acquisition of additional property
- ★ Land Inventory may need to be updated if land has been recently acquired with federal assistance
- ★ Airports must hold good title to the airport landing area
- ★ Appropriate signage and markings must be in place
- ★ RPZ and approach surface deficiencies must be identified and steps to address deficiencies must be noted
- ★ RSAs must meet FAA standards if planning a runway project
- ★ DBE program goals must be met on projects more than \$250,000 in Federal Funds
- ★ Procedures should be in place to handle bid protests
- ★ Open AIP grant projects need to be identified
- ★ Project closeout form must be submitted within 90 days of work completion
- ★ A "Certification of Economic Justification" must be included for routine pavement maintenance projects
- ★ A "Revenue Generating Facility Eligibility Evaluation" must be completed for hangar construction or fueling facilities
- ★ A "Reimbursable Agreement" and "Non-Fed Coordination" must be completed for navigational aid projects
- ★ A "Relocation Plan" must be completed if a project requires residences or businesses to be relocated.

#### **Special Conditions**

In addition to the standard grant assurances discussed previously, the state or the FAA may require "Special Conditions" to individual grants which supplement or expand the standard grant assurances. Special Conditions are unique to an individual airport and can be project oriented or administrative in nature. Airport sponsors need to be aware of such conditions that may be applied to their airport.

## 8.2.3 OREGON DEPARTMENT OF AVIATION (ODA)

The ODA COAR program provides funds to help Oregon airports match the FAA AIP grants for eligible projects. Airports need to apply for it and funds are not guaranteed. ODA does not appear to have specific grant assurances linked to this program at the time of this Master Plan.

## 8.3 COMPLIANCE AND GRANT COUNTY REGIONAL AIRPORT

A cursory review of existing and potential compliance issues was conducted as part of this planning effort. As stated in the introduction, the main focal point of the work effort associated with the compliance review was on land use compatibility around the airport.

Grant County Regional Airport is located on a plateau above the city of John day, OR. Surrounding land uses include rural (county), industrial and residential. Lands around the airport are privately owned, county owned, or city owned. This master plan update is the perfect time to assess the situation and elaborate measures to avoid future incompatible land use issues.

#### 8.3.1 INCOMPATIBLE LAND USES AND THE ABSENCE OF APPROPRIATE ZONING CONTROLS

Grant County and the cities of John Day and Canyon, OR should be proactive in developing compatible land use, planning around the Airport and continued, active development and implementation of compatible land use as necessary. Recommendations for the steps the County and City should consider to ensure long term land use compatibility at the airport can be found in Section 8.6 - Recommended Improvements to Existing Land Use Regulations.

## 8.3.2 "THROUGH-THE-FENCE" (TFF) ACCESS

GCD does not have any existing "Through-the-Fence" access or activity. However, this is something the airport is willing to consider in the future, especially with the city-owned industrial park adjacent to the airport. In this case, the airport should coordinate with the city and the FAA to ensure that the best TFF agreements will be put in place.

All future tenants wishing to access the airport form the industrial park would have to get an agreement with the city for the lease/sale of a lot in the park and an TFF agreement with the county to access the airport.

## 8.3.3 REVENUE DIVERSION (INCLUDING IMPROPER USE OF AIRPORT PROPERTY)

No indications of revenue diversion were identified at the airport. The County should continue to analyze all existing uses of airport property to ensure that all tenants are appropriately contributing to the airport's revenue.

#### 8.3.4 ON-AIRPORT RESIDENTIAL USE

There is not any on-airport residential use at GCD. However, a dirt area near the terminal building is currently used for RV parking during the wildfire season for housing of USFS contractors. These RVs are proposed to be moved off the fenced area of the airport along the access road on county/airport land. On-Airport Residential Use should be discouraged in the future.

### 8.3.5 Non-Aeronautical Local events closing the airport or a runway

GCD does not host or support any non-aeronautical events that would close the runway or airport. Such events should continue to be discouraged.

### 8.3.6 OBSTRUCTIONS

There are a few obstructions in the immediate vicinity of the airport located within the defined airport safety areas or Part 77 imaginary surfaces. These obstructions include public roads, the existing airport fence, the existing windcone, as well as existing hangars and surrounding houses. These are highlighted and discussed in the **ALP - Airsapce Drawing**.

It is recommended that these obstacles be either removed or properly lighted. Furthermore, improvements to the current airspace zoning ordinance are recommended to prevent future hazards. Additional recommendations will be provided in *Section 8.6 - Recommended Improvements to Existing Land Use Regulations*.

## 8.3.7 **GENERAL RECOMMENDATIONS**

Following are some recommended strategies and tools Grant County should consider to assist in effectively maintaining and operating the airport and ensuring compliance with the sponsor obligations.

- ★ Have a designated point of contact, such as an appointed airport manager or County representative, available to conduct airport business and respond to emergencies when needed.
- ★ Develop a reoccurring educational program to educate County Commissioners, the Airport Commission, legal counsel, potential FBO, Tenants, and the general public about the sponsor obligations and the grant assurances. It is particularly important to target the County Commissioners and the Airport Commissioners as members of these bodies can change. Educating new members about sponsor obligations is critical to ensure informed decisions while maintaining compliance with grant assurances.
- ★ Use airport facilities for aeronautical purposes only, unless otherwise specified by the airport and approved by the FAA.
- ★ Perform services in a non-discriminatory manner regardless of race, creed, color, national origin, or sex.
- ★ Actively promote compatible land use around the airport.
- ★ Consider the development of Minimum Standards and Rules and Regulations documents. These documents help ensure all airport users and tenants are conducting operations and activities with the same understanding and knowledge of what is acceptable at the airport. If an issue of concern arises, having these documents at hand can assist in addressing

- problems promptly and on a consistent basis. See Advisory Circular (AC) 150/5190-7, Minimum Standards for Commercial Aeronautical Activities.
- ★ Maintain a current and up-to-date aircraft roster of all based aircraft, this should include but not be limited to; aircraft tail number, aircraft type, aircraft model, and aircraft owner's name
- ★ No exclusive rights should be extended to any business on the airport which is performing aeronautical activities. See AC 150/5190-6, Exclusive Rights at Federally Obligated Airports.
- ★ Develop a routine self-inspection program including the completion of a safety inspection checklist. See AC 150/5200-18C, Airport Safety Self Inspection.
- ★ The County should have an emergency procedure plan in place and all County employees and lessees responsible for the maintenance and operation of the airport should be familiar with the plan in the event of an emergency.
- ★ Grant County should annually compare the Airport's fees and rental structure with those offered at other airports in the region and evaluate market value for similar services and fees.
- ★ The County should continually monitor the financial demands of the Airport and consider adjustments to existing fees and the addition of new fees as airport activity and needs dictate.

# 8.4 LAND USE COMPATIBILITY PLANNING AROUND GRANT COUNTY REGIONAL AIRPORT

Airports typically represent an important asset to many communities. They provide the community access to essential services such as life flight, agricultural and firefighting activity to name a few. Many airports also serve as a vital local, regional, state and national point of connectivity. As a result, the airport also represents an important economic engine by directly providing local jobs as well as other indirect economic impacts to a community.

However, airports are unique in that their operations can have far reaching impacts. While located in one jurisdiction, aircraft operations can and do impact nearby communities. Effective compatible land use planning by communities adjacent to an airport is important because such measures not only protect the airport but they also protect the surrounding communities from the impacts of typical airport operations.

GCD is currently located in a sparsely developed area surrounded by private properties, city lands, and county lands. As the community continues to grow, it is important that proactive efforts are undertaken to protect the airport, the community and its citizens, from future incompatible growth.

Furthermore, ineffective airport land use planning degrades the daily business and functionality of the airport, restricts its growth potential, and introduces significant obstacles to economic development in the community. These limitations can be mitigated by the implementation of effective compatible land use planning.

## 8.4.1 COMPONENTS OF EFFECTIVE AIRPORT COMPATIBLE LAND USE PLANNING

Effective compatible land use planning protects the airport and community from height, safety and noise concerns. In many instances, a community's willingness to take a proactive approach in addressing compatible land use planning prevents the need to be reactive and also prevents more severe conflicts down the road. Effective, comprehensive land use compatibility plans take such considerations into account and incorporate both height restrictive and basic land use restrictions through zoning. Coupled with other proactive measures, such as voluntary noise abatement programs and selective fee-simple land acquisition, proactive planning around the airport will protect both the airport and the surrounding community.

It is important to point out there is a very distinct difference between height restriction zoning and basic land use zoning. As its name implies, height restriction zoning generally conforms to CFR Part 77 with the intent of protecting the airspace around an airport from objects or structures which may pose hazards to aircraft operators. On the other hand, the intent of land use zoning should be to prevent incompatible land uses from being allowed near an airport where the impacts of airport operations, such as noise and/or aircraft accidents, can have a potentially negative impact on that land use or the impact of the incompatible land use can have a potentially negative impact on the airport.

# 8.4.2 IMPORTANT AIRPORT LAND USE PLANNING CONSIDERATIONS AND CHALLENGES

When considering land use planning around GCD, understanding the following challenges and considerations will be helpful.

#### **Encroachment of Incompatible Development**

One of the greatest threats to the viability of airports today is the encroachment of incompatible land use. Encroaching incompatible land use poses a significant threat to the state and national airport system as well as the communities they serve. GCD is already victim of such encroachment and must take appropriate measures to mitigate them and avoid future issues.

# Safety and Quality of Life

Proactive planning around the airport ensures the safety of both aircraft operators and airport neighbors from potential aircraft accidents. It also protects the quality of life of airport neighbors by ensuring they are not impacted by the noise, dust and fumes associated with airport operations.

## **Sponsor Obligations and Grant Assurances**

As previously discussed, grant assurances include specific requirements that the County protect the airport's airspace and prevent incompatible land uses around the airport through zoning. Failure to do so may result in the FAA no longer funding the airport if they do not believe the

County has taken reasonable steps to protect the airports from incompatible development. The duration of these grant assurances is a period of 20 years from when the County received the last grant with the exception of grant assurances associated with land acquisitions. The grant assurances associated with land acquisitions exist into perpetuity or until the land is sold (at fair market value) and the grant funds are paid back to the FAA.

## **Jurisdiction**

One major challenge airport owners face when promoting compatible land use is lack of jurisdiction. Airport operations and associated potential impacts (i.e. safety, noise, dust, fumes) can and do extend beyond the physical boundary of the airport property. Although the airport owner is liable for adherence to the FAA grant assurances, in many instances surrounding jurisdictions have control of land in the vicinity of the airport, not the owner, thus the owner has no say in land use policies and decisions. If the surrounding jurisdictions do not wish to proactively plan around the airport, they do not have to.

It should be noted that the FAA does not have jurisdiction over local land use nor do they have any enforcement authority to stop incompatible encroachment. As such, local communities are heavily relied upon and responsible for undertaking such efforts.

Jurisdictional issues may arise around GCD, since the airport is county-owned and operated, and surrounded by city and county lands. Future communication and coordination with the cities of John Day and Canyon, OR regarding compatible land use planning around the airport will protect both the airport and surrounding communities from incompatible land use issues in the future.

#### Protection of local, state and federal investment

GCD has received substantial financial investment from the FAA and ODA for many years. The County itself has invested significant funding into the airport to both operate and maintain it. Proactive planning around the airport, including effective land use zoning, will help ensure the airport is protected and can remain operational for the long term, thus protecting the substantial federal, state, and local investments.

As the FAA and ODA consider future investments at the airport, a major consideration is the community's willingness to protect the investment. This begins with effective compatible land use planning.

#### **Economic Benefit**

GCD provides an important economic benefit to the County and its citizens. Per the Oregon Aviation Plan published in 2007, , the estimated total airport impact is 77 jobs, a total payroll of \$1,647,000 and a total economic activity of \$5,174,000. The airport needs to be protected so it can continue to provide access to the community and economic benefits for many years to come.

## 8.4.3 FAA LAND USE RELATED GRANT ASSURANCES AND REQUIREMENTS

The FAA grant assurances include specific requirements applicable to airspace protection and compatible land use. Following is a brief summary of FAA requirements as well as considerations associated with FAA requirements for airspace and compatible land use planning.

In recent years, the FAA has become more active in working with airport sponsors in encouraging compatible land use planning around airports as a condition of their grant assurances. There are three critical grant assurances that sponsors need to be aware of, related to land use planning:

- ★ Local Plans (Assurance #6)
- ★ Airspace (Assurance #20)
- ★ Compatible Land Use (Assurance #21)

A detailed descriptions of these assurances are shown in **Appendix D**.

## 8.4.4 STATE LAND USE RELATED REQUIREMENTS

The state of Oregon through the Oregon Department of Aviation (ODA) regulates planning around airports in broader terms than the FAA. The *Airport Land Use Compatibility Guidebook - Chapter 5,* shown in **Appendix E**, is an invaluable reference for Grant County in order to plan for efficient land use around the airport. The guidebook summarizes the FAA requirements but also describes state regulation, including:

# **Comprehensive Planning and Periodic Review**

Oregon requires cities and counties to prepare, adopt, and amend comprehensive plans in compliance with 19 Statewide Planning Goals and administrative rules (OAR). Relevant goals include Goal 12, Transportation Planning. ORS 197.628 also requires local governments to review comprehensive plans and implement appropriate land use regulations to ensure a safe transportation system.

## **Airport Planning Rule (APR)**

The OAR Chapter 660, Division 13 outlines the requirements defined by the APR pertaining to aviation facility planning.

# **Transportation Planning Rule (TPR)**

The TPR embodied in OAR Chapter 660, Division 12 contains planning requirements to guide local governments in developing an efficient transportation system plan as an element of comprehensive plans.

### 8.4.5 CONTINUAL PLANNING PROCESS

Land use planning needs in a community can and do change. The County should create a formal process for policy development that identifies the airport land use planning process as a critical component of its community and comprehensive planning process. To assist in developing effective airport land use policy, it is also important to establish the identification of stakeholders who may be impacted by the airport **or** have an impact on the airport. Such stakeholders could include airport tenants/users, surrounding jurisdictions, in particular the cities of John Day and Canyon, OR, and adjacent neighbors and businesses. Proactive coordination with these stakeholders can greatly improve compatible land use efforts in the future.

## 8.5 EXISTING LAND USES REGULATIONS

Currently the FAA consider airport compatible land use planning to be a top priority for airport sponsors to address through local planning. Many airports are surrounded by multiple jurisdictions requiring more diligent, proactive and coordinated planning efforts to ensure the airport is protected from incompatible development. Coordination and communication with the surrounding jurisdictions and stakeholders will allow protecting the airport and avoiding significant problems to arise in the future.

The role of the local comprehensive planning process and the recommendations included in a community's comprehensive plan are vital to the implementation of zoning ordinances. Following is a summary of the Grant County Comprehensive Plan and Zoning Ordinances as they relate to the airport.

# 8.5.1 Grant County Comprehensive Plan

GCD is located within the jurisdiction of Grant County and is owned and operated by the County. The County's current Comprehensive Plan (GCCP) was adopted in January 1996. Transportation Element (page 37), briefly discusses the importance of protecting the county's public use airports:

"Identified public airports shall be protected from incompatible uses through the application of an appropriate airport zone."

"The function of airports within the County should be protected through the application of appropriate land use designations to assure future land uses are compatible with continued operation at the airport."

Source: Grant County Comprehensive Plan, 1996

The GCCP mentions the *Grant County Transportation System Plan* (GCTSP) adopted in June 1997. This transportation plan describes two public airports in the County, including the Monument Airport owned by the City of Monument, OR, and the Grant County Regional Airport owned by Grant County.

In Oregon, Section 660-12-045 of the *Implementation of the Transportation System Plan* describes the Transportation Planning Rule (TPR). The GCTSP requires local government to implement the TPR by adopting "*land use or subdivision ordinance measures, consistent with federal and state regulation*" to protect public use airports.

The lands adjacent to the airport are under the jurisdiction of Grant County and are mainly zoned as Recreational, Suburban Residential, and Industrial (Industrial Park). A specific zone is dedicated to the airport.

## 8.5.2 GRANT COUNTY AIRPORT ZONING ORDINANCE

According to the GCCP, Grant County adopted an Airport Overlay Zone (AOZ), as described in the *Oregon Airport Land Use Compatibility Guidebook*, in order to prevent airspace obstructions. The zoning ordinance within the limits of this overlay includes land use and height restrictions. The AOZ enforced at GCD encompasses the limits of the CFR Part 77 Imaginary Surfaces, Runway Protection Zones, and airport noise impact boundaries.

## 8.5.3 Surrounding Jurisdiction Comprehensive Plans

Communities in close proximity to the airport include the cities of John Day and Canyon, OR. When existing, a review of the comprehensive plans for these cities was conducted. The current comprehensive plan for the City of John Day was last updated in 2012. Even though GCD is not within the city limits, it is described in general terms in the "Air Service" section on page 13.

The City of John Day defines different land use zones including a zone entitles "Airport Approach". The city zoning is shown on **Figure 8-1**.

#### 8.5.4 Surrounding Jurisdictions Airport Hazard Zoning Ordinance

Zoning ordinances for the City of John Day and Canyon City do not include zoning restrictions related to the airport.

TY OF JOHN DAY
GRANT COUNTY, OREGON SEPTEMBER 2012 CITY LIMITS CITY LIMITS CITY LIMITS CITY LIMITS UGB UGB LAND USE DESIGNATIONS GC GENERAL COMMERCIAL PR PARK RESERVE CG (COUNTY) COMMERCIAL GENERAL D DOWNTOWN COMMERCIAL SR (COUNTY) GI GENERAL INDUSTRIAL MG (COUNTY) INDUSTRIAL GENERAL RL RESIDENTIAL LIMITED RG RESIDENTIAL GENERAL A-A AIRPORT APPROACH SISUL ENGINEERING AIP AIRPORT INDUSTRIAL PARK CITY OF JOHN DAY - ZONING MAP Source: City of John Day Comprehensive Plan

FIGURE 8-1: CITY OF JOHN DAY ZONING MAP

# 8.6 RECOMMENDED IMPROVEMENTS TO EXISTING LAND USE REGULATIONS

Following are some recommended strategies and tools Grant County should consider to assist in effectively maintaining and operating the airport and ensuring compliance with the sponsor obligations.

- ★ Adhere to appropriate state and FAA requirements and guidance regarding airspace protection and prohibit land uses which are incompatible to airport operations.
- ★ Add a specific airport section including specific language about the airport and its unique aviation and land use planning needs in the County's comprehensive plan. The comprehensive plan should include a specific reference to the most current airport master plan and ALP. Recommended comprehensive plan language is included as **Appendix E**.
- ★ Revise the County's zoning ordinance to be more detailed regarding land use compatibility around the airport. This includes specific ordinance language that identifies and protects the federally defined Part 77 airspace surfaces and recommended land uses via the establishment of land use compatibility zones around the airport. **Appendix E** includes an example of Zoning Ordinance language.
- ★ Recognize the airport impacts to the community and the community impacts upon the airport and commit to an effective and cooperative airport land use planning process designed to protect and preserve airport operations, economic prosperity, and quality of life in addition to safety provisions for both the community and its airport. This also includes improvements to the comprehensive plan and zoning ordinance language related to land use planning around the airport.

Coordination and communication with the surrounding jurisdictions will protect the airport and avoid significant problems in the future.

- ★ Create a formal process for policy development that identifies the airport land use planning process as a critical and continual component of its community and comprehensive planning process.
- ★ Implement the recommendations included in the wildlife hazard site visit report, included in Appendix B to minimize wildlife hazards.
- ★ Implement the recommended alternatives to address incompatible land uses in the airport, as shown on the ALP set.

★ Update the Airport Master Plan. It is critical that the County monitors and updates the
Airport Master Plan as it identifies the specific needs of the airport and provides a
foundation around which policy can and should be developed. On average, it is
recommended that the airport master plan be updated every 7-10 years or as changing
circumstances at the airport warrant.

# 8.7 COMPLIANCE AND COMPATIBLE LAND USE RESOURCES AND REFERENCES

FAA Order 5190.6B, FAA Airport Compliance Manual http://www.faa.gov/airports/resources/publications/orders/compliance\_5190\_6/

FAA Advisory Circular (AC) 150/5190-6, Exclusive Rights at Federally Obligated Airports <a href="http://www.faa.gov/airports/resources/advisory\_circulars/index.cfm/go/document.information/documentNumber/150\_5190-6">http://www.faa.gov/airports/resources/advisory\_circulars/index.cfm/go/document.information/documentNumber/150\_5190-6</a>

FAA AC 150/5190-7, Minimum Standards for Commercial Aeronautical Activities <a href="http://www.faa.gov/airports/resources/advisory\_circulars/index.cfm/go/document.information/documentNumber/150">http://www.faa.gov/airports/resources/advisory\_circulars/index.cfm/go/document.information/documentNumber/150</a> 5190-7

FAA AC 150/5200-18C, Airport Safety Self-Inspection

http://www.faa.gov/airports/resources/advisory\_circulars/index.cfm/go/document.information/documentNumber/150\_5200-18C

State of Oregon, Oregon Department of Aviation (ODA), Airport Land Use Compatibility Guidebook <a href="http://www.oregon.gov/aviation/pages/landuseguidebook.aspx">http://www.oregon.gov/aviation/pages/landuseguidebook.aspx</a>

FAA Noise Compatibility Tool Kit

http://www.faa.gov/about/office\_org/headquarters\_offices/apl/noise\_emissions/planning\_toolkit/

FAA Land Use Compatibility

http://www.faa.gov/airports/environmental/land\_use/

Federal Aviation Regulation (FAR) Part 77

http://www.access.gpo.gov/nara/cfr/waisidx 07/14cfr77 07.html

FAA - Helena Airports District Office

http://www.faa.gov/airports/northwest\_mountain/about\_airports/contact\_information/ (406) 449-5271

Oregon department of Aviation

http://www.oregon.gov/aviation/Pages/index.aspx

(503) 378-4880

### 9.0 AIRPORT LAYOUT PLAN (ALP) DESCRIPTION

This Airport Master Plan for Grant County Regional Airport includes the preparation of a series of drawings depicting the existing airport and the proposed changes to the airport over the next twenty years. This drawing set is commonly referred to as the Airport Layout Plan (ALP). A description of each drawing and its contents is included below.

### 9.1 AIRPORT LAYOUT PLAN (ALP)

The ALP presents airport features, including the wind rose, topographic data, elevations, runway details, taxiway details, aprons, Runway Protection Zones (RPZ) details, approach details, visual approach aids, airport data table, runway data table, roads, building restriction lines (BRL) buildings, etc. This plan also identifies future development plans for the terminal area including hangars, taxilanes, access roads and auto parking areas.

### 9.2 AIRSPACE PLAN

The Airspace Plan depicts all areas under the ultimate imaginary surfaces as defined in 14 CFR Part 77, "Safe, Efficient Use, and Preservation of the Navigable Airspace". Included in the Airspace Plan are 50 foot contours on sloping surfaces to meet mandatory requirements.

### 9.3 INNER APPROACH PLAN

The Inner Approach Plan depicts the plan and profile of the RPZ and inner portion of the approach surface for each runway. In addition, obstructions within the RPZ and approach surfaces are identified and recommended actions are indicated.

### 9.4 DEPARTURE SURFACE DRAWING

The Departure Surface Drawing depicts the plan and profile views of future instrument departure surfaces for each runway end with a planned future departure procedure. In addition, obstructions within the departure surfaces are identified and recommended actions are indicated.

### 9.5 TERMINAL AREA PLAN

The Terminal Area Plan presents airport features specific to the terminal area including hangars, taxilanes, access roads and auto parking areas.

### 9.6 LAND USE DRAWING

The Land Use Drawing depicts the existing and recommended uses of land located within and in the vicinity of the airport property.

### 9.7 AIRPORT PROPERTY MAP

The Airport Property Map is a drawing depicting current and future airport boundaries compiled from deed research, available mapping surveys, and field verification as required. A data table and/or notes represent an inventory of all parcels by number, including grantor, grantee, types of interest, acreage, book and page, and date of recording. **Appendix E** shows the existing deeds and claims defining the airport's property.

# GRANT COUNTY REGIONAL AIRPORT

JOHN DAY, OREGON

# AIRPORT LAYOUT PLAN SET

FAA - AIP PROJECT No. 3-41-0028-010-2015 JULY 2018





LOCATION MAP (GOOGLE MAP)



VICINITY MAP (USGS)

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 3-41-0028-010-2016), AS PROVIDED UNDER TITLE 49, UNITED STATES CODE, SECTION 47104. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THIS REPORT BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED THEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS

FOR FAA APPROVAL LETTER

TO T-O ENGINEERS NO. ITEM
ISULING ENGINEERS, SURVEYORS & PLANNERS
2471 S. TITANIUM PLACE
MERIDIAN, IDAHO 83642-6703
MERIDIAN, IDA

COUNTY REGIONAL AIRPOR'
JOHN DAY, OREGON
RPORT LAYOUT PLAN SET

JULY 2018
ECT: 130172

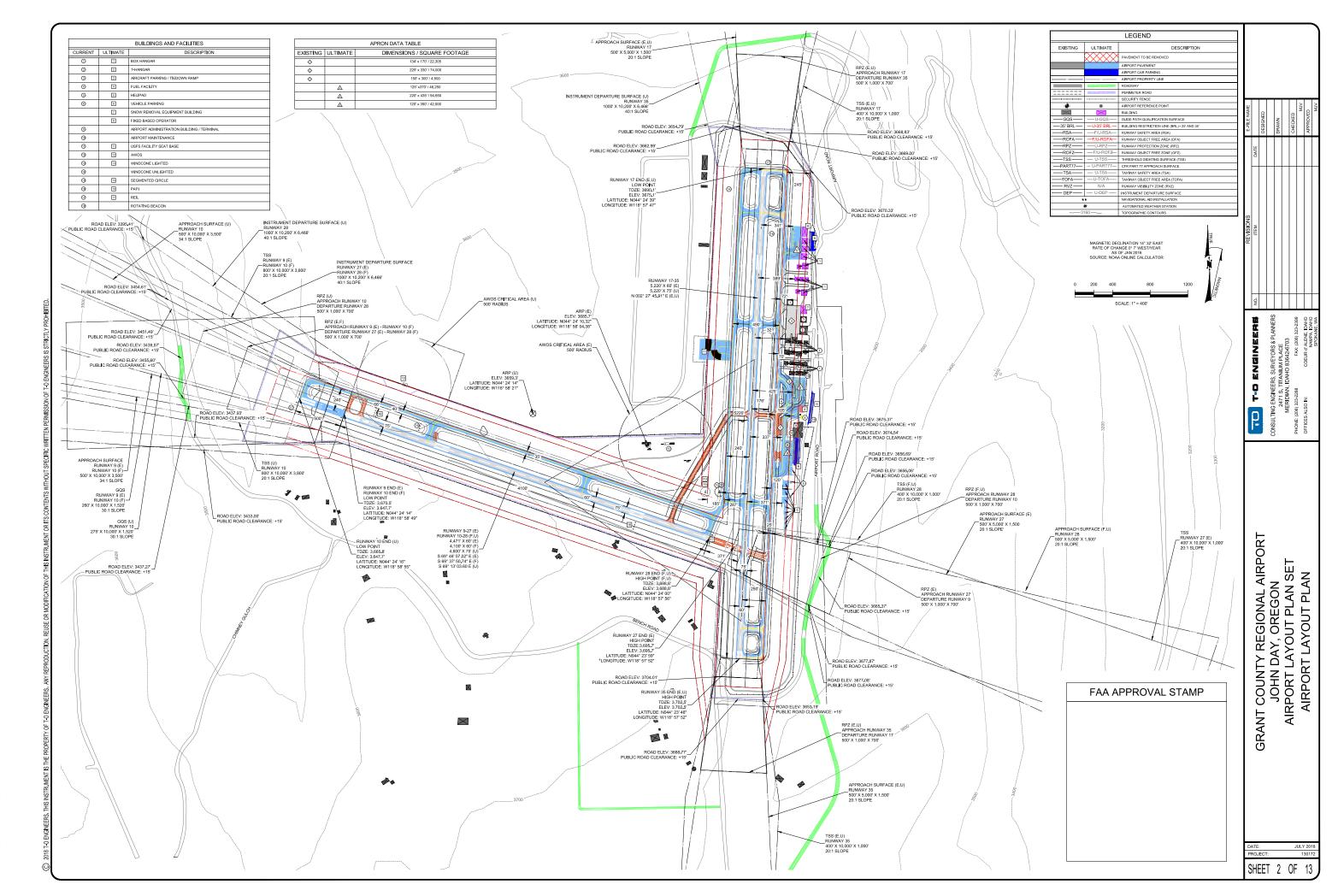
AIRPORT CONSULTANT

T-O ENGINEERS 2471 S. TITANIUM PLACE MERIDIAN, ID 83642-6703 AIRPORT SPONSOF

GRANT COUNTY 201 S HUMBOLT STE 280 CANYON CITY, OR 97820

	APPROVALS	
١	MANAGER, SEATTLE AIRPORTS DISTRICT OFFICE	APPROVAL LETTER DATED
	FEDERAL AVIATION ADMINISTRATION	
	SIGNATURE AUTHORITY	DATE
	SCOTT W MYERS, GRANT COUNTY JUDGE	

Sheet Index								
SHEET#	SHEET TITLE							
1	Cover							
2	Airport Layout Plan							
3	Airport Data Table							
4	Airspace Drawing							
5	Airspace Approach Profiles							
6	Inner Approach Plan-Runway 10							
7	Inner approach Plan-Runway 28							
8	Inner Approach Plan-Runway 17							
9	Inner Approach Plan-Runway 35							
10	Departure Surface							
11	TERMINAL AREA PLAN							
12	LAND USE PLAN							
13	AIRPORT PROPERTY MAP							



2-BOI Acaddwol Sheets ALP (130172-02-ALP dwg. 7728/2018 5-58-25 PM, Valencik, Maxime, DWG To PDF ac

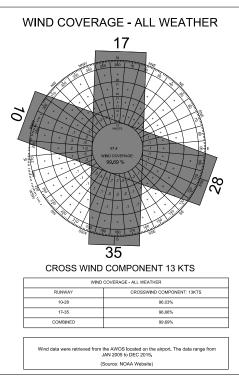
	AIRPORT DATA TA	BLE		
ITEM	EXISTING	FUTURE	ULTIMATE	
AIRPORT REFERENCE CODE	B-II	SAME	B-II	
MEAN MAXIMUM TEMPERATURE	90.5° F	SAME	SAME	
AIRPORT ELEVATION	3,702.5'	SAME	SAME	
AIRPORT NAVIGATIONAL AIDS	PAPI, BEACON	SAME	SAME	
ARP COORDINATES	N044° 24' 10.32" W118° 58' 04.38"	SAME	N044° 24' 14" W118° 58' 21"	
MISCELLANEOUS FACILITES	AWOS 3, MIRL, REIL, LIGHTED WINDCONES, SEGMENTED CIRCLE	SAME	AWOS 3, MIRL, MITL, REIL, LIGHTED WINDCONE, SEGMENTED CIRCLE	
CRITICAL AIRCRAFT	AIR TRACTOR 802	SAME	SAME	
AIRPORT MAGNETIC VARIATION	14" 32' E CHANGING BY 0" 7" W PER YEAR	N/A	12" 19' E CHANGING BY 0" 7" W PER YEAR	
NPIAS SERVICE LEVEL	GENERAL AVIATION	SAME	SAME	
STATE EQUIVALENT SERVICE ROLE	REGIONAL GENERAL AVIATION	SAME	SAME	

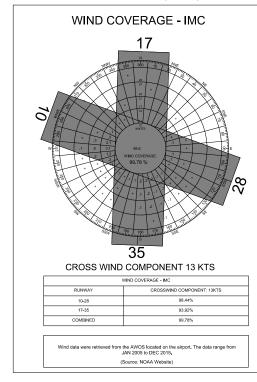
DECLARED DISTANCES TABLE												
ITEM	EXISTING				FUTURE				ULTIMATE			
ITEM	RUNWAY 9	RUNWAY 27	RUNWAY 17	RUNWAY 35	RUNWAY 10	RUNWAY 28	RUNWAY 17	RUNWAY 35	RUNWAY 10	RUNWAY 28	RUNWAY 17	RUNWAY 35
TAKE OFF RUN AVAILABLE (TORA)	4471'	4471'	5220'	5220'	4100'	4100'	SAME	SAME	4600"	4600"	SAME	SAME
TAKE OFF DISTANCE AVAILABLE (TODA)	4471"	4471	5220'	5220'	4100′	4100'	SAME	SAME	4600"	4600"	SAME	SAME
ACCELERATE STOP DISTANCE AVAILABLE (ASDA)	4471'	4471'	5220'	5220'	4100'	4100'	SAME	SAME	4600"	4600'	SAME	SAME
LANDING DISTANCE AVAILABLE (LDA)	4471"	4471'	5220'	5220'	4100′	4100'	SAME	SAME	4600"	4600'	SAME	SAME

MODIFICATION TO STANDARDS APPROVAL TABLE
NONE

				RUN	WAY/TAXIWAY DATA	TABLE							
ITEM			EXIS	TING		FUTURE				ULTI	MATE		
RUNWAY IDENTIFICATION		9	27	17	35	10	28	17	35	10	28	17	35
RUNWAY DESIGN CODE		B-II-5000	BHFVIS	B-I	I-VIS	SAME	SAME	SA	ME	SAME	SAME	SAME	SAME
APPROACH REFERENCE CODE		N.			I/V S	SA	AME		ME	B/II/	500D		AME
DEPARTURE REFERENCE CODE		N.			B/II		AME		ME	В			AME
PAVEMENT STRENGTH & MATERIAL TYPE	Æ												
	WHEEL LOAD STRENGTH	SW - 20,	500 LBS	SW - 20	),500 LBS	S/	AME	S/	ME	SA	ME	S/	AME
	PCN	17/F/	C/Y/T	17/F.	/C/Y/A	SA	AME	SA	ME	SA	ME	SA	AME
	SURFACE TREATMENT	Asp	halt	As	phalt	SA	AME	SA	ME	SA	ME	SA	AME
RUNWAY GRADIENT		1.07%		0.0210	- Note 1	1.00%	- Note 1	S/	ME	0.89%	- Note 1	S/	AME
INDIVIDUAL WIND COVERAGE		93.86% (ALL 97.76%	WEATHER)	94.45% (AL 90.79	L WETAHER) % (IMC)	96.03% (AL	L WEATHER) % (IMC)	96.66% (AL	L WEATHER) % (IMC)	SA	ME	S/	AME
		31.707			n (Imo)	30.44			or (Inic)				
COMBINED WIND COVERAGE			99.11% (ALI 99.35	% (IMC)			99.78	L WEATHER) % (IMC)			SA	ME	
RUNWAY DIMENSIONS (LENGTH/WIDTH)	)	4471'			7 X 60'		)' X 60'		ME		X 75'		7 X 75'
DISPLACED THRESHOLD ELEVATION		N/A	N/A	N/A	N/A	SAME	SAME	SAME	SAME	SAME	SAME	SAME	SAME
RUNWAY SAFETY AREA DIMENSIONS													
LENGTH BEYOND RWY END &BEFORE T	HRESHOLD	30	10'	3	100'	S/	AME	SA	ME	SA	ME	S/	AME
	WIDTH	15	10"	1	50'	s	AME	SA	ME	SA	ME	s	AME
RUNWAY END COORDINATES		N 44° 24' 14.29" W 118" 58' 49.87"	N 44° 23° 59.30" W 118° 57' 51.94"	N 44° 24' 39.08" W 118° 57' 48.66"	N 44° 23' 47.60" W 118° 57' 51.78"	SAME	N 44° 24' 00" W 118° 57' 56"	SAME	SAME	N 44° 24' 16" W 118° 58' 55*	SAME	SAME	SAME
RUNWAY END ELEVATIONS		3647.7	3695.7'	3675.1	3702.5	SAME	3688.8'	SAME	SAME	SAME	SAME	SAME	SAME
DISPLACED THRESHOLD COORDINATES	& ELEVATION	N/A	N/A	N/A	N/A	SAME	SAME	SAME	SAME	SAME	SAME	SAME	SAME
RUNWAY LIGHTING TYPE		MI	RL	M	IRL	SA	AME	SA	ME	SA	ME	SA	AME
RUNWAY PROTECTION ZONE DIMENSIO	ins						1						
	LENGTH	1000'	1000'	1000'	1000′	SAME	SAME	SAME	SAME	SAME	SAME	SAME	SAME
	INNER WIDTH	500'	500'	500'	500'	SAME	SAME	SAME	SAME	SAME	SAME	SAME	SAME
	OUTER WIDTH	700'	700'	700'	700'	SAME	SAME	SAME	SAME	SAME	SAME	SAME	SAME
RUNWAY MARKING TYPE		NON-PRECISION INSTRUMENT (NPI)	BASIC WITH AIMING POINTS	BASIC WITH AIMING POINTS	BASIC WITH AIMING POINTS	SAME	SAME	SAME	SAME	SAME	SAME	SAME	SAME
14 CFR PART 77 APPROACH CATEGORY		34:1	20:1	20:1	20:1	SAME	SAME	SAME	SAME	SAME	SAME	SAME	SAME
APPROACH TYPE (CFR PART77)		NON-PRECISION	VISUAL	VISUAL	VISUAL	SAME	SAME	SAME	SAME	SAME	SAME	SAME	SAME
VISIBILITY MINIMUMS		> 1 MILE	VISUAL	VISUAL	VISUAL	SAME	SAME	SAME	SAME	SAME	SAME	SAME	SAME
TYPE OF AERONAUTICAL SURVEY REQU	JIRED FOR APPROACH	NVGS	N/A	N/A	N/A	SAME	SAME	SAME	SAME	SAME	SAME	SAME	SAME
RUNWAY DEPARTURE SURFACE		40:1	NO	NO	NO	SAME	SAME	40:1	SAME	SAME	SAME	SAME	SAME
RUNWAY OBJECT FREE AREA DIMENSION	ONS				1		1						-
LENGTH BEYOND RWY END &BEFORE T	HRESHOLD	30	10'	3	100'	SAME		SAME		SAME		SAME	
	WIDTH	50	10'	5	i00°	S/	AME	S.A	ME	SA	ME	S/	AME
OBSTACLE FREE ZONE	•	40	10'	4	100	S/	AME	SA	ME	SA	ME	S/	AME
THRESHOLD SITING SURFACE		20:1 (Type 5)	20:1 (Type 3)	20:1 (Type 3)	20:1 (Type 3) - Note 2	SAME	SAME	SAME	SAME	SAME	SAME	SAME	SAME
VISUAL AND INSTRUMENT NAVAIDS		PAPI, REIL	N/A	PAPI, REIL	N/A	SAME	PAPI, REIL	SAME	SAME	SAME	SAME	SAME	SAME
TOUCHDOWN ZONE ELEVATION		3670.5	3695.7	3690.1'	3702.5	SAME	3688.8"	SAME	SAME	3665.8"	SAME	SAME	SAME
TAXIWAY				•	•								
	WIDTH			25'				35"			SA		
	SAFETY AREA DIMENSIONS		7					ME			SA		
	OBJECT FREE AREA		1:					ME '.5'			SA SA		
	TAXIWAY EDGE SAFETY MARGIN		N N	CTORS							SA SA		
TAXILANE	LIGHTING		REFLE	CIORS			М	ITL			SA	ME	
TAALANE	MIDTU			ne!				ne:				ис	
	WIDTH			15'				35'			SA		
	SAFETY AREA DIMENSIONS		7					ME			SA		
	OBJECT FREE AREA			15'				ME			SA		
	LIGHTING			CTORS			SA	ME			SA	ME	
TAXIWAY/TAXILANE SEPARATION			>	70'			> 1	105'			SA	ME	
HORIZONTAL DATUM							NAD 83						
VERTICAL DATUM						_	NAVD 88						_

## EXISITNG AND ULTIMATE WIND COVERAGE (B-II)



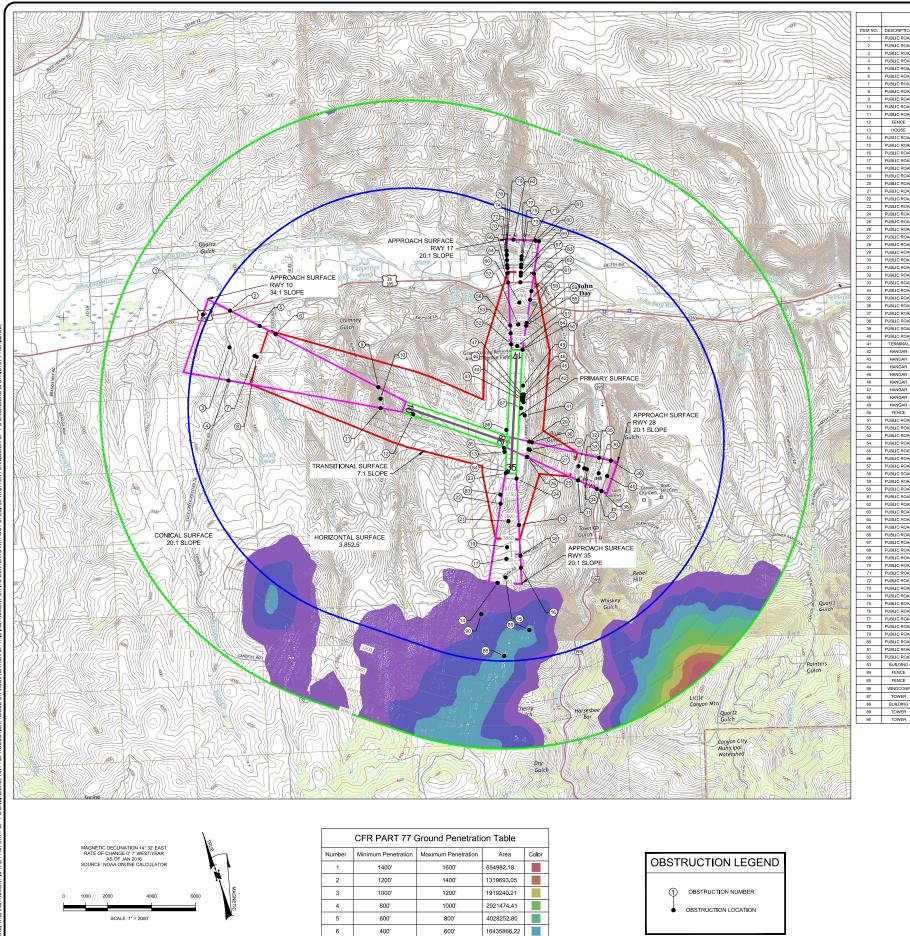


Note 2: TSS FOR RUNWAY 35 DOES NOT MEET STANDARDS - FOR OBJECTS AND GROUND PENETRATIONS , SEE SHEET 4

SHEET 3 OF 13

GRANT COUNTY REGIONAL AIRPORT JOHN DAY, OREGON AIRPORT LAYOUT PLAN SET AIRPORT DATA TABLE

TO ENGINEERS



- 1					CIN FART //	OBSTRUCTION	TABLE			
TEM NO.	DESCRIPTION	SURVEY	GROUND ELEVATION	OBJECT ELEVATION (MSL)	OBJECT HEIGHT (AAL)	SURFACE PENETRATED	SURFACE ELEVATION	PENETRATION	EXISTING/PROPOSED MITIGATION	DATE OF MITIGA
4	PUBLIC ROAD	USGS NED	3029.32	3044.32	15	NONE	N/A	NONE	NONE	N/A
- '										
2	PUBLIC ROAD	USGS NED	3033.66	3048.66	15	NONE	N/A	NONE	NONE	N/A
3	PUBLIC ROAD	USGS NED	3141.03	3156.03	15	NONE	N/A	NONE	NONE	N/A
4	PUBLIC ROAD	USGS NED	3160,14	3175,14	15	NONE	N/A	NONE	NONE	N/A
5	PUBLIC ROAD	USGS NED	3230.06	3245.06	15	NONE	N/A	NONE	NONE	N/A
6	PUBLIC ROAD	USGS NED	3269.31	3284.31	15	NONE	N/A	NONE	NONE	N/A
_										
7	PUBLIC ROAD	USGS NED	3234.53	3249.53	15	NONE	N/A	NONE	NONE	N/A
8	PUBLIC ROAD	USGS NED	3250.71	3265.71	15	NONE	N/A	NONE	NONE	N/A
9	PUBLIC ROAD	USGS NED	3450	3465	15	NONE	N/A	NONE	NONE	N/A
10	PUBLIC ROAD	USGS NED	3438 84	3453.84	15	NONE	N/A	NONE	NONE	N/A
_										
11	PUBLIC ROAD	USGS NED	3459.15	3474,15	15	NONE	N/A	NONE	NONE	N/A
12	FENCE	FAA DOF (2013)	3642.5	3649	6.5	PRIMARY (E,U)	3647.7	1.3	RELOCATE (U)	2036
		FAA DOF (2013)				TRANSITIONAL (E,U)			LIGHT (U)	
13	HOUSE		3684.07	3710	25.93		3707.61	2.39		2026
14	PUBLIC ROAD	USGS NED	3857.88	3872.88	15	NONE	N/A	NONE	NONE	N/A
15	PUBLIC ROAD	USGS NED	3818.85	3833.85	15	NONE	N/A	NONE	NONE	N/A
16	PUBLIC ROAD	USGS NED	3743.93	3758.93	15	NONE	N/A	NONE	NONE	N/A
17	PUBLIC ROAD	USGS NED	3741.7	3756.7	15	NONE	N/A	NONE	NONE	N/A
18	PUBLIC ROAD	USGS NED	3710,65	3725,65	15	NONE	N/A	NONE	NONE	N/A
19	PUBLIC ROAD	USGS NED	3706.54	3721.54	15	NONE	N/A	NONE	NONE	N/A
20	PUBLIC ROAD	USGS NED	3667	3682	15	NONE	N/A	NONE	NONE	N/A
21	PUBLIC ROAD	USGS NED	3655.06	3670.06	15	NONE	N/A	NONE	NONE	N/A
22	PUBLIC ROAD	USGS NED	3715,91	3730.91	15	NONE	N/A	NONE	NONE	N/A
23		USGS NED	3704.12	3719.12	15	APPROACH RWY 35 (E,U)	3702.5	16.6	RELOCATE (U)	2036
	PUBLIC ROAD									
24	PUBLIC ROAD	USGS NED	3653.31	3668.31	15	NONE	N/A	NONE	NONE	N/A
25	PUBLIC ROAD	USGS NED	3679.26	3694.26	15	NONE	N/A	NONE	NONE	N/A
26	PUBLIC ROAD	USGS NED	3677.79	3692.79	15	NONE	N/A	NONE	NONE	N/A
27	PUBLIC ROAD	USGS NED	3674.35	3689.35	15	NONE	N/A	NONE	NONE	N/A
			3665.83	3680.83						
28	PUBLIC ROAD	USGS NED			15	NONE	N/A	NONE	NONE	N/A
29	PUBLIC ROAD	USGS NED	3685.23	3700,23	15	NONE	N/A	NONE	NONE	N/A
30	PUBLIC ROAD	USGS NED	3656,78	3671.78	15	NONE	N/A	NONE	NONE	N/A
31	PUBLIC ROAD	USGS NED	3385.1	3400.1	15	NONE	N/A	NONE	NONE	N/A
32	PUBLIC ROAD	USGS NED	3369.39	3384.39	15	NONE	N/A	NONE	NONE	N/A
33	PUBLIC ROAD	USGS NED	3316.24	3331,24	15	NONE	N/A	NONE	NONE	N/A
34	PUBLIC ROAD	USGS NED	3298.85	3313.85	15	NONE	N/A	NONE	NONE	N/A
35	PUBLIC ROAD	USGS NED	3177.12	3192.12	15	NONE	N/A	NONE	NONE	N/A
36	PUBLIC ROAD	USGS NED	3184.98	3199.98	15	NONE	N/A	NONE	NONE	N/A
37	PUBLIC ROAD	USGS NED	3193,66	3208.66	15	NONE	N/A	NONE	NONE	N/A
38	PUBLIC ROAD	USGS NED	3188.62	3203.62	15	NONE	N/A	NONE	NONE	N/A
39	PUBLIC ROAD	USGS NED	3169.45	3184.45	15	NONE	N/A	NONE	NONE	N/A
40	PUBLIC ROAD	USGS NED	3180,26	3195,26	15	NONE	N/A	NONE	NONE	N/A
41	TERMINAL	EST.	3694.23	3729.23	35	TRANSITIONAL (E,U)	3719.7	9.53	LIGHT (U)	2026
42	HANGAR	EST.	3692.23	3714.23	22	TRANSITIONAL (E,U)	3707.64	6.59	LIGHT (U)	2026
			3692.23							
43	HANGAR	EST.		3714.23	22	TRANSITIONAL (E,U)	3696.81	17.42	LIGHT (U)	2026
44	HANGAR	EST.	3692.23	3714.23	22	TRANSITIONAL (E,U)	3696,81	17.42	LIGHT (U)	2026
45	HANGAR	EST.	3692.23	3714.23	22	TRANSITIONAL (E,U)	3707.64	6.59	LIGHT (U)	2026
46	HANGAR	EST.	3692.23	3714.23	22	TRANSITIONAL (E,U)	3707.64	6.59	LIGHT (U)	2026
47	HANGAR	EST.	3692.23	3714.23	22	TRANSITIONAL (E,U)	3696.81	17.42	LIGHT (U)	2026
$\overline{}$						TRANSITIONAL (E,U)			LIGHT (U)	
48	HANGAR	EST.	3692.23	3714.23	22		3707.64	6.59		2026
49	HANGAR	EST.	3690.22	3712.22	22	TRANSITIONAL (E,U)	3692.32	19.9	LIGHT (U)	2026
50	FENCE	USGS NED	3669.8	3676.3	6.5	APPROACH RWY 17 (E.U)	3675.1	1.2	RELOCATE (U)	2036
$\overline{}$										
51	PUBLIC ROAD	USGS NED	3668,88	3683.88	15	APPROACH RWY 17 (E,U)	3683,3	0.58	RELOCATE (U)	2037
52	PUBLIC ROAD	USGS NED	3667.99	3682.99	15	NONE	N/A	NONE	NONE	N/A
53	PUBLIC ROAD	USGS NED	3621.37	3636.37	15	NONE	N/A	NONE	NONE	N/A
54	PUBLIC ROAD	USGS NED	3584.1	3599.1	15	NONE	N/A	NONE	NONE	N/A
55	PUBLIC ROAD	USGS NED	3596,39	3611,39	15	NONE	N/A	NONE	NONE	N/A
_										
56	PUBLIC ROAD	USGS NED	3568.95	3583.95	15	NONE	N/A	NONE	NONE	N/A
57	PUBLIC ROAD	USGS NED	3581.53	3596.53	15	NONE	N/A	NONE	NONE	N/A
58	PUBLIC ROAD	USGS NED	3586,29	3601,29	15	NONE	N/A	NONE	NONE	N/A
59	PUBLIC ROAD	USGS NED	3584.31	3599.31	15	NONE	N/A	NONE	NONE	N/A
60	PUBLIC ROAD	USGS NED	3343.47	3358.47	15	NONE	N/A	NONE	NONE	N/A
_			3265.83	3280.83		NONE				
61	PUBLIC ROAD	USGS NED			15		N/A	NONE	NONE	N/A
62	PUBLIC ROAD	USGS NED	3188.47	3203.47	15	NONE	N/A	NONE	NONE	N/A
63	PUBLIC ROAD	USGS NED	3132.66	3147.66	15	NONE	N/A	NONE	NONE	N/A
64	PUBLIC ROAD	USGS NED	3123.44	3138.44	15	NONE	N/A	NONE	NONE	N/A
65	PUBLIC ROAD	USGS NED	3133.33	3148.33	15	NONE	N/A	NONE	NONE	N/A
66	PUBLIC ROAD	USGS NED	3078,49	3093,49	15	NONE	N/A	NONE	NONE	N/A
_										
67	PUBLIC ROAD	USGS NED	3096.55	3111.55	15	NONE	N/A	NONE	NONE	N/A
68	PUBLIC ROAD	USGS NED	3097.64	3112.64	15	NONE	N/A	NONE	NONE	N/A
			3085,59		15		N/A			
60	PUBLIC ROAD	USGS NED		3100,59		NONE		NONE	NONE	N/A
69	PUBLIC ROAD	USGS NED	3071.88	3086.88	15	NONE	N/A	NONE	NONE	N/A
69 70			3076.66	3091,66	15	NONE	N/A	NONE	NONE	N/A
70								NOME		
70 71	PUBLIC ROAD	USGS NED		3084.26	15	NONE				N/A
70		USGS NED	3069.26		15	HOIL	N/A	NONE	NONE	1451
70 71	PUBLIC ROAD		3069.26 3073.58	3088.58	15	NONE	N/A N/A	NONE NONE	NONE	N/A
70 71 72 73	PUBLIC ROAD PUBLIC ROAD PUBLIC ROAD	USGS NED USGS NED	3073,58	3088.58	15	NONE	N/A	NONE	NONE	N/A
70 71 72 73 74	PUBLIC ROAD PUBLIC ROAD PUBLIC ROAD	USGS NED USGS NED USGS NED	3073.58 3063.8	3088.58 3078.8	15 15	NONE NONE	N/A N/A	NONE NONE	NONE NONE	N/A N/A
70 71 72 73	PUBLIC ROAD PUBLIC ROAD PUBLIC ROAD	USGS NED USGS NED	3073,58	3088.58	15	NONE	N/A	NONE	NONE	N/A
70 71 72 73 74 75	PUBLIC ROAD PUBLIC ROAD PUBLIC ROAD PUBLIC ROAD PUBLIC ROAD	USGS NED USGS NED USGS NED USGS NED	3073.58 3063.8 3067.26	3088.58 3078.8 3082.26	15 15 15	NONE NONE	N/A N/A N/A	NONE NONE NONE	NONE NONE NONE	N/A N/A N/A
70 71 72 73 74	PUBLIC ROAD PUBLIC ROAD PUBLIC ROAD	USGS NED USGS NED USGS NED	3073.58 3063.8	3088.58 3078.8	15 15	NONE NONE	N/A N/A	NONE NONE	NONE NONE	N/A N/A
70 71 72 73 74 75 76 77	PUBLIC ROAD PUBLIC ROAD PUBLIC ROAD PUBLIC ROAD PUBLIC ROAD	USGS NED	3073.58 3063.8 3067.26	3088.58 3078.8 3082.26	15 15 15 15 15	NONE NONE	N/A N/A N/A	NONE NONE NONE NONE	NONE NONE NONE NONE NONE	N/A N/A N/A N/A
70 71 72 73 74 75	PUBLIC ROAD PUBLIC ROAD PUBLIC ROAD PUBLIC ROAD PUBLIC ROAD	USGS NED USGS NED USGS NED USGS NED	3073.58 3063.8 3067.26	3088.58 3078.8 3082.26	15 15 15	NONE NONE	N/A N/A N/A	NONE NONE NONE	NONE NONE NONE	N/A N/A N/A
70 71 72 73 74 75 76 77 78	PUBLIC ROAD	USGS NED	3073.58 3063.8 3067.26 3064.02 3057.71 3057.71	3088.58 3078.8 3082.26 3079.02 3072.71	15 15 15 15 15 15	NONE NONE NONE NONE NONE NONE NONE	N/A N/A N/A N/A N/A N/A	NONE NONE NONE NONE NONE	NONE NONE NONE NONE NONE NONE NONE	N/A N/A N/A N/A N/A
70 71 72 73 74 75 76 77 78	PUBLIC ROAD	USGS NED	3073.58 3063.8 3067.26 3064.02 3057.71 3057.71	3088.58 3078.8 3082.28 3079.02 3072.71 3072.71	15 15 15 15 15 15 15 15	NONE NONE NONE NONE NONE NONE NONE NONE	N/A N/A N/A N/A N/A N/A N/A	NONE NONE NONE NONE NONE NONE NONE	NONE NONE NONE NONE NONE NONE NONE	N/A N/A N/A N/A N/A N/A
70 71 72 73 74 75 76 77 78	PUBLIC ROAD	USGS NED	3073.58 3063.8 3067.26 3064.02 3057.71 3057.71	3088.58 3078.8 3082.26 3079.02 3072.71	15 15 15 15 15 15	NONE NONE NONE NONE NONE NONE NONE	N/A N/A N/A N/A N/A N/A	NONE NONE NONE NONE NONE	NONE NONE NONE NONE NONE NONE NONE	N/A N/A N/A N/A N/A
70 71 72 73 74 75 76 77 78 79	PUBLIC ROAD	USGS NED	3073.58 3063.8 3067.26 3064.02 3057.71 3057.71 3057.28 3099.77	3088.58 3078.8 3082.26 3079.02 3072.71 3072.71 3072.28 3114.77	15 15 15 15 15 15 15 15	NONE NONE NONE NONE NONE NONE NONE NONE	N/A N/A N/A N/A N/A N/A N/A N/A	NONE NONE NONE NONE NONE NONE NONE NONE	NONE NONE NONE NONE NONE NONE NONE NONE	N/A N/A N/A N/A N/A N/A N/A
70 71 72 73 74 75 76 77 78 79 80 81	PUBLIC ROAD	USGS NED	3073.58 3063.8 3067.26 3064.02 3057.71 3057.71 3057.28 3099.77 3107.97	3088.58 3078.8 3082.26 3079.02 3072.71 3072.21 3072.28 3114.77 3122.97	15 15 15 15 15 15 15 15 15	NONE NONE NONE NONE NONE NONE NONE NONE	N/A N/A N/A N/A N/A N/A N/A N/A N/A	NONE NONE NONE NONE NONE NONE NONE NONE	NONE NONE NONE NONE NONE NONE NONE NONE	N/A N/A N/A N/A N/A N/A N/A N/A
70 71 72 73 74 75 76 77 78 79 80 81 82	PUBLIC ROAD	USGS NED	3073.58 3063.8 3067.26 3064.02 3057.71 3057.71 3057.73 3099.77 3107.97	3088.58 3078.8 3082.26 3079.02 3072.71 3072.71 3072.28 3114.77 3122.97 3113.67	15 15 15 15 15 15 15 15 15 15 15	NONE NONE NONE NONE NONE NONE NONE NONE	N/A	NONE NONE NONE NONE NONE NONE NONE NONE	NONE NOME NOME NONE NONE NONE NOME NONE NOME NOM	N/A
70 71 72 73 74 75 76 77 78 79 80 81	PUBLIC ROAD	USGS NED	3073.58 3063.8 3067.26 3064.02 3057.71 3057.71 3057.28 3099.77 3107.97	3088.58 3078.8 3082.26 3079.02 3072.71 3072.21 3072.28 3114.77 3122.97	15 15 15 15 15 15 15 15 15	NONE NONE NONE NONE NONE NONE NONE NONE	N/A N/A N/A N/A N/A N/A N/A N/A N/A	NONE NONE NONE NONE NONE NONE NONE NONE	NONE NONE NONE NONE NONE NONE NONE NONE	N/A
70 71 72 73 74 75 76 77 78 79 80 81 82 83	PUBLIC ROAD	USGS NED SS NED USGS NED FAA DOF (2013)	3073.58 3063.8 3067.26 3064.02 3057.71 3057.71 3057.28 3099.77 3107.97 3098.57	3088.58 3078.8 3082.26 3079.02 3072.71 3072.28 3114.77 3122.97 3113.57 3768	15 15 15 15 15 15 15 15 15 15 15 15 15	NONE NONE NONE NONE NONE NONE NONE NONE	NIA	NONE NONE NONE NONE NONE NONE NONE NONE	NONE NONE NONE NONE NONE NONE NONE NONE	N/A
70 71 72 73 74 75 76 77 78 79 80 81 82 83	PUBLIC ROAD BUILDING FENCE	USGS NED FAA DOF (2013)	3073.58 3063.8 3067.26 3064.02 3057.71 3057.71 3057.72 3059.77 3107.97 3098.67 3723.12 3703.5	3068.58 3078.8 3082.26 3079.02 3079.02 3072.21 3072.21 3072.21 3113.57 312.20 3113.57 3170.8	15 15 15 15 15 15 15 15 15 15 15 15 15 1	NONE NOWE NONE NONE NONE NONE NONE NONE	NIA	NONE NONE NONE NONE NONE NONE NONE NONE	NONE NONE NONE NONE NONE NONE NONE NONE	N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
70 71 72 73 74 75 76 77 78 79 80 81 82 83	PUBLIC ROAD	USGS NED SS NED USGS NED FAA DOF (2013)	3073.58 3063.8 3067.26 3064.02 3057.71 3057.71 3057.28 3099.77 3107.97 3098.57	3088.58 3078.8 3082.26 3079.02 3072.71 3072.28 3114.77 3122.97 3113.57 3768	15 15 15 15 15 15 15 15 15 15 15 15 15	NONE NONE NONE NONE NONE NONE NONE NONE	NIA	NONE NONE NONE NONE NONE NONE NONE NONE	NONE NONE NONE NONE NONE NONE NONE NONE	N/A
70	PUBLIC ROAD FENCE	USGS NED FAA DOF (2013) FAA DOF (2013)	3073.58 3063.8 3067.26 3064.02 3057.71 3057.28 3099.77 3107.97 3098.57 3723.12 3733.5 3894.5	3088.58 3078.8 3082.26 3079.02 3072.21 3072.21 3072.28 3114.77 312.29 313.57 370 370 370 370 370 370	15 15 15 15 15 15 15 15 15 15 15 15 15 6.5 6.5	NONE NOWE NOWE NONE NONE NONE NONE NONE	N/A	NONE NONE NONE NONE NONE NONE NONE NONE	NONE NONE NONE NONE NONE NONE NONE NONE	N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86	PUBLIC ROAD BUILDING FENCE FENCE	USGS NED FAA DOF (2013) FAA DOF (2013) FAA DOF (2013)	3073.58 3063.8 3067.26 3064.02 3057.71 3057.71 3057.71 3067.28 3099.77 3107.97 3098.57 3723.12 3703.5 3694.5	3088.58 3078.83 3082.26 3079.02 3072.71 3072.21 3072.21 3114.77 3122.97 3113.57 3768 3701 3715	15 15 15 15 15 15 15 15 15 15 15 15 15 1	NONE NONE NONE NONE NONE NONE NONE NONE	N/A	NONE NONE NONE NONE NONE NONE NONE NONE	NONE NONE NONE NONE NONE NONE NONE NONE	N/A
70 71 72 73 74 75 76 77 78 80 81 82 83 84 85 86 87	PUBLIC ROAD WINDING FENCE FENCE TOWER	USGS NED FAA DOF (2013) FAA DOF (2013) FAA DOF (2013) FAA DOF (2013)	3073.58 3063.8 3067.26 3064.02 3067.71 3057.71 3057.28 3098.77 3107.97 3068.57 3723.12 3703.5 3684.5	3088.68 3078.8 3082.26 3079.02 3072.21 3072.21 3072.28 314.77 312.97 313.37 370 370 370 370 370	15 15 15 15 15 15 15 15 15 15 15 15 15 1	NOVE NOVE NOVE NOVE NOVE NOVE NOVE NOVE	N/A	NONE NONE NONE NONE NONE NONE NONE NONE	NONE NONE NONE NONE NONE NONE NONE NONE	N/A
70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86	PUBLIC ROAD BUILDING FENCE FENCE	USGS NED FAA DOF (2013) FAA DOF (2013) FAA DOF (2013)	3073.58 3063.8 3067.26 3064.02 3057.71 3057.71 3057.71 3067.28 3099.77 3107.97 3098.57 3723.12 3703.5 3694.5	3088.58 3078.83 3082.26 3079.02 3072.71 3072.21 3072.21 3114.77 3122.97 3113.57 3768 3701 3715	15 15 15 15 15 15 15 15 15 15 15 15 15 1	NONE NONE NONE NONE NONE NONE NONE NONE	N/A	NONE NONE NONE NONE NONE NONE NONE NONE	NONE NONE NONE NONE NONE NONE NONE NONE	N/A
70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87	PUBLIC ROAD PUBLIC	USGS NED FAA DOF (2013)	3073,88 3063,8 3067,76 3064,02 3067,71 3057,71 3057,71 3059,77 3107,97 3107,97 3096,87 3723,12 3703,5 3694,5 3694,5 3694,5 3694,5	3088.58 3078.83 3082.26 3079.02 3079.02 3072.21 3072.271 3072.28 3114.77 312.297 3113.37 3766 3710 3715 3715 3715 4390	15 15 15 15 15 15 15 15 15 15 15 15 15 44.88 6.5 6.5 21.04 22.77 64.44	NONE NONE NONE NONE NONE NONE NONE NONE	NVA NVA NVA NVA NVA NVA NVA NVA NVA NVA	NONE NONE NONE NONE NONE NONE NONE NONE	NONE NONE NONE NONE NONE NONE NONE NONE	N/A
70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85	PUBLIC ROAD WINDING FENCE FENCE TOWER	USGS NED FAA DOF (2013) FAA DOF (2013) FAA DOF (2013) FAA DOF (2013)	3073.58 3063.8 3067.26 3064.02 3067.71 3057.71 3057.28 3098.77 3107.97 3068.57 3723.12 3703.5 3684.5	3088.68 3078.8 3082.26 3079.02 3072.21 3072.21 3072.28 314.77 312.97 313.37 370 370 370 370 370	15 15 15 15 15 15 15 15 15 15 15 15 15 1	NOVE NOVE NOVE NOVE NOVE NOVE NOVE NOVE	N/A	NONE NONE NONE NONE NONE NONE NONE NONE	NONE NONE NONE NONE NONE NONE NONE NONE	N/I

CFR PART 77 OBSTRUCTION TABLE

TSS PENETRATION TABLE							
ITEM NO	DESCRIPTION	OBJECT ELEVATION (MSL)	SURFACE PENETRATED	SURFACE ELEVATION	PENETRATION		
88	BUILDING	4390	TSS RWY 35	4180.9	209.1		
89	TOWER	4378	TSS RWY 35	4068.5	309.5		
90	TOWER	4050	TSS RWY 35	4033	17		
84	FENCE	3710	TSS RWY 35	3702.5	7.5		
83	BUILDING	3768	TSS RWY 35	3762.5	5.5		
23	PUBLIC ROAD	3719.12	TSS RWY 35	3712.5	6.6		
-	TERRAIN	N/A	TSS RWY 35		50 - 250		

NOTE: THE THRESHOLD SITING SURFACE (TSS) FOR RUNWAY 35 DOES NOT MEET STANDARDS, SEE NARRATIVE REPORT FOR MORE DETAILS

### NOTES

3. THERE ARE ORDINANCES IN PLACE IN GRANT COUNTY TO ZONE LAND AND LIMIT HEIGHT OF STRUCTU. IMPROVE ZONING.

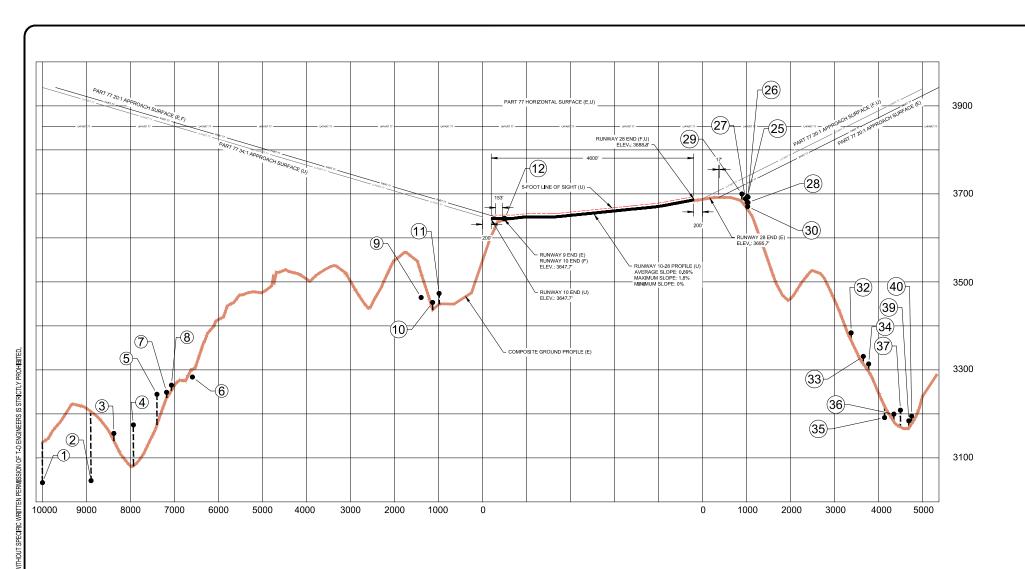
- 6. ALL ELEVATIONS AND HEIGHTS ARE IN FEET.

TURES.	RECOMMENDATIONS	HAVE BE	EEN MADE	IN THE	NARRATIVE	REPOR
D 401 F	DD DDD WEE DO AD					

SHEET 4 OF 13

GRANT COUNTY REGIONAL AIRPORT JOHN DAY, OREGON AIRPORT LAYOUT PLAN SET AIRSPACE DRAWING

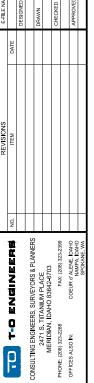
400' 28959678.63 200' 51970540.09



### RUNWAY 9-27 (E) RUNWAY 10-28 (F, U)

NON-PRECISION APPROACH RUNWAY 10 (E,F,U) VISUAL APPROACH RUNWAY 28 (E,F,U)

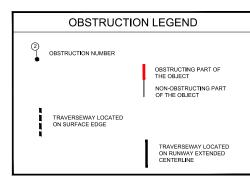
> HORIZONTAL SCALE: 1"=1000' VERTICAL SCALE: 1"=100'

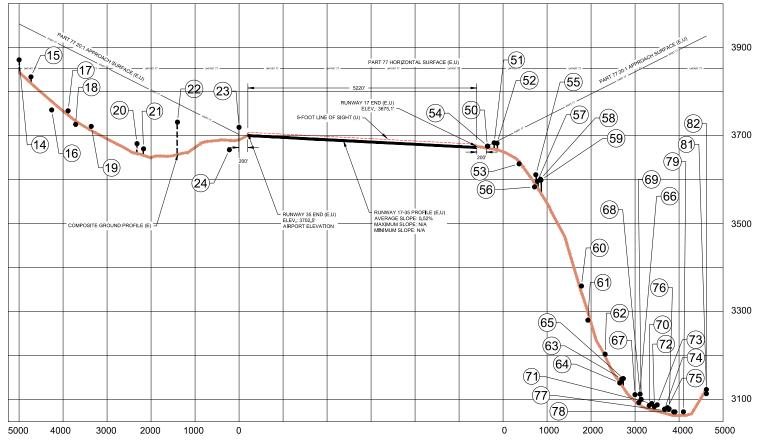


1. CONTOUR AND OBSTRUCTION SOURCE DATA - USGS, FAA OE/AAA, AND NGS, NO GROUND SURVEY WAS CONDUCTED AS PART OF THIS MASTER PLAN UPDATE.

3, SEE SHEETS 4 FOR PLAN VIEW AND SHEETS 6 THROUGH 9 FOR CLOSE-IN OBSTRUCTIONS,

5. TRAVERSEWAY ELEVATIONS INCLUDE THE TRAVERSEWAY ADJUSTEMENT (15' FOR PUBLIC ROAD AN 10' FOR PRIVATE ROAD).





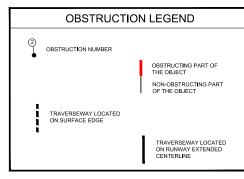
RUNWAY 17-35 (E,F, U) VISUAL APPROACH (E,U)

HORIZONTAL SCALE: 1"=1000'

VERTICAL SCALE: 1"=100'

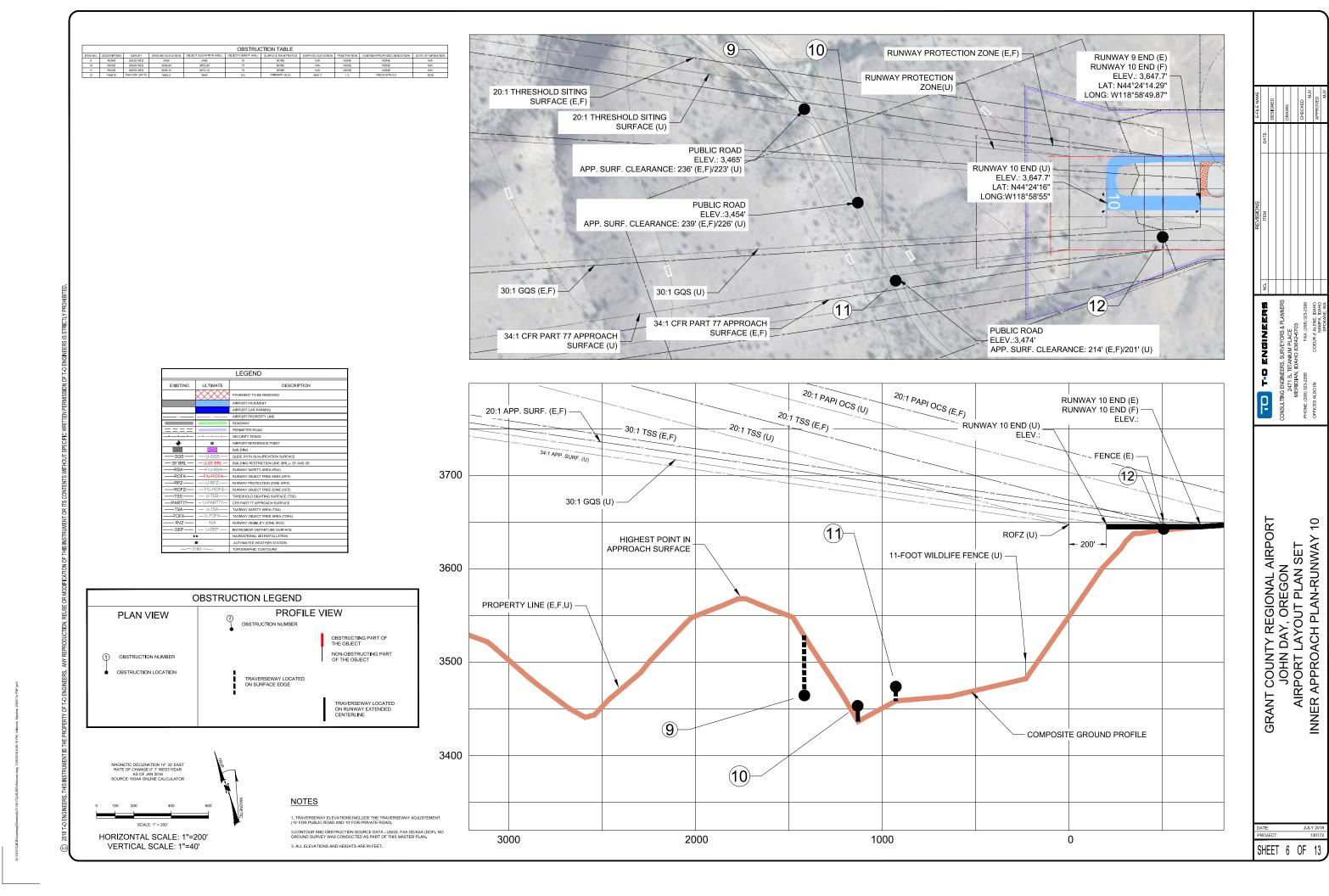
<u>NOTES</u>

6. SURFACES AND APPROACH CLASSIFICATION CONFORM TO CFR PART 77.

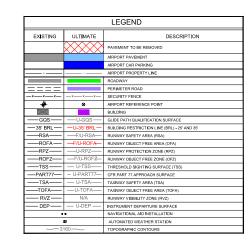


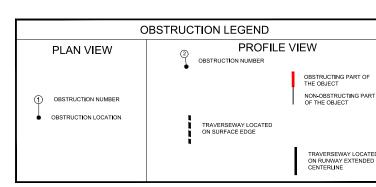
SHEET 5 OF 13

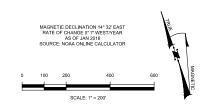
GRANT COUNTY REGIONAL AIRPORT JOHN DAY, OREGON AIRPORT LAYOUT PLAN SET AIRSPACE APPROACH PROFILES



RUNWAY 27 END (E) 20:1 THRESHOLD SITING SURFACE (E) LELEY.: 3695.70° LONG: W118*57'48.66°	PUBLIC ROAD ELEV.: 3,672' APP. SURF, CLEARANCE: 86' (E,F)/68' (U)
86	28 20:1 CFR PART 77 APPROACH SURFACE (U)
RUNWAY 28 END (F,U)	RUNWAY PROTECTION ZONE (E)  20:1 CFR PART 77 APPROACH SURFACE (E)
ELEV: 3,888.8° LATINAY-2400° LONG: W118°57'56°	25)
PUBLIC ROAD ELEV: 3,690 APP. SURF. CLEARANCE: 67(E,F) 54'(U)	RUNWAY PROTECTION ZONE (F,U)
PUBLIC ROAD ELEV.: 3,693 APP, SURF, CLEARANCE: 64'(E,F)' 51'(U)	20:1 THRESHOLD SITING SURFACE (F,U)







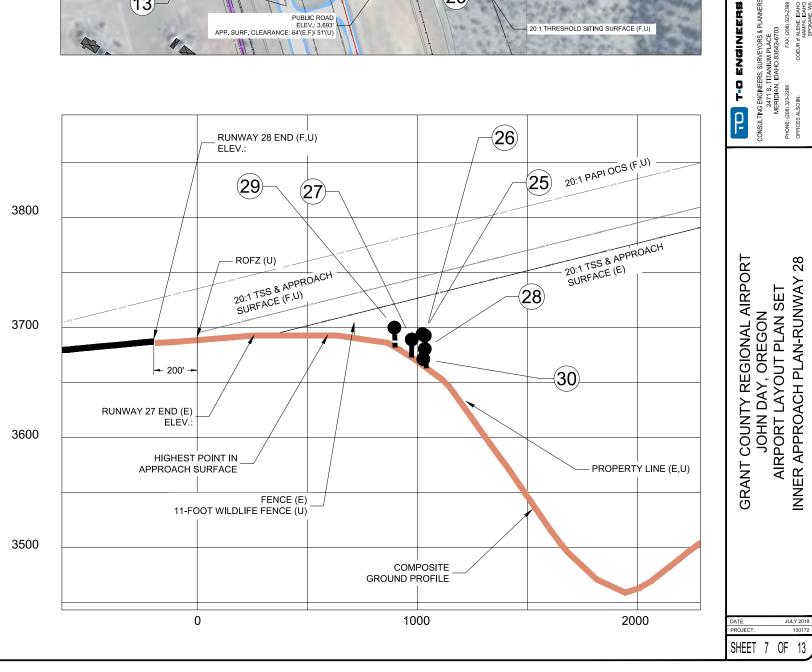
HORIZONTAL SCALE: 1"=200' VERTICAL SCALE: 1"=40'

### **NOTES**

1. TRAVERSEWAY ELEVATIONS INCLUDE THE TRAVERSEWAY ADJUSTEMENT (15' FOR PUBLIC ROAD AND 10' FOR PRIVATE ROAD).

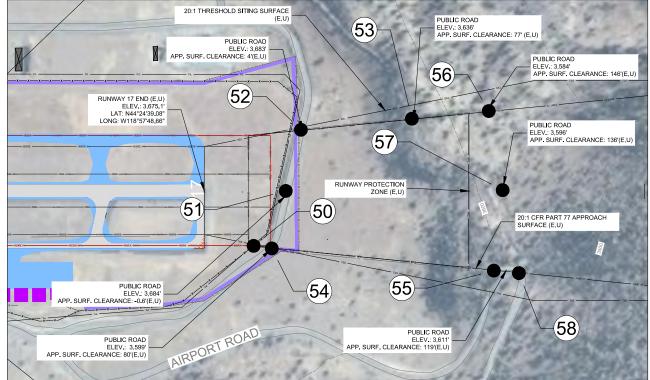
2.CONTOUR AND OBSTRUCTION SOURCE DATA - USGS, FAA OE/AAA (DOF). NO GROUND SURVEY WAS CONDUCTED AS PART OF THIS MASTER PLAN.

3. ALL ELEVATIONS AND HEIGHTS ARE IN FEET.

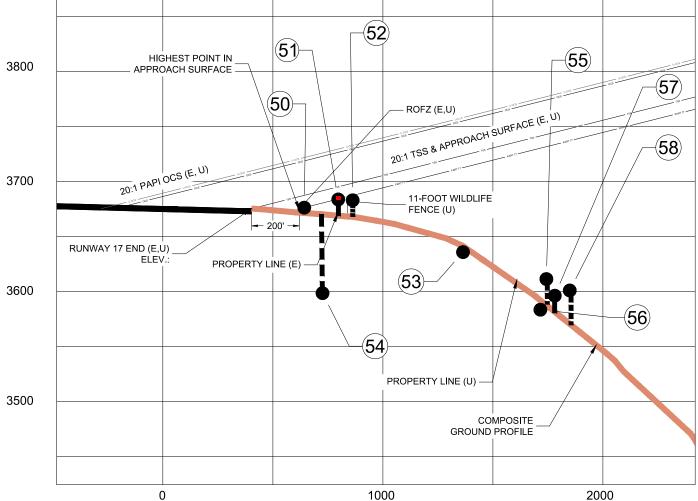


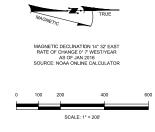
SHEET 7 OF 13

	OBSTRUCTION TABLE									
ITEM NO.	DESCRIPTION	SURVEY	GROUND ELEVATION	OBJECT ELEVATION (MSL)	OBJECT HEIGHT (AAL)	SURFACE PENETRATED	SURFACE ELEVATION	PENETRATION	EXISTING/PROPOSED MITIGATION	DATE OF MITIGATION
51	PUBLIC ROAD	USGS NED	3668.88	3683.88	15	APPROACH RWY 17 (E,U)	3683.3	0.58	RELOCATE (U)	2037
52	PUBLIC ROAD	USGS NED	3667.99	3682.99	15	NONE	N/A	NONE	NONE	N/A
53	PUBLIC ROAD	USGS NED	3621.37	3636.37	15	NONE	N/A	NONE	NONE	N/A
54	PUBLIC ROAD	USGS NED	3584.1	3599.1	15	NONE	N/A	NONE	NONE	N/A
55	PUBLIC ROAD	USGS NED	3596.39	3611.39	15	NONE	N/A	NONE	NONE	N/A
56	PUBLIC ROAD	USGS NED	3568.95	3583.95	15	NONE	N/A	NONE	NONE	N/A
57	PUBLIC ROAD	USGS NED	3581.53	3596,53	15	NONE	N/A	NONE	NONE	N/A
58	PUBLIC ROAD	USGS NED	3586.29	3601.29	15	NONE	N/A	NONE	NONE	N/A

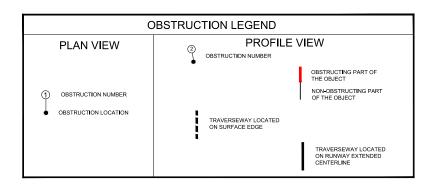


LEGEND								
EXISTING	ULTIMATE	DESCRIPTION						
		PAVEMENT TO BE REMOVED						
		AIRPORT PAVEMENT						
		AIRPORT CAR PARKING						
		AIRPORT PROPERTY LINE						
		ROADWAY						
====		PERIMETER ROAD						
-××-	-xxx-	SECURITY FENCE						
*	8	AIRPORT REFERENCE POINT						
$\sim$		BUILDING						
—GQS—		GLIDE PATH QUALIFICATION SURFACE						
—35' BRL —	-U-35' BRL-	BUILDING RESTRICTION LINE (BRL) - 25' AND 35'						
—RSA——	-F/U-RSA-	RUNWAY SAFETY AREA (RSA)						
-ROFA-	-F/U-ROFA-	RUNWAY OBJECT FREE AREA (OFA)						
—RPZ—	U-RPZ	RUNWAY PROTECTION ZONE (RPZ)						
ROFZ	—F/U-ROFZ—	RUNWAY OBJECT FREE ZONE (OFZ)						
—TSS—	— U-TSS—	THRESHOLD SIGHTING SURFACE (TSS)						
—PART77—	- U-PART77-	CFR PART 77 APPROACH SURFACE						
—TSA—	— U-TSA—	TAXIWAY SAFETY AREA (TSA)						
TOFA-	—U-TOFA—	TAXIWAY OBJECT FREE AREA (TOFA)						
— RVZ —	N/A	RUNWAY VISIBILITY ZONE (RVZ)						
— DEP —	— U-DEP —	INSTRUMENT DEPARTURE SURFACE						
	••	NAVIGATIONAL AID INSTALLATION						
	B7	AUTOMATED WEATHER STATION						
	3160 ——	TOPOGRAPHIC CONTOURS						





HORIZONTAL SCALE: 1"=200' VERTICAL SCALE: 1"=40'



### <u>NOTES</u>

- 2.CONTOUR AND OBSTRUCTION SOURCE DATA USGS, FAA OE/AAA (DOF). NO GROUND SURVEY WAS CONDUCTED AS PART OF THIS MASTER PLAN.
- 3. ALL ELEVATIONS AND HEIGHTS ARE IN FEET.

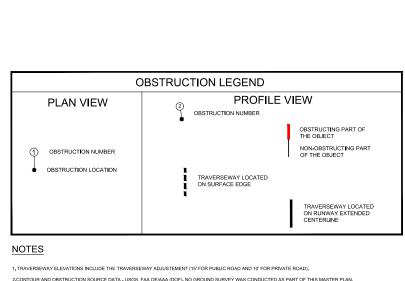
T-O ENGINEERS **b** GRANT COUNTY REGIONAL AIRPORT JOHN DAY, OREGON AIRPORT LAYOUT PLAN SET INNER APPROACH PLAN-RUNWAY 17

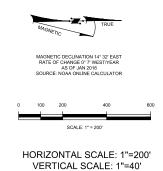
SHEET 8 OF 13

	OBSTRUCTION TABLE									
ITEM NO.	DESCRIPTION	SURVEY	GROUND ELEVATION	OBJECT ELEVATION (MSL)	OBJECT HEIGHT (AAL)	SURFACE PENETRATED	SURFACE ELEVATION	PENETRATION	EXISTING/PROPOSED MITIGATION	DATE OF MITIGATION
22	PUBLIC ROAD	USGS NED	3715.91	3730.91	15	NONE	N/A	NONE	NONE	N/A
23	PUBLIC ROAD	USGS NED	3704.12	3719.12	15	APPROACH/TSS RWY 35 (E,U)	3702.5 / 3712.5	16.6 / 6.6	NONE	N/A
24	PUBLIC ROAD	USGS NED	3653.31	3668.31	15	NONE	N/A	NONE	NONE	N/A
83	BUILDING	FAA DOF (2013)	3723.12	3768	44.88	TRANSITIONAL / TSS(E,U)	3759.14 / 3762.5	8.9 / 6	LIGHT (U)	2026
84	FENCE	FAA DOF (2013)	3703.5	3710	6.5	PRIMARY (E,U) /TSS	3702.5	7.5	RELOCATE (U)	2036

	20:1 THRESHOLD SITING SURFACE (E.U)	*	ELEV.: 3,719' APP. SURF. CLEARANCE: -16.5'(E,U)
710 10 10 10	700	23-	RUNWAY 35 FND (F U)
RUNWAY PROTECTION ZONE (E,U)	83	04	RUNWAY 35 END (E,U) ELEV.: 3,702.5' LAT: N044* 23' 48" LONG: W118" 57' 52"
ZONE (E,U)		3700	
20:1 CFR PART 77 APPROACH SURFACE (E,U)			No
	Name - Market	251	107 - 107 -
11 1860	360		PUBLIC ROAD ELEV.: 3,668'

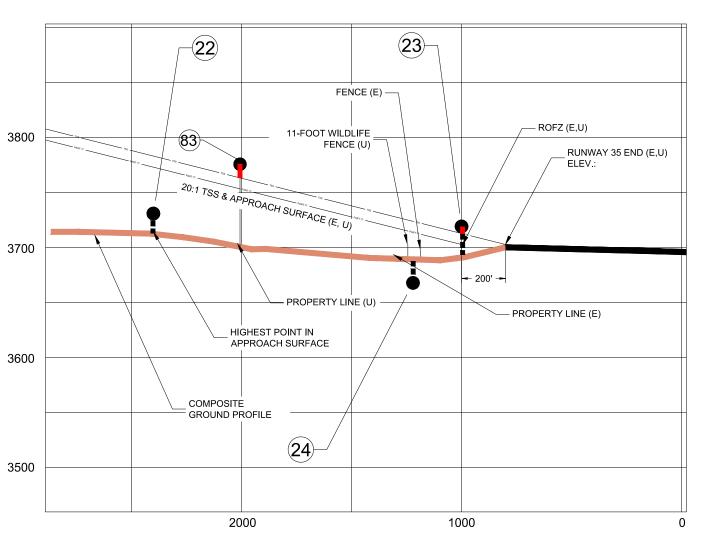
	LEGEND					
EXISTING	ULTIMATE	DESCRIPTION				
		PAVEMENT TO BE REMOVED				
		AIRPORT PAVEMENT				
		AIRPORT CAR PARKING				
~~		AIRPORT PROPERTY LINE				
		ROADWAY				
====		PERIMETER ROAD				
_xx	-xx	SECURITY FENCE				
*	8	AIRPORT REFERENCE POINT				
$\geq$		BUILDING				
	—U-GQS—	GLIDE PATH QUALIFICATION SURFACE				
35' BRL	—U-35' BRL —	BUILDING RESTRICTION LINE (BRL) - 25' AND 35'				
RSA	-F/U-RSA-	RUNWAY SAFETY AREA (RSA)				
ROFA	—F/U-ROFA—	RUNWAY OBJECT FREE AREA (OFA)				
RPZ	U-RPZ	RUNWAY PROTECTION ZONE (RPZ)				
ROFZ	-F/U-ROFZ-	RUNWAY OBJECT FREE ZONE (OFZ)				
TSS	— U-TSS—	THRESHOLD SIGHTING SURFACE (TSS)				
—PART77—	- U-PART77-	CFR PART 77 APPROACH SURFACE				
——TSA——	— U-TSA——	TAXIWAY SAFETY AREA (TSA)				
—TOFA——	—U-TOFA—	TAXIWAY OBJECT FREE AREA (TOFA)				
—— RVZ ——	N/A	RUNWAY VISIBILITY ZONE (RVZ)				
— DEP—	— U-DEP —	INSTRUMENT DEPARTURE SURFACE				
		NAVIGATIONAL AID INSTALLATION				
	ar-	AUTOMATED WEATHER STATION				
3	160	TOPOGRAPHIC CONTOURS				





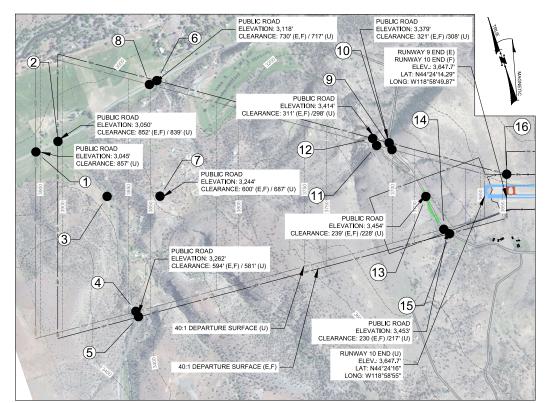
2,CONTOUR AND OBSTRUCTION SOURCE DATA - USGS, FAA OE/AAA (DOF). NO GROUND SURVEY WAS CONDUCTED AS PART OF THIS MASTER PLAN.

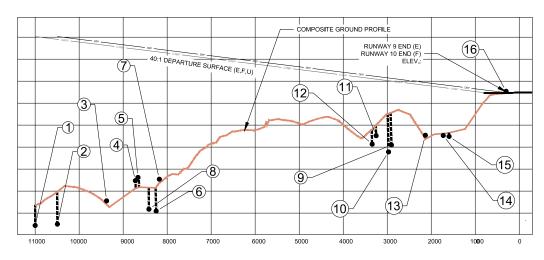
3. ALL ELEVATIONS AND HEIGHTS ARE IN FEET.



GRANT COUNTY REGIONAL AIRPORT JOHN DAY, OREGON AIRPORT LAYOUT PLAN SET INNER APPROACH PLAN-RUNWAY 35 SHEET 9 OF 13

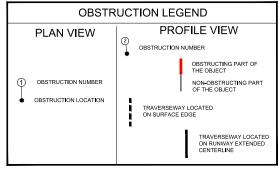
### **RUNWAY 28 DEPARTURE SURFACE**





	OBSTRUCTION TABLE								
ITEM NO.	DESCRIPTION	GROUND ELEVATION	OBJECT ELEVATION (MSL)	OBJECT HEIGHT (AGL)	SURFACE PENETRATED	SURFACE ELEVATION	PENETRATION	EXISITNG/PROPOSED DISPOSITION	DATE OF MITIGATION
1	PUBLIC ROAD	3029.32	3044.32	15	NONE	N/A	NONE	NONE	N/A
2	PUBLIC ROAD	3035.09	3050.09	15	NONE	N/A	NONE	NONE	N/A
3	PUBLIC ROAD	3141.03	3156.03	15	NONE	N/A	NONE	NONE	N/A
4	PUBLIC ROAD	3232.96	3247.96	15	NONE	N/A	NONE	NONE	N/A
5	PUBLIC ROAD	3247.45	3262.45	15	NONE	N/A	NONE	NONE	N/A
6	PUBLIC ROAD	3094.6	3109.6	15	NONE	N/A	NONE	NONE	N/A
7	PUBLIC ROAD	3239.53	3254.53	15	NONE	N/A	NONE	NONE	N/A
8	PUBLIC ROAD	3103.27	3118.27	15	NONE	N/A	NONE	NONE	N/A
9	PUBLIC ROAD	3395.41	3410.41	15	NONE	N/A	NONE	NONE	N/A
10	PUBLIC ROAD	3364.02	3379.02	15	NONE	N/A	NONE	NONE	N/A
11	PUBLIC ROAD	3437.36	3452.36	15	NONE	N/A	NONE	NONE	N/A
12	PUBLIC ROAD	3398.99	3413.99	15	NONE	N/A	NONE	NONE	N/A
13	PUBLIC ROAD	3439.737	3454.737	15	NONE	N/A	NONE	NONE	N/A
14	PUBLIC ROAD	3438.54	3453.54	15	NONE	N/A	NONE	NONE	N/A
15	PUBLIC ROAD	3434.29	3449.29	15	NONE	N/A	NONE	NONE	N/A
16	FENCE (E)	3647.7	3654.2	6.5	DEPARTURE RWY 27 (E)	3647.7	6.5	RELOCATE	2026

## LEGEND **EXISTING** DESCRIPTION -ROFA-RUNWAY VISIBILITY ZONE (RVZ) INSTRUMENT DEPARTURE SUR. .... - DEP-





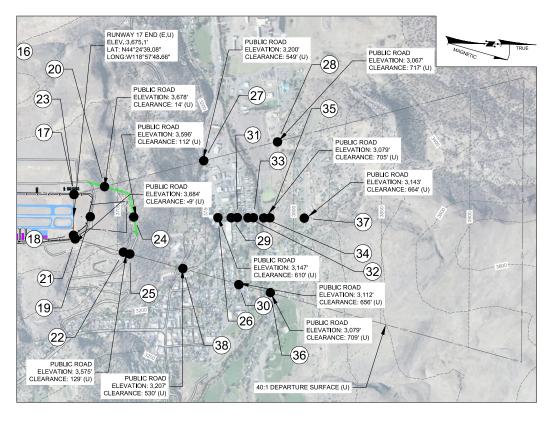
MAGNETIC DECLINATION 14° 32' EAST RATE OF CHANGE 0° 7' WEST/YEAR AS OF JAN 2016 SOURCE: NOAA ONLINE CALCULATOR

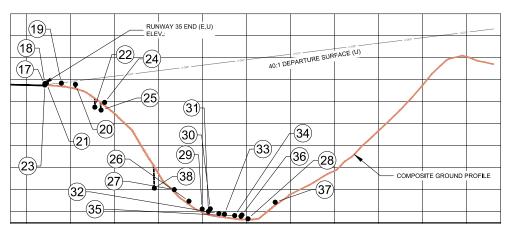
HORIZONTAL SCALE: 1"=1000' VERTICAL SCALE: 1"=200'

### **NOTES**

- 1. TRAVERSEWAY ELEVATIONS INCLUDE THE TRAVERSEWAY ADJUSTEMENT (15' FOR PUBLIC ROAD AND 10' FOR PRIVATE ROAD).
- 2. ALL ELEVATIONS AND HEIGHTS ARE IN FEET.
- 3. NO GROUND SURVEY WAS CONDUCTED AS PART OF THIS AIRPORT MASTER PLAN

### RUNWAY 35 DEPARTURE SURFACE



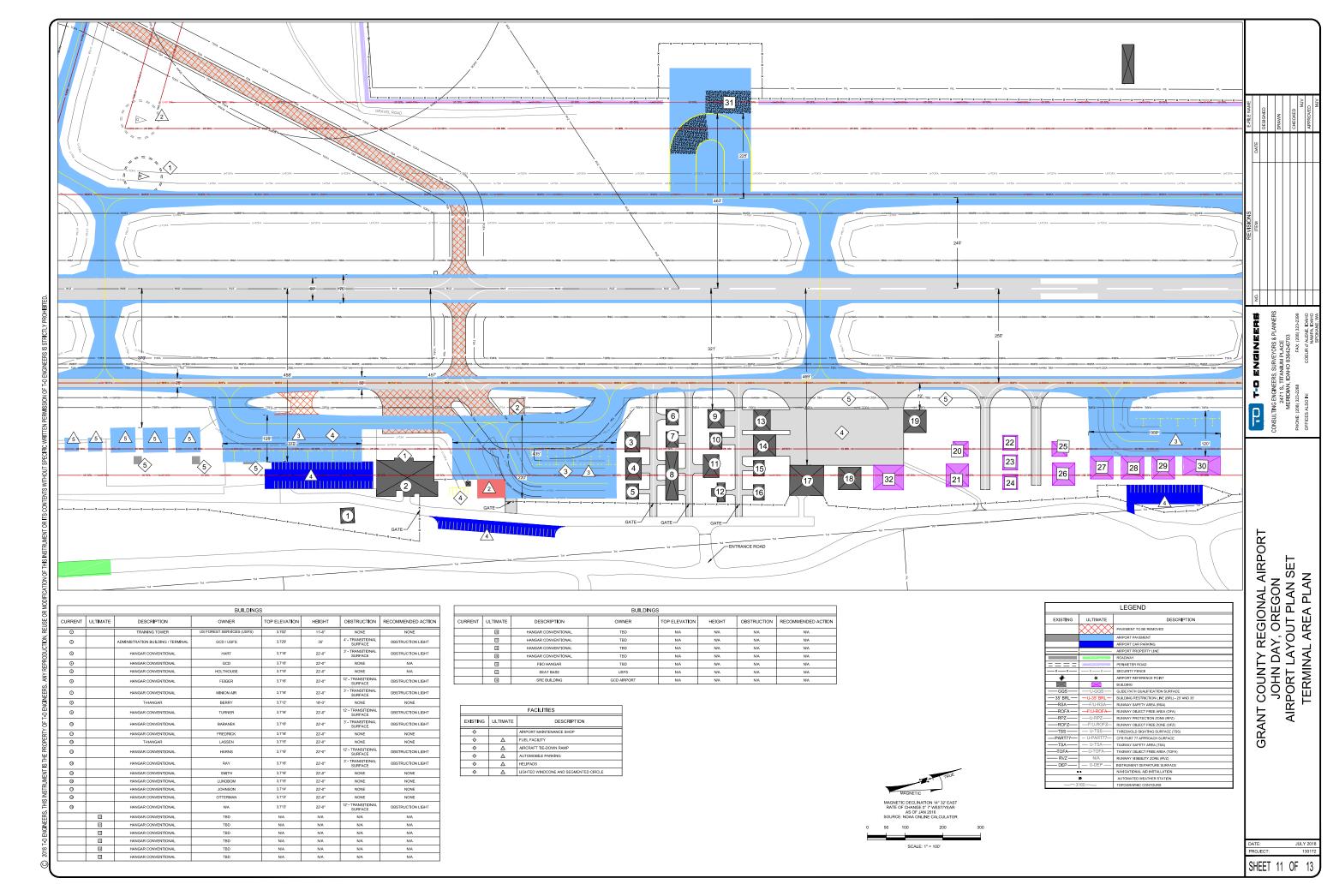


OBSTRUCTION TABLE									
ITEM NO.	DESCRIPTION	GROUND ELEVATION	OBJECT ELEVATION (MSL)	OBJECT HEIGHT (AGL)	SURFACE PENETRATED	SURFACE ELEVATION	PENETRATION	EXISITNG/PROPOSED DISPOSITION	DATE OF MITIGATION
17	FENCE (E)	3669.53	3675.53	6	DEPARTURE RWY 35 (U)	3675.1	0.43	RELOCATE	2036
18	FENCE (E)	3671.72	3681.72	10	DEPARTURE RWY 35 (U)	3675.1	6.62	RELOCATE	2036
19	PUBLIC ROAD	3668.88	3683.88	15	NONE	N/A	NONE	NONE	N/A
20	PUBLIC ROAD	3663.41	3678.41	15	NONE	N/A	NONE	NONE	N/A
21	PUBLIC ROAD	3669.12	3684.12	15	DEPARTURE RWY 35 (U)	3675.1	9	RELOCATE	2036
22	PUBLIC ROAD	3559.84	3574.84	15	NONE	N/A	NONE	NONE	N/A
23	PERIMETER ROAD	3669.53	3679.53	10	DEPARTURE RWY 35 (U)	3675.1	4.43	RELOCATE	2036
24	PUBLIC ROAD	3581.53	3596.53	15	NONE	N/A	NONE	NONE	N/A
25	PUBLIC ROAD	3546.73	3561.73	15	NONE	N/A	NONE	NONE	N/A
26	PUBLIC ROAD	3132.66	3147.66	15	NONE	N/A	NONE	NONE	N/A
27	PUBLIC ROAD	3185.29	3200.29	15	NONE	N/A	NONE	NONE	N/A
28	PUBLIC ROAD	3052.73	3067.73	15	NONE	N/A	NONE	NONE	N/A
29	PUBLIC ROAD	3096.55	3111.55	15	NONE	N/A	NONE	NONE	N/A
30	PUBLIC ROAD	3097.64	3112.64	15	NONE	N/A	NONE	NONE	N/A
31	PUBLIC ROAD	3085.59	3100.59	15	NONE	N/A	NONE	NONE	N/A
32	PUBLIC ROAD	3076.66	3091.66	15	NONE	N/A	NONE	NONE	N/A
33	PUBLIC ROAD	3073.58	3088.58	15	NONE	N/A	NONE	NONE	N/A
34	PUBLIC ROAD	3067.26	3082.26	15	NONE	N/A	NONE	NONE	N/A
35	PUBLIC ROAD	3067.32	3082.32	15	NONE	N/A	NONE	NONE	N/A
36	PUBLIC ROAD	3064.02	3079.02	15	NONE	N/A	NONE	NONE	N/A
37	PUBLIC ROAD	3128.09	3143.09	15	NONE	N/A	NONE	NONE	N/A
38	PUBLIC ROAD	3192.34	3207.34	15	NONE	N/A	NONE	NONE	N/A

GRANT COUNTY REGIONAL AIRPORT JOHN DAY, OREGON AIRPORT LAYOUT PLAN SET DEPARTURE SURFACE

FNGINEFER

SHEET 10 OF 13



Qx130172-BOINcaddwy/Sheets/ALPt130172-07-TAP.ckg, 7/28/2018 8:13.09 PM, Valenck, Maxims, DWG To PDF.pc3

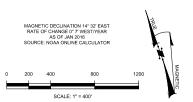
	LAND USE LEGEND
	GRANT COUNTY / CANYON CITY - N/A
10	AERONAUTICAL - AIRPORT PROPERTY
	FUTURE AERONAUTICAL
	INDUSTRIAL
	SUBURBAN RESIDENTIAL (COUNTY)
	RESIDENTIAL GENERAL
	DOWNTOWN COMMERCIAL
	GENERAL COMMERCIAL
	RESIDENTIAL LIMITED
	CITY OF JOHN DAY LIMIT
	URBAN GROWTH BOUNDARY

FAA RECOMMENDS AT LEAST 5,000 FEET BETWEEN THE AIRPORT AND ANY WILDLIFE ATTRACTANTS.

### NOTES:

THERE ARE LIMITED ORDINANCES IN PLACE IN GRANT COUNTY TO ZONE LAND AND LIMIT HEIGHT OF STRUCTURES.

	LEGEND						
EXISTING	ULTIMATE	DESCRIPTION					
	$\times\!\!\times\!\!\times\!\!\times$	PAVEMENT TO BE REMOVED					
		AIRPORT PAVEMENT					
		AIRPORT CAR PARKING					
~		AIRPORT PROPERTY LINE					
		ROADWAY					
====		PERIMETER ROAD					
_xx	-xxx-	SECURITY FENCE					
*	0	AIRPORT REFERENCE POINT					
	$\times$	BUILDING					
RPZ	U-RPZ	RUNWAY PROTECTION ZONE (RPZ)					
RVZ	N/A	RUNWAY VISIBILITY ZONE (RVZ)					

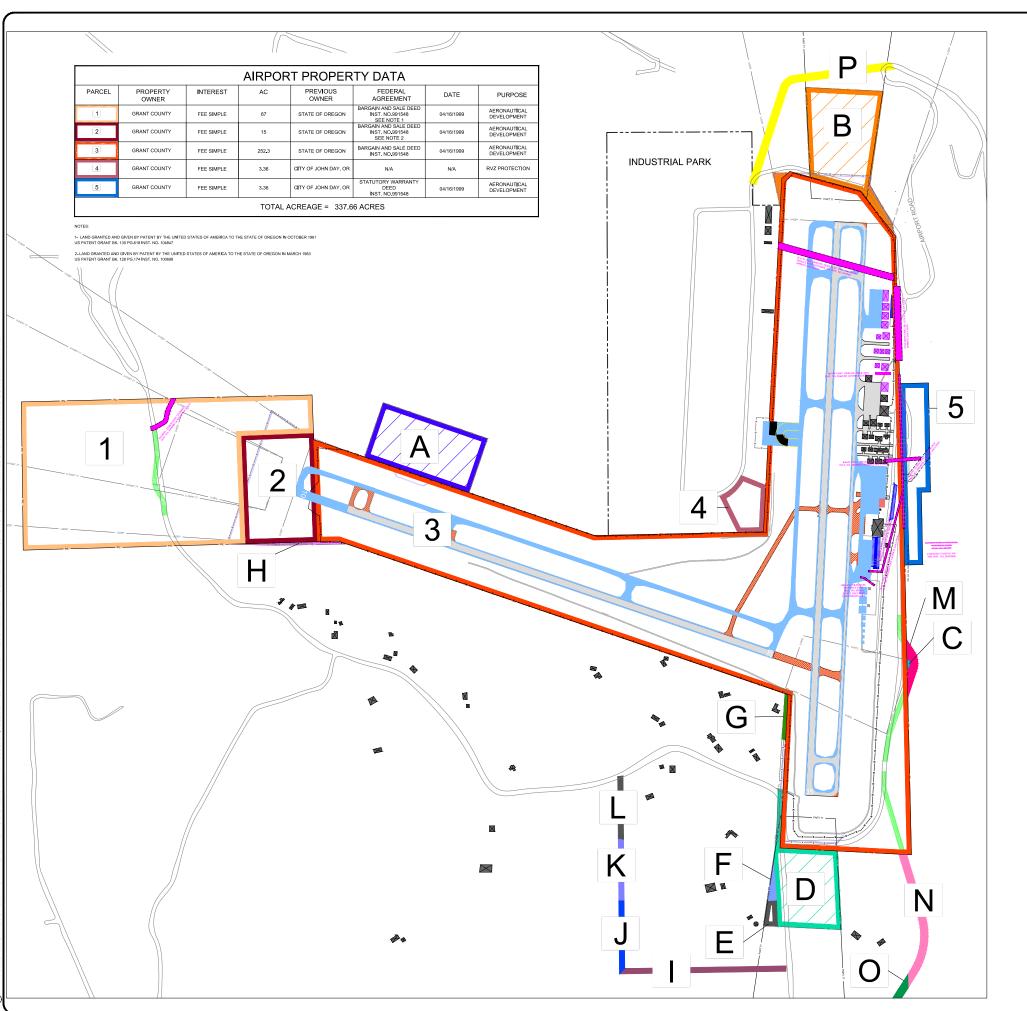


RATE	OF CHANGE O	TION 14° 32' EAST 1° 7' WEST/YEAR N 2016 NE CALCULATOR	Talle	
200	400	800	1200	MAGNETIC
	SCALE:	1" = 400'		<b>P</b> "

SHEET 12 OF 13

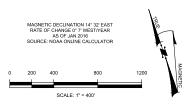
GRANT COUNTY REGIONAL AIRPORT JOHN DAY, OREGON AIRPORT LAYOUT PLAN SET LAND USE PLAN

TO ENGINEERS



PARCEL	PROPERTY OWNER	INTEREST	ACRES	PURPOSE	ACQUISITIO
A	GRANT COUNTY	FEE	12	AWOS PROTECTION	AIP - LOCA
В	13S 31E 27 PARCEL 1200 & 1205	FEE/AVIGATION EASEMENT	13	AIRSPACE/RPZ PROTECTION	AIP - LOCA
C	13S 31E 35 PARCEL 1400	FEE/AVIGATION EASEMENT	0.1	AIRSPACE/RPZ PROTECTION	AIP - LOCA
	13S 31E 34 PARCEL 601	FEE/AVIGATION EASEMENT	10	AIRSPACE/RPZ/RUNWAY PROTECTION	AIP - LOCA
ĮĘ/	13S 31E 34 PARCEL 105	AVIGATION EASEMENT	0.6	AIRSPACE/RPZ PROTECTION	AIP - LOCA
ĮĘ/	13S 31E 34 PARCEL 106	AVIGATION EASEMENT	0.4	AIRSPACE/RPZ PROTECTION	AIP - LOCA
//gl//	13S 31E 34 PARCEL 115	AVIGATION EASEMENT	0.3	AJRSPACE/RPZ/RUNWAY PROTECTION	AIP - LOCA
伸/	13S 31E 33 PARCEL 100	FEE/AVIGATION EASEMENT	0.5	AERONAUTICAL DEVELOPMENT	AJP - LOCA
I	13S 31E 34 PARCEL 104	FEE/EASEMENT	1.7	ROAD RELOCATION	AIP - LOCA
J	13S 31E 34 PARCEL 103	FEE/ EASEMENT	0.8	ROAD RELOCATION	AIP - LOCA
K	13S 31E 34 PARCEL 105	FEE/ EASEMENT	0.7	ROAD RELOCATION	AIP - LOCA
L	13S 31E 34 PARCEL 109	FEE/ EASEMENT	0.7	ROAD RELOCATION	AIP - LOCA
М	13S 31E 35 PARCEL 1400	FEE/ EASEMENT	0.7	ROAD RELOCATION	AJP - LOCA
N	13S 31E 35 PARCEL 1300	FEE/ EASEMENT	1.9	ROAD RELOCATION	AIP - LOCA
O	13S 31E 34 PARCEL 601	FEE/ EASEMENT	2.6	ROAD RELOCATION	AIP - LOCA
Р	13S 31E 27 PARCEL 1200 & 1205	FEE/ EASEMENT	3.1	ROAD RELOCATION	AIP - LOCA

		LEGEND
EXISTING	ULTIMATE	DESCRIPTION
		PAVEMENT TO BE REMOVED
		AIRPORT PAVEMENT
		AIRPORT CAR PARKING
		AIRPORT PROPERTY LINE
		ROADWAY
====		PERIMETER ROAD
-xxx-	-xx	SECURITY FENCE
*	8	AIRPORT REFERENCE POINT
$\sim$	$\times$	BUILDING
35' BRL	— <del>U-35' BRL</del> —	BUILDING RESTRICTION LINE (BRL) - 25' AND 35'
RPZ	U-RPZ	RUNWAY PROTECTION ZONE (RPZ)
—PART77—	- U-PART77-	CFR PART 77 APPROACH SURFACE
— DEP —	- U-DEP -	INSTRUMENT DEPARTURE SURFACE
		EASEMENTS



GRANT COUNTY REGIONAL AIRPORT JOHN DAY, OREGON AIRPORT LAYOUT PLAN SET AIRPORT PROPERTY MAP

JULTNG ENGINEERS, SURVEYORS & PLANNERS
2471 S. TITAMIUM PLACE
MERDIAN, IDAHO 83642-6703
FAX (200) 323-2399
CGS ALSO IN COEIR & ALENE, IDAHO
MARKAN, IDAHO
MARKAN, IDAHO
MARKAN, IDAHO

TO ENGINEERS

DATE: JULY 2018
PROJECT: 130172

SHEET 13 OF 13

### APPENDIX A: GLOSSARY OF AVIATION TERMS

**Abandoned runway**: A runway permanently closed to all aircraft operations, which may be marked in accordance with current FAA standards for marking and lighting of deceptive, closed and hazardous areas on airports.

Access taxiway: A taxiway that provides access to a particular location or area.

**Active aircraft**: Aircraft registered with the FAA and reported or estimated to have been flown at least one hour during the preceding year.

**Active runway**: The runway at an airport that is being used for landing, taxiing or takeoff operations.

**Actual runway length**: The length of a full-width usable runway from end to end of full strength pavement where those runways are paved.

**Advisory Circular (AC)**: A series of external FAA publications consisting of all non-regulatory material of a policy, guidance and informational nature.

**AGL**: Above Ground Level

Aircraft: A device that is used or intended to be used for flight in the air (FAR Part 1).

**Aircraft approach category**: A grouping of aircraft based on 1.3 times their stall speed in their landing configuration at their maximum certificated 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 mix**: The type of aircraft which are to be accommodated at the airport.

**Aircraft operations**: The airborne movement (landing or take-off) of aircraft in controlled or uncontrolled airport terminal areas and about given en route fixes or at other points where counts can be made. There are two types of operations - local and itinerant.

Local operations are performed by aircraft which: Operate in the local traffic pattern or within sight of the airport (if: training). Are known to be departing for or arriving from flight in local

practice area within a 20-mile radius of the airport. Execute simulated instrument approaches or low passes at the airport.

**Itinerant operations** are all aircraft operations other than local operations.

**Aircraft tiedowns**: Positions on the ground surface that are available for securing aircraft.

**Airplane Design Group (ADG)**: A grouping of planes based on their wingspan. The groups are as follows:

Group I: Up to but not including 49 feet.

Group II: 49 feet up to but not including 79 feet.

Group III: 79 feet up to but not including 118 feet.

Group IV: 118 feet up to but not including 171 feet.

Group V: 171 feet up to but not including 214 feet.

Group VI:214 feet up to but not including 262 feet.

**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.

**Airport beacon**: A visual navigation aid displaying alternating white and green Rashes to indicate a lighted airport or white flashes only for an unlighted airport.

**Airport elevation**: The highest point of an airport's usable runways measured in feet above mean sea level.

**Airport imaginary surfaces**: Imaginary surfaces established at an airport for obstruction determination purposes and consisting of primary, approach/departure, horizontal, vertical, conical, and transitional surfaces.

**Airport Improvement Program (AIP)**: The Airport Improvement Program of the Airport and Airways Improvement Act of 1982 as amended by the Airport and Airway Safety and Capacity Expansion Act of 1987. Under this program, the FAA provides funding assistance for the planning, design and development of airports and airport facilities.

**Airport Layout Plan (ALP)**: A graphic presentation, to scale, of existing and proposed airport facilities, their location on the airport, and the pertinent clearance and dimensional information required to show conformance with applicable standards. To be eligible for AIP funding assistance, an airport must have an FAA approved airport layout plan.

**Airport Master Plan**: Presents the planner's conception of the ultimate development of a specific airport. It presents the research and logic from which the plan was evolved and displays the plan in a graphic and written report.

**Airport Reference Code (ARC)**: The ARC combines two separate factors of aircraft design (aircraft approach category and wingspan) into one code. The first designator, represented by letters A through E, is the "aircraft approach category" and relates to an aircraft's speed as it approaches an airport for landing. The second designator, represented by Roman numerals I through VI, is the airplane "design group", and relates to an aircraft's wingspan.

**Airport Reference Point (ARP)**: The latitude and longitude of the approximate center of the airport.

**Airport sponsor**: A public agency or tax-supported organization such as an airport authority, that is authorized to own and operate the airport, to obtain property interests, to obtain funds, and to be legally, financially, and otherwise able to meet all applicable requirements of current laws and regulations.

**Airspace:** Space in the air above the surface of the earth or a particular portion of such space, usually defined by the boundaries of an area on the surface projected upward.

**Approach and runway protection zone layout**: A graphic presentation to scale of the imaginary surfaces defined in FAR Part 77.

**Approach area**: The defined area the dimensions of which are measured horizontally beyond the threshold over which the landing and takeoff operations are made.

**Approach slope ratio:** The ration of horizontal to vertical distance indicating the degree of inclination of the approach surface.

**Approach surface**: An imaginary surface longitudinally centered on the extended centerline of the runway, beginning at the end of the primary surface and rising outward and upward to a specified height above the established airport elevation.

**Apron:** A defined area, on a land airport, intended to accommodate aircraft for purposes of loading or unloading passengers or cargo, refueling, parking, or maintenance.

### **Automated Weather Observation System (AWOS):**

This equipment automatically gathers weather data from various locations on an airport and transmits the information directly to pilots by means of computer generated voice messages over a discrete frequency.

**Avigation easement**: A land use easement permitting the unlimited operation of aircraft in the airspace above the land area involved.

**Based aircraft:** The total number of active general aviation aircraft which use or may be expected to use an airport as a "home base."

**Building area**: An area on an airport to be used, considered, or intended to be used, for airport buildings or other airport facilities or rights-of-way, together with all airport buildings and facilities located thereon.

**Building restriction line (BRL):** A line shown on the airport layout plan beyond which airport buildings must not be positioned in order to limit their proximity to aircraft movement areas.

**Commercial service**: Commercial service airports are public use airports which receive scheduled passenger service aircraft, and which annually enplane 2,500 or more passengers.

**Conical surface**: A surface extending from the periphery of the horizontal surface outward and upward at a slope of 20 to 1 for the horizontal distances and the elevations above the airport elevation as prescribed by FAR Part 77.

**Controlled airspace**: Airspace in which some or all aircraft may be subject to air traffic control to promote safe and expeditious flow of air traffic.

**Crosswind:** A wind blowing across the line of flight of an aircraft.

**Crosswind component**: A wind component that is at a right angle to the longitudinal axis of the runway or the flight path of the aircraft.

**Crosswind runway**: A runway additional to the primary runway to provide for wind coverage not adequately provided by the primary runway.

**Downwind leg**: A flight path in the traffic pattern parallel to the landing runway in the direction opposite to landing. It extends to the intersection of the base leg.

**Executive aircraft operator**: A corporation, company, or individual which operates owned or leased aircraft, flown by pilot(s) whose primary duties involve pilotage of aircraft, as a means of transportation or personnel or cargo in the conduct of company business.

**Exit taxiway**: A taxiway used as an exit from a runway to the apron or other aircraft operating area.

**FAR Part 77**: Contains obstruction requirements at or near airports.

**Federal Aviation Administration (FAA)**: Created by the act that established the Department of Transportation. Assumed all of the responsibilities of the former Federal Aviation Agency.

**Fixed base operator (FBO)**: An individual or company located at an airport, and providing commercial general aviation services.

**Flight plan**: Specified information relating to the intended flight of an aircraft, which is filed orally or in writing with air traffic control.

**Fuel flowage fees**: Fees levied by the airport operator per gallon of aviation gasoline and jet fuel sold at the airport.

**General aviation**: That portion of civil aviation which encompasses all facets of aviation except air carriers holding a certificate of convenience and necessity from the Civil Aeronautics Board, and large aircraft commercial operators.

**General aviation airports:** Those airports with fewer than 2,500 annual enplaned passengers and those used exclusively by private and business aircraft not providing common-carrier passenger service.

**General aviation itinerant operations:** Takeoffs and landings of civil aircraft (exclusive of air carrier) operating on other than local fights.

**Hangar:** A building used to store one or more aircraft, and/or conduct aircraft maintenance.

**Horizontal surface:** A specified portion of a horizontal plane located 150 feet above the established airport elevation which establishes the height above which an object is determined to be an obstruction to air navigation.

**IFR airport:** An airport with an authorized instrument approach procedure.

**IFR conditions**: Weather conditions below the minimum for flight under visual fight rules.

**ILS Category I:** An ILS which provides acceptable guidance information from the coverage limits of the ILS to the point at which the localizer course line intersects the glide path at a height of 100 feet above the horizontal plane containing the runway threshold. A Category I ILS supports landing minima as low as 200 ft. HAT and 1800 ft. RVR.

**Instrument approach:** An approach to an airport, with intent to land, by an aircraft flying in accordance with an IFR flight plan, when the visibility is less than 3 miles and/or when the ceiling is at or below the minimum initial altitude.

**Instrument approach runway:** A runway served by an electronic aid providing at least directional guidance adequate for a straight-in approach.

**Instrument Flight Rules (IFR):** Rules governing the procedures for conducting instrument flight. Pilots are required to follow these rules when operating in controlled airspace with a visibility of less than three miles and/or a ceiling lower than 1,000 feet.

**Instrument Landing System (ILS):** A system which provides in the aircraft, the lateral, longitudinal, and vertical guidance necessary for a landing.

**Itinerant operations:** All aircraft arrivals and departures other than local operations.

**Jet noise:** The noise generated externally to a jet engine in the turbulent jet exhaust.

**Landing gear:** That part of an aircraft which is required for landing. Gear may be configured as Single Wheel Gear (SWG), Dual Wheel Gear (DWG), or Dual Tandem Wheel Gear (DTWG).

**Landing roll:** The distance from the point of touchdown to the point where the aircraft can be brought to a stop, or exit the runway.

**Landside operations:** Those parts of the airport designed to serve passengers including the terminal buildings, vehicular circular drive, and parking facilities.

Land use plan: Shows on-airport land uses as developed by the airport sponsor under the master plan effort and off-airport land uses as developed by surrounding communities.

Large aircraft: Aircraft of more than 12,500 pounds maximum certificated takeoff weight.

**Ldn:** A quantity indicating a day-night noise exposure level calculated using the Ldn noise-forecasting methodology. This quantity can be used to predict community response to projected levels of aircraft activity.

**Local traffic:** Aircraft operating in the local traffic pattern or within sight of the tower, or aircraft known to be departing for or arriving from flight in local practice areas, or aircraft executing simulated instrument approaches at the airport.

**Location map:** Shown on the airport layout plan drawing, it depicts the airport, cities, railroads, major highways, and roads within 20 to 50 miles of the airport.

**Marking**: On airports, a pattern of contrasting colors placed on the pavement, turf, or other usable surface by paint or other means to provide specific information to aircraft pilots and sometimes to operators of ground vehicles, on the movement areas.

**Minimums:** Minimum altitude a pilot can descend to when conducting an instrument approach. Also refers to the minimum visibility a pilot must have to initiate an instrument approach.

MIRL: Medium Intensity Runway Lighting.

**Multi-engine aircraft:** Reciprocating, turbo-prop or jet powered fixed wing aircraft having more than one engine.

**Municipally operated airport**: An airport owned by a city and run as a department of the city, with policy direction by the city council and, in some cases, by a separate airport commission or advisory board.

**National Plan of Integrated Airport Systems (NPIAS):** A plan prepared by the FAA which identifies, for the Congress and the public, the composition of a national system of airports together with the airport development necessary to anticipate and meet the present and future needs of civil aeronautics, to meet requirements in support of the national defense, and to meet the special needs of the postal service. The plan includes both new facilities and qualitative improvements to existing airports to increase their capacity, safety, technological capability, etc.

**NAVAID**: Any facility used as, available for use as, or designed for use as an aid to air navigation, including landing areas, lights, any apparatus or equipment for disseminating weather information, for signaling, for radio direction-finding, or for radio or other electronic communication, and any other structure or mechanism having similar purpose and controlling flight in the air or the landing or takeoff of aircraft.

**Navigable airspace:** Airspace at and above the minimum flight altitudes prescribed in the FARs, including airspace needed for safe takeoff and landing.

**Non-precision instrument runway**: A runway having an existing instrument approach procedure utilizing air navigation facilities with only horizontal guidance for which straight-in non-precision instrument approach procedure has been approved.

**Non-precision approach procedure**: A standard instrument approach procedure in which no electronic glide slope is provided.

**Non-precision instrument approach aid**: An electronic aid designed to provide an approach path for aligning an aircraft on its final approach to a runway. It lacks the high accuracy of the precision approach equipment and does not provide descent guidance. The VHF Omnirange (VOR) and the non-directional beacon (NDB) are two examples of non-precision instrument equipment.

**Notice to Airmen (NOTAM):** A notice containing information (not known sufficiently in advance to publicize by other means) concerning the establishment, condition, or change in any component (facility, service, or procedure) of, or hazard in the National Airspace System, the timely knowledge of which is essential to personnel concerned with flight operations.

**Obstruction**: An object which penetrates an imaginary surface described in the FAA's Federal Aviation Regulation (FAR) Part 77.

**Parking apron:** An apron intended to accommodate parked aircraft.

**Pavement structure:** The combination of runway base and subbase courses and surface course which transmits the traffic load to the subgrade.

**Pavement subgrade**: The upper part of the soil, natural or constructed, which supports the loads transmitted by the runway pavement structure.

**Pavement surface course:** The top course of a pavement, usually Portland cement concrete or bituminous concrete, which supports the traffic load.

**Precision approach**: A standard instrument approach using a precision approach procedure. See precision approach procedure.

**Precision Approach Path Indicator (PAPI):** A system of lights on an airport that provides visual descent guidance to the pilot of an aircraft approaching a runway.

**Precision approach procedure:** A standard instrument approach procedure in which an electronic glide slope is provided, such as ILS and PAR.

**Primary Surface**: A rectangular surface longitudinally centered about a runway. Its width is a variable dimension and it usually extends 200 feet beyond each end of the runway. The elevation of any point on this surface coincided with the elevation of its nearest point on the runway centerline or extended runway centerline.

**Public airport:** An airport for public use, publicly owned and under control of a public agency.

**Ramp:** A defined area, on a land airport, intended to accommodate aircraft for purposes of loading or unloading passengers or cargo, refueling, parking, or maintenance.

**Rotating lighted beacon:** An airport aid allowing pilots the ability to locate an airport while flying under VFR conditions at night.

**Runway:** A defined rectangular area on a land airport prepared for the landing and takeoff run of aircraft along its length.

**Runway bearing:** The magnetic or true bearing of the runway centerline as measured from magnetic or true north.

**Runway configuration:** Layout or design of a runway or runways, where operations on the particular runway or runways being used at a given time are mutually dependent. A large airport can have two or more runway configurations operating simultaneously.

**Runway direction number**: A whole number to the nearest tenth of the magnetic bearing of the runway and measured in degrees clockwise from magnetic north.

**Runway end identification lights (REIL):** An airport lighting facility in the terminal area navigation system consisting of one flashing white high intensity light installed at each approach end corner of a runway and directed toward the approach zone, which enables the pilot to identify the threshold of a usable runway.

**Runway environment:** The runway threshold or approach lighting aids or other markings identifiable with the runway.

**Runway gradient (effective):** The average gradient consisting of the difference in elevation of the two ends of the runway divided by the runway length may be used provided that no intervening point on the runway profile lies more than 5 feet above or below a straight line joining the two ends of the runway. In excess of 5 feet, the runway profile will be segmented and aircraft data will be applied for each segment separately.

**Runway lights:** Lights having a prescribed angle of emission used to define the lateral limits of a runway. Runway light intensity may be controllable or preset, and are uniformly spaced at intervals of approximately 200 feet.

Runway markings: (1) Basic marking-markings on runways used for operations under visual flight rules, consisting of centerline marking and runway direction numbers, and if required, letters. (2) Instrument marking-markings on runways served by nonvisual navigation aids and intended for landings under instrument weather conditions, consisting of basic marking plus threshold marking. (3) All-weather marking- markings on runways served by nonvisual precision approach aids and on runways having special operational requirements, consisting of instrument markings plus landing zone marking and side strips.

**Runway orientation:** The magnetic bearing of the centerline of the runway.

Runway protection zone (formerly called the "clear zone"): A runway protection zone is a trapezoidal area at ground level, under the control of the airport authorities, for the purpose of protecting the safety of approaches and keeping the area clear of the congregation of people. The runway protection zone begins at the end of each primary surface and is centered upon the extended runway centerline.

**Runway safety area:** A runway safety area is a rectangular area, centered on the runway centerline, which includes the runway (and stopway, if present) and the runway shoulders. The portion abutting the edge of the runway shoulders, runway ends, and stopways is cleared, drained, graded, and usually turfed. Under normal conditions, the runway safety area is capable of supporting snow removal, firefighting, and rescue equipment and accommodating the occasional passage of aircraft without causing major damage to the aircraft.

**Runway strength:** The assumed ability of a runway to support aircraft of a designated gross weight for each of single-wheel, dual-wheel, and dual-tandem-wheel gear types.

**Segmented circle:** A system of visual indicators designed to provide traffic pattern information at an airport without an operating control tower.

**Shoulder:** As pertaining to airports, an area adjacent to the edge of a paved surface so prepared to provide a transition between the pavement and the adjacent surface for aircraft running off the pavement, for drainage and sometimes for blast protection.

Single runway: An airport having one runway.

**Small aircraft**: Aircraft of 12,500 pounds or less maximum certificated takeoff weight.

**Straight-in approach (IFR):** An instrument approach wherein final approach is commenced without first having executed a procedure turn (not necessarily completed with a straight-in landing).

**Straight-in approach (VFR):** Entry into the traffic pattern by interception of the extended runway centerline without executing any other portion of the traffic pattern.

**Taxiway:** A defined path, usually paved, over which aircraft can taxi from one part of an airport to another.

**Taxiway safety area:** A cleared, drained and graded area, symmetrically located about the extended taxiway centerline and adjacent to the end of the taxiway safety area.

**Terminal area:** The area used or intended to be used for such facilities as terminal and cargo buildings, gates, hangars, shops and other service buildings; automobile parking, airport motels and restaurants, and garages and vehicle service facilities used in connection with the airport; and entrance and service roads used by the public within the boundaries of the airport.

**T-hangar**: An aircraft hangar in which aircraft are parked alternately tail to tail, each in the T-shaped space left by the other row of aircraft or aircraft compartments.

**Threshold:** The designated beginning of the runway that is available and suitable for the landing of airplanes.

**Threshold crossing height (TCH):** The height of the straight-line extension of the visual or electronic glide slope above the runway threshold.

**Threshold lights:** Lighting arranged symmetrically about the extended centerline of the runway identifying the runway threshold. They emit a fixed green light.

**Total operations:** All arrivals and departures performed by military, general aviation and air carrier aircraft.

**Touchdown:** (1) The point at which an aircraft first makes contact with the landing surface. (2) In a precision radar approach, the point on the landing surface toward which the controller issues guidance instructions.

**Touchdown zone:** The area of a runway near the approach end where airplanes normally align.

**Traffic pattern:** The traffic flow that is prescribed for aircraft landing at, taxiing on, and taking off from an airport. The usual components of a traffic pattern are upwind leg, crosswind leg, downwind leg, base leg, and final approach.

**Transient:** Operations or other activity performed by aircraft not based at the airport.

**Transitional surface:** A surface which extends outward and upward from the sides of the primary and approach surfaces normal to the runway centerline which identifies the height limitations on an object before it becomes an obstruction to air navigation.

**Turning radius**: The radius of the arc described by an aircraft in making a self-powered turn, usually given as a minimum.

**UNICOM:** Frequencies authorized for aeronautical advisory services to private aircraft. Only one such station is authorized at any landing area. The frequency 123.0 MHz is used at airports served by airport traffic control towers, and 122.8 MHz is used for other landing areas. Services available are advisory in nature, primarily concerning the airport services and airport utilization.

**Utility airport (or runway):** An airport (or runway) which accommodates small aircraft excluding turbojet powered aircraft.

**VFR airport:** An airport without an authorized or planned instrument approach procedure.

**VHF Omnidirectional Range (VOR):** A radio transmitter facility in the navigation system radiating a VHF radio wave modulated by two signals, the relative phases of which are compared, resolved and displayed by a compatible airborne receiver to give the pilot a direct indicating of bearing relative to the facility.

**Vicinity map:** Shown on the airport layout plan drawing, it depicts the relationship of the airport to the city or cities, nearby airports, roads, railroads, and built-up areas.

**Visual approach:** An approach wherein an aircraft on an IFR flight plan, operating in VFR conditions under the control of a radar facility and having an air traffic control authorization, may deviate from the prescribed instrument approach procedure and proceed to the airport of destination, served by an operational control tower, by visual reference to the surface.

**Visual approach aid:** Any device, light, or marker used to provide visual alignment and/or descent guidance on final approach to a runway. Also see REIL, VASI.

**Visual Flight Rules (VFR):** Rules that govern the procedures for conducting flight under visual conditions (FAR Part 91).

**Visual runway**: A runway intended solely for the operation of aircraft using visual approach procedures, with no straight-in instrument approach procedure and no instrument designation indicated on an FAA-approved airport layout plan, a military service approved military airport layout plan, or by a planning document submitted to the FAA by competent authority (FAR Part 77).

**VORTAC:** Very High Frequency Omni Range Facility (VOR co-located with a Tactical Air Navigation (TACAN) facility.

**Wind cone:** A free-rotating fabric truncated cone which when subjected to air movement indicates wind direction and wind force.

**Windrose:** A diagram for a given location showing relative frequency and velocity of wind from all compass directions.

**Zulu time (Z):** Time at the prime meridian in Greenwich, England.

### **APPENDIX B: ENVIRONMENTAL DOCUMENTS**

- **B-1 Wetland Assessment Memorandum**
- **B-2 Cultural Resources Survey**
- **B-3 Wildlife Hazard Site Visit Report**
- **B-4 Recycling Plan**

### **B-1: WETLAND ASSESSMENT MEMO**



### TECHNICAL MEMORANDUM

**TO:** Kevin Bissell, P.E. – T-O Engineers, Inc.

**FROM:** Peggy Browne, Senior Ecologist

Sara Haynes, Staff Environmental Scientist

**DATE:** May 31, 2016

**RE:** WETLANDS ASSESSMENT

GRANT COUNTY REGIONAL AIRPORT MASTER PLAN

**GRANT COUNTY, OREGON FARALLON PN: 1620-001** 

Farallon Consulting, L.L.C. (Farallon) has prepared this Technical Memorandum to summarize the findings of a wetlands assessment of the Grant County Regional Airport property at 72000 Airport Road in John Day, Oregon (herein referred to as the Site). The wetlands assessment was performed in support of an environmental evaluation to be conducted in preparation for the Grant County Regional Airport Master Plan update.

### INTRODUCTION

The federal government protects wetlands through regulations such as Section 404 of the Clean Water Act (CWA). Section 404 regulates the discharge of dredged or fill material into waters of the United States, including wetlands. Activities in waters of the United States regulated under the CWA include fill for development, water resource projects such as dams and levees, infrastructure development such as highways and airports, and mining projects. The governing federal agency that administers the CWA is the U.S. Army Corps of Engineers. The Oregon Department of State Lands also governs waters of the State and wetlands under the Removal-Fill Law in accordance with Section 795-990 of Chapter 196 of the Oregon Revised Statutes. Both the U.S. Army Corps of Engineers and Oregon Department of State Lands take into consideration three basic elements when determining jurisdiction: hydrology, vegetation, and soil characteristics. Wetlands are determined Non-Jurisdictional, as in the case of the Site, if they do not meet requirements for displaying hydric soil, hydric plants, and site hydrology; or are "navigable waters of the U.S.," which includes wetlands connected or adjacent to waters subject to the ebb and flow of the tide and/or are used, have been used in the past, or may be susceptible to use to transport interstate or foreign commerce.



The National Wetland Inventory (NWI) was developed by the U.S. Fish and Wildlife Service. NWI maps are produced by photointerpretation and are not as accurate as a detailed on-the-ground delineation; however, use of NWI maps is a reliable method for providing the general location of wetland boundaries. No wetlands were indicated on the NWI map for this area. The State of Oregon has conducted Local Wetland Inventories (LWI) for some locations throughout the State; however, an LWI has not been conducted at the Grant County Regional Airport on the Site. If an LWI is conducted, Site-specific data will replace NWI maps as the method for delineating wetland boundaries. It is Farallon's understanding based on the data available that a wetland delineation of this Site has not been completed by the County; therefore, there is no data to indicate the presence of wetlands on the Site.

The Site consists of Tax Lot 3500 primarily located in Sections 27 and 34, Township 13 South, Range 31 East, Willamette Meridian; and totals approximately 254 acres. The areas under environmental evaluation include four locations totaling approximately 70 acres that may be impacted by future potential development (referred to herein as study areas). Two study areas are located west of Airport Road and east of Runway 17-35, and two study areas are located on the far northwestern corner and on the northeastern corner of Runway 09-27.

### SITE DESCRIPTION

The Site is located approximately 1 mile southwest of downtown John Day and northwest of Canyon City, and is bounded on the east by Airport Road, on the south by West Bench Road, and on the north by Industrial Park Road.

The Upper John Day Watershed, Hydraulic Unit Code 17070201, incorporates the John Day River, north of the Site, and Canyon Creek, east of the Site.

The surficial geology of the majority of the Site consists of Pliocene- and Pleistocene-age alluvial conglomerates, gravels, sands, and clays deposited along the John Day River Valley. Metavolcanic, shaly, sedimentary, and igneous rocks dominate the geological regime along the southern portion of the Site boundary.

No hydric soil is present on the Site. Hydric soil is defined by the National Technical Committee for Hydric Soils as soil that forms under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (U.S. Department of Agriculture 1994). The majority of the Site consists of type 30B Oxbow very stony silty clay loam, which belongs to a rangeland ecological site type. All of the soil present on the Site belongs in Hydrologic Soil Group D. Soil types include type 12E Grell very gravelly loam, type 40E Simas clay loam, and type 41E Simas very stony clay loam. Hydrologic soil groups are based on estimates of runoff potential, and Group D is comprised of soil having a very slow infiltration rate (high runoff potential) when thoroughly wet and a very slow rate of water transmission.

The plant community at the Site is comprised of upland grasses, including fescues and basin wildrye grass. Noxious weeds include cheatgrass and medusahead. Prickly Russian thistle,



juniper, and sagebrush are also dominant vegetative species. No hydric plants were observed on the Site.

Common Name	Scientific Name
Idaho fescue	Festuca idahoensis
Basin wildrye	Leymus cinereus
Cheatgrass	Bromus tectorum
Medusahead rye	Taeniatherum caput-medusae
Prickly Russian thistle	Salsola iberica
Western juniper	Juniperus occidentalis
Low sagebrush	Artemisia arbuscula
Scabland sagebrush	Artemisia rigida
Basin big sagebrush	Artemisia tridentata species

The Grant County Regional Airport is located on one of the few relatively flat areas of plateau located over 500 feet above the City of John Day, Oregon. It is a dry area characterized by steep gradients on the eastern, southern, and western boundaries of the Site, and additional plateau land is present to the north of the Site. Numerous ravines and canyons are present at the base of the plateau where the Site is located. Due to the topography and soil characteristics of the Site, precipitation is either absorbed into the soil profile or runs off the Site, and very little ponding occurs.

The Site is located within the Airport Combining (AC) zone. Grant County lists the AC zone as having a series of requirements that allow or regulate certain uses, types of development, and divisions. Specific to the AC zone, these requirements are applied to an area in proximity of active air fields where aircraft operations occur on a regular basis and signify a measure of noise level, dust, engine exhaust, and visual impact surrounding the airport. Within this area are specific land use regulations with regards to development and wetland mitigation, creation, enhancement, and restoration.

### WETLANDS ASSESSMENT

No existing wetlands are present on the Site or within the study areas targeted for future potential development. None of the three wetland components (i.e., hydric vegetation, hydric soil, or site hydrology) occur on the Site. Data were limited to a desktop search with regards to Site soil. The U.S. Fish and Wildlife Survey NWI did not identify any wetlands within the Site boundary. The National Resources Conservation Services (NRCS) Web Soil Survey only offered the survey area boundary and no specific soil data. The NRCS Grant County John Day Service Center provided soil data specific to the Grant County Regional Airport tax lot boundary.



### **METHODS**

A document review included the following:

- Grant County NRCS Soil Survey;
- U.S. Fish and Wildlife Survey National Wetlands Inventory Wetlands Mapper;
- Oregon Department of State Lands Local Wetland Inventory;
- Grant County Planning Commission Land Development Code; and
- Plant reference manuals.

A site reconnaissance was conducted on March 24, 2016. Depressional areas were walked to identify vegetative species that occupied the areas. All species on the Site are characteristic of uplands and non-hydric soil conditions. The vegetative community would be characterized as sagebrush steppe. Due to the lack of hydrologic, vegetative, or soil data indicating the presence of wetlands on the Site, there is no need for an on-Site delineation.

### DISCUSSIONS AND CONCLUSIONS

The Site totals approximately 335 acres and the study areas total approximately 70 acres on the Site. No wetlands are identified on the Site. This technical memorandum documents the best professional judgement and conclusions of the investigation of the Site.

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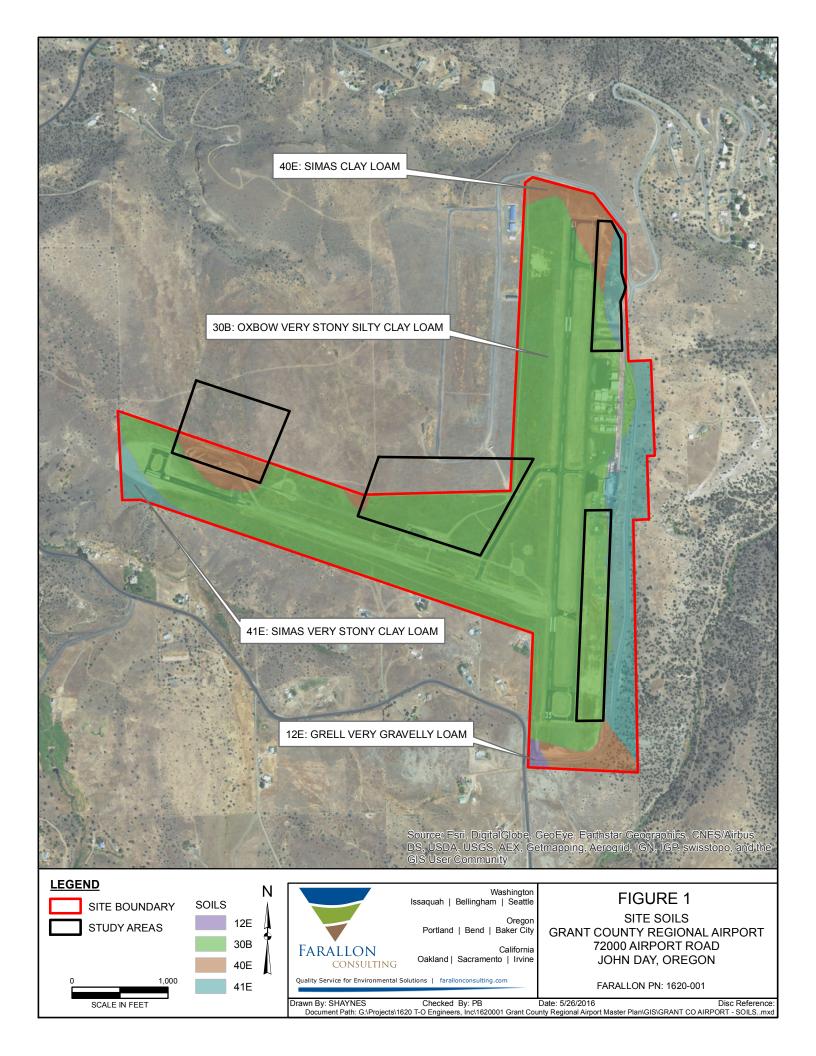
Whitson, Tom D., Larry C. Burrill, Steven A. Dewey, David W. Cudney, B.E. Nelson, Richard D. Lee, and Robert Parker. 2001. *Weeds of the West*. Tom D. Whitson, ed. Ninth ed. University of Wyoming. Laramie, Wyoming.

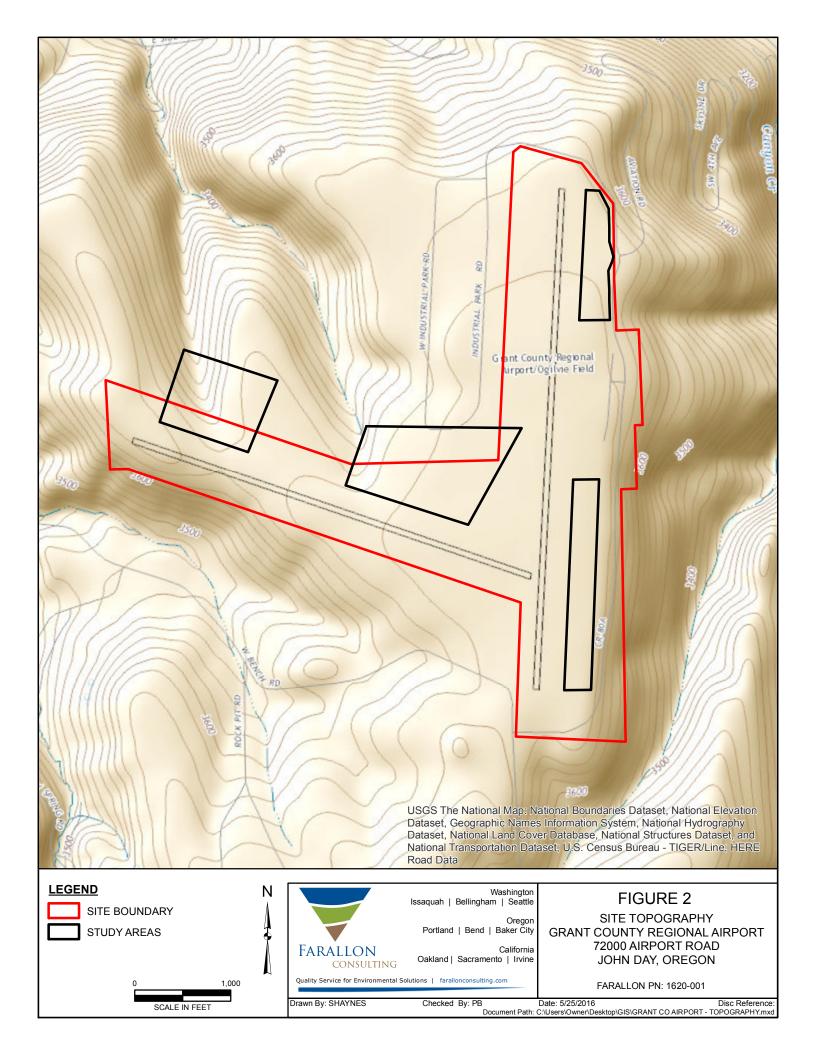
Attachments: Figure 1, Site Soils

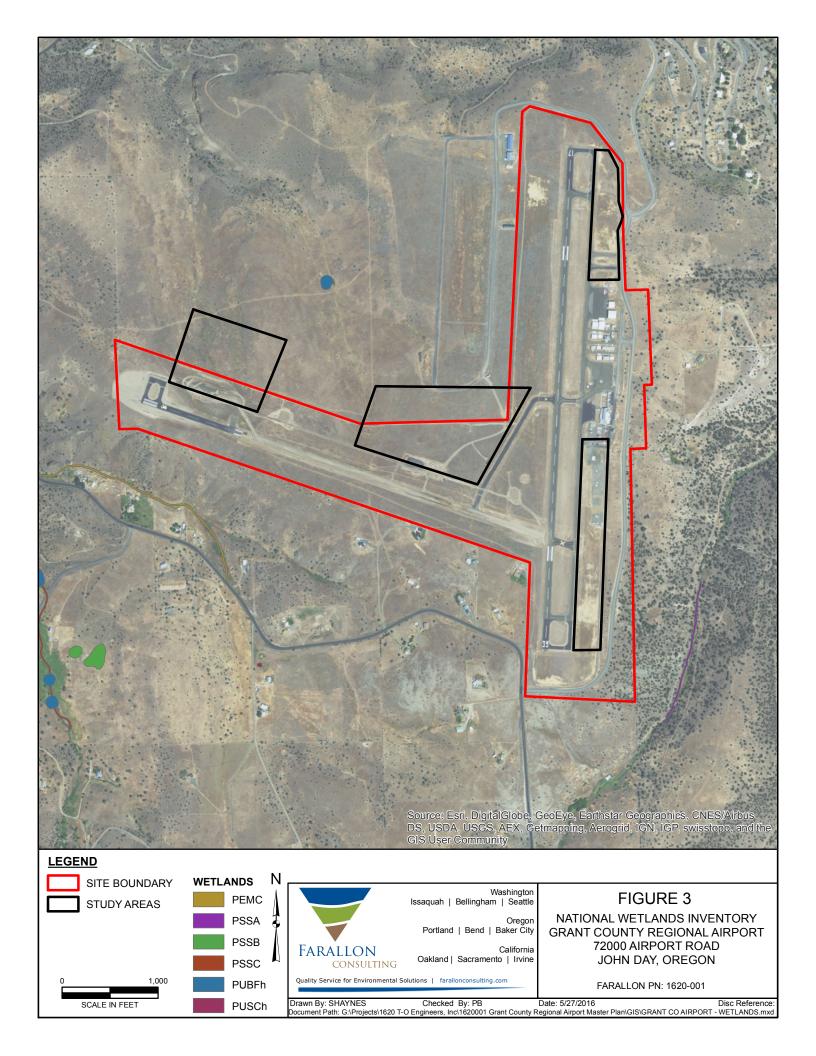
Figure 2, Site Topography

Figure 3, National Wetlands Inventory

SH:mm







## **B-2: CULTURAL RESOURCES SURVEY**

## A CULTURAL RESOURCE SURVEY FOR THE

GRANT COUNTY REGIONAL AIRPORT MASTER PLAN,

**GRANT COUNTY, OREGON** 

Prepared for T-O Engineers, Inc. Meridian, Idaho

March 21, 2016

REPORT NO. 3617

Archaeological Investigations Northwest, Inc.

# A CULTURAL RESOURCE SURVEY FOR THE GRANT COUNTY REGIONAL AIRPORT MASTER PLAN, GRANT COUNTY, OREGON

**PROJECT:** The Grant County Regional Airport is updating its master plan in

anticipation of future development

**TYPE:** Cultural resource survey for Section 106 compliance

**LOCATION:** Township 13 South, Range 31 East, Sections 27 and 34, Willamette

Meridian

**USGS QUAD:** John Day, Oreg., 7.5-minute, 1972 (photorevised 1983)

**COUNTY:** Grant

**CITY:** City of John Day

APE

**ACRERAGE:** Approximately 68.5 acres

**AREA** 

**SURVEYED:** Approximately 68.5 acres

**RESULTS:** No cultural resources were identified. AINW recommends a finding of "No

**Historic Properties Affected**" for the proposed undertaking. No additional cultural resources investigations should be necessary for the proposed

undertaking.

**PREPARERS:** Shawn G. Fackler, M.A., R.P.A. and John L. Fagan, Ph.D., R.P.A.

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#### INTRODUCTION

On behalf of T-O Engineers, Inc., Archaeological Investigations Northwest, Inc. (AINW), conducted a cultural resource survey of four parcels identified for future development in support of the updated Grant County Regional Airport Master Plan. The Grant County Regional Airport (airport) is near the cities of Canyon City and John Day in Grant County, Oregon in Township 13 South, Range 31 East, Sections 27 and 34, Willamette Meridian (Figure 1).

The airport is updating its master plan in anticipation of future development. The undertaking will require permitting from the Federal Aviation Administration (FAA); therefore, this report has been prepared in compliance with Section 106 of the National Historic Preservation Act of 1966 (as amended) and its implementing regulations (36 CFR 800), and following the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic

Preservation. AINW professional staff performed a pedestrian survey adhering to the State Historic Preservation Office (SHPO) guidelines. This report presents the results of the Section 106 cultural resource survey.

The Area of Potential Effect (APE) for this study includes four parcels: Parcel 1 (9 acres), Parcel 2 (12.5 acres), Parcel 3 (29 acres), and Parcel 4 (18 acres), totaling approximately 68.5 acres (Figure 2). No buildings or structures are present within the APE. The majority of the APE is within the airport boundary; however, a portion of Parcel 3 extends onto City of John Day property and most of Parcel 4 is located on private land.

#### **ENVIRONMENTAL SETTING**

The airport is on a grassy plain on top of a mesa, approximately 150 meters (m) (500 feet [ft]) above Canyon Creek Valley and the John Day River, between the Blue and Chimney gulches (Figure 1). This area is part of the greater John Day River Basin, a region surrounded by the Malheur Mountains to the south and southwest, the Strawberry Range to the southeast, the Ochoco Mountains to the west, and the Blue Mountains to the east and north. The John Day River, originating from the east in the Blue Mountains, flows west then northerly to the Columbia River.

Physiographically, the rugged John Day River Basin is composed of steep hills intermixed with deeply incised buttes, plateaus, and mesas. The hills are formed from eroded lacustrine parent materials while the buttes and plateaus are capped by igneous or tuffaceous rock; the latter of which created the deeper residuum soils within the APE. The bedrock in the area is a complex assemblage of Permian- to Triassic-age metamorphic and igneous rocks added to the western North American continental margin by tectonic activity in the Triassic and Jurassic Periods while Cenozoic-age volcanic rocks related to the long-lived Columbia River Basalt emplacement were deposited above these bedrock units (Oregon State University 2016). The majority of the APE is on a broad, flat mesa, which slopes slightly downhill to the north and is comprised of Pliocene gravels and residual soils. These soils, listed as Oxbow Series, are characterized by very stony silty clay loam on a 2 to 5% slope (U.S. Department of Agriculture, Natural Resources Conservation Service 1981).

The APE is in a Pinyon-juniper vegetation zone that includes western juniper (*Juniper occidentalis*), big sagebrush (*Artemisia tridentata*), tumble mustard (*Sisymbrium altissimum*), bluebunch wheatgrass (*Agropyron spicatum*), cheatgrass (*Bromus tectorum*), and other grasses (Franklin and Dyrness 1988).

#### **CULTURAL SETTING**

#### **Precontact Cultural Development**

The patterns of prehistoric cultural development in east-central Oregon have been placed within the framework of the general sequence used elsewhere in the region and can be applied to the John Day River Basin. Paleoindian presence dating to approximately

12,000-10,500 years ago has been assumed based on scattered finds of fluted projectile points along the Columbia River to the north and in the Glass Buttes area southeast of Bend (Aikens, Connolly, and Jenkins 2011; Ellis, Zehendner, and Goodwin 2002; Lebow et al. 1990; Oetting 1997). Paleoindian land- and resource-use patterns may have been oriented toward small, highly mobile bands, probably with a subsistence focus on large, now-extinct land mammals. These bands undoubtedly used other animal and plant resources as well, depending upon what was available. The available data do not suggest that individual bands followed a regular seasonal round (Aikens, Connolly, and Jenkins 2011; Lebow et al. 1990).

More substantial evidence of human occupation in the region appears in the Early Archaic period, dating to 10,500–7,000 years ago. Evidence of Early Archaic occupations has been reported from cave sites on the lower Crooked River and on the Deschutes River (Aikens, Connolly, and Jenkins 2011; Lebow et al. 1990). Archaeological research in Newberry Crater south of Bend has yielded evidence for intensive occupation of that location, including a domestic structure dating to about 9,500 years ago; this structure is potentially one of the oldest prehistoric houses yet recorded in North America (Aikens, Connolly, and Jenkins 2011; Connolly 1999). During the Early Archaic period, human groups in the region continued to be small and very mobile; however, subsistence shifted to an increased hunting of smaller game, particularly rabbits (Aikens, Connolly, and Jenkins 2011; Connolly 1999; Lebow et al. 1990; Oetting 1997; Schalk et al. 1995).

The Middle Archaic period (7,000–2,000 years ago) witnessed a growing population that coincided with climatic changes resulting in a warmer and drier environment (Aikens, Connolly, and Jenkins 2011). The eruption of Mt. Mazama about 7,600 years ago blanketed much of the region south of Bend with a thick deposit of tephra. The time required for plant, animal, and human populations to recover from this catastrophe may have been between two and three thousand years. The altered environment resulting from the eruption coupled with an increased population undoubtedly contributed to declining mobility among human bands. The Middle Archaic period saw the appearance of pithouse villages throughout the Columbia River Plateau, most of which were concentrated in major river valleys. Human populations during this period became increasingly dependent upon abundant, locally available resources. Subsistence strategies were focused on a relatively small number of resources (e.g., deer, antelope, and roots); however, other resources were gathered to supplement these staples. In addition, local and regional exchange networks developed to provide resources that were not locally available (Aikens, Connolly, and Jenkins 2011; Connolly 1999:237-239; Lebow et al. 1990; Oetting 1997; Schalk et al. 1995).

The Late Archaic period dates from about 2,000 years ago to the time of Euroamerican contact. This period appears to represent both a continuity of patterns that developed in the Middle Archaic period and a refinement of those patterns. During this period, settlements continued to be concentrated in major river valleys, with plateau and upland environments used seasonally for gathering and processing specific resources. However, there is evidence from along the Columbia River to the north that populations were aggregating into large settlements, with smaller settlements being abandoned. Regional exchange networks expanded during this period; however, there are also indications of growing intergroup conflict (Aikens, Connolly, and Jenkins 2011; Lebow et al. 1990; Oetting 1997; Schalk et al. 1995).

#### **Native Peoples**

The study area lies within the traditional territory of the Hunipuitoka or Walpapi band of Northern Paiute people (Aikens, Connolly, and Jenkins 2011). The Northern Paiute extended across the Great Basin in northwestern Nevada and southeastern Oregon. The Hunipuitoka territory is at the northwestern edge of the Northern Paiute homeland. The name "Hunipuitoka" is derived from the Paiute term meaning "eaters of *Lomatium* species roots"(Ellis, Zehendner, and Goodwin 2002). Paiute band "territories" were in considerable flux during the mid- and late-nineteenth centuries. Therefore, other Paiute bands-such as the Wadadika'a (Wadatoka), which was based at Malheur Lake, may have moved into the area during this period (Aikens, Connolly, and Jenkins 2011; Fowler and Liljeblad 1986). The Northern Paiute were one of several bands related by language and cultural similarities but each band was an independent group.

Northern Paiute bands were loosely organized groupings of individual families or households who shared a common territory or district (Aikens, Connolly, and Jenkins 2011). These families or households moved among seasonal camps within each shared territory, the locations of which might vary from season to season and year to year. Occasionally, during each year, all of the component households gathered to form a larger cluster of camps. Each band had headmen, who served as advisors and encouraged people to be industrious. These headmen occasionally acted as a group to resolve intergroup and intragroup differences. Bands also had task leaders who directed those subsistence activities that required group effort and cooperation. For much of the year, however, most families and households operated independently from one another (Aikens, Connolly, and Jenkins 2011; Fowler and Liljeblad 1986).

Northern Paiute bands used a great variety of resources, hunting large and small game, fishing, and gathering approximately 150 species of seeds, roots, berries, and other plant elements (Aikens, Connolly, and Jenkins 2011). Although there was little resource specialization among Paiute groups, variability in the distribution of resources within the Northern Paiute territory resulted in some groups having access to resources unavailable to others. For example, the name of the Hunipuitoka band suggests they relied upon gathering *Lomatium* species more so than other Northern Paiute groups. The names of these bands, particularly those that are associated with particular types of food, were not permanent terms of reference, and frequently changed when a band shifted to a new territory (Fowler and Liljeblad 1986).

Winter camps were composed of dwellings constructed of a conical framework of willow poles, which were then covered with tules or grasses. These houses, which were typically occupied by single families, tended to be small. Rather than constituting a "village" in a more conventional sense, a winter camp might be composed of two or three clusters of houses dispersed at the camping location. Most winter camps had no more than 50 residents. These houses were abandoned during the summer months, when families used brush windbreaks or sun shelters. Summer camps were often composed of only one or two families (Fowler and Liljeblad 1986:443).

The Northern Paiute bands of Oregon do not appear to have adopted the horse as quickly as other Paiute bands to the south; however, Euroamerican goods were introduced to the Northern Paiute at an early date through contact with Spanish settlements in the American Southwest (Aikens, Connolly, and Jenkins 2011). As parties of American emigrants began moving across the Great Basin during the 1840s and 1850s, they introduced cattle and other stock to the area, which had an adverse impact on the resources available to the Paiute groups. The greatest effects of this were felt along the California Trail where it crosses northern Nevada, leading some Nevada Paiute bands to move north into Oregon or to attack the wagon trains. A mining boom in the Malheur Basin during the 1860s and the subsequent establishment of ranching led to hostilities between various Paiute bands and the U.S. Army through the 1860s and 1870s. Some of these bands raided the Warm Springs Reservation during the 1850s and 1860s, where Wasco and Sahaptin groups had been resettled following ratification of the Treaty of 1855. After hostilities ended, Paiute bands led by Otis and Wiawewa were placed in the southern portion of the Warm Springs Reservation. This southern portion of the Reservation (the "south end" or the Seekseequa district) has maintained its Paiute heritage to the present (Ellis, French, and Hajda 1998; Ellis, Zehendner, Goodwin 2002; Fowler and Liljeblad 1986; French et al. 1998).

As described previously, the APE lies within the ceded lands of the Confederated Tribes of the Warm Springs Reservation under terms of the 1855 Treaty with the Tribes of Middle Oregon. This area was in the traditional homeland of Northern Paiute groups and may have been occasionally visited by Sahaptin (Warm Springs) people from the Columbia River and lower Deschutes River areas. Following the establishment of the Warm Springs Reservation in the late 1850s, the study area may have increasingly been used for traditional resources and other activities by relocated Sahaptin and Wasco groups, supplementing traditional Paiute use of the area (Ellis, Zehendner, and Goodwin 2002).

#### **Historical Background**

Initial exploration of the region by non-native people included a boat trip up the Columbia River by Englishman William Broughton in 1792, and a downriver trip by Americans Lewis and Clark in 1805. In 1825, the Hudson's Bay Company (HBC) established a fort in present-day Vancouver, Washington, that supported the fur trade in the region. Fur traders traversed this area in the early to mid-1800s. These traders were employed by Astor's American Pacific Fur Company, the Canadian North West Company, and the British HBC (Johansen and Gates 1967).

The earliest account of an exploring party in the area is a HBC trapping expedition led by Peter Skene Ogden, Chief Trader with the HBC, in 1825-1826 (Johansen and Gates 1967). Ogden entered the north-central Oregon region and penetrated the Deschutes River Basin on a quest for furs. Ogden's group may have penetrated deep into the region, but because Ogden's journal entries cease as soon as he left the John Day region, his route through the central Oregon area is unknown.

The town of John Day was named after the river it was established on, which in turn was named after a frontiersman (McArthur 1992). In 1810, John Day was employed as a

hunter by the Astor-Hunt or "Overland Party" of the American Pacific Fur Company based in Astoria (Johansen and Gates 1967). During a hunting expedition in 1812, John Day and his compatriot, Ramsay Crooks, were attacked and left for dead by hostile Native Americans thirty miles east of The Dalles, near the mouth of a river. The river was subsequently referred to and later renamed as "John Day" (McArthur 1992).

The discovery of gold in northeastern Oregon and Idaho in the early 1860s induced thousands of prospectors to cross the north-central Oregon region from the Willamette Valley and Columbia River and induced others to cross south-central Oregon from northern California (Johansen and Gates 1967). In 1862, gold was discovered in Canyon Creek (nicknamed "Whiskey Creek"), which led to the establishment of the townsites of Canyon City and John Day later that same year. Up to 10,000 prospectors rushed to the placer mines in this area, including thousands of Chinese immigrants who were forbidden by law to own claims and forced to work for low wages (Potter 1976). Among these immigrants were "Doc" Ing Hay and Lung On, owners of the famous Kam Wah Chung Company in John Day, Oregon. Serving as a hub for the Chinese community, this company provided a mercantile service, gambling hall, place of worship, and opium den for Chinese immigrants and interested Euroamerican settlers. The company also provided herbal medicines to those in need (Schablitsky et al. 2006; Southworth 1980). The Kum Wa Chung building (35GR2086), listed on the National Register of Historic Places (NRHP), is currently a museum (Schablitsky et al. 2006; Southworth 1980).

The airport, originally established as an airfield in the early 20<sup>th</sup> century, experienced a series of extensive modifications beginning in the early 1980s that effectively removed all traces of the historic airfield (Patterson 1979; Ramirez, Butler, and Schlenker 2007).

#### PREVIOUS CULTURAL RESOURCES STUDIES

Prior to this fieldwork, AINW completed a records search and literature review to identify previously recorded sites and surveys in the vicinity of the APE. This review included a records search of the SHPO Oregon Archaeological Records Remote Access (OARRA) online database, examination of historic General Land Office (GLO) cadastral survey maps held by the U.S. Bureau of Land Management, and a review of secondary sources, documents, and maps on file at AINW to determine the potential for archaeological and historic-period resources in the vicinity of the APE.

Resources are typically categorized by type and significance. The status of a resource is completed for compliance with federal regulations set forth by the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (Federal Register Fed. Reg.] 48, 44716). The status of a resource can fall into three possible categories: not eligible, not evaluated, and eligible. A cultural resource is determined "not eligible" when an agency has determined the cultural resource to be not eligible for listing in the NRHP. Such resources do not require further investigation. A cultural resource is considered "not evaluated" when an agency has not made any determination as to the eligibility of the cultural resource; for such resources, further work is needed to understand the significance of the cultural resource. A cultural resource is considered "eligible" when an agency has determined the cultural resource to be of value and significant enough to be listed on the NRHP. Coordination with the

appropriate parties is needed to discuss project impacts as they relate to the resources. Resource status is useful for project planning purposes. In addition, when resources have not been evaluated for significance and will be physically impacted by the project, coordination and consultation with SHPO is necessary for federal and state funded projects, and recommended for private projects.

A GLO map from 1869 details the project area but does not depict any standing structures or roads within the APE (GLO 1869). The OARRA database revealed that ten cultural resource investigations have been previously performed in the project vicinity (Table 1). Two of these investigations were conducted within the APE (Patterson 1979; Ramirez, Butler, and Schlenker 2007); however, no resources were identified. One NRHP-listed historic building, two historic-period archaeological sites, and four pre-contact isolated finds were previously recorded within one mile of the APE (Table 2); however, no cultural resources were previously identified within the APE.

Prior to undergoing major modifications during the 1980s, Eastern Oregon State University conducted a cultural resource survey for the entire airport property in support of an environmental impact assessment (Patterson 1979). No cultural resources were identified. Furthermore, SWCA Environmental Consultants surveyed portions of the airport for an expansion project that extended the runways and added taxiways (Ramirez, Butler, and Schlenker 2002); no cultural resources were identified.

#### **Project Expectations**

Based on these previous studies in the surrounding area and their findings, AINW expected a low probability of encountering cultural resources. Furthermore, the extensive development of the airport and its recent additions further reduces the probability of finding undocumented resources, either archaeological or historical, on the property.

#### FIELD METHODS AND RESULTS

AINW SHPO-qualified supervising archaeologists Shawn Fackler, M.A., R.P.A., and Ron Adams, Ph.D., R.P.A., performed the cultural resource pedestrian survey on March 8<sup>th</sup> and 9<sup>th</sup>, 2016. Senior archaeologist John L. Fagan, Ph.D., R.P.A., provided management oversight. The survey crew was equipped with a Trimble GeoXH handheld global positioning system capable of recording data with sub-meter precision, and 10-megapixel or greater digital cameras for photodocumentation.

The AINW crew performed the pedestrian survey by systematically walking parallel transects spaced no more than 10 m (32 ft) apart while carefully inspecting the surface for cultural resources and examining the landscape for evidence of past human activity and high probability areas that may yield subsurface resources. Transects were walked along the long axis of each parcel. Ground surface visibility was poor (5 to 15%) because of grasses and other low brushy vegetation.

The portions of the APE on airport and city property have been previously disturbed during prior development and have been leveled and filled (Photos 1 to 3). Only the eastern portion of Parcel 4 was undisturbed land (Photo 4). The team did not encounter any cultural resources or identify any high probability areas during the pedestrian survey of the four parcels.

#### SUMMARY AND RECOMMENDATIONS

AINW performed a cultural resource survey of the four parcels slated for future development at the Grant County Regional Airport. The background research found no evidence of Traditional Cultural Properties. No historic-period structures, archaeological resources, or high-probability areas for buried archaeological resources were identified. Based on the negative results of the pedestrian survey and the extent of previous ground alteration for most of the APE, AINW recommends a finding of "No Historic Properties Affected" for the undertaking.

If cultural resources are inadvertently encountered during any developmental phase of the Grant County Regional Airport Master Plan, all ground-disturbing activity near the resource should be halted and the SHPO should be promptly notified to ensure compliance with relevant state and federal laws and regulations. If evidence of human remains are encountered, all ground-disturbing activity in the project vicinity should be halted immediately and the Oregon State Police, the SHPO, the appropriate Indian Tribe(s), and the Commission on Indian Services should be promptly notified pursuant to ORS 97.745(4).

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REFERENCE	DESCRIPTION	LOCATION (Township, Range, Section)
Goheen and Hosford 1982	Archaeological Survey of the Proposed John Day/ Canyon City Community Expansion Project	T13S,R31E,§28; T13S,R31E,§26,35
O'Grady 2005	Region 5: US 26 Grant County Line- Malheur County Line, Grant, Baker, and Malheur Counties	T13S,R31E,§21,22
Patterson 1979*	Cultural Resources Survey, John Day Airport (no cultural resources were identified)	T13S,R31E,§27,34
Ramirez, Butler, and Schlenker 2007*	Cultural Resources Inventory for the Grant County Regional Airport Expansion (no cultural resources were identified)	T13S,R31E,§27,34
Schablitsky 2002	Archaeological Survey of Region 5, WCL Mt. Vernon- John Day Section, US 26: MP 153.79 to 161.50	T13S,R31E,§21,22
Schablitsky and Connolly 2005	Archaeological Inventory of the Kam Wah Chung State Heritage Site	T13S,R31E,§23
Schablitsky, Connolly, and Ruiz 2006	Exploratory Archaeological Study of the Kam Wah Chung State Heritage Site	T13S,R31E,§23
Schablitsky, Connolly, and Ruiz 2007	Archaeological Testing at the Kam Wah Chung State Heritage Site	T13S,R31E,§23
Swanson 1976	Archaeological Reconnaissance of Proposed Sewage Facilities at John Day and Canyon City	T13S,R31E,§23,26
Zancanella 1998	Zancanella 1998 Cultural Resources Survey for the Northeast Oregon Assembled Land Exchange	

<sup>\*</sup>Covers portions of APE.

TABLE 2  $\begin{array}{c} \text{PREVIOUSLY RECORDED CULTURAL RESOURCES} \\ \text{WITHIN A ONE-MILE STUDY AREA AROUND THE APE*} \end{array}$ 

RESOURCE NAME/NUMBER	SITE TYPE	NRHP ELIGIBILITY	REFERENCE	
Kam Wah Chung Company Building (35GR2086)	Historic mercantile	Listed: Criterion A	Schablitsky and Connolly 2005; Schablitsky, Connolly, and Ruiz 2006; Schablitsky, Connolly, and Ruiz 2007; National Park Service 2016	
Community Expansion Site #1 (HS #123)	Cabin remains and historic trash scatter	Not evaluated	Goheen and Hosford 1982	
Community Expansion Site #2 (HS #124)	Cabin remains and historic trash scatter, mostly of Chinese origin	Not evaluated	Goheen and Hosford 1982	
Isolated Find #1	Basalt biface fragment	Not evaluated	Goheen and Hosford 1982	
Isolated Find 05-2192 (DR-16)	Corner-notched obsidian projectile point base and interior obsidian flake	Not evaluated	Zancanella 1998	
Isolated Find 05-2193 (DR-17)	Corner-notched obsidian projectile point fragment	Not evaluated	Zancanella 1998	
Isolated Find 05-2194 (DR-18)	Obsidian flake	Not evaluated	Zancanella 1998	

<sup>\*</sup>No cultural resources previously identified within the APE.

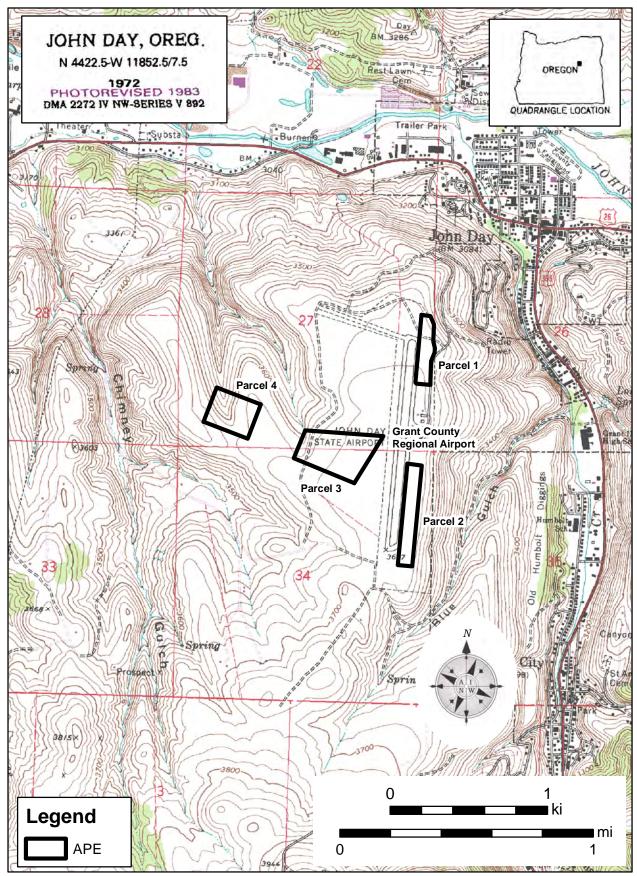


Figure 1. The APE for the Grant County Regional Airport Master Plan.

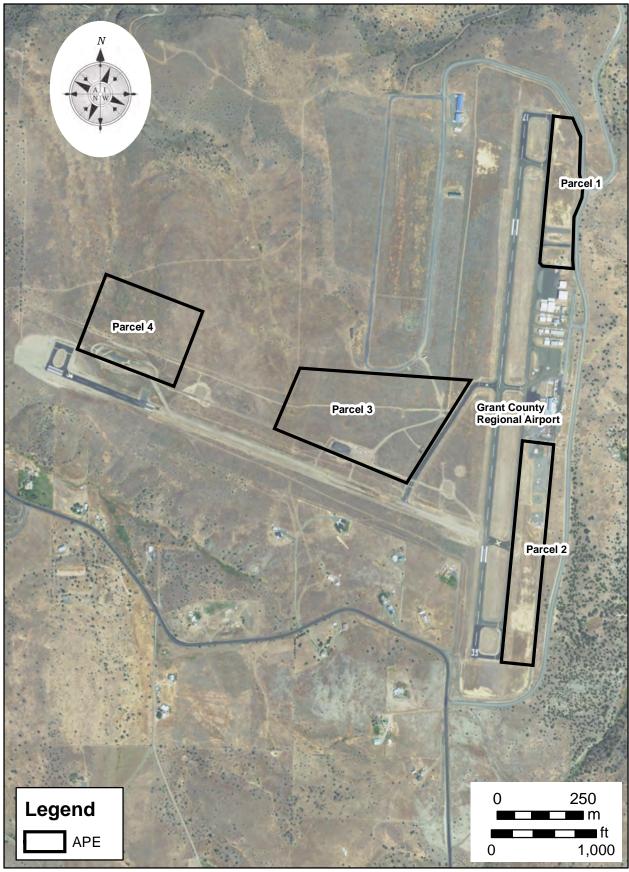


Figure 2. The APE and the Grant County Regional Airport.



Photo 1. Overview of Parcel 1. The view is towards the north.



Photo 3. Overview of Parcel 3. The view is towards the east.



Photo 2. Overview of Parcel 2. The view is towards the north.



Photo 4. Overview of Parcel 4. The view is towards the east over the undisturbed portion of the parcel.

## **B-3: WILDLIFE HAZARD SITE VISIT REPORT**

## Wildlife Hazard Site Visit Report

## Grant County Regional Airport John Day, Oregon September - October 2016



Prepared by:

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## Wildlife Hazard Site Visit Report Grant County Regional Airport John Day, Oregon September-October 2016

### Introduction

This document will follow the guidelines established in FAA Advisory Circular 150/5200-38 (Draft): "Protocol for the Conduct and Review of Wildlife Hazard Site Visits, Wildlife Hazard Assessments, and Wildlife Hazard Management Plans". Specific requirements pertinent to this Wildlife Hazard Site Visit from the Advisory Circular are detailed below:

- 1. Site Visit Report: A Qualified Airport Wildlife Biologist (QAWB) must provide the airport manager with a report summarizing field data and any management recommendations following the Wildlife Hazard Site Visit (WHSV). The Federal Aviation Administration (FAA) Regional office should also receive a copy of this report from the Airport Manager. The FAA will review the WHSV report and determine if a full Wildlife Hazard Assessment (WHA) is required. Copies of the report should be filed and made a part of the historical record for the airport. The WHSV report should contain:
  - a. List of wildlife species (or wildlife sign- e.g., deer tracks) observed during the visit, with a statement that the list is not a complete record of species using the airport
  - **b.** Federal and State status of the species observed
  - **c.** Habitat features that may encourage wildlife to use the airport
  - **d.** Natural and man-made wildlife attractants on or near the airport
  - e. Strike data analysis
  - **f.** Recommendations to:
    - (1) Reduce wildlife hazards identified (if data is available to substantiate your conclusions)
    - (2) Conduct an Assessment, if warranted
    - (3) Modify an existing Plan, if warranted
    - (4) Improve communications and hazard advisories between Air Traffic Control, pilots, airlines, airport operations, and other airport users
    - (5) Provide for potential alteration of aircraft operations including locations and scheduling of flights to avoid identified hazardous wildlife concentrations
    - **(6)** No action required, if applicable

### 2. Survey Process:

- **a. Applicable Airport Information:** The airport operator shall provide the Qualified Airport Biologist the following information, if available:
  - (1) Personnel and departments responsible for airport operations
  - (2) Number of aircraft movements per year
  - (3) Type of movements (i.e., % private, civil, and military)
  - (4) Recent airport improvements or upgrades
  - (5) Past and present land management practices
  - (6) Records of strikes and damage, flight delays, injuries, and fatalities due to strikes. Wildlife strike data may help determine hazardous species on an airport. Data on reported wildlife strikes are available through the FAA National Wildlife Strike Database (available at http://faa.gov/go/wildlife). Airports may maintain their own local database which can be compared with the National Database. A site visit should include an analysis of wildlife strike records. If possible, include summaries of strike data by species, time of day, on and off-site airport locations, and weather conditions. A minimum wildlife strike analysis should include, if available:
    - (a) Bird and mammal species involved
    - **(b)** Frequency distribution by month and year
    - (c) Number per 10,000 aircraft movements
    - (d) Location on the airfield
  - (7) Previous wildlife hazard management efforts Records of past management may be helpful during this initial consultation. Attempts to exclude, deter, or remove wildlife from the airport should be noted. If not already in place, a wildlife log should be created and maintained by airport operations to document all wildlife activity observed on the airport.
  - (8) Description of current wildlife hazard threats or concerns
  - (9) Any current Federal and State depredation/wildlife control permits and annual permit reports
  - (10) Current U.S. Geological Survey (USGS) topographic maps, airport maps, and/or aerial photographs
  - (11) Other pertinent information present in airport records.
- b. Observations: The QAWB should make observations from a variety of locations to ensure complete visual coverage of the airport. Minimum coverage shall include observations of the Air Operations Area (AOA). These observations should be brief and are not as rigorous as a full WHA. At a minimum, the observations should include:

- (1) Birds Record bird species present and note abundance, activity, location, type of habitat used, time and date of observations. Note evidence of bird activity such as fecal material and regurgitated pellets (boluses) under structures used for perching.
- (2) Mammals Document mammals observed and evidence of mammal activity such as scats, tracks, runs, and burrows and include time and date of observations, activity, location, and type of habitat used. Estimate relative abundance, activity, and habitat use.
- (3) Habitat Attractants Assess habitats and man-made attractants on and around airport property. Note potential wildlife attractants. Review maps and aerial photographs, noting waste management facilities, wildlife refuges, water bodies, agriculture, stock yards, picnic areas, restaurants, and other features or habitats that may attract wildlife within a five mile radius around the airport.
- (4) Wildlife/Habitat Relationship Observe and record how the wildlife observed is using the habitat on the airport.
- (5) Wildlife Interactions with Aircraft Operations Assess the potential for wildlife interactions with aircraft operations in the AOA, traffic patterns, approach and departure airspace, and surrounding areas. Evaluate aircraft movements to see if these operations increase the risk of wildlife strikes. Review airport hazard advisories to see if they are specific to the hazards at the airport.

## Wildlife and Aircraft

On January 15, 2009, a sensational news event brought the conflicts between aircraft and wildlife to public attention. The spectacular and successful landing of US Airways Flight 1549 on the Hudson River occurred after engine failure caused by engine ingestion of a flock of Canada Geese. The current state of affairs is synopsized below as referenced from ACRP 39 (DeFusco and Unangst 2013). Wildlife biologists and aviation personnel have been aware of aircraft collisions with birds and other wildlife (wildlife strikes) for decades (Solman 1973, Blokpoel 1976). Since 1990, the Federal Aviation Administration (FAA) has had a program in place designed to document and limit wildlife strikes, and has requested that all wildlife strikes be documented and submitted. This information is being used to attempt to diminish the number and severity of wildlife conflicts with aircraft. Damage to the aircraft or human injury is not required for a strike to be reported. In response to the development of this program, 156,114 wildlife strikes have been reported to the FAA between 1990 and 2014, but many strikes are still not being reported.

Although more attention to education, management, and documentation of wildlife strikes is occurring, reported wildlife strikes have steadily increased at an average of nearly nine percent per year since 1990 (Dolbeer et al. 2012). This is believed to be due to significant increases in the number of aircraft operations, in conjunction with population increases of many wildlife species, such as Canada

Geese, white-tailed deer, and many species of raptors. For example, several large bird species that have shown significant population increases from 1980 to 2011 include: Bald Eagles, Wild Turkeys, Canada Geese, American White Pelicans, Double-crested Cormorants, Sandhill Cranes, Osprey, and Red-tailed Hawks (Dolbeer et al. 2012). Over the last 40 years, 13 of the 14 largest-bodied bird species in the United States (with>3.6 kg average body mass) have shown significant population increases (Dolbeer and Eschenfelder 2003). Migratory and non-migratory populations of Canada Geese in North America have more than quadrupled from 1.2 million to 5.5 million birds from 1970 to 2008. Resident (nonmigratory) Canada Geese populations appear to have stabilized at about 3.5 million birds during the last decade (Dolbeer 2011). This large and ubiquitous bird species has been involved in multiple significant bird strike events. From 1990 to 2011, Canada Geese were involved in 1,351 civil aircraft strikes, resulting in 2 fatalities, 19 injuries, and 5 total aircraft lost. Reported Canada Goose strikes cause a minimum of \$2.6 million in damage each year with total reported losses in excess of \$90 million (Dolbeer and Wright 2008, Dove et al. 2009, Dolbeer et al. 2012). Projected costs accounting for under-reporting rates may be much higher (Dolbeer et al. 2012). In addition, a collision with Canada Geese in 1995 caused the loss of a USAF AWACS aircraft that killed 24 aircrew and cost in excess of \$280 million dollars (Gresh 1996). The annual cost of wildlife strikes to the United States civil aviation industry in 2014 was projected to be a minimum of 172,151 hours of aircraft downtime and \$208 million in direct and other monetary losses. (Dolbeer et.al. 2015).

Some large mammal populations are also increasing dramatically. White-tailed deer populations have increased from about 350,000 in 1984 to over 28 million in 2010 (McCabe and McCabe 1997, VerCauteren et al. 2006, VerCauteren et al. 2011). From 1990 to 2011, 897 white-tailed deer incidents with U.S. civil aircraft were reported resulting in 1 of 24 human deaths and 25 of 256 injuries reported for all wildlife incidents over this period. Although reported deer incidents for all species represent only 0.9% of all wildlife strikes, they account for 5.4% of estimated costs, resulting in a minimum of \$75 million in total reported damages and as much as \$852 million in projected damages (Biondi et al. 2011, Dolbeer et al. 2012). In addition to these population increases, many birds and mammals have adapted to urban environments and have found airports to be attractive habitats. 96.9% of all aircraft wildlife strikes in the United States involve birds, with terrestrial mammals involved in 2.2%, bats 0.8%, and reptiles 0.1% of all reported strikes (Dolbeer et al. 2014).

From 1990 to 2014, 518 species of birds and 41 species of terrestrial mammals were struck by aircraft (Dolbeer et al. 2015) with waterfowl, gulls, and raptors being the species groups with the most damaging strikes. Doves/pigeons (14%), gulls (13%), raptors (13%), shorebirds (8%), and waterfowl (6%) were the most frequently struck bird groups (Dolbeer et al. 2015). In addition, deer (39%) (DeVault et al. 2008, VerCauteren et al. 2009, VerCauteren et al. 2011) and coyotes (34%) are the most frequently struck terrestrial mammals with deer being responsible for 93% of all damaging mammal strikes (Dolbeer et al. 2015).

Faster and quieter aircraft are more difficult for wildlife to detect and avoid. Commercial air carriers have replaced their older three- or four-engine aircraft fleets with faster and quieter two-engine aircraft. In the event of engine ingestion of wildlife, aircraft with two engines may be more vulnerable than older aircraft equipped with three or four engines (Dolbeer et al. 2013).

Risk of wildlife/aircraft conflict is affected by flight phase and altitude. Approximately twice as many bird strikes and terrestrial mammal strikes are reported during the landing phase, including descent, approach or landing roll, as compared to take-off and climb (Dolbeer et al. 2013). Wildlife strikes most commonly occur on or in close proximity to airports, as aircraft are in the landing or take-off phases of flight.

From 1990-2014, 71% and 73% of bird strikes respectively for commercial and general aviation aircraft occurred below 500 feet above ground level (AGL) (Dolbeer 2006, Dolbeer et al. 2015). Most occurred effectively 10,000 feet from the airfield based on a 3° glideslope (Blackwell et al. 2009). At that altitude, aircraft are within about 5 miles of the airfield for the busiest airports (FAA 2007). Above 500 feet AGL, the number of strikes declined by 34% for each 1,000-ft gain in altitude for commercial aircraft, and by 41% for GA aircraft. Strikes above 500 feet were more likely to cause damage than strikes at or below 500 feet (Dolbeer et al. 2015). Bird-strike rates above 500 feet AGL have increased since 1990, whereas strike rates below 500 feet AGL have decreased during that period. (Dolbeer 2011). This is likely due to actions taken at airports to diminish wildlife attractants.

Wildlife strikes can have significant impacts on aircraft operations, including emergency landings, aborted take-offs and aircraft damage. A negative effect on flight was reported in 6 percent and 21 percent of the bird and terrestrial mammal strike reports, respectively (Dolbeer et. al, 2015).

After a wildlife strike, a precautionary/emergency landing was the most commonly reported negative effect on flight (5217 incidents), including 48 incidents where pilots dumped fuel to lighten aircraft weight and 87 incidents where an overweight landing was made. Aborted takeoff was the second most common negative effect (2146 incidents) which included 882 aborted takeoffs at greater than 80 knots (Dolbeer et al. 2015). Aircraft destruction was the result in 67 wildlife strikes, with 60% of these occurring at GA airports (Dolbeer et al. 2015). Globally, wildlife strikes have been responsible for the deaths of 258 people, and

Globally, wildlife strikes have been responsible for the deaths of 258 people, and the destruction of 288 aircraft since 1988 (Dolbeer et al. 2015).

In 2014, the 673 airports with reported wildlife strikes were comprised of 396 airports certificated for passenger service and 277 general aviation airports (Dolbeer et al. 2015). The availability of a convenient venue for reporting, at the FAA Wildlife Strike Database, also may be responsible increases the number of strikes reported, while not necessarily reflecting an actual increase in strikes. Advances in wildlife management on airports may have contributed to a reduction in actual wildlife strike rates and damaging wildlife strikes on airports (Dolbeer et

al. 2012). However, damaging strikes at general aviation airports has not declined (Dolbeer, et.al.2015). Since 1990, wildlife management actions to mitigate wildlife risk have been implemented at many airports. It is probable that these actions are responsible for the general decline in reported wildlife strikes that result in damage. Damaging wildlife strikes remain problematic in the off-airfield environment. Future management actions at airports should be prioritized based on the hazard level of species observed in the AOA (Dolbeer et al. 2012) and in surrounding airspace. Airport managers should take proactive steps to make certain the airport environment and areas near the airport are as safe as possible.

Because they involve wild animals and birds, wildlife strikes are unpredictable events. Exact prediction of when or if an animal will encounter an operating aircraft is difficult or impossible. Due to numerous dynamic environmental factors that constantly affect an animal's behavior, only assessments of potential wildlife/aircraft interactions can be made. WHSVs and WHAs do make it possible to gauge a species' potential for a damaging collision with aircraft. To make such an assessment, the biologist considers factors such as the body mass of the animal, its frequency on the airfield, its behaviors while on the airfield, and its overall abundance in the local area. Published hazard rankings are also factored in to this analysis. (Dolbeer 2000). Species addressed in a WHSV or WHA rank high in one or more of the above factors and are considered potential hazards. Combinations of a high risk ranking of a species with high likelihood of conflict are reasons for concern and action. It is important to remember that discussions of wildlife hazards focus on the potential for a damaging wildlife strike, but not necessarily the probability of such a strike.

Even if wildlife are not involved in direct and damaging strikes with aircraft, they may create a variety of problems at airports that can affect aircraft operations. For example, chewing rodents may destroy the electrical power cables to runway lights. Bird nests create fire hazards in buildings, hangars, or in airplane engines. Inside hangars, perching or roosting birds may also leave droppings that damage aircraft and can create a potential human public health threat.

Airports must exercise due diligence in providing a safe and efficient operating environment for airport users. Wildlife hazards on the airfield are a primary safety concern, and therefore, must be addressed promptly. These hazards are usually ongoing issues that must be addressed continuously. Wildlife hazards may also exist outside the airport property. Hazards located off the airport property require voluntary cooperation from the adjacent property owner(s) for satisfactory outcomes to be achieved, as the airport manager does not have direct control of these environments.

All animals have basic requirements for survival that include: food, water and cover (shelter). When any of these three critical factors are present in an area, wildlife can be attracted to the area to meet survival needs. Conversely, as food, water and cover sources are diminished or removed from the airfield environment, attractiveness of the airport to wildlife is diminished. With a good understanding of a hazardous animal's biology, actions that can be taken to decrease the likelihood

of wildlife using the airfield environment, and selecting to inhabit other areas instead. Attraction of wildlife to an airfield may depend upon the species, time of year, reasons for using the airfield, habitat characteristics on and surrounding the airfield, and many other variables. As an animal's biology is understood, particularly in relation to specific environmental characteristics, more effective wildlife control programs can be developed.

## Regulatory Considerations and Wildlife Hazards

For the purposes of this WHSV, a wildlife hazard is defined as: A potential for a damaging aircraft collision with wildlife on or near an airport [14 CFR Part 139.337(b) (4)]. The FAA is responsible for enacting and enforcing the Federal Aviation Regulations (FAR) and policies to enhance public safety. To ensure compliance with Code of Federal Regulations (CFR) Part 139.337 (Appendix D), the FAA requires certificated airports to conduct a Wildlife Hazard Assessment or ecological study when any of the following events occur on or near an airport (though triggering events may not be required for future FAA recommendations to complete a Wildlife Hazard Assessment):

- 1. An air carrier aircraft experiences multiple wildlife strikes;
- 2. An air carrier aircraft experiences substantial damage from striking wildlife. As used in this paragraph, substantial damage means damage or structural failure incurred by an aircraft that adversely affects the structural strength, performance, or flight characteristics of the aircraft and that would normally require major repair or replacement of the affected component;
- 3. An air carrier aircraft experiences an engine ingestion of wildlife; or
- **4.** Wildlife of a size, or in numbers, capable of causing an event described in items 1-3 is observed to have access to any airport flight pattern or aircraft movement area.

Grant County Regional Airport has experienced triggering events #2 and #4. Appendix B describes the wildlife strike involving a mule deer in 1995, which resulted in minor damage. Anecdotal pilot reports include an unreported pronghorn strike in the early 1990's that resulted in severe damage to the involved aircraft. Both wildlife strikes are triggering event #2. Triggering event #4 (wildlife of a size capable of causing an event) has occurred with the report of the presence of multiple mule deer inside the AOA by the previous airport manager, and the observation of mule deer and pronghorn in close proximity to the AOA by the QAWB during the course of the WHSV. A group of five large Turkey Vultures was also observed soaring over the end of Runway 17-35 during the WHSV.

It should be noted that the Grant County Regional Airport is a general aviation airport and is not a certificated airport under CFR Part 139. Because the airport is not certificated under Part 139, it is not regulated in the same manner as those airports that are certificated including requirements associated with wildlife hazards and mitigation. The Part 139 requirements as applicable to wildlife hazards at airports represent proactive and recommended best practices and will be used as the basis of recommendations specific to the airport included in later sections of this

report.

WHSVs and WHAs provide the framework in which a more complete and site-specific understanding of wildlife hazards on an airport is developed. This Grant County Regional Airport WHSV report will be based on site visits conducted September 10-11 and October 10-11, 2016. Its purpose is to provide observations and recommendations to reduce wildlife hazards based on the data analysis. If it is determined from the data and recommendations that significant wildlife hazards are present, the FAA administrator may require that a Wildlife Hazard Management Plan (WHMP) be developed, though the airport and county may proactively develop a WHMP regardless of FAA recommendations.

### **Airport Background**

The WHSV occurred on the airport grounds and in the surrounding area. The airport itself is located on a high butte above the city of John Day. The airport is located in the Pacific flyway, with highest bird migration activity seen twice yearly, from mid-March to early April for the spring migration, and mid-September through mid-November for the fall migration, with highest activity in early to mid-October. Most birds leave the area after the November freeze.

While it appears that the airport property itself may have a few potential wildlife hazard issues, the area immediately adjacent to the airport property is inhabited by large mammals such as pronghorn and mule deer. Soaring vultures were the major avian concern, and migratory waterfowl, resident and migratory raptors, swallows, blackbirds, and other species were also considered. Because the Grant County Regional airport is immediately adjacent to the Malheur National Forest and lies within the Pacific flyway, one of the country's largest migratory pathways for a wide variety of birds and is a well-known breeding and migratory haven for waterfowl and other bird species, it is impossible to eliminate every potential background bird or mammal hazard. However, the site itself can be effectively managed to mitigate identified potential hazards through active habitat management and direct and indirect wildlife control techniques.

## **Wildlife Species Observed**

The survey conducted at Grant County Regional Airport and the vicinity was conducted from 2:00 pm to 7:30 pm on September 10, from 8:00 am to 7 pm on September 11, and continued from 4-8 pm on October 10 and 8-11 am October 11, 2016. The field protocol used two methods for observations: 1) Road-survey Method - a hybrid variation of the Breeding Bird Survey method; and 2) All Purpose Observation Method – presence or absence, abundance, direction of flight.

During the surveys described above, the Kestrel Environmental Services, LLC biologist observed thirty two species of birds. A sample such as this, collected over four days, provides only a "snap-shot" view of the birds and mammals that actually occur in the area. The list presented in this report is not a comprehensive list of every species which may possibly be present on the airport. Many more species and much larger numbers of birds would be expected to be present during

the spring and fall peak migration periods. At least two hundred and fourteen species of migratory birds are known to use the area for breeding or migration stopover habitat (USFWS 2014). Many of the observed species are not considered hazardous to aircraft operations, and it is not necessary to address such species in a future potential WHMP. However, several species should be addressed and actively managed or avoided due to bird body size or flocking behavior. Species observed during the 2016 visit are included in Appendix A. The purpose of visual observations on and around the airport was to provide additional site-specific analysis of bird distribution and movement.

During this September/October 2016 WHSV, wildlife observations of birds and mammals were made, both on the airport, and in the surrounding area. Details of observations provided by this survey, as well as the possible wildlife that could occur in Grant County (USFWS 2016) are provided in Appendix A. Many species in this listing are included because they are of a size or occur in numbers that may cause damage to aircraft. Some species listed are common occupants of airfields in the region; others may not be expected on the Grant County Regional Airport itself, but resident or migrant populations in the area may be encountered by aircraft in the surrounding areas.

In addition to birds, several species of mammals were observed that should also be addressed. Direct observations of mule deer, pronghorn, striped skunk, raccoon, and coyotes (outside the AOA) were noted by the biologist in the immediate vicinity of the airport. The airport manager reports the presence of yellow belled marmots on the AOA. Pilots report the presence of owls, rabbits and feral dogs. Potentially hazardous mammals are also listed in Appendix A.



Figure 1: Mule Deer Browsing One Half Mile from the Airport (Kestrel, LLC).

## **Wildlife Management Efforts**

Pilots report that the installation of an automatic gate at the entrance to the airport has had an excellent effect on excluding deer from the airport. In 2010, a perimeter fence was installed that is constructed of 5 foot hog wire, topped with 3 strands of barbed wire, for a total height of 6 feet. The airport manager is prepared for lethal control of coyote as needed. The airport has a cooperative agreement with Oregon Department of Fish and Wildlife for large mammal lethal control, as necessary. The airport has 2 large mammal depredation permits per year, as needed for lethal control of large game animals. The airport is not yet in possession of a federal migratory bird depredation permit. A wildlife log was not yet in use at the time of the WHSV, but was provided to the airport manager by the biologist. The airport does not possess pyrotechnics for wildlife harassment. In 2014, the previous airport manager modified a berm immediately outside the airport perimeter fence which mule deer had been using to leap over the fence into the AOA. This action has decreased the frequency of mule deer presence on the airport.



Figure 2a, 2b: Current Perimeter Fence and Wildlife Control Gate Sign (Kestrel, LLC).

## **Federal and State-Listed Status**

The following bird and mammals are currently federally listed:

## **Common Name**

Yellow-billed Cuckoo (Threatened)
Canada Lynx (Threatened)
Washington Ground Squirrel (Candidate)
Gray Wolf (Endangered: west of Hwy 395)

## Scientific Name

Coccyzus americanus Lynx canadensis Urocitellus washingtoni Canis lupus

The following bird and mammals are currently state listed:

## **Common Name**

Yellow-billed Cuckoo (Threatened)
Canada Lynx (Threatened)
Kit Fox (Threatened)
Washington Ground Squirrel (Endangered)

#### Scientific Name

Coccyzus americanus Lynx canadensis Vulpes macrotis Urocitellus washingtoni

No observations of any listed species were noted during the WHSV. It is not expected that any of these species will be found on the airport. The Yellowbilled Cuckoo prefers open woodlands and clearings or dense scrub vegetation, and is unlikely to use the habitat at the airport. There are few recorded cuckoo sightings in eastern Oregon. The Canada lynx requires high elevation and subalpine forest, and is unlikely to use the open area habitat at the airport. The gray wolf is delisted elsewhere, but is protected as an endangered species in the western two thirds of Oregon, as defined by the boundary line that extends south of the Washington border along Highway 395 to Burns, south on Highway 78 to Burns Junction, and south to Highway 95 to the Nevada border. This line runs through the city of John Day with the airport on the west side of the boundary. The Washington ground squirrel is found in northern Oregon, along the Columbia River. It would be very unlikely to find it as far south as John Day. The kit fox is not likely to be found in Grant County, as John Day is located further north than the northernmost limit of the known or historic range of this species.

## **Habitat Features**

The city of John Day has a population of 1774. It is located at an elevation of 3087 feet. The airport situated on a butte above the town at an elevation of 3703 feet. Average rainfall in the area is just over 13 inches annually. The city is bounded by the Strawberry Mountains to south and the Blue Mountains to east, and the airport is adjacent to Malheur National Forest, which is a pine and juniper forest providing excellent cover for large and medium sized mammals. The airport habitat itself is composed of bunch grasses and sagebrush, with a few juniper trees scattered on and approaching the AOA. Dispersed rural residential housing, small areas of grass hay and cattle agricultural production, and various small trees are nearby in the small town of John Day. Such terrain and habitat supports a wide variety of birds and other wildlife. Many habituated mule deer are present in the town and along the road approaching the airport

## **Natural and Man-made Wildlife Attractants**

This vegetation provides cover and roosting space for birds and cover for larger mammals. Multiple mule deer were observed feeding in the town of John Day, less than one mile from the airport. A pronghorn was observed within five miles of the airport, near the transfer station. The town has three water attractants; the John Day River, Canyon Creek and a small pond in town. All three water sources were inspected for wildlife activity, but were not serving as major bird or mammal attractants. Coyotes were audible from the AOA.



Figure: 3 Pronghorn Browsing Less Than 3 Miles from the Airport (Kestrel, LLC).



Figure 4: Tall Grasses on the AOA (Kestrel, LLC).

In many places on the airport, grass height was well above the FAA recommended 6-12 inches. Most grasses were 18-24 inches in height, which provides attractive cover for birds and smaller mammals. Since the airport property extends over 300 acres, it is not practical or affordable to mow the entire property. Keeping grasses mown to the recommended 6-12 inches within 200 feet from the runway centerline will provide greater aviation safety. Mowing can be timed in the fall to come after native grasses have gone to seed, leaving grass at the recommended height through the winter. Complete removal of grass is not recommended, because bare areas are also attractive to many bird species such as Horned Larks. Leaving grasses at the recommended 6-12 inches causes grass to be too short to provide good cover, and too tall for birds to see approaching predators. This makes grassy areas the least attractive to the greatest number of birds.

Junipers and sagebrush encroach on the perimeter fence in several areas. Vegetation growing on or through the fence may serve as a wildlife ladder and contribute to wildlife breaches. Growing plants intertwined with the fence will eventually break down the integrity of the fence. Trees and large shrubs growing inside the perimeter fence should be cut down to avoid providing attractive perching, roosting and nesting places for birds.



Figure 5: Sagebrush and Juniper Encroachment on the Perimeter Fence (Kestrel, LLC).

Many parts of the perimeter fence are leaning, perhaps due to wind damage. A leaning fence is effectively shorter, therefore more permeable to wildlife, and should be repaired. In addition, tumbleweed buildup along the fence may act as a wind sail and contribute to continuing wind damage of the fence.



Figure 6: Large Areas of Perimeter Fence are Leaning (Kestrel, LLC).

Several hangars are constructed without doors. Most of these open hangars showed signs of bird use, with bird droppings and nests in evidence in those buildings with open rafters. Rock Pigeons were observed perching on the roof ridges of hangars. Installing doors, bird netting or plastic strips at doorway openings is recommended to discourage bird usage of structures on the airport. Installation of spike strips along perching surfaces will also discourage bird use, as will installation of drop ceilings.



Figure 7a, 7b: Open Hangar Doors Allow Bird Use of Hangars (Kestrel, LLC).

## **Strike Data Analysis**

On the FAA Wildlife Strike Database, there was documentation of only one wildlife strike at Grant County Regional Airport since 1990, involving a mule deer. Pilot interviews revealed another large mammal strike--a pronghorn strike incident in the early 1990's resulting in massive damage to the aircraft involved. There were also anecdotal reports of at least two small bird strikes without damage. Therefore, wildlife strikes since reporting started in 1990 is 0.17 strikes per 10,000 aircraft operations. Specific details are provided in Appendix B (Wildlife Strikes by species and number) and Appendix C (Wildlife Strikes by Aircraft Type).

## Flight Operations

Since Grant County Regional Airport does not have a full time control tower, actual aircraft operation data is not available. Estimated annual operations for 2015 are reported here. There were 9064 total operations, with 6517 itinerant and 2547 local. Of the local operations, 100% were general aviation. Of the itinerant, 23% were air taxi, 76% were general aviation, and 0.3% were military. The airport reports that there are a total of 17 aircraft based at the airfield, including 16 single-engine aircraft and one helicopter. USFS and ODF is estimated to represent 27% of total annual aircraft operations due to the summer wildfire fighting season (T-O Engineers, 2016).

## **Airport Upgrades**

Recent upgrades to the airport include construction of taxiway and rehabilitation of taxiway in 2005, Runway 17-35 extension in 2007 and 2008, Runway 9-27 extension in 2008, installation of airfield guidance signal and runway vertical/visual guidance system in 2009, rehabilitation of Runway 9-27 lighting in 2009, expansion of apron, extension of taxiway, and installation of perimeter fencing in 2010, rehabilitation of Runway 09-27 and rehabilitation of taxiway in 2013 and slurry seal of Runway 15-34 in 2016 (T-O Engineers, 2016).

## **Recommendations**

Following are the results from the 2016 WHSV. A wildlife management program on the AOA should emphasize indirect methods such as habitat modification and maintenance and direct methods such as non-lethal wildlife control (harassment, deterrence, and exclosure), combined with lethal wildlife population control (only as necessary). Integration of direct and indirect methods will be most effective. These measures will render the airport less attractive to wildlife than the surrounding areas, encouraging wildlife to use areas other than the AOA. Appropriate methods and techniques are detailed in: 1) ACRP Synthesis 23: "Bird harassment, repellent, and deterrent techniques for use on and near airports, a synthesis of airport practice"; 2) ACRP Report 32: "Guidebook for addressing aircraft/wildlife hazards at general aviation airports"; and 3) ACRP Synthesis 39: "Wildlife population management and control on airports".

We emphasize the following recommendations:

1. Repair and Upgrade Security Fencing. Properly installed fencing can significantly limit wildlife breaches and the requirement for routine monitoring and maintenance. Unfortunately, the current 5 foot hog-wire fence with three strands of barbed wire is not in compliance with the FAA recommended height of 11-feet (CertAlert # 04-16 "Deer Hazard to Aircraft and Deer Fencing"). In addition, several areas of the fence line along the western border of the AOA are in disrepair, apparently leaning from wind damage. The current fence design should do an appropriate job of deterring burrowing activity under the fence, but while the fence precludes pronghorn from entering the AOA, the height may not completely exclude mule deer from jumping over the fence. If mule deer incursions continue to occur, an extension in the height of the fence and the addition of angled barbed wire may be necessary. It is not necessary to fence the entire AOA with the regulation security fencing. For cost containment, fencing a smaller area encompassing only the Runway Safety Areas and Object Free Areas is acceptable. Upgrades and repairs of damaged areas may be considered as a first step for cost control. As an alternative to the FAA deer fencing standards, the airport can also consider a less robust fence using 4 inch hog wire as is commonly used along highways to limit access by deer and other larger mammals. However, hog wire wildlife fencing will not preclude smaller mammals such as coyotes, foxes, marmots, and badgers from accessing the airfield.

Additionally, the fence must be maintained to preclude vegetation growing in proximity to, or on, the fence. Several areas of vegetation encroachment on the perimeter fence were observed during the WHSV. Stiff brushes should also be added to the bottom of gates where gaps may be exploited by wildlife. Some gates had exclusionary wire brushes, but many left large gaps at the base which could be exploited by pronghorn, and are completely permeable to coyotes and dogs. Several pilots reported sighting feral dogs in the AOA, and these dogs are probably

accessing the airfield through gaps under gates. Another permanent option is to build concrete "speed bumps" under gates that can reduce space between the gates and the ground. The completed fence line must be checked regularly for breaches by wildlife, to remove tumbleweed buildup that contributes to wind damage, to remove vegetation encroachment, to ensure all gates are closed, and to ensure airfield security.

- 2. Improve turf management. Grasses adjacent to the runways should be maintained within the FAA recommended 6-12 inches in height, which limits visibility for birds and makes the area less attractive for hiding and feeding. During the WHSV, large areas of tall grasses, approx. 18-24 inches in height, were noted along the edges of both runways. Most gravel areas were free of weeds. There was some concern about weed regrowth on runway safety area overrun. Mixed weeds and gravel are attractive to Killdeer and Horned Larks. Killdeer were noted in weedy gravel areas and on the runways. Gravel edging can be mixed with asphalt millings, which is an excellent way to deter use of the area by birds. A binding agent such as road oil can also be used on gravel edges to deter bird use.
- 3. Construct bird-proof airport buildings and hangars. Buildings and hangars can be designed to significantly limit access by nuisance birds, some of which can also become hazards to safe flight operations. Two hangars with the most evidence of bird activity had doorless front walls. Buildings with entirely enclosed superstructures are best. I-beams on the interior of hangars and other buildings should be covered with false ceilings that eliminate roosting and nesting sites. Entry points such as holes and windows should be screened or netted to limit access to closed facilities. Suspended strips of plastic or netting can be hung from doorways or cover exposed beams to limit access. Anti-perching devices such as spike strips can be applied to limited areas where birds routinely land. Active dispersal techniques may also be used in and around buildings to deal with birds that may habituate to structural deterrents.
- 4. Coordinate communications and documentation. The U.S. Forest Service frequently operates a temporary Air Traffic Control Tower (ATC) at the Grant County Regional Airport during the wildfire season. During the rest of the year the airport is uncontrolled airspace. Refuges, wetlands, agricultural areas, roost sites, landfills, migratory concentrations, and any other known wildlife attractants in the immediate and surrounding areas should be identified and communicated to pilots using the airport on a routine basis. Pilot Reports (PIREPS), Notices to Airmen (NOTAMS), Automatic Terminal Information System (ATIS), Automated Weather Observing System (AWOS), and UNICOM, (if available) should be used to communicate real-time or seasonal bird or mammal populations that may pose potential hazards to aviation. Highest bird densities will occur in mid-March through early April during the spring migration. Fall migration will

increase local bird populations from mid-September through mid-November. Highest bird activity can be expected in mid-October. Realtime reporting of soaring raptors, vultures and migrating waterfowl is particularly important, as they are difficult or impossible to control by other standard means. Real time reporting and dispersal of deer on the AOA is essential. The time of highest probability for deer collisions is in September and October. Education and awareness are keys to successful bird and mammal avoidance procedures in the airport's operating areas. In addition, the important aspects of any airport wildlife management program are the communication and documentation of efforts. Maintaining awareness for all pilots operating from the airport can reduce potential hazards, particularly in avoiding off-airfield hazards beyond the control of the airport staff. Communication of observed hazards between pilots and ground staff can activate wildlife control and avoidance efforts. Coordination of dispersal programs is essential to ensure hazards are not inadvertently increased by scaring wildlife into the path of approaching aircraft. Ensure all wildlife strikes are reported to the airport staff and the FAA using the FAA Wildlife Strike Database website and submitting FAA Form 5200-7. In addition, strike remains should be sent to the Smithsonian Feather Lab per the website instructions found at www.wildlife.faa.gov. Lastly, documentation of bird and other wildlife incidents and all control program efforts is important for monitoring trends. Modification of mitigation efforts can effectively be made based on data that specifically tracks progress of the wildlife control program.

- 5. Obtain pyrotechnics and initiate hazing of wildlife on the AOA. A plan should be developed to identify and harass large mammals found on the AOA so that they leave the area and no longer pose an immediate threat to aviation safety. In addition, pilots should be alerted in real time of the presence of large mammals on the airfield. Pyrotechnics will also prove useful in hazing birds.
- Consider scheduling flight times at lower-risk times of day. Collisions
  with deer are most likely at dusk and nighttime, and on approach and
  landing.
- 7. Integrate overall wildlife control and management activities. In general, AOA wildlife management and control is best accomplished through an integrated approach that emphasizes habitat modification and maintenance, non-lethal wildlife control (harassment, deterrence, and exclosures), combined with lethal wildlife population control (as necessary) to minimize wildlife attractiveness. Appropriate methods and techniques are detailed in: 1) ACRP Synthesis 23: "Bird harassment, repellent, and deterrent techniques for use on and near airports, a synthesis of airport practice"; 2) ACRP Report 32: "Guidebook for addressing aircraft/wildlife hazards at general aviation airports"; and 3) ACRP Synthesis 39: "Wildlife population management and control on airports".

8. Consider Implementing a Wildlife Hazard Management Plan. County budget constraints will likely not allow funding for a full WHA. However, data from the WHSV, data from game cameras on the airport, and wildlife population information available from eastern Oregon wildlife refuges will provide adequate information for the formulation of a WHMP. Development of a WHMP would assist the airport in putting protocols in place for the prevention of and response to the presence of large mammals on the airport. It would also provide assistance and training in developing protocols for pilot communication and proper use direct and indirect methods for discouraging wildlife use of the airport. In the opinion of this biologist, the development and implementation of a WHMP would be beneficial.

## **Conclusion**

Overall, results of the 2016 WHSV were encouraging. It is impossible for any airport to avoid all exposure to potential background wildlife hazards. Grant County Regional Airport's main challenge is the presence of large mammals in the immediate area. The airport will need to take proactive steps to make itself the least attractive space in the area for birds and large mammals. The measures listed in the recommendations will help to encourage birds and other wildlife to use other areas instead of the airport for hunting, feeding, loafing and breeding. Onsite attractants, such a bird nesting boxes and open hangars, can be identified and possibly mitigated. If these attractants can be eliminated, and the fence and gates made less permeable to large mammals, the overall wildlife risk will be greatly diminished. The AOA and surrounding area can be effectively managed to mitigate identified potential hazards through an integrated wildlife control program that uses active habitat management, non-lethal wildlife harassment, dispersal, and exclosure techniques, combined with lethal wildlife population control measures as necessary.

## Appendix A: Wildlife Species List at Grant County Regional Airport and Vicinity

Red: observed by Kestrel Environmental Services during the September and October 2016 WHSV

**Black:** reported in vicinity of the Grant County Regional Airport from literature (USFWS and ODFW, 2016).

\*indicates potentially hazardous species that will require mitigation efforts due to size, flocking behavior, or other behaviors on or around airports that threaten safety.

Other species not listed here may be using the airport.

Accidental species have been excluded from the species list.

#### Birds:

## Gaviformes - Loons

Gaviidae

Common Loon Gavia immer

#### Podicipediformes - Grebes

**Podicipedidae** 

Pied-billed Grebe
Horned Grebe
Podiceps auritus
Fared Grebe
Podiceps nigricollis
Western Grebe
Aechmophorus occidentalis

Clark's Grebe Aechmophorus clarkii

## <u>Pelicaniformes – Pelicans and Cormorants</u>

Pelicanidae

\*American White Pelican

**Phalacrocoracidae** 

\*Double-crested Cormorant

Pelecanus erythrorhynchos

Phalacrocorax auritus

#### Anseriformes - Waterfowl

Anatidae

\*Tundra Swan Cygnus columbianus \*Trumpeter Swan Cygnus buccinator

\*Canada Goose Branta canadensis moffitti

\*Snow Goose Chen caerulescens

Ross' Goose Chen rossii
\*Greater White-fronted Goose Anser albifrons
Wood Duck Aix sponsa

\*Mallard Anas platyrhynchos \*Gadwall Anas strepera

\*Northern Pintail Anas acuta

\*Blue-winged Teal
\*Cinnamon Teal
\*Green-winged Teal
\*American Wigeon
Eurasian Wigeon
\*Northern Shoveler
\*Canvasback
\*Redhead

\*Ring-necked Duck \*Lesser Scaup \*Greater Scaup Surf Scoter

White-winged Scoter \*Common Goldeneye \*Barrow's Goldeneye

Bufflehead Ruddy Duck Harlequin Duck \*Long-tailed Duck Hooded Merganser Common Merganser Anas discors
Anas cyanoptera
Anas crecca
Anas americana
Anas penelope
Anas clypeata
Aythya valisineria
Aythya americana
Aythya collaris
Aythya affinis
Aythya marila

Melanitta perspicillata

Melanitta fusca
Bucephala clangula
Bucephala islandica
Bucephala albeola
Oxyura jamaicensis
Histrionicus histrionicus
Clangula hyemalis
Lophodytes cucullatus
Mergus merganser

# <u>Falconiformes – Vultures, Hawks, and Falcons</u> Cathartidae

\*Turkey Vulture

## **Accipitridae**

\*Osprey

\*Northern Harrier

\*Cooper's Hawk

\*Sharp-shinned Hawk

\*Northern Goshawk

\*Swainson's Hawk

\*Ferruginous Hawk

\*Rough-legged Hawk

Red-shouldered Hawk

\*Red-tailed Hawk

\*Bald Eagle

\*Golden Eagle

#### **Falconidae**

\*American Kestrel

\*Peregrine Falcon

\*Prairie Falcon

\*Merlin

#### Cathartes aura

Pandion haliaetus

Circus cyaneus

Accipiter cooperii Accipiter striatus Accipiter gentilis Buteo swainsoni Buteo regalis Buteo lagopus Buteo lineatus

Buteo jamaicensis Haliaeetus leucocephalus

Aquila chrysaetos

Falco sparverius

Falco peregrinus Falco mexicanus Falco columbarius

## Galliformes- Upland Game Birds

Phasianidae

Gray Partridge

Chukar

\*Ring-necked pheasant

Wild Turkey

Odontophonidae

California Quail

Mountain Quail

Perdix perdix Alectoris chukar Phasianus colchicus Meleagris gallopavo

Callipepla californica

Oreotyx pictus

## <u> Ciconiiformes – Herons and Egrets</u>

Ardeidae

\*Great Egret \*Great Blue Heron

Snowy Egret Cattle Egret Green Heron

Black Crowned Night Heron American Bittern

Least Bittern

Ardea alba Ardea herodias Egretta thula Bulbulcus ibis

Butorides virescens Nycticorax nycticorax Botaurus lentiginosus

Ixobrychus exilis

## **Gruiformes - Cranes and Allies**

Rallidae

American Coot

Sora

Virginia Rail

Gruidae

\*Sandhill Crane

Fulica americana Porzana carolina Rallus limicola

Grus canadensis

## Charadriiformes - Shorebirds and Gulls

Charadriidae

\*Killdeer

Semipalmated Plover

Snowy Plover

Pacific Golden Plover

Black Bellied Plover American Golden Plover

Scolopacidae

Spotted Sandpiper

Whimbrel

Wilson's Phalarope Red-necked Phalarope

Wilson's Snipe Greater Yellowlegs Lesser Yellowlegs Wandering Tattler Solitary Sandpiper

Willet

Long-billed Curlew

Charadrius vociferus

Charadriuis semipalmatus

Charadrius nirosus

Pluvialis fulva

Pluvialis squatarola

Plubialis dominica

Actitis macularius

Numenius phaeopus Phalaropus tricolor Phalaropus lobatus Gallinago delicata Tringa melanoleuca

Tringa flavipes Tringa incana Tringa solitaria

Catoptrophorus semipalmatus

Numenius americanus

Marbled Godwit Bar-tailed Godwit Stilt Sandpiper Least Sandpiper Sanderling

Baird's Sandpiper Western Sandpiper

Dunlin

Stilt Sandpiper Pectoral Sandpiper Semipalmated Sandpiper Long-billed Dowitcher

Recurvirostridae

Black-necked Stilt American Avocet

Laridae

\*Herring Gull
\*Ring-billed Gull
\*Franklin's Gull
\*California Gull

\*Bonaparte's Gull
\*Sabine's Gull
Caspian Tern
Common Tern
Forster's Tern

Black Tern

<u>Columbiformes – Pigeons and Doves</u> Columbidae

\*Mourning Dove
\*Eurasian Collared Dove

\*Rock Pigeon

\*Band-tailed Pigeon

<u>Strigiformes – Owls</u> Tytonidae

\*Barn Owl

Strigidae

\*Great Horned Owl
\*Long-eared Owl
Short-eared Owl
Western Screech Owl
Flammulated Owl
Burrowing Owl

Northern Saw-whet Owl

<u>Caprimulgiformes – Nightjars</u> Caprimulgidae

\*Common Nighthawk

Limosa fedoa
Limosa lapponica
Calidris himantopus
Calidris minutilla
Calidris alba
Calidris bairdii
Calidris mauri
Calidris alpina
Calidris himanoptus
Calidris melonotos

Calidris pusilla Limnodromus scolopaceus

Himanoptus mexicanus Recurvirostra americana

Larus argentatus Larus delawarensis Larus pipixcan Larus californicus

Chroicocephalus philadelphia

Xema sabini Sterna caspia Sterna hirundo Sterna forsteri Childonias niger

Zenaida macroura Streptopelia decaocto

Columba livia

Patagioenas fasciata

Tyto alba

Bubo virginianus

Asio otus

Asio flammeus Otus kennicottii Otus flammeolus Athene cunicularia Aegolius acadicus

Chordeiles minor

## Common Poorwill

## Phlaenoptilus nuttalli

## Apodiformes - Swifts and Hummingbirds

Trochilidae

Black-chinned Hummingbird Archilochus alexandri
Calliope Hummingbird Stellula calliope
Rufous Hummingbird Selasphorus rufus

**Apodidae** 

Vaux's Swift Chaetura vauxi

## Coraciformes - Kingfishers

**Alcedinidae** 

Belted Kingfisher Megaceryle alcyon

## <u>Piciformes – Woodpeckers</u>

**Picidae** 

Lewis' Woodpecker Melanerpes lewis Northern Flicker Colaptes auratus Picoides pubescens Downy Woodpecker Hairy Woodpecker Picoides villosus Pileated Woodpecker Dryocopus pileatus Red-naped Sapsucker Syphrapicus nuchalis Red-breasted Sapsucker Syphrapicus ruber Williamson's Sapsucker Syphrapicus thyroideus

## <u>Passeriformes – Perching Birds</u> Tyrannidae

**Dusky Flycatcher** Empidonax oberholersi Willow Flycatcher Empidonax traillii Hammond's Flycatcher Empidonax hammondi Cordilleran Flycatcher Empidoax occidentalis Empidonax wrightii Gray Flycatcher Least Flycatcher Empidonax minimus Pacific-slope Flycatcher Empidonax difficilis Ash-throated Flycatcher Myiarchus cinerascens Say's Phoebe Sayornis saya Olive-sided Flycatcher Contopus cooperi

Olive-sided Flycatcher

Western Wood Pewee
Eastern Kingbird

Western Kingbird

Contopus cooperi
Contupus sordidulus
Tyrannus tyrannus
Tyrannus verticalis

Cardinalidae

Lazuli Bunting Passerina amoena

Hirundinidae

\*Barn Swallow Hirundo rustica

\*Tree Swallow Tachycineta bicolor

\*Violet-green Swallow Tachycineta thalassina

\*Bank Swallow Riparia riparia

\*Northern Rough-winged Swallow

\*Cliff Swallow

Stelgidopteryx serripennis Petrochelidon pyrrhonota

#### Corvidae

\*Common Raven
\*Black-billed Magpie

\*American Crow Gray Jay Pinyon Jay Steller's Jay Clark's Nutcracker

Alaudidae

\*Horned Lark

Troglodytidae

House Wren Winter Wren Marsh Wren Rock Wren Canyon Wren Bewick's Wren

**Sittidae** 

Red-breasted Nuthatch White-breasted Nuthatch Pygmy Nuthatch

Certhiidae

**Brown Creeper** 

**Paridae** 

Black-capped Chickadee Chestnut-backed Chickadee Mountain Chickadee

Bushtit

Turdidae

Mountain Bluebird
Western Bluebird
Townsend's Solitaire
\*American Robin
Swainson's Thrush
Hermit Thrush

Veery

Varied Thrush

Golden-crowned Kinglet Ruby-crowned Kinglet

Cinclidae

American Dipper

Sturnidae

\*European Starling

Mimidae

Sage Thrasher Brown Thrasher Gray Catbird Corvus corax Pica hudsonia

Corvus brachyrhynchos Perisoreus canadensis Gymnorhinus cyanocephalus Cyanocitta stelleri Nucifrga columbiana

Eremophila alpestris

Troglodytes aedon Troglodytes hiemalis Cistothorus palustris Salpinctes obsoletus Catherpes mexicanus Thyromanes bewickii

Sitta canadensis Sitta carolinensis Sitta pygmaea

Certhia americana

Poecile atricapilla Poecile rufescens Poecile gambeli Psaltriparus minimus

Sialia currucoides
Sialia mexicana
Myadestes townsendi
Turdus migratorius
Catharus ustulatus
Catharus guttatus
Catharus fuscesens
Ixoreus naevius
Regulus satrapa
Regulus calendula

Cinculus mexicanus

Sturnus vulgaris

Oreoscoptes montanus Toxostoma rufum Dumetella carolinensis Northern Mockingbird

**Bombycillidae** 

Cedar Waxwing

**Bohemian Waxwing** 

Laniidae

Loggerhead Shrike Northern Shrike

Vireonidae

Warbling Vireo Red-eyed Vireo Hutton's Vireo Cassin's Vireo

**Parulidae** 

Yellow Warbler

Yellow-rumped Warbler
Black-throated Gray Warbler

American Redstart Townsend's Warbler Chestnut-sided Warbler

Magnolia Warbler Cape May Warbler

Black-throated Blue Warbler

Bay-breasted Warbler Blackpoll Warbler

Orange-crowned Warbler Yellow –breasted Chat MacGillivray's Warbler Common Yellowthroat

Ovenbird

Northern Waterthrush Prothonotary Warbler Nashville Warbler Tennessee Warbler Wilson's Warbler

Thraupidae

Western Tanager

**Emberizidae** 

Green-tailed Towhee Spotted Towhee Savannah Sparrow Vesper Sparrow Lark Sparrow Lark Bunting Fox Sparrow

White-crowned Sparrow Golden-crowned Sparrow White-throated Sparrow

Harris' Sparrow Dark-eyed Junco

Mimus polyglottos

Bombycilla cedrorum Bombycilla garrulus

Lanius Iudovicianus Lanius excubitor

Vireo gilvus Vireo olivaceus Vireo huttoni Vireo cassinii

Setophaga petechia Setophaga coronate Setophaga nigrescens Setophaga ruticilla Setophaga townsendi Setophaga pensylvanica Setophaga magnolia Setophaga tigrina

Setophaga caerulescens Setophaga castanea Setophaga striata Vermivora celata Icteria virens Oporonis tolmiei Geothlypis trichas Seiurus aurocapilla

Parkesia noveboracensis

Protonotaria citrea
Oreothlypis ruficapilla
Oreothlypis peregrina
Cardellina pusilla

Piranga ludoviciana

Pipilo chlorurus Pipilo maculatus

Passercullus sandwichensis

Pooecetes gramineus Chondestes grammacus Calamospiza melanocorys

Passerella iliaca

Zonotrichia leucophrys Zonotrichia atricapilla Zonotrichia albicollis Zonotrichia querula Junco hyemalis

**Snow Bunting** Brewer's Sparrow Chipping Sparrow

American Tree Sparrow

Sage Sparrow

Black-throated Sparrow

Lincoln's Sparrow Song Sparrow

## **Passeridae**

**House Sparrow** 

#### **Icteridae**

\*Red-winged Blackbird \*Brewer's Blackbird

\*Yellow-headed Blackbird

Great-tailed Grackle

\*Brown-headed Cowbird

Bullock's Oriole

Bobolink

#### Motacillidae

American Pipit

## Fringillidae

Gray-crowned Rosy-Finch

Cassin's Finch American Goldfinch Lesser Goldfinch Common Redpoll

Pine Siskin

**Evening Grosbeak** 

House Finch Purple Finch Red Crossbill Pine Grosbeak

\*Western Meadowlark

Plectrophenax nivalis Spizella breweri Spizella passerine Spizelloides arborea Amphispiza belli Amphispiza bilineata Melospiza lincolnii Melospiza melodia

#### Passer domesticus

Agelaius phoeniceus Euphagus cyanocephalus

Xanthocephalus xanthocephalus

Quiscalus mexicanus

Molothrus ater Icterus bullockii

Dolichonyx oryzivorus

## Anthus rubescens

Leucosticte tephrocotis Haemorhous cassinii

Carduelis tristis Carduelis psaltria Carduelis flammea Carduelis pinus

Coccothraustes vespertinus Carpodacus mexicanus Carpodacus purpureus

Loxia curvirostra Pinicola enucleator Sturnella neglecta

#### Mammals:

#### Bats:

## Chiroptera

## Vespertillonidae

Western Small-footed Myotis Myotis ciliolabrum California Myotis Myotis californicus Long-eared Myotis Myotis evotis Little Brown Myotis Myotis lucifugus Myotis volans Long-legged Myotis Yuma Myotis Myotis yumaensis Myotis thysanodes Fringed Myotis Canyon Bat Parastrellus hesperus Townsend's Big-eared Bat Corynihinus townsendii

Big Brown Bat Epetesicus fuscus Pallid Bat Antrozous pallidus Spotted Bat Euderma maculatum Silver-haired Bat Lasionycteris noctivagans

Hoary Bat Lasiurus cinereus Western Pipistrelle Parastrellus hesperus

#### **Terrestrial Mammals:**

## Cetartiodactyla

#### Cervidae

\*Mule Deer Odocoileus hemionus \*White-tailed Deer Odocoileus virginianus Cervus elaphus \*Rocky Mountain Elk

Pronahorn Antilocapra americana Ovis canadensis Mountain Sheep

## Carnivora

#### Canidae

\*Coyote Canis latrans \*Feral Dog Canis familiaris \*Red Fox Vulpes vulpes Kit Fox Vulpes macrotis

**Felidae** 

Puma Puma concolor Bobcat Lynx rufus Canada Lynx Lynx canadensis

**Procyonidae** 

\*Raccoon Procyon lotor

**Mephitidae** 

\*Striped Skunk Mephitis mephitis

\*Western Spotted Skunk

Mustelidae

Taxidea taxus \*Badger

Long-tailed Weasel Short-tailed Weasel

Mink

\*River Otter Marten \*Wolverine

**Ursidae** 

\*American Black Bear

Mustela frenata Mustela erminea Neovison vison Lontra canadensis Martes americana Gulo gulo

Ursus americanus

Sylvilagus nuttalli

Lepus californicus

Lepus townsendii

Brachylagus idahoensis

<u>Lagomorpha</u>

Leporidae

\*Mountain Cottontail
\*Black-tailed Jackrabbit
\*White-tailed Jackrabbit

Pygmy Rabbit

Ochotonidae

Pika Ochotona princeps

**Eulipotyphla** 

**Soricidae** 

Vagrant ShrewSorex vagransMerriam's ShrewSorex merriamiWater ShrewSorex palustrisPreble's ShrewSorex preblei

Rodentia

Sciuridae

\*Yellow-bellied Marmot
Washington Ground Squirrel
Townsend's Ground Squirrel
Belding's Ground Squirrel

\*Marmota flaviventris
Urocitellus washingtoni
Spermophilus townsendii
Urocitellus beldinai

White-tailed Antelope Squirrel

Whospermophilus leucurus

Golden Mantled Ground Squirrel Callospermophilus lateralis

Least Chipmunk

Yellow-pine Chipmunk

Tamius minimus
Neotamias amoenus

Townsend's Chipmunk

Least Chipmunk

Flying Squirrel

Neotamias townsendii

Eutamias minimus

Glaucomys sabrinus

Castoridae

\*Beaver Castor canadensis

**Erethizontidae** 

\*Porcupine Erithizon dorsatum

Geomyidae

Northern Pocket Gopher Thomomys talpoides

Townsend's Pocket Gopher

## Dipodidae

Pacific Jumping Mouse Zapus trinotatus
Western Jumping Mouse Zapus princeps
Western Jumping Mouse Zapus princeps
Ord's Kangaroo Rat Dipodomys ordii

## Muridae

House Mouse Mus musculus

#### Cricetidae

\*Muskrat Ondatra zibethicus Great Basin Pocket Mouse Perognathus parvus

Western Harvest Mouse Reithrodontomys megalotis
Deer Mouse Peromyscus maniculatus
Canyon Mouse Peromyscus crinitus

Northern Grasshopper Mouse Onychomys leucogaster

Bushy-tailed Wood Rat Neotoma cinerea
Desert Wood Rat Neotoma lepida

Meadow Vole

Long-tailed Vole

Microtus pennsylvanicus

Microtus longicaudus

Microtus montanus

Sagebrush Vole

Lemmiscus curtatus

Clethrionomys gapperi

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Appendix B: Wildlife Strikes Reported at Grant County Regional Airport (1990-present)

Wildlife strikes reported at the species level; (#) = number reported strikes:

Birds: None reported at species level to FAA Strike Database

**Mammals: Two reported** 

- 1. Mule Deer; 10/23/1995; Damage: minor (FAA strike data base)
- 2. Pronghorn, early 1990's, Damage: major (Anecdotal report)

Wildlife strikes not reported at a species level:

Birds: Two anecdotal small bird strikes, date and species unknown, no damage

**Mammals: None reported** 

# Appendix C: Aircraft Types Involved in Wildlife Strikes at Grant County Regional Airport (1990- present); (#) = number reported strikes

- 1. C-402, reciprocating engine (1), minor damage.
- 2. Cessna 182, reciprocating engine (1), major damage (anecdotal).

## **Appendix D: Applicable Reference Documents**

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150/5200-36A	Qualifications for Wildlife Biologist Conducting Wildlife Hazard Assessments and Training Curriculums for Airport Personnel Involved in Controlling Wildlife Hazards on Airports		
150/5200-38 (Draft)	Protocol for the Conduct and Review of Wildlife Hazard Site Visits, Wildlife Hazard Assessments, and Wildlife Hazard Management Plans		
150/5220-25	Airport Avian Radar Systems		
150/5300-13A	Airport Design (Reference for agricultural production approval)		
FAA CertAlerts			
97-09	Wildlife Hazard Management Plan Outline		
	Wildlife Hazard Management Plan Outline Grasses Attractive to Hazardous Wildlife		
97-09	Grasses Attractive to Hazardous Wildlife  Access to the FAA National Wildlife Aircraft Strike		
97-09 98-05	Grasses Attractive to Hazardous Wildlife  Access to the FAA National Wildlife Aircraft Strike Database Guidelines for Submitting Bird Strike Feather		
97-09 98-05 02-06	Grasses Attractive to Hazardous Wildlife  Access to the FAA National Wildlife Aircraft Strike  Database		
97-09 98-05 02-06 03-03	Grasses Attractive to Hazardous Wildlife  Access to the FAA National Wildlife Aircraft Strike Database Guidelines for Submitting Bird Strike Feather Remains for Identification		
97-09 98-05 02-06 03-03 04-09	Grasses Attractive to Hazardous Wildlife  Access to the FAA National Wildlife Aircraft Strike Database Guidelines for Submitting Bird Strike Feather Remains for Identification Relationship between FAA and WS		
97-09 98-05 02-06 03-03 04-09 04-16	Grasses Attractive to Hazardous Wildlife  Access to the FAA National Wildlife Aircraft Strike Database Guidelines for Submitting Bird Strike Feather Remains for Identification Relationship between FAA and WS  Deer Hazard to Aircraft and Deer Fencing  Requests by State Wildlife Agencies to Facilitate and Encourage Habitat for State-Listed Threatened and Endangered Species and Species of Special		

## **B-5: RECYCLING PLAN**

2017 Master Plan Recycling Plan

## 1. RECYCLING PLAN

#### 1.1 INTRODUCTION

Public Law 112-95, also known as the Federal Aviation Administration (FAA) Modernization and Reform Act of 2012, requires airport planning projects to include the development of a plan for recycling and minimizing the generation of airport solid waste. This recycling plan at airports must be consistent with applicable State and local recycling laws. In addition, it must include the following elements:

- ★ A waste audit,
- ★ The feasibility of solid waste recycling at the airport,
- ★ Minimizing the generation of solid waste at the airport,
- ★ Operation and maintenance requirements,
- ★ The review of waste management contracts, and
- ★ The potential for cost savings or the generation of revenue.

The following sections describe the current solid waste management process of Grant County Regional Airport (GCD). It also contains suggestions to improve the current conditions at the airport.

## 1.2 WASTE AUDIT

To fulfill the requirements of the waste audit, an interview was conducted with the airport manager on January 4, 2018. The following topics were mentioned:

- ★ Sources of waste and waste streams,
- ★ Fate of waste.
- ★ Collection of waste and waste pickup practices,
- ★ Feasibility of recycling at the airport,
- ★ Operation and maintenance requirements, and
- ★ Existing waste management contracts and services.

#### 1.2.1 Sources of Airport Waste

According to the FAA Recycling, Reuse and Waste Reduction at Airports: A Synthesis Document (FAA Synthesis), the types of waste generally encountered at airports are:

2017 Master Plan Recycling Plan

- ★ Municipal Solid Waste,
- ★ Construction and Demolition Waste,
- ★ Green Waste.
- ★ Food Waste.
- ★ Deplaned Waste,
- ★ Lavatory Waste,
- ★ Spill cleanup and remediation waste, and
- ★ Hazardous waste.

In addition, the potential sources of waste, as described in the FAA Synthesis, are included hereafter. The type of waste generated at each of these facilities is slightly different and implementing a recycling program requires considering all of the activities and waste streams.

- ★ Terminals,
- ★ Airfields,
- ★ Aircraft Maintenance Hangars,
- ★ Cargo Hangars,
- ★ Flight Kitchens,
- ★ Administrative offices, and
- ★ Airport construction projects.

Grant County Regional Airport (GCD) does not accommodate air cargo operations and therefore does not have cargo hangars. In addition, the aircraft using the airport are not large enough to have inflight food service or lavatories; thus there is no waste from flight kitchens and GCD is not equipped to empty aircraft lavatory tanks.

GCD does have an airfield, a small pilot's lounge, storage hangars for based aircraft and airport's offices. Each of these waste sources is described in additional details, based on information obtained during the waste audit, in the subsequent sections.

#### **Aircraft**

The airport is typically used by single-engine and light multi-engine aircraft. Those aircraft do not have substantial inflight services such as food services or lavatories. The airport is not equipped to provide flight kitchen services or to empty lavatories. Waste deplaned from transient or based aircraft is sometimes disposed of at GCD, into on site trash receptacles.

GCD is heavily used by the U.S. Forest Services (USFS) for firefighting activity. Specific waste generated by this activity includes fire retardant, which is stocked by USFS in evaporation ponds. Other waste generated by aircraft potentially includes fuel spills currently handled according to hazmat procedures.

2017 Master Plan Recycling Plan

#### Pilot's Lounge

The pilot's lounge consists of restrooms, a general meeting/rest area as well as a small kitchenette equipped with a fridge and a microwave. Trash receptacles in the pilot's lounge receive municipal solid waste.

#### **Airfield**

The waste produced at the airfield is limited and consists mostly of rubber from aircraft tires and green waste.

At GCD, the waste generated on the airfield consists mainly of green waste, when the grounds are maintained and mowed, as well as plowed snow during the winter months. When necessary, the airport maintenance staff plows the runways and piles up the snow.

## **Storage Hangars**

There are 17 hangars on site, used for based aircraft storage. As there is no maintenance service at the airport, the amount of waste generated in the hangars is limited. At general aviation airports, waste from the hangars usually includes batteries, fluids, tires, aluminum or metal scrap, as well as municipal solid waste. However, the only kind of waste received at GCD at the moment is municipal solid waste. There are regular garbage cans with an adjacent area for paper and cardboard recycling.

### **Airport's Offices and Terminal**

The terminal building at GCD contains all the airport's and USFS offices. General wastes are disposed using the garbage cans available for regular municipal solid waste, including recycling of paper and cardboard. The heating system of the terminal building uses a boiler that generates pellets. These pellets are stored on the ground in a designated area near the boiler.

# 1.2.2 FATE OF AIRPORT WASTE

The municipal solid waste generated at GCD is stored in designated areas on the airport, in garbage containers. Waste is picked up weekly on Tuesdays. Regular waste are disposed at the Clark's Disposal sites in John Day, OR after pickup. If other types of waste were generated at the airport, such as batteries, tire or paint, they should be appropriately disposed.

#### 1.3 FEASIBILITY OF SOLID WASTE RECYCLING

According to the FAA Synthesis, the feasibility and effectiveness of an airport recycling and waste minimization plan is influenced by the airport's unique set of factors, such as the region, geography or society. While some general practices are applicable to all airports, some solutions may only apply to a particular airport or region.

Opportunities to recycle solid waste at GCD are limited by the types of materials that can be recycled at the landfill, as well as by the logistics for transporting materials to recycling facilities.

The Clark's Disposal in John Day, OR accept the following items in the Clark's transfer station and recycling depot:

- ★ Construction and Demolition Materials (concrete, wood, asphalt, gypsum, metals, bricks, glass, plastics, trees, earth, rocks)
- ★ Municipal Solid Waste
- ★ Household
- ★ Used Oil
- ⋆ Batteries
- ★ Aluminum
- ★ Appliances
- ★ Recycle items including aluminum, plastics, cardboard, newspaper, brown paper bags, container glass, cartons, and magazines

Recycling is easily accessible in John Day, OR and the airport already has dedicated bins for paper and cardboards in the terminal building for this purpose. Given the recycling possibilities in the vicinity of GCD, it is recommended to develop a more important separate stream for recycle waste at the airport, in addition to the paper and cardboards already existing. This may include the wood pellets used by the boiler for the terminal's heating system.

Other sites are available in John Day, OR and surrounding cities:

- ★ Les Schwab Tire Center: batteries and tires
- ★ Long creek Transfer Station: scrap metals and yard debris

★ Monument Transfer Station: aluminum, container glass, scrap metal, newspaper, tin cans, wood waste, and yard debris

- ★ Prairie City Recycling: container glass
- ★ Seneca Transfer Station: oil, scrap metal. Wood, and yard debris

#### 1.4 MINIMIZING THE GENERATION OF SOLID WASTE

An airport recycling program should not only focus on maximizing the amount of recyclable materials removed from the waste stream, but also on overall waste reduction strategies. According to the FAA Synthesis, reduction of waste can come in different forms including waste redirection, repurposing, reuse, separation or other means to lessen the volume of the waste stream.

Options to minimize the amount of solid waste generated at GCD are described hereafter.

#### **Municipal Solid Waste**

The ultimate fate of the solid waste originating from GCD is currently the Clark's disposal in John Day, OR. Cans are available in the terminal for recycling of paper and cardboard, which somewhat reduces the regular garbage stream at the airport, if used regularly.

#### **Green Waste**

Reducing the amount of green waste generated on airports depends on various local conditions such as local climate and physical environment. Per the FAA Synthesis, options to minimize the amount of green waste produced at airports are described below.

- ★ Appropriate planning for plant selection: based on the amount of rainfall, soil type, temperature range, sunlight, etc.
- ★ Xeriscaping: using slow-growing, drought-tolerant plants.
- ★ Grass cycling: leaving the grass clippings on the lawn.
- ★ Mulching: breaking up the landscaping trimming, or
- ★ Using green waste as daily cover at municipal solid waste landfills.

At GCD, the only identified source of green waste occurs when the grass is mowed and brushes are trimmed on the airport property. No or limited green waste is carried off site. It is recommended that any additional sources of green waste at GCD be identified and minimized in the future.

#### **Deplaned Waste**

As previously mentioned, GCD accommodates only single-engine or light multi-engine aircraft. Therefore, the airport receives only a limited amount of deplaned waste. Based pilots do not routinely clean their aircraft and do not regularly dispose of waste at the airport. In addition, due to

the relative small size of the transient aircraft typically using the airport, the amount of waste deplaned by transient pilots is relatively small and mostly consist of regular municipal solid waste.

The deplaned waste is collected either in the pilot's lounge or in the bins available on the airport. The constraints to recycle deplaned waste are the same as for the municipal solid waste. Dedicated cans are available in the terminal for recycling of paper and cardboards.

#### Fire Retardant

Fire retardant waste is stocked by the USFS in evaporation ponds. The USFS have their own procedure to handle specific waste related to their activity. The quantity produced is highly dependent on the firefighting activity.

#### **Airport's Offices and Terminal**

The wood pellets generated by the boiler used by the terminal's heating system are currently stored outside in an area located near the boiler. It is recommended to recycle them on a regular basis and to limit heating as much as possible to limit the overall production of waste pellets.

#### 1.5 OPERATION AND MAINTENANCE REQUIREMENTS

The current waste management procedures at GCD do not require any specific maintenance and does not show operational constraints. Implementing a more stringent waste management plan would require additional waste equipment to handle different streams of waste. It is recommended to pursue the existing recycling efforts and to include additional waste as accepted by the surrounding landfills for recycling. The limited volume of waste currently generated on site and the simple airport layout leads to a fairly straightforward operation with a minimum number of recycling bins.

#### 1.6 WASTE MANAGEMENT CONTRACT REVIEW

The airport does not have any existing waste management contracts. It uses the Clark's disposal sites and curbside pick-up occurs weekly on Tuesdays. The City of John Day, OR has granted Clark's Disposal a non-exclusive franchise for the collection and hauling of solid waste.

#### 1.7 POTENTIAL FOR COST SAVINGS OR GENERATION OF REVENUE

The rates for solid waste management in John Day, OR are listed in the Resolution No. 17-765-01. It includes rates for residential and commercial uses. Clark's Disposal is listed as the grantee for waste management in the city. Weekly pick-up is the minimal available and the potential for cost saving is very limited at GCD. In addition, given the limited amount of waste produced at the airport, the potential for revenue generation seems limited. No conclusive elements indicate that

the airport could achieve a substantial reduction in solid waste with a separate streams waste recycling program.

#### 1.8 APPLICABLE STATE OF OREGON WASTE AND RECYCLING LAWS

This recycling plan must be consistent with applicable State and local recycling laws. The base of the Oregon State laws regarding waste disposal and mandatory recycling is the Opportunity to Recycle Act (ORA) (Oregon Revise status 459A) which was most recently amended in 2015. The Department of Environmental Quality (DEQ) also regulates local governments' programs for recycling, waste prevention, and reuse programs according to:

- ★ Materials Management in Oregon: 2050 Vision and Framework for Action
- ★ Oregon's State Integrated Resource and Solid Waste Management Plan

In order to conserve energy and natural resources, the ORA provides that materials management should follow the following hierarchy:

- ★ Reduce the amount of waste generated
- ★ Reuse materials for their original intended use
- ★ Recycle materials that cannot be reused
- ★ Compost materials that cannot be reused or recycled
- ★ Recover energy from materials that cannot be reused, recycled or composted
- ★ Dispose of residual materials safely

#### 1.9 CONCLUSIONS AND RECOMMENDATIONS

Grant County Regional Airport already implements a stream of municipal solid waste and a stream of recyclable waste including paper and cardboards. The current waste management methods at GCD appear to be adequate for the needs of the airport. However, it is suggested that the airport develop additional streams of waste to include additional materials to be recycled according to the current recycling capabilities in John Day, OR.

In addition, it is recommended that the airport's sponsor keep monitoring the evolution of recycling capabilities on the various landfills surrounding the airport in order to optimize the amount of recycled materials. However, before the implementation of a more detailed recycling program, the overall effectiveness and feasibility should be examined, taking into consideration the airport's staff and the efforts required to transport materials to an appropriate recycling facility.

GCD could also consider signage to encourage pilots of transient and based aircraft to minimize their waste, use recyclable and compostable items and properly dispose of them.

# **APPENDIX C: TECHNICAL MEMORANDUMS**

- C-1 Airspace Analysis
- C-2 VGSI Feasibility Study Runway 35

# C-1: AIRSPACE ANALYSIS



# TECHNICAL MEMORANDUM

TO: Federal Aviation Administration

FROM: T-O Engineers

PROJECT: Grant County Regional Airport Master Plan

**SUBJECT:** Airspace Analysis

**DATE:** January 23, 2018

# 1. INTRODUCTION

Grant County Regional Airport (GCD) is in the process of updating its Airport Master Plan (AMP). Several obstructions to air navigation were identified as part of this planning study. It also brought up a discussion on the runway classification at the airport should be (visual or instrument). This Technical Memorandum (memo) summarizes the following elements:

- Airport Master Plan Conclusions
- Runway Classification
- Major Obstructions to Air Navigation

The objective of this memo is to summarize the main concerns about major obstructions to air navigation difficult to mitigate without impacting significantly the operations at GCD. It also provides details on what the preferred runway classification.

# 2. AIRPORT MASTER PLAN CONCLUSIONS

This section provides some background information about the main conclusions made in the proposed AMP for GCD.

# **Runway Configuration**

**Exhibit 1** depicts the proposed Airport Layout Plan (ALP). The existing runway configuration included two converging runways, Runway 9-27 and Runway 17-35, with overlapping Runway Safety Areas (RSA). The proposed configuration decouples both runways by moving the end of

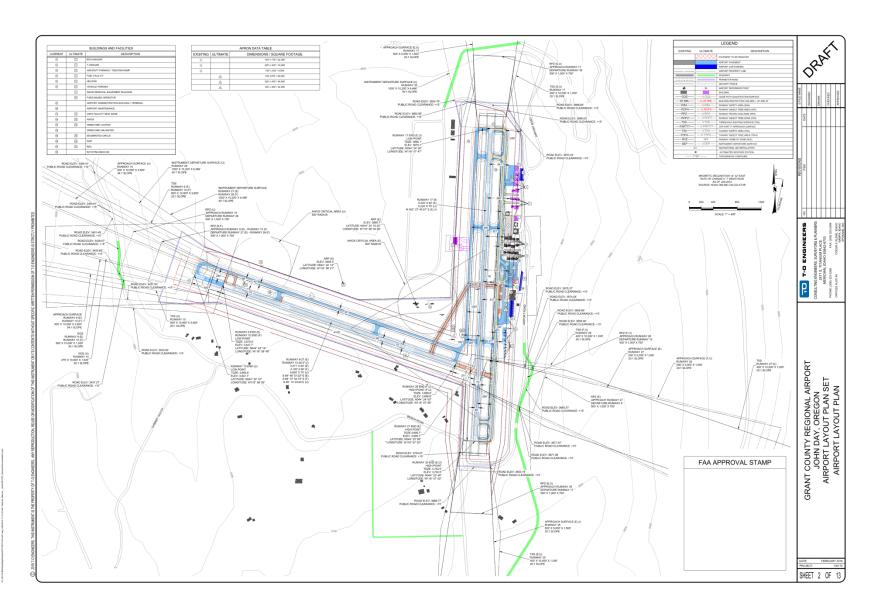
Runway 27 by 370 feet to the west. It also includes an extension of Runway 9-27 by 500 feet to the west and a change of denomination to Runway 10-28

**Table 1** summarizes various relevant details about both runways at GCD, as determined in the updated AMP.

**TABLE 1: EXISTING AND ULTIMATE RUNWAY DETAILS** 

Item	Existing		Ultimate	
	9-27	17-35	10-28	17-35
Runway Length	5,220'		Same	4,600'
Runway Width	60'	60'	75'	75'
Airport Reference Code	B-I		B-II	
Critical Aircraft	Cessna 402	Cessna 402	AT802	AT802
Approach	Non-Precision (RWY 9) Circling (RWY 27)	Circling	Non-Precision (RWY 10) Circling (RWY 28)	Circling (RWY 17) Visual (RWY 35)

Source: T-O Engineers



**EXHIBIT 1: GCD PROPOSED AIRPORT LAYOUT PLAN** 

# 3. RUNWAY CLASSIFICATION

This section discusses whether the runways at GCD should be classified as "Visual" or "Instrument".

# **Existing and Proposed Instrument Procedures**

Currently and as shown in **Table 1**,only Runway 9 is served by a non-precision instrument approach. Circling to the ends of Runway 17 and Runway 27 is available. Circling is prohibited south of Runway 9-27, because of terrain. Therefore, the end of Runway 35 only has a visual approach.

The proposed AMP recommends that the existing approach plates be updated according to the future runway configuration at GCD. Any other type of approach is not feasible at the airport due to surrounding terrain.

#### CFR Part 77

The CFR Part 77 regulation states that an instrument runway is a runway with an existing or planned **straight-in** instrument approach and an instrument designation on the Airport Layout Plan (ALP). It also distinguishes non-precision and precision instrument runways based on the type of approach used. A visual runway is a runway used solely for visual approaches with no straight-in instrument approach procedure and no instrument designation on the ALP. **Table 2** summarizes the classification of the runways at GCD based on this regulation.

**TABLE 2: CFR PART 77 RUNWAY CLASSIFICATION** 

Runway End	Existing	Future
RWY 17	Visual	Same
RWY 35	Visual	Same
RWY 10	NPI*	Same
RWY 28	Visual	Same

\*Non-Precision Instrument (NPI)

Source: T-O Engineers

A circling procedure to a runway end is a visual portion of an instrument approach. But it is not a straight-in approach to a runway end. Therefore, all existing runway ends with only a circling approach available are classified as visual by CFR Part 77 regulation and should remain the same, unless designated differently on the ALP.

#### **US standard for Terminal Procedures (TERPS)**

The TERPS are defined in the FAA Order 8360.3C. They are a set of standards used by the FAA to design instrument procedures to and from airports. The latest update of the TERPS states that circling must not be authorizes to a runway classified as visual unless "the airport has provided notice to the FAA of the intent to classify the runway as an instrument runway" and the runway has a clear visual approach surface.

All existing circling to visual runway are grandfathered by FAA interim guidance to encompass the difference between CFR Part 77 and TERPS requirements. However, in the case of an amended or new procedure, circling will not be authorized to visual runways. **Table 3** summarizes the classifications of the runways at GCD by TERPS definition.

 Runway End
 Existing
 Future

 RWY 17
 Visual
 NPI\*

 RWY 35
 Visual
 Same

 RWY 10
 NPI
 Same\*\*

 RWY 28
 Visual
 NPI

**TABLE 3: TERPS RUNWAY CLASSIFICATION** 

\*Non-Precision Instrument (NPI)

\*\*No circling available

Source: T-O Engineers

### **Recommended Classification**

Considering the differences between the CFR Part 77 regulation and the TERPS standards, as well as for planning purposes, it is recommended to protect the airport for the most demanding runway classification. The use of a NPI classification for Runway 9-27 and Runway 17 at GCD will trigger the need to protect greater CFR Part 77 Imaginary Surfaces defined for NPI runways. Runway 35 shall remain visual with the associated Imaginary Surfaces.

#### 4. MAJOR OBSTRUCTIONS TO AIR NAVIGATION

The proposed AMP identifies various features that are obstructions to air navigation around the airport. These features are either an obstruction to the Part 77 Imaginary Surfaces or the Threshold Siting Surfaces (TSS).

#### **Imaginary Surfaces**

The dimensions of the imaginary surfaces are based on the type of approach available to a runway end. Part 77 Imaginary Surfaces are drawn to protect the airspace and limit the height of structures/objects around the airport. Mitigation of their existing penetrations is not mandatory,

even though recommended when feasible. Mitigation of such obstructions can be accomplished by relocating or removing a structure/object, or using obstruction lights.

GCD has various obstructions that can be easily mitigated using obstruction lights or relocation. However, as shown on **Exhibit 2**, there are major penetrations of the ground south of the airfield. These penetrations occur to the horizontal and conical surfaces. Unfortunately, neither the ground nor the airport can be relocated and there is no procedure to light ground.

### **Threshold Siting Surface (TSS)**

A TSS expands from each end of a runway to evaluate the obstructions in the final approach. The dimensions and slope of this surface are based on the type of approach available to that runway end. When an obstruction is identified, it needs to be mitigated. Mitigation measures for penetration the TSS include:

- Displace the landing threshold
- Marking and lighting of obstacle
- Use of a Visual Guidance Slope Indicator (VGSI)

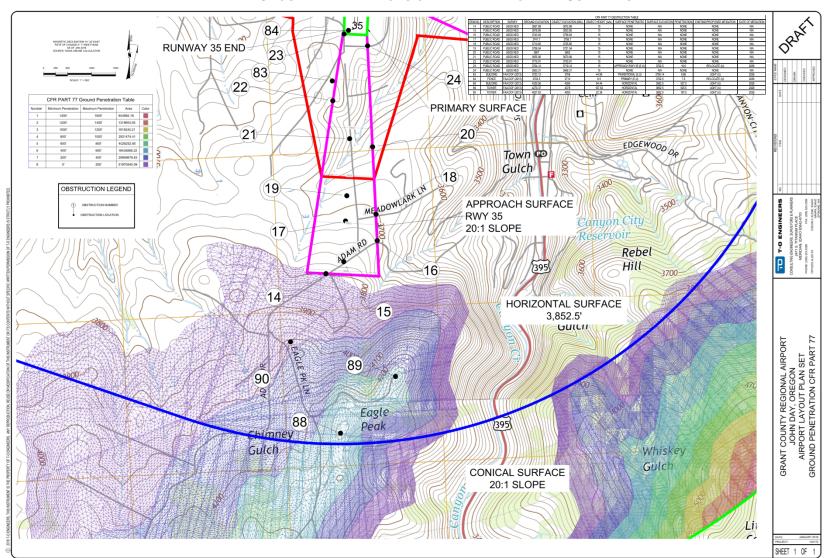
Most of the existing obstructions of the TSS at GCD can be easily mitigated by relocating or lighting the obstacles. However, the greatest penetrations occur in the TSS associated with Runway 35 (Type 3 for Visual Runway) and cannot be mitigated without severely impacting the operations to this runway. **Exhibit 3** shows the obstacles identified in the TSS of Runway 35 at GCD.

#### Summary

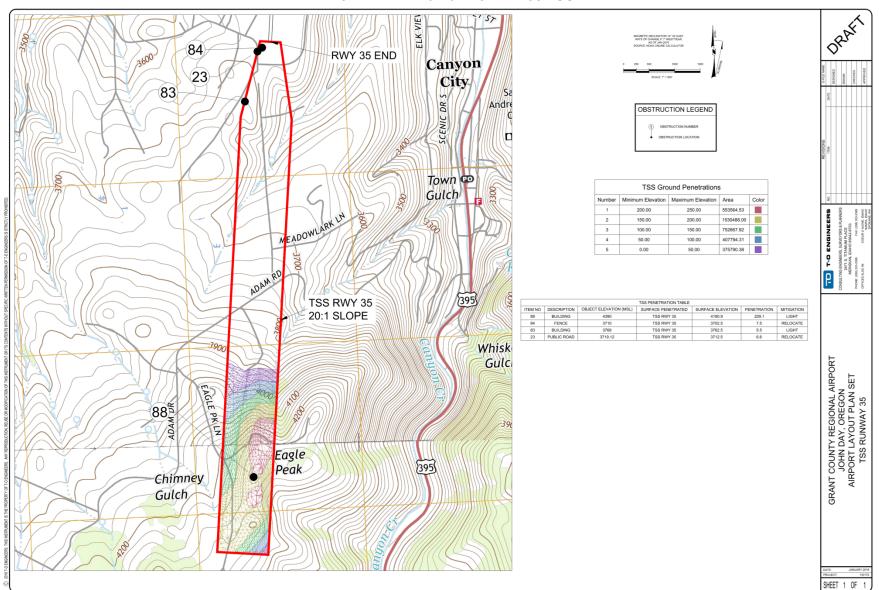
The main issues at GCD are the terrain penetrations of the CFR Part 77 Imaginary Surfaces and the TSS of Runway 35 south of the airport. Other penetrations can be mitigated by relocating or lighting the obstacles. However, there is no existing procedure to light terrain.

Mitigation of the obstructions to the Imaginary Surfaces is not mandatory, and it should be noted on the ALP that the terrain south of the airport penetrates the surfaces by a given amount.

The ground penetration of the Runway 35 TSS would require displacing the threshold by a significant amount that would remove all usable landing distance. It is recommended at a minimum to light all physical obstacles located in this area that might be an obstruction and to note the terrain penetration on the ALP and approach plates. It is also recommended to forbid any circling to Runway 35 and south of runway 9-27.



**EXHIBIT 2: GROUND PENETRATIONS OF PART 77 IMAGINARY SURFACES** 



**EXHIBIT 3: PENETRATION OF RUNWAY 35 TSS** 

# C-2: VGSI FEASIBILITY STUDY RUNWAY 35



# TECHNICAL MEMORANDUM

TO: Federal Aviation Administration

FROM: T-O Engineers

PROJECT: Grant County Regional Airport Master Plan

SUBJECT: VGSI Feasibility Runway 35

DATE: February 1, 2018

#### 1. INTRODUCTION

Grant County Regional Airport (GCD) is in the process of updating its Airport Master Plan (AMP). This planning study highlighted the existence of terrain and object penetrations to the Threshold Siting Surface (TSS) of Runway 35. Because there is no protocol for the lighting of terrain with obstruction lights, the Federal Aviation Administration (FAA) asked to document the feasibility of installing a Visual Guidance Slope Indicator (VSGI).

This technical memorandum presents the following elements:

- Airport Master Plan Conclusions
- Existing Penetrations
- VGSI Feasibility Study

#### 2. AIRPORT MASTER PLAN CONCLUSIONS

This section provides some background information about the main conclusions made in the proposed AMP for Runway 17-35 at GCD.

**Exhibit 1** depicts the proposed Airport Layout Plan (ALP). The existing runway configuration includes two converging runways, Runway 9-27 and Runway 17-35, with overlapping Runway Safety Areas (RSA). The proposed configuration decouples both runways by moving the end of

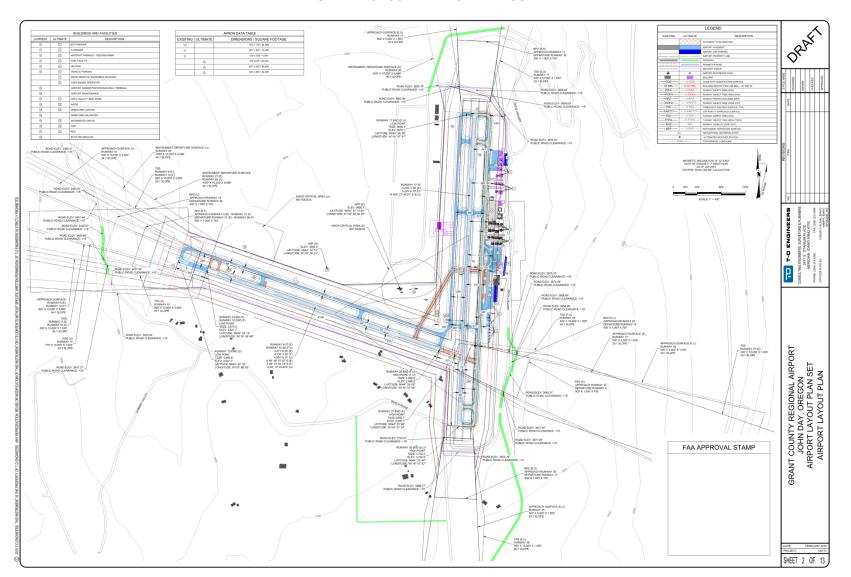
Runway 27 by 370 feet to the west. Runway 17-35 is proposed to be widen from 60 feet to 75 feet during a full rehabilitation. Its total length will remain unchanged.

**Table 1** summarizes various relevant details about Runway 17-35 at GCD, as determined in the updated AMP.

**TABLE 1: EXISTING AND ULTIMATE RUNWAY 17-35 DETAILS** 

Item	Existing	Ultimate
Runway Designator	17-35	Same
Runway Length	5,220'	Same
Runway Width	60'	75'
Runway Design Code	B-I-VIS	B-II-5000 (RWY 17)* B-II-VIS (RWY 35)
Critical Aircraft	Cessna 402	AT802
Approach	Circling (RWY 17) Visual (RWY 35)	Same

<sup>\*</sup>A change in the standards for the design of instrument procedures (TERPS) triggers the need for a change to "instrument" runways for runways with circling. See "Airspace Analysis" Technical Memorandum for more details Source: T-O Engineers



**EXHIBIT 1: GCD PROPOSED AIRPORT LAYOUT PLAN** 

#### 3. MAJOR OBSTRUCTIONS TO AIR NAVIGATION

The proposed AMP identifies various features that are obstructions to the TSS of Runway 35. A TSS extends from a given distance to the threshold of the runway. It is used to evaluate the obstructions in the final approach. The dimensions and slope of this surface are based on the type of approach available to that runway end. When an obstruction is identified, it needs to be mitigated. Mitigation measures for penetration the TSS include:

- Displace the landing threshold
- Marking and lighting of obstacle
- Use of a Visual Guidance Slope Indicator (VGSI)

**Table 2** summarizes the dimensions of the TSS for Runway 35.

**TABLE 2: RUNWAY 35 TSS DIMENSIONS** 

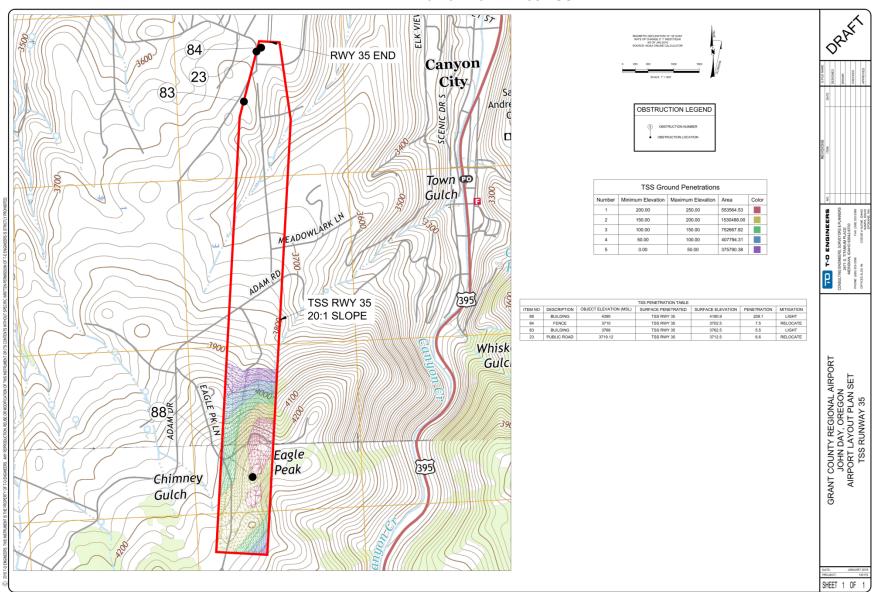
Item	Existing	Ultimate
TSS Type	3*	Same
Distance from Threshold	0'	Same
Inner Width	400'	Same
Outer Width	1,000'	Same
Length	10,000'	Same
Slope	20:1	20:1

<sup>\*</sup>Approach end of runways expected to serve large aircraft (Visual Day/Night) or instrument minimums>1 statute mile (day only) - See Table 3-2 in AC 150/5300-13A Change 1.

Source: T-O Engineers

**Exhibit 2** depicts the most significant obstructions to the TSS of Runway 35 at GCD. Other obstructions as identified on the ALP set can be easily mitigated by relocating/removing or lighting the obstacles.

As shown on the exhibit, the terrain south of the airfield is a major obstruction and cannot be easily mitigated with relocation or obstruction lighting. It would require displacing the threshold by a significant amount that would remove more than half the usable landing distance, severely impacting the operations to this runway. Another solution would be the installation of a VGSI to guide the pilots on a safe slope during the approach to Runway 35.



**EXHIBIT 2: PENETRATION OF RUNWAY 35 TSS** 

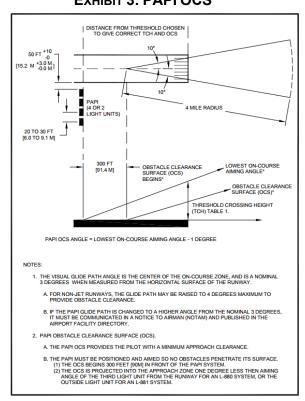
# 4. VGSI Feasibility Study

A VGSI is a slope indicator typically made of a set of lights. The combination of colors (red and white) indicates the pilots if they are over, under, or on the approach slope. Different types of VGSI include:

- <u>Visual Approach Slope Indicator (VASI)</u>: Two sets of one or two lights vertically aligned installed on the side of the runway.
- <u>Precision Approach Path Indicator (PAPI):</u> One set of two or four lights horizontally aligned on the side of the runway.

A PAPI is typically more precise than a VASI. Considering the importance of the terrain penetration to the TSS of Runway 35, it is recommended to study the feasibility of installing a **4-light PAPI** for more precision.

A PAPI guides the pilots on the appropriate approach slope to land safely on a runway. To do so, the approach path needs to be protected from any obstructions. For this purpose, the FAA AC 150/5340-30H defines an Obstacle Clearance Surface (OCS) associated with the PAPI. In order for the PAPI to be operational, this OCS needs to be clear of any penetrations. **Exhibit 3** depicts the OCS dimensional criteria.



**EXHIBIT 3: PAPI OCS** 

Source: FAA AC 150/5340-30H

**Table 3** summarizes the characteristics of a proposed 4-light PAPI to Runway 35. The main parameters that define the PAPI OCS include:

- Threshold Crossing Height (TCH): For runway 35 at GCD, the TCH should be 40 feet (+5, -20) (see Table 7-1 in AC 150/5340-30H). A greater TCH would require that the PAPI be installed farther down the threshold. Thus, the OCS would also start farther but would provide more clearance to an obstacle located at a fix distance from the threshold. For the purpose of this study and in order to provide the maximum clearance, the TCH was set to 45 feet.
- OCS Slope: The slope for the OCS is 1 degree less than the PAPI approach slope. The standard slope for a PAPI is 3 degrees. It can be increased to a maximum of 4 degrees for non-jet runways. Runway 35 is expected to accommodate smaller jets but the design aircraft is a non-jet aircraft. Therefore, both a slope of 3 degrees and 4 degrees were evaluated.

TABLE 3: PAPI OCS RUNWAY 35

Item	Option 1	Option 2
Number of Lights	4	Same
TCH	45'	Same
Distance from Threshold	1,018'	730'
Aiming Angle	3°	4°
OCS Slope	2°	3°
OCS Distance	4 Miles	4 Miles

<sup>\*</sup>Approach end of runways expected to serve large aircraft (Visual Day/Night) or instrument minimums>1 statute mile (day only) - See Table 3-2 in AC 150/5300-13A Change 1.

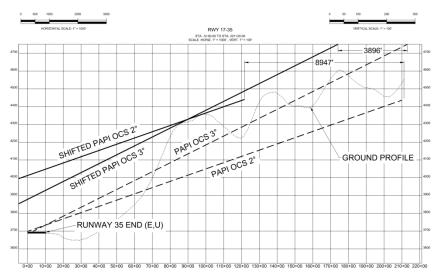
Source: T-O Engineers

Considering the amount of ground penetration, in both cases, the OCS cannot be cleared without offsetting the PAPI too far down the runway to keep a usable landing distance available.

As shown on **Exhibit 4**, the minimum amount of displaced threshold to mitigate the PAPI OCS penetrations by the terrain are:

- 8,947 feet for a 3°-angle PAPI
- 3,896 feet for a 4°-angle PAPI

**Exhibit 5** depicts a plan view of the two OCS evaluated for Runway 35 at GCD.



**EXHIBIT 4: PAPI OCS ANALYSIS - PROFILE VIEW** 

Source: T-O Engineers

# 5. Conclusion

According to the analysis conducted as part of this memorandum, it appears that installing a VGSI to Runway 35 is not feasible. The amount of penetration for the PAPI OCS would require an offset of the system too far down the runway and remove all usable distance for landing to Runway 35.



**EXHIBIT 5: PAPI OCS ANALYSIS-PLAN VIEW** 

# **APPENDIX D: FAA GRANT ASSURANCES**



#### **ASSURANCES**

# **Airport Sponsors**

#### A. General.

- These assurances shall be complied with in the performance of grant agreements for airport development, airport planning, and noise compatibility program grants for airport sponsors.
- 2. These assurances are required to be submitted as part of the project application by sponsors requesting funds under the provisions of Title 49, U.S.C., subtitle VII, as amended. As used herein, the term "public agency sponsor" means a public agency with control of a public-use airport; the term "private sponsor" means a private owner of a public-use airport; and the term "sponsor" includes both public agency sponsors and private sponsors.
- 3. Upon acceptance of this grant offer by the sponsor, these assurances are incorporated in and become part of this grant agreement.

# B. Duration and Applicability.

# 1. Airport development or Noise Compatibility Program Projects Undertaken by a Public Agency Sponsor.

The terms, conditions and assurances of this grant agreement shall remain in full force and effect throughout the useful life of the facilities developed or equipment acquired for an airport development or noise compatibility program project, or throughout the useful life of the project items installed within a facility under a noise compatibility program project, but in any event not to exceed twenty (20) years from the date of acceptance of a grant offer of Federal funds for the project. However, there shall be no limit on the duration of the assurances regarding Exclusive Rights and Airport Revenue so long as the airport is used as an airport. There shall be no limit on the duration of the terms, conditions, and assurances with respect to real property acquired with federal funds. Furthermore, the duration of the Civil Rights assurance shall be specified in the assurances.

# 2. Airport Development or Noise Compatibility Projects Undertaken by a Private Sponsor.

The preceding paragraph 1 also applies to a private sponsor except that the useful life of project items installed within a facility or the useful life of the facilities developed or equipment acquired under an airport development or noise compatibility program project shall be no less than ten (10) years from the date of acceptance of Federal aid for the project.

# 3. Airport Planning Undertaken by a Sponsor.

Unless otherwise specified in this grant agreement, only Assurances 1, 2, 3, 5, 6, 13, 18, 25, 30, 32, 33, and 34 in Section C apply to planning projects. The terms, conditions, and assurances of this grant agreement shall remain in full force and effect during the life of the project; there shall be no limit on the duration of the assurances regarding Airport Revenue so long as the airport is used as an airport.

# C. Sponsor Certification.

The sponsor hereby assures and certifies, with respect to this grant that:

# 1. General Federal Requirements.

It will comply with all applicable Federal laws, regulations, executive orders, policies, guidelines, and requirements as they relate to the application, acceptance and use of Federal funds for this project including but not limited to the following:

# **Federal Legislation**

- a. Title 49, U.S.C., subtitle VII, as amended.
- b. Davis-Bacon Act 40 U.S.C. 276(a), et seq.<sup>1</sup>
- c. Federal Fair Labor Standards Act 29 U.S.C. 201, et seq.
- d. Hatch Act 5 U.S.C. 1501, et seq.<sup>2</sup>
- e. Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 Title 42 U.S.C. 4601, et seq. <sup>1 2</sup>
- f. National Historic Preservation Act of 1966 Section 106 16 U.S.C. 470(f).
- g. Archeological and Historic Preservation Act of 1974 16 U.S.C. 469 through 469c.<sup>1</sup>
- h. Native Americans Grave Repatriation Act 25 U.S.C. Section 3001, et seq.
- i. Clean Air Act, P.L. 90-148, as amended.
- j. Coastal Zone Management Act, P.L. 93-205, as amended.
- k. Flood Disaster Protection Act of 1973 Section 102(a) 42 U.S.C. 4012a.
- 1. Title 49, U.S.C., Section 303, (formerly known as Section 4(f))
- m. Rehabilitation Act of 1973 29 U.S.C. 794.
- n. Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq., 78 stat. 252) (prohibits discrimination on the basis of race, color, national origin);
- o. Americans with Disabilities Act of 1990, as amended, (42 U.S.C. § 12101 et seq.), prohibits discrimination on the basis of disability).
- p. Age Discrimination Act of 1975 42 U.S.C. 6101, et seq.
- q. American Indian Religious Freedom Act, P.L. 95-341, as amended.
- r. Architectural Barriers Act of 1968 -42 U.S.C. 4151, et seq. 1
- s. Power plant and Industrial Fuel Use Act of 1978 Section 403- 2 U.S.C. 8373.
- t. Contract Work Hours and Safety Standards Act 40 U.S.C. 327, et seq. 1
- u. Copeland Anti-kickback Act 18 U.S.C. 874.1
- v. National Environmental Policy Act of 1969 42 U.S.C. 4321, et seq. 1
- w. Wild and Scenic Rivers Act, P.L. 90-542, as amended.
- x. Single Audit Act of 1984 31 U.S.C. 7501, et seq.<sup>2</sup>
- y. Drug-Free Workplace Act of 1988 41 U.S.C. 702 through 706.

z. The Federal Funding Accountability and Transparency Act of 2006, as amended (Pub. L. 109-282, as amended by section 6202 of Pub. L. 110-252).

#### **Executive Orders**

- a. Executive Order 11246 Equal Employment Opportunity<sup>1</sup>
- b. Executive Order 11990 Protection of Wetlands
- c. Executive Order 11998 Flood Plain Management
- d. Executive Order 12372 Intergovernmental Review of Federal Programs
- e. Executive Order 12699 Seismic Safety of Federal and Federally Assisted New Building Construction<sup>1</sup>
- f. Executive Order 12898 Environmental Justice

# **Federal Regulations**

- a. 2 CFR Part 180 OMB Guidelines to Agencies on Governmentwide Debarment and Suspension (Nonprocurement).
- b. 2 CFR Part 200, Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards. [OMB Circular A-87 Cost Principles Applicable to Grants and Contracts with State and Local Governments, and OMB Circular A-133 - Audits of States, Local Governments, and Non-Profit Organizations].<sup>4, 5, 6</sup>
- c. 2 CFR Part 1200 Nonprocurement Suspension and Debarment
- d. 14 CFR Part 13 Investigative and Enforcement Procedures 14 CFR Part 16 Rules of Practice For Federally Assisted Airport Enforcement Proceedings.
- e. 14 CFR Part 150 Airport noise compatibility planning.
- f. 28 CFR Part 35- Discrimination on the Basis of Disability in State and Local Government Services.
- g. 28 CFR § 50.3 U.S. Department of Justice Guidelines for Enforcement of Title VI of the Civil Rights Act of 1964.
- h. 29 CFR Part 1 Procedures for predetermination of wage rates.<sup>1</sup>
- i. 29 CFR Part 3 Contractors and subcontractors on public building or public work financed in whole or part by loans or grants from the United States. <sup>1</sup>
- j. 29 CFR Part 5 Labor standards provisions applicable to contracts covering federally financed and assisted construction (also labor standards provisions applicable to non-construction contracts subject to the Contract Work Hours and Safety Standards Act).<sup>1</sup>
- k. 41 CFR Part 60 Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor (Federal and federally assisted contracting requirements).<sup>1</sup>
- 1. 49 CFR Part 18 Uniform administrative requirements for grants and cooperative agreements to state and local governments.<sup>3</sup>
- m. 49 CFR Part 20 New restrictions on lobbying.
- n. 49 CFR Part 21 Nondiscrimination in federally-assisted programs of the Department of Transportation effectuation of Title VI of the Civil Rights Act of 1964
- o. 49 CFR Part 23 Participation by Disadvantage Business Enterprise in Airport Concessions.

- p. 49 CFR Part 24 Uniform Relocation Assistance and Real Property Acquisition for Federal and Federally Assisted Programs. 12
- q. 49 CFR Part 26 Participation by Disadvantaged Business Enterprises in Department of Transportation Programs.
- r. 49 CFR Part 27 Nondiscrimination on the Basis of Handicap in Programs and Activities Receiving or Benefiting from Federal Financial Assistance.<sup>1</sup>
- s. 49 CFR Part 28 Enforcement of Nondiscrimination on the Basis of Handicap in Programs or Activities conducted by the Department of Transportation.
- t. 49 CFR Part 30 Denial of public works contracts to suppliers of goods and services of countries that deny procurement market access to U.S. contractors.
- u. 49 CFR Part 32 Governmentwide Requirements for Drug-Free Workplace (Financial Assistance)
- v. 49 CFR Part 37 Transportation Services for Individuals with Disabilities (ADA).
- w. 49 CFR Part 41 Seismic safety of Federal and federally assisted or regulated new building construction.

# **Specific Assurances**

Specific assurances required to be included in grant agreements by any of the above laws, regulations or circulars are incorporated by reference in this grant agreement.

#### **Footnotes to Assurance C.1.**

- <sup>1</sup> These laws do not apply to airport planning sponsors.
- <sup>2</sup> These laws do not apply to private sponsors.
- <sup>3</sup> 49 CFR Part 18 and 2 CFR Part 200 contain requirements for State and Local Governments receiving Federal assistance. Any requirement levied upon State and Local Governments by this regulation and circular shall also be applicable to private sponsors receiving Federal assistance under Title 49, United States Code.
- On December 26, 2013 at 78 FR 78590, the Office of Management and Budget (OMB) issued the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards in 2 CFR Part 200. 2 CFR Part 200 replaces and combines the former Uniform Administrative Requirements for Grants (OMB Circular A-102 and Circular A-110 or 2 CFR Part 215 or Circular) as well as the Cost Principles (Circulars A-21 or 2 CFR part 220; Circular A-87 or 2 CFR part 225; and A-122, 2 CFR part 230). Additionally it replaces Circular A-133 guidance on the Single Annual Audit. In accordance with 2 CFR section 200.110, the standards set forth in Part 200 which affect administration of Federal awards issued by Federal agencies become effective once implemented by Federal agencies or when any future amendment to this Part becomes final. Federal agencies, including the Department of Transportation, must implement the policies and procedures applicable to Federal awards by promulgating a regulation to be effective by December 26, 2014 unless different provisions are required by statute or approved by OMB.

- <sup>5</sup> Cost principles established in 2 CFR part 200 subpart E must be used as guidelines for determining the eligibility of specific types of expenses.
- <sup>6</sup> Audit requirements established in 2 CFR part 200 subpart F are the guidelines for audits.

#### 2. Responsibility and Authority of the Sponsor.

# a. Public Agency Sponsor:

It has legal authority to apply for this grant, and to finance and carry out the proposed project; that a resolution, motion or similar action has been duly adopted or passed as an official act of the applicant's governing body authorizing the filing of the application, including all understandings and assurances contained therein, and directing and authorizing the person identified as the official representative of the applicant to act in connection with the application and to provide such additional information as may be required.

#### b. Private Sponsor:

It has legal authority to apply for this grant and to finance and carry out the proposed project and comply with all terms, conditions, and assurances of this grant agreement. It shall designate an official representative and shall in writing direct and authorize that person to file this application, including all understandings and assurances contained therein; to act in connection with this application; and to provide such additional information as may be required.

# 3. Sponsor Fund Availability.

It has sufficient funds available for that portion of the project costs which are not to be paid by the United States. It has sufficient funds available to assure operation and maintenance of items funded under this grant agreement which it will own or control.

#### 4. Good Title.

- a. It, a public agency or the Federal government, holds good title, satisfactory to the Secretary, to the landing area of the airport or site thereof, or will give assurance satisfactory to the Secretary that good title will be acquired.
- b. For noise compatibility program projects to be carried out on the property of the sponsor, it holds good title satisfactory to the Secretary to that portion of the property upon which Federal funds will be expended or will give assurance to the Secretary that good title will be obtained.

#### 5. Preserving Rights and Powers.

a. It will not take or permit any action which would operate to deprive it of any of the rights and powers necessary to perform any or all of the terms, conditions, and assurances in this grant agreement without the written approval of the Secretary, and will act promptly to acquire, extinguish or modify any outstanding rights or claims of right of others which would interfere with such performance by the sponsor. This shall be done in a manner acceptable to the Secretary.

- b. It will not sell, lease, encumber, or otherwise transfer or dispose of any part of its title or other interests in the property shown on Exhibit A to this application or, for a noise compatibility program project, that portion of the property upon which Federal funds have been expended, for the duration of the terms, conditions, and assurances in this grant agreement without approval by the Secretary. If the transferee is found by the Secretary to be eligible under Title 49, United States Code, to assume the obligations of this grant agreement and to have the power, authority, and financial resources to carry out all such obligations, the sponsor shall insert in the contract or document transferring or disposing of the sponsor's interest, and make binding upon the transferee all of the terms, conditions, and assurances contained in this grant agreement.
- c. For all noise compatibility program projects which are to be carried out by another unit of local government or are on property owned by a unit of local government other than the sponsor, it will enter into an agreement with that government. Except as otherwise specified by the Secretary, that agreement shall obligate that government to the same terms, conditions, and assurances that would be applicable to it if it applied directly to the FAA for a grant to undertake the noise compatibility program project. That agreement and changes thereto must be satisfactory to the Secretary. It will take steps to enforce this agreement against the local government if there is substantial non-compliance with the terms of the agreement.
- d. For noise compatibility program projects to be carried out on privately owned property, it will enter into an agreement with the owner of that property which includes provisions specified by the Secretary. It will take steps to enforce this agreement against the property owner whenever there is substantial noncompliance with the terms of the agreement.
- e. If the sponsor is a private sponsor, it will take steps satisfactory to the Secretary to ensure that the airport will continue to function as a public-use airport in accordance with these assurances for the duration of these assurances.
- f. If an arrangement is made for management and operation of the airport by any agency or person other than the sponsor or an employee of the sponsor, the sponsor will reserve sufficient rights and authority to insure that the airport will be operated and maintained in accordance Title 49, United States Code, the regulations and the terms, conditions and assurances in this grant agreement and shall insure that such arrangement also requires compliance therewith.
- g. Sponsors of commercial service airports will not permit or enter into any arrangement that results in permission for the owner or tenant of a property used as a residence, or zoned for residential use, to taxi an aircraft between that property and any location on airport. Sponsors of general aviation airports entering into any arrangement that results in permission for the owner of residential real property adjacent to or near the airport must comply with the requirements of Sec. 136 of Public Law 112-95 and the sponsor assurances.

#### 6. Consistency with Local Plans.

The project is reasonably consistent with plans (existing at the time of submission of this application) of public agencies that are authorized by the State in which the project is located to plan for the development of the area surrounding the airport.

#### 7. Consideration of Local Interest.

It has given fair consideration to the interest of communities in or near where the project may be located.

#### 8. Consultation with Users.

In making a decision to undertake any airport development project under Title 49, United States Code, it has undertaken reasonable consultations with affected parties using the airport at which project is proposed.

# 9. Public Hearings.

In projects involving the location of an airport, an airport runway, or a major runway extension, it has afforded the opportunity for public hearings for the purpose of considering the economic, social, and environmental effects of the airport or runway location and its consistency with goals and objectives of such planning as has been carried out by the community and it shall, when requested by the Secretary, submit a copy of the transcript of such hearings to the Secretary. Further, for such projects, it has on its management board either voting representation from the communities where the project is located or has advised the communities that they have the right to petition the Secretary concerning a proposed project.

#### 10. Metropolitan Planning Organization.

In projects involving the location of an airport, an airport runway, or a major runway extension at a medium or large hub airport, the sponsor has made available to and has provided upon request to the metropolitan planning organization in the area in which the airport is located, if any, a copy of the proposed amendment to the airport layout plan to depict the project and a copy of any airport master plan in which the project is described or depicted.

#### 11. Pavement Preventive Maintenance.

With respect to a project approved after January 1, 1995, for the replacement or reconstruction of pavement at the airport, it assures or certifies that it has implemented an effective airport pavement maintenance-management program and it assures that it will use such program for the useful life of any pavement constructed, reconstructed or repaired with Federal financial assistance at the airport. It will provide such reports on pavement condition and pavement management programs as the Secretary determines may be useful.

#### 12. Terminal Development Prerequisites.

For projects which include terminal development at a public use airport, as defined in Title 49, it has, on the date of submittal of the project grant application, all the safety equipment required for certification of such airport under section 44706 of Title 49, United States Code, and all the security equipment required by rule or regulation, and

has provided for access to the passenger enplaning and deplaning area of such airport to passengers enplaning and deplaning from aircraft other than air carrier aircraft.

# 13. Accounting System, Audit, and Record Keeping Requirements.

- a. It shall keep all project accounts and records which fully disclose the amount and disposition by the recipient of the proceeds of this grant, the total cost of the project in connection with which this grant is given or used, and the amount or nature of that portion of the cost of the project supplied by other sources, and such other financial records pertinent to the project. The accounts and records shall be kept in accordance with an accounting system that will facilitate an effective audit in accordance with the Single Audit Act of 1984.
- b. It shall make available to the Secretary and the Comptroller General of the United States, or any of their duly authorized representatives, for the purpose of audit and examination, any books, documents, papers, and records of the recipient that are pertinent to this grant. The Secretary may require that an appropriate audit be conducted by a recipient. In any case in which an independent audit is made of the accounts of a sponsor relating to the disposition of the proceeds of a grant or relating to the project in connection with which this grant was given or used, it shall file a certified copy of such audit with the Comptroller General of the United States not later than six (6) months following the close of the fiscal year for which the audit was made.

#### 14. Minimum Wage Rates.

It shall include, in all contracts in excess of \$2,000 for work on any projects funded under this grant agreement which involve labor, provisions establishing minimum rates of wages, to be predetermined by the Secretary of Labor, in accordance with the Davis-Bacon Act, as amended (40 U.S.C. 276a-276a-5), which contractors shall pay to skilled and unskilled labor, and such minimum rates shall be stated in the invitation for bids and shall be included in proposals or bids for the work.

#### 15. Veteran's Preference.

It shall include in all contracts for work on any project funded under this grant agreement which involve labor, such provisions as are necessary to insure that, in the employment of labor (except in executive, administrative, and supervisory positions), preference shall be given to Vietnam era veterans, Persian Gulf veterans, Afghanistan-Iraq war veterans, disabled veterans, and small business concerns owned and controlled by disabled veterans as defined in Section 47112 of Title 49, United States Code. However, this preference shall apply only where the individuals are available and qualified to perform the work to which the employment relates.

#### 16. Conformity to Plans and Specifications.

It will execute the project subject to plans, specifications, and schedules approved by the Secretary. Such plans, specifications, and schedules shall be submitted to the Secretary prior to commencement of site preparation, construction, or other performance under this grant agreement, and, upon approval of the Secretary, shall be incorporated into this grant agreement. Any modification to the approved plans,

specifications, and schedules shall also be subject to approval of the Secretary, and incorporated into this grant agreement.

#### 17. Construction Inspection and Approval.

It will provide and maintain competent technical supervision at the construction site throughout the project to assure that the work conforms to the plans, specifications, and schedules approved by the Secretary for the project. It shall subject the construction work on any project contained in an approved project application to inspection and approval by the Secretary and such work shall be in accordance with regulations and procedures prescribed by the Secretary. Such regulations and procedures shall require such cost and progress reporting by the sponsor or sponsors of such project as the Secretary shall deem necessary.

# 18. Planning Projects.

In carrying out planning projects:

- a. It will execute the project in accordance with the approved program narrative contained in the project application or with the modifications similarly approved.
- b. It will furnish the Secretary with such periodic reports as required pertaining to the planning project and planning work activities.
- c. It will include in all published material prepared in connection with the planning project a notice that the material was prepared under a grant provided by the United States.
- d. It will make such material available for examination by the public, and agrees that no material prepared with funds under this project shall be subject to copyright in the United States or any other country.
- e. It will give the Secretary unrestricted authority to publish, disclose, distribute, and otherwise use any of the material prepared in connection with this grant.
- f. It will grant the Secretary the right to disapprove the sponsor's employment of specific consultants and their subcontractors to do all or any part of this project as well as the right to disapprove the proposed scope and cost of professional services.
- g. It will grant the Secretary the right to disapprove the use of the sponsor's employees to do all or any part of the project.
- h. It understands and agrees that the Secretary's approval of this project grant or the Secretary's approval of any planning material developed as part of this grant does not constitute or imply any assurance or commitment on the part of the Secretary to approve any pending or future application for a Federal airport grant.

#### 19. Operation and Maintenance.

a. The airport and all facilities which are necessary to serve the aeronautical users of the airport, other than facilities owned or controlled by the United States, shall be operated at all times in a safe and serviceable condition and in accordance with the minimum standards as may be required or prescribed by applicable Federal,

state and local agencies for maintenance and operation. It will not cause or permit any activity or action thereon which would interfere with its use for airport purposes. It will suitably operate and maintain the airport and all facilities thereon or connected therewith, with due regard to climatic and flood conditions. Any proposal to temporarily close the airport for non-aeronautical purposes must first be approved by the Secretary. In furtherance of this assurance, the sponsor will have in effect arrangements for-

- 1) Operating the airport's aeronautical facilities whenever required;
- 2) Promptly marking and lighting hazards resulting from airport conditions, including temporary conditions; and
- 3) Promptly notifying airmen of any condition affecting aeronautical use of the airport. Nothing contained herein shall be construed to require that the airport be operated for aeronautical use during temporary periods when snow, flood or other climatic conditions interfere with such operation and maintenance. Further, nothing herein shall be construed as requiring the maintenance, repair, restoration, or replacement of any structure or facility which is substantially damaged or destroyed due to an act of God or other condition or circumstance beyond the control of the sponsor.
- b. It will suitably operate and maintain noise compatibility program items that it owns or controls upon which Federal funds have been expended.

### 20. Hazard Removal and Mitigation.

It will take appropriate action to assure that such terminal airspace as is required to protect instrument and visual operations to the airport (including established minimum flight altitudes) will be adequately cleared and protected by removing, lowering, relocating, marking, or lighting or otherwise mitigating existing airport hazards and by preventing the establishment or creation of future airport hazards.

#### 21. Compatible Land Use.

It will take appropriate action, to the extent reasonable, including the adoption of zoning laws, to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft. In addition, if the project is for noise compatibility program implementation, it will not cause or permit any change in land use, within its jurisdiction, that will reduce its compatibility, with respect to the airport, of the noise compatibility program measures upon which Federal funds have been expended.

#### 22. Economic Nondiscrimination.

- a. It will make the airport available as an airport for public use on reasonable terms and without unjust discrimination to all types, kinds and classes of aeronautical activities, including commercial aeronautical activities offering services to the public at the airport.
- b. In any agreement, contract, lease, or other arrangement under which a right or privilege at the airport is granted to any person, firm, or corporation to conduct or

to engage in any aeronautical activity for furnishing services to the public at the airport, the sponsor will insert and enforce provisions requiring the contractor to-

- 1) furnish said services on a reasonable, and not unjustly discriminatory, basis to all users thereof, and
- charge reasonable, and not unjustly discriminatory, prices for each unit or service, provided that the contractor may be allowed to make reasonable and nondiscriminatory discounts, rebates, or other similar types of price reductions to volume purchasers.
- c. Each fixed-based operator at the airport shall be subject to the same rates, fees, rentals, and other charges as are uniformly applicable to all other fixed-based operators making the same or similar uses of such airport and utilizing the same or similar facilities.
- d. Each air carrier using such airport shall have the right to service itself or to use any fixed-based operator that is authorized or permitted by the airport to serve any air carrier at such airport.
- e. Each air carrier using such airport (whether as a tenant, non-tenant, or subtenant of another air carrier tenant) shall be subject to such nondiscriminatory and substantially comparable rules, regulations, conditions, rates, fees, rentals, and other charges with respect to facilities directly and substantially related to providing air transportation as are applicable to all such air carriers which make similar use of such airport and utilize similar facilities, subject to reasonable classifications such as tenants or non-tenants and signatory carriers and non-signatory carriers. Classification or status as tenant or signatory shall not be unreasonably withheld by any airport provided an air carrier assumes obligations substantially similar to those already imposed on air carriers in such classification or status.
- f. It will not exercise or grant any right or privilege which operates to prevent any person, firm, or corporation operating aircraft on the airport from performing any services on its own aircraft with its own employees [including, but not limited to maintenance, repair, and fueling] that it may choose to perform.
- g. In the event the sponsor itself exercises any of the rights and privileges referred to in this assurance, the services involved will be provided on the same conditions as would apply to the furnishing of such services by commercial aeronautical service providers authorized by the sponsor under these provisions.
- h. The sponsor may establish such reasonable, and not unjustly discriminatory, conditions to be met by all users of the airport as may be necessary for the safe and efficient operation of the airport.
- i. The sponsor may prohibit or limit any given type, kind or class of aeronautical use of the airport if such action is necessary for the safe operation of the airport or necessary to serve the civil aviation needs of the public.

#### 23. Exclusive Rights.

It will permit no exclusive right for the use of the airport by any person providing, or intending to provide, aeronautical services to the public. For purposes of this paragraph, the providing of the services at an airport by a single fixed-based operator shall not be construed as an exclusive right if both of the following apply:

- a. It would be unreasonably costly, burdensome, or impractical for more than one fixed-based operator to provide such services, and
- b. If allowing more than one fixed-based operator to provide such services would require the reduction of space leased pursuant to an existing agreement between such single fixed-based operator and such airport. It further agrees that it will not, either directly or indirectly, grant or permit any person, firm, or corporation, the exclusive right at the airport to conduct any aeronautical activities, including, but not limited to charter flights, pilot training, aircraft rental and sightseeing, aerial photography, crop dusting, aerial advertising and surveying, air carrier operations, aircraft sales and services, sale of aviation petroleum products whether or not conducted in conjunction with other aeronautical activity, repair and maintenance of aircraft, sale of aircraft parts, and any other activities which because of their direct relationship to the operation of aircraft can be regarded as an aeronautical activity, and that it will terminate any exclusive right to conduct an aeronautical activity now existing at such an airport before the grant of any assistance under Title 49, United States Code.

#### 24. Fee and Rental Structure.

It will maintain a fee and rental structure for the facilities and services at the airport which will make the airport as self-sustaining as possible under the circumstances existing at the particular airport, taking into account such factors as the volume of traffic and economy of collection. No part of the Federal share of an airport development, airport planning or noise compatibility project for which a grant is made under Title 49, United States Code, the Airport and Airway Improvement Act of 1982, the Federal Airport Act or the Airport and Airway Development Act of 1970 shall be included in the rate basis in establishing fees, rates, and charges for users of that airport.

#### 25. Airport Revenues.

- a. All revenues generated by the airport and any local taxes on aviation fuel established after December 30, 1987, will be expended by it for the capital or operating costs of the airport; the local airport system; or other local facilities which are owned or operated by the owner or operator of the airport and which are directly and substantially related to the actual air transportation of passengers or property; or for noise mitigation purposes on or off the airport. The following exceptions apply to this paragraph:
  - 1) If covenants or assurances in debt obligations issued before September 3, 1982, by the owner or operator of the airport, or provisions enacted before September 3, 1982, in governing statutes controlling the owner or operator's financing, provide for the use of the revenues from any of the airport owner or

- operator's facilities, including the airport, to support not only the airport but also the airport owner or operator's general debt obligations or other facilities, then this limitation on the use of all revenues generated by the airport (and, in the case of a public airport, local taxes on aviation fuel) shall not apply.
- 2) If the Secretary approves the sale of a privately owned airport to a public sponsor and provides funding for any portion of the public sponsor's acquisition of land, this limitation on the use of all revenues generated by the sale shall not apply to certain proceeds from the sale. This is conditioned on repayment to the Secretary by the private owner of an amount equal to the remaining unamortized portion (amortized over a 20-year period) of any airport improvement grant made to the private owner for any purpose other than land acquisition on or after October 1, 1996, plus an amount equal to the federal share of the current fair market value of any land acquired with an airport improvement grant made to that airport on or after October 1, 1996.
- 3) Certain revenue derived from or generated by mineral extraction, production, lease, or other means at a general aviation airport (as defined at Section 47102 of title 49 United States Code), if the FAA determines the airport sponsor meets the requirements set forth in Sec. 813 of Public Law 112-95.
- b. As part of the annual audit required under the Single Audit Act of 1984, the sponsor will direct that the audit will review, and the resulting audit report will provide an opinion concerning, the use of airport revenue and taxes in paragraph (a), and indicating whether funds paid or transferred to the owner or operator are paid or transferred in a manner consistent with Title 49, United States Code and any other applicable provision of law, including any regulation promulgated by the Secretary or Administrator.
- c. Any civil penalties or other sanctions will be imposed for violation of this assurance in accordance with the provisions of Section 47107 of Title 49, United States Code.

# 26. Reports and Inspections.

It will:

- a. submit to the Secretary such annual or special financial and operations reports as the Secretary may reasonably request and make such reports available to the public; make available to the public at reasonable times and places a report of the airport budget in a format prescribed by the Secretary;
- b. for airport development projects, make the airport and all airport records and documents affecting the airport, including deeds, leases, operation and use agreements, regulations and other instruments, available for inspection by any duly authorized agent of the Secretary upon reasonable request;
- c. for noise compatibility program projects, make records and documents relating to the project and continued compliance with the terms, conditions, and assurances of this grant agreement including deeds, leases, agreements, regulations, and other instruments, available for inspection by any duly authorized agent of the Secretary upon reasonable request; and

- d. in a format and time prescribed by the Secretary, provide to the Secretary and make available to the public following each of its fiscal years, an annual report listing in detail:
  - 1) all amounts paid by the airport to any other unit of government and the purposes for which each such payment was made; and
  - 2) all services and property provided by the airport to other units of government and the amount of compensation received for provision of each such service and property.

#### 27. Use by Government Aircraft.

It will make available all of the facilities of the airport developed with Federal financial assistance and all those usable for landing and takeoff of aircraft to the United States for use by Government aircraft in common with other aircraft at all times without charge, except, if the use by Government aircraft is substantial, charge may be made for a reasonable share, proportional to such use, for the cost of operating and maintaining the facilities used. Unless otherwise determined by the Secretary, or otherwise agreed to by the sponsor and the using agency, substantial use of an airport by Government aircraft will be considered to exist when operations of such aircraft are in excess of those which, in the opinion of the Secretary, would unduly interfere with use of the landing areas by other authorized aircraft, or during any calendar month that —

- a. Five (5) or more Government aircraft are regularly based at the airport or on land adjacent thereto; or
- b. The total number of movements (counting each landing as a movement) of Government aircraft is 300 or more, or the gross accumulative weight of Government aircraft using the airport (the total movement of Government aircraft multiplied by gross weights of such aircraft) is in excess of five million pounds.

#### 28. Land for Federal Facilities.

It will furnish without cost to the Federal Government for use in connection with any air traffic control or air navigation activities, or weather-reporting and communication activities related to air traffic control, any areas of land or water, or estate therein, or rights in buildings of the sponsor as the Secretary considers necessary or desirable for construction, operation, and maintenance at Federal expense of space or facilities for such purposes. Such areas or any portion thereof will be made available as provided herein within four months after receipt of a written request from the Secretary.

#### 29. Airport Layout Plan.

- a. It will keep up to date at all times an airport layout plan of the airport showing
  - 1) boundaries of the airport and all proposed additions thereto, together with the boundaries of all offsite areas owned or controlled by the sponsor for airport purposes and proposed additions thereto;
  - 2) the location and nature of all existing and proposed airport facilities and structures (such as runways, taxiways, aprons, terminal buildings, hangars and

- roads), including all proposed extensions and reductions of existing airport facilities;
- 3) the location of all existing and proposed nonaviation areas and of all existing improvements thereon; and
- 4) all proposed and existing access points used to taxi aircraft across the airport's property boundary. Such airport layout plans and each amendment, revision, or modification thereof, shall be subject to the approval of the Secretary which approval shall be evidenced by the signature of a duly authorized representative of the Secretary on the face of the airport layout plan. The sponsor will not make or permit any changes or alterations in the airport or any of its facilities which are not in conformity with the airport layout plan as approved by the Secretary and which might, in the opinion of the Secretary, adversely affect the safety, utility or efficiency of the airport.
- b. If a change or alteration in the airport or the facilities is made which the Secretary determines adversely affects the safety, utility, or efficiency of any federally owned, leased, or funded property on or off the airport and which is not in conformity with the airport layout plan as approved by the Secretary, the owner or operator will, if requested, by the Secretary (1) eliminate such adverse effect in a manner approved by the Secretary; or (2) bear all costs of relocating such property (or replacement thereof) to a site acceptable to the Secretary and all costs of restoring such property (or replacement thereof) to the level of safety, utility, efficiency, and cost of operation existing before the unapproved change in the airport or its facilities except in the case of a relocation or replacement of an existing airport facility due to a change in the Secretary's design standards beyond the control of the airport sponsor.

#### 30. Civil Rights.

It will promptly take any measures necessary to ensure that no person in the United States shall, on the grounds of race, creed, color, national origin, sex, age, or disability be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination in any activity conducted with, or benefiting from, funds received from this grant.

a. Using the definitions of activity, facility and program as found and defined in §§ 21.23 (b) and 21.23 (e) of 49 CFR § 21, the sponsor will facilitate all programs, operate all facilities, or conduct all programs in compliance with all non-discrimination requirements imposed by, or pursuant to these assurances.

#### b. Applicability

- 1) Programs and Activities. If the sponsor has received a grant (or other federal assistance) for any of the sponsor's program or activities, these requirements extend to all of the sponsor's programs and activities.
- 2) Facilities. Where it receives a grant or other federal financial assistance to construct, expand, renovate, remodel, alter or acquire a facility, or part of a facility, the assurance extends to the entire facility and facilities operated in connection therewith.

3) Real Property. Where the sponsor receives a grant or other Federal financial assistance in the form of, or for the acquisition of real property or an interest in real property, the assurance will extend to rights to space on, over, or under such property.

#### c. Duration.

The sponsor agrees that it is obligated to this assurance for the period during which Federal financial assistance is extended to the program, except where the Federal financial assistance is to provide, or is in the form of, personal property, or real property, or interest therein, or structures or improvements thereon, in which case the assurance obligates the sponsor, or any transferee for the longer of the following periods:

- 1) So long as the airport is used as an airport, or for another purpose involving the provision of similar services or benefits; or
- 2) So long as the sponsor retains ownership or possession of the property.
- d. Required Solicitation Language. It will include the following notification in all solicitations for bids, Requests For Proposals for work, or material under this grant agreement and in all proposals for agreements, including airport concessions, regardless of funding source:

"The (Name of Sponsor), in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises and airport concession disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award."

#### e. Required Contract Provisions.

- It will insert the non-discrimination contract clauses requiring compliance
  with the acts and regulations relative to non-discrimination in Federallyassisted programs of the DOT, and incorporating the acts and regulations into
  the contracts by reference in every contract or agreement subject to the nondiscrimination in Federally-assisted programs of the DOT acts and
  regulations.
- 2) It will include a list of the pertinent non-discrimination authorities in every contract that is subject to the non-discrimination acts and regulations.
- 3) It will insert non-discrimination contract clauses as a covenant running with the land, in any deed from the United States effecting or recording a transfer of real property, structures, use, or improvements thereon or interest therein to a sponsor.
- 4) It will insert non-discrimination contract clauses prohibiting discrimination on the basis of race, color, national origin, creed, sex, age, or handicap as a

covenant running with the land, in any future deeds, leases, license, permits, or similar instruments entered into by the sponsor with other parties:

- a) For the subsequent transfer of real property acquired or improved under the applicable activity, project, or program; and
- b) For the construction or use of, or access to, space on, over, or under real property acquired or improved under the applicable activity, project, or program.
- f. It will provide for such methods of administration for the program as are found by the Secretary to give reasonable guarantee that it, other recipients, sub-recipients, sub-grantees, contractors, subcontractors, consultants, transferees, successors in interest, and other participants of Federal financial assistance under such program will comply with all requirements imposed or pursuant to the acts, the regulations, and this assurance.
- g. It agrees that the United States has a right to seek judicial enforcement with regard to any matter arising under the acts, the regulations, and this assurance.

### 31. Disposal of Land.

- a. For land purchased under a grant for airport noise compatibility purposes, including land serving as a noise buffer, it will dispose of the land, when the land is no longer needed for such purposes, at fair market value, at the earliest practicable time. That portion of the proceeds of such disposition which is proportionate to the United States' share of acquisition of such land will be, at the discretion of the Secretary, (1) reinvested in another project at the airport, or (2) transferred to another eligible airport as prescribed by the Secretary. The Secretary shall give preference to the following, in descending order, (1) reinvestment in an approved noise compatibility project, (2) reinvestment in an approved project that is eligible for grant funding under Section 47117(e) of title 49 United States Code, (3) reinvestment in an approved airport development project that is eligible for grant funding under Sections 47114, 47115, or 47117 of title 49 United States Code, (4) transferred to an eligible sponsor of another public airport to be reinvested in an approved noise compatibility project at that airport, and (5) paid to the Secretary for deposit in the Airport and Airway Trust Fund. If land acquired under a grant for noise compatibility purposes is leased at fair market value and consistent with noise buffering purposes, the lease will not be considered a disposal of the land. Revenues derived from such a lease may be used for an approved airport development project that would otherwise be eligible for grant funding or any permitted use of airport revenue.
- b. For land purchased under a grant for airport development purposes (other than noise compatibility), it will, when the land is no longer needed for airport purposes, dispose of such land at fair market value or make available to the Secretary an amount equal to the United States' proportionate share of the fair market value of the land. That portion of the proceeds of such disposition which is proportionate to the United States' share of the cost of acquisition of such land will, (1) upon application to the Secretary, be reinvested or transferred to another

eligible airport as prescribed by the Secretary. The Secretary shall give preference to the following, in descending order: (1) reinvestment in an approved noise compatibility project, (2) reinvestment in an approved project that is eligible for grant funding under Section 47117(e) of title 49 United States Code, (3) reinvestment in an approved airport development project that is eligible for grant funding under Sections 47114, 47115, or 47117 of title 49 United States Code, (4) transferred to an eligible sponsor of another public airport to be reinvested in an approved noise compatibility project at that airport, and (5) paid to the Secretary for deposit in the Airport and Airway Trust Fund.

- c. Land shall be considered to be needed for airport purposes under this assurance if (1) it may be needed for aeronautical purposes (including runway protection zones) or serve as noise buffer land, and (2) the revenue from interim uses of such land contributes to the financial self-sufficiency of the airport. Further, land purchased with a grant received by an airport operator or owner before December 31, 1987, will be considered to be needed for airport purposes if the Secretary or Federal agency making such grant before December 31, 1987, was notified by the operator or owner of the uses of such land, did not object to such use, and the land continues to be used for that purpose, such use having commenced no later than December 15, 1989.
- d. Disposition of such land under (a) (b) or (c) will be subject to the retention or reservation of any interest or right therein necessary to ensure that such land will only be used for purposes which are compatible with noise levels associated with operation of the airport.

# 32. Engineering and Design Services.

It will award each contract, or sub-contract for program management, construction management, planning studies, feasibility studies, architectural services, preliminary engineering, design, engineering, surveying, mapping or related services with respect to the project in the same manner as a contract for architectural and engineering services is negotiated under Title IX of the Federal Property and Administrative Services Act of 1949 or an equivalent qualifications-based requirement prescribed for or by the sponsor of the airport.

#### 33. Foreign Market Restrictions.

It will not allow funds provided under this grant to be used to fund any project which uses any product or service of a foreign country during the period in which such foreign country is listed by the United States Trade Representative as denying fair and equitable market opportunities for products and suppliers of the United States in procurement and construction.

#### 34. Policies, Standards, and Specifications.

It will carry out the project in accordance with policies, standards, and specifications approved by the Secretary including but not limited to the advisory circulars listed in the Current FAA Advisory Circulars for AIP projects, dated \_\_\_\_\_\_ (the latest approved version as of this grant offer) and included in this grant, and in accordance

with applicable state policies, standards, and specifications approved by the Secretary.

# 35. Relocation and Real Property Acquisition.

- a. It will be guided in acquiring real property, to the greatest extent practicable under State law, by the land acquisition policies in Subpart B of 49 CFR Part 24 and will pay or reimburse property owners for necessary expenses as specified in Subpart B.
- b. It will provide a relocation assistance program offering the services described in Subpart C and fair and reasonable relocation payments and assistance to displaced persons as required in Subpart D and E of 49 CFR Part 24.
- c. It will make available within a reasonable period of time prior to displacement, comparable replacement dwellings to displaced persons in accordance with Subpart E of 49 CFR Part 24.

# 36. Access By Intercity Buses.

The airport owner or operator will permit, to the maximum extent practicable, intercity buses or other modes of transportation to have access to the airport; however, it has no obligation to fund special facilities for intercity buses or for other modes of transportation.

#### 37. Disadvantaged Business Enterprises.

The sponsor shall not discriminate on the basis of race, color, national origin or sex in the award and performance of any DOT-assisted contract covered by 49 CFR Part 26, or in the award and performance of any concession activity contract covered by 49 CFR Part 23. In addition, the sponsor shall not discriminate on the basis of race, color, national origin or sex in the administration of its DBE and ACDBE programs or the requirements of 49 CFR Parts 23 and 26. The sponsor shall take all necessary and reasonable steps under 49 CFR Parts 23 and 26 to ensure nondiscrimination in the award and administration of DOT-assisted contracts, and/or concession contracts. The sponsor's DBE and ACDBE programs, as required by 49 CFR Parts 26 and 23, and as approved by DOT, are incorporated by reference in this agreement. Implementation of these programs is a legal obligation and failure to carry out its terms shall be treated as a violation of this agreement. Upon notification to the sponsor of its failure to carry out its approved program, the Department may impose sanctions as provided for under Parts 26 and 23 and may, in appropriate cases, refer the matter for enforcement under 18 U.S.C. 1001 and/or the Program Fraud Civil Remedies Act of 1936 (31 U.S.C. 3801).

#### 38. Hangar Construction.

If the airport owner or operator and a person who owns an aircraft agree that a hangar is to be constructed at the airport for the aircraft at the aircraft owner's expense, the airport owner or operator will grant to the aircraft owner for the hangar a long term lease that is subject to such terms and conditions on the hangar as the airport owner or operator may impose.

# 39. Competitive Access.

- a. If the airport owner or operator of a medium or large hub airport (as defined in section 47102 of title 49, U.S.C.) has been unable to accommodate one or more requests by an air carrier for access to gates or other facilities at that airport in order to allow the air carrier to provide service to the airport or to expand service at the airport, the airport owner or operator shall transmit a report to the Secretary that-
  - 1) Describes the requests;
  - 2) Provides an explanation as to why the requests could not be accommodated; and
  - 3) Provides a time frame within which, if any, the airport will be able to accommodate the requests.
- b. Such report shall be due on either February 1 or August 1 of each year if the airport has been unable to accommodate the request(s) in the six month period prior to the applicable due date.

# **APPENDIX E: LAND USE**

- **E-1 Model Zoning Ordinance**
- E-2 Oregon Land Use Guidebook
- E-3 Model Fair Disclosure Statement
- E-4 Example Comprehensive Plan
- E-5 Property Deeds

# **E-1: MODEL ZONING ORDINANCE**

# MODEL PUBLIC USE AIRPORT SAFETY AND COMPATIBILITY OVERLAY ZONE FOR PUBLIC USE AIRPORTS WITH INSTRUMENT APPROACHES

- .010 Purpose. The purpose of this overlay zone is to encourage and support the continued operation and vitality of public use airports with instrument approaches by establishing compatibility and safety standards to promote air navigational safety at such public use airports and to reduce potential safety hazards for persons living, working or recreating near such public use airports. [ORS 836.600; ORS 836.619; OAR 660-013-0070; OAR 660-013-0080]
- .**020** <u>Definitions</u>. [ORS 836.605; ORS 836.623(6); OAR 660-013-0020; OAR 660-013- 0070(1)(a), (b); OAR 660-013-0080(1)(a)]

<u>Airport</u>. The strip of land used for taking off and landing aircraft, together with all adjacent land used in connection with the aircraft landing or taking off from the strip of land, including but not limited to land used for existing airport uses.

<u>Airport Direct Impact Area</u>. The area located within 5,000 feet of an airport runway, excluding lands within the runway protection zone and approach surface.

<u>Airport Elevation</u>. The highest point of an airport's usable runway, measured in feet above mean sea level.

<u>Airport Imaginary Surfaces</u>. Imaginary areas in space and on the ground that are established in relation to the airport and its runways. Imaginary areas are defined by the primary surface, runway protection zone, approach surface, horizontal surface, conical surface and transitional surface.

<u>Airport Noise Impact Boundary</u>. Areas located within 1,500 feet of an airport runway or within established noise contour boundaries exceeding 55 Ldn.

<u>Airport Secondary Impact Area</u>. The area located between 5,000 and 10,000 feet from an airport runway.

<u>Airport Sponsor</u>. The owner, manager, or other person or entity designated to represent the interests of an airport.

<u>Approach Surface</u>. A surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the primary surface.

- (A) The inner edge of the approach surface is the same width as the primary surface and it expands uniformly to a width of:
  - (1) 2,000 feet for a utility runway having a non-precision instrument approach;
  - (2) 3,500 feet for a non-precision instrument runway, other than utility, having visibility minimums greater than three-fourths statute mile;

(3) 4,000 feet for a non-precision instrument runway, other than utility, having visibility minimums at or below three-fourths statute mile; and

- (4) 16,000 feet for precision instrument runways.
- (B) The approach surface extends for a horizontal distance of:
  - 5,000 feet at a slope of 20 feet outward for each foot upward for all utility runways;
  - (2) 10,000 feet at a slope of 34 feet outward for each foot upward for all non-precision instrument runways, other than utility; an
  - (3) 10,000 feet at a slope of 50 feet outward for each one foot upward, with an additional 40,000 feet at slope of 40 feet outward for each one foot upward, for precision instrument runways.
- (C) The outer width of an approach surface will be that width prescribed in this subsection for the most precise approach existing or planned for that runway end.

<u>Conical Surface</u>. A surface extending outward and upward from the periphery of the horizontal surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet.

<u>Department of Aviation</u>. The Oregon Department of Aviation, formerly the Aeronautics Division of the Oregon Department of Transportation.

FAA. The Federal Aviation Administration.

<u>FAA's Technical Representative</u>. As used in this ordinance, the federal agency providing the FAA with expertise on wildlife and bird strike hazards as they relate to airports. This may include, but is not limited to, the USDA-APHIS-Wildlife Services.

<u>Height</u>. The highest point of a structure or tree, plant or other object of natural growth, measured from mean sea level.

<u>Horizontal Surface</u>. A horizontal plane 150 feet above the established airport elevation, the perimeter of which is constructed by swinging arcs of specified radii from the center of each end of the primary surface of each runway of each airport and connecting the adjacent arcs by lines tangent to those arcs. The radius of each arc is:

- (A) 5,000 feet for all runways designated as utility.
- (B) 10,000 feet for all other runways.
- (C) The radius of the arc specified for each end of a runway will have the same arithmetical value. That value will be the highest determined for either end of the runway. When a 5,000 foot arc is encompassed by tangents connecting two adjacent 10,000 foot arcs, the 5,000 foot arc shall be disregarded on the construction of the perimeter of the horizontal surface.

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Non-precision Instrument Runway. A runway having an existing instrument approach procedure utilizing air navigation facilities with only horizontal guidance, or area type navigation equipment, for which a straight-in non-precision instrument approach has been approved, or planned, and for which no precision approach facilities are planned or indicated on an FAA-approved airport layout plan or other FAA planning document.

<u>Obstruction</u>. Any structure or tree, plant or other object of natural growth that penetrates an imaginary surface.

Other than Utility Runway. A runway that is constructed for and intended to be used by turbine driven aircraft or by propeller-driven aircraft exceeding 12,500 pounds gross weight.

<u>Precision Instrument Runway</u>. A runway having an existing instrument approach procedure utilizing air navigation facilities that provide both horizontal and vertical guidance, such as an Instrument Landing System (ILS) or Precision Approach Radar (PAR). It also means a runway for which a precision approach system is planned and is so indicated by an FAA-approved airport layout plan or other FAA planning document.

<u>Primary Surface</u>. A surface longitudinally centered on a runway. When a runway has a specially prepared hard surface, the primary surface extends 200 feet beyond each end of that runway. When a runway has no specially prepared hard surface, or planned hard surface, the primary surface ends at each end of that runway. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline. The width of the primary surface is:

- (A) 500 feet for utility runways having non-precision instrument approaches,
- (B) 500 feet for other than utility runways having non-precision instrument approaches with visibility minimums greater than three-fourths statute mile, and
- (C) 1,000 feet for non-precision instrument runways with visibility minimums at or below three-fourths statute mile, and for precision instrument runways.

<u>Public Assembly Facility</u>. A permanent or temporary structure or facility, place or activity where concentrations of people gather in reasonably close quarters for purposes such as deliberation, education, worship, shopping, employment, entertainment, recreation, sporting events, or similar activities. Public assembly facilities include, but are not limited to, schools, churches, conference or convention facilities, employment and shopping centers, arenas, athletic fields, stadiums, clubhouses, museums, and similar facilities and places, but do not include parks, golf courses or similar facilities unless used in a manner where people are concentrated in reasonably close quarters. Public assembly facilities also do not include air shows, structures or uses approved by the FAA in an adopted airport master plan, or places where people congregate for short periods of time such as parking lots or bus stops.

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

Runway Protection Zone (RPZ). An area off the runway end used to enhance the protection of people and property on the ground. The RPZ is trapezoidal in shape and centered about the extended runway centerline. The inner width of the RPZ is the same as the width of the primary surface. The outer width of the RPZ is a function of the type of aircraft and specified approach visibility minimum associated with the runway end. The RPZ extends from each end of the primary surface for a horizontal distance of:

- (A) 1,000 feet for utility runways.
- (B) 1,700 feet for other than utility runways having non-precision instrument approaches.
- (C) 2,500 feet for precision instrument runways.

# [NOTE: the outer width of the RPZ is specified by airport type in OAR 660, Division 13, Exhibit 4]

<u>Significant</u>. As it relates to bird strike hazards, "significant" means a level of increased flight activity by birds across an approach surface or runway that is more than incidental or occasional, considering the existing ambient level of flight activity by birds in the vicinity.

<u>Structure</u>. Any constructed or erected object which requires location on the ground or is attached to something located on the ground. Structures include but are not limited to buildings, decks, fences, signs, towers, cranes, flagpoles, antennas, smokestacks, earth formations and overhead transmission lines. Structures do not include paved areas.

<u>Transitional Surface</u>. Those surfaces that extend upward and outward at 90 degree angles to the runway centerline and the runway centerline extended at a slope of seven (7) feet horizontally for each foot vertically from the sides of the primary and approach surfaces to the point of intersection with the horizontal and conical surfaces. Transitional surfaces for those portions of the precision approach surfaces which project through and beyond the limits of the conical surface, extend a distance of 5,000 feet measured horizontally from the edge of the approach surface and at a 90 degree angle to the extended runway centerline.

<u>Utility Runway</u>. A runway that is constructed for and intended to be used by propeller driven aircraft of 12,500 pounds maximum gross weight or less.

<u>Visual Runway</u>. A runway intended solely for the operation of aircraft using visual approach procedures, where no straight-in instrument approach procedures or instrument designations have been approved or planned, or are indicated on an FAA-approved airport layout plan or any other FAA planning document.

<u>Water Impoundment</u>. Includes wastewater treatment settling ponds, surface mining ponds, detention and retention ponds, artificial lakes and ponds, and similar water features. A new water impoundment includes an expansion of an existing water impoundment except where such expansion was previously authorized by land use action approved prior to the effective date of this ordinance.

.030 <u>Imaginary Surface and Noise Impact Boundary Delineation</u>. The airport elevation, the airport noise impact boundary, and the location and dimensions of the runway, primary surface, runway protection zone,

approach surface, horizontal surface, conical surface and transitional surface shall be delineated for each airport subject to this overlay zone and shall be made part of the Official Zoning Map. [NOTE: Airports utilizing best management practices should include direct and secondary impact boundaries in this list.] All lands, waters and airspace, or portions thereof, that are located within these boundaries or surfaces shall be subject to the requirements of this overlay zone. [ORS 836.619; OAR 660-013-0040(8); OAR 660-013-0070(1); OAR 660-013-0080(1)]

- .040 Notice of Land Use and Permit Applications within Overlay Zone Area. Except as otherwise provided herein, written notice of applications for land use or limited land use decisions, including comprehensive plan or zoning amendments, in an area within this overlay zone, shall be provided to the airport sponsor and the Department of Aviation in the same manner as notice is provided to property owners entitled by law to written notice of land use or limited land use applications. [ORS 836.623(1); OAR 738-100-010; ORS 215.416(6); ORS 227.175(6)]
  - A. Notice shall be provided to the airport sponsor and the Department of Aviation when the property, or a portion thereof, that is subject to the land use or limited land use application is located within 10,000 feet of the sides or ends of a runway:
  - B. Notice of land use and limited land use applications shall be provided within the following timelines.
    - 1. Notice of land use or limited land use applications involving public hearings shall be provided prior to the public hearing at the same time that written notice of such applications is provided to property owners entitled to such notice.
    - Notice of land use or limited land use applications not involving public hearings shall be provided at least 20 days prior to entry of the initial decision on the land use or limited land use application.
  - C. Notice of the decision on a land use or limited land use application shall be provided to the airport sponsor and the Department of Aviation within the same timelines that such notice is provided to parties to a land use or limited land use proceeding.
  - D. Notices required under Paragraphs A-C of this section need not be provided to the airport sponsor or the Department of Aviation where the land use or limited land use application meets all of the following criteria:
    - 1. Would only allow structures of less than 35 feet in height;
    - 2. Involves property located entirely outside the approach surface;
    - 3. Does not involve industrial, mining or similar uses that emit smoke, dust or steam; sanitary landfills or water impoundments; or radio, radiotelephone, television or similar transmission facilities or electrical transmission lines; and
    - 4. Does not involve wetland mitigation, enhancement, restoration or creation.

.050 <u>Height Limitations on Allowed Uses in Underlying Zones</u>. All uses permitted by the underlying zone shall comply with the height limitations in this Section. When height limitations of the underlying zone are more restrictive than those of this overlay zone, the underlying zone height limitations shall control. [ORS 836.619; OAR 660-013-0070]

- A. Except as provided in subsections B and C of this Section, no structure or tree, plant or other object of natural growth shall penetrate an airport imaginary surface. [ORS 836.619; OAR 660-013-0070(1)]
- B. For areas within airport imaginary surfaces but outside the approach and transition surfaces, where the terrain is at higher elevations than the airport runway surfaces such that existing structures and permitted development penetrate or would penetrate the airport imaginary surfaces, a local government may authorize structures up to 35 feet in height.
- C. Other height exceptions or variances may be permitted when supported in writing by the airport sponsor, the Department of Aviation and the FAA. Applications for height variances shall follow the procedures for other variances and shall be subject to such conditions and terms as recommended by the Department of Aviation and the FAA.
- .060 <u>Procedures</u>. An applicant seeking a land use or limited land use approval in an area within this overlay zone shall provide the following information in addition to any other information required in the permit application: [NOTE: where uses otherwise allowed outright become "limited" under this ordinance, the local government needs to identify the applicable administrative review process.]
  - A. A map or drawing showing the location of the property in relation to the airport imaginary surfaces. The Planning Department shall provide the applicant with appropriate base maps upon which to locate the property.
  - B. Elevation profiles and a site plan, both drawn to scale, including the location and height of all existing and proposed structures, measured in feet above mean sea level.
  - C. If a height variance is requested, letters of support from the airport sponsor, the Department of Aviation and the FAA.
- .070 <u>Land Use Compatibility Requirements</u>. [Option 1 Minimum Requirements] Applications for land use or building permits for properties within the boundaries of this overlay zone shall comply with the requirements of this chapter as provided herein. [ORS 836.619; OAR 660-013-0080]
  - A. <u>Noise</u>. Within airport noise impact boundaries, land uses shall be established consistent with the levels identified in OAR 660, Division 13, Exhibit 5. A declaration of anticipated noise levels shall be attached to any subdivision or partition approval or other land use approval or building permit affecting land within airport noise impact boundaries. In areas where the noise level is anticipated to be at or above 55 Ldn, prior to issuance of a building permit for construction of a noise sensitive land use (real property normally used for

sleeping or as a school, church, hospital, public library or similar use), the permit applicant shall be required to demonstrate that a noise abatement strategy will be incorporated into the building design that will achieve an indoor noise level equal to or less than 55 Ldn. [OAR 340-035-0045(1)(d), (4)] [NOTE: FAA Order 5100.38A, Chapter 7 provides that interior noise levels should not exceed 45 decibels in all habitable zones.]

- B. <u>Outdoor Lighting</u>. No new or expanded industrial, commercial or recreational use shall project lighting directly onto an existing runway or taxiway or into existing airport approach surfaces except where necessary for safe and convenient air travel. Lighting for these uses shall incorporate shielding in their designs to reflect light away from airport approach surfaces. No use shall imitate airport lighting or impede the ability of pilots to distinguish between airport lighting and other lighting.
- C. <u>Glare</u>. No glare producing material, including but not limited to unpainted metal or reflective glass, shall be used on the exterior of structures located within an approach surface or on nearby lands where glare could impede a pilot's vision.
- D. <u>Industrial Emissions</u>. No new industrial, mining or similar use, or expansion of an existing industrial, mining or similar use, shall, as part of its regular operations, cause emissions of smoke, dust or steam that could obscure visibility within airport approach surfaces, except upon demonstration, supported by substantial evidence, that mitigation measures imposed as approval conditions will reduce the potential for safety risk or incompatibility with airport operations to an insignificant level. The review authority shall impose such conditions as necessary to ensure that the use does not obscure visibility.
- E. Communications Facilities and Electrical Interference. Proposals for the location of new or expanded radio, radiotelephone, and television transmission facilities and electrical transmission lines within this overlay zone shall be coordinated with the Department of Aviation and the FAA prior to approval. [NOTE: See the additional safeguards set out in the Best Management Practices alternative below. The Department of Aviation highly recommends those safeguards.]
- F. <u>Use Prohibitions in RPZ</u>. Notwithstanding the underlying zoning, the following uses are prohibited in the RPZ.
  - New residential development.
  - 2. Public assembly facilities.
- G. <u>Landfills</u>. No new sanitary landfills shall be permitted within 10,000 feet of any airport runway. Expansions of existing landfill facilities within these distances shall be permitted only upon demonstration that the landfills are designed and will operate so as not to increase the likelihood of bird/aircraft collisions. Timely notice of any proposed expansion shall be provided to the airport sponsor, the Department of Aviation and the FAA, and any approval shall be accompanied by such conditions as are necessary to ensure that an increase in bird/aircraft collisions is not likely to result.

#### OR...

.070 <u>Land Use Compatibility Requirements</u>. [Option 2 – Best Management Practices] Applications for land use or building permits for properties within the boundaries of this overlay zone shall comply with the requirements of this chapter as provided herein. [ORS 836.619; ORS 836.623(1); OAR 660-013-0080]

- A. Noise. Within airport noise impact boundaries, land uses shall be established consistent with the levels identified in OAR 660, Division 13, Exhibit 5. A declaration of anticipated noise levels shall be attached to any subdivision or partition approval or other land use approval or building permit affecting land within airport noise impact boundaries. In areas where the noise level is anticipated to be at or above 55 Ldn, prior to issuance of a building permit for construction of a noise sensitive land use (real property normally used for sleeping or as a school, church, hospital, public library or similar use), the permit applicant shall be required to demonstrate that a noise abatement strategy will be incorporated into the building design that will achieve an indoor noise level equal to or less than 55 Ldn. [NOTE: FAA Order 5100.38A, Chapter 7 provides that interior noise levels should not exceed 45 decibels in all habitable zones.]
- B. <u>Outdoor Lighting</u>. No new or expanded industrial, commercial or recreational use shall project lighting directly onto an existing runway or taxiway or into existing airport approach surfaces except where necessary for safe and convenient air travel. Lighting for these uses shall incorporate shielding in their designs to reflect light away from airport approach surfaces. No use shall imitate airport lighting or impede the ability of pilots to distinguish between airport lighting and other lighting.
- C. Glare. No glare producing material, including but not limited to unpainted metal or reflective glass, shall be used on the exterior of structures located within an approach surface or on nearby lands where glare could impede a pilot's vision.
- D. <u>Industrial Emissions</u>. No new industrial, mining or similar use, or expansion of an existing industrial, mining or similar use, shall, as part of its regular operations, cause emissions of smoke, dust or steam that could obscure visibility within airport approach surfaces, except upon demonstration, supported by substantial evidence, that mitigation measures imposed as approval conditions will reduce the potential for safety risk or incompatibility with airport operations to an insignificant level. The review authority shall impose such conditions as necessary to ensure that the use does not obscure visibility.
- E. Communications Facilities and Electrical Interference. No use shall cause or create electrical interference with navigational signals or radio communications between an airport and aircraft. Proposals for the location of new or expanded radio, radiotelephone, and television transmission facilities and electrical transmission lines within this overlay zone shall be coordinated with the Department of Aviation and the FAA prior to approval. Approval of cellular and other telephone or radio communication towers on leased property located within airport imaginary surfaces shall be conditioned to require their removal within 90 days following the expiration of the lease

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agreement. A bond or other security shall be required to ensure this result.

F. <u>Limitations and Restrictions on Allowed Uses in the RPZ, Approach Surface, and Airport Direct and Secondary Impact Areas.</u> The land uses identified in Table 1, and their accessory uses, are permitted, permitted under limited circumstances, or prohibited in the manner therein described. In the event of conflict with the underlying zone, the more restrictive provisions shall control. As used in this section, a limited use means a use that is allowed subject to special standards specific to that use.

#### TABLE A-1: LIMITATIONS & RESTRICTIONS ON ALLOWED USES

KEY: P = Use is Permitted

L = Use is Allowed Under Limited Circumstances (see footnotes)

N = Use is Not Allowed

	RPZ <sup>1</sup>	Approach Surface <sup>8</sup>	Direct Impact Area	Secondary Impact Area
Public Airport	L <sup>2</sup>	L <sup>9</sup>	Р	Р
Residential	N	L 10	L 14	Р
Commercial	N	L <sup>9</sup>	L 15	Р
Industrial	N	L <sup>9</sup>	Р	Р
Institutional	N	L <sup>9</sup>	L 15	Р
Farm Use	P 3	P <sup>3</sup>	P 3	P <sup>3</sup>
Roads/Parking	L <sup>4</sup>	Р	Р	Р
Utilities	L <sup>5</sup>	L <sup>5</sup>	L <sup>5</sup>	L <sup>5</sup>
Parks/Open Space	L <sup>6</sup>	Р	Р	Р
Golf Courses	L <sup>7</sup>	L <sup>7 9</sup>	L <sup>7</sup>	L 7
Athletic Fields	N	L <sup>9</sup>	L 14	Р
Sanitary Landfills	N	N	N	N
Water Treatment Plants	N	N	N	N
Mining	N	L 11	L 11	L 11
Water Impoundments	N	N <sup>12</sup>	N <sup>16</sup>	N <sup>16</sup>
Wetland Mitigation	N	L <sup>13</sup>	L <sup>13</sup>	L 13

Source: Model Public Use Airport Safety And Compatibility Overlay Zone (Visual and Instrument Approach Airports), ODA

#### Notes:

- No Structures shall be allowed within the Runway Protection Zone (RPZ). Exceptions shall be made only for structures accessory to airport operations whose location within the RPZ has been approved by the Federal Aviation Administration.
- In the RPZ, public airport uses are restricted to those uses and facilities that require location in the RPZ.

Farming practices that minimize wildlife attractants are encouraged.

- <sup>4</sup> Roads and parking areas are permitted in the RPZ only upon demonstration that there are not practicable alternatives. Lights, guardrails, and related accessory structures are prohibited. Cost may be considered in determining whether practicable alternatives exist.
- In the RPZ, utilities, powerlines and pipelines must be underground. In approach surfaces and in airport direct and secondary impact areas, the proposed height of utilities shall be coordinated with the airport sponsor and Department of Aviation (ODA).

Public assembly facilities are prohibited in the RPZ.

Golf courses may be permitted only upon demonstration, supported by substantial evidence, that management techniques will be utilized to reduce existing wildlife attractants and avoid the recreation of new wildlife attractant. Such techniques shall be required as conditions of the approval. Structures are not permitted within the RPZ. For purposes of this document, tee markers, tee signs, pin cups and pins are not considered to be structures.

Within 10,000 feet from the end of the primary surface of a non-precision instrument runway, and within 50,000 feet from the end of the primary surface of a precision instrument runway.

Public assembly facilities may be allowed in an approach surface only if the potential danger to public safety is minimal. In determining whether a proposed use is appropriate, consideration shall be given to: proximity to the

RPZ; density of people per acre; frequency of use; level of activity at the airport,; and other factors relevant to public safety. In general, high density uses should not be permitted within airport approach surfaces, and on-residential structures should be located outside approach surfaces unless no practicable alternatives exist.

- Residential densities within approach surfaces should not exceed the following densities: (1) within 500 feet of the outer edge of the RPZ, 1 unit per acre; (2) within 500 to 1,500 feet of the outer edge of the RPZ, 2 units per acre; (3) within 1,500 to 3,000 feet of the outer edge of the RPZ, 4 units per acre.
- Mining operations involving the creation or expansion of water impoundments shall comply with the requirements of this document regarding water impoundments.

Water impoundments are prohibited within 5,000 feet from the edge or end of a runway.

Welland Mitigation required for projects located within an approach surface, the airport direct or secondary impact area shall be authorized only upon demonstration, supported by substantial evidence, that it is impracticable to provide mitigation outside of these areas. Proposals for wetland mitigation shall be coordinated with the airport sponsor, the Department of Aviation, the FAA and the wetland-permitting agencies prior to the issuance of required permits. Wetland mitigation shall be designed and located to avoid creating a wildlife hazard or increasing hazardous movements of birds across runway and approach surfaces. Conditions shall be imposed as are appropriate and necessary to prevent in perpetuity an increase in hazardous bird movements across runway and approach surfaces. See section 0.90 of Appendix D or E for the best management practices for airports located near significant wetlands or wildlife habitat areas.

Within the transitional surface, residential uses and athletic fields are not permitted.

- Within the transitional surface, overnight accommodations, such as hotels, motels, hospitals and dormitories, are not permitted.
- See section .08 of Appendix D or E prohibiting or regulating water impoundments within 5,000 or 10,000 feet of the end or edge of a runway.

.080 <u>Water Impoundments within Approach Surfaces and Airport Direct and Secondary Impact Boundaries</u>. Any use or activity that would result in the establishment or expansion of a water impoundment shall comply with the requirements of this section. (ORS 836.623(2); OAR 660-013-0080(1)(f)]

- A. No new or expanded water impoundments of one-quarter acre in size or larger are permitted:
  - 1. Within an approach surface and within 5,000 feet from the end of a runway; or
  - 2. On land owned by the airport sponsor that is necessary for airport operations.

#### OR...

[for airports where it can be demonstrated with substantial evidence that new water impoundments would result in a significant increase in hazardous movements of birds across runways or approach surfaces, taking into consideration mitigation measures or conditions that could reduce safety risks and incompatibility] [ORS 836.623(2)(b), (c); ORS 836.623(4), (5)]

- A. No new or expanded water impoundments of one-quarter acre in size or larger are permitted within 5,000 feet from the end or edge of a runway.
- B. The establishment of a new water impoundment one-quarter acre in size or larger between 5,000 and 10,000 feet of a runway outside an approach surface and between 5,000 feet and 40,000 feet within an approach corridor for an airport with an instrument approach may be permitted only upon determination that such water impoundment, with reasonable and practicable mitigation measures, is not likely to result in a significant increase in hazardous movements of birds feeding, watering or roosting in areas across runways or approach surfaces. [NOTE: FAA Part 77 discourages water impoundments within 50,000 feet of a runway within an approach surface.] [ORS 836.623(2)(c); OAR 660, Division 13, Exhibit 1, Section 3(b)(C);]

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Process. An application for approval of a new water impoundment shall be considered utilizing the review process applied to applications for conditional use permits. In addition to the parties required by law to be mailed written notice of the public hearing on the application, written notice of the hearing shall be mailed to the airport sponsor, the Seattle Airports District Office of the FAA, the FAA's technical representative, and the Oregon Department of Aviation.

- a. Prior to filing its application, the applicant shall coordinate with the airport sponsor, the Department of Aviation, and the FAA (Seattle Airports District Office) and FAA's technical representative regarding the proposed water impoundment, its short and long term potential to significantly increase hazardous movements of birds feeding, watering or roosting in areas across runways or approach surfaces, and proposed mitigation.
  - (1) For water impoundments individually or cumulatively exceeding five (5) acres in size on the subject property, the applicant shall prepare a draft bird strike study as provided in subsection .2 of this section. The airport sponsor, the Department of Aviation, and the FAA and FAA's technical representative shall have 45 days to review the study draft. Their comments shall be included and addressed in a final bird strike study.
  - (2) For water impoundments that do not individually or cumulatively exceed five (5) acres in size on the subject property, the bird strike study requirements in subsection 2 of this section may be reduced or waived upon agreement by the airport sponsor, the Department of Aviation, and the FAA and FAA's technical representative if the applicant can demonstrate, to the satisfaction of the airport sponsor, the Department of Aviation, and the FAA and FAA's technical representative that the proposed water impoundment, with appropriate short and long term mitigation, will not result in a significant increase in hazardous movements of birds feeding, watering or roosting in areas across runways or approach surfaces. As used herein, mitigation" "appropriate means small-scale measures of proven reliability that can be applied in perpetuity and that the applicant has the financial resources to support.
- b. An application shall not be deemed complete for land use review purposes until the applicant has filed with the Director the final bird strike study addressing comments from the airport sponsor, the Department of Aviation, and the FAA and FAA's technical representative. When no bird strike study is required, the application shall not be deemed complete until the applicant has filed with the Director correspondence or other proof demonstrating agreement among the airport sponsor, the Department

of Aviation, and the FAA and FAA's technical representative that no bird strike study is required.

- 2. <u>Bird Strike Study</u>. A bird strike study required under this section shall contain at least the following information:
  - a. A description of the proposed project, its location in relation to the airport and the bird strike study area, which shall include at least the project site, the airport property, all lands within 10,000 feet from the end or edge of the airport runway, and other surrounding habitat areas which form the local bird ecosystem.
  - A description of bird feeding, watering and roosting habitats in the bird strike study area, including discussion of feeding behavior and food sources and identification of loafing, watering, roosting and nesting area locations.
  - A description of existing and planned airport operations and air traffic patterns and any available history of bird strike incidents.
  - d. Wildlife surveys and documentation of existing bird species, populations, activities and flight patterns in the bird strike study area. The surveys shall address bird species and their composition; bird population estimates and densities per unit area; feeding behavior; food sources; seasonal use patterns; frequency of occurrence; location of loafing, roosting and nesting areas; and analysis of the relation of bird flight movements to airport traffic patterns and navigational safety. The airport sponsor shall provide approach and departure air space information up to five statutory miles from the airport.
  - e. An evaluation of the anticipated effects of the proposal on the population density, behavior patterns, movements and species composition of birds within the bird strike study area and of the impact of these effects on air navigation and safety considering possible mitigation.
  - f. Identification and evaluation of proposed and alternative short and long term mitigation measures that would prevent a significant increase in hazardous movements of birds feeding, watering or roosting in areas across runways and approach surfaces that otherwise might result from the proposed use. The evaluation shall discuss the proven reliability of proposed measures, their effectiveness over both the short and long term, their costs, and the applicant's financial ability to assure implementation, *i.e.* their perpetual ongoing implementation for as long as a potential bird strike hazard persists.
  - g. Such other information as is recommended by the FAA's technical representative or is required to demonstrate

compliance with the requirements of subsection .3 of this section.

- 3. Required Findings. The determination whether a proposed new water impoundment, with reasonable and practicable mitigation measures, is likely to significantly increase hazardous movements of birds feeding, watering or roosting in areas across runways or approach surfaces shall be based upon the proposal's potential, both in the short term and in the long term, to significantly increase bird strike hazards to air navigation, and the appropriateness, effectiveness and affordability of proposed mitigation measures or other conditions needed to reduce bird strike hazards. In determining compliance with this standard, the findings shall address each of the following factors:
  - a. The demonstrated overall effectiveness and reliability of proposed measures and conditions, in both the short and long term and under similar circumstances and conditions, to avoid a significant increase in bird strike hazards to air navigation. Experimental measures or measures not based on accepted technology and industry practices shall be considered ineffective, inappropriate and of unproven reliability.
  - b. The economic, social and environmental impacts of proposed measures to the neighboring community and the affected natural environment.
  - c. The applicant's ability to pay for necessary short and long-term mitigation measures, including fallback measures that may be required if initially proposed mitigation measures prove ineffective, and to assure the perpetual implementation of those measures for as long as a potential bird strike hazard persists. An applicant's failure to demonstrate its financial ability to assure the perpetual implementation of necessary and appropriate measures shall render those measures unreasonable and impracticable for purposes of the application.
  - d. The applicant's ability to accurately monitor the effectiveness of mitigation over time.
  - e. The potential impacts to navigational safety and air travel if the applicant cannot perform necessary mitigation measures or maintain those measures in perpetuity, or if those measures prove to be ineffective at avoiding a significant increase in bird strike hazards to air navigation.
  - f. The applicant's reclamation plan.
- 4. <u>Mitigation Measures and Approval Conditions</u>. A decision approving an application shall require, as conditions of approval, all measures and conditions deemed appropriate and necessary to prevent in perpetuity a significant increase in hazardous movements of birds feeding, watering or roosting in areas across runways and approach surfaces.

 Only customary measures based on accepted technology and industry practice may be considered and imposed as approval conditions.

- b. Serious consideration shall be given to all measures and conditions recommended by the Department of Aviation and the FAA and FAA's technical representative. Generally, such measures and conditions shall be attached to a decision approving an application unless findings are adopted, supported by substantial evidence, demonstrating why such measures and conditions are not necessary to reduce bird hazard impacts resulting from the water impoundment to an insignificant level.
- c. A decision to approve shall require from the applicant a performance bond or other form of secure financial support. Such bond or security shall be in an amount sufficient to assure perpetual implementation of appropriate and necessary mitigation measures for as long as a potential bird strike hazard persists.
- d. A decision to approve shall require appropriate monitoring of the effectiveness of mitigation over time. Upon request, monitoring data and reports shall be made available to the airport sponsor, the Department of Aviation, and the FAA and FAA's technical representative. The decision shall allow for modifications to approval conditions should existing mitigation measures prove ineffective at preventing a significant increase in hazardous movements of birds feeding, watering or roosting in areas across runways and approach surfaces. Modifications to approval conditions shall be considered utilizing the review process applied to applications for conditional use permits.
- 5. <u>Exemptions</u>. The requirements of this section shall not apply to:
  - a. Storm water management basins established by an airport identified under ORS 836.610(1).
  - b. Seaplane landing areas within airports identified under ORS 836.610(1).

# .090 <u>Wetland Mitigation, Creation, Enhancement and Restoration within Approach Surfaces and Airport Direct and Secondary Impact Boundaries.</u>

- A. Notwithstanding the requirements of Section .080, wetland mitigation, creation, enhancement or restoration projects located within areas regulated under Section .080 shall be allowed upon demonstration of compliance with this requirements of this Section.
- B. Wetland mitigation, creation, enhancement or restoration projects existing or approved on the effective date of this ordinance and located within areas regulated under Section .080 are recognized as lawfully existing uses.

- C. To help avoid increasing safety hazards to air navigation near public use airports, the establishment of wetland mitigation banks in the vicinity of such airports but outside approach surfaces and areas regulated under Section .080 is encouraged.
- D. Applications to expand wetland mitigation projects in existence as of the effective date of this ordinance, and new wetland mitigation projects, that are proposed within areas regulated under Section .080 shall be considered utilizing the review process applied to applications for conditional use permits and shall be permitted upon demonstration that:
  - 1. It is not practicable to provide off-site mitigation; or
  - 2. The affected wetlands provide unique ecological functions, such as critical habitat for threatened or endangered species or ground water discharge, and the area proposed for mitigation is located outside an approach surface.
- E. Wetland mitigation permitted under subsection D. of this Section shall be designed and located to avoid creating a wildlife hazard or increasing hazardous movements of birds across runways or approach surfaces.
- F. Applications to create, enhance or restore wetlands that are proposed to be located within approach surfaces or within areas regulated under Section .080, and that would result in the creation of a new water impoundment or the expansion of an existing water impoundment, shall be considered utilizing the review process applied to applications for conditional use permits and shall be permitted upon demonstration that:
  - 1. The affected wetlands provide unique ecological functions, such as critical habitat for threatened or endangered species or ground water discharge; and
  - 2. The wetland creation, enhancement or restoration is designed and will be maintained in perpetuity in a manner that will not increase hazardous movements of birds feeding, watering or roosting in areas across runways or approach surfaces.
- G. Proposals for new or expanded wetland mitigation, creation, enhancement or restoration projects regulated under this Section shall be coordinated with the airport sponsor, the Department of Aviation, the FAA and FAA's technical representative, the Oregon Department of Fish & Wildlife (ODFW), the Oregon Division of State Lands (DSL), the US Fish & Wildlife Service (USFWS), and the US Army Corps of Engineers (Corps) as part of the permit application.
- H. A decision approving an application under this Section shall require, as conditions of approval, measures and conditions deemed appropriate and necessary to prevent in perpetuity an increase in hazardous bird movements across runways and approach surfaces.

#### .100 Nonconforming Uses.

A. These regulations shall not be construed to require the removal, lowering or alteration of any structure not conforming to these

regulations. These regulations shall not require any change in the construction, alteration or intended use of any structure, the construction or alteration of which was begun prior to the effective date of this overlay zone.

- B. Notwithstanding subsection A. of this section, the owner of any existing structure that has an adverse effect on air navigational safety as determined by the Department of Aviation shall install or allow the installation of obstruction markers as deemed necessary by the Department of Aviation, so that the structures become more visible to pilots.
- C. No land use or limited land use approval or other permit shall be granted that would allow a nonconforming use or structure to become a greater hazard to air navigation than it was on the effective date of the overlay zone.
- .110 <u>Avigation Easement</u>. Within this overlay zone, the owners of properties that are the subjects of applications for land use or limited land use decisions, for building permits for new residential, commercial, industrial, institutional or recreational buildings or structures intended for inhabitation or occupancy by humans or animals, or for expansions of such buildings or structures by the lesser of 50% or 1000 square feet, shall, as a condition of obtaining such approval or permits, dedicate an avigation easement to the airport sponsor. The avigation easement shall be in a form acceptable to the airport sponsor and shall be signed and recorded in the deed records of the County. The avigation easement shall allow unobstructed passage for aircraft and ensure safety and use of the airport for the public. Property owners or their representatives are responsible for providing the recorded instrument prior to issuance of building permits.

# E-2: OREGON LAND USE GUIDEBOOK - CHAPTER 5

# 5.0 Federal and State Regulations Related to Airport Compatible Land Use Planning

There are many entities involved in implementing programs related to land use compatibility around airports. These include the FAA, state and local governments and the community at-large. Familiarity with the regulations mandated by each entity is foremost in efforts to protect the airport's environs. The various regulations related to airport land use issues have been separated into three primary categories for ease of review: planning related regulations, noise related regulations and environmental related regulations. Each of these areas of interest is discussed below with summaries of both federal and state regulations. The following descriptions are not meant to be an inclusive list of federal and state regulations, but simply a summary of the primary rules and regulations with ties to land use issues. Additional coordination or involvement with other federal or state agencies may be required on a project specific basis. Early coordination with ODA is recommended in order to identify the potential involvement of these other agencies, as soon as possible.

### 5.1 Planning Related Legislation and Regulations

Planning related regulations are the most critical of the three basic types of rules. These planning regulations lay the foundation for the creation of a land use planning process and provide the fundamental tools to implement the resulting program. These regulations cover a wide range of topics dealing with everything from airspace related issues to the content of an airport master plan. Used in conjunction with one another, they provide the core regulations governing airport land use compatibility issues.

### 5.1a. Federal Level Planning Regulations

Federal statutes and regulations relating to land use compatibility and airports, are summarized below. This is not an exhaustive summary, however, it provides the primary legislation related to land use issues.

# a.1 Airport and Airway Improvement Act of 1982 United States Code (USC), Title 49

Upon acceptance of Federal funds, this Act obligates the airport owners to operate and maintain the airport and comply with specific assurances, including maintenance of compatible land uses around airports. The implementation of this Act is handled through stipulations outlined in the grant documents signed by airport owners when they accept federal funds for a project.

### a.2 Objects Affecting Navigable Airspace Federal Code of Federal Regulations (CFR) Title 14, Part 77

This federal regulation establishes standards for determining obstructions in navigable airspace. It sets forth requirements for construction and alteration of structures (i.e. buildings, towers, etc.). It also provides for studies of obstructions to determine their effect on the safe and efficient use of airspace, as well as providing for public hearings regarding these obstructions, along with provisions for the creation of antenna farm areas. It also establishes methods of identifying surfaces that must be free from penetration by obstructions, including buildings, cranes, cell towers, etc., in the vicinity of an airport. The specifics of this regulation are outlined in Chapter 3 of this document. This regulation is predominately concerned with airspace related issues. Implementation and enforcement of the elements contained in this regulation is a cooperative effort between the FAA and the individual state aviation agencies, in this instance, ODA.

Planning regulations lay the foundation for the creation of a land use planning process and provide the fundamental tools to implement the resulting program.

a.3 Proposed Construction or Alteration of Objects That May Affect the Navigable Airspace

### FAA Advisory Circular (AC) 70/7460-2J

This form works in conjunction with the requirements of FAR Part 77. It is required at all federally obligated airports to assess all proposed or temporary construction in the vicinity of the airport. The FAA conducts an aeronautical study and issues a determination to the proponent and the airport operator if the proposed development is determined to be a hazard. It is imperative that local planners are aware of the various critical safety considerations when siting developments around airports. A sample FAA 7460-1 is included in Appendix K of this document.

# a.4 General Operating and Flight Rules – FAR Part 91 Federal Code of Federal Regulations (CFR) Title 14, Part 91

This federal regulation establishes general rules for the operation of aircraft with regards to various airports, various types of flight, i.e., Instrument Flight Rules (IFR) or Visual Flight Rules (VFR) conditions, as well as maintenance, special flight operations, foreign aircraft operations and operating noise limits. FAR Part 91 requirements are considered planning regulations. This is because the recommendations for various types of flight operations translate into specific spatial requirements for safety areas that must be planned for during the master planning process.

# a.5 Airport Land Use Compatibility Planning FAA Advisory Circular (AC) 150/5060-6

This document guides the development of a compatibility plan to ensure the environs surrounding an airport are not developed in a manner that could pose a risk to the airport's operations. This document specifically looks at land use and noise issues. (1977)

### a.6 Airport Master Plans FAA Advisory Circular (AC) 150/5070-6A

This document guides the development of airport master plans. The guiding principle of the airport planning process is to develop a safe and efficient airport through the use of acceptable standards. While there are many steps in the planning process, none of these steps should be treated in a piecemeal manner. The air-side and land-side issues must be equally evaluated to create a plan that provides for compatible airport and community development where possible. (1985)

### a.7 A Model Zoning Ordinance to Limit Height of Objects Around Airports FAA Advisory Circular (AC) 150/5190-4A

This advisory circular concerns itself with developing zoning ordinances to control the height of objects. It is based upon the surfaces described in Subpart C of FAR Part 77, Objects Affecting Navigable Airspace, current edition. This document provides sample language and model ordinances for use by local airports. (1987)

### a.8 Airport Design

### Advisory Circular (AC) 150/5300-13 Change 7

This document provides the basic standards and recommendations for airport design. This document consolidates five previous documents pertaining to airport design. The most recent update provides expanded information for new approach procedures for Runway Protection Zones, threshold-siting criteria and new instrument approach categories.

Chapter 5-2

# a.9 FAA Order 18, November, 1999, US Standards for Terminal Instrument Procedures (TERPS) FAA Order 8260. 3 B change 14 (July 7, 1976 with changes 1-19 through May 2002)

This document contains standards for establishing and designing instrument flight procedures. The criteria are applicable at any location over which the U.S. has jurisdiction.

### a.10 Grant Assurances

Pursuant to the provisions of Title 49, U.S.C., subtitle VII, as amended, assurances are required to be submitted as part of a project application by sponsors requesting funds. Upon acceptance of the grant offer by the sponsor, these assurances are incorporated in, and become part of, the grant agreement. For planning related projects, the number of assurances that apply to the project are more limited. A summary of some of the planning assurances are noted below:

- → compliance with all applicable Federal laws, regulations, executive orders, policies, guidelines and requirements as they relate to the project
- → responsibility and authority of the sponsor to carry out the proposed project
- → availability of the local share of funds for the proposed project
- → preservation of the rights and powers of the sponsor, and the airport
- → consistency with local plans
- → creation of an accurate accounting , auditing and record-keeping process
- → accessibility of the public to project information and the planning process
- → compliance with civil rights issues
- provision of engineering and design services
- → compliance with current policies, standards and specifications.

The aforementioned issues are a sample for the thirty-seven assurance issues currently listed within the federal grant assurances. Each airport sponsor should be cognizant of these assurances as they apply to their specific airport project and must work to maintain compliance with these assurances.

### 5.1b. State Level Planning Legislation and Regulations

The topics of various state level planning regulations are addressed in a broader format than the federal regulations. The following summaries illustrate the relationships between the various state rules and regulations.

### b.1 Comprehensive Planning and Periodic Review

Oregon's land use planning program requires cities and counties to prepare, adopt and amend comprehensive plans in compliance with 19 Statewide Planning Goals and administrative rules (OARs) that implement these goals. The State Land Conservation and Development Commission (LCDC) adopted the

Oregon is unique in that there are numerous state regulations that govern airportrelated planning and development.

goals and rules. One of these Goals (Goal 12, Transportation Planning) promotes the provision of a safe, convenient, and economic statewide transportation network, including passenger and freight air transportation. The goal is achieved by the creation of transportation system plans (TSPs).

Oregon Revised Statutes (ORS 197.628 et seq.) also require local governments to periodically review comprehensive plans and to implement land use regulations to ensure that they adequately provide "needed housing, employment, transportation and public facilities and services." Through the periodic review process, local governments work with the state Department of Land Conservation and Development (DLCD), the agency arm implementing policies established through LCDC, to update certain comprehensive plan elements (e.g., transportation plans) and/or regulations (e.g., airport compatibility zoning).

The need for periodic review is based upon a determination that there has been:

- → a change in circumstances such that the local plan or land use regulations do not comply with statewide planning goals,
- → the existing plan or regulations are not achieving the goals, or
- there are agency plans or programs that affect land use which require modification to local plans or regulations to assure compliance with the goals.

Many communities find the latter circumstance most common in relation to providing for safe airports and compatible land uses nearby. For communities with deficient regulations concerning compatible land uses and airport safety, periodic review can be an effective means of implementing new regulations or modifying existing regulations to meet state standards. State funding is also available to assist local governments in complying with plan and code updates required through periodic review.

However, by recent changes to state law, periodic review is no longer mandatory for counties with populations of less than 15,000 people and cities with a population of less than 2,500 within their Urban Growth.

For smaller jurisdictions no longer obligated to go through periodic review, and therefore not directly eligible for funding assistance through this venue, there are other possible funding strategies outlined in discussion of state roles and responsibilities in Chapter 4.

### b.2 Airport Planning Rule (APR)

To aid in implementing Goal 12 and provisions for local government airport regulations outlined in ORS 836.600 et seq., the LCDC adopted the Airport Planning Rule (APR). Outlined in OAR Chapter 660, Division 13, the APR establishes a series of local government requirements pertaining to aviation facility planning. These include requirements to:

- Adopt comprehensive plan and land use regulations for airports to carry out the requirements established in the APR and applicable ORS:
- → Map and provide supporting documentation to establish airport boundaries, identify existing and proposed facilities, site future expansion areas and/or airport uses, map airport safety and

The APR provides specific requirements for aviation facility planning, comprehensive planning, and land use regulations.

compatibility zones and imaginary surfaces, and delineate noise impact boundaries;

- Adopt an Airport Safety Overlay Zone prohibiting structures, trees, etc., from penetrating airport imaginary surfaces based upon FAA standards, and establish limited height exceptions and a means of approving variances when supported by the ODA and FAA;
- Develop compatibility standards to prohibit residential and public assembly uses within runway protection zones, limit certain uses within noise impact boundaries, limit outdoor lighting, prohibit new and expanded industrial uses that cause emissions hazardous to aviation, and require coordinated review with ODA of radio, TV, and cellular facilities proximate to airports;
- Regulate water impoundments (e.g., gravel pits) per ORS 836.623(2) through (6), and prohibit new landfills near airports per DEQ standards;
- Adopt land use regulations for non-towered airports authorizing various aviation and airport-related uses and activities, as well as forestry and agricultural uses;
- Allow certain industrial, manufacturing, and other uses within airport boundaries if they would result in no significant hazard or limitation on approved airport uses, and are consistent with local comprehensive plans, statewide planning goals, and other OARs; and
- Update local plans and land use regulations to conform to the APR during periodic review or a TSP update, and ensure that future amendments to local plans and regulations also comply with provisions of the APR.

The APR serves as the state regulatory basis for ensuring that local government airport planning conforms to the hierarchy of state plans and statutory requirements (i.e., Goal 12, ORS 836.600 et seq., Oregon Transportation Plan, Oregon Aviation Plan). These rules outline the clear, comprehensive parameters for local governments to follow as a framework for airport planning.

### b.3 Transportation Planning Rule (TPR)

The state Transportation Planning Rule (TPR, embodied in OAR Chapter 660, Division 12) contains planning requirements for local governments to develop Transportation System Plans (TSPs) as elements of comprehensive plans. These TSPs are required to contain elements intended to preserve local components of the state's public use aviation system, as identified in the 2000 Oregon Aviation Plan, as well as plan for multi-modal ground transportation system needs.

The TPR requires local jurisdictions to adopt land use regulations for land uses within airport noise corridors and FAR Part 77 imaginary surfaces, and to restrict physical hazards to air navigation. Since publication of the 1994 Oregon Airport Land Use Compatibility Guidebook, several changes to the TPR were enacted that have bearing on airport planning. These changes include:

OAR 660-012-0045(2), which requires local governments to adopt land use or subdivision ordinance regulations consistent with federal and state requirements that protect transportation facilities, corridors and functions, including:

TSPs need to address the APR issues and ground access to the airport facilities.

- controlling land uses within airport noise corridors and imaginary surfaces, and limiting physical hazards to air navigation to protect public use airports, and
- developing a process for coordinated review of future land use decisions affecting transportation corridors or facilities (including public use airports).

Therefore, these TPR standards obligate local governments through their TSP and comprehensive plan to protect public use airports from incompatible uses through planning and ongoing review of local land use decisions on development proposals that could impact airport facilities.

OAR 660-012-0065(3), which allows for expansions or alterations of public use airports without having to seek exceptions from certain statewide planning goals (Goals 3, 4, 11 and 14), when the expansion or alteration does not change the design class of aircraft planned for the subject airport.

This standard significantly streamlines the approval process for certain types of airport expansions and modifications on rural lands surrounding airports.

### **b.4** Notice Requirements

ORS 197.183 requires local governments to provide notice to the Oregon Department of Aviation when applications are received for water impoundments (e.g., new gravel pits) larger than ¼ acre in size located within 10,000 feet of an airport identified in ORS 836.610(1). Standards in ORS 836.623 outline the local government responsibilities for approving or denying such impoundments.

Implementing state statutes (ORS 215.223, 215.416, and 227.175) and administrative rules (OAR 738-100-0010) also require local planning authorities to send notice of public hearings and decisions on land use permits or zone changes to owners of public use airports and to the Oregon Department of Aviation when the subject property is within 5,000 feet of the sides or ends of a runway on a visual airport, or 10,000 feet on an instrument airport. Notice need not be provided if the permit or zone change would allow a structure of less than 35 feet in height and the property is located outside the runway approach surface or on property owned by the airport.

### 5.2 Noise Related Legislation

The previous rules and regulations provide the overall framework for airport planning, while this section addresses specific issues as they relate to noise impacts. These regulations provide general federal and state guidelines for the two primary areas: the measurement of noise and the methods of mitigation. These are the two main focus areas that address how noise is measured, how it can affect surrounding land uses and how to reduce impacts through various mitigation measures. As with the planning regulations, this section is not meant to be an all-inclusive list, rather it is meant to provide a summary of the primary legislation related to noise issues.

The method of measurement and various mitigation measures are addressed at the federal and state levels.

### 5.2a. Federal Legislation

# a.1 Aviation Safety and Noise Abatement Act of 1979 (ASNA) United States Code (USC), Title 49

This Act required that a single system be developed for measuring noise and determining noise exposure caused by airport operations & required identification of land uses normally compatible with exposures of individuals to noise. Section 103 of the Act authorized the Secretary of the DOT to make grants for airport noise compatibility planning to minimize noise impacts on communities around airports.

### a.2 Noise Compatibility Program

### FAR Part 150 - Code of Federal Regulations (CFR) Title 14, Part 150

Part 150 established the measures required by the ASNA and was ultimately revised to include a standardized airport noise compatibility program including:

- voluntary noise exposure maps (NEMs) and noise compatibility programs,
- → (NCPs) by airport owners to FAA,
- standard noise measurement methodologies and units,
- → identification of land uses that are normally compatible or incompatible with various levels of noise, and
- procedures and criteria for preparation and submission of NEMs and NCPs.

The Final Rule included language that stated that Part 150 regulations apply to any "public use airport" as defined by Section 502 (17) of the Airport and Airway Improvement Act of 1982.

### a.3 Airport Noise & Capacity Act of 1990 (National Noise Policy)

The increasing public outcry against aircraft noise required the establishment of a procedure to eliminate Stage I (the noisiest) and Stage II aircraft from operating in the United States and required that as of December 31, 1999, all turbojet aircraft must meet the quietest Stage 3 noise levels.

# a.4 Notice and Approval of Airport Noise and Access Restrictions FAR Part 161- Code of Federal Regulations (CFR) Title 14, Part 161

Establishes the implementation of the Airport Noise and Capacity Act of 1990 (49 U.S.C. App. 2153,2154,2155, and 2156) that requires notification of and creation of procedures for the operation of Stage 2 and Stage 3 aircraft noise restrictions.

# a.5 Noise Control and Compatibility Planning for Airports FAA Advisory Circular (AC) 150/5020-1

This document provides guidance for the implementation of FAR Part 150 which allows for the development of a plan to establish compatibility between surrounding land uses through the reduction of non-compatible land uses around airports and noise-sensitive areas and the prevention of additional non-compatible land uses. (1983)

# a.6 Airport Landscaping for Noise Control FAA Advisory Circular (AC) 150/5320-14

Establishes guidance for the implementation of landscaping for noise control purposes. The document recommends various species of vegetation to be used for noise control. (1978)

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### 5.2b. State Noise Legislation and Regulations

State Department of Environmental Quality (DEQ) standards for noise control, abatement, and mitigation are outlined in OAR Chapter 340, Division 35. These rules define and establish parameters for the Airport Noise Abatement Program, airport noise standards, and airport noise impact boundaries (i.e., an annual average day-night airport noise level of 55 dBA, also referred to as 55 DNL). Since the 55 DNL noise contour can extend well beyond airport boundaries, these OARs also identify noise abatement methods (e.g., soundproofing programs, land acquisition within the 55 and 65 DNL boundaries, modifications to state Uniform Building Code standards for development within the 55 DNL boundary, etc.), provisions for monitoring, and exceptions.

OAR 340-035-0045 establishes a number of noise control regulations for airports, and promulgates an Airport Noise Control Procedure Manual intended to assist airports in calculating noise impact boundaries. Establishing noise contours for public use airports is completed through local airport master planning (as required under section (3)(d) of this rule), and may be eligible for FAA grant funding. Ongoing monitoring, however, can be more problematic. The state has not funded ongoing noise abatement monitoring through DEQ for some time. Therefore, responsibilities for addressing complaints concerning various sources of noise (including airports), and applying DEQ noise standards, can fall to local jurisdictions.

### 5.3 Environmental Legislation and Regulations

The regulations related to airport development and compatible land uses becomes a very large topic if all of the ancillary issues are included in the discussion. For the purposes of this document, the primary state and federal regulations have been summarized to provide a reference to the most common rules that are applied to airport development. This is not meant to be an all-inclusive list of regulations, rather, it should serve as a general guide for the review of environmental impacts. For example, the National Environmental Policy Act (NEPA) of 1969 is referenced, as is the Airport Environmental Handbook, which includes over twenty different categories of environmental consideration. This illustrates the diverse range of issues that may be impacted by airport development or may create an impact on airport development. As previously noted, each airport sponsor should seek the guidance of the Oregon Department of Aviation regarding site-specific issues or concerns with regards to environmental issues.

regulations are addressed within various federal and state documents, with the Airport Environmental Handbook and the National Environmental Policy Act of 1969 being cited most often.

### 5.3a. Federal Legislation and Regulations

### a.1 Airport Environmental Handbook FAA Order 5050.4A

Establishes the instructions and guidance for preparing and processing the environmental assessments (EA), finding-of-no-significant-impacts (FONSI) and environmental impact statements (EIS) for the proposed federal action on airport development proposals requiring federal environmental approval. (1985) There are over twenty (20) categories of impacts that are evaluated as a part of this process. These categories and a brief summary of each are listed below.

- Compatible Land Uses are defined as "the compatibility of existing and planned land uses in the vicinity of an airport and are usually associated with the extent of the noise impacts related to that airport."
- Social Impacts associated with the relocation of residences or businesses, altering surface transportation patterns, dividing or disrupting established communities, or disrupting orderly, planned development.

Twenty-one environmental categories are assessed to determine impacts on the surrounding community and the environment.

- → <u>Induced Socioeconomic Impacts</u> address such issues as population movement and growth, public service demands, and changes in the business and economic activity to the extent of the proposed airport development. These impacts are further impacted by significant impacts in the noise, land use and direct social impact categories.
- Environmental Justice intended to identify, address and avoid disproportionately high and adverse human or environmental effects on minority and low-income populations.
- Air Quality The Clean Air Act (CAA), administered by the U.S. EPA, establishes national air quality standards. An air quality analysis is required for airport development projects that involve airport location, runway development, or physical airside/or landside improvements that increase airport capacity. An air quality analysis is also required for any proposed development that does not conform to an approved state implementation plan for controlling area-wide air pollution impacts.
- Water Quality The quality of ground and surface water must not be degraded by planned construction. The Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977, provides the authority to establish water quality standards. Section 404 (b) (1) of Clean Water Act of 1977, provides for protection of waters, including wetlands, and assures that alternatives are considered, including mitigation. Administered by the U.S. Army Corps of Engineers. Airport development projects can often involve impacts to wetlands.

Section 401 of the Clean Water Act is administered by individual states through the Department of Natural Resources and protects waters from pollutants. Storm water runoff is a concern at airports due to the refueling and deicing operations.

- Department of Transportation, Section 4(f) provides that no program or project requiring the use of any publicly-owned land from a public park, recreation area or wildlife or waterfowl refuge, will be permitted unless there is no other alternative and that planning of such program or project includes plans to minimize harm resulting from the use of the property. It should be noted that this legislation has been superseded by Section 303© of the Title 49, USC, however, the criteria remain the same.
- Historical, Architectural, Archaeological, and Cultural Resources Based upon the requirements of the National Historic Preservation Act of 1969, it is intended to assure coordination of federal historic preservation matters and to recommend measures to coordinate federal historic preservation activities and to comment on federal actions affecting properties included in or eligible for inclusion in the National Register of Historic Places. The Secretary of the Interior is authorized to maintain a record of objects of significant American history, architecture, archaeology, and culture, referred to as the National Register.
- Biotic Communities protects biotic communities, including native and introduced plants and animals in the project area.
- → Endangered/Threatened Species of Flora and Fauna The Endangered Species Act, Section 7, as amended, requires each federal agency to ensure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered or

threatened species. Administered by the U.S. Fish and Wildlife Service, this Act ensures that proposed projects do not result in loss of habitat.

- → <u>Wetlands</u> Wetlands are areas that are inundated by surface or ground water with a frequency sufficient to support, and under normal circumstances does or would support, a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction.
- Floodplain Floodplains are "the lowland and relatively flat areas adjoining inland and coastal waters, including flood-prone areas of offshore islands that are subject to a one percent or greater change of flooding in any given year."
- → <u>Coastal Zone Management</u> Coastal Zone Management is to preserve and protect the Nation's coastal zone, to encourage wise use of land and water resources of a coastal zone, to prepare a plan to provide protection of natural resources and coordination of the public, federal state, local interstate and regional agencies and governments affecting the coastal zone.
- → <u>Coastal Barriers</u> The Coastal Barriers Resources Act of 1982, PL 97-348, prohibits, with some exceptions, Federal financial assistance for development within the Coastal Barrier Resources System, which consists of undeveloped coastal barriers along the Atlantic Ocean or Gulf Coasts.
- → <u>Wild and Scenic Rivers</u> The Wild and Scenic Rivers Act describes those river areas eligible to be included in a system afforded protection under the Act as flowing and possessing "outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values."
- Farmland The Farmland Protection Policy Act authorizes the Department of Agriculture to develop criteria for identifying the effects of Federal programs on the conversion of farmland to non-agricultural uses.
- Energy Supply and Natural Resources Energy requirements generally fall into two categories: those which relate to changed demands or stationary facilities (e.g. airfield lighting and terminal building heating), and secondly, those which involve the movement of air and ground vehicles. For most airport actions, changes in energy or other natural resource consumption will not result in significant impacts.
- → <u>Light Emissions</u> Consideration shall be given to any lighting associated with an airport that will create an annoyance among people in the vicinity. An EA should consider site location, type of system, and measures to lessen annoyance.
- → <u>Solid Waste Impacts</u> Airfield development (runways, taxiways and related items) will not usually impose any direct relationship to solid waste collection. Terminal area development may involve circumstances that require consideration of solid waste impacts. Consultation with local officials concerning solid waste disposal facilities shall be documented in the environmental assessment.
- Construction Impacts Any specific activities which may create adverse environmental impacts including noise, dust, air pollution from burning debris and water pollution from erosion shall be discussed in the

→ Some categories may not be relevant to every project and are accordingly removed from consideration.

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environmental assessment. In general, a description of the type and nature of the construction and measures taken to minimize potential impacts should be detailed.

Design, Art, and Architectural Application - Normally, the environmental assessment will include some discussion of design, art, and architecture in mitigating adverse visual and other environmental impacts and encouraging enhancement of the environment. FAA's Airport Improvement Program Handbook prescribes guidelines for treating and promoting design, art, and architectural objectives in airport aid projects.

### a.2 National Environmental Policy Act of 1969 (NEPA)

The NEPA resulted in the development of guidelines for application of a national policy of the federal government to consider impacts of proposed action on the environment. The Act specifically states that "governments, and other public and private organizations, use all practical means and measures to create and maintain conditions under which man and nature can exist in harmony." In land use planning, when an airport sponsor proposes a project or action that requires federal approval, all actions are reviewed to determine their impacts on the environment.

### a.3 Hazardous Wildlife Attractants On or Near Airports FAA Advisory Circular (AC) 150/5200-33

This document provides guidance regarding the types of land uses, which are considered to be incompatible near airports due to their nature as wildlife attractants. These uses include but are not limited to the following: wastewater treatment facilities, wetlands, dredge spoil containment areas and solid waste landfills. Typically, these uses should be located at least 5,000 feet away from an airport runway end if the airport serves piston-type aircraft and at least 10,000 feet away from an airport runway end if the airport serves turbojet aircraft. (1997)

### a.4 Criteria for Municipal Solid Waste Landfills Code of Federal Regulations (CFR) Title 40, Part 258, Subpart B

The subpart establishes criteria for the expansion and/or development of new landfills with regards to airports. In part it states that:

- Owners or operators of new Municipal Solid Waste Landfills (MSWLF) units, and lateral expansions that are located within 10,000 feet (3,048 meters) of any airport runway end used by turbojet aircraft or within 5,000 feet (1,524 meters) of any airport runway end used by only piston-type aircraft must demonstrate that the units are designed and operated so that the MSWLF unit does not pose a bird hazard to aircraft.
- (b) Owners or operators proposing to site new MSWLF units and lateral expansions within a five-mile radius of any airport runway end used by turbojet or piston-type aircraft must notify the affected airport and the Federal Aviation Administration (FAA).

# a.5 Construction or Establishment of Landfills Near Public Airports FAA Advisory Circular (AC) 150/5200-34

This document provides guidance regarding the requirements for complying with new federal statutory requirements concerning the construction or establishment of municipal solid waste landfills (MSWLF) near public airports. Section 503 of the Wendell H. Ford Aviation Investment and Reform Act for the 21<sup>st</sup> Century (AIR-21), Pub. L. No. 106-181 (April 5, 2000) has replaced section 1220 of the 1996 Reauthorization Act, 49, U.S.C. §44718 (d), with new language that further

→ Wildlife attractants on or near airports continue to be an issue of concern across the nation. limits the construction or establishment of a MSWLF near certain smaller public airports.

These new limitations apply to only those airports that are recipients of Federal grants and to those that primarily serve general aviation aircraft and scheduled air carrier operations using aircraft with less than 60 passenger seats. These new restrictions require a minimum separation distance of six (6) statute miles between a new MSWLF and a public airport. (2000)

### 5.3b. State Environmental Legislation and Regulations

The 2000 Oregon Aviation Plan found that half of the airports in the state have reported migratory bird areas located nearby, and nearly half have reported water impoundments near their airports. While having wetlands and open waterways available for migratory and non-migratory birds and other aquatic life may be an ecological blessing, such circumstances can represent significant hazards to aviation from potential bird strikes. Additionally, some 15% of airports reported having open landfills nearby, thus further contributing to bird strike concerns. FAA Circulars advise significant separation between airports and airport operations and bird attractants, such as wetlands, wastewater treatment sites, gravel extraction reclamation sites, and landfills.

The following identify applicable state regulations pertaining to wetlands, open water impoundments from surface mining activities, and landfills relative to airport planning:

#### b.1 Wetlands

The Oregon Removal-Fill Law (ORS 196.600 through 196.905) requires a permit administered by the Oregon Division of State Lands (DSL) for any proposals that involve more than 50 cubic yards of fill in, or removal from "waters of the state of Oregon." Waters of the state include jurisdictionally inventoried wetlands, waterways, and certain water bodies. DSL wetland permitting requirements and mitigation protocols are outlined in OAR Chapter 141, Division 85. Although certain exemptions are allowed, there are no provisions waiving airports from complying with wetland fill requirements in an effort to address potential bird strike hazards.

If wetlands are located within an airport boundary and must be filled, they may be mitigated effectively on-site without becoming a bird attractant through sound mitigation planning and design. Off-site mitigation may be accomplished through wetland mitigation banking or by cooperatively planning with DSL staff to enhance or create wetlands of comparable functional values off-site within the same watershed.

Wetlands located proximate to an airport boundary and/or within the vicinity of airport operations are more difficult to address outside of a comprehensive wetland mitigation effort. Collaboration with city and county authorities in addressing wetlands comprehensively in the Goal 5 (Natural Resources) process will likely have more far-reaching effect in addressing wetlands impacts upon aviation. OAR Chapter 660, Division 23 outlines the procedures for complying with inventoried Goal 5 resources, including wetlands (OAR 660-023-0100). Under (3)(a) of this OAR, for areas within Urban Growth Boundaries or Urban Unincorporated Communities, local governments are required to conduct a Local Wetlands Inventory (LWI) under procedures in OAR 141-086-0010 through 0240. Such communities must identify "significant wetlands" and adopt the LWI as part of its comprehensive plan and local land use regulations. For areas outside of

UGBs and UUCs, local governments must adopt or use the statewide wetland inventory. In any case, public use airport owners and managers are well-served

Wetlands, water impoundments, and landfills are the three primary areas of environmental concern within the state.

by being involved with city and county officials in comprehensive planning efforts and periodic review updates to achieve compliance with Goal 5.

### b.2 Open Water Impoundments

Consumptive natural resources such as sand and gravel deposits meeting significance criteria are regulated as Goal 5 resources under OAR 660-023-0180. Mining of such aggregate resources may form open water impoundments, or such man-made waterways may be created as a product of required mining reclamation efforts. As noted above, such impoundments proximate to airports can increase risk of bird strikes. To address this risk and prevent conflicts with bird movements, ORS 836.623(2) prohibits new open water impoundments of ½-acre in size or larger within airport approach corridors, within 5,000 feet from the end of a runway, and on land owned by the airport where necessary for airport operations.

Local governments can also adopt regulations expanding the area subject to this prohibition on new open water impoundments (up to 40,000 feet within an approach corridor for an airport with an instrument approach) when supported by substantial evidence and findings of fact demonstrating that the impoundment(s) would likely result in a significant increase in hazardous bird movements across runways or approach corridors. These standards offer the potential for significant influence for airport operators in relation to the aggregate mining operations and reclamation when proximate to airport runways and approach corridors.

#### b.3 Landfills

State regulations governing municipal solid waste landfills by the Oregon DEQ are outlined in OAR Chapter 340, Division 94. These standards track the guidelines for landfill siting and operations outlined in federal law (CFR Title 40, Part 258, Subpart B). To minimize the potential for hazards from bird and wildlife attractants, new landfills and landfill expansions should be developed in keeping with applicable FAA advisory circulars (AC 150/5200-34) to ensure adequate separation from airport environs.

### 5.4 Summary

The various regulations previously discussed provide a substantial base of information to use as the foundation for an airport land use plan. The regulations also provide numerous avenues for land use controls at the federal and state level. It is utilizing these regulations in a comprehensive and complimentary manner that is often the challenge to land use planners.

None of these regulations by themselves are an effective means of land use control, however, as a package in concert with each other, they can provide a rigorous set of land use regulations with which an airport can be protected. This protection assumes that the regulations are used to plan, develop, implement and maintain the necessary land use controls and programs.

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January, 2003

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### E-3: MODEL FAIR DISCLOSURE STATEMENT

# SAMPLE FAIR DISCLOSURE STATEMENT DISCLOSURES BY (OWNER) (BUYER) OF REAL PROPERTY IN GRANT COUNTY, Oregon

This is a notification, disclosure, and acknowledgement by (Owner) (Buyer) of real property located in the vicinity of the Grant County Regional Airport in Grant County, Oregon

(Owner) (Buyer) hereby acknowledges the following:

AIRPORT
1. Proximity to the Airport  The subject parcel, located in Section Township Range, is located in one of five height and/or land use zones of the Grant county Regional Airport. Airplanes may fly at lov elevations over the parcel as they operate to, from, or at the airport. The airport is operational 24 hours per day. Flights may occur at all hours of the day or night.
2. Disclosure of Noise Impacts  Due to the proximity of the parcel to the Grant County Regional Airport and the airport's area o influence; owner(s) / buyer(s) should expect varying degrees of noise from these aircraft, which some persons may find intrusive.
3. Future Improvements and Aircraft Operations The airport plans to expand its facilities and operations in the future. The plans include, but are not limited to those shown on the approved Airport Layout Plan. These improvements may result in increased aircraft operations, operations by larger aircraft, and increased nighttime operations, which could increase the noise levels within the vicinity of the airport.
4. Avigation Easement Where specified on the Airport Compatible Land Use Table, the property owner shall dedicate in advance of receiving a building permit, an avigation easement to Grant County, Oregon. The purpose of this easement shall be to establish a maximum height restriction on the use o property and to hold the public harmless for any damages caused by noise, vibration, fumes dust, fuel, fuel particles, or other effects that may be caused by the operation of aircraft landing at, taking off from, or operating on or at public airport facilities.
CERTIFICATION
This undersigned owner(s) / purchaser(s) of said parcel of land certify(ies) that (he/she/they (has/have) read the above disclosure statement and acknowledge(s) the pre or planned existence of the airport named above and the noise exposure due to the operation of said airport.
(SIGNED) Date

### E-4: EXAMPLE COMPREHENSIVE PLAN

\*\*\*DRAFT\*\*\*

# FOR EXAMPLE/TRAINING PURPOSES ONLY

# Bonner County Comprehensive Plan

# Chapter 17: Public Airport Facilities



Idaho Code §67-6508 (q) requires the following for the Public Airport Facilities component:

Public Airport Facilities -- An analysis prepared with assistance from the Idaho transportation department division of aeronautics, if requested by the planning and zoning commission, and the manager or person in charge of the local public airport identifying, but not limited to, facility locations, the scope and type of airport operations, existing and future planned airport development and infrastructure needs, and the economic impact to the community.

Bonner Planning Department DRAFT: Bonner County, Idaho 8/28/2014

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### Introduction:

There are currently four (4) public-use airports in Bonner County. According to the Federal Aviation Administration (FAA) and Idaho Transportation Department - Division of Aeronautics (ITD Aero), a public-use airport is open to and for public use without prior permission, and without restrictions within the physical capacities of available facilities.

Two of the four public-use airports in the county are owned and operated by Bonner County; Sandpoint and Priest River. Both airports are also eligible for and receive airport improvement grants from the FAA and ITD Aero. The other airports, Cavanaugh Bay and Priest Lake are owned by ITD Aero and the United States Forest Service (USFS) respectively.

**Public Airport Facilities Component Goal:** "Bonner County...

"

Following is a summary of each of the public-use airports in the County. Additional information is included for several private-use airports and heliports in the County.

### COUNTY-OWNED, PUBLIC-USE AIRPORTS

There are currently 119 public-use airports in the state of Idaho. Of these 119, 75 are considered core airports by ITD Aero (Idaho Airport System Plan (IASP), 2010). The Sandpoint and Priest River Airports are considered core statewide airports by ITD Aero. ITD Aero's mission for its aviation system is as follows:

The Idaho Transportation Department's Division of Aeronautics serves to provide the highest quality, most effective, efficient, and safest airport system for all users of aviation services. To this end, the Division of Aeronautics plans and implements essential programs, services and projects to develop, encourage, and foster an exemplary system of airports that meet the current and future requirements of a growing and diverse Idaho aviation community. (http://itd.idaho.gov/aero/)

Both airports are categorized in the IASP:

The Sandpoint Airport is categorized as a Regional Business Airport. Regional Business airports support regional economic activities, connecting to state and national economies, and serve all types of general aviation aircraft. They also accommodate local business activities and various types of general aviation users.

The Priest River Airport is categorized as a Local Recreational Airport. Local Recreational Airports serve a supplemental role in local economies, primarily accommodating recreational, personal flying, and limited local business activities.

The impact of the Idaho airport system on the state's economy was also examined by ITD Aero as part of the IASP. The IASP's system of airports generates \$2.1 billion of economic activity, supports 23,000 jobs, and generates \$781.5 million in annual payroll (IASP 2010). Specific economic impacts for the Sandpoint and Priest River airports are included in the individual airport summaries below.

Both airports are also an important part of the national transportation infrastructure and are included in the FAA National Plan of Integrated Airport Systems (NPIAS). Airports in the NPIAS are considered necessary to provide a safe, efficient, and integrated system of nation-wide public-use airports adequate to anticipate and meet the needs of commercial air service; civil aeronautics; the national defense requirements of the Secretary of Defense; emergency air medical evacuation; BLM and USFS fire response support as well as the United States Postal Service (FAA NPIAS Report 2013-2017). As NPIAS airports, both airports receive federal funding via the FAA Airport Improvement Program and are subject to FAA design standards, regulations, rules, Sponsor responsibilities, and policies.

Following is a summary of facilities, activity, economic impact, and future improvements at the airports.

### SANDPOINT AIRPORT

### **Sandpoint Airport**



Source: Bonner County

The Sandpoint Airport, located on approximately 60 acres in northwest Sandpoint, was established in the 1940s. The airport is operated by Bonner County, and has an annual budget of about \$50,000 (O'Leary).

### **FACILITIES**

The elevation at the Sandpoint Airport is 2127 feet. The asphalt runway is 5,500 feet long and 75-feet wide and is listed in good shape. The runway single-wheel weight limit is 40,000 pounds. (Airnav web site). The airport offers a restroom, maintenance and repair services, 24-hour refueling, rental cars and private and public hangar rentals, tie-downs and flight school. The airport has an all- weather instrument landing system (LOC/DME), pilot-activated runway lights and a lighted wind indicator.

### AIR TRAFFIC

Much of the air traffic using the Sandpoint Airport arrives from other destinations, rather than originating in Sandpoint. The airport registers about 18,000 operations (take-offs and landings) annually. About 40 percent of the air traffic is business-related. Another 40 percent use the Sandpoint facility for tourismrelated activities, while the remaining 20 percent is attributed to recreational flying or training. The Sandpoint Industrial Park adjoins the airport site and draws traffic to the facility. Overnight delivery and parcel service companies use the airport on a daily basis. The Sandpoint Airport also sees traffic from medical flights and U.S. Forest Service fire- fighting planes and is beginning to see greater traffic from owners of recreational or second homes in Bonner County. Sandpoint does not have an airplane commuter service at this time, although the Bonner County facility has the ability to handle small commuter jets. Schweitzer and local golf course operators desire an air commuter service to the area, but to make the service economical may take an increase in population or some method of subsidy (O'Leary).

State statistics reflect 73 percent of the Sandpoint air traffic is attributed to general transient aviation, 24 percent to local general aviation and the remaining 3 percent to air taxi service. There are 60 aircraft based at Sandpoint's airport, representing 55 single-engine planes, three multi-engine aircraft, one glider and one helicopter (Airnav web site).

### **ECONOMICS**

The economic benefits of the Sandpoint Airport to the community include 482 jobs created directly or indirectly by the airport operation, a payroll of \$15 million and an estimated output or economic spin-off of approximately \$32.9 million (IASP 2010).

### **FUTURE DEVELOPMENT**

Bonner County, with the assistance of a consultant, is updating its airport master plan. The plan will look at the present facility, previous master plan and what the Sandpoint facility needs to meet future demands. Better instrument landing equipment, such as a global positioning system (GPS), and runway improvements for greater separation of the runway and taxiway may be on the list of future airport improvements. The future wish list includes development of a commuter air service, perhaps serving the Seattle or Calgary areas (O'Leary). Bonner County also has examined the possibilities of commuter service to Boise.

### **PRIEST RIVER**

### **Priest River Airport**



Source: T-O Engineers

Priest River Municipal Airport, located east of State Highway 57 and north of the City of Priest River, is operated by Bonner County. Established in about 1921, it is the oldest airport in the area. The airport and associated facilities encompass about 39 acres (FAA Form 5010/GCR).

### **FACILITIES**

Elevation at the Priest River Airport is 2187 feet (estimated). The airport's asphalt runway is 2,950 feet long and about 48 feet wide. No instrumental landing systems are available at the airport. A lighted wind indicator and pilot-activated runway lights are provided. There are three private hangars and one Countyowned hangar which provide a pilots' lounge and 10 hangar spaces. About 10 tie-downs are available during warmer weather for transient air traffic (Mendive).

### AIR TRAFFIC

The Priest River Airport receives its heaviest use during the summer months, when tourists and secondhome owners arrive in the area. Priest River's facility is the closest paved airport to Priest Lake, a popular tourist destination. Traffic is also generated by the financial industry, mills, construction work, U.S. Forest Service projects, medical flights and general recreational aviation. The Priest River Airport has seen its greatest growth in the past five years (Mendive).

### **ECONOMICS**

The economic benefits of the Priest River Airport to the community include 55 jobs created directly or indirectly by the airport operation, a payroll of \$2 million and an estimated output or economic spin-off of approximately \$8.4 million (IASP 2010).

### **FUTURE DEVELOPMENT**

There are no immediate plans for improvement of the Priest River Airport. With grant money and matching local funds, a runway resurfacing project is tentatively in the works (Mendive).

### Non-County-Owned Public-Use Airports

As previously mentioned there are two additional public-use airports located in Bonner County in addition to the Sandpoint and Priest River airports; Cavanaugh Bay and Priest Lake airports. Cavanaugh Bay is owned by ITD Aero and Priest Lake by the USFS.

While these two airports are not part of the core system of 75 airports identified in the ITD Aero IASP, they are recognized in another ITD Aero airport system subset, the Idaho Airstrip Network (IAN).

Per the 2005 IAN, the Idaho Airstrip Network consists of airstrips, the adjacent or nearby lands and facilities, and the portal communities to which they are connected. This network includes airstrips that have turf and dirt surfaces, and limited facilities which vary in their level of development. They are held in public or private ownership, but in all cases public access for general aviation purposes is permitted. Private airstrips without public access are not included in the Network. Predominant uses of these airstrips include: access to recreation opportunities (e.g., rafting, hunting, and fishing), fire protection, the provision for emergency services, natural resource management, recreational aviation, and the servicing of remote ranches and other economic enterprises through pickup and delivery of passengers, mail, food and other supplies (IAN 2005).

Like airports in the IASP, airports in the IAN are categorized.

The Cavanaugh Bay Airport is categorized as a Community Airstrip. Community Airstrips may have additional navigational aids and radio service and other services associated with proximity to communities or other attractions. They are typically located near a community with access to full-service roads and close to some development. Maintenance of these facilities includes: clear vegetation, remove obstacles, blade, mow, treat, fertilize, water, treat invasive and noxious weed, and make spot treatments to maintain an improved airstrip surface (IAN 2005).

The Priest Lake Airport is categorized as a Developed Airstrip. Developed Airstrips have basic navigational aids and some additional services such as restrooms or camping facilities. They may have road access to nearby attractions. They are typically located in areas of high use, often in remote settings, but may be accessed by improved roads. Maintenance of these facilities include: clear hazardous vegetation from approaches, remove obstacles, blade, mow, water, treat invasive and noxious weeds, and make spot improvements regularly to maintain improved airstrip surface (IAN 2005).

Following is summary of facilities, activity, economic impact, and future improvements at the airports.

### CAVANAUGH BAY AIRPORT (OWNED BY ITD AERO)



Source: ITD Aero

The Cavanaugh Bay Airport is located about 3 miles north of the Coolin townsite on the east side of Priest Lake.

### **FACILITIES**

The airport is open to the public, but unattended. The grass runway is 3,100-feet long by 120-feet wide. There is no winter maintenance of the airstrip. A wind indicator is provided. There are no services. Elevation at the airstrip is 2484 feet (estimated). Seasonal tie-downs are available (Airnav web site).

### AIR TRAFFIC

The airport's proximity to Priest Lake and the area's marinas and resorts attracts seasonal air traffic. The facility registers about 86 landings and take-offs per week on the average. The traffic is 100 percent transient general aviation.

### **FUTURE DEVELOPMENT**

### \*\*\*NEED INFORMATION\*\*\*

### PRIEST LAKE AIRPORT (OWNED BY USFS)



Source: AirNav.com

The Priest Lake Airport is located about 3 miles south of Nordman, on the west side of Priest Lake, west of State Highway 57. The airstrip is public and operated by the U.S. Forest Service.

### **FACILITIES**

There are no services other than seasonal tie-downs available at the Priest Lake Airport. The facility is at an estimated elevation of 2611feet. The 4,400-foot long by 175-foot wide grass landing strip is open only on a seasonal basis; there is no winter maintenance. The grass strip is not mowed to its full width. The airstrip is unattended and has a wind indicator (Airnav web site).

### AIR TRAFFIC

The landing strip receives about 23 operations per week. The air traffic is 100 percent general aviation, transient (Airnav web site).

### **FUTURE DEVELOPMENT**

### \*\*\*NEED INFORMATION\*\*\*

### PRIVATE AVIATION FACILITIES — LANDING FIELDS AND HELIPORTS

In addition to the four public-use airports discussed above, there are several private use aviation facilities in Bonner County. Per the FAA and ITD Aero, private use aviation facilities are available for use by the owner only or by the owner and other persons authorized by the owner.

Following is summary of the private aviation facilities in the county.

#### PRIVATE LANDING FIFLDS

There are numerous private landing fields and several smaller airstrips that have been developed in Bonner County to serve the outlying areas. Some of the landing fields are marked on the U.S. Forest Service map. At least two subdivisions in Bonner County, Treeport Subdivision in the southern portion of the county, and the River Lake Estates area, south of the Clark Fork River in eastern Bonner County, have developed residential homesites around community airstrips. There are 12 private aviation facilities and six public facilities in Bonner County. Three of the facilities, two at Priest Lake and one at Bottle Bay, provide seaplane bases (g.c.r. & associates inc.).

### **HELIPORTS**

The Federal Aviation Administration lists three private heliports in operation in Bonner County. The facilities are: Bonner General Hospital's emergency medical helipad in the City of Sandpoint; Bird #1 heliport at Glengary Bay on Lake Pend Oreille; and Holiday Shores, west of Hope on Lake Pend Oreille (g.c.r. & associates inc.). A U.S. Forest Service-operated helipad is located 3 miles south of Nordman at the Priest Lake Airport.

### **ISSUES**

- **Encroachment of incompatible development** One of the greatest threats to the viability airports today is the encroachment of incompatible land use. More recently, ITD Aero and FAA have been working with Idaho's airports to strengthen airport land use compatibility policies and practices to reverse this trend. Encroaching incompatible land use poses a significant threat to the state and national airport system and the communities they serve.
- Safety and Quality of Life Proactive planning around the airports ensures the safety of both aircraft operators and airport neighbors from potential aircraft accidents. It also protects the quality of life of airport neighbors by ensuring they are not impacted by the noise, dust and fumes that are associated with airport operations.

- Grant Assurances The Sandpoint and Priest River Airports receive FAA and ITD Aero grant funds for capital improvement projects. When accepting these funds, Bonner County agrees to certain conditions known as Grant Assurances. These Grant Assurances include specific requirements that the County should protect the airport's airspace and prevent incompatible land uses through zoning. Failure to do so may result in the FAA and ITD Aero no longer funding the airport if they do not believe Bonner County has taken reasonable steps to protect the airports from incompatible development. Duration of these grant assurances is a period of 20 years from when the County received the last grant.
- Jurisdiction One major challenge airport owners face when promoting compatible land use is lack of jurisdiction. Airport operations and associated potential impacts (i.e. safety, noise, dust, fumes) can and do extend beyond the physical boundary of airport property. The airport owner is liable for adherence to the FAA and ITD Aero grant assurances. In many instances however, surrounding jurisdictions have control of land in the vicinity of the airport, not the owner, thus the owner has no say in land use policies and decisions. If the surrounding jurisdictions do not wish to proactively plan around the airport, they do not have to.

Further, neither the FAA nor ITD Aero have jurisdiction over local land use nor do they have any enforcement authority to stop incompatible encroachment. As such, local communities are heavily relied upon and responsible for undertaking such efforts.

• Protection of local, state and federal investment - Both the Sandpoint and Priest River airports have received substantial financial investment from either the FAA, ITD Aero, or both, for many years. The County itself has invested significant funding into the airports to operate and maintain them. Proactive planning around the airports, including zoning, will help insure the airports are protected and can operate for the long term thus protecting the substantial federal, state, and local investment.

As the state and FAA consider future investments into the airports, a major consideration is the community's willingness to protect the investment. This begins with effective compatible land use planning.

**Economic Benefit** - The Sandpoint and Priest River airports provide a substantial economic benefit to the County and its citizens. Users such as corporations, life flight operators use the airports and contribute to economy as a result of their use. These airports need to be protected so that they can continue to provide users access to the community and continue to provide economic benefits for many years to come.

### **OBJECTIVES & POLICIES**

- Bonner County will be proactive in protecting the public health, safety, and general welfare of both airport users and the communities around the airports. Primary consideration will be the public-use airports in the County. The County will be cognizant of potential impacts on private use aviation facilities that may be impacted by future growth and development in the County.
- As the owner of the Sandpoint and Priest River Airports, Bonner County will be proactive in protecting the operation, orderly maintenance, and development of the airports.
- Planning and expansion of the Sandpoint and Priest River airports should account for existing economic activity and transportation infrastructure so as to integrate with, complement, or augment them.
- Compatible land use planning around the airports should be proactive and effective in its purpose while keeping in mind property owner's rights and concerns.

### **ACTION PLAN**

- 1. Adhere to guidelines provided in the Airport Master Plans and/or the Airport Layout Plans and associated drawings of the airports when evaluating land use compatibility issues associated with new development in areas near or influenced by operations at the airports.
- 2. Adopt a combination of criteria, standards and zoning techniques that will protect the airports and aviation uses from incompatible development. Include special airport overlay zoning, height restrictions, building restrictions in high noise areas, and development siting criteria for evaluating land uses or activities in key areas adjacent to the airport.
- 3. Coordinate as required with all surrounding political subdivisions, including the cities of Sandpoint and Priest River, Idaho, USFS (Priest Lake Airport), and ITD Aero (Cavanaugh Bay Airport) to establish consistent development guidelines and regulations that utilize local, state and FAA guidelines, standards, rules, regulations and other best management practices encouraging compatible land uses adjacent to the airports.
- 4. Notify all political subdivisions providing services within Bonner County, including the cities of Sandpoint, Priest River, the USFS and ITD Aero, of intent to adopt or revise the comprehensive and other land use plans that may impact the airports in the county. This includes the evaluation of future planning activities to ensure they will not result in an increase to incompatible land uses or development adjacent to an airport.
- 5. Encourage aviation-related economic development opportunities in appropriate locations surrounding the airports.

- 6. Require avigation easement and/or disclosure notification for new or substantial redevelopment of lots, buildings, structures and activities near the airport. The easement and disclosure should notify that the property is both near an airport and may experience low overhead flights, noise and other aviation impacts.
- 7. Encourage commercial and industrial uses in the proximity of the airport that benefit from and do not conflict with aircraft operations.
- 8. Prohibit uses in airport areas which attract birds, create visual hazards, and emit transmissions which may interfere with aviation communications, or otherwise obstruct or conflict with airport operations.
- 9. Allow uses that promote the efficient mobility of goods and services consistent with regional economic development and transportation goals.
- 10. Encourage open space and clear areas within key safety areas adjacent to the airport to protect the airport and to reduce safety risk exposure of people on the ground and in the air.



### **BIBLIOGRAPHY**

Review and attach bibliographic info to body of document

FAA Form 5010-1, Airport Master Record g.c.r. & associates web inc., site: http://www.gcr1.com/5010WEB/APT.

FAA National Plan of Integrated Airports (NPIAS) Report 2013-2017.

Idaho Transportation Department. Printouts from ITD's database.

- ---. Division of Aeronautics- Idaho State Aviation System Plan (IASP). 2010.
- ---. Division of Aeronautics- Idaho Airstrip Network (IAN). 2005
- ---. Statewide Transportation Improvement Program.
- ---. Web site: http://www2.state.id.us/itd/planning/data/atrlist.pdf

### E-5: PROPERTY DEEDS

Fax:

E-Mail: landtitleco@centurytel.net

Date: January 09, 2017

Our Order No.: 25388

Fee:

**Lot Book Services** 

\$1,105.00

#### LOT BOOK SERVICE

Attention: T-O ENGINEERS

Attn: Maxime Valencik, CM 2471 S Titanium Place Meridian, ID 83642

We have searched our Tract Indices as to the following described property:

SEE EXHIBIT "A" ATTACHED HERETO

and as of December 26, 2016 at 8:00 A.M. the last Deed of Record runs to:

Grant County, a political subdivision of the State of Oregon

We also find the following unpaid taxes and city liens, encumbrances, judgments, and state and federal tax liens:

1. Taxes, including the current fiscal year, not assessed due to ownership by a governmental entity. If the exempt status is terminated, an additional tax may be levied.

Account No.

: 3-4 13-31 TL3500; Ref. 9510, 3-2 13-31 TL3500; Ref. 39274 and 3-4

13-31-28 TL1901; Ref. 9516

- 2. Rights of the public in and to any portion of the herein described premises lying within the boundaries of streets, roads or highways.
- 3. Reservation of a Right of Reverter, including the terms and provisions thereof, in deed:

Recorded

: July 5, 1957

Book

: 77

Page

: 198

4. Easement, including the terms and provisions thereof:

: electric and power or telephone lines

Granted to

: California-Pacific Utilities Company, a corporation

Recorded

: October 30, 1961

Book

: 86

Page

5. Exceptions and Reservations, including the terms and provisions thereof, in Patent:

Recorded

: May 11, 1983

Book

: 128

Page

: 174

Order No.: 25388

6. Agreements, Covenants, Conditions, Restrictions and Stipulations, including the terms and provisions thereof, in Patent:

Recorded

: May 11, 1983

Book

: 128

Page

: 174

7. Exceptions and Reservations, including the terms and provisions thereof, in Patent:

Recorded

: August 23, 1984

Book

: 130

Page

: 618

8. Agreements, Covenants, Conditions, Restrictions and Stipulations, including the terms and provisions thereof, in Patent:

Recorded

: August 24, 1984

Book

: 130

Page

: 618

9. Easement, including the terms and provisions thereof, as disclosed by instrument:

: rights-of-way for electric power transmission line purposes

Granted to

: California-Pacific Utilities Co.

Recorded

: August 23, 1984

Book

: 130

: 618 Page

10. Easement, including the terms and provisions thereof, as disclosed by instrument:

For

: right-of-way for telephone line purposes : Pacific Northwest Bell Telephone Co.

Granted to Recorded

: August 23, 1984

Book

: 130

Page : 618

11. Easement, including the terms and provisions thereof:

For

: utilities

Granted to

: C P National Corporation, a corporation

Recorded

: November 18, 1985

Book

: 132

Page

: 644

12. Easement, including the terms and provisions thereof:

For

: utilities

Granted to

: C P National Corporation, a corporation

Recorded

: September 8, 1987

Book

135

Page

:718

13. Right-of-Way Deed, including the terms and provisions thereof:

Between

: Oregon Department of Transportation, Aeronautics Section

And

: Grant County, Oregon, a political subdivision of the State of Oregon

Recorded

: March 16, 1995

Instr. No.

: 950533

14. Easement, including the terms and provisions thereof:

For

: power lines

Granted to

: Oregon Trail Electric Consumers Cooperative, Inc., an Oregon corporation

Recorded

: June 10, 1997

Instr. No.

: 971044

15. Right of Reverter, including the terms and provisions thereof, in deed:

Recorded

: September 17, 1998

Instr. No.

: 981992

Page 2 of 5 Order No.: 25388 16. Right of Reverter, including the terms and provisions thereof, in deed:

Recorded

; June 2, 1999

Instr. No.

: 991548

17. Exceptions and Reservations, including the terms and provisions thereof, in Patent:

Recorded

: September 17, 2001

Instr. No.

: 212394

18. Easement, including the terms and provisions thereof, as disclosed by instrument:

For

: power line

Granted to

: Oregon Trail Electric Consumers Cooperative

Recorded

: September 17, 2001

Instr. No.

: 212394

19. Easement, including the terms and provisions thereof:

For

: ingress, egress

Granted to

: Clearwater Land Exchange-Oregon, a partnership

Recorded

: January 22, 2002

Instr. No.

: 220176

As modified by instrument:

Recorded

: October 5, 2005

Instr. No.

: 20052656

Re-recorded December 21, 2005, Instr. No. 20053308.

Quitclaim of Easement, including the terms and provisions thereof:

Recorded

: April 25, 2006

Instr. No.

: 20060915

20. Easement, including the terms and provisions thereof:

For

: electric distribution line or system

Granted to

: Oregon Trail Electric Consumers Cooperative, Inc.

Recorded

: August 14, 2003

Instr. No.

: 032446

21. Easement, including the terms and provisions thereof:

For

: utilities

Granted to

: the City of John Day, and CenturyTel

Recorded

: September 8, 2003

Instr. No.

: 032708

22. Easement, including the terms and provisions thereof:

For

: electric transmission and/or distribution line or system : Oregon Trail Electric Consumers Cooperative, Inc.

Granted to Recorded

: November 3, 2004

Instr. No.

: 20042960

23. Easement, including the terms and provisions thereof:

For

: ingress and egress

Granted to

: Del R. Woodcock and Jana L. Woodcock, as tenants by the entirety, etal

Recorded

: May 11, 2006

Instr. No.

: 20061040

24. Easement, including the terms and provisions thereof:

For

: electric transmission and/or distribution line or system

Granted to Recorded

: Oregon Trail Electric Consumers Cooperative, Inc.

: June 22, 2006

Instr. No.

: 20061423

Page 3 of 5 Order No.: 25388 25. Easement, including the terms and provisions thereof:

For

: ingress and egress

Granted to

: Eva M. Harris, Trustee of the Eva M. Harris Trust dated the 15th day of

: June 1991

Recorded

: September 10, 2014

Instr. No.

: 20141981

26. Easement, including the terms and provisions thereof:

For

: electric transmission and/or distribution line or system

Granted to

: Oregon Trail Electric Consumers Cooperative, a cooperative corporation

Recorded

: November 18, 2016

Instr. No.

: 20162455

27. Parties in possession, or claiming the right to possession.

NOTE: We find a number of transactions involving hangars located on the subject property

28. The legal description in this report is based on information provided by the parties or their representative. The parties to the forthcoming transaction must notify the title company prior to closing if the description does not conform to their expectations.

INFORMATION: This report does not include a search for financing statements or agricultural services liens which are filed with the Secretary of State and any matters which would be disclosed thereby are expressly excluded from coverage herein.

THIS IS NOT A TITLE REPORT, since no examination has been made of the title to the above described property. Our search for apparent encumbrances was limited to our Tract Indices, and therefore, above listings do not include additional matters which might have been disclosed by an examination of the record title. We assume no liability in connection with this Lot Book Service and will not be responsible for errors or omissions therein. The charge for this service will not include supplemental reports, rechecks or other services.

Order No.: 25388

#### **EXHIBIT "A"** LEGAL DESCRIPTION

In Twp. 13 S., R. 31 E., W.M.

Secs. 27, 28 and 34:

A tract of land situated in the E1/2 and the SW1/4 of Sec. 27, in the S1/2SE1/4 of Sec. 28 and in the E1/2 and the NW1/4 of Sec. 34, described as follows:

Beginning at a point on the east line of the NE1/4 of said Section 27, said point being S.00°45'24"E., 2678.50 feet from the northeast corner of said Section 27;

thence S.00°45'24"E., along the east line of said NE1/4 a distance of 4.23 feet to the East 1/4 corner of said Section 27;

thence S.00°36'41"E., along the east line of the SE1/4 of said Section 27, a distance of 2659.19 feet to the southeast corner of said Section 27;

thence S.00°15'35"E., along the east line of the NE1/4 of said Section 34, a distance of 2641.99 feet to the east 1/4 corner of said Section 34;

thence S.00°16'04"E., along the east line of the SE1/4 of said Section 34, a distance of 323.37 feet; thence N.85°58'00"W., 1196.10 feet;

thence N.04°02'00"E., 1395.27 feet;

thence N.70°05'00"W., 4316.17 feet to a point on the south line of the SW1/4SW1/4 of said Section 27; thence S.89°47'15"W, along the south line of said SW1/4SW1/4, a distance of 191.11 feet to the southwest corner of said Section 27;

thence S.89°24'41"W., along the south line of said S1/2SE1/4 of said Section 28, a distance of 2678.11 feet to the south 1/4 corner of said Section 28;

thence N.00°20'48"E., along the west line of the S1/2SE1/4 of said Section 28, a distance of 1347.86 feet to the northwest corner of said S1/2SE1/4;

thence N.89°42'14"E., along the north line of the S1/2SE1/4 of said Section 28, a distance of 2643.47 feet to the northeast corner of said S1/2SE1/4;

thence S.01°07'58"E., along the east line of the S1/2SE1/4 of said Section 28, a distance of 406.58 feet; thence S.70°05'00"E., 2695.25 feet to a point on the south line of the SE1/4SW1/4 of said Section 27; thence N.89°47'15"E., along the south line of said SE1/4SW1/4 and the SE1/4 of said Section 27, a distance of 1537.36 feet:

thence N.04°02'00"E., 3216.26 feet;

thence N.50°38'00"E., 97.95 feet;

thence S.73°29'00"E., 660.00 feet;

thence S.37°09'54"E., 520.49 feet to the point of beginning.

All being east of the Willamette Meridian, in the County of Grant and State of Oregon.

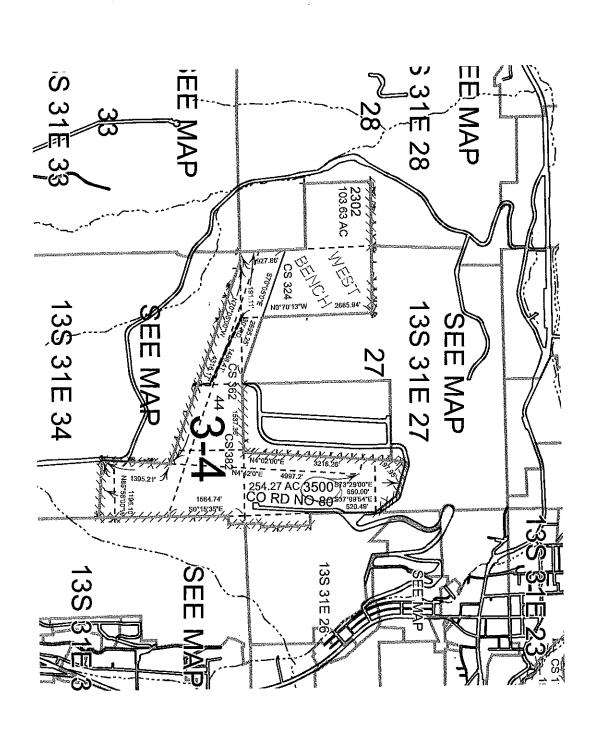
EXCEPT that portion conveyed to Grant County, Oregon by deed recorded March 11, 1985, in Book 131, Page 483.

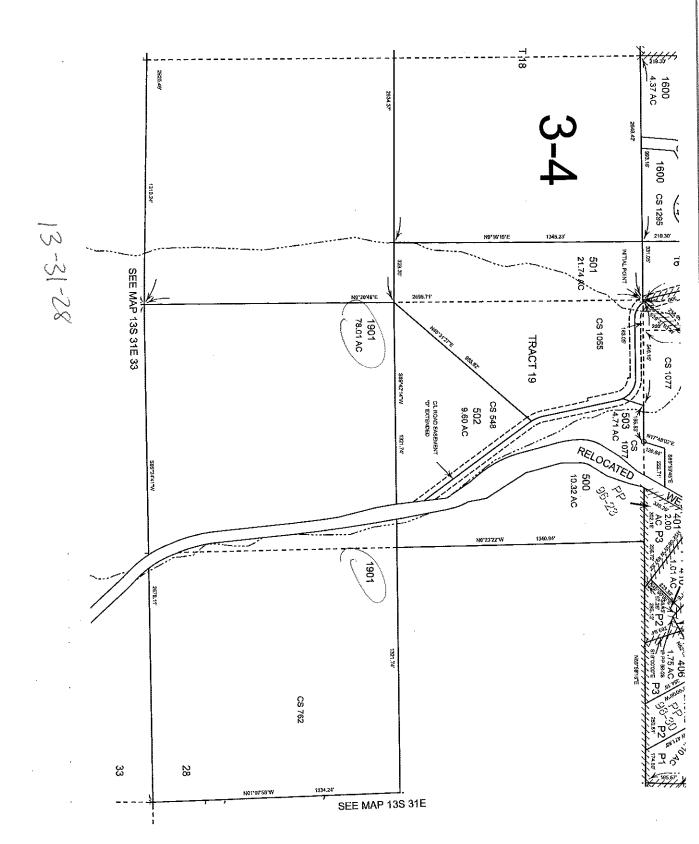
Township 13 South, Range 31 East, Willamette Meridian, Grant County, Oregon: Section 26: W1/2W1/2W1/2SW1/4SW1/4, W1/2E1/2W1/2NW1/4SW1/4SW1/4, W1/2E1/2N1/2W1/2SW1/4SW1/4SW1/4.

Section 35: N1/2W1/2W1/2NW1/4NW1/4.

(Tax Acct. 3-4 13-31 TL3500; Ref. 9510, 3-2 13-31 TL3500; Ref. 39274 and 3-4 13-31-28 TL1901; Ref. 9516)

Page 5 of 5 Order No.: 25388





THURS COUNTY

The second of th

(A)

T-845166

Subject to any and all executents for utilities, irrigation pipelines or roads which have been duly recorded.

This conveyance includes all real property, runways, taxiways, spron, wind indicator, and easements appurtenant to the Property, including Clear Zone Easements, which are recorded as follows in Grant Country. recorded as follows in Grant County:

2. Second Amended Clear Zone Easement recorded in Book 85, Page 253, Grant 1. Clear Zone Easement recorded in Book 84, Page 575, Grant County Deed Records

Power line Easement #971044 County Deed Records

Right-of-Way Doed #950533

5. Avigation Essement recorded in Book 131, Page 394, Grant County Deed

6. Water Pipe Easement recorded in Book 82, Page 401, Grant County Deed Records.

7. Road Easement Correction recorded in Brak 81, Page 480, Grant County Deed Records.

and intent of Grantor to expedite the orderly expansion of the sirport according to the needs and incidental purposes as are not inconsistent with the primary purpose, it being the object for the primary purpose of providing public airport ficilities, and only for such secondary connecting only as long as Grantee, its successors or assigns, maintains and uses the property This conveyance is subject to a right of reverter in Grantor, but Grantee shall maintain of the people of Grant County.

all of the obligations, covenants, terms and conditions with respect to the operation and maintenance of the John Day State Airport, and other good and valuable consideration. The true and actual consideration paid for this conveyance is assumption by the Grantee of

The Oregon Transportation Commission on July 16, 1998 approved this conveyance and cuthorized the Acronautics Manager to sign the appropriate document

fter Recording Return To:

Salican, Oregon 97310 3040 25th St. SE Communics Section

Send Tax Statement To:

County Court of Grant County 201 S. Humbolt St. Stc., 280 Canyon City, Oregon 97820

PERSON ACQUIRING FEE TITLE TO THE PROPERTY SHOULD CHECK WITH THE APPROPRIATE CITY OR COUNTY PLANNING DEPARTMENT TO VERIFY APPROVED USES AND TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST THIS INSTRUMENT WILL NOT ALLOW USE OF THE PROPERTY DESCRIBED IN THE INSTRUMENT IN VIOLATION OF APPLICABLE LAND USE LAWS AND REGULATIONS. BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE FARMING OR FOREST PRACTICES AS DEFINED IN ORS 30.930.

08/04/98 15:55 FAX 5415752248

THANK COUNTY

SHELL BE LIETHANDEN OF 3 PAGES

# BARGAIN AND SALE DEED

Grant County, a political subdivision of the State of Oregon ("Grantee"), those improvements and personal property situated at the John Day State Airport, in Grant County, Oregon (a further description is attached as Exhibit A) and the real property on TRANSPORTATION - AERONAUTICS SECTION ("Granter") bereby conveys to THE STATE OF OREGON, acting by and through its DEPARTMENT OF which it is located more particularly described as follows:

## Property Description

In Twp. 13 S., R. 31 E., W.M.

Secs. 27, 28 and 34: , 125 ma 34: A tract of land situated in the E 15 of the SW 14 of Sec. 27, in the S15 SE 14 of

Sec. 28 and in the E 1/2 and the NW 1/2 of Sec. 34, described as follows: being S.00. "45'24"E., 2678.50 feet from the northeast corner of said Section 27; Beginning at a point on the east line of the NE 1/2 of said Section 27, said point

thence S.00°45'24" E., along the east line of said NE 1/4,a distance of 4.23 feet to the East 1/4 corner of said Section 27;

thence S.00°36'41" E., along the east line of the SE 1/4 of said Section 27, a distance of 2659.19 feet to the southeast corner of said Section 27;

thence S.00° 15'35" E., along the east line of the NE% of said Section 34, a distance of 2641.99 feet to the east 1/4 corner of said Section 34;

thence S.00° 16'04" E., along the east line of the SE 1/4 of said Section 34, a distance of

323.37 feet

hence N. 85°58' 00"W., 1196.10 feet, hence N.04°02' 00" E., 1395.27 feet,

thence N. 70°05' 00"  $W_{\star}$  4316.17 feet to a point on the south line of the SW ¼ SW ¼

thence S.89°47'15"W., along the south line of said SW % SW %, a distance of 191.11 feet to the southwest corner of said Section 27; of said Section 27;

thence S. 89° 24'41"W., along the south line of said S% SE % of said Section 28, a distance of 2678.11 feet to the south 1/4 corner of said Section 28;

thence N.00°20'48"E., along the west line of the S % SE % of said Section 28, a distance of 1347.86 feet to the northwest corner of said S 1/4 SE 1/4;

thence N.89°42'14"E., along the north line of the S 1/2 SE 1/2 of said Section 28, a distance of

thence S.01°07'58"E., along the east line of the S 14 SE 14 of said Section 28, a distance 2643.47 feet to the northeast corner of said S 1/4 SE 1/4;

of 406.58 feet; thence S. 70°05'00''E., 2695.25 feet to a point on the south line of the SE ¼ SW ¼ of

hence N. 89°47'15"E, along the south line of said SE % SW % and the SE % of said said Section 27;

Section 27, a distance of 1537.36 feet;

thence N.04°02'00"E., 3216.26 feet; thence N.50°38'00"E., 97.95 feet; thence S.73°29'00"E., 660.00 feet; thence S. 37°09'54"E., 520.49 feet to the point of beginning.

All being east of the Willamette Meridian, in the County of Grant and State of Oregon.

PAGE 2 - BARGAIN AND SALE DEED

PAGE 1 - BARGAIN AND SALE DEED

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County of Grant  On this 16 th day of Ago Tan 120th 1998 before me personally appeared County Indge Dennis Reynolds, who being this swoon states he is the authorized officer for County Indge Dennis Reynolds, who being this swoon states he is the unknowned officer for County and acknowledged the foregoing instrument to be the voluntary act of Grant County, and that he executed the foregoing Burgain and Sale Deed on behalf of Grant County.  **MOTARY PUBLIC FOR OREGON**  NOTARY PUBLIC FOR OREGON**	unter, Grant County a policy of Septer x er of Grant County  GON  SGON  Substitute of the x  Sign    Sig	County of Maxion  County of Maxion  On this 16th day of 12th who being that were that be sho is the Manager of the Acronamics Section of the Department of Transportation Acronamics Section of the Department of Transportation Acronamics Section, and that he sho exacted the foregoing instrument to be the voluntary set of the Department of Transportation Acronamics Section, and that he she executed the foregoing Bargain and Sale Deed on behalf of said state agency.  OFFICIAL SEAL  OFF	STATE OF OREGON acting by and through its Department of Transportation—Aeronantics Section By:
County of Grant  On this	ight subdivision of the State of Oregen, on 1962, 1998.	1997 before me personally appeared, who being duly swoom states that be/sho is Department of Transportation of the State of Emerat to be the voluntary act of the state of the ment to be the voluntary act of the foregoing igency.  MANUAL FOR OREGON  NOTARY PUBLIC FOR OREGON	Date: 16 AX 99

PAGE 3 - BARGAIN AND SALE DEED

### BOOK 121 PAGE 483

#### DUITCLAIM DEED

The State of Oregon, acting through its Dupartment of Transportation, Aeronautics Division, neleases and quitclaims to Event County, Oregon, all its right, Little, and interest in Lhat real property situated in Grant County, Oregon, described as:

All that portion of West Beach County Road No. 74 Lyang in the 5 1/2 of the SE 1/4 of Section 28 Township 13 South Range 31 East of the Willamette Meridian in Grant County, Bregon.

The Oregon Transportation Commission, by duly-adopted Delegation Order Number 25 has authorized the Administrator of the Aeronautics Division to act in its behalf in approving and executing this deed.

STATE OF BREGON, acting by and through its DEPARIMENT OF TRANSPORTATION, AERONAUTICS DIVISION

day of March DATED this 47

Administrator

State of Oregon ) County of Marion so

Reasonally appeared the above-named Paul E. Burket, who, being sworn, stated that he is the Administrator of the Actorantios Division, and that this deed was voluntarily signed in behalf of the Aeronautics Division. Before me this day of Mach., 1985.

106471

salt of the salt of the Cooliny relations I hereby could that the within instrument Negatilesizio any oblica for record an Mis 72 doy of Market 10, 1982 of Later of the following inclusive. William from the state of the constant of the state of th

Carolovojat, Lounty Clark

NAMES PUBLIC - OREGO PUBLICASSION EXPUSS 1-24-X

J. R. W. J.

#### QUITCLAIM DEED

The State of Oregon, acting through its Department of Transportation, Aeronautics Division, releases and quitclaims to Grant County, Oregon, all its right, title, and interest in that real property situated in Grant County, Oregon, described as:

All that portion of West Bench County Road No. 74 lying in the S 1/2 of the SE 1/4 of Section 28 Township 13 South Range 31 East of the Willamette Meridian in Grant County, Oregon.

The Oregon Transportation Commission, by duly-adopted Delegation Order Number 25 has authorized the Administrator of the Aeronautics Division to act in its behalf in approving and executing this deed.

STATE OF OREGON, acting by and through its DEPARTMENT OF TRANSPORTATION, AERONAUTICS DIVISION

DATED this 4th day of March, 1985.

NOTARY PUBLIC - OREGON

CAN COMMISSION EXPINES / -29

Paul E. Burket Administrator

State of Oregon ) County of Marion)ss

Personally appeared the above-named Paul E. Burket, who, being worn, stated that he is the Administrator of the Appromautics Division, and that this deed was voluntarily signed in behalf of the Aeronautics Division. Before me this . 4 4 day of <u>177 arch</u>, 1983.

STATE OF ONE HOLD SE COUNTY OF GRANT THE WILliam Instrument

was hield the his second go this 14. day of 1987 42 AD. 19 27 at 1147 of 1980 of 19

Village my hand and official seal Cold Stoles, County Clark

to the following address: Canyon City, Oregon 97820 201 S. Humbolt St., Suite. 280 Grant County Judge documents and tax statements After recording send all PAGE -INSTOUR : 11 2125 76 PAGES INST# (B. ST.) COUNTY CLERK

KATHY MCKINNON FILED ( ) [ n los 4 RECORD OF 1 / 1 四十二十八日 世紀 PEPUTY T M PGS ≥ 理》 28

# STATUTORY WARRANTY DEED

grant, convey and warrant to Grant County, a political subdivision of the State of Oregon, grantee, the following described real property, with the tenements, hereditaments and appurtenances thereunto belonging or appertaining, situated in the County of Grant, State of Oregon, to wit: Clearwater Land Exchange-Oregon, a partnership hereinafter called grantors, hereby

# TOWNSHIP 13 South RANGE 31 East, Willamette Meridian

Section 26: W14W14W14SW14SW14, W14E14W14NW14SW14SW14, Section 35: N\%W\%W\%NW\%NW\%NW\% W%E%N%W%SW%SW%SW%

Containing 8.125 acres, more or less

All according to Map of Survey 1603 recorded in Grant County Survey Office.

way of record or in view. Subject to reservations of US Patent and any other easements, restrictions, or rights-of-

The true consideration for this conveyance is Six Thousand Dollars

THIS INSTRUMENT WILL NOT ALLOW USE OF THE PROPERTY DESCRIBED IN THIS INSTRUMENT IN VIOLATION OF APPLICABLE LAND USE LAWS AND REGULATIONS. BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE FARMING OR FOREST PRACTICES AS DEFINED IN ORS 30.930. APPROVED USES AND TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST THE APPROPRIATE CITY OR COUNTY PLANNING DEPARTMENT TO VERIFY PERSON ACQUIRING FEE TITLE TO THE PROPERTY SHOULD CHECK WITH

Dated this of day of Cur

Clearwater Land Exchange-Oregon

INSTRUMENT 21,2,2,7

Carla Laws, Partner

Acknowledgement

STATE OF Idaho

County of Clearwater ) ss.

me on the basis of satisfactory evidence) of Clearwater Land Exchange-Oregon, a The foregoing instrument was acknowledged before me this 27 day of 400, 2001, by, Carla Laws, who is personally known to me (or whose identity is proven to

partnership, on behalf of said partnership

TAO DANGE A OF TONKO JAMBUS.

> or the State of Idaho かんり

My commission experes: 574-200 Residing in 100x

Control of the second s 9501057 OF ARRONAUTICS to following to Create Create Control of the Contro Conserved by a point on the N-S Section line between Sections 26 and 27 in T. 13 S., Range 31 E. W.M., which point is 3.0° 10 W. a distance of 2678.5 ft. from the NE corner of Section 27.

1. 3 S., Range 31 E. W.M.

Thence S. 0° 10 W. along the Section lines between Sections 26 and 27. 34 and 35. a distance of 5646.7 ft.; Thence W. 35° 18° W. 866.1 ft.; Thence N. 4° 42° E. 4997.2 ft.; Thence N. 34° 08° W. 233.7 ft.; thence N. 72° 58° W. 1962.9 ft. Thence N. 17° 02° E. 200.0 ft.; Thence S. 72° 58° E. 400.0 ft.; Thence N. 17° 02° E. 200.0 ft.; Thence S. 72° 58° E. 400.0 ft.; Thence N. 17° 02° E. 200.0 ft.; Thence S. 72° 58° E. 500.0 ft.; Thence N. 51° 18° E. 770.9 ft.; Thence S. 72° 49° E. 660.0 ft.; Thence S. 36° 06° E. 505.8 ft. to point of beginning. Containing 104.1 acres more or less THIS CONVEYANCE is subject to the following reservation: Should the premises be abandoned or cease to be used as part of a landing field premises be abandoned or cease to be used as part of a landing field for aircraft, the said premises shall automatically revert to the Grantors, the reference successors or assigns premises unto the said grantee...., its successors of assigns to the said grantee...., its successors of assigns to revert. And WE the grantor ... I do covenant that WE STE ..... lawfully seized in fee simple of the above granted premises tree from all encumbiances, will and OUT treits executors and admittage one, shall warrant and torover defend the above granted premises, and every part and parcel thereof, against the lawful claims and demands of all persons whomsoever. and seal & this .... Witness our STATE OF OREGON, On this Jack day of July 19 57, County of Grant before me, the undersigned, a Notary Public in and for said County and State, personally appeared the within named Joseph C: Oliver and Arlene Oliver, husband and wife, known to me to be the identical individual. described in and who executed the withininstrument, and acknowledged to me that Cheyescuted the same freely und voluntarily. IN TESTIMONY WHEREOF, I have heremto set my hand, and affixed my official repelie a Southworth seal the day and year last above written. Notary Public for Oregon. My Commission expires 4. 1.4. 16.1 STATE OF OREGON, WARRANTY DEED County of Line of JOSEPH C. OLIVER, et ux I certify that the within instrument was received for record on the 5 day of frame, 1957. at 9 of clock M., and recorded in book... 77... on page 1/4 Record of Deeds of said County. STATE OF OREGON. ABEL IN COUNthrough the STATE BOARD OF AERONAUTICS Witness my hand and seal of AFTER RECORDING RETURN TO County affixed. YOKOM & CAMPBELL. Attorneys at Law John Day, Oregon HMDEXED

OF MARIE

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#46223

## RIGHT OF WAY EASEMENT

KNOW ALL MEN BY THESE PRESENTS that the State of Oregon, acting by and through its State Board of Aeronautics, in consideration of the sum of one (\$1.00) dollar, and other good and valuable consideration, receipt whereof is hereby acknowledged, does hereby grant and convey unto California-Pacific Utilities Company, a corporation, forever, the exclusive right to construct, reconstruct, operate and maintain electric and power or telephone lines and all necessary poles, towers, and appurtenances, over, under and upon a strip of land fifteen (15) feet in width, described as follows, to-wit:

Beginning at the Southeast corner of Section 27 Township 13 South, Range Section 27 Township 13 South, Range Trans of the Willamette Meridian in Grant County, Oregon, and running thence Northerly along the Section line between Sections 26 and 27, a distance of 1,400 feet,

together with the right to fell or trim any trees thereon, or upon adjacent lands owned by the grantor, or obtaining and maintaining proper clearances for said line; including, also, the right of crossing over adjoining lands of the grantor and to install guys and anchors thereon.

IN WITNESS WHEREOF the State of Oregon, acting by and through its State Board of Aeronautics, has caused these presents to be executed this 10th day of October, 1961.

STATE OF OREGON, acting through its State Board of Aeronautics,

By Stilliam 7 Madelion

Chairman

Takent W. Series

Director

T. W. CHURCHILL ATTORNEY AT LAW 412 MAJOING BUILDING BALEM, OREGON STATE OF OREGON ss

Be It Remembered that on this 10th day of October, 1961, before me, the undersigned, Notary Public in and for said County and State, personally appeared the within named Ulm. 2. Moddson the chairman and director, respectively, of the Oregon State Board of Aeronautics, and acknowledged to me that they are the chairman and director of the Oregon State Board of Aeronautics, respectively, and that they executed the within and foregoing document on authority granted to them by the State Board of Aeronautics, and that they are known to me to be the identical individuals named in and who hold said offices, and that that they acknowledged to me that they executed the within and foregoing instrument for and in behalf of the State Board of Aeronautics freely and voluntarily as the act of said Oregon State Board of Aeronautics.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal the day and year last above written.

 Form 1860-9 (March 1965) (formerly 4-1043) OR 34029

OSSIBLE WARREN

BOOK 128 PAGE 174

MICROFILM

13-31-28

#### The United States of America

To all to whom these presents shall come, Greeting:

THE UNITED STATES OF AMERICA, acting through the Director, Bureau of Land Management, Department of the Interior, pursuant to the authority contained in Section 23 of the Airport and Airway Development Act of 1970, approved May 21, 1970 (84 Stat. 232; 49 U.S.C. 1723), section 1.1B of Part 235 of the Department of the Interior Manual, and in conformity with Executive Order No. 12079 of September 18, 1978 (FR Doc. 78-26599, 43 F.R. 183), and section 0.67 of Title 28 of the Code of Federal Regulations (Order No. 468.71 of the Attorney General of October 9, 1971; 36 F.R. 20428), hereby gives and grants a patent to the State of Oregon, by and through its Department of Transportation, Aeronautics Division, and to its successors in function, for the following described land:

Willamette Meridian, Oregon.

T. 13 S., R. 31 E., Sec. 28, S\(\frac{1}{2}\)SE\(\frac{1}{2}\)SE\(\frac{1}{2}\) and S\(\frac{1}{2}\)N\(\frac{1}{2}\)SE\(\frac{1}{2}\)SE\(\frac{1}{2}\).

The area described contains 15 acres, according to the official plat of the survey of the said land on file in the Bureau of Land Management:

NOW KNOW YE, that there is, therefore, granted by the UNITED STATES unto the said State of Oregon, by and through its Department of Transportation, Aeronautics Division, the land above described; TO HAVE AND TO HOLD the said land with all the rights, privileges, immunities and appurtenances, of whatsoever nature, thereunto belonging, unto the said State of Oregon, by and through its Department of Transportation, Aeronautics Division, its successors and assigns, forever;

EXCEPTING AND RESERVING TO THE UNITED STATES from the land so granted a right-of-way thereon for ditches or canals constructed by the authority of the United States. Act of August 30, 1890, 26 Stat. 391; 43 U.S.C. 945; and

SUBJECT TO the stipulation that if the land hereby conveyed is not developed for airport purposes or used in a manner consistent with the terms of this conveyance, the Secretary of Transportation or his delegate, may declare the terms of this grant terminated in whole or in part. The patentee, by acceptance of this patent, agrees for itself and its successors in interest that such declaration shall be conclusive as to the facts found by said Secretary or his delegate and shall, at the option of said Secretary or his delegate, operate to revest in the United States full title to the land involved in the declaration.

36-83-0009

Patent Number

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GPO 847 - 946

OR 34029

#### BOOK 128 MSE 175

The State of Oregon, by and through its Department of Transportation, Aeronautics Division, herein identified as the grantee, does by the acceptance of this patent covenant and agree for itself, its successors and assigns, forever, as follows:

- 1. That the grantee will use the property interest for airport purposes, and will develop that interest for airport purposes within 1 year after the date of this conveyance. However, if the property interest is necessary to meet future development of an airport in accordance with the national airport system plan, the grantee will develop that interest for airport purposes within a period of time satisfactory to the Administrator, and any interim use of that interest for other than airport purposes will be subject to such terms and conditions as the Administrator may prescribe.
- That the airport, and its appurtenant areas and its buildings and facilities, whether or not on the land conveyed, will be operated as a public airport on fair and reasonable terms, without unjust discrimination.
- That in the operation of the airport and its appurtenant areas, whether or not on the land conveyed, the grantee--
  - (a) Agrees that no person shall be excluded from any participation, be denied any benefits, or be otherwise subjected to any discrimination, on the grounds of race, color, or national origin; and
  - (b) Agrees to comply with all requirements imposed by or pursuant to Part 21 of the Regulations of the Office of the Secretary of Transportation (49 CFR 21) Nondiscrimination in Federally-Assisted Programs of the Department of Transportation-Effectuation of Title VI of the Civil Rights Act of 1964.
- 4. That the grantee will not grant or permit any exclusive right forbidden by Section 308(a) of the Federal Aviation Act of 1958 (49 U.S.C. 1349(a)) at the airport, or at any other airport now owned or controlled by it.
- That in furtherance of the policy of the FAA under this covenant the grantee--
  - (a) Agrees that, unless authorized by the Administrator, it will not, either directly or indirectly, grant or permit any person, firm, or corporation the exclusive right at the airport, or at any other airport now owned or controlled by it, to conduct any aeronautical activities, including, but not limited to,

Patent Number 36-83-0009

#### BOOK 128 PAGE 176

charter flights, pilot training, aircraft rental and sightseeing, aerial photography, crop dusting, aerial advertising and surveying, air carrier operations, aircraft sales and services, sale of aviation petroleum products whether or not conducted in conjunction with other aeronautical activity, repair and maintenance of aircraft, sale of aircraft parts, and any other activities which because of their direct relationship to the operation of aircraft can be regarded as an aeronautical activity.

- (b) Agrees that it will terminate any existing exclusive right to engage in the sale of gasoline or oil, or both, granted before July 17, 1962, at such an airport, at the earliest renewal, cancellation, or expiration date applicable to the agreement that established the exclusive right; and
- (c) Agrees that it will terminate forthwith any other exclusive right to conduct any aeronautical activity now existing at such an airport.
- That any later transfer of the property interest conveyed will be subject to the covenants and conditions in the instrument of conveyance.
- 7. That, if the covenant to develop the property interest (or any part thereof) for airport purposes within the time specified in paragraph 1 of this section is breached, or if the property interest (or any part thereof) is not used in a manner consistent with paragraph 1 of this section; or the terms of the conveyance, the Administrator may give notice to the grantee requiring him to take specified action within a fixed period, towards development or use as prescribed, as the case may be. These notices may be amended or supplemented. Upon expiration of a period so fixed without completion by the grantee of the required action, the Administrator may, on behalf of the United States, enter and take title to the property interest conveyed or the particular part of that interest to which the breach relates.
- 8. That, if any covenant or condition in the instrument of conveyance, other than the covenants contained in paragraph 7 of this section, is breached,
  the Administrator may, on behalf of the United
  States, immediately enter, and take title to, the
  property interest conveyed or, in his discretion,
  that part of that interest to which the breach
  relates.

36-83-0009

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of the foregoing covenants has been breached is conclusive of the facts; and that, if the right of entry and possession of title stipulated in the foregoing covenants is exercised, the grantee will, upon demand of the Administrator take any action (including prosecution of suit or executing of instruments) that may be necessary to evidence transfer to the United States of title to the property interest conveyed, or, in the Administrator's discretion, to that part of that interest to which the breach relates.

IN TESTIMONY WHEREOF, the UNITED STATES OF AMERICA by its
Director of the Bureau of Land Management, has hereunto
subscribed its name and affixed the seal of the United States
Department of the Interior, Bureau of Land Management, this

bosoribed and with to before me

21 day of Murch 19 83

Commission expires April 14, 1987

UNITED STATES OF AMERICA

UNITED STATES OF AMERICA

By

Commission of Murch 19 83

By

Commission expires April 14, 1987

day of March

APPROVED this 3013 day of March 19 83

Assistant Attorney General, Lands and Natural Resources Division

Patent Number



STATE OF OREGON
County of Grant
I hereby certify that the within Instrument
was filed in my office for record on this
day of That A.D., 19 3 at 1/00
o'clock A.M., and is duly recorded in Book 20
of Clock at Page 174 to 1/1 inclusive.
Witness my hand and official seal
Carol Voigt, County Clerk

Tammice Accessory
Deputy

INDEXED

13-31-28

## The United States of America

To all to whom these presents shall come, Greeting:

THE UNITED STATES OF AMERICA, acting through the Director, Bureau of Land Management, Department of the Interior, pursuant to the authority contained in Section 516 of the Airport and Airway Improvement Act of 1982, approved September 3, 1982 (96 Stat. 692; 49 U.S.C. 2215) and section 1.18 of Part 235 of the Department of the Interior Manual, hereby gives and grants a patent to the State of Oregon, by and through its Department of Transportation, Aeronautics Division, and to its successors in function, for the following described land:

Willamette Meridian, Oregon.

T. 13 S., R. 31 E., Sec. 28, SW4SE4, W4SE4SE4, and N4N4E4SE4SE4.

The area described contains 65 acres, according to the official plat of the survey of the said land on file in the Bureau of Land Management:

NOW KNOW YE, that there is, therefore, granted by the UNITED STATES unto the said State of Oregon, by and through its Department of Transportation, Aeronautics Division, the land above described; TO HAVE AND TO HOLD the said land with all the rights, privileges, immunities and appurtenances, of whatsoever nature, thereunto belonging, unto the said State of Oregon, by and through its Department of Transportation, Aeronautics Division, and to its successors in function, forever;

EXCEPTING AND RESERVING TO THE UNITED STATES from the land so granted a right-of-way thereon for ditches or canals constructed by the authority of the United States. Act of August 30, 1890, 26 Stat. 391; 43 U.S.C. 945; and

#### SUBJECT TO:

- Such rights for electric power transmission line purposes as California-Pacific Utilities Co. or its successors in interest may have pursuant to rights-of-way 100 feet in width, ORE 016812 and OR 12451. Act of March 4, 1911, 36 Stat. 1253, 43 U.S.C. 961;
- Such rights for telephone line purposes as Pacific Northwest Bell Telephone Co. or its successors in interest may have pursuant to right-of-way 15 feet in width, OR 13287. Act of March 4, 1911, 36 Stat. 1253, 43 U.S.C. 961; and
- 3. The stipulation that if the land hereby conveyed is not developed for airport purposes or used in a manner consistent with the terms of this conveyance, the Secretary of Transportation or his delegate, may declare the terms of this grant terminated in whole or in part. The patentee, by acceptance of this patent, agrees for itself and its successors in interest that such declaration

36-84-0068

OR 35380

shall be conclusive as to the facts found by said Secretary or his delegate and shall, at the option of said Secretary or his delegate, operate to revest in the United States full title to the land involved in the declaration.

The State of Oregon, by and through its Department of Transportation, Aeronautics Division, herein identified as the grantee, does by the acceptance of this patent covenant and agree for itself, its successors and assigns, forever, as follows:

- for airport purposes, and will develop that interest for airport purposes, and will develop that interest for airport purposes within 1 year after the date of this conveyance. However, if the property interest is necessary to meet future development of an airport in accordance with the national airport system plan, the grantee will develop that interest for airport purposes within a period of time satisfactory to the Administrator, and any interim use of that interest for other than airport purposes will be subject to such terms and conditions as the Administrator may prescribe.
- That the airport, and its appurtenant areas and its buildings and facilities, whether or not on the land conveyed, will be operated as a public airport on fair and reasonable terms, without unjust discrimination.
- That in the operation of the airport and its appurtenant areas, whether or not on the land conveyed, the grantee--
  - (a) Agrees that no person shall be excluded from any participation, be denied any benefits, or be otherwise subjected to any discrimination, on the grounds of race, color, or national origin; and
  - (b) Agrees to comply with all requirements imposed by or pursuant to Part 21 of the Regulations of the Office of the Secretary of Transportation (49 CFR 21) Nondiscrimination in Federally-Assisted Programs of the Department of Transportation-Effectuation of Title VI of the Civil Rights Act of 1964.
- 4. That the grantee will not grant or permit any exclusive right forbidden by Section 308(a) of the Federal Aviation Act of 1958 (49 U.S.C. 1349(a)) at the airport, or at any other airport now owned or controlled by it.

OR 35380 .

 That in furtherance of the policy of the FAA under this covenant the grantee--

- Agrees that, unless authorized by the Administrator, it will not, either directly or indirectly, grant or permit any person, firm, or corporation the exclusive right at the airport, or at any other airport now owned or controlled by it, to conduct any aeronautical activities, including, but not limited to, charter flights, pilot training, aircraft rental and sightseeing, aerial photography, crop dusting, aerial advertising and surveying, air carrier operations, aircraft sales and services, sales of aviation petroleum products whether or not conducted in conjunction with other aeronautical activity, repair and maintenance of aircraft, sale of aircraft parts, and any other activities which because of their direct relationship to the operation of aircraft can be regarded as an aeronautical activity.
- (b) Agrees that it will terminate any existing exclusive right to engage in the sale of gasoline or oil, or both, granted before July 17, 1962, at such an airport, at the earliest renewal, cancellation, or expiration date applicable to the agreement that established the exclusive right; and
- (c) Agrees that it will terminate forthwith any other exclusive right to conduct any aeronautical activity now existing at such an airport.
- That any later transfer of the property interest conveyed will be subject to the covenants and conditions in the instrument of conveyance.
- That, if the covenant to develop the property interest (or any part thereof) for airport purposes within the time specified in paragraph 1 of this section is breached, or if the property interest (or any part thereof) is not used in a manner consistent with paragraph 1 of this section or the terms of the conveyance, the Administrator may give notice to the grantee requiring him to take specified action within a fixed period, towards development or use as prescribed, as the case may be. These notices may be amended or supplemented. Upon expiration of a period so fixed without completion by the grantee of the required action, the Administrator may, on behalf of the United States, enter and take title to the property interest conveyed or the particular part of that interest to which the breach relates.

- That, if any covenant or condition in the instrument of conveyance, other than the covenants contained in paragraph 7 of this section, is breached, the Administrator may, on behalf of the United States, immediately enter, and take title to, the property interest conveyed or, in his discretion, that part of that interest to which the breach relates.
- of the foregoing covenants has been breached is conclusive of the facts; and that, if the right of entry and possession of title stipulated in the foregoing covenants is exercised, the grantee will, upon demand of the Administrator take any action (including prosecution of suit or executing of instruments) that may be necessary to evidence transfer to the United States of title to the property interest conveyed, or, in the Administrator's discretion, to that part of that interest to which the breach relates.

IN TESTIMONY WHEREOF, the UNITED STATES OF AMERICA by its Director of the Bureau of Land Management, has hereunto subscribed its name and affixed the seal of the United States Department of the Interior, Bureau of Land Management, this

Bungerined its	a Interior. Bureau o	f Land Management, this
		19 83.
ENTOFTH	Mari	•
	UNITED STATES	of AMERICA
	By Director,	Bureau of Land Management
ND WARM	recei <sup>te</sup>	. cul
APPROVED this	28th day of Ju	<u>ul, 1984.</u>
Alle Attorney	Walth and	
	GURT, GRANT COUNT	STATE OF OREGON Ss. 104847
	(Sagarana and and and and and and and and and	was find in office to second on this 33.44,
	STATE OF OREIGN	of Beed in 18 19 62 inclusive. of Beed in 18 19 62 inclusive. Of Beed in 18 19 19 19 inclusive. Carol Voigl, County Clerk Carol de
Patent Number	36-84-0068	By Deputy

INDEXED

strip described as follows:

#### EASEMENT

RECEIVED OF C P National Corporation, a corporation (Grantee), valuable consideration for which the undersigned Oregon State Aeronautics Division, (Grantor), hereby grants and conveys to that corporation, the exclusive easement and right to construct, reconstruct, operate, maintain, repair, replace and remove electric power or telephone lines and/or gas or water mains and all necessary transformers, cables, pipes, valves and appurtenances, over, under and upon a strip of land thirty feet in width, the center line of said

Beginning at a point located 455 ft. south of the east 1/4 corner section 27, T 13S, R 31 E.W.M., Grant County, Oregon; thence southwesterly 645 ft. along the airport fence line; thence east a distance of 30 ft., more or less to an existing power pole, as staked or built on the ground.

As shown on the attached sketch which is part of this easement, all as located on the ground.

TOGETHER with the right to fell or trim any trees or brush thereon, or upon our adjacent lands, for obtaining and maintaining proper clearances for said line or otherwise interfere with Grantee's exercise of its rights hereunder; including, also, the right of crossing over our adjoining lands and to install guys and anchors thereon.

Grantor agrees not to erect or construct any building or other structure, or drill or operate any well, or construct any reservoir or other obstruction, or add to the ground level in said strip, and further agrees not to deposit, or permit or allow to be deposited, earth, rubbish, debris, or any other substance or material, on said strip or so near thereto as to constitute, in the opinion of the Grantee, a hazard to its said facilities.

This easement shall remain in full force and effect only so long as the Oregon Department of Transportation, Highway Division maintains a Site Use Agreement for a Microwave Repeater Station at this location, and upon discontinuation or abandonment by Highway Division, this easement shall automatically terminate and interest shall revert to the Aeronautics Division.

The provisions of this easement shall inure to the benefit of and bind the successor and assigns of the respective parties hereto, and all covenants shall apply to and run with the land.

IN WITNESS WHEREOF, we have hereunto set our hands and seals this \_\_\_\_\_\_\_ of November , 1985.

Paul E. Burket, Administrator Oregon State Aeronautics Division

STATE OF OREGON ) COUNTY OF MARION)ss

On this day personally appeared before me the above-named Paul E. Burket, Administrator of the Oregon State Aeronautics Division, known to me to be the individual whose name is subscribed to the within instrument and acknowledged that he executed the same.

DATED this 6 day of November

Notary Public for Oregon

My commission expires 3-8-88



\ss. 108733 STATE OF OREGON

County of Grant I hereby certify that the within instrument was filed in my office for record on this 18 day of 12 menutes. AD. 19 at 1:02 at 1:02 o'clock 13 Page 12 to 6444 inclusive.

Witness my hand and official spal Carol Voigt, County Clerk (Real Vaigt

## ROOM 132 PAGE GYER

## WORK ORDER SKETCH

FORM 188-18H

TIBS RBIEWI

E/4 Cor. Sect . 27 ...

Easement

·	the contract of the contract o	
	NO. WIRE MILES NO. POLE MILES	W. O. NO
SCALE 1" = 400	SCHOOL DISTRICYCODE AREA	DISTRICT John Day
PREPARED BY:	NO. WIRE MILESNO. POLE MILES	10-10-05
DISTRIBUTION MAP NO.	SCHOOL DISTRICTCODE AREA	DATE TO TO-13
13-31. 27	Tohn Day	

13-31 Rase.

BOOK GRANI TATE OF

PASE 718
STATE OF OREGON
County of Grant
I hereby certify that the within instrument
was filed n my effice for record on this
day of Alb., 19 37 at
cleak his, and is duly recorded in Book
of Diesewat Page 71 to 219 inclusive.
Writenss my hand and official seal Witness my hand and official seal

Carol Voigt, County Clerk

Leputy Deputy By Lannie RECEIVED OF C P National Corporation, a corporation (Grantes), waluable consideration for which the undersigned, Oregon State Aeronautics Division

and \* (Grantor), hereby grant and convey to that corporation, forever, the exclusive easement and right to construct, reconstruct, operate, maintain, repair, replace and remove electric power or telephone lines and/or gas or water mains and all necessary poles, towers, transformers, cables, pipes, valves and appurtenances, over, under and upon a strip of land 15 feet in width, the center line of said strip described as follows:

Beginning at the end of an existing power line which is North 5°17' West 257.5 feet of the Section Corner common to Sections 26, 27, 34 and 35, T. 13 S., R. 31 E., W.M.; Thence South 16°25' West 670 feet; Thence an underground service bearing N. 85° West 122.5 feet to a metering point.

See attached sketch for Heliport Power Line.

As shown on the attached sketch which is part of this easement, all as located on the ground.

TOGETHER with the right to fell or trim any trees or brush thereon, or upon our adjacent lands, for obtaining and maintaining proper clearances for said line or otherwise interfere with Grantee's exercise of its rights hereunder; including, also, the right of crossing over our adjoining lands and to install guys and anchors thereon.

Grantor agrees not to erect or construct any building or other structure, or drill or operate any well, or construct any reservoir or other obstruction, or add to the ground level in said strip, and further agrees not to deposit, or permit or allow to be deposited, earth, rubbish, debris, or any other substance or material, on said strip or so near thereto as to constitute, in the opinion of the Grantee, a hazard to its said facilities.

The provisions of this easement shall inure and assigns of the respective parties hereto; a with the land.	and all covenants shall apply to and run
IN WITNESS WHEREOF, we have hereunto set our of <u>September</u> , 19 <u>87</u> .	hands and seals this 2nd day
Witnessed by:	
Thomas Column (	Faul & Burket Signature (SEAL)
Manager, State-owned Airport Operations and Maintenance	Administrator (SEAL)
STATE OF OACO SS.  On this day personally appeared before me subscribed to the within instrument and acknowly signed and sealed so the missing acknowly signed acknowly signed and sealed so the missing acknowly signed ackno	ledged that the executed the same.

Notary Public for My commission expires

()11<u>90</u>

41 (Rev. 9/78) 32200 \*see instructions on reverse side

FN 8/13/87

HELLPORT FOWERLINE	
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xeonally appeared before me to be the individual whose name is and ed to the individual whose name is and ed to the individual whose name is and ed to the individual contemboration.

Motary Public for nego My commission expires 14919

2200

reverse aide

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CATHY MCKINION RECORD OF

Information Required by ORS 205,234(1): Name of Transaction:

g <u>B</u>

Names of Parties:

Grantor:

Right-of-Way Deed CR80



Grantee:

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After recording, return

instrument to:

Oregon Department of Transportation, Aeronautics Section Grant County, Oregon, a political subdivision of the State of Oregon

٥

Grant County Road Department, Canyon City, Oregon, 97820

True and actual consideration in terms of dollars:

<del>\$</del>

Send tax statements to: n/a

ტ

# RIGHT-OF-WAY DEED

KNOW ALL BY THESE PRESENTS that the Oregon Department of Transportation, Aeronautics Section, hereinafter "Grantor," for the consideration hereinafter stated, does hereby convey and warrant unto successors and assigns, that certain real property, with the tenements, hereditaments and appurtenances thereunto belonging or appertaining, situated in the County of Grant and State of Oregon, described as follows, Grant County, Oregon, a political subdivision of the State of Oregon, hereinafter "Grantee", and Grantee's

# [See attached Exhibit "A"]

Together with right to make such cuts and fills as may be necessary for safety and road integrity; to have and to hold the same unto the said Grantee and Grantee's successors and assigns forever for public use and right-of-

The true and actual consideration paid for this transfer, stated in terms of dollars, is \$0.00. Consideration for this transfer is the mutual exchange of deeds to establish the boundary between Grantor's property and Grantee's right-of-way in County Road No. 80.

Page 1 -- Right-of-Way Deed

	MANAMA	N WIINESS WHEREOF,
		the Grantor has exe
By WALLIAM WILL DOWNSON	OREGON DEPARTMENT OF TRANSPORTATION, AERONAUTICS SECTION	WITNESS WHEREOF, the Grantor has executed this instrument this day of day of day of

OFFICIAL SEAL DIANE MARIE FEAKIN NOTARY PUBLIC - ORGON COMMISSION ROJEUSES ANY COMMISSION EXPIRES FEB. 23, 1996	This instrument was acknowledged before me or Elizabeth K. Uhinzhy.  Department of Transportation, Aeronautics Section.	STATE OF OREGON )  LEGiumbia, )ss  COUNTY OF THE STATE )
Manlinutue Hale Notary Public for Oregon; my commission expires: 4/33/46	This instrument was acknowledged before me on this 17+11 day of FEDFUARY, 1995, by ARDEHN K. 17919-1712 as MALFALGERY of the Oregon runent of Transportation, Aeronautics Section.	

COUN

Elizadeth K. Jansan.  Department of Transportation, Aeronautics Section.  OFFICIAL SEAL DIAME MARIE FEAKIN NOVARY PUBLIC-GREGON NOVARY
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gon	у

Department of Transportation, Aeronautics Section.

This instrument was ackn

COUNTY OF GRANT

STATE OF OREGON

commission expires: Notary Public for Oregon; my

Page 2 -- Right-of-Way Deed

ACCEPTED by the Grant County Court, this 15/4 \_day of

State of Ogggon GRANT COUNTY, a political subdivision of the

County Judge

COUNTY OF GRANT STATE OF OREGON

On this 15

and William Gibbs acknowledged the foregoing instrument on behalf of Grant County. day of mores 1995, Dennis Reynolds, Robert Kimberling



Notary Public for Oregon; my commission expires:

February 17, 1994

LEGAL DESCRIPTION
FOR RIGHT OF WAY
FOR A PORTION OF COUNTY ROAD NO. 80

GRANTOR: State of Oregon, acting by and through its State Board of Aeronautics

GRANTEE: Grant County

acting by and through its State Board of Aeronautics, recorded in Book 77, Page 198, deed records of Grant County, Oregon. Said A parcel of land lying in the E\seta of Section 27, Twp.13S., R.31E., W.M., Grant County, Oregon, and being a portion of that property described in that certain deed to the State of Oregon, parcel being that portion of said subdivision included in a strip of land of variable width on each side of the centerline of County Road No. 80 as said road has been relocated, which centerline is described as follows:

Beginning at Engineer's Centerline Station 41+70.00, said station being 506.35 feet South and 204.19 feet East of the East 1/4 corner of said Section 27, T13S.,R31E.;

thence S.48 53'00"W., 179.74 feet;

thence 263.02 feet along the arc of a 300.00 foot radius curve left, (the long chord of which bears S.23'46"00"W.,

254.68 feet );
thence S.01'21'00"E., 188.12 feet;
thence 528.35 feet along the arc of a 5280.00 foot radius curve right, ( the long chord of which bears S.1'31"00"W., 528.13 feet );

thence S.04\*23'00"W., 917.77 feet, to Engineer's Centerline Station 62+47.00; said point being 2488.73 feet South and 113.55 feet West of the East 1/4 corner of said Section 27, T13S., R31E.

The widths in feet of the strip of land above referred to are as

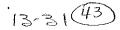
43+49.74	40+99.55	* <u>:</u>	Station
			6
45+00.00	43+49.74	40+99.55	Station
45+00.00 taper in a straight	taper in a straight line to 55.00 ft.	50.00 ft.	Width on left Side of centerline
30.00 ft.	taper in a straight line to 30.00 ft.		Width on right Side of centerline

Page 3 - Right-of-Way Deed

Station to 45+00.00 45+12.76 53+29.23 61+16.50	Station 46+12.76 46+12.76 53+29.23 61+16.50 61+42.00		Side of centerline 30.00 ft. 30.00 ft. 30.00 ft. 30.00 ft. 4 aper in a straight line to 90.00 ft.
61+16.50	61+42.00	taper in a straight line to 38.85 ft.	taper in a straight line to 90.00 ft.
61+42.00	62+47.00	taper in a straight line to 40.00 ft.	90.00 ft.
All according to Map of Surve of the Grant County Surveyor.	to Map of Sounty Surv	All according to Map of Survey No. 1300 to be filed in the office of the Grant County Surveyor.	filed in the office
		3 7	REGISTERED

PROFESSIONAL
LAND SURVEYOR

OREGON
ROBERT D. BAGETT



#### JOHN DAY STATE AIRPORT GRANT OF EASEMENT

KNOW ALL MEN BY THESE PRESENTS, THAT THE STATE OF OREGON DEPARTMENT OF TRANSPORTATION, AERONAUTICS SECTION, hereinafter called Grantor, in consideration of one dollar and other consideration to Grantor paid, the receipt whereof is hereby acknowledged, does grant to OREGON THAIL ELECTRIC CONSUMERS COOPERATIVE, ING., an Oregon corporation, hereinafter called GRANTEE, a perpetual, non-exclusive easement to use a strip of land tifleen (15) feet wide, the center line of which is described as follows:

Beginning at the NE corner of the NE 1/4 of Section 34, T13S, R31E, Willamette Meridian, Grant County, Oregon. Thence southerly 510 feet, thence westerly 280 feet to an existing pole, which is the True Point of Beginning (TPB). Thence underground north 53 degrees West 110 feet more or less, thence North 74 degrees West 40 feet more or less to the End Point. (EP).

This easement is granted over and across property owned by Grantor in Grant County, Oregon, known as John Day State Airport together with the right to fell and/or trim any trees thereon or within 15 feet of the easement for obtaining and maintaining proper clearance for said line; including, also the right of reasonable access over Grantor's adjoining lands.

Grantee is granted the right to use the described lifteen (15) foot easement to construct, reconstruct, operate and maintain underground power lines, transformers, cables, conduits, and appurtenances over, under and upon the above described property.

The cost of installation, including staking, properly line location, surveying, maintenance, and repair of Grantee's installation shall be paid by Grantee and no costs associated with Grantee's use of the easement property shall be the responsibility of Grantor. Following installation, and following any repair or maintenance work, Grantees shall return the easement property to a condition equal to its present condition.

Grantor shall, at all times and without restriction, have the right to use the easement property for purposes not inconsistent with Grantee's full use of the rights herein.

This grant of easement shall run with the land and shall be binding on and inure to the benefit of Grantor and Grantees, and their respective heirs, successors, assigns and grantees.

Approved as to legal sufficiency by Kathy Lincoln, Assistant Attorney General, May 1, 1997.

Dated this 9th day of May, 1997.

STATE OF OREGON

(F)

COUNTY OF MARION

This instrument was acknowledged before me on 577 by Elizabeth (Betsy) Johnson as Manager, Aeronautics Section, Department of Transportation of the State of Oregon.

OFFICIAL SEAL
MARILYN I. THOMPSON
NOTARY PUBLIC - OREGON
COMMISSION NO. 030320
MY COMMISSION EXPRES DIC. 15, 1937

Notary Public for the State of Oregon My commission expires

TO OF ORESIT

INST#\_\_\_971044

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KATHY McKINNON COUNTY CLERK

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13-31-27 (23)

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BARGAIN AND SALE DEED

THE STATE OF OREGON, acting by and through its DEPARTMENT OF TRANSPORTATION - AERONAUTICS SECTION ("Grantor") hereby conveys to Grant County, a political subdivision of the State of Oregon ("Grantee"), those improvements and personal property situated at the John Day State Airport, in Grant County, Oregon (a further description is attached as Exhibit A) and the real property on which it is located more particularly described as follows:

# Property Description

That portion of land commencing at a point on the North - South Section line between sections twenty-six and twenty-seven, Township thirteen (13) south; range thirty-one (31), which point is south 00° 45' 24" east a distance of 2678.5 feet from the northeast corner of section twenty-seven (27), township thirteen (13) south of range thirty-one (31); thence south 00° 36' 41" east a distance of 2659.19 to a point between sections twenty-six (26) and twenty-seven (27), thirty-four (34) and thirty-five (35), township thirteen (13) south, range thirty-one (31); thence south 00° 15' 35" east 2965.36 feet; thence north 85° 58' 00" west 1196.10 feet; thence south 89° 47' 15" west 191.11 feet; thence south 89° 24' 41" west 3098.78 feet; thence north 00° 20' 48" east 1347.86 feet; thence south 89° 24' 41" west 2643.48 feet; thence north 01° 07' 58" west 406.58 feet; thence south 70° 05' 00" east 2695.25 feet; thence north 89° 47' 15" east 137.36 feet; thence south 70° 05' 00" east 2695.25 feet; thence north 89° 47' 15" east 1537.36 feet; thence north 04° 02' 00" east 2695.25 feet; thence north 89° 47' 15" east 520.49 feet to the point of beginning.

All being east of the Willamette Meridian, in the County of Grant and State of Oregon. Excepting there from any and all easements for utilities, irrigation pipelines, or roads which have been duly recorded.

This conveyance includes all real property, runways, taxiways, apron, wind indicator, and easements appurtenant to the Property, including Clear Zone Easements, which are recorded as follows in Grant County:

- Clear Zone Easement recorded in Book 84, Page 575, Grant County Deed Records
- Second Amended Clear Zone Easement recorded in Book 85, Page 253, Grant County Deed Records
- Powerline Easement #971044
- Right-of-Way Deed #950533
   Avigation Easement recorded i
- Avigation Easement recorded in Book 131, Page 394, Grant County Deed Records

PAGE 1 - BARGAIN AND SALE DEED

 Water Pipe Easement recorded in Book 82, Page 401, Grant County Deed Records

1011

 Road Easement Correction recorded in Book 81, Page 480, Grant County Deed Records

This conveyance is subject to a right of reverter in Grantor, but Grantee shall maintain ownership only as long as Grantee, its successors or assigns, maintains and uses the property for the primary purpose of providing public airport facilities, and only for such secondary and incidental purposes as are not inconsistent with the primary purpose, it being the object and intent of Grantor to expedite the orderly expansion of the airport according to the needs of the people of Grant County.

The true and actual consideration paid for this conveyance is assumption by the Grantee of all of the obligations, covenants, terms and conditions with respect to the operation and maintenance of the John Day State Airport, and other good and valuable consideration.

The Oregon Transportation Commission on July 16, 1998 approved this conveyance and authorized the Aeronautics Manager to sign the appropriate document.

After Recording Return To:
Oregon Department of Transportation
Aeronautics Section
3040 25th St. SE

Salem, Oregon 97310

Send Tax Statement To:
County Court of Grant County
201 S. Humboldt Street Suite #280
Canyon City, Oregon 97820

THIS INSTRUMENT WILL NOT ALLOW USE OF THE PROPERTY DESCRIBED IN THE INSTRUMENT IN VIOLATION OF APPLICABLE LAND USE LAWS AND REGULATIONS. BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON ACQUIRING FEE TITLE TO THE PROPERTY SHOULD CHECK WITH THE APPROPRIATE CITY OR COUNTY PLANNING DEPARTMENT TO VERIFY APPROVED USES AND TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST FARMING OR FOREST PRACTICES AS DEFINED IN ORS 30.930.



FILED SEPT FEE TO THE SEPT FEE

PAGE 2 - BARGAIN AND SALE DEED

Department of Transportation acting by and through its STATE OF OREGON autics Section

STATE OF OREGON

S

County of Marion

State of Oregon, and acknowledged the foregoing instrument to be the voluntary act of the Department of Transportation, Aeronautics Section, and that she executed the the Manager of the Aeronautics Section of the Department of Transportation of the personally appeared ELIZABETH JOHNSON, who being duly swom state that she is foregoing Bargain and Sale Deed on behalf of said State Agency. リナス day of Sept in be 1998, before me

OTARY PUBLIC-OREGON COMMISSION NO 306686 MISSION EXPIRES DEC 15, 2001 MARILYN I LOHANCE OFFICIAL SEAL

NOTARY PUBLIC FOR OREGON

My commission expires: 12-15-01

on this, day of Accepted by GRANTEE, Grant County, a political subdivision of the State of Oregon Neptember, 1998.

Authorized officer of Grant Coupty

STATE OF OREGON

County of Duant

16th day of Soptoniol , 1998, before me personally appeared \_, who being duly sworn stated that he/she is the of Grant County, and acknowledged the

foregoing Bargain and Sale Deed on behalf of said County. foregoing instrument to be the voluntary act of the County, and that he/she executed the

OFFICIAL SEAL

NOTARY PUBLIC-OREGON COMMISSION NO. 303417 COMMISSION EXPIRES JUL 28, 2001

My commission expires: NOTARY PUBLIC FOR OR

PAGE 3 - BARGAIN AND SALE DEED



## County Court of Grant County Bob Kimberling, Commissioner William Gibbs, Commissioner Dennis Reynolds, Judge

CAPPIRA

September 17, 1998

3040 25th Street SE Ms. Ann Crook, State Airports Manager Aeronautics Department of Transportation

re: Bargain and Sale Deed

Salem, OR 97310-0100

Dear Ms. Crook,

as an improper use of the word "except" in respect to the easements in over-all legal description were County court by the State of Oregon acting by and through its Department of Transportation In reviewing the bargain and sale deed to the John Day State airport offered for signature to the Grant Aeronautics Section dated September 4, 1998, an error in the metes and bounds description as well

about these errors and have requested grant county correct them. Grant County has accepted the bargain and sale deed based on your representation that you know

corrected bargain and sale deed for your department's signature. The original bargain and sale deed will be recorded in our clerk's office with a copy of this letter indicating there is another corrected Please find attached an original signed bargain and sale deed and two copies of a county executed bargain and sale deed and return one original to us for recording. bargain and sale deed being executed. Please have your department review and sign the corrected

Thank you for your understanding and cooperation in this matter

Dennis Reynolds, 19482

cc: file

Commissioners

DR/dr

Grant County Courthouse 201 S. Hambolt Street, Suite 280 Canyon City OR 97820 Phone 541-575-0059 Fax 541-575-2248

gapasa ing Per



#### BARGAIN AND SALE DEED

THE STATE OF OREGON, acting by and through its DEPARTMENT OF TRANSPORTATION -- AERONAUTICS SECTION ("Grantor") hereby conveys to Grant County, a political subdivision of the State of Oregon ("Grantee"), those improvements and personal property situated at the John Day State Airport, in Grant County, Oregon (a further description is attached as Exhibit A) and the real property on which it is located more particularly described as follows:

#### **Property Description**

In Twp. 13 S., R. 31 E., W.M.

Secs. 27, 28 and 34:

and A tract of land situated in the E 1/2 of the SW 1/4 of Sec. 27, in the S1/4 SE 1/4 of

Sec. 28 and in the E 1/2 and the NW 1/4 of Sec. 34, described as follows:

Beginning at a point on the east line of the NE 1/4 of said Section 27, said point being S.00. 45'24"E., 2678.50 feet from the northeast corner of said Section 27;

thence \$.00°45'24" E., along the east line of said NE 1/4, a distance of 4.23 feet to the East 1/4 corner of said Section 27;

thence S.00°36'41" E., along the east line of the SE 1/2 of said Section 27, a distance of 2659.19 feet to the southeast corner of said Section 27;

thence \$.00°15'35" E., along the east line of the NOA of said Section 34, a distance of 2641.99 feet to the east 1/2 corner of said Section 34;

thence S.00°16'04" E., along the east line of the SE 14 of said Section 34, a distance of 323.37 feet;

thence N. 85°58' 00"W., 1196.10 feet;

thence N.04°02' 00" E., 1395.27 feet;

thence N. 70°05' 00" W., 4316.17 feet to a point on the south line of the SW 1/4 SW 1/4 of said Section 27;

thence S.89°47'15"W., along the south line of said SW 1/4 SW 1/4, a distance of 191.11 feet to the southwest corner of said Section 27;

thence S. 89° 24'41"W., along the south line of said S½ SE ¼ of said Section 28, a distance of 2678.11 feet to the south 1/4 corner of said Section 28;

thence N.00°20'48"E., along the west line of the S 1/2 SE 1/4 of said Section 28, a distance of 1347.86 feet to the northwest corner of said S 1/4 SE 1/4;

thence N.89°42'14"E., along the north line of the S 1/2 SE 1/2 of said Section 28, a distance of 2643.47 feet to the northeast corner of said S 1/2 SE 1/4;

thence S.01°07'58"E., along the east line of the S 1/4 SE 1/4 of said Section 28, a distance of 406.58 feet;

thence S. 70°05'00"E., 2695.25 feet to a point on the south line of the SE 1/4 SW 1/4 of said Section 27:

thence N. 89°47'15"E., along the south line of said SE 1/4 SW 1/4 and the SE 1/4 of said Section 27, a distance of 1537.36 feet;

thence N.04°02'00"E, 3216.26 feet;

thence N.50°38'00"E., 97.95 feet;

thence \$.73°29'00"E., 660.00 feet;

thence S. 37°09'54"E., 520.49 feet to the point of beginning.

All being east of the Williamette Meridian, in the County of Grant and State of Oregon,

Subject to any and all easements for utilities, irrigation pipelines or roads which have been duly recorded.

This conveyance includes all real property, runways, taxiways, apron, wind indicator, and easements appurtenant to the Property, including Clear Zone Easements, which are recorded as follows in Grant County:

- 1. Clear Zone Easement recorded in Book 84, Page 575, Grant County Deed Records.
- Second Amended Clear Zone Easement recorded in Book 85, Page 253, Grant County Deed Records.
- 3. Power line Easement #971044
- 4. Right-of-Way Deed #950533
- 5. Avigation Easement recorded in Book 131, Page 394, Grant County Deed Records.
- 6. Water Pipe Easement recorded in Book 82, Page 401, Grant County Deed Records.
- Road Easement Correction recorded in Book 81, Page 480, Grant County Deed Records.

This conveyance is subject to a right of reverter in Grantor, but Grantee shall maintain ownership only as long as Grantee, its successors or assigns, maintains and uses the property for the primary purpose of providing public airport facilities, and only for such secondary and incidental purposes as are not inconsistent with the primary purpose, it being the object and intent of Grantor to expedite the orderly expansion of the airport according to the needs of the people of Grant County.

The true and actual consideration paid for this conveyance is assumption by the Grantee of all of the obligations, covenants, terms and conditions with respect to the operation and maintenance of the John Day State Airport, and other good and valuable consideration.

The Oregon Transportation Commission on July 16, 1998 approved this conveyance and authorized the Aeronautics Manager to sign the appropriate document.

After Recording Return To: Oregon-Department of Transportation Aeronautics Section 3040 25th St. SE Salem, Oregon 97310 Send Tax Statement To: County Court of Grant County 201 S. Humbolt St. Ste., 280 Canyon City, Oregon 97820

THIS INSTRUMENT WILL NOT ALLOW USE OF THE PROPERTY DESCRIBED IN THE INSTRUMENT IN VIOLATION OF APPLICABLE LAND USE LAWS AND REGULATIONS. BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON ACQUIRING FEE TITLE TO THE PROPERTY SHOULD CHECK WITH THE APPROPRIATE CITY OR COUNTY PLANNING DEPARTMENT TO VERIFY APPROVED USES AND TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST FARMING OR FOREST PRACTICES AS DEFINED IN ORS 30.930.

STATE OF OREGON	,
acting by and through its	
Department of TransportationAeronautics Secti	on
By: (Asim B)	Date: 16 AM 99
STATE OF OREGON )	
County of Marion )	
•	1999
On this 16th day of April Ann B. Crook	1993 before me personally appeared
Ann B. Crook	who being duly sworn states that he/she is
the Manager of the Aeronautics Section of the 13	epartment of Transportation of the State of
Oregon, and acknowledged the foregoing instrun	ent to be the voluntary act of the
Department of Transportation-Aeronautics Secti	
Bargain and Sale Deed on behalf of said state ag	ency.
OFFICIAL SEAL	marlyn / forance
HAR MARILYN I LORANCE	NOTARY PUBLIC FOR OREGON
NOTARY PUBLIC-OREGON	NOTART FORMAL TORONDOON
MY COMMISSION NO. 308686 MY COMMISSION EXPIRES DEC. 15, 2001	My commission expires: $12 - 15 - 0$
Contraction of the contraction o	
Accepted by GRANTEE, Grant County a politic	eal subdivision of the State of Oregon, on
this 16th day of Septem	der 1998.
	/ / / .
Authorized Officer of Grant County	rnnio Kynolda
STATE OF OREGON )	-
) ss.	·
County of Grant )	
On this 16th day of Soptemb	1998 before me personally appeared
County Judge Dennis Reynolds, who being duly	Sworn states he is the authorized officer for
Grant County, and acknowledged the foregoing	instrument to be the voluntary act of Grant
County, and that he executed the foregoing Bar	
County.	Mary Herrich
THE RESIDENCE OF THE PROPERTY	NOTARA PUBLIC FOR OREGON
OFFICIAL SEAL	
MARY R FERRIOLI NOTARY PUBLIC-OREGON	My commission expires: <u>07-28-0</u> /
COMMISSION NO. 303417	•
MY COMMISSION EXPIRES JUL 28, 2001	•
<del></del>	

PAGE 3 - BARGAIN AND SALE DEED

FILED SAME 2 1999
RECORD CHARLEMEL: ON M. 3 PGS

ATHY MCKINNON BY CHEST
COUNTY CLERK DEPUTY



Form 1860-9 (January 1988) OR 51858-19

## TheUnited States of America

To all to whom these presents shall come, Greeting:

### WHEREAS

# CLEARWATER LAND EXCHANGE-OREGON, an Oregon partnership

enacted August 8, 2000, and Sec. 206 of the Federal Land Policy and Management Act of 1976 is entitled to a Land Patent pursuant to the Oregon Land Exchange Act of 2000, Public Law 106-257, (43 U.S.C. 1701 et seq.) as amended, for the following described lands in Grant County, Oregon:

Willamette Meridian, Oregon T. 13 S., R. 31 E.,

sec. 26, lots 1, 2, 3, 4, 7, 9 and 10, and SW4/SW1/4 and sec. 22, NW%NE%; W%SE%SW%;

sec. 36, E½NW¼NE¼, SW¼NW¼NE¼, W½W½NW¼ sec. 35, W%W%, W%E%W% and E%NW%SE%;

N½SW¼NW¼SW¼ and SE¼SW¼ S%NE%SW%, NW%NW%SW%,

T. 14 S., R. 31 E., sec. 2, NYSEYSEY, SWYSEYSEY, WYSEYSEY and SE%SE%SE%SE%

## Aggregating 557.50 acres

NOW KNOW YE, that the UNITED STATES OF AMERICA, in consideration of the premises, and in conformity with the said Act of Congress, HAS GIVEN AND GRANTED, and by these presents DOES GIVE AND GRANT unto the said CLEARWATER LAND EXCHANGE-OREGON, the lands CLEARWATER LAND EXCHANGE-OREGON, its successors and assigns forever; and immunities, and appurtenances, of whatsoever nature, thereunto belonging, unto the said above described; TO HAVE AND TO HOLD the same, together with all the rights, privileges,

# EXCEPTING AND RESERVING TO THE UNITED STATES:

- A right-of-way thereon for ditches and canals constructed by the authority of the United States. Act of August 30, 1890 (43 U.S.C. 945);
- ? Management, its successors or assigns, by right of way number OR 8876, pursuant to Title V of the Act of October 21, 1976 (43 U.S.C. 1761-1771), as to the SW/SE/SW/4, sec. 26, and Such rights for a road right-of-way, 30' in width, granted to the USDI, Bureau of Land States the right of enforce all or any of the terms and conditions of the right-of-way. W%W% and W%E%W%, sec. 35, T. 13 S., R. 31 E., W.M., and reserving to the United including the right to renew it or extend it upon its termination; and,

PATENT NUMBER: 36-2001-0134

COUNTY CLERK	RECORD OF LET ME 3:	INST#212394 REF#
DEPUTY	35 M PGS 3	12 mm 505

OR 51858-19 Form 1860-9

> PAGE OF 3 PAGES INSTRUMENT 21 2394

## SUBJECT TO:

- Such rights for a power line right-of-way as have been granted to Oregon Trail Electric Consumers Cooperative, by right-of-way number OR 56872, pursuant to the Act of October 21, 1976 (90 Stat. 2776) as amended, as to lands in sec. 22, sec. 26, and sec. 35, T. 13 S., R. 31 E., W.M.;
- Such rights for a power line right-of-way as have been granted to Idaho Power Company by right-of-way number ORE 16898, pursuant to the Act of March 4, 1911 (36 Stat. 1233) as to the NW/2NE%, sec. 22, T. 13 S., R. 31 E., W.M.;
- Ψ Such rights for an avigation easement as have been granted to the Oregon State Aeronautic Department for the John Day State Airport, by right-of-way number OR 36375, pursuant to Section 516 of the Airport and Airway Improvement Act of 1982 (49 U.S.C. 2215) as to the W/ANW/ASW/ANW/4 and W/AE/ANW/ASW/ANW/4, sec. 35, T. 13 S., R. 31 E., W.M.;
- 4 Such rights for a well-pump site and irrigation pipeline right-of-way as have been granted to March 3, 1891 (43 U.S.C. 946) as amended, as to the E½NW¼SE¼, sec. 35, T. 13 S., Mid-County Cemetery District by right-of-way number OR 10927, pursuant to the Act of R. 31 E., W.M.;
- 'n Such rights for a well and pipeline right-of-way as have been granted to the Town of Canyon City by right of way number ORE 013384, pursuant to the Act of February 15, 1901 (31 Stat. 790), as to the S/sNE/4SW/4, sec. 36, T. 13 S., R. 31 E., W.M.;
- 9 Such rights for an access road right-of-way as have been granted to Danny V. Ellison by right-of-way number OR 37543, pursuant to the Act of October 21, 1976 (90 Stat. 2776) as amended, as to the S½NE½SW¼ and SE½SW¼, sec. 36, T. 13 S., R. 31 E., W.M.;
- Such rights for a power line right-of-way as have been granted to CP National by right-of-way number OR 39398, pursuant to the Act of October 21, 1976 (90 Stat. 2776) as amended, as to the SW/NE//SW/4, sec. 36, T. 13 S., R. 31 E., W.M.;
- ço Such rights for a buried telephone line right-of-way as have been granted to Telephone Utilities of Oregon by right-of-way number OR 44311, pursuant to the Act of October 21, 1976 (90 Stat. 2776) as to the N½SW½NW½SW½, sec. 36, T. 13 S., R. 31 E., W.M.;
- ø Such rights for an access road right-of-way as have been granted to Mr. Dennis Dice by to the NYSWYANWYSWY, sec. 36, T. 13 S., R. 31 E., W.M.; right-of-way number OR 43600, pursuant to the Act of October 21, 1976 (90 Stat. 2776) as

PATENT NUMBER: 36-2001-0134

PAGE 3 OF 3 PAGES INSTRUMENT 21 2394

- Such rights for a county road right-of-way as have been granted to Grant County Road Department by right-of-way number OR 45833, pursuant to the Act of July 26, 1866 (43 U.S.C. 932), as to the SE/ASW/4, sec. 36, T. 13 S., R. 31 E., W.M.;
- 11. Such rights for a power line right-of-way as have been granted to Oregon Trail Electric Consumers Cooperative by right-of-way number OR 8962, pursuant to the Act of March 4, 1911 (43 U.S.C. 961) as amended, as to the W/EE/SWV4, sec. 36, T. 13 S., R. 31 E., W.M.;
- 12. Such rights for a power distribution line right-of-way as have been granted to the Oregon Trail Electric Consumers Cooperative by right-of-way number ORE 016738, pursuant to the Act of March 4, 1911 (36 Stat. 1253), as to the SWMNE/SWM, sec. 36, T. 13 S., R. 31 E., ₩.W.;
- Such rights for a power line right-of-way as have been granted to Oregon Trail Electric Consumers Cooperative by right-of-way number ORE 6046, pursuant to the Act of March 4, 1911 (43 U.S.C. 961) as amended, as to the SEV/SEV, sec. 2, T. 14 S., R. 31 E., W.M.;
- 14. Such rights for a highway right-of-way as have been granted to the State of Oregon, Department of Transportation, by right-of-way number ORE 6443, pursuant to the Act of August 27, 1958 (72 Stat. 885), as to the SEY/SEY, sec. 2, T. 14 S., R. 31 E., W.M.; and,
- Such rights for a buried telephone line right-of-way as have been granted to Telephone
  Utilities of Oregon, by right-of-way number OR 17530, pursuant to the Act of October 21,
  1976 (90 Stat. 2776), as to the SEV/SEV/4, sec. 2, T. 14 S., R. 31 E., W.M.



IN TERMONY WIREZON, the undersigned authorized officer of the Burean of Land Management, in accordance with the provisions of the Act of June 17, 1948 (26, 28tz. 476), has, in the name of the United States, caused these letters to be made Patent, and the Scal of the Bureau to be hereinto affixed.

the twenty-seventh day of August in the year of our Lord two thousand and one and of the Independence of the United States the two hundred and twenty-sixth. GIVEN under my hand, in Portland, Oregon in the year

Acting Chief, Branch of Realt

PAGE ......

BY KATHY McKINNON COUNTY CLERK

KATHY MCKINNON, County Clark

EASEMENT

This Agreement for Easement ("Agreement") is made this 1644 day of January, 2002, between Grant County, a political subdivision ("Grant County") and Clearwater Land Exchange-Oregon, a partnership ("Clearwater").

#### RECITALS

A. Clearwater owns the following described real property located in: Willamette Meridian, Grant County, Oregon

Township 13 South Range 31 East Section 35: W%W%, W%E%W%

Grant County owns real property located in: Willamette Meridian, Grant County, Oregon

Township 13 South Range 31 East

Section 27 SEW

Section 26 W%W% W%SW%SW%, W%E%W%NW%SW%SW%

Section 26 W/EL/N/2W/SW//SW//SW//

Section 35 N%W%W%NW%NW%NW%

C. Grant County wishes and agrees to grant to Clearwater, their successors and assigns, a non-exclusive easement 60 feet in width over and across the Grant County property described above for the purposes of ingress, egress.

#### THEREFORE:

- The recitals above are true and correct and are a part of this Agreement.
- 2. Grant County grants to Clearwater the perpetual, non-exclusive, and unrestricted easement described as follows:

An Easement servicing the W½W½, W½E½W½ of Section 35, Township 13 South Range 31 East, beginning at point on County Road 80, 300 feet North of a point at the South end of County Road 80 described as "Station 62 - 47.00" as recorded on "Record Map of Survey No. 1129" in Grant County, Oregon, traversing Easterly over and across the E1/2SE1/4SE1/4SE1/4 of Section 27. Township 13 South Range 31 East Willamette Meridian to the East boundary of Section 27, the common line with Section 26, thence commencing Southerly over and across the Westerly 60 feet of the W1/2W1/2SW1/4SW1/4 of Section 26, Township 13 South Range 31 East Willamette Meridian; continuing Southerly over and across the Westerly 60 fect of the N½W½W½NW½NW¼NW¼ of Section 35, Township 13 South Range 31 East Willamette Meridian, and terminating at the common boundary between Grant County and Clearwater at the South boundary of the N%W%W%NW%NW%NW% of Section 35. Township 13 South Range 31 East Willamette Meridian.



Z22693

PAGE OF PAGE

3. This easement is appurtenant to and runs with the land to bind and for the benefit of the successors in interest of Clearwater.

IN WITNESS WHEREOF, the parties have executed or caused this instrument to be executed on the /6/h day of January 2002. Grant County, a political subdivision By Normin Kumeld Dennis Reynolds, Grant County Judge Leonard Trafton, Grant County Commissioner By Scott W. Myers. Grant County Commissioner State of Carry 10 ) SUBSCRIBED AND SWORN TO before me this //// day of January, 2002, by Dennis Reynolds, Grant County Judge. OFFICIAL SEAL MARY R. FERRIOL State of Cristina County of Mart SUBSCRIBED AND SWORN TO before me this // day of January, 2002, by Leonard Trafton, Grant County Commissioner. NOTARY PUBLIC-OREGON COMMISSION NO. 346264
State of Cicara My Commission Expires July 28, 2005 County of Mant) ss. SUBSCRIBED AND SWORN TO before me this 1/24/2 day of January, 2002, by Scott W. Myers. Grant County Commissioner.

#### INSTRUMENT 03 2446 PAGE L OF 3 PAGES

AFTER RECORDING, RETURN TO: OREGON TRAIL ELECTRIC CO-OP 245 S Canyon Blvd John Day, OR 97845

Work order #03J1045



#### RIGHT OF WAY EASEMENT

KNOW ALL MEN BY THESE PRESENTS, that the undersigned Grant County, DBA Grant County Regional Airport, (Grantors), for a good and valuable consideration, the receipt whereof is hereby acknowledged, do hereby grant unto OREGON TRAIL ELECTRIC CONSUMERS COOPERATIVE, INC. (Cooperative), a cooperative corporation, whose post office address is PO Box 226, Baker City, Oregon, and to its successors or assigns, the right to enter upon the lands of the undersigned, situated in the County of Grant, State of Oregon, and more particularly described as follows:

See Exhibit A
Legal Description
(Prepared by Anderson, Perry & Associates, Inc.)

Section 27, Township 13S, Range 31 east of the Willamette Meridian, and to construct, operate and maintain an electric distribution line or system on or under the above-described lands and/or in, upon or under all streets, roads or highways abutting said lands; to inspect and make such repairs, changes, alterations, improvements, removals from, substitutions and additions to its facilities as Cooperative may from time to time deem advisable, including, by way of example and not by way of limitation, the right to increase or decrease the number of conduits, wires, cables, handholes, manholes, connection boxes, transformers and transformer enclosures; to cut, trim and control the growth by chemical means, machinery or otherwise of trees and shrubbery located within 30 feet of the center line of said line or system, or that may interfere with or threaten to endanger the operation and maintenance of said line or system (including any control of the growth of other vegetation in the right-of-way which may incidentally and necessarily result from the means of control employed); to keep the easement clear of all buildings, structures or other obstructions; and to license, permit or otherwise agree to the joint use or occupancy of the lines, system or, if any of said system is placed underground, of the trench and related underground facilities, by any other person, association or corporation.

The undersigned agree that all poles, wires and other facilities including any main service entrance equipment, installed in, upon or under the above-described lands at the Cooperative's expense shall remain the property of the Cooperative, removable at the option of the Cooperative, upon termination of service to or on said lands.

nave set their hands this/3# day of
Dennis Rumordo
DENNIS REYNOLDS, CONTY JUDGE
SCOTT W. MYERS, COUNTY COMMISSIONER
BOYD BRITTON, COUNTY COMMISSIONER
INST#032446 REF# FEE3350
RECORD OF LESTIMES: 15 M 3 PGS KATHY MCKINNON BY LLUCK COUNTY CLERK DEPUTY

13-31 (43)

MANADOR

EXHIBIT A

LEGAL DESCRIPTION UTILITY EASEMENT

GRANT COUNTY AIRPORT INDUSTRIAL PARK

Range 31 East of the Willamette Meridian, Grant County, Oregon, said parcel to serve as an easement for underground utilities, being thirty (30.00) feet in width, lying fifteen (15.00) feet to each side of the following described centerline. A parcel of land in the Southeast One-quarter of Section 27, Township 13 South,

feet distant. North 73°22'32" West a distance of 1094.09 feet to a point on the East line of Parcel Number One of Grant County Land Partition Number 2000-12, the Point of Terminus of Station 2+45.55 as shown on Grant County Survey Number 1659; Thence known as the Industrial Park Road, said point being forty (40.00) feet left of Engineer's this description, from which the Northeast Corner of said Parcel Number One lies 375 Beginning at a point on the westerly right-of-way of County Road 80-A, also

This parcel contains 32,820 square feet or 0.75 acres, more or less.

Prepared by Anderson Perry & Associates, Inc. June 26, 2003



032446

EXHIBIT PAGE 2 ×

PAGE 3 OF 3 P

\_ PAGES

UTILITIES EASEMENT LEGAL DESCRIPTION

GRANT COUNTY AIRPORT INDUSTRIAL PARK

underground utilities and appurtenances necessary and convenient thereto, on, over, and under a strip of land 15.0 feet in width, 7.5 feet on each side of the following described centerline; A perpetual easement Tor construction and maintenance of

Beginning at a point on the centerline of the UTILITY EASEMENT described in EXHIBIT A, PAGE 1, attached hereto, said point being 2375.04 feet North and 338.12 feet West from the southeast corner of Section 27, T. 13 S., R. 31 E., W.M., Grant County, Oregon;

North and 40.83 feet East from the Southeast corner of said Section centerline of County Road 80, said point being at Engineer's Centerline Station 43+48.92, said point also being 2035.28 feet thence S.48°07'15"E., 508.96 feet, more or less, to a point on the

80-A. Said easement subject to the rights of way of County Roads 80 and

Prepared by Bagett, Griffith & Blackman Surveyor.

of Survey

No.

1659, filed in

the

Office

g f

the

Grant County

Page 2 are based on Record Map

The bearings contained in EXHIBIT A,

August 13, 2003 John Day, Oregon 97845

LAND SURVEYOR REGISTERED PROFESSIONAL

JULY 12, 1965 ROBERT D. BAGETT 598 ORMOOK

Cenewal Date 12/31/03

# INSTRUMENT 05 - 2708

## EASEMENT

Grant County, DBA as Grant County Regional Airport, hereinafter referred to as Grantor, conveys to the City of John Day, and Century Tel, their successors and assigns, hereinafter referred to as Grantee, a utility easement as follows:

See Exhibit A
Legal Description
Utility Easement

Grant County Airport Industrial Park

The terms of the easement are as follows:

- I. Grantee, their agents and independent contractors shall use the easement strip for utility purposes, and in conjunction with such use may construct, reconstruct, maintain, inspect, operate, protect, replace, alter, remove, and repair said utilities thereon. Proper notice must be given to the airport manager and said activities must not materially affect use of the runway and taxiway in any way contrary to the safety of landing, departing or taxing aircraft.
- This easement is granted subject to all prior easements or encumbrances of record, including all FAA airport grant assurances that are binding upon Grant County, dba Grant County Regional Airport.
- 3. Grantors shall have the right to use and enjoy the above-described premises, except as to the rights herein granted; and Grantor agrees not to build, create or construct or permit to be built, created or constructed any obstruction, building, engineering works, landscaping, or other structure over or that would interfere with said utilities or Grantee's right herein. Grantor will, at some point in the future, extend the runway and taxiways with their associated lighting, navigation, and visual aids. Removal, repositioning or altering of said utilities to accommodate such extensions and improvements will be at the sole cost of the Grantees.
- After the installation of any utilities or maintenance, Grantee will restore
  the above-described premises to a condition that is the equivalent to
  conditions before use of the easement strip.
- This easement shall be binding upon and inure to the benefit of the parties
  hereto, their respective permitted heirs, legatees, distributees, legal
  representatives, successors and assigns, subject to the provisions hereof.

Grant County Regional Airport Easement with City of John Day, and Centuryte! Page 1

13-31-10 (B)

## INSTRUMENT 03-2708

- The Grantee shall have the right to assign this grant in whole or in part,
  provided that Grantee shall have first obtained Grantor's written consent
  to such assignments. Grantor shall not unreasonable withhold such
  consent.
- It is agreed that this Grant covers all of the agreements between the parties
  hereto and no representations or statements, verbal or written have been
  made that modify, add to, or change the terms of this agreement except as
  incorporated herein.

IN WITNESS WHEREOF, the parties have caused this instrument to be executed the day and year first written above.

GRANTOR, Dennis Asynolds b.c.m. Date
Grant County Judge

By

GRANTEB, Roger Simonsen

Mayor City of John Day

Attested By Quant Hand

GRANTEE, ComuryTel

Date

Attested By Llonda Tarvaio

Grant County Regional Airport Easement with City of John Day, and Centurytel
Page 2

## PAGE 3 OF 5 03-2768

COUNTY OF GRANT STATE OF OREGON

Personally appeared the above-pamed\_acknowledged the foregoing to be wood vol voluntary act and deed!

Aublic for Oregon

Before me:

My Commission Expires:

STATE OF OREGON COUNTY OF GRANT

SS. ह्यास 2003

Personally appeared the above-named Toketh Sinvousen a acknowledged the foregoing to be His voluntary act and deed. Before me: l and



Notary Public for Oregon My Commission Expires: 3 | 24 | 03

STATE OF GREEGIN COUNTY OF GENERAL

Ş

Personally appeared the above-named Douglas J. Alden acknowledged the foregoing to be \_\_\_\_\_voluntary act and deed. Be voluntary act and deed. Before me: E.



My Commission Expires: 8-3-67 Notacy Public for Grogoallashing Cor.

Grant County Regional Airport Easement with City of John Day, and Centurytel Page 3

INSTRUMENT 03-2708

EXHIBIT A
PAGE 1

LEGAL DESCRIPTION
UTILITY EASEMENT

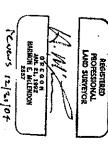
GRANT COUNTY AIRPORT INDUSTRIAL PARK

Range 31 East of the Willamette Meridian, Grant County, Oregon, said parcel to serve as an easement for underground utilities, being thirty (30.00) feet in width, lying fifteen (15.00) feet to each side of the following described centerline. A parcel of land in the Southeast One-quarter of Section 27, Township 13 South,

North 73°22'32" West a distance of 1094.09 feet to a point on the East line of Parcel Number One of Grant County Land Partition Number 2000-12, the Point of Terminus of this description, from which the Northeast Corner of said Parcel Number One lies 375 Beginning at a point on the westerly right-of-way of County Road 80-A, also known as the Industrial Park Road, said point being forty (40.00) feet left of Engineer's Station 2+45.55 as shown on Grant County Survey Number 1659; Thence feet distant.

This parcel contains 32,820 square feet or 0.75 acres, more or less.

June 26, 2003 Prepared by Anderson Perry & Associates, Inc.



coms istailot

## EXHIBIT A PAGE 2

## UTILITIES EASEMENT LEGAL DESCRIPTION

## GRANT COUNTY AIRPORT INDUSTRIAL PARK

underground utilities and appurtenances necessary and convenient thereto, on, over, and under a strip of land 15.0 feet in width, 7.5 feet on each side of the following described centerline; perpetual easement ц Б construction and maintenance of

Beginning at a point on the centerline of the UTILITY EASEMENT described in EXHIBIT A, PAGE 1, attached hereto, said point being 2375.04 feet North and 338.12 feet West from the southeast corner of Section 27, T. 13 S., R. 31 E., W.M., Grant County, Oregon;

centerline of County Road 80, said point being at Engineer's Centerline Station 43+48.92, said point also being 2035.28 feet North and 40.83 feet East from the Southeast corner of said Section thence S.48°07'15"E., 508.96 feet, more or less, to a point on the

80-A. Said easement subject to the rights of way of County Roads 80 and

Surveyor. The bearings contained in EXHIBIT A, Page 2 are based on Record Map of Survey No. 1659, filed in the Office of the Grant County

August 13, 2003 Prepared by Bagett, Griffith & Blackman John Day, Oregon 97845

1057#[3]#T8NI 

l PGS

RECORD OF TIME 10:15 KATHY MCKINNON BY NO DEPUTY

がの行動 REGISTERED
PROFESSIONAL
LAND SURVEYOR NOBERT D. BAGETT ORMOOK

Renewal Date 12/31/03

AFTER RECORDING, RETURN TO: OREGON TRAIL ELECTRIC CO-OP 245 S. Canyon Blvd. John Day, OR 97845

Work order #04J1135

#### RIGHT OF WAY EASEMENT



KNOW ALL MEN BY THESE PRESENTS, that the undersigned Grant County Regional Airport, (Grantors), for a good and valuable consideration, the receipt whereof is hereby acknowledged, do hereby grant unto OREGON TRAIL ELECTRIC CONSUMERS COOPERATIVE, INC. (Cooperative), a cooperative corporation, whose post office address is PO Box 226, Baker City, Oregon, and to its successors or assigns, the right to enter upon the lands of the undersigned, situated in the County of Grant, State of Oregon, and more particularly described as follows:

BEGINNING AT THE NE CORNER OF SECTION 34, TOWNSHIP 13S, RANGE 31 EAST OF THE WILLAMETTE MERIDIAN, GRANT COUNTY OREGON.
THENCE SOUTHERLY 380 FEET THENCE WESTERLY 180 FEET TO THE TRUE POINT OF BEGINNINT (TPB), THENCE NORTH 16 DEGREES EAST 605 FEET THENCE NORTH 12 DEGREES EAST 540 FEET TO AN EXISTING POWER POLE, WHICH IS THE END POINT.

Section 34 Township 13 S, Range 31 east of the Willamette Meridian, and to construct, operate and maintain an electric transmission and/or distribution line or system on or under the above-described lands and/or in, upon or under all streets, roads or highways abutting said lands; to inspect and make such repairs, changes, alterations, improvements, removals from, substitutions and additions to its facilities as Cooperative may from time to time deem advisable, including, by way of example and not by way of limitation, the right to increase or decrease the number of conduits, wires, cables, handholes, manholes, connection boxes, transformers and transformer enclosures; to cut, trim and control the growth by chemical means, machinery or otherwise of trees and shrubbery located within 7.5 feet of the center line of said line or system, or that may incidentally and necessarily result from the regation in the right-of-way which may incidentally and necessarily result from the means of control employed); to keep the easement clear of all buildings, structures or other obstructions; and to license, permit or otherwise agree to the joint use or occupancy of the lines, system or, if any of said system is placed underground, of the trench and related underground facilities, by any other person, association or corporation.

The undersigned agree that all poles, wires and other facilities including any main service entrance equipment, installed in, upon or under the above-described lands at the Cooperative's expense shall remain the property of the Cooperative, removable at the option of the Cooperative, upon termination of service to or on said lands.

IN WITNESS WHEREOF, the Grantors have set their hands this 23 day of September , 2004.

STATE OF OREGON ) ss.

County of William ) ss.

The foregoing instrument was acknowledged before me this day of your day of the corporation, on behalf of the corporation.

Before me William County Public for Oregon My commission expires: July 24, 2005

13-31

## EASEMENT

-September, 2005, between Grant County, a political subdivision ("Grant County") and King 1 Inc, an Oregon Corporation ("King Inc"). This Agreement for Easement ("Agreement") is made this  $5^{\frac{1}{2}}$  day of

## RECITALS

- King Inc owns the following described real property located in: Willamette Meridian, Grant County, Oregon Section 35: W%W%, W%E%W% Township 13 South Range 31 East
- Willamette Meridian, Grant County, Oregon Grant County owns real property located in: Section 26 WYAWY WYSWYSWYA, WYEEYAWYNWYSWYSWY Section 26 WYEEYAPYAWYSWYSWYYSWYA Section 35 NYAWYAWYANWYANWYA Section 27 SE14 fownship 13 South Range 31 East
- ņ Grant County wishes and agrees to grant to King Inc, their successors and is to more clearly describe the point of access point from County Road of Grant County as Document number Z22692 dated January 16, 2002 and This easement is intended to modify an Easement recorded in the records Grant County property described above for the purposes of ingress, egress. assigns, a non-exclusive easement 60 feet in width over and across the

## THEREFORE:

- The recitals above are true and correct and are a part of this Agreement
- Grant County grants to King Inc the perpetual, non-exclusive, and unrestricted easement servicing the W½W½, W½E½W½ of Section 35, Township 13 South Range 31 East described as follows:
- comer of said Section 26; Thence S83°55'44"E, 58.34 feet; Thence A strip of land 60 feet wide, 30 feet on each side of the following N24°40'09"E, 184.19 feet; Thence 114.02 feet along the arc of a 100.00 No. 80-A, said point being 466.41 feet north and 8.58 feet east of the SW described center line; beginning at point on the center line of County Road Section 26; and foot radius curve right, the long chord of which bears (N57°20'05''E, 107.95 feet) to the westerly line of the E%E%W%W%SW%SW% of said

terminating at the common boundary between Grant County and King Inc Westerly 60 feet of the W1/4W1/2SW1/4SW1/4 of Section 26, Township Section 35, Township 13 South Range 31 East Willamette Meridian, and and across the Westerly 60 feet of the N½W½W½NW¼NW¼NW¼ of A strip of land 60 feet wide traversing Southerly over and across the 13 South Range 31 East Willamette Meridian; continuing Southerly over

at the South boundary of the NWWWWWWWWWWWWWW of Section 35, Township 13 South Range 31 East Willamette Meridian.

This easement is appurtenant to and runs with the land to bind and for the benefit of the successors in interest of King Inc

IN WITNESS WHEREOF, the parties have executed or caused this instrument to be executed on the O5 day of September, 2005.

Grant County, a political subdivision Calabea

Dennis Reynolds,

Scott W. Myers, Grant County Commissioner

State of Grand.

by Dennis Rey

My commission expires: 22

by Boyd Britton,

Comty of 小

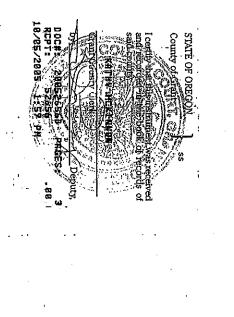
My commission expires

SUBSCRIBED AND SWORN TO before me this .

County of

by Scott W. Myers, Grant County Commissioner.

atimission expires: The Mass



. . . .

## EASEMENT

King 1 Inc, an Oregon Corporation ("King Inc"). eptember, 2005, between Grant County, a political subdivision ("Grant County") and This Agreement for Easement ("Agreement") is made this 5th day of EKWKSWKSWK, EKEKWKWKSWKSW

## RECITALS

King Inc owns the following described real property located in: Willamette Meridian, Grant County, Oregon NSection 35: W/4W/4, W/4E1/4W/4 Section 36: Lats 1,3,3,4,79a....46; w/4.5E/4.5w/4; E/4.5w/45w/4; Township 13 South Range 31 East

Grant County owns real property located in:

Willamette Meridian, Grant County, Oregon Township 13 South Range 31 East

Section 27 SE%

Section 26 W½W½ W½SW½SW½, W½E½W½NW½SW¼SW½ Section 26 W½E½N½W½SW½SW¼SW¼

Section 35 N1½W1½W1½NW1¼NW1¼NW1¼

Ü Grant County wishes and agrees to grant to King Inc, their successors and No. 80-A is to more clearly describe the point of access point from County Road of Grant County as Document number Z22692 dated January 16, 2002 and Grant County property described above for the purposes of ingress, egress assigns, a non-exclusive easement 60 feet in width over and across the This easement is intended to modify an Easement recorded in the records

## THEREFORE:

The recitals above are true and correct and are a part of this Agreement

Grant County grants to King Inc the perpetual, non-exclusive, and unrestricted easement servicing the W1/W1/2, W1/E1/2W1/2 of Section 35, Township 13 South Range 31 East described as follows:

N24°40'09"E, 184.19 feet; Thence 114.02 feet along the arc of a 100.00 No. 80-A, said point being 466.41 feet north and 8.58 feet east of the SW A strip of land 60 feet wide, 30 feet on each side of the following Section 26; and foot radius curve right, the long chord of which bears (N57°20'05"E, corner of said Section 26; Thence S83°55'44"E, 58.34 feet; Thence described center line; beginning at point on the center line of County Road 07.95 feet) to the westerly line of the E%E%W%W%SW%SW% of said

Section 35, Township 13 South Range 31 East Willamette Meridian, and Westerly 60 feet of the W1/4W1/4SW1/4SW1/4 of Section 26, Township terminating at the common boundary between Grant County and King Inc and across the Westerly 60 feet of the N½W½W½NW¼NW¼NW¼ of A strip of land 60 feet wide traversing Southerly over and across the 13 South Range 31 East Willamette Meridian; continuing Southerly over

LOTS 1,2,3,4,7,9, wodio; w/x SE/4, SW/4; E/2, SW/4, SW/4, E/2, W/4, W/4, SW/4, SW/4,

County of

300

State of Wyl

4224500<del>0</del> 20053308

'n

at the South boundary of the N¼W¼WWNW¼NW¼NW¼ of Section 35, Township 13 South Range 31 East Willamette Meridian.

'n This easement is appurtenant to and runs with the land to bind and for the benefit of the successors in interest of King Inc.

IN WITNESS WHEREOF, the parties have executed or caused this instrument to be executed on the OS day of September, 2005.

Grant County, a political subdivision Catable.

Scott W. Myers, Grant County Commissioner Tundy when

State of Wagen SS

County of

by Dennis Rey

ite for State of

My commission expires: 4

5 Mday of

by Boyd Britton,

SUBSCR

My commission expires: July o ary Public for State of

by Scott W. Myers, Grant County Commissioner. SUBSCRIBED AND SWORN TO before me this 2

Public for State of

sommission expires: July 28,





20060915

#### QUITCLAIM OF EASEMENT

DEL R. WOODCOCK and JANA L. WOODCOCK, as tenants by the entirety, BANK OF EASTERN OREGON, John Day Branch; RICHARD A. HOLLAND and KIMBERLY A. HOLLAND, husband and wife; and ZORA M. WOODCOCK, their heirs, successors and assigns, Grantors, release and quitclaims to GRANT COUNTY, a political subdivision, Grantee, all right, title and interest in and to the following described perpetual, non-exclusive, and unrestricted easement servicing the W½W½, W½E½W½ of Section 35; Section 26: Lots 1, 2, 3, 4, 7, 9 and 10; W½SE½SW½; E½SW½SW½; E½W½SW½SW½SW½SW½; E½E½W½%W½SW½SW½SW½; S½S½W½E½W½W½SW½SW¾Township 13 South Range 31 East described as follows:

A strip of land 60 feet wide, 30 feet on each side of the following described center line; beginning at a point on the center line of County Road No. 80-A, said point being 466.41 feet North and 8.58 feet East of the SW corner of said Section 26; thence S83°55'44" E., 58.34 feet; thence N24°40'09" E., 184.19 feet; thence 114.02 feet along the arc of a 100.00 foot radius curve right, the long chord of which bears (N57°20'05" E., 107.95 feet) to the Westerly line of the E½E½W½W%SW¼SW¾ of said Section 26.

The purpose of this conveyance is to release and relinquish a portion of the right, title and interest of the Grantors in the premises by reason of that certain easement granted from Grant County, a political subdivision, to King 1 Inc., an Oregon Corporation, dated September 5, 2005, recorded as document number 20053308D on September 21, 2005, and re-recorded as document number 20052656D on October 5, 2005.

THIS INSTRUMENT WILL NOT ALLOW USE OF THE PROPERTY DESCRIBED IN THIS INSTRUMENT IN VIOLATION OF APPLICABLE LAND USE LAWS AND REGULATION. BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON ACCURRING FEE TITLE TO THE PROPERTY SHOULD CHECK WITH THE APPROPRIATE CITY OR COUNTY PLANNING DEPARTMENT TO VERIFY APPROVED USES AND TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST FARMING OR FOREST PRACTICES AS DEFINED IN ORS 10.930

THE PROPERTY DESCRIBED IN THIS INSTRUMENT MAY NOT BE WITHIN A FIRE PROTECTION DISTRICT PROTECTING STRUCTURES. THE PROPERTY IS SUBJECT TO LAND USE LAWS AND REGULATION, WHICH, IN FARM OR FOREST ZONES, MAY NOT AUTHORIZE CONSTRUCTION OR SITING OF A RESIDENCE AND WHICH LIMIT LAWSUITS AGAINST FARMING OR FOREST PRACTICES AS DEFINED IN ORS 30,930 IN ALL ZONES, BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON A CQUIRING FEE TITLE TO THE PROPERTY SHOULD CHECK WITH THE APPROPRIATE CITY OR COUNTY PLANNING DEPARTMENT TO VERIFY APPROVED USES AND EXISTENCE OF FIRE PROTECTION FOR STRUCTURES.

The true and actual consideration for this conveyance is: none.

Dated this 25 day of April

Del R. Woodcock

Del R. Woodcock

Richard A. Holland

Richard A. H

|3-3| (43) (42)

This instrument was acknowledged before me this 25th day of 1000/woodcock.quitclaim

STATE OF OREGON County of Grant

9	
2006, by Zora M. Woodcock, by Cindy Pennell and	Shellev Fischer, as her attorney in fact.
	222223
OFFICIAL SEAL	in & Moura Kanna
NOTARY PUBLIC - O	REGON Motary Public for Oregon
COMMISSION NO.	372002 My Comm. Expires: 440 27 2007
MY CONMISSION EXPIRES AU	27, 7007 1919 Comm. Expires. C1111 O. 1, 200 (
CONTRACTOR OF CONTRACTOR	
STATE OF OREGON )	
) SS.	
County of Grant Tacks on	t · 0
This instrument was acknowledged before r	ne this 21st day of Copies
2006, by Richard A. Holland and Kimberly A. Holla	nd, husband and wife.
CONTRACTOR OF THE PARTY OF THE	Maria R. Comdet
LULIUME IT OF	Notary Public for Oregon
NOTARY PUBLIC	OREGON AN Comm Hynires 10/1 5/2007
COMMISSION IN	0.3/30/4
MY COMMISSION EXPRES C	OCT.13, 2007
am tan or opedon	·
STATE OF OREGON )	
) ss.	٨
County of Grant )	a. 0 € 1 . a (1 o . 1)
This instrument was acknowledged before r	ne this a day of Unit
2006, by Robert Quinton	Comm. Loan (Hiter (title) of the Bank
of Eastern Oregon, John Day Branch.	^
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The state of the s	Notary Public for Oregon
DAWN KREPS	My Comm. Expires: 7140 27, 2007
NOTARY PUBLIC - OREGON	and assume the same of
COMMISSION NO. 372002 M	,
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AFTER RECORDING RETURN TO:	• .
Daniel L. Cronin	
235 S Canyon Blvd.	STATE OF OREGON
John Day, OR 97845	County of States T. Co.
Joint Day, Oct 57045	County
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#### EASEMENT

In consideration of vacation of an easement, GRANT COUNTY, a political subdivision, Grantor, conveys to DEL R. WOODCOCK and JANA L. WOODCOCK, as tenants by the entirety; BANK OF EASTERN OREGON, John Day Branch; RICHARD A. HOLLAND and KIMBERLY A. HOLLAND, husband and wife; and ZORA M. WOODCOCK, their heirs, successors and assigns (Grantees), a perpetual nonexclusive easement, for ingress and egress, to use a strip of land 60 feet wide, 30 feet on each side of the following described center line, situated in the SW¼ of Section 26, T 13 S, R 31 E., W.M., Grant County, Oregon, more particularly described as follows:

Beginning at a point on the centerline of County Road No. 80-A, said point being 466.41 feet North and 8.58 feet East of the SW corner of said Section 26; Thence S83°55'44" E., 58.34 feet;

Thence N38°45'00" E., 268.24 feet to the Westerly line of the E1/2E1/W1/W1/SW1/4SW1/4 of said Section 26 and the terminus of this easement.

The approximate location of said easement is shown on Exhibit 1 which is attached hereto and by this reference incorporated herein. This Easement grants access and is appurtenant to the following described property:

Township 13 South, Range 31 East, Willamette Meridian, Grant County, Oregon: Section 26 and 35: Parcel 1 of Land Partition Plat No. 2005-14, dated July 12, 2005, recorded September 6, 2005, in the office of the Grant County Clerk and all partitions and subdivisions thereof.

This easement is granted subject to all prior easements or encumbrances.

This easement shall be binding upon the parties, their successors, their heirs, and assigns.

IN WITNESS WHEREOF, the parties have caused this instrument to be executed the day and year first written above.

Dennis Reynolds, Grant County Judge

By: Scott W. Myers.
Scott W. Myers, Grant County Commissioner

STATE OF OREGON

) ss.

County of Grant

This instrument was acknowledged before me this 19th day of apr 2006, by Dennis Reynolds, Grant County Judge.

> MARY R. FERRIOLI NOTARY PUBLIC-OREGON COMMISSION NO. 393660 MY COMMISSION EXPIRES JULY 28, 2001

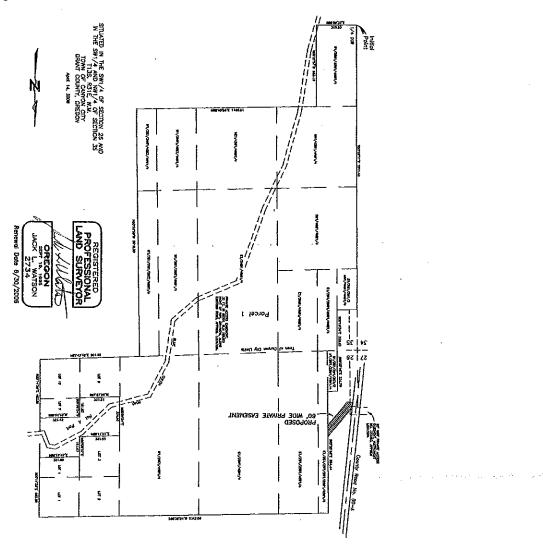
III

///

STATE OF OREGON	)		
County of Grant	) ss. )		
This instrument	was acknowledged befo	ore me this 194 biay of April	
2006, by Boyd Britton,	Grant County Commissi	omer.	
MY	OFFICIAL SEAL MARY R. FERRIOLI NOTARY PUBLIC-OREGON COMMISSION NO. 393660 COMMISSION EVPRES JULY 28, 2009	Mory & Farrish  Notary Fublic for Oregon  My Comm. Expires: Jul 28, 2009	
STATE OF OREGON	. )		
	) ss.		
County of Grant	)		
This instrument v 2006, by Scott W. Myers	was acknowledged befor s, Grant County Commi	ere me this 19th day of April	
		Notary Public for Oregon	
	OFFICIAL SEA MARY R. FERI NOTARY PUBLIC-O	My Comm. Expires: July 28, 200	9

STATE OF OREGON

County of Table of State of Sta



die de

Work order #06JI085

AFTER RECORDING, RETURN TO: OREGON TRAIL ELECTRIC CO-OP PO Box 575 John Day, OR 97845

#### RIGHT OF WAY EASEMENT

KNOW ALL MEN BY THESE PRESENTS, that the undersigned Grant County Airport, (Grantors), for a good and valuable consideration, the receipt whereof is hereby acknowledged, do hereby grant unto OREGON TRAIL ELECTRIC CONSUMERS COOPERATIVE, INC. (Cooperative), a cooperative corporation, whose post office address is PO Box 226, Baker City, Oregon, and to its successors or assigns, the right to enter upon the lands of the undersigned, situated in the County of Grant, State of Oregon, and more particularly described as follows:

BEGINNING AT THE SE CORNER OF SECTION 27, T13S, R 31 EWM, GRANT COUNTY, OREGON. THENCE WESTERLY 150 FEET, THENCE NORTHERLY 620 FEET TO THE TRUE POINT OF BEGINNING (TPB) THENCE NORTH 87 DEGREES EAST 320 FEET (M/L) TO THE END POINT (EP).

#### NOTE: THIS IS FOR AN UNDERGROUND EASEMENT ONLY.

Section 27, Township 13S, Range 31 east of the Willamette Meridian, and to construct, operate and maintain an electric transmission and/or distribution line or system on or under the above-described lands and/or in, upon or under all streets, roads or highways abutting said lands; to inspect and make such repairs, changes, alterations, improvements, removals from, substitutions and additions to its facilities as Cooperative may from time to time deem advisable, including, by way of example and not by way of limitation, the right to increase or decrease the number of conduits, wires, cables, handholes, manholes, connection boxes, transformers and transformer enclosures; to cut, trim and control the growth by chemical means, machinery or otherwise of trees and shrubbery located within 15 feet of the center line of said line or system, or that may interfere with or threaten to endanger the operation and maintenance of said line or system (including any control of the growth of other vegetation in the right-of-way which may incidentally and necessarily result from the means of control employed); to keep the easement clear of all buildings, structures or other obstructions; and to license, permit or otherwise agree to the joint use or occupancy of the lines, system or, if any of said system is placed underground, of the trench and related underground facilities, by any other person, association or corporation.

The undersigned agree that all poles, wires and other facilities including any main service entrance equipment, installed in, upon or under the above-described lands at the Cooperative's expense shall remain the property of the Cooperative, removable at the option of the Cooperative, upon termination of service to or on said lands.

termination of service to or on said lands.	•
IN WITNESS WHEREOF, the Grantors  June 2006  Lemmio Rumalds  b.c.m,	have set their hands this <b>2 SI</b> day of
STATE OF OREGON )	This box reserved for County Clerk recording data
County of Chart ss.  The foregoing instrument was acknowledged before me this day of 20 00.  by Burner Reynolds.  Before me: May A Yathala Notary Public for Oregon My commission expires: 7 28, 200 attacking a second sec	STATE OF OREGON County of THAT, I certify the Hart project pro
MY DOMMISSION EXPIRES JULY 28, 2009 ()	

13-31 EARTH (43)

### OREGON TRAIL ELECTRIC WORK ORDER SKETCH 2006

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SCALE / =100	NAME GRANT COUNTY EASEMENT	PROJECT NO.
PREPARED BY		wana 0631085
DIST, MAP NO. 13+31+27	OISTRICT SOHN DAY	DATE

AFTER RECORDING RETURN TO: Daniel L. Cronin 235 S. Canyon Blvd. John Day, OR 97845 STATE OF OREGON ss

County of Grant of County of Grant of County of Grant of County of Grant of County Clerk of Sandsounity Grant County Clerk

by County of Grant County Clerk

by DOC 201419810 Pg 4

RCPT: 1019810 58:50

9/10/2014 4:31 PM

EASEMENT

Dated: 10 50ph 10 2014.

The true and actual consideration for this conveyance is: \$50.00.

GRANT COUNTY, a political subdivision of the State of Oregon, Grantor, conveys to, EVA M. HARRIS, Trustee of The Eva M. Harris Trust dated the 15<sup>th</sup> day of June 1991, and her heirs, successors and assigns, Grantee, a perpetual nonexclusive easement, as shown on Exhibit A, for ingress and egress. The centerline of the easement is described on Exhibit A, which is attached hereto and by this reference incorporated herein. The easement is surveyed as shown on Exhibit B, attached hereto and by this reference incorporated herein. The easement is 40 feet in width. The Grantee may maintain and repair said easement. The easement crosses the following described property:

Land in Grant County, Oregon, as follows:

T. 13 S., R. 31 E., W.M.: Section 28: SE1/4SE1/4 and SW1/4SE1/4.

This Easement is appurtenant to the following described property:

Land in Grant County, Oregon, as follows:

Land in Sec. 28, Twp. 13 S., R. 32 E., W.M., to-wit: the NE1/4SE1/4 of Section 28 and all that property in the SW1/4 of Section 27 lying Northeasterly of the Airport property as acquired and determined by those certain Deeds dated April 21, 1975, recorded May 5, 1975, in Book 113, Page 59, Deed Records of Grant County, Oregon; and dated June 30, 1975, recorded July 23, 1975, in Book 113, Page 359, said Deed Records; and Map of Survey No. 382 as filed in the Office of the Grant County Surveyor; **EXCLUDING THEREFROM**, the E1/2 of the SW1/4 of Section 27 lying Northeasterly of the Airport property as acquired and determined by those certain Deeds dated April 21, 1975, recorded May 5, 1975, in Book 113, Page 59, Deed Records of Grant County, Oregon; and dated June 30, 1975, recorded July 23, 1975, in Book 113, Page 359, said Deed Records; and Map of Survey No. 382 as filed in the Office of the Grant County Surveyor.

The cost of maintaining the easement shall be shared by each holder of an interest in the easement in proportion to the use made of the easement as set forth in ORS 105.170 and ORS 105.175.

This easement is granted subject to all prior judgments, easements, liens, or encumbrances.

/// /// /// ///

IN WITNESS WHER and year first written above.	EOF, the parties have caused this instrument to be executed the day
Switt W. Mys	
By: Scott Myers, County Jud of Grant County, Oregon	ge By: Boyd Britton, Commissioner of Grant County, Oregon
CHRIS LAZHAR	
Chris Labhart, Commissione Grant County, Oregon	r of
STATE OF OREGON	) ) ss.
County of GRANT	) Suptember pour
STATE OF OREGON  County of GRANT	acknowledged before me this day of Hugast, 2014, adge of Grant County, Oregon.  OFFICIAL SEAL MARY R FERRIOLI NOTARY PUBLIC-OREGON No. 479537 Notary Fublic for Oregon Notary Fublic
by Boyd Britton, as Commis	Ssioner of Grant County, Oregon, OFFICIAL SEAL MARY R FERRIOLI NOTARY PUBLIC-OREGON COMMISSION NO. 479537 MY COMMISSION EXPIRES JULY 28, 2017 MY COMM. Expires: July 28, 2017
STATE OF OREGON  County of GRANT	) ) ss. )
This instrument was	acknowledged before me this
	OFFICIAL SEAL MARY R FERRIOLI NOTARY PUBLIC FOR OTHER JULY 28, 2017 MY COMMISSION EXPIRES JULY 28, 2017

This easement shall be binding upon the parties, their successors, their heirs, and assigns.

#### EXHIBIT "A"

#### LEGAL DESCRIPTION FOR EASEMENT

T.13S., R.31E., W.M., Grant County, Oregon

A private access easement over and across the SE1/4SE1/4 and the SW1/4SE1/4 Section 28, being 40 feet in width, 20 feet on each side of the following described centerline:

Beginning at a point on the north line of said SEI/4SE1/4 Section 28, said point being N.89°42'14"E., 60.96 feet from the northwest corner of said SE1/4SE1/4;

thence S.16°21'00"W., 13.50 feet;

thence 23.82 feet along the arc of a 100.00 foot radius curve right (the long chord of which bears S.23°10'30"W., 23.77 feet);

thence S.30°00'00"W., 30.91 feet;

thence 89.01 feet along the arc of a 300.00 foot radius curve left (the long chord of which bears S.21°30'00"W., 88.69 feet);

thence S.13°00'00"W., 48.65 feet;

thence 33.51 feet along the arc of a 40.00 foot radius curve right (the long chord of which bears S.37°00'00"W., 32.54 feet);

thence S.61°00'00"W., 83.11 feet;

thence 36.34 feet along the arc of a 100.00 foot radius curve right (the long chord of which bears S.71°24'41"W., 36.14 feet);

thence S.81°49'22"W., 11.6 feet, more or less, to the centerline of West Bench Road (County Road No. 74).

All according to EXHIBIT "B" attached hereto and by this reference made a part hereof.

Prepared By: Benchmark Land Surveying 217 N. Canyon Blvd. John Day, OR 97845 (541) 575-1251

May 29, 2014

REGISTERED PROFESSIONAL AND SURVEYOR

> OREGON HOVEMBER 30, 2007 JASON L. HATFIELD #68454

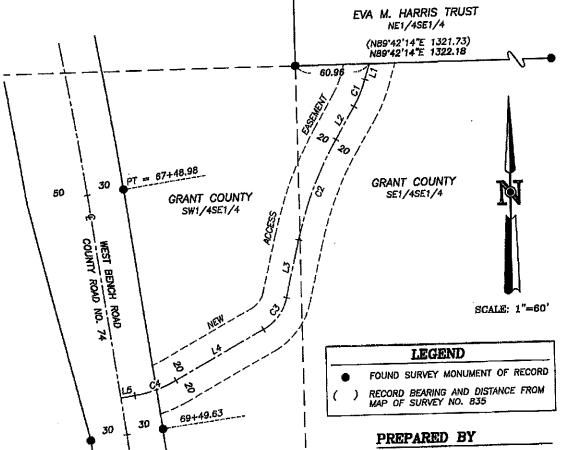
EXPIRES: 6/30/2015

#### EXHIBIT B

ACCESS EASEMENT

20141981

SITUATED IN THE SE1/4 SECTION 28, T.13S., R.31E., W.M., GRANT COUNTY, OREGON SURVEYED MAY 20, 2014



#### LINE TABLE

LINE	BEARING	DIST.
LI	S16'21'00"W	13.50
12	S30'00'00"W	30.91
13	\$13'00'00"W	48.65
14	S61"00"00"W	83.11
L5	S81'49'22"W	11.6±

#### **CURVE TABLE**

RADIUS	DELTA	LENGTH	LONG CHORD BEARING—DIST.	
	13'30'00"	23.82	S23 10'30"W	23.77
	1700'00"	89.01	\$21'30'00'W	88.69
		33.51	S37'00'00"W	32.54
			S71'24'41"W	36.14
	RADIUS 100.00 300.00 40.00 100.00	100.00 13'39'00" 300.00 17'00'00" 40.00 48'00'00"	100.00 13'39'00" 23.82 300.00 17'00'00" 89.01 40.00 48'00'00" 33.51	RADIUS         DELTA         LENGTH         BEARING-L           100.00         13'39'00"         23.82         \$23'10'30"W           300.00         17'00'00"         89.01         \$21'30'00"W           40.00         48'00'00"         33.51         \$37'00'00"W

BENCHMARK LAND SURVEYING 217 N. CANYON BLVD. JOHN DAY, OR 97845 (541) 576-1251

REGISTERED **PROFESSIONAL** AND SURVEYOR

OREGON NOVEMBER 30, 2007 JASON L. HATFIELD #69454

EXPIRES: 8/30/2015

EX.B p. 1 of 1

AFTER RECORDING, RETURN TO: OREGON TRAIL ELECTRIC CO-OP 400 Patterson Bridge Road John Day, OR 97845

#### RIGHT OF WAY EASEMENT

KNOW ALL MEN BY THESE PRESENTS, that the undersigned Grant County, (Grantors), 201 s Humbolt St., Canyon City for a good and valuable consideration, the receipt whereof is hereby acknowledged, do hereby grant unto OREGON TRAIL ELECTRIC CONSUMERS COOPERATIVE, a cooperative corporation, and to its successors or assigns, the right to enter upon the lands of the undersigned, situated in the County of Grant, State of Oregon, and more particularly described as a strip of land 20 feet in width whose centerline is located on the center of the electrical line as actually constructed in the following approximate location:

Beginning at the South East Corner of the North East Quarter of the South East Quarter of Section 27, T. 13S, R. 31E, W.M., thence North 44 degrees West 115 feet more or less (M/L) to an existing power pole, which is the true point of beginning (TPB). Thence North 88 degrees West 140 feet more or less (M/L) to the end point (EP).

and to construct, operate and maintain an electric transmission and/or distribution line or system on or under the above-described lands and/or in, upon or under all streets, roads or highways abutting said lands; to inspect and make such repairs, changes, alterations, improvements, removals from, substitutions and additions to its facilities as Cooperative may from time to time deem advisable, including, by way of example and not by way of limitation, the right to increase or decrease the number of conduits, wires, cables, handholes, manholes, connection boxes, transformers and transformer enclosures; to cut, trim and control the growth by chemical means, machinery or otherwise of trees and shrubbery located within 10 feet of the center line of said line or system, or that may interfere with or threaten to endanger the operation and maintenance of said line or system (including any control of the growth of other vegetation in the right-of-way which may incidentally and necessarily result from the means of control employed); to keep the easement clear of all buildings, structures or other obstructions; and to license, permit or otherwise agree to the joint use or occupancy of the lines, system or, if any of said system is placed underground, of the trench and related underground facilities, by any other person, association or corporation; and to reasonably access the above-described lands over Grantors' adjacent lands.

The undersigned agree that all the Cooperative's poles, wires and other facilities installed in, upon or under the above-described lands shall remain the property of the Cooperative, removable at the option of the Cooperative, upon termination of service to or on said lands.

IN WITNESS WHEREOF, the Grantors have set their hands this 19 day of October, 20 16

Scott W. Myers, County Judge
STATE OF OREGON
) ss.
County of Grat
)

The foregoing instrument was acknowledged before me this 19th day of 2016
by Scott W. Myor, Boyd Briton, and Chris B. Labhart Before me: Aller S. Wight
Notary Public for Oregon
My commission expires: 8-11-2020

(Place official notary seal in the space below)

Curie B. hesperson County lummer sincer



Boyd H. Britton, County Commissioner
This box reserved for County Clerk recording data

I, BRENDA J. PERCY, COUNTY
CLERK FOR GRANT COUNTY, OR
CERTIFY THAT THE INSTRUMENT
IDENTIFIED HEREIN WAS
RECORDED IN THE COUNTY
CLERK'S RECORDS.
BRENDA J PERCY, GRANT COUNTY
CLERK
DOC#: 20162455
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