Prineville Crook County Airport
Master Plan Update

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Prepared for

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Chapter One
DRAFT INTRODUCTION

Prineville Crook County Airport
Master Plan Update

The City of Prineville and Crook County completed an Airport Layout Plan Report in 2003. Since that time, numerous changes have occurred in aviation and the region. The purpose of the Prineville Crook County Airport Master Plan is to provide a roadmap that takes into account these changes and identifies the necessary airport improvements to serve current and projected aviation demand, comply with Federal Aviation Administration (FAA) design standards, and address airport issues. Airport issues are identified by the sponsor, airport user, and other stakeholders as part of the planning process.

As recommended by the FAA, an airport should periodically update their master plan. The timeframe to do so varies for each airport so it's important for the airport sponsor to recognize changing conditions that affect airport operations and development needs. For Prineville, the 2003 Plan used baseline data from 2001-2002, so the existing conditions in that plan which served as the basis for the study have substantially changed in the last 12+ years.

PLANNING PROCESS

In November 2013, the Master Plan Update study kicked off with a grant from the FAA to fund 90% and the City/County funding the 10% balance. The planning process and documentation

will, as required, follow FAA Advisory Circular 150/5070-6B, *Airport Master Plans*. The Master Plan Update study involves several tasks spanning an estimated 16-month study timeframe.

The documentation of the study findings for the Prineville Crook County Airport (Airport) will be presented in nine chapters to include the following:

1. Introduction
2. Inventory
3. Forecasts
4. Facility Requirements
5. Alternatives
6. Compliance Review
7. Recycling and Solid Waste Management Plan
8. Airport Layout Plan and Associated Drawings
9. Capital Improvement/Financial Plan

The chapters will be published in draft for review and comment throughout the planning process. Once review comments are incorporated into all draft chapters, a comprehensive report will be published. Further, the 2003 Airport Layout Plan (ALP) will be updated as part of this master plan update. The ALP update will graphically depict current facilities and the City/County's long-term development plans to FAA design standards to ensure the Airport remains eligible for Federal and State funding support.

AIRPORT ISSUES

A successful master planning process includes the early identification of airport issues derived from discussions with a broad range of stakeholders including City/County staff, airport users, area businesses, and other interested parties. Involving diverse perspectives in the identification of issues ensure that a more comprehensive list of issues are outlined. Further, communicating with stakeholders in the early stages on issues helps establish working relationships that will benefit the study process and ultimate development plan that results.

The following is a list of airport issues identified early in the master planning process.

Operations-related issues

- Increasing helicopter training operations
- Increasing multi-engine operations
- U.S. Forest Service operational changes
- Agricultural spray operational needs

- Implications of Facebook and Apple presence
- Implications of Hillsboro Aviation Inc. opening a flight training school
- Capacity in terminal area movement areas

Long-term development issues

- Development opportunities north of Runway 10-28
- Development opportunities west of Runway 15-33
- Supporting utility and roadway infrastructure needs
- Stormwater management
- Off-airport transportation improvements
- Security – fencing, wildlife intrusions
- Possible through-the-fence operations
- Off-airport compatible land use development

Financial and Administrative

- Runway 15-33 eligibility
- Minimum Standards, Rules & Regulations
- Feasible financial planning, revenue enhancement
- Continuing community outreach

To expand, confirm, and refine the above list of issues, a survey questionnaire (**Appendix 1B**) was prepared and distributed. With airport management assistance, numerous area based aircraft owners in the FAA registry for Crook, Jefferson, and Deschutes Counties were identified for the survey questionnaire mailings. The survey was also provided to airport tenants and made available in the public area of the terminal building for transient pilots.

A total of 39 were received with issues reviewed for the preparation of this draft chapter. Weather reporting from equipment such as an Automated Weather Observing System (AWOS) was the most frequently identified need by the respondents; the installation of an AWOS was recently completed and commissioned. Next to weather reporting, the fueling system and runway/taxiway improvements were frequently mentioned by the survey respondents. The following summarizes the issues and needs identified in the survey responses.

- Weather reporting
- Improved fueling system
- Airfield-related improvements such as Runway 15-33 pavement and width, taxiway system, additional airfield lighting, Runway 28 run-up area, grass strip

- Operational improvements such as instrument approach capability, separation of fixed wing and helicopter operations, radio communication, obstacle clean-up and clearances around airport, continuing foreign object debris (FOD) reduction, larger wind socks
- West side development with services, relocation of tenant(s) such as USFS
- Nearby restaurant, camping, picnic facilities, residential airpark
- Encourage/support flying clubs, skydiving, glider operations
- Improve security for non-hangared aircraft
- Student housing
- Wash station for aircraft
- Adjustments to rate and fee structure

Some respondents provided highly positive feedback regarding airport management related to facility and service improvements and communication with airport users/stakeholders.

Additional discussion of the issues outlined in this element of the study will be addressed in Chapter 4, Facility Requirements.

PLAN GOALS

Goals identified in the airport master planning study provide the framework for the City/County's near- to long-term development plans. Similar to many master planning study goals, the following are identified for this study:

- Enhancing safety and security
- Preserve/protect investment
- Support economic growth
- Accommodate demand

These goals will also be important in defining evaluation criteria used later in the study to evaluate the various development alternatives for the Airport.

PUBLIC INVOLVEMENT

An active public involvement program should inform, solicit input, identify concerns, and cultivate support—all critical to the ultimate success and implementation of the Airport Master Plan. The City and County are committed to providing the community with opportunities to

follow and provide input to the master planning process. Consequently, the City and County identified the following means to facilitate an open and successful public involvement program:

- Planning Advisory Committee Meetings: A Planning Advisory Committee (PAC) was established, which represents a cross section of the community and representatives from the Oregon Department of Aviation (ODA) and Federal Aviation Administration (FAA). These PAC members will serve as community liaisons and participate in four work sessions over the estimated 16-month planning process. At the work sessions, airport issues, study progress, key findings, and draft report materials will be discussed. Input from PAC members based on their varying perspectives will be important in these discussions. PAC members are invited to share their knowledge of the study findings with the public at any time. Public Open Houses: The City and County will hold four public open houses–each of which will follow a PAC meeting held on the same day. The public open houses allow the public to ask questions, identify concerns, and provide input to the study.
- Project Website: To keep the public informed, project information will be posted online throughout the study process. Access to this information will be available on www.flyprineville.com under the tab for News/Events. The Airport website can also be reached through links on the City and County official websites.

ROLE

Identifying the role of an airport is important to define how it is or should be serving the air transportation system at a national, state and regional level. This section briefly summarizes the Airport role as it is defined today and whether there are issues driving the need to consider changing that role in the future.

NATIONAL SYSTEM ROLE

The National Plan of Integrated Airport Systems (NPIAS) lists all existing and proposed airports considered significant to national air transportation and eligible for federal airport improvement funding. The Prineville Crook County Airport is identified by the Federal Aviation Administration (FAA) as one of 2,563 General Aviation (GA) facilities nationwide in the NPIAS, dated 2012. GA airports do not have scheduled passenger service. The Prineville Crook County Airport qualifies for inclusion in the NPIAS since it meets the general criteria for based aircraft and proximity to other NPIAS airports. NPIAS inclusion typically requires at least 10 based aircraft and a distance

of 20 miles (30-minute drive time) or more from another NPIAS airport. With 124 based aircraft, Prineville is well over the 10 based aircraft threshold. The closest airport by nautical miles (nm) to Prineville is Roberts Field (Redmond, OR), which is 11 nautical miles west. While the area roadways provide an estimated 25-minute drive between these two airports—less than the typical FAA 30-minute distance limit, Roberts Field is a commercial service airport and such close proximity of NPIAS airports is not unusual in urban areas where it is justified by the need for additional airport capacity.

STATE SYSTEM ROLE

The Oregon Aviation Plan (OAP 2007) designated Prineville Crook County Airport as a Local General Aviation (GA) Airport, which the OAP 2007 defines as follows:

> *These airports primarily support single engine, general aviation aircraft, but are capable of accommodating smaller twin-engine general aviation aircraft. They also support local air transportation needs and special use aviation activities.*

Designating a role for each airport in the airport system helps to distinguish between the various types and levels of aviation activity served by each across the state, and subsequently helps identify the minimum and desired facilities and services for each category of airport. The OAP 2007 defined five different roles for the 97 airports considered in the statewide system. These five roles included the following:

- Category I, Commercial Service – 8 airports
- Category II, Urban GA – 10 airports
- Category III, Regional GA – 13 airports
- Category IV, Local GA – 27 airports
- Category V, Remote Access/Emergency Service – 39 airports

For Local GA Airports like Prineville, key recommendations for this category include serving smaller twin engine aircraft with a 3,000-by-60-foot runway, a nonprecision instrument approach, weather reporting, a meeting area, vending, restrooms, telephone, and limited FBO to provide services such as fueling.

REGIONAL SYSTEM ROLE

The Prineville Crook County Airport serves an important role in the region by accommodating 124 based aircraft and an estimated 46,522 operations—a large portion of which are training operations. Nearby Roberts Field (Category I, Commercial Service) and Bend Municipal (Category II, Urban GA) have a combined total of 432 based aircraft and nearly 100,000 operations annually.

Also located in the area is Madras Municipal Airport--a Local GA airport in the state system with similar services—but it is located 25 nautical miles to the northwest of Prineville. Lake Billy Chinook State Airport is 23 nautical miles from Prineville, but has limited facilities and services serving a Remote Access/Emergency Service role in the state system of airports. **Table 1A** provides a comparison of the facilities and services at the area airports within 25 nautical miles of Prineville.

According to airport user surveys and the airport manager, GA activity at Prineville spans a broad range of activity. This activity is conducted by both transient pilots as well as based aircraft operators (private and businesses) all of which contributes substantially to the region's economic engine. In January 2014, the Draft OAP Economic Impact Analysis for 2012 on Prineville reported 22 jobs at the Airport which is double the 11 jobs reported in 2007. Considering both direct and spin-off (multiplier) effects on the economy, the report attributed 54 total airport aviation-related jobs in the state to the Airport. Annual wages for these jobs amount to $1.18 million. Annual business sales, aviation and non-aviation related, total $6.6 million. See **Appendix 1C** for the "Airport Role in Economy" summary for Prineville from the Draft OAP 2012 Economic Impact Analysis.

Table 1A. Prineville Area Airports within 25 Nautical Miles

Airport, Acreage, *OAP Role*	Distance (nm) from S39	Paved Runway(s)	Lighting, Navaids	Services	Based Aircraft & Operations (Ops)
Prineville 940 acres *Local GA*	-	Rwy 10-28 5,751' x 75' Rwy 15-33 4,054' x 40'	Rotating Beacon, MIRL, Lighted Wind Indicator, PAPI, RNAV (GPS), NDB	Avgas, Jet A, AWOS, Major A&P Service	124 aircraft 46,522 ops
Roberts Field 2,518 acres *Commercial Service*	11 nm W	Rwy 4-22 7,038' x 150' Rwy 10-28 7,006' x 100'	Rotating beacon, HIRL, MALSR, PAPI, VASI, REIL, Wind Indicator, ILS, RNAV (GPS), VOR/ DME,	Avgas, Jet A, ASOS, Major A&P Service, ATCT	68 aircraft 45,711 ops
Bend Municipal 415 acres *Urban GA*	17 nm SW	Rwy 16-34 5,200' x 75' Rwy 17-35 4,340' x 75'	Rotating beacon, MIRL PAPI, Lighted Wind Indicator, RNAV (GPS), VOR/DME	Avgas, Jet A, Major A&P Service	233 aircraft 141,175 ops
Lake Billy 29 acres *Remote Access/ Emergency Service*	23 nm NW	Rwy 16-34 2,500' x 32'	Wind Indicator		10 aircraft 560 ops
Madras 2,098 acres *Local GA*	25 nm NW	Rwy 16-34 5,089' x 75' Rwy 4-22 2,701' x 50'	Rotating Beacon, Lighted Wind Indicator, RNAV (GPS)	Avgas, Jet A, AWOS, Major A&P Service	43 aircraft 10,735 ops

A&P = Airframe & Powerplant
ASOS = Automated Surface Observing System
AWOS = Automated Weather Observing System
ATCT = Air Traffic Control Tower
DME= Distance Measuring Equipment
GPS = Global Positioning System
MALSR = Medium Intensity Approach Lighting System with Runway Indicator Lights
HIRL/MIRL = High/Medium Intensity Runway Lighting
Operation = takeoff or landing
PAPI= Precision Approach Path Indicator (glide slope navigational aid -- similar to VASI)
PLASI = Pulsed Light Approach Slope Indicators
REIL = Runway End Identifier Lights
RNAV = Area Navigation
VASI= Visual Approach Slope Indicator (similar to PAPI)
VOR=Very High Frequency Omnidirectional Range Station (electronic navigation aid)

Source: FAA Airport Master Records (Form 5010) retrieved Oct. 2016; Prineville based aircraft and estimated operations from airport manager and tenants.

The airport user survey questionnaire, described earlier, as well as input from the airport manager provided a better understanding of how Prineville is used.

A total of 39 survey questionnaires were returned. Of the 39 respondents, half indicated that they presently base an aircraft at Prineville. Of those not based at Prineville, several other airport home bases were mentioned such as Bend Municipal, Dry Creek Airpark, Roberts Field, and Madras. Nearly all of the transient aircraft operator respondents base their aircraft at other

airports simply due to location. However, a few mentioned the lack of a suitable hangar at Prineville as the reason for not basing there.

The majority of aircraft used by respondents were small, single engine piston aircraft, such as the Cessna 182.

From the user survey respondents, the top ranking response for the primary use of the Airport was recreational (67%) with training second and business third. Several respondents identified more than one use.

AIRPORT ROLE

The Prineville Crook County Airport's facilities, services, and activity align with its previous designated role in the *OAP 2007* as a Local General Aviation (GA) Airport. Activity by small single-engine activity represents the majority of airport operations with a fast growing segment of helicopter training activity. While activity by large multi-engine aircraft is much lower, Prineville has facilities and services to accommodate increased activity. Subsequent chapters will further describe the project aviation growth and future improvements to better serve the demand at Prineville and will further review the role of the airport to either confirm it or document a change.

Chapter Two INVENTORY

Prineville Crook County Airport Master Plan Update

The Inventory Chapter of the Airport Master Plan Update provides historical background information and documents existing facilities and activity levels. The quality and relevancy of this baseline information is integral to this plan's integrity as it provides the foundation for subsequent chapters.

The information contained in this chapter is the result of site visits, interviews, airport user surveys, a review of previous planning studies for the Airport, City of Prineville and Crook County and the review of various governmental agency websites.

Prineville Airport (S39) is owned by Crook County and managed by the City of Prineville.

AIRPORT LOCATION AND ACCESS

Crook County is Oregon's most centrally located county and an estimated three-hour drive from Portland, Salem, Corvallis and Eugene. Bend, the largest city in central Oregon and the nearest major city, is located 36 miles away.

Crook County was reduced from its original size of 8,600 square miles to 2,991 square miles by the creation of Jefferson County in 1914 and Deschutes County in 1916. The current boundaries were established in 1927. Crook County is bounded by Jefferson and Wheeler Counties to the north, Grant and Harney Counties to the east, and Deschutes County to the south and west.

Established in 1868, Prineville is one of the state's first incorporated cities and is the oldest community in Central Oregon. Additionally, Prineville is the only incorporated city in Crook County and is the county seat.

Prineville is served by two state highways which intersect at the city's west entrance. Highway 26 provides a critical west-east link between Prineville and Portland while Highway 126, which passes through the city, connects Prineville to Redmond, and the Highway 97 corridor. Prineville Airport is located just north of Highway 126.

Prineville Airport is located three miles southwest of the City of Prineville, Oregon. The Airport is situated at an elevation of 3,251 feet above mean sea level (MSL).

Exhibit 2A provides a location map for Prineville and the Airport.

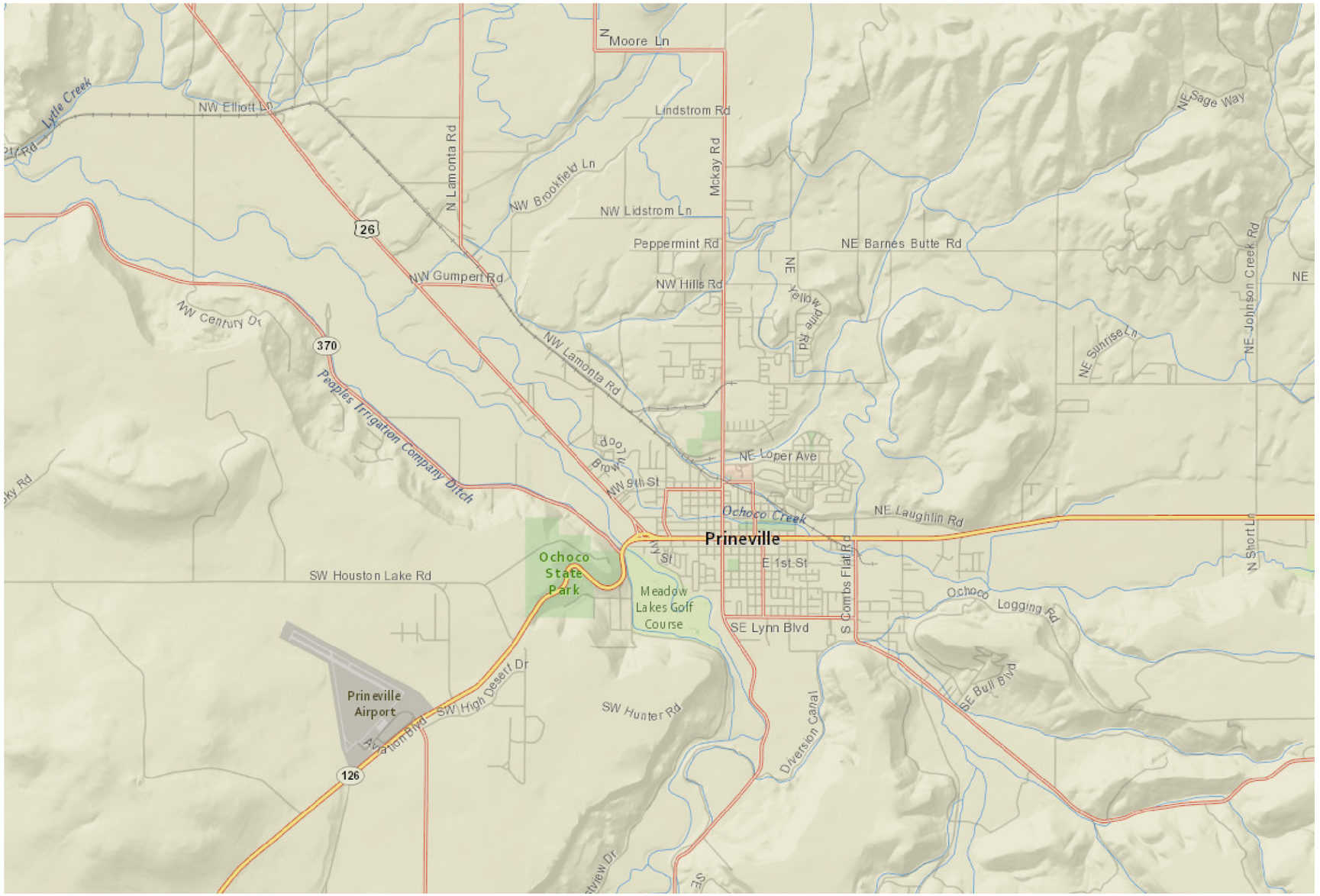
AREA TOPOGRAPHY

New geological discoveries indicate that the area that encompasses the Lower Crooked Basin is the remains of a 29 million-year-old volcano. The Crooked River caldera, in the western part of the Lower Crooked Basin, is a large vent complex that collapsed and filled with more than 139 cubic miles of rhyolitic ash-flow tuff during the Oligocene.

The main subsidence area of the caldera extends from Gray Butte on the north-west, along the western front of the Ochoco Mountains, and to the southeast nearly to Prineville Reservoir. It is drained by the through-flowing Crooked River, for which the structure is named, and the tributaries of Ochoco Creek and McKay Creek.

The Lower Crooked River Basin is a traditional ranching and lumber-milling community that is rapidly transforming to a suburban residential population.

The region is dominated by juniper- and sage-covered high desert terrain with pine forested uplands in the Ochoco Mountains to the northeast.



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City of Prineville

PRINEVILLE AIRPORT
AIRPORT MASTER PLAN UPDATE

Location Map

EXHIBIT 2A

WHPacific 9755 SW BARNES RD. STE 300 PORTLAND, OR 97225 503.626.0455

The City of Prineville is located at the base of high plateau with fertile valley, range and forest lands typical in Central Oregon. The Ochoco River and the Crooked River run through the center of the city. The geology of Prineville and Crook County is almost entirely volcanic. Prineville Airport is located on top of more recent – a million years old - basaltic lava flows with the thickness varying anywhere from ten to a hundred feet.

The terrain at the Airport site is generally level. Soils in the vicinity are derived from ancient lake-deposited sediments, with profiles consisting of a clay loam surface horizon over a clay textured subsoil. These soils are notoriously slick and sticky when wet. The dry climate of the Prineville area has led to the formation of poorly developed, loamy/stony sandy loam, erosion-prone soils.

CLIMATE

Weather conditions affect the daily operations of an airport and must be considered in the assessment of current facilities and the planning of future ones. Most importantly, temperature and wind speed and patterns are important considerations in determining the needed runway length and runway orientation requirements.

Prineville is located in the arid shrub-steppe region of central Oregon. The rain shadow of the Cascade Mountains exerts a strong influence on the climate of central Oregon, which is characterized by hot, dry summers and cold, moist winters.

The sunny, dry climate is one of the area's largest draws. The area is known for having approximately 300 days of sunshine per year and with the sunny, dry climate comes a diverse and striking topography featuring Pine and Juniper trees and tumbling tumbleweed.

According to the Western Regional Climate Center observations from 1981 to 2010, the average maximum temperature of the hottest month (July) is 85.9 degrees Fahrenheit. Additionally, Prineville averages 10.68 inches of precipitation and 12.4 inches of snowfall annually.

The primary prevailing wind direction for Prineville is northwest to southeast.

COMMUNITY AND AIRPORT HISTORY

Crook County came into existence on October 24, 1882. The county was created from the southern part of Wasco County and named after U.S. Army Major – General George Crook, a hero of the Snake Indian Wars.

Prineville, established in 1868, was the first town in the 8,600 square mile County bounded by The Dalles to the north, Linkville (Klamath Falls) to the south, Eugene City to the west and Canyon

City to the east. Crook County was reduced from its original size of 8,600 square miles to 2,991 square miles by the creation of Jefferson County in 1914 and Deschutes County in 1916.

Plans for the construction of an airport started in the early 1930's and the airfield was finally built in 1942. Airport facilities and improvements have been gradually added throughout the years as they became needed.

An Airport Commission was created in 1946, by a joint resolution of Crook County and the City of Prineville, for the purpose of managing the Airport or as the resolution stated "supervising certain property owned by said municipal corporations."

Although changes to the size and composition of the commission were made over the years, the Airport Commission remained in charge of managing the Airport until August of 2011. Ordinance 249 passed by Crook County on August 12, 2011 retired the Airport Commission and, through an Intergovernmental Agreement (IGA), handed the operations and finances of the Airport to the City of Prineville. The IGA created a new city employee position, the airport manager.

Airport improvements aimed at increasing the efficiency and safety of the Airport date back to the 1960's when Runway 15-33 was lengthened and paved. Other important projects in the 60's and 70's included the addition of a low intensity lighting system and a second extension of Runway 15-33, the paving of Runway 10-28 parallel taxiway and the parking area, and the construction, paving, and lighting of Runway 10-28.

Since the last Airport Layout Plan Report in 2003, various important projects have been undertaken. These projects, as identified by FAA grant records, are listed below:

- 2003 - Rehabilitation of fueling and tiedown aprons. Rehabilitation of connector taxiway and construction of Runway 10 holding apron
- 2004 – Rehabilitation of Runway 10-28
- 2005 – Construction of parallel taxiway to Runway 10-28, including connector taxiways, guidance signs, reflectors and adjustment of Runway 15 threshold.
- Rehabilitation/construction of the taxiway connecting Runways 33 and 28, including reflectors and guidance signs
- 2007 – Phase 1 of terminal building rehabilitation
- 2008 – Phase 2 of terminal building rehabilitation.
- 2008 – Extension of Runway 10-28 (Phases 1 and 2)
- 2009 – Extension and widening of Runway 10-28 Phase 2, including installation of MIRL system
- 2009 – Extension and widening of Runway 10-28 (Phase 3), including existing pavement rehabilitation, MIRL installation and replacement/relocation of VASI with PAPI

- 2010 – Extension and widening of Runway 10-28 (Phase 4), including extension of parallel taxiway, rehabilitation of existing pavement, installation of MIRL system, and removal of obstructions.
- 2013 – Installation of an AWOS and new/replacement airfield directional signage.

The various improvements overseen by the former Airport Commission and the strong management, leadership and marketing efforts of the City of Prineville since taking over the management responsibilities are starting to pay off. The City of Prineville Finance Director announced that the Airport turned a fourth-quarter profit of more than $6,000 for the 2012/13 fiscal year. In addition, the City Manager announced that the Airport set a fuel sales record for August of the same year.

POPULATION

The U.S. Census Bureau, 2010 Census shows that the population of Crook County increased 9.4% from 19,182 in 2000 to 20,978 in 2010. The population of Prineville has increased 25.8% from 7,356 to 9,253 for the same period. The Prineville population growth is well above the State increase of 11.97% for the same period.

The Portland State University's Population Research Center (PRC) estimates that on July 1, 2012, Prineville had a population of 9,245. This represents a slight decrease (0.086%) from the 2010 Census number of 9,253. The PRC estimates also show a decrease in Crook County's population to 20,650 on July 1, 2012.

Forecasts released in March of 2013 by the State of Oregon, Office of Economic Analysis estimate that although the population growth in the area will continue, it will do so at a much slower rate. These forecasts estimate that the population of Crook County will grow to 21,933 in 2020; 23,821 in 2030; 26,117 in 2040; and 28,496 in 2050. The same forecasts estimate that the population of the State of Oregon will reach 5,588,500 by 2050.

ECONOMY

According to the 2013 Regional Economic Profile for Crook County, wood products manufacturing remains, as it has historically been, the dominant industry. In the private sector, the most significant industry clusters in the County are wood products, data centers, warehouse and transportation, trucking, and healthcare. Agriculture is an important industry in Crook County with the 2007 market value of products sold exceeding $31 million.

In the public sector, in addition to local employers such as the County, City and school district, the Federal Bureau of Land Management (BLM) employs 137 individuals in Crook County.

In late 2008, Les Schwab Tires, the County's largest employer moved its headquarters from Prineville to Bend. Although the company's distribution center and a few small production facilities remain in Prineville, the move has resulted in a significant loss of jobs in Crook County. The Regional Economic Profile for Crook County for 2008 lists Les Schwab Tires as the County's largest employer, employing 1,500 individuals. The 2013 edition of the report still lists the company as the largest County employer, though only employing 403 individuals.

The 330,000 square-foot Facebook data center built in Prineville in 2011 provided more than 1,500 construction jobs and continues to provide about 70 full-time jobs in 2013. Apple currently owns 160 acres of land on which they have built a 10,000 square-foot modular and continue to work on a 300,000 square-foot main facility. Additionally, Apple has recently purchased 96 acres of County owned land adjacent to their facility. The data centers by Facebook and Apple have helped diversify the County's economy and helped make up for the jobs lost by the relocation of Les Schwab Tires headquarters. Reports indicate that Apple's data centers in Prineville were opened based on the recommendation of Facebook; it is expected that more tech companies will locate their data centers in Prineville.

Despite the presence of large companies such as Les Schwab Tires, Facebook and Apple, Crook County's economy largely depends on small business with the average firm in the County employing eight individuals.

Unemployment rates in Crook County have traditionally been higher than the State and National averages. These rates rose considerably during the recession reaching a high of 17.8% in 2009. According to the Oregon Employment Department, the unemployment rate in Crook County as of July of 2012 was at 13.3% - considerably lower than the highs of 2009 but still more than double the 2007 pre-recession rate of 6.3%.

In the decade between 2002 and 2012, Crook County experienced a 7% decrease in its job base mainly due to its dependence on the manufacture of building products heavily impacted by the recession and the relocation of Les Schwab Tires. Recent economic diversification such as the data centers built by Facebook and Apple are not only adding to the job base but also providing a diversification that the County had lacked in the past.

AIRPORT INVENTORY

An essential element of an Airport's master plan is the identification of existing facilities. In the following chapters, the capacity and adequacy of the facilities identified here in meeting the aviation demand will be analyzed and recommendations for upgrade, expansion or construction of new facilities will be made.

The Airport inventory was completed through visual inspections and site visits, interviews, review of previous Airport planning studies and review of past Airport projects. **Exhibit 2B** illustrates the existing conditions at the Airport.

The Airport facilities could be divided into three categories, airside, landside, and support facilities.

AIRSIDE FACILITIES

Airside facilities encompass all areas of aircraft movements. These areas include runways, taxiways, and apron areas.

RUNWAYS

The Airport has two paved and lighted runways, Runway 10-28 and runway 15-33.

Runway 10-28, the primary runway, is 5,751 feet long and 75 feet wide. The runway is oriented in an east-west direction and intersects Runway 15-33 at approximately 2,600 feet from the Runway 10 end. Runway 10-28 has an effective gradient of 0.175%.

A four-phase project, completed in 2010, extended and widened Runway 10-28. The project also included the extension of the parallel taxiway for the length of the new runway, rehabilitation of existing pavement, installation of Medium Intensity Runway Lights (MIRL) and the replacement/relocation of the VASI/PAPI system.

Runway 15-33 is a paved runway, 4,054 feet long by 40 feet wide. Runway 15-33 has an effective gradient of 0.015%. Operations on Runway 15-33 are limited to aircraft with a maximum weight of 5,000 lbs.

The Airport's 2003 ALP Report shows that Runway 10-28 offers crosswind coverage of 99.3% with a 10.5 knots (12 miles per hour) crosswind. This 2004 wind analysis was based on data from 1969 to 1973 retrieved from Roberts Field Airport in Redmond, Oregon. Airport FAA standards and practices render the crosswind runway, Runway 15-33, ineligible for federal funding since the main runway, Runway 10-28, provides crosswind coverage in excess of 95%. However, current data from the same site at Roberts Field covering the last 10 years of observations indicate Runway 10-28 offers crosswind coverage of 94.69% with a 10.5 knots crosswind, which makes the crosswind runway eligible for federal funding. Furthermore, the Airport believes that the installation of the Automated Weather Observation Station (AWOS) in 2013 will provide more accurate wind data that will allow for a better determination of the wind coverage provided by each of the runways as well as by the whole runway system. In order to account for variations that can occur year to year, and meet FAA wind rose development standards and procedures, a

minimum of 10 years of wind data should be collected and analyzed before a determination is made on wind coverage for the airport when utilizing the local AWOS.

Airport users indicate that Runway 10-28 is the calm wind runway, with take-offs primarily on Runway 28 and landings on Runway 10. Additionally, airport users, including owners of small aircraft weighing under 5,000 lbs. as well as owners of larger aircraft, have indicated strong support for Runway 15-33 despite conflicting wind data showing that Runway 10-28 may provide sufficient wind coverage. The FAA has indicated a willingness to continue funding maintenance for Runway 15-33.

TAXIWAYS

Runway 10-28 is served by a parallel taxiway that extends the length of the runway and is 35 feet wide. The taxiway, proposed by the previous master plan, was constructed in 2005. The runway centerline to taxiway centerline separation is 240 feet.

There are four connectors from Runway 10-28 to its full length parallel taxiway, one at each runway end, one at the previous Runway 10 end, and one at approximately 2,400 feet from the Runway 28 end. All connector taxiways are 35 feet wide.

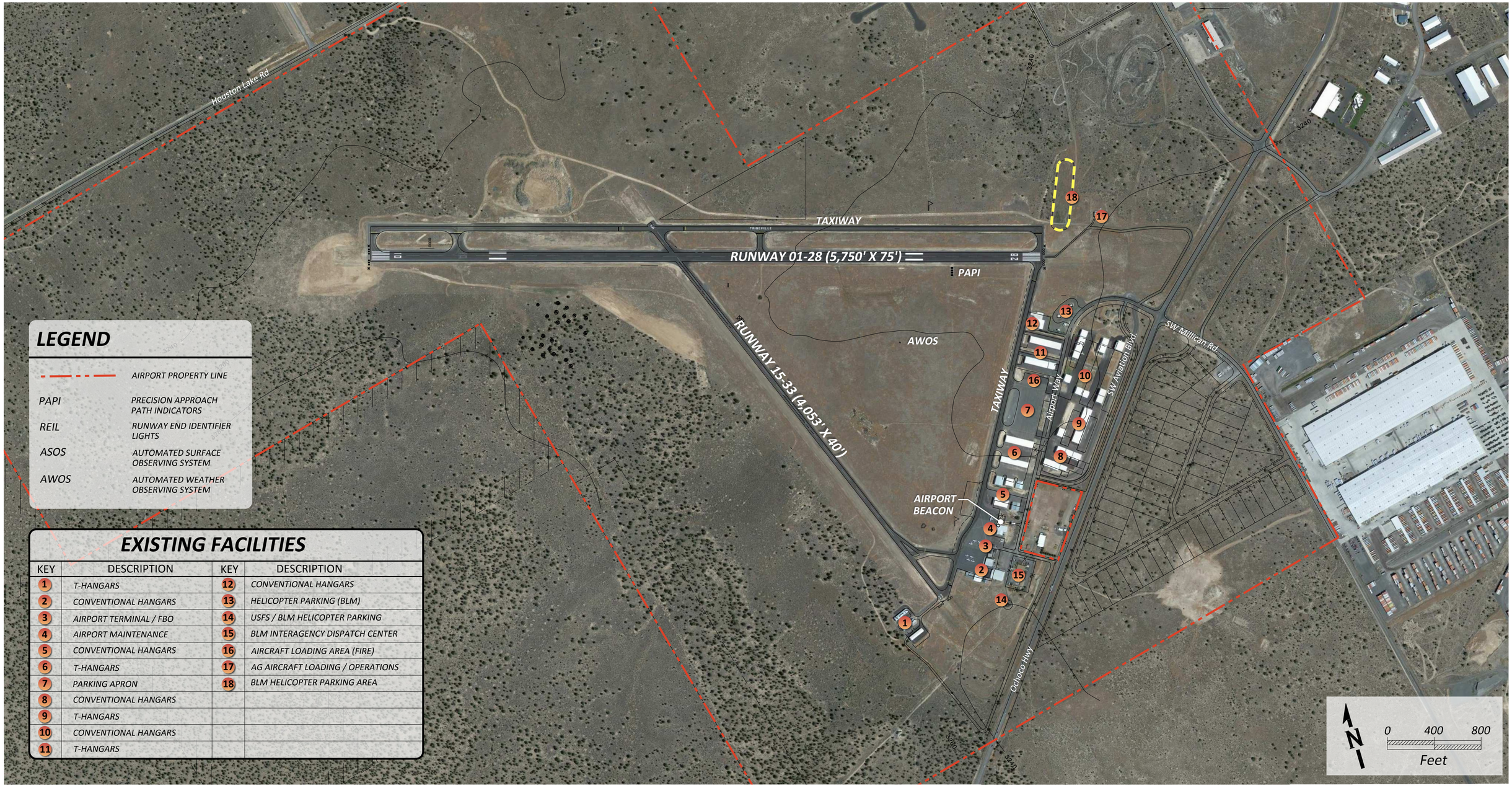
Runway 33 and Runway 28 are connected by a single taxiway that provides access to the aircraft parking and hangar areas. This taxiway is 2,950 feet long by 35 feet wide. At the Runway 33 end, the taxiway splits into two separate sections with a connection at the end of the runway and another at approximately 450 feet to the north. The connection to the north also splits into two runway entrances about 225 feet apart.

Runway 15-33 is not served by a parallel taxiway. Aircraft on either end of the runway are able to access the aircraft parking and apron area without having to back-taxi on the runway, either through Runway 10-28's full length taxiway or through the taxiway connecting runways 33 and 28. The Airport's 2003 ALP drawing shows a future full length taxiway for Runway 15-33, located to its west. Additionally, the previous ALP shows a parallel taxiway for runway 15-33 located to the west of the runway at a separation of 250 feet and labeled "Taxiway Reserve". Similar to the funding eligibility of Runway 15-33, a future parallel taxiway for Runway 15-33 will not be eligible for FAA funding if the 95% crosswind coverage rule is not met.

APRON AREA

Prineville Airport is served by two aircraft parking aprons located on the east end of the Airport.

The main apron, 12,650 square yards in size, is located at the south end of the terminal area with the fixed base operator (FBO)/general aviation terminal building, the aircraft fueling area, and



LEGEND

	AIRPORT PROPERTY LINE
PAPI	PRECISION APPROACH PATH INDICATORS
REIL	RUNWAY END IDENTIFIER LIGHTS
ASOS	AUTOMATED SURFACE OBSERVING SYSTEM
AWOS	AUTOMATED WEATHER OBSERVING SYSTEM

EXISTING FACILITIES

KEY	DESCRIPTION	KEY	DESCRIPTION
1	T-HANGARS	12	CONVENTIONAL HANGARS
2	CONVENTIONAL HANGARS	13	HELICOPTER PARKING (BLM)
3	AIRPORT TERMINAL / FBO	14	USFS / BLM HELICOPTER PARKING
4	AIRPORT MAINTENANCE	15	BLM INTERAGENCY DISPATCH CENTER
5	CONVENTIONAL HANGARS	16	AIRCRAFT LOADING AREA (FIRE)
6	T-HANGARS	17	AG AIRCRAFT LOADING / OPERATIONS
7	PARKING APRON	18	BLM HELICOPTER PARKING AREA
8	CONVENTIONAL HANGARS		
9	T-HANGARS		
10	CONVENTIONAL HANGARS		
11	T-HANGARS		

City of Prineville

PRINEVILLE AIRPORT
AIRPORT MASTER PLAN UPDATE

Existing Conditions Map

EXHIBIT 2B

WHPacific 9755 SW BARNES RD. STE 300 PORTLAND, OR 97225 503.626.0455

several conventional hangars located adjacent to the apron. The terminal apron is configured with several rows of light aircraft tiedowns.

A second apron is located near the center of the terminal area and is 13,950 square yards in size. The northern end of the central apron is used for the single engine air tanker (SEAT) aircraft parking and ground operations associated with seasonal fire response activities. Both aprons are connected to the taxiway extending from Runway 28 to Runway 33.

Helicopter parking on the Prineville Airport includes three designated areas for aircraft used by BLM or USFS. Other itinerant helicopters park on the aircraft aprons in the terminal area.

PAVEMENT CONDITION AND STRENGTH

Runway 10-28 has a pavement strength rating of 30,000 pounds single wheel loading (SWL) while Runway 15-33 has a pavement strength rating of 5,000 pounds SWL.

The runway and taxiway extension project that concluded in 2010 included the rehabilitation of the existing pavement.

As part of the Oregon Department of Aviation (ODA) Pavement Evaluation/Maintenance Management Program, pavement tests were conducted in May of 2011. **Exhibit 2C** shows the results of the test conducted by Pavement Consultants Inc.

Pavement Condition Index (PCI) values were calculated for each pavement section based on data collected during visual inspections conducted in May of 2011. The PCI value is a numerical rating of the pavement condition that ranges from 0 to 100, with 0 being the worst possible condition and 100 being the best possible condition.

The evaluation results show that Runway 10-28, Runway 15-33 from the point it crosses Runway 10-28 to the Runway 15 end, the extended portion of Runway 10-28 parallel taxiway and the taxiway connecting Runway 33 and Runway 28 are in good condition (PCI between 85 and 100).

The remainder of Runway 10-28 parallel taxiway pavement condition is satisfactory (PCI between 70 and 85). The remainder of Runway 15-33 (from crossing point with Runway 10-28 to Runway 33 end), is in fair condition (PCI between 55 and 70).

The two main aircraft parking aprons have a pavement condition rating of fair, while the condition of apron connectors and taxilanes providing access to hangars ranges from poor (PCI between 40 and 55) to good.

The pavement classification number (PCN) is an International Civil Aviation Organization standard used in combination with the aircraft classification number (ACN) to indicate the strength of a

runway, taxiway or airport apron (or ramp). This helps to ensure that the airport runway, taxiway, and apron (or ramp) are not subjected to excessive wear and tear, thus prolonging the usable life of the runway while promoting safe operations of the aircraft landing thereon. The PCN for Runway 15-33 and Runway 10-28 are 4.3/F/Z/T and 20.9/F/Y/T respectively.

As part of the Pavement Evaluation/Pavement Management Plan for Prineville Airport, Micro PAVER software was used to model projected pavement deterioration rates and create a pavement maintenance program. Exhibit 2C illustrates the current as well as future modeled pavement conditions. The recommended Five-Year Pavement Management Plan for Prineville Airport is shown in **Exhibit 2D**.

Visual observations performed during the site visits at the beginning of this Master Plan process have yielded results that are consistent and conformant with the conclusions reported in 2011.

AIRFIELD LIGHTING

Airfield lighting systems increase the safety and efficiency of night operations. Airfield lighting systems can include runway edge lighting, taxiway edge and centerline lighting as well as a variety of other lighting systems.

Runway 10-28 is equipped with Medium Intensity Runway Lights (MIRL) while Runway 15-33 is equipped with Low Intensity Runway Lights (LIRL). Both lighting systems are pilot activated.

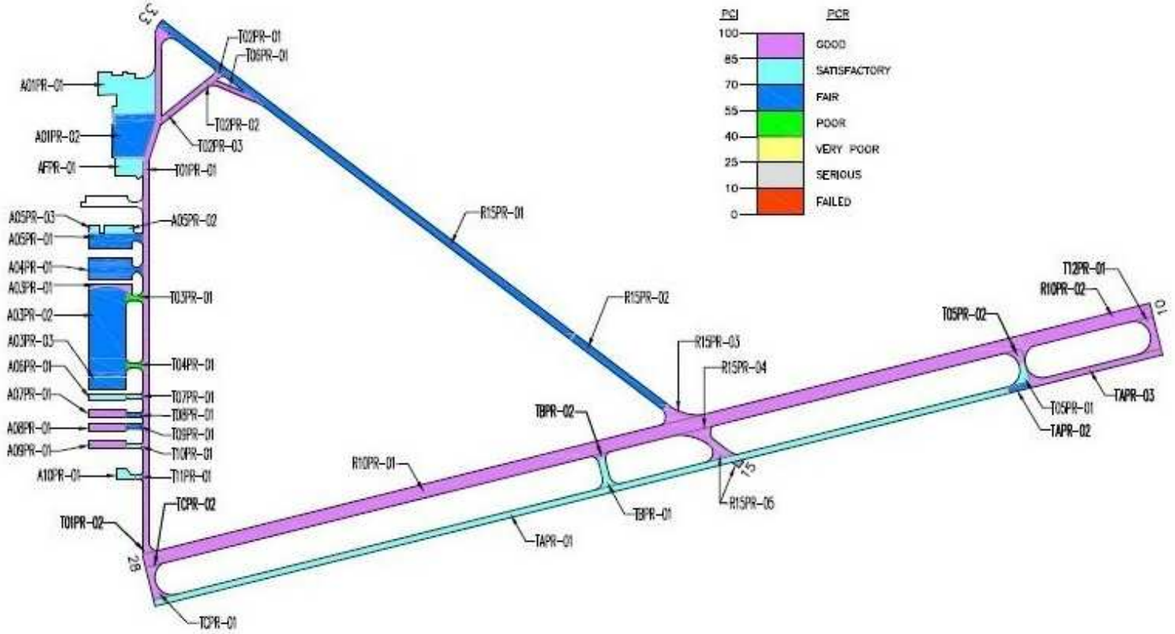
The parallel taxiway, and the taxiway connecting Runway 33 and Runway 28 ends, are equipped with reflectors.

AIRPORT NAVIGATIONAL AIDS

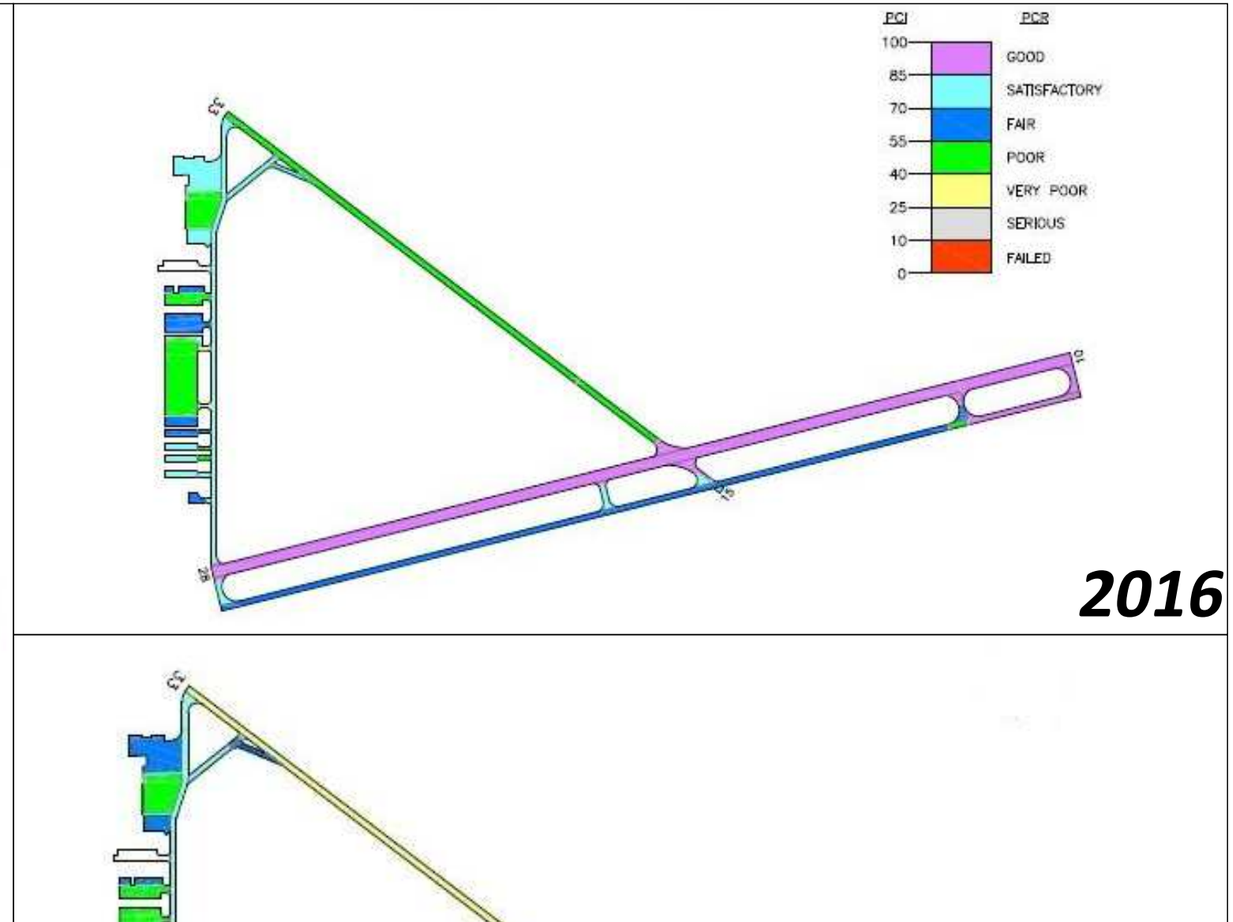
Airport navigational aids include both visual and instrument approach aids. The Airport's visual aids include a rotating beacon, wind indicators, and a four-box Precision Approach Path Indicator (PAPI) on Runway 28.

The beacon, which is in fair to good condition, is mounted on a wooden tower on the south side of the taxiway connecting Runways 33 and 28, between the fuel pump and the airport maintenance storage building in the terminal area.

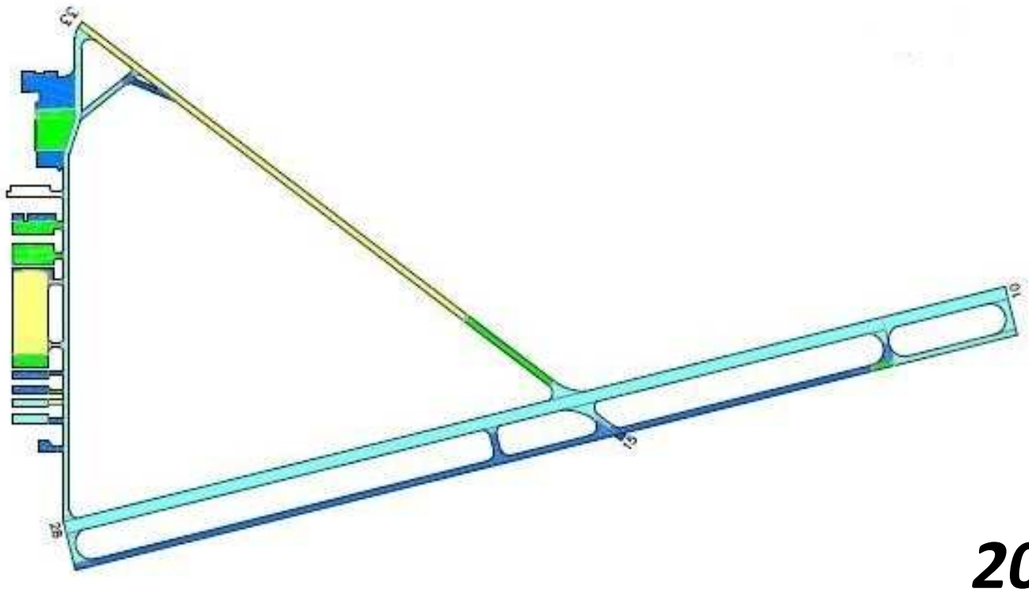
The Airport has a segmented circle and lighted wind cone located to the south of the intersection of the runways.



2011



2016



2021

City of Prineville

PRINEVILLE AIRPORT

AIRPORT MASTER PLAN UPDATE

Pavement Condition Map

EXHIBIT 2C

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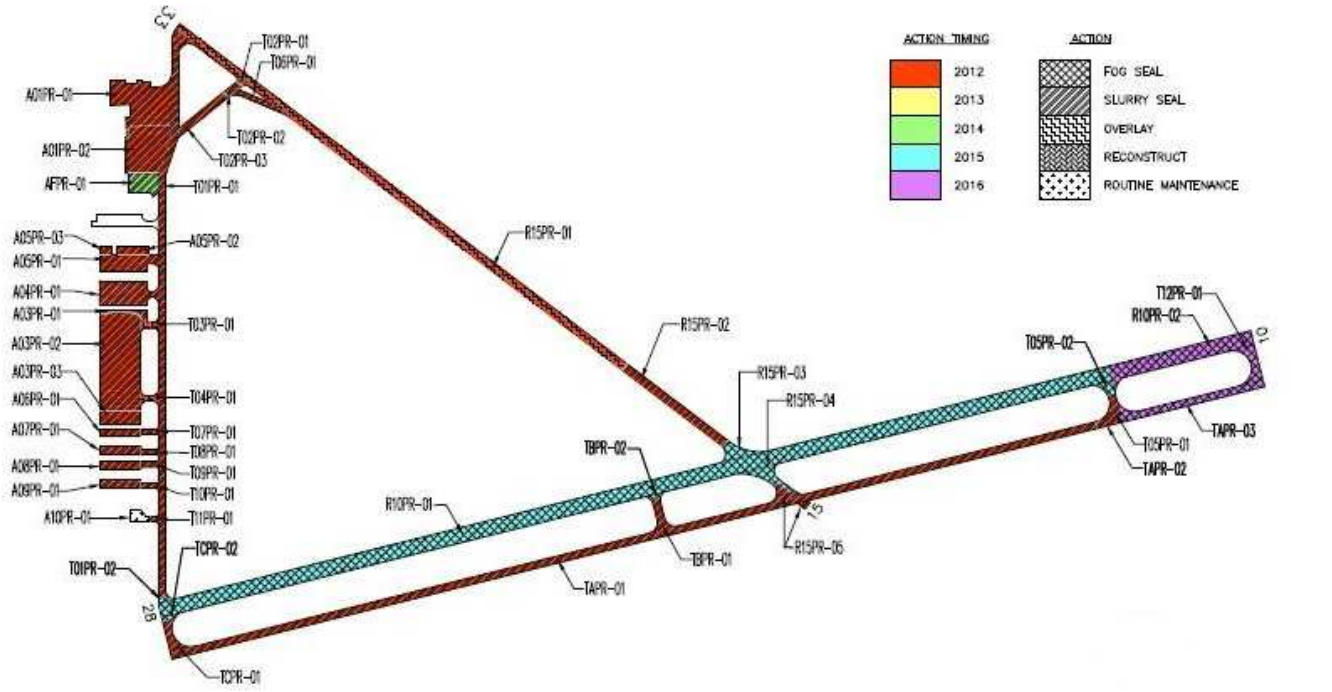
Five-Year Pavement Management Plan.
Prineville Airport



City of Prineville

PRINEVILLE AIRPORT
AIRPORT MASTER PLAN UPDATE

Pavement Maintenance Plan

EXHIBIT 2D

There are also two supplemental windcones at the Airport located near the intersection of Runway 33 end and the connecting taxiway and on the north side near Runway 28.

The PAPI system on Runway 28 is in good condition and was installed in 2009.

Instrument approach procedures can be used when the visibility and cloud ceiling are below minimums for Visual Flight Rules (VFR) conditions. The Airport has no on airport ground-based electronic navigational aids. The following three instrument approach procedures are published for Prineville:

- RNAV (GPS) RWY 10
- RNAV (GPS) RWY 28
- NDB RWY 10

Visibility minimums for all three approaches are "as low as 1 mile".

Exhibits 2E, **2F** and 2**G** illustrate the instrument approaches for Prineville Airport.

AIRFIELD MARKING AND SIGNAGE

Runway 10-28 has standard markings for a non-precision instrument runway; the runway is marked with threshold markings, runway numbers, centerline and aiming point markings.

Runway 15-33 has standard markings for a visual runway; the runway is marked with numbers at the runway ends and centerline markings. The runway does not have threshold markings.

The taxiways as well as the apron area have standard markings.

A project that included the installation and replacement of airport signage was completed in 2013. The project ensured that all airfield signage complies with the directives of FAA AC 150/5340-1F, Marking of Paved Areas on Airports.

WEATHER REPORTING SYSTEM

An Automated Weather Observing System (AWOS) was installed at the Airport in 2013. The AWOS, funded in part through the ConnectOregon IV program, provides weather conditions that are updated every 20 minutes or whenever the weather conditions change significantly.

The project also included fencing of the new AWOS; construction of a new gravel access road to the AWOS; demolition of the lighted wind cone; and the construction of a new lighted wind cone with a segmented circle.

The new AWOS provides airport users with accurate weather information thus increasing the safety and efficiency of airport operations. Additionally, the new AWOS will provide accurate historical wind data in time to be used for runway orientation analyses.

LANDSIDE FACILITIES

Landside facilities are areas not covered by the aircraft movement areas and they include the terminal building, hangars, fuel facilities and other support facilities.

TERMINAL BUILDING

The terminal building was dedicated on May 17, 2008. The 3,245 square-foot facility features a bright, open waiting room with comfortable chairs and sofas, a high ceiling with recessed lighting and a flat screen TV.

Additionally, it features a flight planning room with two computers that allow pilots to map their flight plans and a weather station where pilots can get up-to-date weather information for their flying destinations. The room also provides Wi-Fi access.

The building is fully insulated with air conditioning and heat.

The terminal building is open 7 days a week, between the hours of 8 A.M and 5 P.M. Pilots are provided 24-hour access to the restrooms, snacks and the flight planning room.

HANGARS

Most hangars are located to the east of the Airport and served by the same taxiway that connects Runway 28 and Runway 33 approach ends. Three T-Hangars are located to the west of runway 15-33.

Prineville Airport hangar inventory includes four county-owned hangars, 28 executive hangars, five banks of T-hangars with 46 units total, and 23 open lots available for new hangars.

The Airport manager indicated that sales of aircraft hangars have been “good”. Most hangars have been sold and occupied, with a few rentals available. He also indicated that he’s receiving interest from both private and business entities on a weekly basis.

The Airport recently acquired the Les Schwab Hangars, building numbers 4441 and 4439. Hillsboro Aviation is currently leasing a portion of building 4441.

AIRPORT MAINTENANCE/EQUIPMENT STORAGE

PRINEVILLE, OREGON | AL-9340 (FAA) | 14037

RNAV (GPS) RWY 10

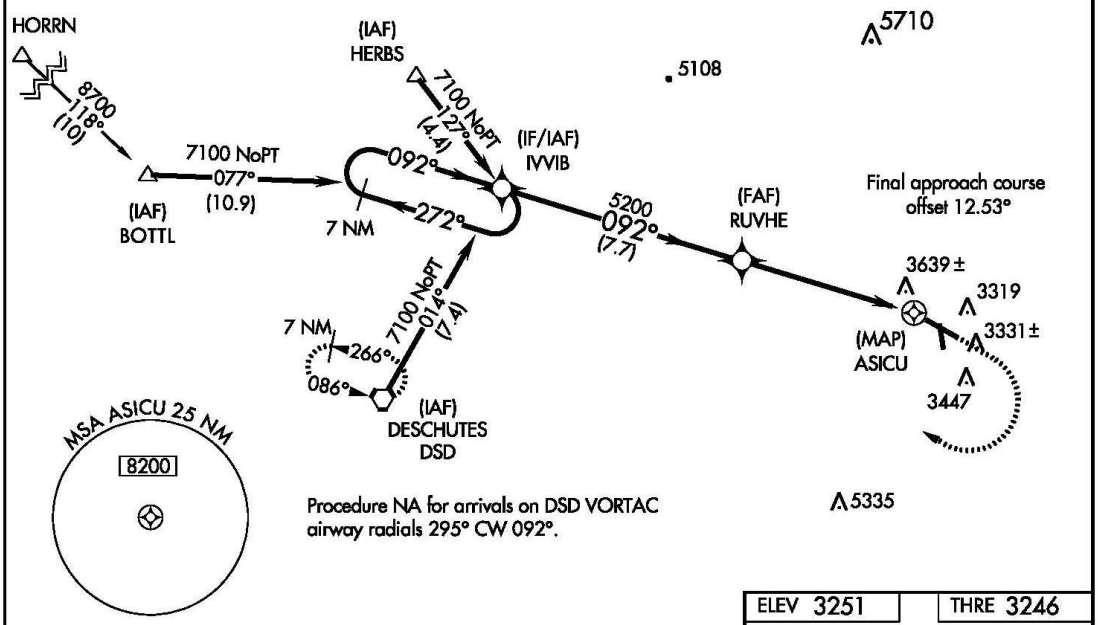
PRINEVILLE (S39)

WAAS	APP CRS	Rwy Idg	5751
CH 60936	092°	THRE	3246
W10A		Apt Elev	3251

Circling NA for Cat D southwest of Rwy 10-28. DME/DME RNP-0.3 NA. Helicopter visibility reduction below ¾ SM NA. Use Redmond altimeter setting; when not received, use Bend altimeter setting and increase all MDA 20 feet and *LP Cat C/D visibility ⅛ NM. *Missed approach requires a minimum climb of 220 feet per NM to 5500.

MISSED APPROACH: Climb to 5100 then climbing right turn to 7100 direct DSD VORTAC and hold.

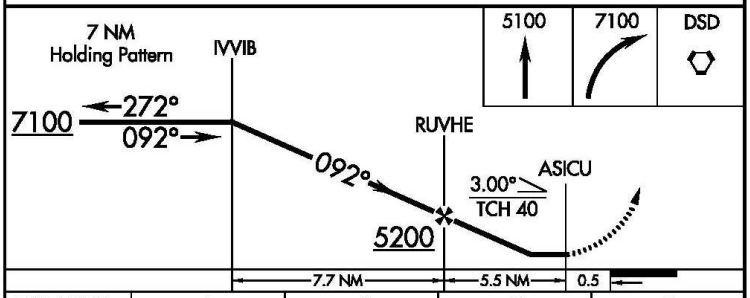
REDMOND ATIS	SEATTLE CENTER	UNICOM
119.025	128.15 257.75	122.8 (CTAF) L

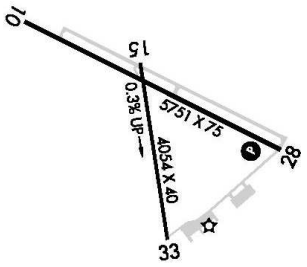


NW-1, 06 MAR 2014 to 03 APR 2014

NW-1, 06 MAR 2014 to 03 APR 2014

ELEV 3251 | THRE 3246





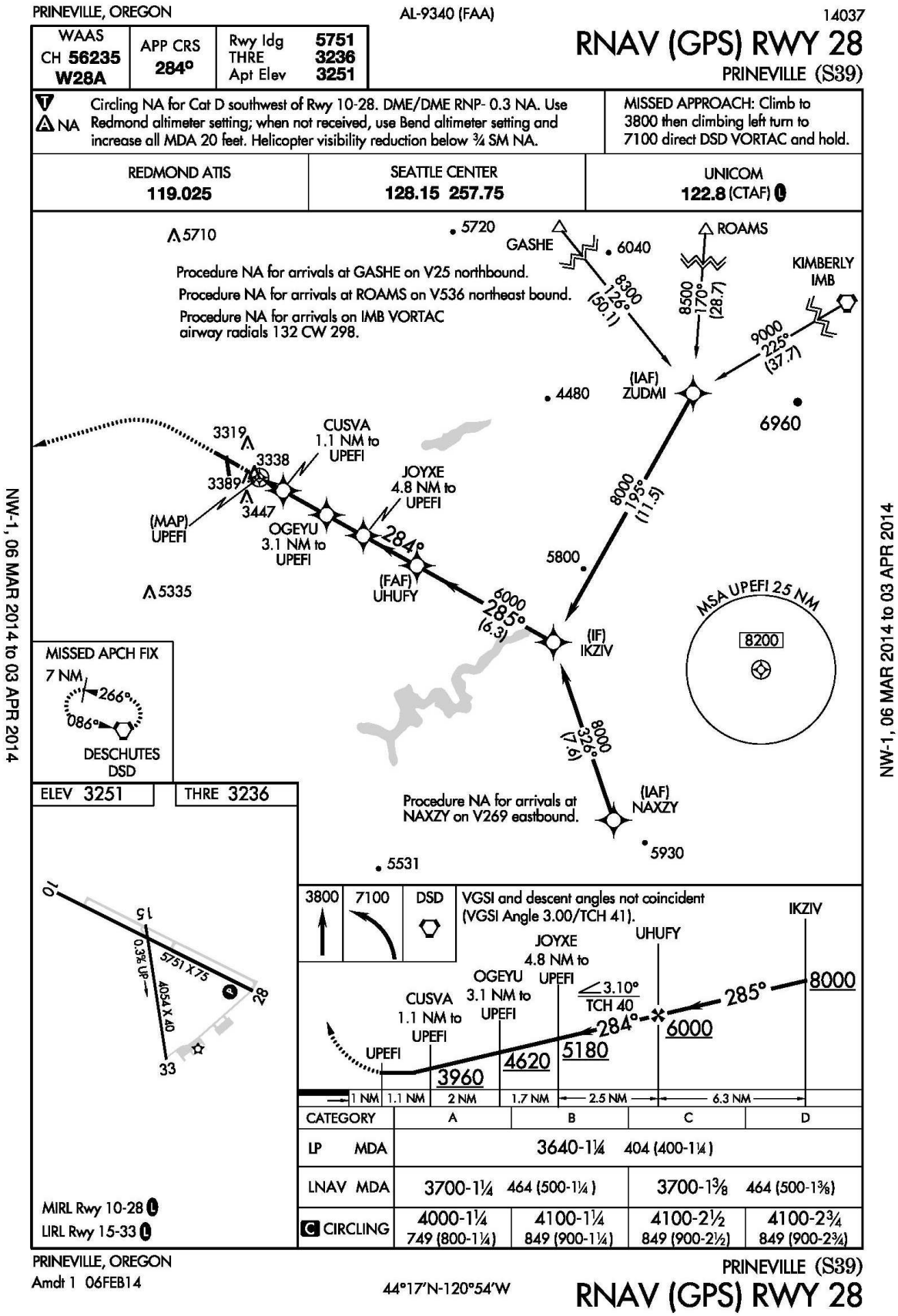
CATEGORY	A	B	C	D
LP MDA	3840-1 594 (600-1)		3840-1¾ 594 (600-1¾)	
*LP MDA	3680-1 434 (500-1)		3680-1¼ 434 (500-1¼)	
LNAV MDA	3940-1 694 (700-1)		3940-2 694 (700-2)	
C CIRCLING	4000-1 749 (800-1)	4100-1¼ 849 (900-1¼)	4100-2½ 849 (900-2½)	4100-2¾ 849 (900-2¾)

MIRL Rwy 10-28 L
LIRL Rwy 15-33 L

PRINEVILLE, OREGON
Amdt 1 06FEB14

44°17'N-120°54'W

PRINEVILLE (S39)
RNAV (GPS) RWY 10


PRINEVILLE, OREGON
AL-9340 (FAA)
14037
WAAS
CH 56235
W28A
APP CRS
284°
Rwy Idg 5751
THRE 3236
Apt Elev 3251
RNAV (GPS) RWY 28
PRINEVILLE (S39)
Circling NA for Cat D southwest of Rwy 10-28. DME/DME RNP- 0.3 NA. Use Redmond altimeter setting; when not received, use Bend altimeter setting and increase all MDA 20 feet. Helicopter visibility reduction below ¾ SM NA.
MISSED APPROACH: Climb to 3800 then climbing left turn to 7100 direct DSD VORTAC and hold.
REDMOND ATIS 119.025
SEATTLE CENTER 128.15 257.75
UNICOM 122.8 (CTAF)
Procedure NA for arrivals at GASHE on V25 northbound.
Procedure NA for arrivals at ROAMS on V536 northeast bound.
Procedure NA for arrivals on IMB VORTAC airway radials 132 CW 298.
GASHE
ROAMS
KIMBERLY IMB
8300 126° (50.1)
8500 170° (28.7)
9000 225° (37.7)
(IAF) ZUDMI
4480
6960
5710
5720
6040
3319
3338
3389
3447
CUSVA 1.1 NM to UPEFI
JOYXE 4.8 NM to UPEFI
OGEYU 3.1 NM to UPEFI
(MAP) UPEFI
(FAF) UHUFY
284°
8000 195° (11.5)
6000 285° (6.3)
5800
5335
(IF) IKZIV
MSA UPEFI 2.5 NM
8200
MISSED APCH FIX
7 NM
266°
086°
DESCHUTES DSD
8000 326° (7.6)
(IAF) NAXZY
Procedure NA for arrivals at NAXZY on V269 eastbound.
5930
5531
ELEV 3251
THRE 3236
3800
7100
DSD
VGSI and descent angles not coincident (VGSI Angle 3.00/TCH 41).
IKZIV
UHUFY
JOYXE 4.8 NM to UPEFI
OGEYU 3.1 NM to UPEFI
CUSVA 1.1 NM to UPEFI
3.10°
TCH 40
284°
285°
8000
6000
UPEFI
3960
4620
5180
1 NM
1.1 NM
2 NM
1.7 NM
2.5 NM
6.3 NM
CATEGORY A B C D
LP MDA 3640-1¼ 404 (400-1¼)
LNAV MDA 3700-1¼ 464 (500-1¼) 3700-1⅜ 464 (500-1⅜)
C CIRCLING 4000-1¼ 749 (800-1¼) 4100-1¼ 849 (900-1¼) 4100-2½ 849 (900-2½) 4100-2¾ 849 (900-2¾)
10
15
0.3% UP
5751 X 75
28
4054 X 40
33
MIRL Rwy 10-28
LIRL Rwy 15-33
PRINEVILLE, OREGON
Amdt 1 06FEB14
44°17'N-120°54'W
PRINEVILLE (S39)
RNAV (GPS) RWY 28
NW-1, 06 MAR 2014 to 03 APR 2014
NW-1, 06 MAR 2014 to 03 APR 2014

PRINEVILLE, OREGON

AL-9340 (FAA)

14037

NDB RWY 10

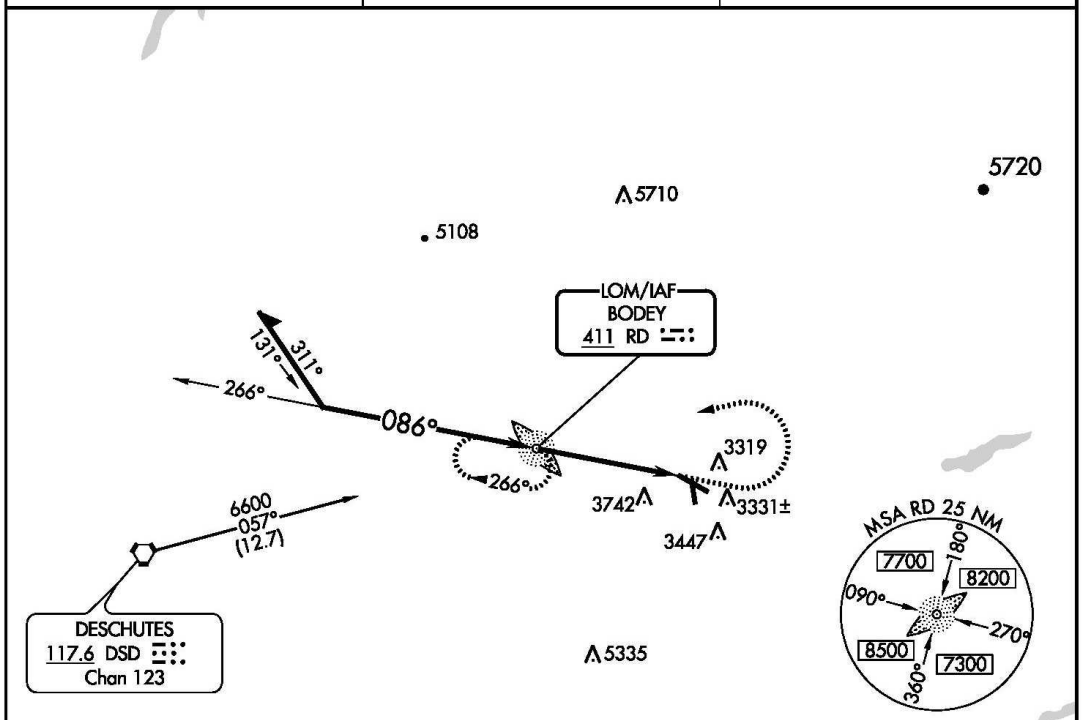
PRINEVILLE (S39)

LOM	RD	APP CRS	Rwy Idg	5751
411		086°	THRE	3246
			Apt Elev	3251

T A NA Circling NA for Cat D SW of Rwy 10-28. Use Redmond altimeter setting; when not received, use Bend altimeter setting and increase all MDA 20 feet. Helicopter visibility reduction below ¾ SM NA.

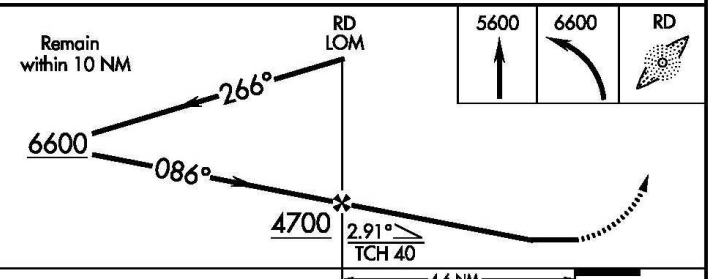
MISSED APPROACH: Climb to 5600 then climbing left turn to 6600 direct BODEY LOM and hold.

REDMOND ATIS	SEATTLE CENTER	UNICOM
119.025	128.15 257.75	122.8 (CTAF) L



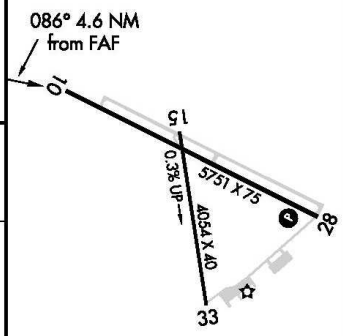
NW-1, 06 MAR 2014 to 03 APR 2014

NW-1, 06 MAR 2014 to 03 APR 2014



CATEGORY	A	B	C	D
S-10	4100-1 854 (900-1)	4100-1¼ 854 (900-1¼)	4100-2½ 854 (900-2½)	
C CIRCLING	4100-1¼ 849 (900-1¼)		4100-2½ 849 (900-2½)	4100-2¾ 849 (900-2¾)

ELEV 3251 HRE 3246



MIRL Rwy 10-28 L
LIRL Rwy 15-33 L

FAF to MAP 4.6 NM					
Knots	60	90	120	150	180
Min:Sec	4:36	3:04	2:18	1:50	1:32

PRINEVILLE, OREGON
Amdt 1 06FEB14

44°17'N-120°54'W

PRINEVILLE (S39)
NDB RWY 10

The Airport owns and operates a dump truck/snowplow and a pick-up truck; equipment is stored outside on the apron. The Airport also owns a sweeper.

FUEL STORAGE

There are two County/City-owned underground fuel storage tanks (12,400 gallons capacity each) that were installed at the Airport in 1981. These fuel tanks are equipped with leak detection systems and have been upgraded throughout the years to meet all environmental regulations.

The Fixed Base Operator (FBO) provides 24-hour call-out fuel service of Avgas and Jet fuel. The fuel pumps as well as the fuel storage tanks are located adjacent to the FBO. Fuel service trucks include one 750-gallon full-service truck with 100LL, and one 2000-gallon full-service truck with Jet A.

VEHICLE ACCESS AND PARKING

Airport access is provided through an access road from State Road 126. It should be noted that the Prineville Transportation Plan, 2005 proposes conceptual improvements to the Airport access that have yet to be implemented. This Master plan will briefly examine these improvement options and determine if they remain feasible.

Vehicle parking on the Airport consists of a paved parking area in front of the terminal building. The adequacy of the parking space in serving the current and future demand will be examined in later chapters.

AIRPORT SUPPORT SERVICES

FIXED BASE OPERATOR (FBO)

The City/County serves as the primary Fixed Base Operator (FBO) at the Airport. They own and manage the terminal building and provide airport management, aircraft parking (ramp and tiedown), fuel service, pilot supplies, two courtesy cars, and public telephone and public restrooms.

Prineville Airport is also served by three limited service FBOs to include Prineville Aviation and High Desert Aviation, which provide aircraft maintenance and flight instruction services, and Hillsboro Aviation, which recently initiated flight instruction at the Airport.

UTILITIES

Resolution 794 passed in 1995, annexed the "City-County Airport Area" to the City of Prineville. As a result of the Airport being located within the City limits, it is provided with city water, sewer, electric and telephone service. A new well serving the Airport was built in 2005.

SECURITY, FIREFIGHTING AND FENCING

The City of Prineville Police Department provides law enforcement support for the Airport.

The Crook County Fire and Rescue Department provides Aircraft rescue and firefighting services. The nearest station is located within 3.5 miles of the Airport with an estimated response time of less than 8 minutes.

Prineville Airport has a history of wildlife, especially deer, on and in the vicinity of the Airport. The previous master plan indicated that deer needed to be cleared from the runway on several occasions. The Airport property has range fencing, while chain-link fencing is limited to the area along the east side of the airport access road and around the Interagency Fire Dispatch Center and adjacent developments.

AIRSPACE

AIRSPACE CLASSIFICATIONS

Airspace is defined as the portion of the atmosphere above a particular land area, usually above a country. To efficiently and effectively manage the large amount of air traffic that traverses the sky each day, the atmosphere above the United States is divided into several sectors, or classes.

There are six (6) classes of airspace in the United States. These classes could be divided into two categories:

- Controlled Airspace includes Class A, Class B, Class C, Class D, and Class E. While operating in controlled airspace, the pilot is subject to certain operating rules, as well as pilot qualifications and aircraft equipment requirements.
- Uncontrolled Airspace includes Class G airspace. FAA Air Traffic Control (ATC) does not exercise control of air traffic in Class G airspace.

Exhibit 2H from the FAA provides a brief overview of the airspace classifications in the United States.

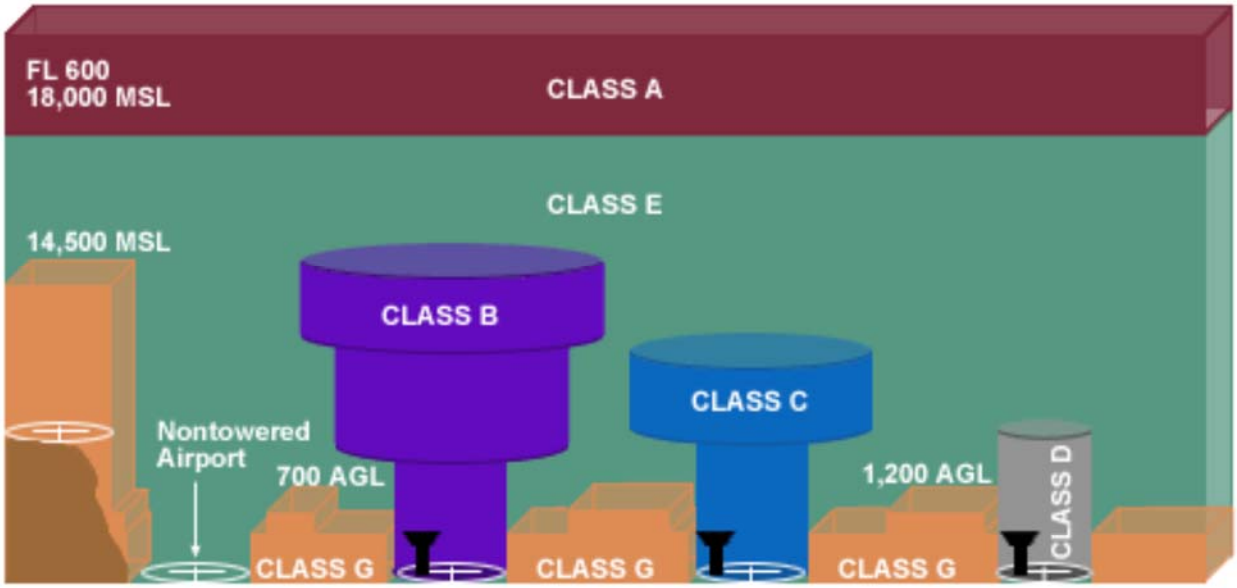
In the controlled airspace category, Class A airspace includes all airspace from 18,000 feet Mean Sea Level (MSL) to Flight Level 600 (approximately 60,000 feet MSL). Class B airspace is airspace

surrounding high activity commercial service airports. Class C airspace is airspace surrounding commercial service airports with moderate traffic and some military airports. Class D airspace is airspace surrounding smaller airports with an air traffic control tower. Additionally, Class E airspace is defined as controlled airspace that is neither A, B, C nor D.

The Uncontrolled Airspace or Class G Airspace is mostly used for a small layer of airspace near the ground, but there are larger areas of Class G airspace in remote regions. In general, within the United States, Class G Airspace extends up to 14,500 feet above mean sea level (MSL). At and above this altitude, all airspace is within Class E Airspace.

In addition to the airspace classes listed above, the United States also designates areas of Special Use Airspace (SUA), mainly for reasons of national security. Special Use Airspace includes Alert Areas, Warning Areas, Restricted Airspace, Prohibited Airspace, Military Operation Areas (MOA), Controlled Firing Areas (CFA), and National Security Areas (NSA). It must be noted that the SUA is not a separate classification from the ATC-based classes previously discussed; each piece of SUA is contained in one or more zones of letter-classed airspace. Additionally, the airspace class in which the SUA is found still controls the requirements and procedures for flying into/through it.

Exhibit 2H: Airspace Classifications

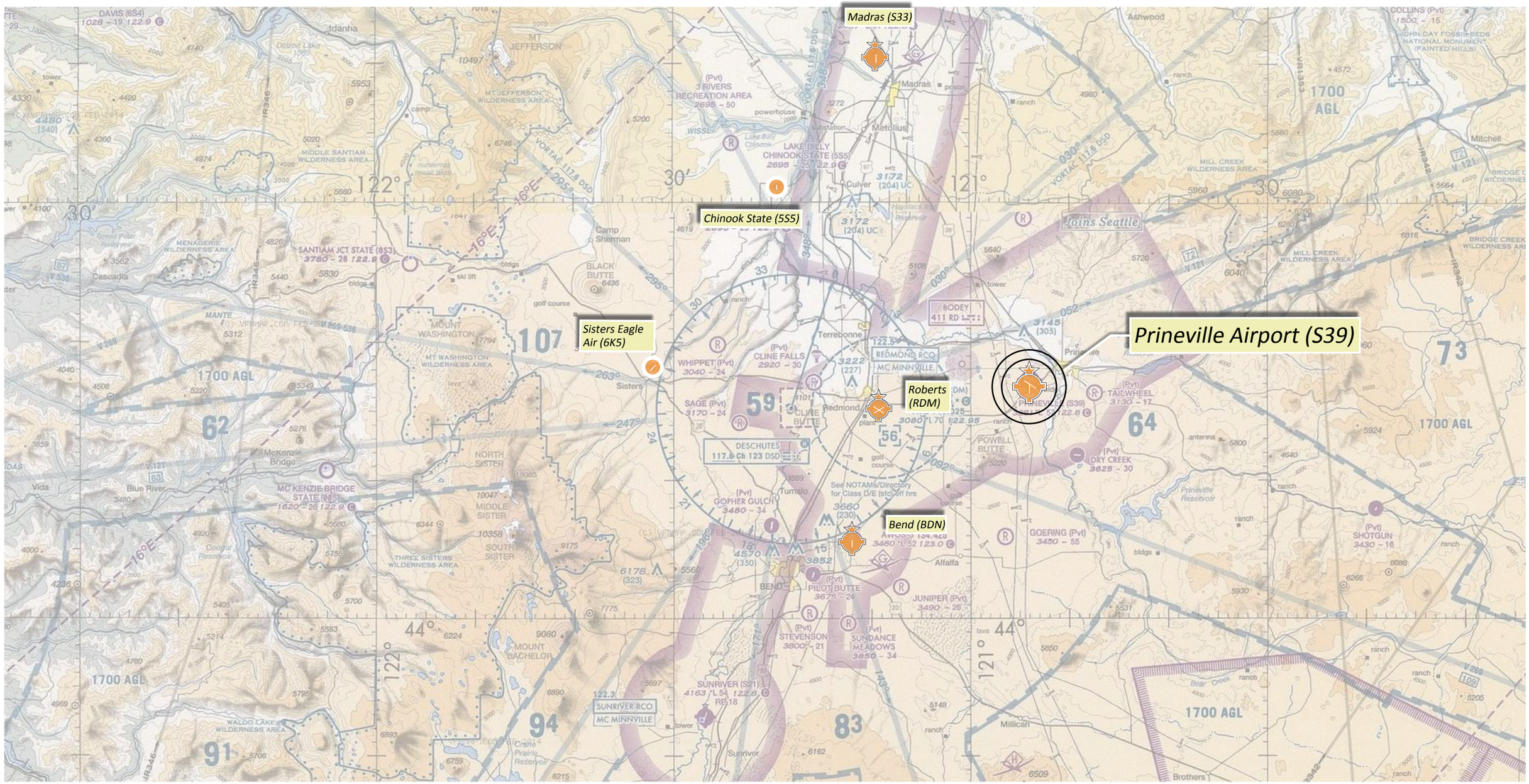


Airspace Features	Class A	Class B	Class C	Class D	Class E	Class G
ATC Facility	ARTCC	TRACON	TRACON or ATCT	ATCT	ARTCC	None
Operations Permitted	IFR	IFR & VFR	IFR & VFR	IFR & VFR	IFR & VFR	IFR & VFR
Entry Requirements	ATC Clearance	ATC Clearance	ATC Clearance for IFR. All require radio contact	ATC Clearance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

Courtesy of FAA

LOCAL AREA AIRSPACE STRUCTURE

Prineville Airport is located in an area of Class E airspace that starts at 700 feet above ground level (AGL), as shown on **Exhibit 2I,** Area Airspace.



PRINEVILLE AIRPORT
AIRPORT MASTER PLAN UPDATE

City of Prineville

Area Airspace

EXHIBIT 2I

WHPacific 9755 SW BARNES RD. STE 300 PORTLAND, OR 97225 503.626.0455

The chart shows an area of Class E airspace that extends to cover Roberts Field Redmond Municipal Airport to the west, Bend Municipal Airport to the southwest, and Madras Airport to the northwest. A separate section of Class E airspace associated with Sunriver Airport extends to the southwest. Additionally, large areas of Class E airspace that are associated with enroute instrument airways and transition to terminal airspace extend in all directions beyond the Class E airspace associated with local area airports.

When Roberts Field Redmond Municipal Airport's tower is in operation – between the hours of 6 A.M and 10 P.M – an area of Class D with a 5-mile radius around the Airport from the surface to an elevation of 5,600 feet mean sea level (MSL) is in effect. Operations within the Class D airspace require two-way radio contact with the Roberts Field Redmond Municipal Airport's tower.

The traffic pattern altitude (TPA) for the Prineville Airport has been established at 800 feet AGL (although larger aircraft use 1,000 feet AGL). The TPA is the altitude at which aircraft operating in the traffic pattern fly when on the downwind leg. The TPA is established so that aircraft have a predictable descent profile on base leg to final for landing.

Radio communication is not required for visual flight rules (VFR) operations in Class E airspace, although pilots are encouraged to use the common traffic advisory frequency (CTAF) when operating at the Airport. Aircraft are required to obtain an air traffic control (ATC) clearance prior to operating in Class E airspace during instrument flight rules (IFR).

Special use airspace in the vicinity of the Airport includes the Juniper North & Low MOA to the southeast of the Airport. Although civilian operations are allowed within a MOA, civilian aircraft are cautioned to remain alert for military aircraft. Prior to entering an active MOA, pilots are encouraged to contact the controlling agency for traffic advisories and NOTAM (Notice to Airmen).

PART 77 IMAGINARY SURFACES

Federal Aviation Regulation (FAR) Part 77, Objects Affecting Navigable Airspace, establishes standards for determining which structures or terrain may pose potential obstructions to air navigation. Part 77 defines an airspace system around the airport that the goal is to have no protruding buildings, poles or antennae, or terrain. The airspace features are referred to as "Imaginary Surfaces." Objects affected include existing or proposed objects of natural growth; terrain; or permanent or temporary construction, including equipment, which is permanent or temporary in character. The imaginary surfaces outlined in FAR Part 77, and illustrated in **Exhibit 2J**, include the following:

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

The definitions for the FAR Part 77 surfaces are as follows:

Primary Surface: The primary surface is longitudinally centered on a runway and extends 200 feet beyond each end of the runway. The width of a primary surface ranges from 250 feet to 1,000 feet, depending on the existing or planned approach and runway type (e.g., visual, non-precision, or precision).

Horizontal Surface: The horizontal surface is a horizontal plane located 150 feet above the established airport elevation, covering an area from the transitional surface to the conical surface. The perimeter is constructed by swinging arcs from the center of each end of the primary surface and connecting the adjacent arcs by lines tangent to those areas. For all approaches to runways supporting large aircraft, the radius of each arc used to construct the horizontal surface is 10,000 feet.

Conical Surface: The conical surface is a surface extending upward and outward from the periphery of the horizontal surface at a slope of one foot for every 20 feet (20:1) for a horizontal distance of 4,000 feet.

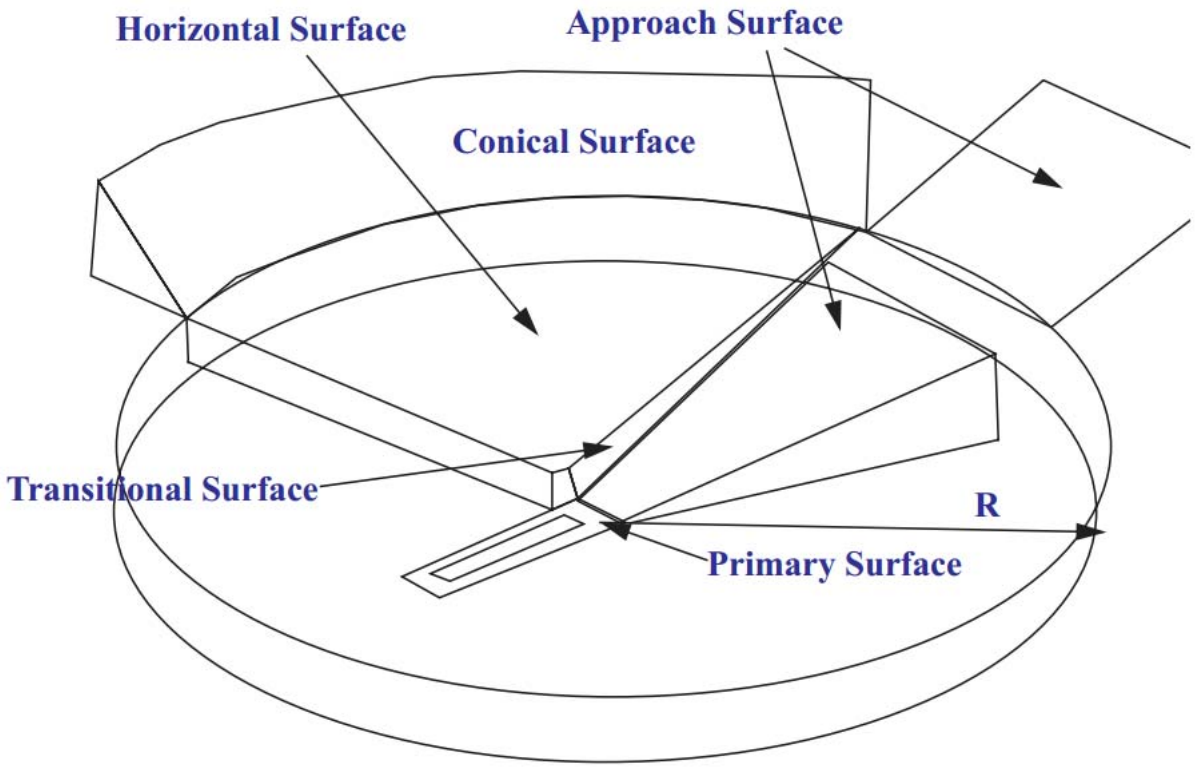
Transitional Surface: Transitional surfaces extend outward and upward at right angles to the runway centerline, with the runway centerline extended at a slope of seven feet horizontally for each foot vertically (7:1) from the sides of the primary and approach surfaces. The transitional surfaces extend to where they intercept the horizontal surface at a height of 150 feet above the runway elevation. Transitional surfaces for those portions of the precision approach surface, which project through and beyond the limits of the conical surface, extend a distance of 5,000 feet horizontally from the edge of the approach surface and at right angles to the runway centerline.

Approach Surface: Longitudinally centered on the extended runway centerline, the approach surface extends outward and upward from the end of the primary surface. An approach surface is applied to each end of each runway based on the type of approach. The approach slope of a runway is 20:1, 34:1, or 50:1, depending on the sophistication of the approach. FAA approach

surfaces are 20:1 for visual approaches, 34:1 for non-precision approaches, and 50:1[1] for precision approaches.

Exhibit 2J below illustrates the Part 77 airspace system.

Exhibit 2J. Part 77 Imaginary Surfaces



Dimensions of FAR Part 77 surfaces vary depending on the type of runway approach. Although the FAA can determine which structures are obstructions and may pose a hazard to air navigation, the FAA is not authorized to regulate tall structures. Under FAR Part 77, an aeronautical study can be undertaken by FAA to determine whether the structure in question would be a hazard to air navigation. However, there is no specific authorization in any statute

[1] Precision instrument approach slope is 50:1 for inner 10,000 feet and 40:1 for an additional 40,000 feet.

that permits the FAA to limit structure heights or determine which structures should be lighted or marked. In fact, in every aeronautical study determination, the FAA acknowledges that state or local authorities have control over the appropriate use of property beneath an airport's airspace.

The Part 77 surfaces are identified in drawings associated with the Airport Layout Plan (ALP). Existing Part 77 surfaces will be evaluated during the development of the ALP and any penetrations will be noted and addressed for removal or marking.

The existing FAR 77 Airspace Drawing, developed in 2003 as part of the Airport Layout Plan (ALP), shows that the runways are generally free of obstructions with the exception of a small area of terrain (Meyers Butte) that penetrates the Runway 10 approach surface by an approximate 20 feet and the adjacent horizontal surface by approximately 205 feet at its highest point. A radio tower with an estimated height of 100 feet above ground level was identified as a penetration to the horizontal surface in 2003, but the airport manager has confirmed this tower has since been removed. Runway 10 was reconstructed and extended in 2009 meaning that the nature and extent of obstructions identified in 2003 might have changed. The Airport Layout Plan (ALP) Drawings, to be provided in a later chapter, will include a FAR 77 Airspace Drawing that identifies existing as well as future obstructions.

Another terrain penetration within the horizontal and conical surfaces was identified in the drawing and is located southwest of the Airport (Grass Butte). This terrain penetrates the horizontal surface by approximately 221 feet at its highest point. Additionally, a water storage tank located on the eastern slope of Grass Butte was identified as penetrating the horizontal surface, although its exact elevation, and therefore its level of penetration, was not known.

BASED AIRCRAFT AND ACTIVITY COUNT

Different sources were utilized to evaluate historic data related to activity at the Airport. This included reviewing the previous Airport Layout Plan, as well as FAA and state records for historic based aircraft and operations. This information along with current industry trends is essential for the development of new activity forecasts. It is also important to examine these existing documents to understand past long-range planning efforts for the Airport.

BASED AIRCRAFT

In recognizing the importance of and the need for more accurate based aircraft counts at non-primary NPIAS airport, the Federal Aviation Administration (FAA), through a contractor (GCR), established a website to allow airport managers direct on-line entry of their based aircraft details via a secured internet based application. The entries, which include the N-numbers of the based aircraft, are then checked and verified against the FAA database. The website employs various checks and balances such as ensuring that no aircraft is listed as based at more than one airport. Through this website, the Prineville Airport manager has reported and verified a total of 124 based aircraft including 114 single engines, 5 multi-engines, 2 jets, 1 helicopter and 2 ultra-lights.

FUEL SALES

Prineville Airport sells both 100 LL and Jet A fuel. Avgas 100 LL is used to power piston-engine aircraft while Jet fuel is designed for use in aircraft powered by gas-turbine engines. A review of the historical fuel sale volume at the Airport was conducted. The historical fuel sale volumes provide an indication of the historical activity level as well as historical activity by aircraft type at the Airport.

Table 2A summarizes historic aviation gasoline (AVGAS) and jet fuel sales at the Airport during the 2004-2013 time period.

Table 2A. Historic Fuel Sales

	100 LL		Jet A		Total	
	Gallons	% of Total	Gallons	% of Total	Gallons	% of Total
2004	36,772	58%	26,715	42%	63,487	100%
2005	33,705	53%	30,017	47%	63,722	100%
2006	39,037	55%	31,546	45%	70,583	100%
2007	41,984	68%	20,055	32%	62,039	100%
2008	44,763	64%	25,038	36%	69,801	100%
2009	44,501	71%	17,868	29%	62,369	100%
2010	40,687	64%	23,119	36%	63,806	100%
2011	49,532	59%	34,057	41%	83,589	100%
2012	47,689	61%	29,900	39%	77,589	100%
2013	74,778	64%	42,308	36%	117,086	100%

Source: Prineville Airport

AIRCRAFT OPERATIONS

Based on the interviews and surveys received from various airport users and the records kept by the airport manager, it was determined that the number of aircraft operations reported in the FAA Terminal Area Forecast (TAF) does not reflect the actual level of activity at the Airport.

The total number of operations for 2013 was estimated using the airport manager's available records, airport user input, and review of available fuel sale records. From these sources, the 2013 total operations for the year were estimated at 46,522 annual operations or an estimated 127 daily operations—37 percent itinerant (arriving from or destined for another location) and 63 percent local operations (remaining in proximity of same airport such as training, touch-and-go operations).

ENVIRONMENTAL INVENTORY

The Prineville Airport is in Crook County and southwest of the City of Prineville. The Airport property is bounded on the north by open range uses and SW Houston Lake Road and along the southern edge by Oregon State Highway 126. The western edge of the Airport abuts undeveloped open space and range uses, while the east side of the Airport abuts property used for light industrial uses. The purpose of this section is to summarize the environmental setting of the airport, and identify any potential environmental constraints.

Environmental constraints for airports typically fall into two general categories: human environment and natural environment. Human factors that can constrain airports include existing settlements and incompatible land use, noise, social or socioeconomic conditions, light and glare. Natural environmental elements include various aspects of air quality, water resources, fish and wildlife, hazardous materials, energy and other resource issues.

HUMAN FACTORS

NOISE

As previously noted, the Airport currently supports about 127 aircraft operations per day, which is up from estimated operations in recent history before helicopter flight school operations began increasing. The U.S. Forest Service and Bureau of Land Management also utilize the airport to support their operations. The Federal threshold of significance is when the 65 DNL contour

extends over noise-sensitive land uses. Noise contours typically mirror the shape of the runway, and extend beyond the runway ends in the dominant take-off direction.

Areas surrounding the Airport include agricultural and industrial uses, and are not be considered noise-sensitive.

Another recommended guideline for noise analysis is 90,000 annual adjusted propeller operations. Current annual operations is well below this level. However, noise modeling will be prepared as part of this Master Plan with the 65 DNL contour identified for the existing and future anticipated airport use, including the increased usage associated with training. The Oregon Department of Environmental Quality (DEQ) disclosure requirement of 55 DNL will also be identified in the modeling.

The developed area of Prineville, including the outskirts of single-family residential housing, is two miles from the airport. The area immediately surrounding the Airport is primarily in industrial uses, including Facebook and Google data centers, and unused scrub-shrub upland habitat. While noise has not been a major noise issue, there have been noise complaints associated with inbound and outbound helicopter traffic in the area.

LAND USE

The Prineville Airport is located entirely within the City of Prineville's Urban Growth Boundary and City limits. Several zoning map designations apply to the airport property, including Airport Approach Overlay (AA) on the runways and associated Runway Safety Areas and Object Free Zones, Airport Development (AD) west of Runway 15-33, Airport Business-Industrial (AM) in the northeast quadrant of the intersection of the two runways, and Airport Commercial (AC) in the office and terminal areas.

The AA zone restricts the construction of airspace obstructions in airport areas and associated approaches. The AD zone provides designated areas for airport dependent and related uses and those activities that support airport usage, and to provide areas for future expansion. The AC zone allows airport-related business and commercial activities designed to serve users of the airport facilities, which could include services such as restaurants and overnight lodging. Finally, AM provides land for airport-compatible business and industrial uses that require access or proximity to taxiways.

The Airport and areas subject to FAR Part 77 airspace restrictions are part of an Aircraft Landing Field Overlay Zone. This overlay restricts height, building emissions, and other land uses that may interfere with airport operations. It also restricts uses that may otherwise be deemed incompatible with an airport.

SOCIAL IMPACT AND INDUCED SOCIOECONOMIC ISSUES

Proposed airport development actions must be evaluated to determine whether they would cause social impacts. These include consequences to health and safety risks to children and socioeconomic impacts.

Socioeconomic impacts are typically related to relocation of businesses, residences or the alteration of established patterns of life (e.g. roadway changes, new facilities that divide a community, et cetera.) Access to the airport is from Oregon State Highway 126 is relatively easy and contains land available for development. The airport has some available land for development. The Airport is currently home to two maintenance/instruction businesses, a flight school, an experimental manufacturing operation (Samson Motors), and two federal agencies. Socioeconomic issues also include the potential for the airport to continue providing economic attraction to the community, including on-airport jobs, off-airport jobs that are supported by the airport, or some attraction that provides incentive to use the airport. The Airport provides positive economic benefit to the community through flight training, aircraft repair, and other services and activity.

Children's environmental health and safety risks are attributed to products or substances that the child is likely to touch or ingest. There are no child aggregators in the immediate vicinity of the Airport, due to its location on the eastern edge of the UGB and within an area zoned for campus industrial uses such as Facebook's server farm. A search of the area revealed no day care facilities, libraries, medical clinics or hospitals west of the Crooked River, which is located about 1.7 miles east of the Airport at its closest point. The closest park is the Ochoco State wayside approximately one mile northeast, and the Crooked River corridor lies east of the wayside. To the south adjacent to Highway 126 are the offices for the Central Oregon Adventure Park, but the public facilities lie east of the City of Prineville, near the Prineville Reservoir.

Environmental Justice addresses whether a proposed action places a disproportionate burden on a low-income or minority population. The census block groups including and surrounding the airport have zero population. The closest populated census block is over one mile east of the Airport with a minority population of 2.6 percent; poverty level data are not available.

When projects are identified in the future, specific impacts from construction and implementation of those projects will be evaluated further to determine what, if any, potential impacts to children, socioeconomic issues, or environmental justice concerns are present at that time.

HISTORIC PROPERTIES, CULTURAL RESOURCES (SECTION 106 RESOURCES)

The Airport was developed during World War II. The subject site has been disturbed during the construction of the initial airport as well as construction of private hangars and other structures. Based on conversations with airport staff, no formal archaeological monitoring of construction activities was performed for those projects. During excavation for these activities, no artifacts were reported.

A formal cultural resource assessment has not been prepared for the Airport. At the time of any proposed development action a cultural resources survey will need to be prepared, along with Section 106 consultation with applicable Native American tribes, local governments, and interested organizations and individuals will be initiated to discuss areas or properties of religious or cultural significance and potential effects or adverse impacts that may ensue from a specific proposed activity.

DEPARTMENT OF TRANSPORTATION ACT, RECREATIONAL LANDS (SECTION 4(F)) RESOURCES

The U.S. Department of Transportation Act of 1966, Section 4(f) requires that transportation projects consider impacts to publicly-owned parks and recreation lands, wildlife and waterfowl refuges and public or private historic sites during development. There are no recreational areas near the airport. The closest recreational facility is the Ochoco Waypoint State Park, an overlook on Oregon State Highway 126 on the decline into the City of Prineville.

The significance threshold for Section 4(f) land is that an action involves more than a minimal physical or constructive use of an identified resource such as publicly owned parks, recreation areas, wildlife and waterfowl refuges of significance, or historically significant land or structures. Projects will be evaluated on an individual basis once they are identified to determine whether the construction and/or usage impairs the usage of such sites or causes deleterious impacts to them.

WILD AND SCENIC RIVERS

The Crooked River is designated as a Wild and Scenic River. The reach so designated is approximately 10 miles from the airport, separated by rangeland. There are not any designated or candidate Wild and Scenic Rivers in the immediate vicinity of the airport.

FARMLAND PRESERVATION

Certain types of soils are considered prime farmland because of their drainage, mineral, and other characteristics. These soils, when in urbanized or developed areas, are not considered prime due to the compaction and other activities that degrade the potential for farm use. The Soil Survey of Crook County, Oregon identified seven soil types in the Airport area.

Table 2B. Airport Soils Database.

Map unit 026:	Buckbert ashy sandy loam, 0 to 3 percent slopes	Prime farmland if irrigated
Map unit 031:	Swartz silt loam, 0 to 3 percent slopes	Farmland of statewide importance
Map unit 037:	Meadowridge ashy sandy loam, 12 to 35 percent north slopes	Farmland of statewide importance
Map unit 104Am:	Redmond ashy sandy loam, 0 to 3 percent slopes	Prime farmland if irrigated
Map unit 122:	Era ashy sandy loam, 3 to 8 percent slopes	Prime farmland if irrigated
Map unit 143:	Stukmond-Lickskillet-Redmond complex, 0 to 8 percent slopes	Farmland of statewide importance
Map unit 144:	Redmond-Stukmond complex, 0 to 8 slopes	Farmland of statewide importance

Source: Natural Resources Conservation Services On-Line Mapper.

The Buckbert, Redmond, and Era series are considered prime farmland, with a capability level of 3s (irrigated). Within the airport property, compaction and alteration of the land for airport construction and operation may have altered the makeup and properties of the soil. Moreover, no irrigation is conducted on the airport property.

FAA Guidelines state that the Farmland Protection Policy Act (FPPA) is not applicable and no formal coordination with the Natural Resource Conservation Service (NRCS) is required if any of the following conditions apply:

- The land was purchased prior to August 6, 1984, for purposes of being converted.
- Acquisition does not directly or indirectly convert farmland (e.g., land acquired for clear zones or noise compatibility). Indirect conversion includes any use of land or operation of the facility which would prohibit the land from being farmed.
- The land is not prime farmland as defined in the FPPA.
- The land is not unique farmland.
- The soils are not considered prime farmland.
- The land has not been determined by a state or local government agency, with concurrence of the Secretary of Agriculture, to be of statewide or local importance.

Because the Airport is not presently considering acquisition of property outside of its current boundary, and the current property has been in airport ownership since 1942, FPPA is not applicable.

LIGHT AND GLARE

Prineville Airport accommodates both day and nighttime operations. Both runways are equipped with edge lighting and threshold lights, plus a visual guidance indicator on Runway 28. Lights are pilot-activated. Overhead lighting is present in the airport hangar area and other landside areas.

On-airport lighting is focused for visibility to aviators, without creating a disturbance or distraction. Current on-airport lighting is pilot-activated. Any additional facilities will need to consider the impact of light or glare, including the use of windows or roofing material, on aviation. While residences and other sensitive receptors are currently located some distance from the airport, any additional lighting or structures will need to be focused such that light or glare is not projected into the community.

NATURAL FACTORS

AIR QUALITY

The EPA has developed National Ambient Air Quality Standards (NAAQS) for seven pollutants, including two sizes of particulate material. The pollutants include carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), sulfur dioxide (SO_2), lead (Pb), and particulate matter (PM). Two size classes of particulate matter are monitored, PM_{10} and $PM_{2.5}$. Areas that have consistent violations of air quality standards are considered "non-attainment." Areas that have been in "non-attainment" but have improved conditions are considered "maintenance." The Prineville Airport is in an area that is currently in attainment for air quality.

An air quality study has not been completed for this document. DEQ's website shows real-time information for PM_{10} and $PM_{2.5}$, which fluctuate during the year based on regional land use activities such as agriculture and seasonal use of wood-burning stoves. Long-term historical information is not available.

Any proposed projects will need to consider the impact of particulate material and other pollutants on the local environment, including water quality and other resources. The Aairport does not currently generate a significant amount of surface traffic, and that is anticipated to continue in the future. There are no "air quality hot spots" for surface transportation facilities in the airport vicinity.

WATER QUALITY

The Airport site is on an upland terrace well away from the decline leading to the City of Prineville and the Crooked River. Runoff from impervious surfaces is collected into surface ditches on both sides of the runway where it infiltrates. On the landward side, runoff is collected in broad swales for infiltration.

The Airport is not covered by an NPDES permit. Construction and stormwater-related activities are governed by the City's Stormwater Pollution Reduction Plan (Stormwater Master Plan). The document was approved in April 2011.

PLANTS AND ANIMALS, INCLUDING ENDANGERED AND THREATENED SPECIES AND ESSENTIAL FISH HABITAT

According to the Oregon Natural Heritage Program, Columbia cress (*Rorippa columbiana*) occurred in the project area. However, the last observation was recorded in 1894. Two plants are

also listed as Species of Concern, the disappearing monkeyflower (*Mimulus evanescens*) and little mousetail (*Myosurus minimus* ssp. *apus*). Both of these species are associated with wetlands, none of which have been mapped on the subject property in the Local Wetland Inventory for the City of Prineville.

The U.S. Fish and Wildlife Service lists no threatened or endangered species in the Airport vicinity; the bald eagle (*Haliaeetus leucocephalus*) was previously listed, but was delisted from the Endangered Species Act in 2007.

Several Candidate species may inhabit the Airport vicinity, including a number of bat species and the pygmy rabbit (*Brachylagus idahoensis*). Bird species include the western burrowing owl (*Athene cunicularia hypogea*), ferruginous hawk (*Buteo regalis*), willow flycatcher (*Epidonax trailli adastus*), yellow-breasted chat (*Icteria virens*), Lewis' woodpecker (*Melanerpes lewis*), and mountain quail (*Oreortyx pictus*).

Bat habitat is limited on the airport grounds. Caves and other daytime refugia habitat are very limited. Areas of open water on the airport grounds are minimal due to transitory surface water conditions limiting insect production. Ferruginous hawk usage may occur, but habitat is lower than in surrounding areas due to maintenance efforts limiting habitat on site. During the site visit we saw minimal evidence of mammal usage. Willow flycatchers are in the southern border of Oregon and into Modoc County. Yellow-breasted chats and Lewis woodpeckers favor forested habitat for foraging and perching, which is not present on site.

Other Species of Concern include the northern sagebrush lizard (*Sceloporus graciosus graciosus*), the interior redband trout (*Onchorhynchus mykiss gibbsi*). The trout is unlikely to be affected by airport operations due to lack of proximity to the Crooked River. The northern sagebrush lizard may be present in the study area but habitat elements used by the lizard are not present in the study area, specifically trees used for escape and basking habitat such as logs and rock outcrops.

The Airport is located near the Crooked River. Historically, the Airport area has been used for grazing, and the native scrub vegetation communities appear to still be present outside the maintained areas of the Airport Operations Area. The maintained portions of the Airport Operations Area have similar vegetation but sparser and with much less shrub cover.

The airport manager reports a variety of vegetation observed on site. The general area provides habitat for an array of wildlife including raptors, rodents, songbirds, and ungulates. Species observed on site include raptors, rodents, deer and elk, and songbirds. The Airport grounds are unfenced, and deer, elk and coyote have been observed in the airfield.

Any development plans would require an updated review and site visit for presence and effect on these plant, terrestrial animals and fish.

The FAA wildlife strike database does not have any entries for Prineville. There does not appear to be any issue with wildlife or bird strikes.

The Prineville Airport property includes site conditions typical of an airport facility, in regards to the maintenance of the grounds and vegetation. Existing vegetation includes a mixture of invasive and native species, predominantly made-up of grasses. An extensive mowing schedule maintains all vegetation for airport safety and visibility as required by FAA regulations.

Any activity on the airport would need to consider impacts to these species under the Endangered Species Act, Migratory Bird Treaty Act as well as habitat impacts under the Magnuson-Stevens Act.

WETLANDS AND FLOODPLAINS

Based on the National and Local Wetland Inventories, the airport does not appear to have any wetlands documented on-site. Stormwater facilities appear to be working well, and there is no evidence of long-term standing or flowing water outside those facilities. At the time of any development action a formal wetland determination or delineation will need to be prepared to identify any changes in condition or regulatory status.

The entirety of the airport is shown on FIRM Map 41013C0400C as being outside of any designated flood areas.

ENERGY SUPPLY AND NATURAL RESOURCES

This category focuses on the impact of airport actions on energy and natural resources used in construction materials. In general, construction materials are not in short supply. Fuel for construction equipment is available nearby. The site has adequate electrical supply to provide power to navigation aids and security lighting on the airport.

SOLID WASTE

Typically, general aviation airports do not generate significant amounts of solid waste. Often materials include food and beverage containers, or packaging for aircraft maintenance products. Food containers may create a bird and rodent attractant. Offsite, a landfill is located approximately 0.75 mile from the airport, and sanitary sewage treatment facilities are present approximately two miles to the east. These sites should continue to be monitored for their potential to create bird-strike hazards for airport operations.

Plans for future activity at the airport should consider the manner in which waste is collected and removed.

HAZARDOUS MATERIALS

The airport has one commercial fueling site. There is potential for additional contamination anywhere maintenance or fueling takes place, as a result of accidental spills.

In addition to fueling, aircraft maintenance activities may also have contributed to spills. No detailed exploration of spill or contamination history has occurred on the airport. Any such areas where construction is proposed would need to undergo some level of due diligence, such as a "Phase One Environmental Site Assessment" to identify any history of possible contamination.

CONSTRUCTION IMPACTS

Construction impacts typically include temporary noise, dust or traffic impacts, as well as the potential for erosion and water quality impacts associated with material spills, associated with construction. Once construction activities are identified, construction timing, phasing and mitigation measures need to be considered.

CONTROVERSY

Controversy is typically associated with off-airport impacts. In the case of Prineville Airport, there appears to be minimal, if any, controversy surrounding the airport.

OTHER ISSUES

There do not appear to be any other environmental-related issues on or around the airport.

FINANCIAL INVENTORY

In order to gain a comprehensive understanding of the Airport, it is important to collect data related to the airport's operation, beyond physical and activity-related attributes. As part of the inventory collection effort, recent financial and business related data for the Prineville-Crook County Airport was collected. The data collected is summarized and presented below, and will be used later in the master plan as inputs to the capital improvement/financial plan.

AIRPORT MANAGEMENT

The Airport, which is contained inside the City urban growth boundary, is owned by the County but managed by the City. The City employs two full-time positions for airport management to

oversee the day-to-day operation of the facility, manage leases and plan for future development. Fuel staff are also full-time City positions. The City of Prineville is now in its fifth year of running the Prineville-Crook County Airport after taking over the management responsibilities from Crook County in September 2011. All indicators show that this has been a beneficial transition for both government entities.

AIRPORT OPERATING REVENUE AND EXPENSES

The Airport Operations Fund provides the accounting of the Airport. Funding sources include, aircraft fuel sales (Jet A and 100LL), hangar rents, and leasing agreements for private hangars on county owned land, and the United States Forest Service / Bureau of Land Management. City and County contributions supplement portions of operational costs. Large maintenance, engineering and improvement projects are largely funded through the Federal Aviation Administration (FAA) and other grant opportunities.

Table 2C presents the recent financial performance of the Airport Operations Fund as well as the FY2013-2014 budget. A breakdown and specific revenues and expenses are provided after the table.

Table 2C: Airport Operations Fund

Resources	Actual FY 2011-2012	Estimated FY2012-2013	Budget FY2013-2014
Beginning fund balance	$ -	$ 83,435	$ 46,235
Intergovernmental	$ 51,243	$ 285,000	$ 518,000
Charges for services	373,886	481,500	700,500
Interest	127	100	100
Transfers from other funds		25,000	25,000
Total current year resources	$ 425,256	$ 791,600	$ 1,243,600
Total resources	$ 425,256	$ 875,035	$ 1,289,835
Expenses			
Personnel services	$ 36,622	$ 77,500	$ 79,600
Materials and services	278,078	415,500	591,000
Capital outlay/improvements	27,121	285,000	501,500
Transfers		50,800	82,100
Contingency			35,635
Total expenditures	$ 341,821	$ 828,800	$ 1,289,835
Ending working capital	$ 83,435	$ 46,235	$ -

Source: City of Prineville, Airport records

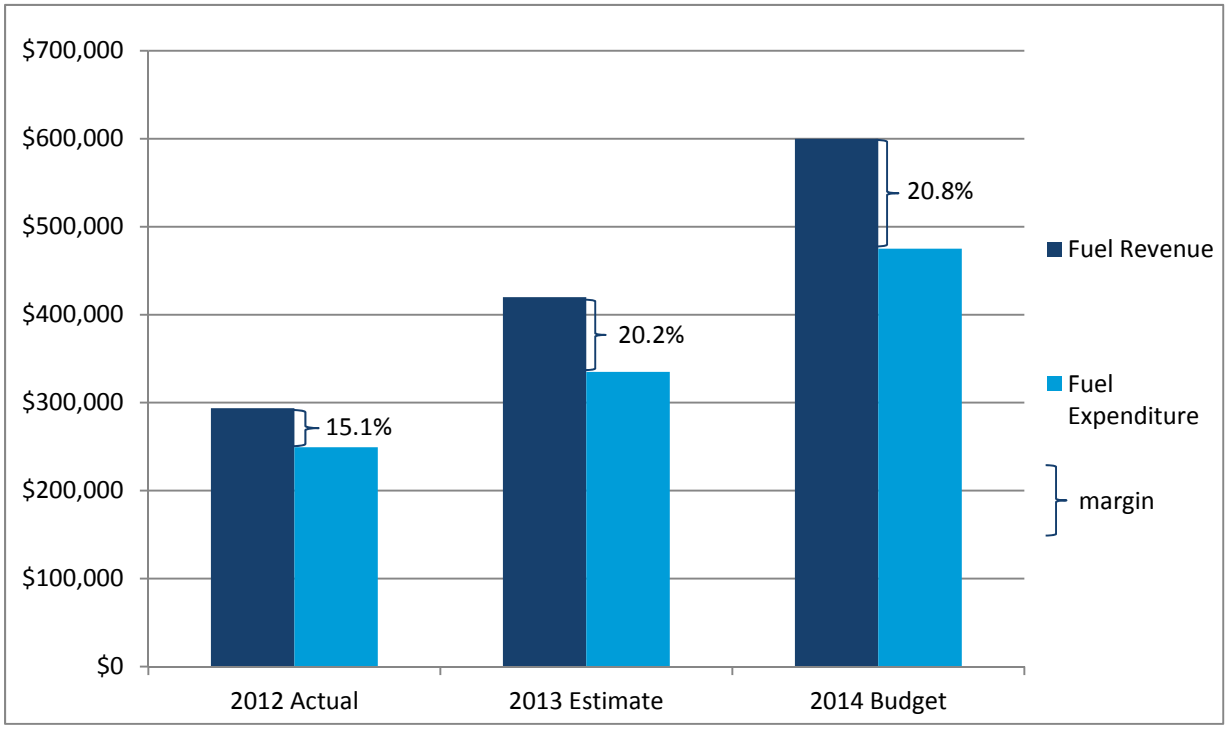
Some of the primary revenues are collected from the following resources:

- Intergovernmental – Funds from the City of Prineville, Crook County, State of Oregon or FAA. These funds are typically used to contribute to the cost of eligible capital improvement projects. The majority of these funds come from the FAA. For example, in FY2014, it is expected that intergovernmental revenues will include, but not be limited to, approximately $25,000 from Crook County; $25,000 from the City of Prineville; and FAA grant funds for airport improvements of approximately $233,000 for an automated weather observation system (AWOS) system and $180,000 for the development of this airport master plan.
- Charges for Services – Fees collected from fuel sales, services, leases, and hangar/tiedown rents. Most money collected in this category is from fuel sales. Of the $700,000 in revenue expected in this category during FY2014, $600,000 (85 percent) will likely come from the sale of fuel.

Below is a list of the primary expenses at the Airport:

- Personnel Services – The salary and benefits for staff employed directly by the Airport. It is expected that only one full-time employee will be needed to manage the Airport in the foreseeable future. Part-time employees may be added as demand dictates.
- Materials and Services – The cost of goods sold. This is largely attributable to the cost of fuel purchased for resale. In FY2014, $475,000 of the estimated $591,000 (80 percent) spent in this category will be attributed to the cost of fuel to be sold to based and itinerant aircraft. Using the historical financial data provided, it is possible to measure and compare the margin earned for each gallon of fuel sold. In FY2012, the Airport earned $0.580 for every gallon of fuel sold, a margin of 15.1 percent. This is based on revenue figures beginning on September 20, 2011; after the City of Prineville had taken over management of the Airport. In FY2013, the Airport earned $0.835 for every gallon of fuel sold, a margin of 20.2 percent. The cost of fuel fluctuates regularly, changing the price it is sold at as well as the margin earned. The Airport estimates that it will earn a 20.8 percent margin on fuel sold in FY2014.

Exhibit 2J: Fuel Sales Revenue/Expenditure



Source: City of Prineville, Airport records

An analysis and long term projection of future operating revenues and expenses in the Airport Operations Fund is provided in the Capital Improvement/Financial Plan chapter presented later in this master plan.

LEASES AND PERMITS

Another important aspect of the financial condition of an airport is related to the leases and permits it maintains with tenants. Income from agreements with based aircraft owners and airport businesses account for a large portion of annual revenue and make up the bulk of activity at the Airport. In FY2014, the Airport expects over $80,000 in lease, rent and tiedown revenue. Beyond this, airport tenants spend additional funds for fuel, services and other charges that make the Airport function and draw additional business.

The Airport maintains over 40 leases, permits and agreements for tenants, users and businesses. In order for the Airport to operate within the requirements established through FAA grant assurances, agreements made with tenants must promote safety, efficiency, and fairness. Additionally, in order for the Airport to operate successfully and promote self-sufficiency, agreements should follow practical airport business methods and offer the city remuneration of expenses and a reasonable profit.

As part of this inventory, a review of existing leases revealed that most contain the following:

- Property description – Acreage or square footage along with a reference to where the property is located (commonly included as an attachment)
- Term – 30 years with an option to extend for an additional 10 years
- Reference to projects/improvement – Required for the use and/or storage of aircraft only
- Requirements for improvements – Commission approval and time limits to complete
- Utility hookup – Fee and responsibility
- Rent – Rate per square foot or acre and annual rent payment amount, annual escalation
- Use – Limits the use of the property and requires personal use (unless authorized as a business)
- Liens and Taxes – Responsibility of tenant
- Insurance – Requirements based on type of activity
- Repairs and maintenance – Requires the property to be in good repair, neat and clean
- Inspection and access – Gives airport management right to inspect and access property
- Indemnity – Removes liability of airport from actions on leased property
- Assignment and subletting – Requires airport approval
- Default – Actions taken in the event of default on lease terms
- Surrender – Removal of improvements and conditions of lease termination
- Miscellaneous – Requirements that do not fall within other sections and any other specific requirements established through tenant negotiations

A detailed description of common industry practices found in airport lease agreements is provided in the Implementation chapter. Special areas of note include recommended language on through-the-fence operations, reversion and other current airport lease topics. This information can be used to supplement or augment future lease agreements. There are currently no through-the-fence operations at the airport.

ECONOMIC IMPACT

Understanding the economic contribution an airport makes to the state is an important aspect when considering future development. Improvements to an airport will bring additional jobs, wages and business sales to a region. Therefore, as a starting point to gain an understanding of Prineville-Crook County Airport's current, on-going contribution to the regional and Oregon economy, the draft 2014 Economic Impact for Prineville-Crook County Airport was reviewed. **Table 2D** provides an overview of the results for Prineville-Crook County Airport as documented in the 2014 Economic Impact Study.

Table 2D: Prineville Crook County Airport/Oregon – Aviation-related Impacts

	Jobs		Wages		Business Sales	
	Local	State	Local	State	Local	State
Prineville Crook County Airport	47	54	$1,079,000	$1,181,000	$5,745,000	$6,577,000
Oregon	24,440		$869,290,000		$3,244,248,000	

Source: Draft 2014 ODA Aviation Economic Impact Study

Additional discussion and further analysis related to the existing and future impact Prineville-Crook County Airport has on the Oregon economy is provided in the Capital Improvement/Financial Plan.

Chapter Three FORECASTS

Prineville Crook County Airport Master Plan Update

A key element of any master plan is the development of aviation demand forecasts for the planning period. The identification of the projected demand for the 20-year planning period allows an airport to plan its facilities to accommodate the projected demand in a timely manner and with adequate level of service.

The forecast process consists of a series of basic steps that can vary depending upon the issues to be addressed and the level of effort required to develop the forecast. The steps include a review of previous forecasts, determination of data needs, identification of data sources, collection of data, selection of forecast methods, preparation of the forecasts, and evaluation and documentation of the results.

At uncontrolled airports, such as the case with Prineville Airport (Airport), the determination of the existing level of activity is an important first step in any forecasting effort. This determination is made after consultation and interviews with the Airport, its users and tenants. Documents such as the FAA Terminal Area Forecasts (TAF); FAA Advisory Circular 150/5070-6B, Airport Master Plans; FAA Form 5010-1, Airport Master Record; Airport Cooperative Research Program (ACRP) Report: Counting Aircraft Operations at Non-Towered Airports; ACRP Report: Airport Aviation

Activity Forecasting; and the Oregon Aviation Plan were used for information and guidance throughout the forecast development process.

Once the current level of activity is determined and documented, various forecasts are developed based on one or more of the following: national, state and regional aviation and aircraft ownership trends; State and local population trends and forecasts; socioeconomic trends; and existing and potential local airport business plans for expansion at the Airport. Next, a preferred forecast is selected, which may represent a combination of more than one of the developed forecasts.

The forecasts developed in this chapter include the following, as described.

- **Based Aircraft Forecasts:** The number and type of aircraft based at the Airport is the determining factor for future aircraft hangar, apron, and auto parking facility requirements.
- **Aircraft Operations:** An operation is defined as either an aircraft landing or taking off (i.e., an aircraft landing then taking off counts as two operations). Forecasts will be developed for commercial (air taxi), general aviation, and military aircraft operations. These forecasts provide the needed input for the runway capacity analysis and determine the runway, taxiway, and navigational aid requirements.
- **Itinerant vs. Local Operations:** The forecast operations would be further broken down into itinerant and local operations. This is important in order to determine apron versus hangar space needs, fuel capacity requirements and others.
- **Critical Aircraft and Airport Reference Code:** The critical, or design, aircraft is derived from the operational fleet mix (aircraft types). The critical aircraft and its airport reference code determine many airfield design requirements, such as runway and taxiway size and strength, and safety clearances around aircraft movement areas.

The FAA is responsible for reviewing aviation forecasts that are submitted to the agency in conjunction with airport planning. The FAA reviews such forecasts with the objective of including them in its Terminal Area Forecasts (TAF) and the National Plan of Integrated Airport Systems (NPIAS). According to FAA Order 5090.3C, forecasts must be realistic, based on the latest available data, reflect the current conditions at the airport, be supported by information in the study and provide adequate justification for airport planning and development. The official forecast approval letter from the FAA was received on May 13, 2014 for the aviation forecasts presented below.

There are many unforeseen factors that can influence forecasts, both positively and negatively, as time progresses. Although forecasting, by its very nature, is not exact, it does, when soundly established, provide the general parameters for development and a defined rationale for various development activities as demand increases. It is recommended that forecasts and the projects

that they justify be revisited periodically. Prineville Airport forecasts were prepared for the following timeframes:

- Near-term (2018)
- Mid-term (2023)
- Long-term (2033)

DATA SOURCES

Several data sources and forecasting guidance used and referenced throughout this chapter are described here.

FAA TERMINAL AREA FORECASTS

The Terminal Area Forecast (TAF) is the official FAA forecast of aviation activity for U.S. airports. It contains active airports in the National Plan of Integrated Airport Systems (NPIAS) including FAA towered airports, Federal contract towered airports, nonfederal towered airports, and non-towered airports. Forecasts are prepared for major users of the National Airspace System including air carrier, air taxi/commuter, general aviation, and military. The forecasts are prepared to meet the budget and planning needs of FAA and provide information for use by state and local authorities, the aviation industry, and the public.

FAA ADVISORY CIRCULAR (AC) 150/5070-6B, AIRPORT MASTER PLANS

AC 150/5070-6B, Airport Master Plans, provides guidance for the preparation of airport master plans that range in size and function from small general aviation to large commercial service facilities. This AC contains the key guidance that explains the steps required for the development of a master plan, including the preparation of aviation activity forecasts and what elements should be forecast.

AIRPORT COOPERATIVE RESEARCH PROGRAM REPORT (ACRP): COUNTING AIRCRAFT OPERATIONS AT NON-TOWERED AIRPORTS

Prepared for the Airport Cooperative Research Program, a research branch of the Transportation Research Board of the National Academies, this 2007 report provides methodologies used across the country to estimate operations at airports without an air traffic control tower such as Prineville Airport.

ACRP REPORT: AIRPORT AVIATION ACTIVITY FORECASTING

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

FORECASTING AVIATION ACTIVITY BY AIRPORT

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

FAA AEROSPACE FORECASTS, FISCAL YEARS 2014-2034

The FAA annually prepares this document to explain the current economic and aviation outlook, as well as macro level forecasts of aviation activity and the U.S. aircraft fleet. The Fiscal years 2014-2034 report was released in March of 2014.

GENERAL AVIATION STATISTICAL DATABOOK & INDUSTRY OUTLOOK

The General Aviation Manufacturers Association (GAMA) publishes this document on an annual basis. The document contains the association's industry outlook for the coming year as well as data on the GA fleet and flight activity, the U.S. pilot population, airports, safety, international data and even forecast information. The report also contains the year-end shipment and billings figures for general aviation divided into four different segments: business jets, turboprops and piston engine airplanes as well as helicopters.

FEDERAL AND STATE DATA SOURCES

Historical and forecast socioeconomic data for the State of Oregon, Crook County and Prineville was obtained from several sources including the U.S Census Bureau, the Bureau of Business & Economic Research, the U.S. Bureau of Labor Statistics and Portland State University.

LOCAL DATA SOURCES

Other sources of data, such as city and county comprehensive plans and economic development information was obtained and researched to understand local economic issues. These data sources include the *Economic Development Action Plan for Crook County/Prineville Economic Summit*, *Prineville Transportation System Plan (2005), City of Prineville Comprehensive Plan (2007)* and the *Prineville Area Profile (2010 – 2013)* developed by Prineville/Crook County Economic Development.

CURRENT TRENDS AFFECTING AVIATION

Research has shown that national, state, and local general aviation trends as well as national, state, regional, and local socioeconomic conditions influence the aviation activity at any particular general aviation airport. This section aims at assessing these current trends and their possible influence on activity at Prineville Airport.

NATIONAL AVIATION TRENDS

Prineville Airport is part of, and serves a role in both the National Plan of Integrated Airports System (NPIAS) and the Oregon State Aviation System Plan. This means that the Airport is directly affected by trends that affect these larger systems. As a General Aviation (GA) Airport, Prineville Airport is mostly affected by trends in the GA segment of the industry. General aviation (GA) refers to a wide range of flight activity and, by general definition, is all flight activity excluding commercial airline and military activity.

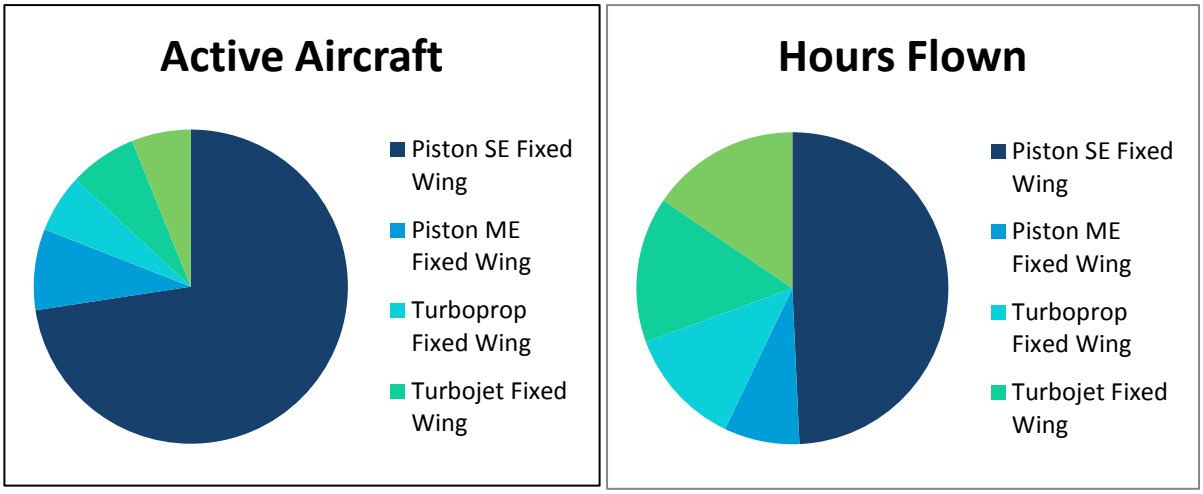
GA aircraft types are widely varied, although the majority of general aviation aircraft are piston-powered, fixed-wing airplanes. The FAA tracks the national GA aircraft fleet mix and the number of hours flown by aircraft type — common indicators of change in the GA industry. **Table 3A** shows the nationwide distribution of general aviation aircraft by type and hours flown. **Exhibit 3A** illustrates the disproportionate relationship between active aircraft types and the number of hours flown by these aircraft types; single engine (SE) piston airplanes represent nearly 73% of the active fleet but fly less than 50% of the total hours flown while higher performance, more expensive aircraft represent a smaller portion of the fleet and a much bigger portion of the total number of hours flown.

Table 3A. U.S. GA and Air Taxi Active Fleet and Hours Flown

Aircraft Type	Active Aircraft	% Fleet	Hours Flown	% Hours Flown	Hours per Aircraft
Piston SE Fixed Wing	123,730	72.6%	11,050,000	49.3%	89.3
Piston ME Fixed Wing	14,235	8.4%	1,756,000	7.8%	123.4
Turboprop Fixed Wing	10,195	6.0%	2,759,000	12.3%	270.6
Turbojet Fixed Wing	11,890	7.0%	3,387,000	15.1%	284.9
Rotorcraft	10,385	6.1%	3,473,000	15.5%	334.4
Total	170,435	100.0%	22,425,000	100.0%	131.6
Experimental	25,305	78.0%	1,191,000	76.7%	47.1
Sport Aircraft	2,110	6.5%	180,000	11.6%	85.3
Other	5,015	15.5%	181,000	11.7%	36.1
Total	32,430	100.0%	1,552,000	100.0%	47.9

Source: FAA Aerospace Forecast 2014-2034, (published Mar2014); figures are 2013 estimates.

Exhibit 3A. U.S. GA and Air Taxi Active Fleet and Hours Flown



Source: FAA Aerospace Forecast 2014-2034, (published Mar2014); figures are 2013 estimates.

While the higher performance, more expensive aircraft are more commonly used for business than personal use, GA aircraft for business use still spans a broad range from small, single- engine aircraft rentals to multiple aircraft corporate fleets supported by dedicated flight crews and mechanics.

The business aviation segment of GA grew rapidly in the 1990s and into the first part of the 21st century. After September 11, 2001, business aviation grew further due to airline service problems — the additional airline passenger and baggage security imposed and reductions in air service, particularly to smaller communities. Various chartering, leasing, timesharing, fractional ownership, interchange agreements, partnerships and management contracts emerged, which supported the rapid growth of business aviation until the economic recession set in.

The economic recession officially began in late 2007, and consequently, GA activity saw declines in 2008 and 2009. Soaring fuel prices in mid-2008 only reinforced the decline. The recession affected all aspects of GA such as recreational activity, flight training, aircraft production, number of pilots and the hours aircraft were flown.

Post-recession recovery of GA traffic has been slow — evident by the continuing decline and subsequent flat to slow growth in the industry. The General Aviation Manufacturers Association (GAMA) reported that in 2012 worldwide shipments for general aviation airplanes increased for a second year in a row following a three-year decline.

In 2013, cautious optimism is returning as total airplane shipments rose 4.3% over 2012 figures, and 6.4% over 2011 shipments. Additionally, general aviation billings for 2013 are up 24.0% from 2012. **Table 3B** summarizes the changes between 2012 and 2013.

Despite the slow sales of business jets shown, Honeywell's Business Aviation Outlook forecast an average annual growth rate of three to four percent for the ten-year period between 2012 and 2022. After surveying more than 1,500 flight departments around the world, Honeywell indicated that 30% of operators have plans to purchase a new business jet as a replacement aircraft or new addition within the next five years.

Table 3B. Airplane Shipments – Manufactured Worldwide

	2012	2013	Percent of Change
Total Piston Airplanes	**908**	**933**	**2.7%**
Total Turboprop Airplanes	**584**	**645**	**10.4%**
Business Jets	**672**	**678**	**0.9%**
Total Airplane Shipments	**2,164**	**2,256**	**4.3%**
Total Airplane Billings	**$ 18.9 billion**	**$ 23.4 billion**	**24.0%**

Source: GAMA

GA flying is expected to show signs of gradual recovery—the most recent activity indicators are showing flat or modest growth. While GA operations at air traffic control towers showed a declining trend during the recession, GA operations for 2012 increased by 0.6%. The FAA estimates that the active general aviation aircraft fleet decreased by 1.2% in 2011, and then remained unchanged in 2012. General aviation flight hours also saw an estimated decrease in 2011 and then flat growth in 2012. A long-term declining trend in the number of student pilots reversed in 2010, with a 64.8% increase, which was largely due to the FAA's issuance of a rule increasing the duration of certificates for student pilots under age 40. Two years later, 2012 figures reveal that student pilots increased 1.1% over 2011.

In March 2014, the FAA published its updated forecasts in FAA Aerospace Forecasts Fiscal Years 2014-2034. The FAA suggests that the timing and strength of a recovery in aviation demand remains highly uncertain as the operational environment continues to evolve, but that the long-term outlook remains favorable. Business aviation is predicted to show stronger growth than the personal and recreational aviation segments as businesses consider factors such as possible commercial airline flight delays, and safety and security issues. The number of active general aviation and air taxi aircraft is projected to grow 0.5% annually over the next two decades. Annual growth rates vary by type of aircraft and the FAA projects that the more expensive and sophisticated turbine-powered fleet (including helicopters) will grow at an average of 2.8% annually over the next two decades; of that fleet, the turbine jets will see the strongest growth of 3% annually. In contrast, the piston-powered aircraft fleet is projected to decrease at 0.4% annually. The FAA cautions its forecasts depend on many unknown factors. Some of these factors include the national and world economies, U.S. unemployment, price of oil, and national fiscal issues. As the active aircraft fleet grows, the number of general aviation hours flown is projected

to increase at 1.4% per year, which is a more conservative growth rate than the 2.2% that the FAA projected just a couple of years ago. FAA annual growth rate projections vary for hours flown, from a declining rate of -0.6% for piston fixed wing aircraft, to a high growth of 4.2% for jet aircraft.

Promising technological developments such as NextGen, coupled with the economic recovery are expected to slow past declines and support positive growth trends. NextGen—short for Next Generation, is a national initiative that is anticipated to modernize aviation. NextGen is already being implemented by airlines and at large commercial service airports. NextGen is transitioning our air traffic management from a ground-based system to a satellite-based system—Global Positioning System (GPS). The basic benefits of NextGen are increased airspace capacity (reduced congestion), enhanced safety and economic benefits. The economic benefit could make doing business in GA airport communities more attractive as it will handle a wide range of aircraft types and eliminate the need for costly instrument landing equipment. The Wide Area Augmentation System (WAAS) available for the last decade augments GPS to provide more precise navigational guidance.

STATE AND LOCAL AVIATION TRENDS

The primary source for discussion of state and local aviation trends is the Oregon Aviation Plan (OAP) completed in 2007, the FAA Terminal Area Forecast (TAF), and local aviation activity information and data.

As of 2012, there were 97 public use and over 360 private use airports in the State of Oregon.[1] Of these, 96 airports were included in the state airport system in 2007. The airports in the system had an estimated 4,875 based aircraft in 2005. For comparison, the aircraft registry shows 7,853 aircraft registered in the State of Oregon as of December 2013, 81 of which are registered in Crook County. However, the number of aircraft registered can often differ from based aircraft counts, particularly if many of the aircraft are inactive, stored at private airfields, or spend the majority of time at airports outside the state.

OAP 2007 projected that based aircraft in the state would grow 1.23% yearly to 6,225 by 2030. For the same timeframe, GA operations are projected to grow from 1.62 million (2005) to 2.22 million total operations—an estimated 1.58% yearly, which is slightly above the based aircraft growth rate.

[1] Oregon Department of Aviation Annual Report, July 1, 2011 through June 30, 2012

OAP 2007 reports that Prineville Airport had a total of 94 based aircraft and 10,239 operations in 2005. The State plan forecasts that the number of based aircraft will experience a compound annual growth rate (CAGR) of 1.27 % reaching 121 based aircraft in 2025 and that the number of operations will experience a CAGR of 2.09% reaching 15,481 operations in 2025.

In recognizing the importance of accurate based aircraft counts at each airport, the Federal Aviation Administration (FAA) has tasked GCR & Associates, Inc. (GCR) with the responsibility of collecting based aircraft details as part of a National Based Aircraft Inventory Program. A website (located at www.BasedAircraft.com) has been established to allow airport managers direct on-line entry of their based aircraft which are then validated by the system. The Prineville Airport Manager has collected based aircraft information and entered it into the system. As of March 2014, the system shows that Prineville Airport has 124 based aircraft including 114 single engine, 5 multi-engine, 2 jet, 1 helicopter and 2 ultra-light aircraft.

SOCIOECONOMIC TRENDS

An understanding of the socioeconomic trends and factors in Prineville, Central Oregon, the State of Oregon and nationally is important to forecasting aviation demand. The importance of local trends might have the greater effect on aviation forecasts – an effect that diminishes gradually as we move to State and then National trends – but the local socioeconomic trends are often directly influenced by the trends at higher levels (State and Federal).

Air transportation use and aircraft ownership are often sensitive to changes in area population and economy. Higher income often relates to higher levels of aircraft ownership, pilots per capita, and aircraft use. Further, higher income may translate to increased use of air transportation for business and more discretionary income for personal aviation use. Likewise, demand for aviation is sensitive to unemployment trends, which saw a significant increase and subsequent slow recovery in recent years. Finally, economic development plans in the community and region may generate increased demand for air transportation.

POPULATION

According to the census bureau 2010 count, Prineville had a population of 9,253 in July of 2010 which represented a 44.11% of the population of Crook County (20,729) and a 0.24% of the population of Oregon (3,831,073). The census bureau estimates that the population of Prineville has declined by 0.86% between July 2010 and July 2012. The bureau's estimates show a 1.19% decline in Crook County's population for the same period and a 1.78% increase in the population of the State of Oregon.

The Oregon Office of Economic Analysis, Long term Oregon State's County Population Forecast 2010-2050, released in 2013, shows that the population of Crook County is expected to reach 28,496 by 2050, with the population of the State increasing to 5,588,500 for the same period.

Table 3C illustrates the historical State, County and Town population as documented by the census bureau as well as the projections for population growth provided by the Oregon Office of Economic Analysis.

Table 3C. Historical and Projected Population (State, County and Town)

Year	Oregon	Crook County	Prineville
1990	2,842,321	14,111	5,617
2000	3,421,399	19,182	7,356
2010	3,831,073	20,978	9,253
2012	3,899,353	20,729	9,174
2020	4,252,100	21,933	
2030	4,768,000	23,821	
2040	5,203,000	26,117	
2050	5,588,500	28,496	

Source: U.S Census Bureau and Bureau of Business & Economic Research

EMPLOYMENT

According to the Prineville/Crook County Economic Development 2013 Prineville Area Profile, the average firm in Crook County employs eight individuals. This highlights the importance of small businesses to the County's economy even with the presence of large employers such as Les Schwab which employed 403 individuals in 2013.

The report also explains that outside of traditional top public employers such as the City, County, and school district, "the most significant industry clusters in the county are:

- **Wood products** (Contact Industries, Woodgrain Millwork, Pioneer Cut Stock, Dayspring Hardwood & Moulding, Woodward Companies, and Consolidated Pine)
- **Data centers** (Facebook and Apple)
- **Warehouse and Transportation** (Les Schwab Distribution)
- **Trucking** (Western Heavy Haul & SMAF, Stinger Transport, and Severance Trucking)
- **Healthcare** (Pioneer Memorial Hospital and Ochoco Village Assisted Living), and
- **Regional government service centers** for Central and Eastern Oregon (Ochoco National Forest and Bureau of Land Management). "

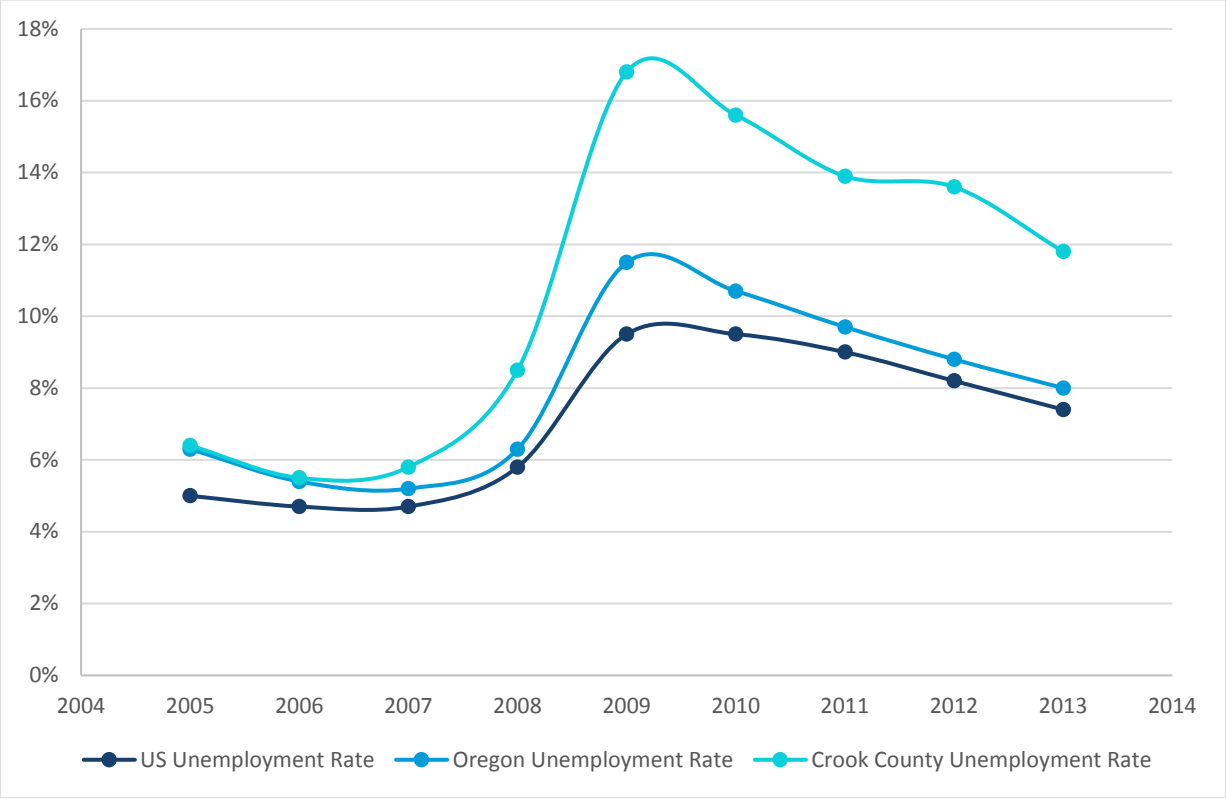
Unemployment rates for the United States, the State of Oregon, and Crook County were obtained from the U.S Bureau of Labor Statistics and are illustrated in **Table 3D** and **Exhibit 3B**. The data indicates that in the period from 2007 to 2013, the unemployment rate in Crook County has been considerably higher than the national and state unemployment rates.

Table 3D. Unemployment Rates (National, State and County)

Year	U.S	Oregon	Crook County
2005	5.0%	6.3%	6.4%
2006	4.7%	5.4%	5.5%
2007	4.7%	5.2%	5.8%
2008	5.8%	6.3%	8.5%
2009	9.5%	11.5%	16.8%
2010	9.5%	10.7%	15.6%
2011	9.0%	9.7%	13.9%
2012	8.2%	8.8%	13.6%
2013	7.4%	8.0%	11.8%

Source: U.S Bureau of Labor Statistics

Exhibit 3B. Unemployment Rates (National, State and County)



Source: U.S. Bureau of Labor Statistics

PER CAPITA PERSONAL INCOME (PCPI)

The PCPI for Oregon and Crook County were obtained from the U.S. Department of Commerce, Bureau of Economic Analysis. The Oregon Regional Economic Analysis Project (OR-REAP), using the U.S. Department of Commerce data, performed PCPI analyses that are summarized in **Table 3E**. As shown, Crook County has been trailing the State and U.S. average PCPI, but 2012 figures show Crook County gaining on these state and national averages when compared to 2006 figures.

Table 3E. Per Capita Personal Income, Crook County and Oregon, 2005-2012

Year	Crook County				Oregon		
	Current Dollars (1000s)	Constant Dollars (1000s)	Percent of Statewide Average	Percent of U.S. Average	Current Dollars (1000s)	Constant Dollars (1000s)	Percent of U.S. Average
2006	26,723	28,211	77.14	70.09	34,644	36,572	90.86
2007	27,517	28,339	76.87	69.13	35,796	36,865	89.93
2008	28,270	28,252	76.88	69.17	36,772	36,748	89.96
2009	28,086	28,086	78.85	71.36	35,621	35,621	90.51
2010	28,544	28,079	79.58	71.07	35,869	35,285	89.31
2011	30,193	29,008	79.99	71.38	37,744	36,262	89.23
2012	32,164	30,341	82.12	73.54	39,166	36,946	89.55

Source: Oregon Regional Economic Analysis Project (OR-REAP), using U.S. Department of Commerce data

REVIEW OF HISTORICAL AND EXISTING FORECASTS

PREVIOUS AIRPORT LAYOUT PLAN REPORT FORECAST (2003)

The 2003 Airport Layout Plan Report provided forecasts of based aircraft and operations through the year 2022. These forecasts appear to have tracked reasonably well until the last few years when a surge in based aircraft and operations occurred. **Table 3F** provides a summary of the preferred forecasts adopted by the 2003 Airport Layout Plan Report. The Airport has experienced many changes since 2005, including a change in management from the airport commission to the City of Prineville and the relocation of new businesses to the Airport. These forecasts are provided to document historical trends at the Airport.

Table 3F. 2003 ALP Report Forecasts

Year	Based Aircraft	Operations
2001 (base year)	120	8,892
2005	125	10,250
2010	130	11,960
2015	135	14,175
2022	145	17,980

Source: 2003 Prineville Airport ALP Update

OREGON AVIATION PLAN (OAP)

OAP 2007 contains aviation forecasts on the State as well as individual airport level. Projections of short-, intermediate-, and long-term activity at the Airports are based on 5-, 10-, and 20-year milestones, using 2005 as the base year of analysis. **Table 3G** illustrates the forecasts developed for Prineville Airport as part of the OAP plan.

Table 3G. OAP Forecasts for Prineville Airport

Year	Based Aircraft	Operations
2005 (base year)	94	10,239
2010	103	11,880
2015	109	12,976
2025	121	15,481

Source: OAP 2007

FAA TERMINAL AREA FORECAST (TAF)

The FAA prepares a TAF for each airport in the NPIAS annually. It identifies all airports in the United States that are considered significant to the national aviation infrastructure network. The latest TAF for Prineville was published in 2013, and is presented in **Table 3H**.

Table 3H. TAF Historical and Forecasts

Year	Based Aircraft	Operations
2012 (base year)	75	10,400
2015	78	11,044
2020	82	12,119
2025	84	13,193
2030	89	14,327
2040	99	16,875

Source: FAA Terminal Forecasts (2013)

BASED AIRCRAFT FORECASTS

BASED AIRCRAFT COUNT

The FAA Terminal Area Forecast (TAF) maintains records of the numbers and types of aircraft based at the Airport, **Table 3I**. The TAF shows that for the last reported year, 2011, the Prineville Airport had 74 based aircraft. The 74 aircraft included 67 single engine aircraft, 2 jets, for multi-engines and 4 helicopters.

The FAA Airport Master Record (Form 5010) shows a total of 65 based aircraft (excluding ultra-lights) including 59 single engine aircraft, 4 multi-engines, 2 jets, and 1 helicopter. Form 5010 also shows that an additional 11 ultra-light aircraft are based on the Airport.

Table 3I. Historical Based Aircraft at Prineville Airport

Year	Single Engine	Jet	Multi-Engine	Helicopters	Other	Total
2000	34	2	2	1	5	44
2001	34	2	2	1	5	44
2002	52	2	4	5	11	74
2003	53	2	4	5	11	75
2004	75	2	1	5	11	94
2005	75	2	1	5	11	94
2006	80	2	3	5	11	101
2007	80	2	3	5	11	101
2008	67	2	4	1	11	85
2009	67	2	4	1	11	85
2010	67	2	4	1	0	74
2011	67	2	4	1	0	74

Source: FAA Terminal Area Forecasts

As noted earlier, the FAA established a website to allow airport manager's direct on-line entry of their based aircraft details via a secured internet based application. The entries, which include the N-numbers of the based aircraft, are then checked and verified against the FAA database. The website employs various checks and balances such as ensuring that no aircraft is listed as based at more than one airport. Through this website, the Prineville Airport manager has reported and verified a total of 124 based aircraft including 114 single engines, five multi-engines, two jets, one helicopter and two ultra-lights.

BASED AIRCRAFT FORECASTS

The number of aircraft owners projected to use Prineville Airport as their base is an important consideration when planning facilities. The based aircraft forecast will directly influence the type and number of aircraft storage facilities and apron tiedowns needed. Projections of based aircraft also provide one indication of the anticipated growth in flight activity expected to occur at the Airport.

This section describes the various forecasts and forecasting methodologies that were developed to project the number of based aircraft at Prineville Airport throughout the planning period.

STATE SYSTEM PRINEVILLE (S39) GROWTH RATE

The Oregon Aviation Plan (OAP) 2007 projected based aircraft to grow at a compound annual growth rate (CAGR) of 1.27% for Prineville Airport. OAP 2007 used a 2005 based aircraft count of 94 to forecast that the Airport will have a total of 121 based aircraft by 2025. Applying the 1.27% CAGR to the current count of 124 based aircraft, results in a forecast of 160 based aircraft for year 2033.

PRINEVILLE AIRPORT LAYOUT PLAN REPORT (2003)

The Airport Layout Plan Report 2003 prepared for Prineville included forecasts of based aircraft through 2022. Starting with a 2001 based aircraft count of 74, the Plan forecast that the number of based aircraft would grow to 124 by 2022. This represents a CAGR of 2.49%. Applying the 2.49% CAGR to the current based aircraft count of 124 results in a forecast of 203 based aircraft for 2033.

STATE SYSTEM PLAN MARKET SHARE

The latest airport system plan projected statewide based aircraft to grow at an average annual rate of 1.49%. This model assumes that Prineville Airport will maintain its current share of the state based aircraft count over the 20-year planning period so the 1.49% growth rate is applied producing a forecast of 167 based aircraft for the 20-year planning period.

TERMINAL AREA FORECAST (TAF)

The FAA's most recent forecast for Prineville Airport, published in March 2013 used the 2011 based aircraft figure of 74 as the baseline and projected that the number of aircraft will grow to 89 over the next 20 years, a CAGR of 0.93%. Adjusted to the current 124 based aircraft, the forecast for this TAF model indicates the Airport will have 150 based aircraft by 2033.

US GROWTH FOR GA AIRCRAFT

This forecast model assumes that the number of based aircraft at the Airport will grow at 0.5% per year, which is the growth rate the FAA forecast for GA aircraft, nationwide, in March 2014. While much lower than the 2003 Airport Layout Plan Update and the State System Plan forecast, this model projects that an additional 13 aircraft will be based at the Airport by 2033, for a total of 137 aircraft.

POPULATION GROWTH RATE (PREFFERED FORECAST)

The preferred forecast follows the Crook County population growth rate estimate of 0.77%, which is below the Oregon state airport system anticipated growth rate of 1.27% and the previous airport layout plan projected growth rate of 2.49%, but both of these planning documents were prepared prior to the economic recession. Considering the FAA and aviation industry projections published more recently are more conservative than projections a couple of years ago, a growth rate below one percent is well-aligned with trends and industry expectations.

This preferred forecast model results in a based aircraft total of 145 by 2033, which is an increase of 21 aircraft over 2014.

BASED AIRCRAFT FLEET MIX

The current based aircraft at Prineville Airport is 92.0 percent single-engine. Throughout the planning period, the mix of aircraft is expected to remain predominantly single-engine. In addition to the traditional single-engine aircraft, it is expected that the number of based jet aircraft will increase not only due to their nationwide increasing trend but also because of the presence of large companies such as Facebook and Apple. **Table 3J** lists the fleet mix projected for the based aircraft in the next 5-, 10-, and 20-year timeframes.

Table 3J. Based Aircraft and Fleet Mix Forecast for Prineville Airport

Year	Single Engine	Multi-engine	Jet	Helicopter	Other	Total
2014	114	5	2	1	2	124
2019	118	6	2	1	2	129
2024	121	6	3	1	3	134
2034	131	6	4	1	3	145

AIRCRAFT OPERATIONS FORECAST

Table 3K shows the history of aircraft operations from the FAA TAF for Prineville Airport from 2000 to 2012. It should be noted that the number of based aircraft as well as aircraft operations recorded in the TAF are significantly lower than the actual number documented by the airport manager. The number of operations for 2013 was estimated based on the fuel sales records, the airport manager's available records and user and business input. **The 2013 estimated operations**

to be used as a baseline for forecast development is 46,522 annual operations (4.5 times the TAF figures). Further, the FAA concurred with this revised estimate of annual operations.

Table 3K. Historical and Current Aircraft Operations at Prineville

	Itinerant Operations				Local Operations			
Year	**Air Taxi & Commuter**	**GA**	**Military**	**Itinerant Total**	**GA**	**Military**	**Local Total**	**Total Operations**
2005	0	8,191	0	8,191	2,048	0	2,048	10,239
2006	0	8,450	0	8,450	2,112	0	2,112	10,562
2007	0	8,657	0	8,657	2,164	0	2,164	10,821
2008	0	8,931	0	8,931	2,233	0	2,233	11,164
2009	0	9,140	0	9,140	2,284	0	2,284	11,424
2010	300	7,000	100	7,400	3,000	0	3,000	10,400
2011	300	7,000	100	7,400	3,000	0	3,000	10,400
2012	300	7,000	100	7,400	3,000	0	3,000	10,400
2013	**300**	**17,092**	**24**	**17,416**	**29,106**	**0**	**29,106**	**46,522**

Source: FAA TAF used for 2005-2012 figures; the 2013 figures are based on airport user interviews/ survey responses and airport records.

In developing the preferred forecast for operations, traffic components were examined individually as explained in the following paragraphs.

AIR TAXI AIRCRAFT OPERATIONS

The air taxi category refers primarily to passenger/cargo charter or air taxi, fractional jet operations, and air ambulance. Air taxi flights are usually IFR. However, some air taxi flights are not counted as pilots sometimes file their IFR flight plans after takeoff or cancel them before landing.

The FAA Terminal Area Forecast for Prineville Airport shows that air taxi operations will remain flat at 300 annual operations through 2033. In contrast, the TAF projects air taxi operations for the state of Oregon to grow at an average annual rate of 1.06%. Further, the FAA's national forecast projects GA and Air Taxi hours flown to increase at an average of 1.4% annually. The preferred forecast for air taxi operations assumes that Prineville Airport will maintain its market

share in Oregon; therefore, the 1.06% annual growth rate for air taxi operations is selected. By 2033, air taxi operations are projected to reach 371—up from an estimated 300 in 2013.

GA AIRCRAFT OPERATIONS

The annual GA operations forecast is derived for both local and itinerant operations using an operations per based aircraft (OPBA) ratio. The current OPBA ratio is determined by using the current number of based aircraft (124) and estimated annual GA local and itinerant operations (46,522). This equates to a current OPBA of 375.

Then, for each year in the forecast, operations equal the forecast number of based aircraft multiplied by an established OPBA ratio. This common practice recognizes that some of the operations in an OPBA ratio are by based aircraft and some are by transient/visiting aircraft. The FAA has provided the following guidelines for OPBA ratios:

- 250 OPBA is typical at a rural GA airport with little itinerant traffic
- 350 OPBA is typical at a busier GA airport with more itinerant traffic
- 450 OPBA is typical at a busy reliever airport with a large amount of itinerant traffic.

The Airport's current OPBA of 375 is well above the typical rural GA airport and just above the busier GA airport with more itinerant traffic. However, user surveys and interviews with businesses—particularly the training operators—indicate that local operations represent a much larger segment of activity than itinerant with an estimated split of 63% local, 37% itinerant.

Based on the current airport characteristics, aviation industry trends, the economic development in the area, increasing local operations projected by flight training operators, growing itinerant activity in the area due to the relocation of bigger corporations, the OPBA is projected to increase to 400 by 2033. Accordingly, GA operations will increase to 58,000 operations, a 1.11% average annual growth rate, for the 20-year planning period. In contrast, the FAA TAF projects a 2.05% and 1.76% average growth rate for itinerant and local GA operations, respectively.

As discussed earlier, FAA Aerospace Forecasts Fiscal Years 2014-2034 projects GA hours flown to grow 1.4% annually, but the drop in piston aircraft and strong increase in jet activity is part of the mix to be considered for individual airport forecasts.

While the Oregon Aviation Plan projected a stronger growth in operations, this projection occurred prior to the economic recession and the resulting impacts to GA. While population growth has not shown a correlation with GA activity in recent past since numerous factors

affecting aviation do not affect population, forecast population is still an important consideration to validate aviation growth. With Oregon population projections of 1.09% annually and Crook a County projections at 0.77%, this offers another supporting factor for the anticipated recovery in GA activity.

In 2013, GA itinerant operations represented an estimated 37% of total airport operations. The preferred forecast assumes the itinerant GA portion will remain the same--transient activity such as the corporate GA segment is expected to grow proportionately with local operations such as training activity.

MILITARY AIRCRAFT OPERATIONS

For 2012, military operations are estimated at 24 operations, less than 0.05% of total operations. Future military aircraft operations are difficult to predict, and the FAA typically projects no growth or decline in military aircraft operations in its annual Terminal Area Forecasts and national aerospace forecast. For Prineville, the FAA TAF projects zero growth through the planning period. The preferred forecast for military operations uses the FAA TAF's zero-growth forecast, but is based on the 2013 estimate of military operations totaling 24 operations.

PREFERRED FORECAST FOR TOTAL OPERATIONS

The preferred forecast for aircraft operations, shown in **Table 3L**, sums up the individual component forecasts.

Table 3L. Aircraft Operations Forecast for Prineville Airport

	Itinerant Operations				Local Operations		
Year	**Air Taxi & Commuter**	**GA**	**Military**	**Itinerant Total**	**GA**	**Local Total**	**Total Operations**
2013	300	17,092	24	17,416	29,106	29,106	**46,522**
2018	317	18,062	24	18,403	30,758	30,758	**49,161**
2023	334	19,087	24	19,445	32,504	32,504	**51,949**
2033	371	21,315	24	21,710	36,297	36,297	**58,007**

PEAK AIRCRAFT OPERATIONS FORECAST

Annual projections provide a good overview of the activity at an airport, but may not reflect operational characteristics of the facility. In many cases, facility requirements are not driven by annual demand, but rather by the capacity shortfalls and delays experienced during peak times. Therefore forecasts are developed for the peak month, the average day in the peak month, and the peak hour of the peak day.

In reviewing the last three years of fuel sales, it appears the peak month for operations is often the month of August. Limited IFR operations data and airport user input suggest that peak activity often falls in May. Collectively, this information suggests that the peak month consists of about 14% of the annual operations total. The values for average day peak month and for the peak hour were then calculated using the methodology in FAA Advisory Circular 150/5360-13, "Planning and Design Guidelines for Airport Terminal Facilities." Under this methodology, the average day peak month is derived by taking the number of operations calculated for the peak month and dividing that figure by the number of days in the peak month (31 days). There is no data available to determine the peak hour operations at the Airport. Therefore it was estimated that 15 percent of the average day peak month would best represent the number of peak hour operations. The peak operations forecast is summarized in **Table 3M**.

Table 3M. Peak Operations Forecast for Prineville Airport

	2013	2018	2023	2033
Annual Operations	46,522	49,161	51,949	58,007
Peak Month (14% Annual)	6,513	6,883	7,273	8,121
Design Day	210	222	235	262
Design Hour (15% of Peak Day)	32	33	35	39

CRITICAL AIRCRAFT AND AIRPORT REFERENCE CODE

According to FAA criteria, an airport's design is based on the characteristics of the critical aircraft, which is the most demanding aircraft that uses the airport "regularly" or "substantially." The FAA defines regular or substantial use as at least 500 annual itinerant operations. The Airport Reference Code (ARC) is the main criterion for determining applicable FAA airport design standards for dimensions such as runway and shoulder widths; separations of runways, taxiways, and taxilanes; and cleared areas. However, new FAA guidance provides guidance for runway

design codes and taxiway design groups, for example, by providing standards to serve different design aircraft on different runways and taxiways.

The ARC is defined by the Aircraft Approach Category and the Airplane Design Group of the critical aircraft. The Aircraft Approach Category is determined by the approach speed, or 1.3 times the stall speed of the aircraft in its landing configuration at its maximum landing weight.

The letters A, B, C, D, and E represent the Aircraft Approach Category. The Airplane Design Group of the aircraft is based on the wingspan or tail height, and is defined by Roman numerals I, II, III, IV, V and VI. **Table 3N** shows the ARC component definitions and typical aircraft that meet these definitions.

Table 3N. Airport Reference Code (ARC) Components

Approach Category	**Approach Speed**	**Typical Aircraft**
A	Less than 91 knots	Cessna 150, 172, 206, Beech Bonanza
B	91 to 120 knots	King Air, Piper Navajo, Gulfstream I
C	121 to 140 knots	Boeing 727, 737, Learjet, Challenger
D	141 to 165 knots	Boeing 747, Gulfstream V
Airplane Design Group	**Wingspan**	**Typical Aircraft**
I	Less than 49 feet	King Air, Cessna 150, 172, 206, Gates Learjet, Beech Bonanza
II	49 to 78 feet	King Air, Super King Air, Cessna Citation, Dassault Falcon, Gulfstream I, Challenger
III	79 to 117 feet	Boeing 727, 737, DC-3, DC-6, Gulfstream V
Airplane Design Group may be determined by tail height, if more demanding than wingspan:		
Airplane Design Group	**Tail Height**	
I	Less than 20 feet	
II	20 to 29 feet	
III	30 to 44 feet	

Source: FAA AC 150/5300-13A, Airport Design. Notes: 1) The above ARC information represents the Airport's highest runway design code, which is defined by the above as well as visibility minimums. 2) Aircraft Approach Category E (166 knots or more) and Airplane Design Groups IV, V, and VI (118 feet or more) are not shown.

According to airport user interviews, GCR historic operations report, and survey respondents, the most demanding aircraft types operating at the Airport on a "regular" basis fall within Approach Category B and Airplane Design Group II. Consequently, the Airport Reference Code for Prineville Airport is presently B-II, which is the same ARC identified in the previous 2003 Airport Layout Plan Report. Key examples of aircraft operating at Prineville within the B-II family include the Hillsboro Aviation King Air, the Cessna Citation, and the local life flight operation's Pilatus PC-12.

While occasional operations by Approach Category C operations are anticipated, they are well below the 500 annual itinerant operations threshold and do not support an upgrade in the ARC from B-II.

Chapter Four REQUIREMENTS

Prineville Airport Master Plan Update

In order to ensure that Prineville Airport will adequately accommodate the forecast aviation activity demand during the 20-year planning period, this chapter examines and provides the facility requirements for the future development of the airport.

Improvements or new facilities are identified for three planning activity levels (PAL) that correspond to the near- (2018), mid- (2023) and long-term (2033), which align with the forecasting timeframes in the previous chapter. However, it is important that actual development be demand driven as projected demand may accelerate beyond or lag behind the forecasts at various times during the 20-year planning window.

All requirements identified in this chapter will comply with existing FAA standards and recommendations. Existing deviations from the requirements will be documented and analyzed.

For comprehensive planning purposes, the needs discussed in this chapter are not limited to those facilities and services that might be funded or provided by the County, City, State or FAA, but also anticipate facilities and services that private entities might provide.

Table 4A provides a review of the projected aircraft operations and Airport Reference Code (ARC) by forecast timeframe and PAL.

Table 4A. Planning Activity Levels

	2013	Near-Term (2018)	Mid-Term (2023)	Long-Term (2033)
Number of Operations	46,522	49,161	51,949	58,009
Number of Based Aircraft	124	129	134	145
ARC	B-II	B-II	B-II	B-II

Source: Chapter 3, Forecasts
Note: Pavement Maintenance is mainly time dependent instead of activity based.

PLANNING CRITERIA

The development and use of planning criteria ensures that recommended improvements and proposed development align with the goals and objectives of the national, state, regional and local air transportation systems, appropriate aviation industry segments, and the airport sponsor's vision. The sources from which the planning criteria are drawn include:

- Federal Aviation Administration (FAA) – FAA design guidelines found in Advisory Circular (AC) 150/5300-13A, Airport Design, provide the planning criteria, with respect to current as well as future critical or design aircraft, for the runway, taxiways and apron areas.
- Oregon Aviation Plan - Provides a distribution of airports by classification as well as recommendations and direction on how to meet the state's long term commercial and general aviation needs. The Plan also provides a set of performance objectives based on the airport's classification.
- Transportation Security Administration (TSA) – Although TSA does not regulate general aviation airports like Prineville, they do provide guidance for security at general aviation airports. The guidelines provided by the TSA are tailored to an airport's size and risk level.
- Business Aviation Industry – The National Business Aviation Association (NBAA) represents the industry and provides recommendations for airports' facilities and services to accommodate business aviation needs.
- City of Prineville, Crook County and Airport Users – Planning Advisory Committee members, other meeting participants and survey respondents provided input specific to Prineville Airport. The specific users of the airport are the most accurate source to understand safety and operations concerns that affect the flying public. The local airport community is an important source since its operational issues, community relationships, and future vision for the airport help shape the list of future facility needs.

AIRPORT ROLE

Prineville Airport—also referred to as S39, its FAA three-letter identifier—plays an important role in the national, state, and regional transportation network. This section provides a brief review of the airport's role in the various networks. The identification of the airport's role is integral to defining its current and future needs.

NATIONAL ROLE

The National Plan of Integrated Airport Systems (NPIAS) identifies nearly 3,400 existing and proposed airports that are significant to national air transportation and thus eligible to receive Federal grants under the Airport Improvement Program (AIP). The NPIAS contains all commercial service airports, all reliever airports, and selected general aviation airports. NPIAS (2013-2017) classifies Prineville Airport (S39) as a general aviation facility.

Further, FAA's General Aviation Airports: A National Asset, published in May 2012, divided the general aviation airports into four categories based on existing activity measures (2009 data) such as the number and types of based aircraft (i.e., aircraft that are stored at an airport), as well as the volume and types of flights. The four categories are national, regional, local, and basic. The document classifies the airport as a local airport. A local airport is defined as one that "supplements local communities by providing access primarily to intrastate and some interstate markets." Further, the document describes local airports as the backbone of the national general aviation system. They account for 42 percent of the general aviation airports eligible for Federal funding. They also account for approximately 38 percent of the total flying at the studied general aviation airports and 17 percent of flying with flight plans.

STATE ROLE

The Oregon Aviation Plan 2007 (OAP 2007) designates Prineville Airport as a Local General Aviation (GA) Airport. The OAP designates a role for each airport within the system, helping to distinguish between the various levels of service and activities associated with each airport across the state. OAP defined five different roles or classifications for the 97 airports considered in the statewide system.

As noted in Chapter One, these five classifications are:

- Category I, Commercial Service – 8 airports
- Category II, Urban GA – 10 airports
- Category III, Regional GA – 13 airports
- **Category IV, Local GA – 27 airports**
- Category V, Remote Access/Emergency Service – 39 airports

It is worth noting that the ODA 2007 classifications were influenced by the airports existing (2005 data) activities and based aircraft. As discussed in the Forecasts chapter, both the number of based aircraft and annual operations at Prineville Airport have significantly increased since 2005. Additionally, large companies such as Facebook and Apple have since relocated some of their data centers to Prineville and they continue to expand their presence and activity. This may lead to an increase in corporate/ business aviation activity at the Airport.

Local GA airports are defined to "support primarily single-engine general aviation aircraft but are capable of accommodating smaller twin-engine general aviation aircraft. These airports support local air transportation needs and special use aviation activities."

OAP 2007 recommends a set of minimum and desired facilities and services for Local GA Airports. **Table 4B** outlines these facilities and services and compares them to Prineville Airport's existing facilities.

LOCAL ROLE

Prineville as well as surrounding communities rely on the Prineville Airport for fire protection. The Prineville Airport is home to USFS firefighting helicopters in the summer. The Prineville Airport's importance to Crook County and the City of Prineville has been recognized in a number of documents. The City of Prineville Urban Area Comprehensive Plan, 2007 states that " most of Crook County's large business, commercial and heavy industrial firms use the airport. Airport development and expansion is important for Crook County's overall economic growth." The Airport's importance to the community has been documented in various other documents including the Community Wildfire Protection Plan, Crook County, 2005, and Prineville Transportation Plan, 2005. The closest commercial service airport to Prineville, Roberts Field, is located in Redmond, a 30-minute drive away. This makes the Prineville Airport essential for certain services such as Medevac.

In 2012, the Oregon Department of Aviation updated the Economic Impact Study completed as part of the Oregon Aviation Plan 2007. The update shows that Prineville Airport contributed $6,896,000 in aviation-related impact to the State economy in 2012, including a $6,023,000 contribution to the local economy. This represents a 59% increase from the Airport's $2,660,000 contribution to the State economy in 2007.

Table 4B. Oregon Department of Aviation Recommendations for Local GA Airports

	Existing Facilities	Minimum Criteria	Desired Criteria
AIRSIDE FACILITIES			
FAA – ARC	B-II	B-I	B-II
NPIAS	Yes	Not an Objective	Not an Objective
Runway Length	RWY 10-28: 5,751 feet RWY 15-33: 4,054 feet	3,000 feet	Varies by Aircraft
Runway Width	RWY 10-28: 75 feet RWY 15-33: 40 feet	60 feet	Varies by Airport
Runway Pavement Type	RWY 10-28: Bituminous RWY 15-33: Bituminous	Bituminous, Concrete, Turf	Bituminous, Concrete
Taxiways	RWY 10-28: Full Parallel RWY 15-33: Exits at RWY Ends	Exits Needed	Partial or Turnarounds
Approach Type	Non-Precision	Visual	Non Precision
Visual Approach Aids	P4L, REIL (15/33)	One Runway End	Both Runway Ends
Instrument Approach Aids	RNAV (GPS) RWY 10 RNAV (GPS) RWY 28 NDB RWY 10	Not an Objective	Not an Objective
Runway Lighting	RWY 10-28: MIRL RWY 15-33: LIRL	LIRL	MIRL
Taxiway Lighting	Reflectors	LITL	MITL
GENERAL FACILITIES			
Rotating Beacon	Yes	Yes	Yes
Lighted Wind Indicator	Yes	Yes	Yes
Weather Reporting	AWOS	Not an Objective	AWOS/ASOS
Hangared Aircraft Storage	Over 75% of Based Aircraft	75% of Based Aircraft	100% of Based Aircraft
Apron Parking/Storage	Over 50% of Transient Aircraft	30% of Daily Transient	50% of Daily Transient
Terminal Building	Yes	Not an Objective	Small Meeting Area
Auto Parking	Moderate	Minimal	Minimal
Fencing	Perimeter	Not an Objective	Terminal Area
Cargo	None	Not an Objective	Not an Objective
SERVICES			
Fuel	100 LL & Jet A	100 LL	100 LL & Jet A
FBO	Full Service	Not an Objective	Limited
Ground Transportation	Courtesy Car	Not an Objective	Courtesy Car/Offsite Rental Car
Food Service	Vending	Not an Objective	Vending
Restrooms	Yes	Yes	Yes
Pilot Lounge	Yes w/ Weather Reporting	Not an Objective	Yes w/ Weather Reporting

AIRSIDE REQUIREMENTS

AIRFIELD CAPACITY

FAA Advisory Circular (AC) 150/5060-5, Airport Capacity and Delay, calculates the capacity of an airport based on the number and configuration of its runways. The intersecting runway configuration at S39 has a theoretical airfield hourly capacity of 98 aircraft operations in VFR conditions and 59 aircraft operations in IFR conditions.

Additionally, the airfield has an Annual Service Volume (ASV) of 230,000 operations per year. ASV is a reasonable estimate of an airport's annual activity at which the average delay per operation is 4 minutes. It accounts for differences in runway use, aircraft mix, weather conditions, etc., that would be encountered over a year's time.

Generally, when 60% of the ASV is reached (138,000 operations per year for S39), the airport should start planning to increase runway capacity, including construction of a new runway or the extension of an existing runway. Once 80% of ASV is reached (184,000 operations per year for S39), construction should begin in order to increase capacity of the existing facilities.

With a forecast of 58,007 operations, the Airport will only reach 25% of its capacity within the 20-year planning so capacity is more than sufficient to accommodate the demand projections.

RUNWAY ORIENTATION

The most important factor that affects a runway's orientation (in relation to magnetic north) or the number of runways is the wind. The ideal runway orientation is a runway aligned with the prevailing wind so aircraft can maximize landing and takeoff performance. FAA AC 150/5300-13, Airport Design, states that a runway system should provide 95% or greater wind coverage for aircraft that use the airport on a regular basis to ensure safety of the users.

All aircraft have an acceptable level of crosswind they can handle during landing. When the acceptable crosswind component of an aircraft is exceeded, the aircraft must divert to another runway or airport. For this reason, the runway orientation must ensure the prevailing crosswind does not exceed certain speeds. Given the average prevailing wind, the FAA requires a runway be oriented so that the average crosswind component is minimized. The 95 percent wind coverage is computed on the basis of the crosswind component not exceeding 10.5 knots (12 mph) for A-I and B-I; 13 knots (15 mph) for A-II and BII; 16 knots (18 mph) for C-I through D-II; and 20 knots for A-IV through D-VI. Aircraft regularly using S39 range from A-I to B-II category, meaning that the runway orientation must provide for the crosswind component not exceeding 10.5 knot (12 mph).

An Automated Weather Observation System (AWOS), was installed and commissioned on April 23, 2014. At a minimum, a year's data must be collected before it can be analyzed to determine the wind coverage at the Airport. The closest AWOS data available is from Bend (11 nautical miles to the west) and Redmond (17 nautical miles to the southwest). Although, Bend and Redmond might have the same weather conditions as Prineville for the majority of the year, differences exist and are enough to have warranted the installation of the AWOS at S39. It is therefore recommended that S39 reevaluate the wind coverage after at least ten years of data has been collected from the recently installed AWOS.

For this master plan, wind data extracted from the onsite Automated Surface Observing System (ASOS) at Roberts Field, Redmond Airport was obtained from the National Climatic Data Center (NCDC) for the period of 2000-2009 and was used to calculate the wind coverage provided by each of the runways as well as by the runway system as a whole. As shown in **Exhibit 4A**, for all weather, Runway 10-28 provides 94.85% crosswind coverage for a crosswind component of 10.5 knots which is below the 95% coverage threshold required by the FAA. This means that the crosswind runway, Runway 15-33, would be eligible for FAA funding. For IFR weather conditions - cloud ceiling higher than or equal to 500 feet and less than 1,000 feet AGL and/or visibility greater than or equal to 1 mile and less than 3 miles – Runway 10-28 provides 98.24% coverage, which is well above the required 95% threshold.

During the Master Plan review period the FAA requested an updated wind analysis be conducted with more current wind data. Information from Redmond for the 2006-2015 timeframe was collected and analyzed with all-weather results consistent with the previous wind analysis.

	10.5 kts	**13 kts**	**16 kts**
Runway 10-28	94.69%	97.08%	99.04%
Runway 15-33	95.06%	97.36%	98.97%
Combined	98.91%	99.56%	99.88%

Wind Data: Redmond Municipal Airport – Period 2006-2015.
Retrieved from: https://airports-gis.faa.gov/public/

The data shown above and on the ALP indicates that Runway 10-28 only provides 94.69% wind coverage at 10.5 Knots, thus making Runway 15-33 eligible as a B-I small crosswind runway. The on-airport AWOS currently allows only 12 months of data to be downloaded and NOAA isn't collecting the information yet. We analyzed the data available and found that there were numerous instances of unrecorded information as well as discrepancies with wind direction and speed information. This made any attempt at creating a wind rose or correlating it with the Redmond data difficult and highly suspect. Airport management will work with NOAA to obtain the proper registration so the data will be transmitted, collected, and properly stored.

RUNWAY LENGTH

Prineville Airport is served by two runways, Runway 10-28 is 5,751 feet in length and Runway 15-33 is 4,054 feet in length. The runway length analysis presented in this section aims at determining if the existing runways lengths are adequate to serve the existing as well as projected aircraft to operate at the Airport.

The takeoff runway length for an aircraft is longer than the landing runway length for the same aircraft. Factors which impact runway length requirements include: airport elevation, temperature, wind velocity and direction, ambient air temperature, aircraft weight, flap settings, runway surface (wet or dry), runway gradient, presence of obstructions, and any imposed noise abatement procedures or other prohibitions.

Runway length requirements provided in this section are based on the guidance provided by AC 150/5325-4B, Runway Length Requirements for Airport Design, which specifies the use of the 5-Step procedure for determining runway length requirements for purposes of airport design.

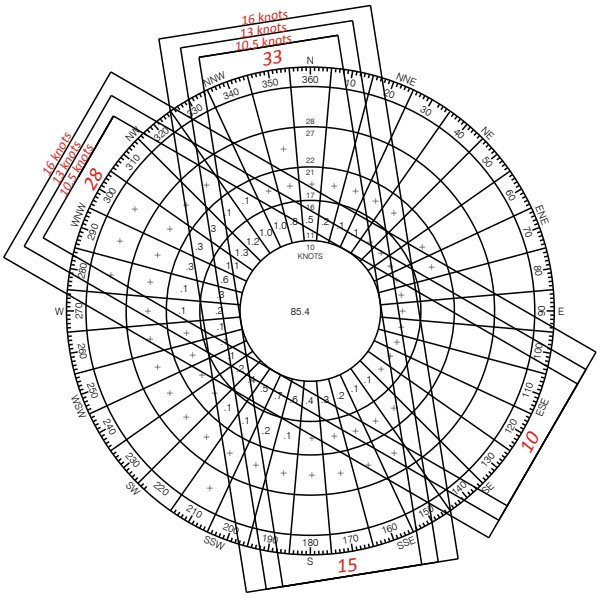
For aircraft weighing 60,000 pounds or less, the runway length required is determined by family groupings of aircraft that have similar performance characteristics (i.e. small and large airplanes). Small airplanes are defined by the FAA as airplanes weighing 12,500 pounds or less at Maximum Takeoff Weight (MTOW), while large airplanes are those that exceed 12,500 but weigh less than 60,000 pounds. For aircraft weighing more than 60,000 pounds, the required runway length is determined by aircraft specific length requirements.

Table 4C shows the runway length for S39 computed using information provided in FAA AC 150/5325-4B, *Runway Length Requirements for Airport Design*.

Based on the results provided in Table 4C, Runway 10-28 is able to accommodate 100 percent of small airplanes and 75 percent of large airplanes at 60 percent useful load. Airplanes that make up the 75 percent of the large airplane fleet are provided in **Table 4D** while the airplanes that make up the remaining 25 percent of the fleet are presented in **Table 4E.**

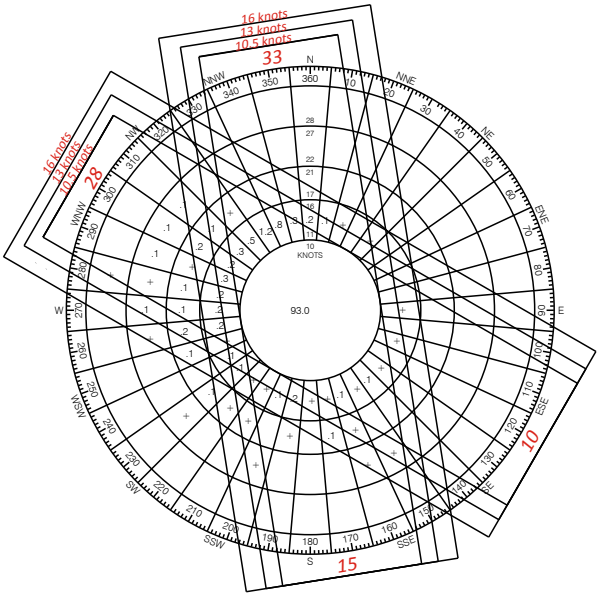
Runway 15-33's 4,054 feet length allows it to accommodate up to 75 percent of small aircraft with less than 10 passenger seats. Given the weight restriction for using the runway (5,000 lbs.) and the presence of Runway 10-28, this length is adequate for the traffic accommodated by the runway.

All Weather



	10.5 knots	13 knots	16 knots
RWY 10-28	94.85%	97.24%	99.22%
RWY 15-33	95.86%	97.96%	99.3%
Combined	98.98%	99.64%	99.91%

IFR Weather



	10.5 knots	13 knots	16 knots
RWY 10-28	98.24%	99.16%	99.77%
RWY 15-33	97.42%	98.25%	99.1%
Combined	99.29%	99.69%	99.92%

Table 4C. Runway Length Requirements

Airport elevation	3251 feet
Mean daily maximum temperature of the hottest month	85.9 F.
Maximum difference in runway centerline elevation	10 feet
Length of haul for airplanes of more than 60,000 pounds	500 miles
Dry runways	
RUNWAY LENGTHS RECOMMENDED FOR AIRPORT DESIGN	
Small airplanes with approach speeds of less than 30 knots	400 feet
Small airplanes with approach speeds of less than 50 knots	1060 feet
Small airplanes with less than 10 passenger seats	
75 percent of these small airplanes	3640 feet
95 percent of these small airplanes	4550 feet
100 percent of these small airplanes	4980 feet
Small airplanes with 10 or more passenger seats	4990 feet
Large airplanes of 60,000 pounds or less	
75 percent of these large airplanes at 60 percent useful load	5750 feet
75 percent of these large airplanes at 90 percent useful load	8200 feet
100 percent of these large airplanes at 60 percent useful load	7150 feet
100 percent of these large airplanes at 90 percent useful load	9230 feet
Airplanes of more than 60,000 pounds	Approximately 6150 feet

Source: FAA Airport Design Software

Table 4D. Aircraft that Make Up 75 Percent of the Large Aircraft Fleet

Manufacturer	Model	Manufacturer	Model
Aerospatiale	Sn-601 Corvette	Dassault	Falcon 10
Bae	125-700	Dassault	Falcon 20
Beech Jet	400A	Dassault	Falcon 50/50 EX
Beech Jet	Premier I	Dassault	Falcon 900/900B
Beech Jet	2000 Starship	Israel Aircraft Industries (IAI)	Jet Commander 1121
Bombardier	Challenger 300	IAI	Westwind 1123/1124
Cessna	500 Citation/501Citation Sp	Learjet	20 Series
Cessna	Citation I/II/III	Learjet	31/31A/31A ER
Cessna	525A Citation II (CJ-2)	Learjet	35/35A/36/36A
Cessna	550 Citation Bravo	Learjet	40/45
Cessna	550 Citation II	Mitsubishi	Mu-300 Diamond
Cessna	551 Citation II/Special	Raytheon	390 Premier
Cessna	552 Citation	Raytheon Hawker	400/400 XP
Cessna	560 Citation Encore	Raytheon Hawker	600
Cessna	560/560 XL Citation Excel	Sabreliner	40/60
Cessna	560 Citation V Ultra	Sabreliner	75A
Cessna	650 Citation VII	Sabreliner	80
Cessna	680 Citation Sovereign	Sabreliner	T-39

Source: AC 150/5325-4B, Runway Length Requirements for Airport Design

Table 4E. Remaining 25 Percent of Airplanes that Make Up 100 Percent of Fleet

Manufacturer	Model
Bae	Corporate 800/1000
Bombardier	600 Challenger
Bombardier	601/601-3A/3ER Challenger
Bombardier	604 Challenger
Bombardier	BD-100 Continental
Cessna	S550 Citation S/II
Cessna	650 Citation III/IV
Cessna	750 Citation X
Dassault	Falcon 900C/900EX
Dassault	Falcon 2000/2000EX
Israel Aircraft Industries (IAI)	Astra 1125
IAI	Galaxy 1126
Learjet	45 XR
Learjet	55/55B/55C
Learjet	60
Raytheon/Hawker	Horizon
Raytheon/Hawker	800/800 XP
Raytheon/Hawker	1000
Sabreliner	65/75

Source: AC 150/5325-4B, Runway Length Requirements for Airport Design

BUSINESS JETS RUNWAY LENGTH

Due to the relocation of a number of large corporations to the Prineville Area, the jet activity at the Airport is forecast to increase throughout the planning period. **Table 4F** presents the runway length requirements for a sample listing of business jet aircraft and their runway length requirements adjusted for Prineville conditions. The aircraft are listed in order of increasing runway length requirement. It is important to note that the analysis assumes that:

1 – The Business Jets are flying at their Maximum Takeoff Weight. That is 100 percent useful payload and fuel. A reduction in the payload and/or the fuel load would lead to a reduction in the runway length required.

2 - The temperature is 85.9 degrees Fahrenheit, which corresponds to the Mean daily maximum temperature of the hottest month. Consequently, less runway length would be required on cooler days and more length on hotter days.

A business jet shown as requiring more runway length than the available 5,751 feet can still use the airport on cooler days and/or by reducing its payload.

Table 4F. Business Aircraft Runway Length Requirements at S39

Business Jets	AAC and ADG	Approach Speed (knots)	Wing Span (ft)	Max. Takeoff Wt. (MTOW) (lbs.)	Runway Length S39
Cessna 551 Citation II/SP	B-II	108	51.8	12,500	3,978
Cessna 501 Citation I/SP	B-I	112	46.8	10,600	4,241
Cessna 500 Citation	B-I	108	47.1	11,850	4,388
Cessna 550 Citation II	B-II	108	51.7	13,300	4,475
Cessna 525 CitationJet (CJ-1)	B-I	107	46.7	10,400	4,607
Cessna 552/T-47A	B-II	107	52.2	16,300	4,753
Cessna 560 Citation V Ultra	B-II	108	52.2	16,300	4,753
Learjet 31	C-I	124	43.1	16,500	5,090
Cessna 525A CitationJet II (CJ-2)	B-II	118	49.5	12,500	5,105
Sabreliner 60	C-I	134	44.6	20,200	5,222
Cessna 560 Citation Encore	B-II	108	52.2	16,830	5,310
Cessna 560 Citation Excel	B-II	107	55.7	20,000	5,353
Cessna 550 Citation Bravo	B-II	112	52.2	14,800	5,368
Raytheon 390 Premier	B-I	120	44	12,500	5,649
Learjet 23	C-I	124	NA	12,500	5,953
BeechJet 400A/T/ T-1A Jayhawk	C-I	121	43.5	16,100	6,201
Learjet 45	C-I	129	47.1	20,200	6,275
Mitsubishi MU-300 Diamond	B-I	109	43.5	14,630	6,392
Sabreliner 75a/80	C-II	128	50.4	24,500	6,627
Dassault Falcon 900	B-II	100	63.4	45,500	6,948
Dassault Falcon 50	B-II	113	61.9	37,480	7,000
Cessna 650 Citation VII	C-II	126	53.6	23,000	7,197
Sabreliner 40	B-I	120	44.5	18,650	7,270
Dassault Falcon 900 EX	C-II	126	63.5	48,300	7,395
Learjet 35/36	C-I	133	39.5	18,300	7,417
Cessna 750 Citation X	C-II	131	63.6	36,100	7,622
Cessna 650 Citation III/VI	C-II	131	53.3	21,000	7,636
Dassault Falcon 2000	B-II	114	63.5	35,800	7,768
Raytheon/Hawker 125-1000	C-II	130	61.9	36,000	7,783
Learjet 55	C-I	138	43.7	21,500	7,870
Learjet 60	D-I	149	43.9	23,500	7,944
Raytheon/Hawker 125-800	B-I	120	51.3	28,000	7,973
Gulfstream IV	D-II	149	77.8	71,780	8,075
Sabreliner 65	C-II	124	50.5	24,000	8,075
Sabreliner 75	C-I	137	44.5	23,300	8,148
Bombardier CL-600/601 Challenger	C-II	125	61.8	41,250	8,441
Gulfstream V	D-III	NA	98.6	89,000	8,865
Bombardier BD-700 Global Express	C-III	126	94	96,000	9,319

Source: Runway lengths derived from Airport NEWS, October 2001, FAA Central Region, which includes business jets modeled for standard conditions. Standard conditions were corrected for S39 conditions.

As shown in the table, a number of business jets listed can be adequately served by the Airport's 5,751-foot runway length (Runway 10-28), including the Cessna 560 Citation Excel, Learjet 31, and the Raytheon 390 Premier, which is the last jet in the list that requires less than 5,751 feet.

Although the current runways lengths are considered adequate for the current as well as forecasted design aircraft for the 20-year planning period, the City and County, with the strong support of the advisory committee, have elected to explore the maximum length of runway that will fit between Hwy 126 on the South and SW Houston Lake Rd on the north and still meet FAA Standards. At the present time, land uses in the area that would be impacted by a possible runway extension are compatible with aviation use and the desire is take to protect for future expansion even if it is not currently within the forecast period of this Master Plan. The alternatives chapter will look at the possibility of protecting for future runway(s) extension(s) and will determine how much length might be possible within the limits of the roads on the north and south.

RUNWAY WIDTH

RUNWAY 10-28 WIDTH

Runway 10-28 is 75 feet wide, meeting B-II standards. Since the current and forecasted ARC for the Airport are B-II, the runway width is considered adequate for the current and forecasted needs.

RUNWAY 15-33 WIDTH

As previously discussed, Runway 10-28 only provides 94.69% wind coverage at 10.5 Knots, thus making Runway 15-33 eligible as a crosswind runway for A-I and B-I (small) aircraft. Additionally, Runway 15-33 is only 40 feet wide. The runway currently accommodates small aircraft belonging to the A-I small and B-I small categories (the runway is limited by the Airport to 5,000 maximum weight). Aircraft belonging to these groups are most affected by crosswinds and more likely to use the runway when crosswind conditions exist. The required width for a runway serving A-I and B-I aircraft groups is 60 feet. Runway 15-33 must be widened to the required 60 feet width.

RUNWAY PAVEMENT STRENGTH AND CONDITION

RUNWAY 10-28

Runway 10-28 has a pavement strength rating of 30,000 pounds single wheel loading (SWL). The existing pavement strength is considered adequate to accommodate existing and forecast regular operations at the airport.

According to an FAA guidance letter issued in 2001 on runway length and strength requirements for business jets, "runways should have a dual wheel pavement strength of 30,000 pounds if they accommodate only category B business jets, 60,000 pounds if they accommodate category B and C business jets, and 90,000 pounds if they accommodate category B, C, and D business jets. However, these are broad generalizations and some category B business jets have a maximum takeoff weight of more than 30,000 pounds. Likewise, some category C business jets have a maximum takeoff weight of more than 60,000 pounds. Therefore, in practice, the pavement strength required for the specific critical aircraft should be used." As the jet activity at the airport grows and jets that belong to the C-II category start using the Airport on a regular basis (beyond the planning period), the runway pavement strength must be upgraded to 60,000 pounds.

The tests conducted in May 2011 as part of the Oregon Department of Aviation (ODA) Pavement Evaluation/Maintenance Management Program show that Runway 10-28 pavement is in good condition (PCI between 85 and 100). The five-year pavement management program created for the Airport recommends a fog seal for Runway 10-28 in 2015 and 2016. The 2015 project encompasses the old 10-28 runway while the 2016 project addresses the extended portion.

RUNWAY 15-33

Runway 15-33 has a pavement strength rating of 5,000 pounds Single Wheel Loading (SWL). The recommended pavement design strength for Runway 15/33 is 12,500 pounds (single wheel), which is standard for runways serving small aircraft.

Results from the Pavement Evaluation/Maintenance Management evaluation show that the runway pavement is in fair condition (PCI between 55 and 70). The pavement conditions are expected to deteriorate to poor (PCI between 40 and 55) in 2016 and very poor (PCI between 25 and 40) in 2021. The five-year pavement management program recommended the reconstruction of Runway 15-33 pavement by 2012. This master plan will recommend that this project take place as soon as possible and before the further deterioration of the runway pavement condition. Additionally, Routine maintenance, such as joint and crack sealing, should be performed on a scheduled basis to extend the pavement life of both runways.

TAXIWAY WIDTH AND SEPARATION

Taxiways are constructed primarily to facilitate aircraft movements to and from the runway system. While some taxiways are necessary to provide access between the aprons and the runways, others are necessary to provide safe and efficient use of the airfield as activity increases at an airport. Advisory Circular AC 150/5300-13A (change 1) no longer bases taxiway design on Airplane Design Group (ADG). Taxiway design is, however, based on a newly established Taxiway Design Group (TDG), which is based on the overall Main Gear Width (MGW) and the Cockpit to Main Gear (CMG) distance.

The current as well as the forecast critical aircraft at Prineville Airport belong to TDG 2. The required width for taxiways serving TDG 2 aircraft is 35 feet. All taxiways at Prineville Airport meet the required taxiway width of 35 feet.

Runway 10-28 is served by a parallel taxiway located at a taxiway centerline to runway centerline separation of 240 feet. The 240 feet separation is recommended for taxiways serving B-II aircraft and with approach visibility minimums not less than ¾ mile.

Runway 15-33 is not served by a parallel taxiway. Aircraft landing on either end of the runway need to taxi to the other end before being able to access a taxiway, thus increasing the runway occupation time (ROT). An increased ROT negatively impacts the capacity of the runway system. It is recommended that a Runway 15-33 be served by a parallel taxiway in the long-term.

TAXIWAY PAVEMENT STRENGTH AND CONDITION

Results from the Pavement Evaluation/Maintenance Management evaluation show that the parallel taxiway to Runway 10-28 pavement is in satisfactory condition (PCI between 70 and 85) with the exception of the section extended along with the runway extension project in 2010 which is shown to be in good condition (PCI between 85 and 100).

Of the four connectors connecting Runway 10-28 to its parallel taxiway, two – at the runway ends – are in good condition while the other two are in fair condition. The main taxiway connecting Runway 28 and Runway 33 ends along with the connector connecting it to Runway 15-33 are in good condition.

The five-year pavement management plan recommends that all taxiway pavements undergo a slurry seal project in 2012 with the exception of the extended portion of the taxiway parallel to 10-28. A fog seal project in 2016 is recommended for that section.

FAA DESIGN STANDARDS

FAA design standards listed in AC 150/5300-13A (change 1), Airport Design, guide the planning and development of airside facilities at an airport. This section summarizes provides a brief description of some of these design standards contained in 5300-13A (change 1), and identifies the conditions unique to Prineville Airport that influence design recommendations.

The FAA is responsible for the overall safety of civil aviation in the United States and all of the design standards in 5300-13A (change 1) are primarily driven by safety. Other factors that influence the design standards included in the AC are efficiency and utility.

This section provides a brief summary of some of these new concepts and discuss their application to Prineville Airport.

DESIGN AIRCRAFT

The design aircraft is the most demanding aircraft that operates or is forecast to operate at the Airport on a ”regular” basis (at least 500 annual operations). The design aircraft may be a specific aircraft or a composite of aircraft characteristics. This is due to the fact that the different characteristics of the design aircraft influence different airside design components. **Table 4G** provides a summary of the various aircraft characteristics and the design components they influence.

Table 4G. Aircraft Characteristics and Design Components

Aircraft Characteristics	*Design Components*
Approach Speed	RSA, ROFA, RPZ, runway width, runway-to-taxiway separation, runway-to-fixed object.
Landing and Takeoff Distance	Runway Length
Cockpit to Main Gear Length (CMG)	Fillet design, apron area, parking layout
Outer to Outer Main Gear Width (MGW)	Taxiway width, fillet design
Wingspan/Tail Height	Taxiway and apron OFA, parking configuration, hangar locations, taxiway-to-taxiway separation, runway to taxiway separation

Source: FAA AC 150/5300-13A (change 1)

RUNWAY DESIGN CODE (RDC)

In addition to the Airport Reference Code (ARC) mentioned in the forecast chapter, AC 5300-13A introduced the Runway Design Code (RDC) which is based on planned development and signifies the design standards to which the runway is to be built. The RDC is composed of three components, the Aircraft Approach Category (AAC), the Airplane Design Group (ADG) and Visibility Minimums. The first component, AAC, is depicted by a letter (A through E) and relates to the approach speed of the design aircraft. The second component, ADG, is depicted by a roman numeral (I through VI) and relates to either the aircraft wingspan or tail height (physical

characteristics); whichever is most restrictive. The third component relates to runway visibility minimums as expressed in Runway Visual Range (RVR) equipment measurements. RVR-derived values represent feet of forward visibility that have statute mile equivalents (e.g. 2400 RVR = ½-mile). The third component should read "VIS" for runways that are designed for visual approach use only (VIS as used here is short for visual approach).

Table 4H provides a summary of the Runway Design Code (RDC) classifications.

Table 4H. Runway Design Code Classifications

Aircraft Approach Category (AAC)	
AAC	**Approach Speed**
A	Approach Speed less than 91 knots
B	Approach speed 91 knots or more but less than 121 knots
C	Approach speed 121 knots or more but less than 141 knots
D	Approach speed 141 knots or more but less than 166 knots
E	Approach speed 166 knots or more

Airplane Design Group (ADG)		
Group #	**Tail Height (ft)**	**Wingspan (ft)**
I	< 20'	< 49'
II	20' - < 30'	49' - < 79'
III	30' - < 45'	79' - < 118'
IV	45' - < 60'	118' - < 171'
V	60' - < 66'	171' - < 214'
VI	66' - < 80'	214' - < 262'

Approach Visibility Minimums	
RVR (ft)	**Flight Visibility Category (statue mile)**
4000	Lower than 1 mile but not lower than ¾ mile (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)

PRINEVILLE AIRPORT DESIGN STANDARDS

As discussed in Chapter 3, Forecasts, the current critical aircraft belongs to the B-II AAC and ADG categories.

Runway 10 has a published RNAV (GPS) procedure with a visibility minimum of 1 mile while Runway 28 has a published RNAV (GPS) procedure with a visibility minimum of 1 ¼ mile. Runway 15-33 is a visual runway and has no published instrument approach procedures.

The current RDC for Runway 10-28 is B-II while the current RDC for Runway 15-33 is B-I (small) "VIS". It is expected that the RDCs for both runway will remain the same for the 20-year planning period.

The FAA design standards represent the primary consideration for all airport planning efforts. These standards aim at optimizing the safety of operations. **Table 4I** illustrates the FAA design standards as well as the existing dimensions and separations at the Prineville Airport.

RUNWAY SAFETY AREA

The identification of the existing and future RSA at an airport is important to ensure that the RSA is located on airport property and is properly cleared and graded to comply with FAA standards. RSAs are of particular importance to the FAA and receive high priority funding since they enhance the safety of aircraft that overshoot, undershoot, or veer off the runway. The RSA, which is a cleared and graded area centered about the runway centerline, is determined by the RDC. The RSAs for Runway 10-28 and Runway 15-33 meet the requirements as shown in **Table 4I**.

Table 4I. FAA Design Standards

	Existing Runway 10-28	***Existing Runway 15-33***	***ARC B-II Not Lower Than 1 mile***	***ARC B-I (small) Visual***
Runway Width	75’	40’	75’	60’
Runway Safety Area **Width** **Length Beyond RWY End**	 150’ 300’	 120’ 240’	 150’ 300’	 120’ 240’
Runway Object Free Area **Width** **Length Beyond RWY End**	 500’ 300’	 400’ 240’	 500’ 300’	 400’ 240’
Taxiway Safety Area Width	79’	N/A	79’	49’
Taxiway Object Free Area Width	131’	N/A	131’	89’
Taxilane Object Free Area Width	115’	N/A	115’	79’
Runway CL to Parallel TWY CL	240’	N/A	240’	200’
Runway CL to Aircraft Parking			250’	200’
Taxiway CL to Parallel TWY CL	N/A	N/A	105’	225’
Runway Holdline	200’	200’	200’	200’

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

RUNWAY OBJECT FREE AREA

Like RSA, the OFA is centered on the runway centerline, extends beyond the runway ends, and is determined by the RDC. The OFA must remain clear of objects at the RSA elevation, but it does not have a grading requirement. The existing OFAs for Runways 10-28 and 15-33 meet the requirements as shown in Table 4I.

RUNWAY OBSTACLE FREE ZONE

The obstacle-free zone (OFZ) is a volume of airspace below 150 feet, above the established airport elevation which protects for the transition of aircraft to and from the runway. The Obstacle Free Zone (OFZ) clearing standard precludes taxiing and parked airplanes and object penetrations, except for frangible navigation aid (NAVAID) locations that are fixed by function. The OFZ is centered above the runway and the extended runway centerline and is intended to provide clearance protection for aircraft landing or taking off from the runway and for missed approaches.

The width of Runway 10-28 OFZ is 400 feet and the width of Runway 15-33 OFZ is 250 feet. The existing OFZs at Prineville Airport meet the requirements stated above.

RUNWAY PROTECTION ZONE

The purpose of the RPZ is to enhance the protection of people and property on the ground. The RPZ is a trapezoidal area centered about the extended runway centerline and beginning 200 feet from the runway end. The RPZ should be clear of all objects. It is advisable that the Airport have control of the RPZ through fee simple ownership and/or easements.

Runway 10-28 RPZ has an inner width of 500 feet, an outer width of 700 feet and a length of 1,000 feet. Highway 126 passes through a small portion of RWY 28 RPZ. This is considered an incompatible land use within the RPZ. This land use will be discussed further in Chapter 5, Development Alternatives.

Runway 15-33 RPZ has an inner width of 250 feet, an outer width of 450 feet and a length of 1,000 feet. Both Runway 15 and 33 RPZs are within the Airport property.

SURFACE GRADIENT

The maximum allowable longitudinal grade on the existing runways is 2.0% which is associated with Aircraft Approach Category A and B runways. Aircraft Approach Category C runways require that the maximum longitudinal grade be 1.5% with no more than 0.8% within the first and last

quarter of the runway length. Runway 10-28 gradient of 0.2% and Runway 15-33 gradient of 0.3% are well below the maximum allowable 2.0%.

BUILDING RESTRICTION LINES (BRL)

A BRL is a boundary line beyond which airport buildings of a certain height must not be located. The BRL should be set beyond the Runway Protection Zones (RPZs), the Obstacle Free Zones (OFZs), the Object Free Areas (OFAs), the runway visibility zone, and NAVAID critical areas. The location of the BRL is established based upon a building that is ??? feet tall. New buildings proposed in the next chapter, Development Alternatives, must be lower than the maximum height allowed by the BRL in a given area.

RUNWAY VISIBILITY ZONE

The runway visibility zone is an area formed by imaginary lines connecting the two runways' visibility points. Terrain needs to be graded and permanent objects need to be designed or sited so that there will be an unobstructed line of sight from any point five feet above one runway centerline to any point five feet above an intersecting centerline, within the runway visibility zone.

FEDERAL AVIATION REGULATION (FAR) PART 77 – OBJECTS AFFECTING NAVIGABLE AIRSPACE:

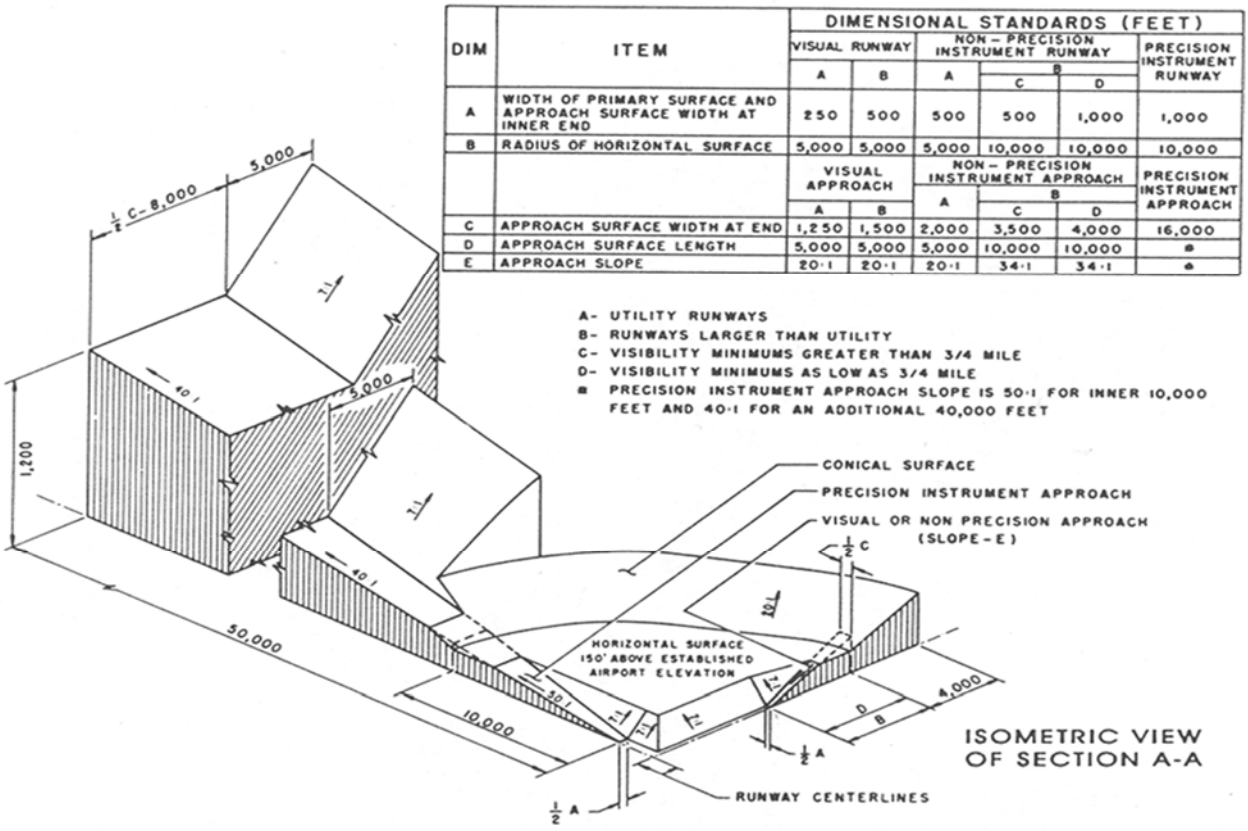
Title 14, Code of Federal Regulations (CFR) Part 77, *Safe, Efficient Use, and Preservation of the Navigable Airspace*, defines and establishes the standards for determining obstructions that affect airspace in the vicinity of an airport. Prior to any airport development, the developer or the airport must request the FAA to conduct an airspace evaluation to determine the possible impact of the prosed development on the Part 77 imaginary surfaces of the airport. Imaginary surfaces are geometric shapes as defined in 14 CFR Part 77. The size and dimensions of these imaginary surfaces are based on the category of each runway for existing and planned airport operations.

Under FAR Part 77, an aeronautical study must be undertaken by FAA to determine whether a proposed development would be a hazard to air navigation. However, there is no specific authorization in any statute that allows the FAA to limit structure heights or determine which structures should be lighted or marked. In fact, in every aeronautical study determination, the FAA acknowledges that state or local authorities have control over the appropriate use of property beneath an airport's airspace.

The five imaginary surfaces are the Primary, Approach, Horizontal, Conical, and Transitional. Any object which penetrates these surfaces is considered an obstruction and may affect navigable

airspace. Unless these obstructions undergo additional aeronautical study to conclude they are not a hazard, obstructions are presumed to be a hazard to air navigation. Hazards to air navigation may include terrain, trees, permanent or temporary construction equipment, or permanent or temporary manmade structures.

Exhibit 4B. Part 77 Surfaces



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

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

Source: FAR 77 Obstruction Identification Surface (OIS)

The definitions for the FAR Part 77 surfaces are as follows:

Primary Surface: The primary surface is longitudinally centered on a runway and extends 200 feet beyond each end of the runway. The width of a primary surface ranges from 250 feet to 1,000 feet, depending on the existing or planned approach and runway type (e.g., visual, non-precision, or precision).

Horizontal Surface: The horizontal surface is a horizontal plane located 150 feet above the established airport elevation, covering an area from the transitional surface to the conical surface. The perimeter is constructed by swinging arcs from the center of each end of the primary surface and connecting the adjacent arcs by lines tangent to those areas. For all approaches to runways supporting large aircraft, the radius of each arc used to construct the horizontal surface is 10,000 feet.

Conical Surface: The conical surface is a surface extending upward and outward from the periphery of the horizontal surface at a slope of one foot for every 20 feet (20:1) for a horizontal distance of 4,000 feet.

Transitional Surface: Transitional surfaces extend outward and upward at right angles to the runway centerline, with the runway centerline extended at a slope of seven feet horizontally for each foot vertically (7:1) from the sides of the primary and approach surfaces. The transitional surfaces extend to where they intercept the horizontal surface at a height of 150 feet above the runway elevation. Transitional surfaces for those portions of the precision approach surface, which project through and beyond the limits of the conical surface, extend a distance of 5,000 feet horizontally from the edge of the approach surface and at right angles to the runway centerline.

Approach Surface: Longitudinally centered on the extended runway centerline, the approach surface extends outward and upward from the end of the primary surface. An approach surface is applied to each end of each runway based on the type of approach. The approach slope of a runway is 20:1, 34:1, or 50:1, depending on the sophistication of the approach. FAA approach surfaces are 20:1 for visual approaches, 34:1 for non-precision approaches, and 50:1 [1] for precision approaches.

According to the previous Master Plan, two areas of terrain penetration are located within the horizontal surface (elevation 3,401’ MSL) for Prineville Airport. Grass Butte (3,622’ MSL) and

[1] Precision instrument approach slope is 50:1 for inner 10,000 feet and 40:1 for an additional 40,000 feet.

Myers Butte (3,602' MSL) are located to the north and northwest of the airfield and penetrate the surface by up to 221 feet. A 100-foot radio (lighted) tower, located on the top of Meyers Butte, also penetrates the horizontal surface. Additionally, a small area of terrain penetrates the inner edge of the conical surface on the southwest slope of Grass Butte at an elevation between 3,400 and 3,450 feet MSL.

The Part 77 surfaces will be identified in drawings associated with the Airport Layout Plan (ALP). Existing Part 77 surfaces will be evaluated during the development of the ALP and any penetrations will be noted and addressed for removal, marking or lighting, or no action.

NAVIGATIONAL AIDS

Electronic and visual approach aids provide guidance to arriving aircraft and enhance the safety and capacity of the airfield. Such facilities are vital to the success of the airport and provide additional safety to passengers using the air transportation system. Instrument approaches are categorized as either precision or non-precision. Precision instrument approach aids provide an exact alignment and descent path for an aircraft on final approach to a runway while nonprecision instrument approach aids provide only runway alignment information. Most existing precision instrument approaches in the United States are instrument landing systems (ILS) utilizing glide slope and localizer electric equipment installed adjacent to the runway.

With the advent of Global Positioning System (GPS), stand-alone instrument approaches will eventually be established that provide vertical guidance down to visibility minimums currently associated with precision instrument runways. As a result, airport design standards that formerly were associated with a type of instrument procedure (precision/nonprecision) are now revised to relate instead to the designated or planned approach visibility minimums. The FAA is continuing to expand development and use of GPS for use in aircraft navigation and instrument approach procedures via Area Navigation (RNAV) and the Wide Area Augmentation System (WAAS). WAAS utilizes a network of ground-based antennas to send correcting signals to the GPS satellite constellation, allowing for ILS like accuracy.

Visual navigational aids at the Airport include a rotating beacon, wind indicators, and a four-box Precision Approach Path Indicator (PAPI) on Runway 28, a segmented circle and lighted wind cone located to the south of the intersection of the runways, a second unlighted wind cone is located near the intersection of Runway 33 end and the connecting taxiway and the recently installed Automated Weather Observing System (AWOS).

Instrument procedures published for the airport include an RNAV (GPS) approach to Runway 10, an RNAV (GPS) approach to Runway 28, and a NDB approach to Runway 10.

WEATHER REPORTING

An Automated Weather Observing System (AWOS) was installed at the Airport and commissioned on April 23, 2014. The AWOS will provide valuable weather data for pilots using the Airport. Additionally, the AWOS generated data will be analyzed once 10 year's data is available – to determine the crosswind coverage provided by the each runway as well as by the runway system.

PAVEMENT MARKINGS AND AIRFIELD SIGNAGE

Airport pavements are marked with painted lines and numbers in order to aid in the identification of the runway(s) from the air and to provide information to the pilot during the approach phase of flight. There are three standard sets of markings used depending on the type of runway:

- Basic - For runways with only visual or circle to land procedures. These markings consist of runway numbers and a centerline stripe.

- Non-precision - For runways to which a straight-in, non-precision instrument approach has been approved. These markings consist of runway numbers, a centerline stripe, and threshold markings.

- Precision - For runways with a precision instrument approach. These markings consist of the non-precision markings plus aiming point markings, touchdown zone stripes, and side stripes indicating the extent of the full strength pavement.

Depending on the type of aircraft activity and physical characteristics of the pavement, additional markings may be required for any of the three categories above. Runway pavement and displaced threshold markings are painted white, while taxiway pavement markings are painted yellow.

All runway and taxiway markings periodically need to be remarked so that they remain visible to the users of the Airport. As future pavement improvements are made, airfield markings should be put in place to comply with FAA Advisory Circular (AC) 150/5340-1K, Standards for Airport Markings.

Runway 10-28 has the standard markings for a non-precision runway while Runway 15-33 has the standard markings for a basic runway.

Runway number designations should be monitored to determine when runway numbers should be changed as magnetic declination shifts. Presently, Runway 10-28 is moving toward a new

runway designation of Runway 11-29 while Runway 15-33 is closer to a Runway 16-34 designation. Runway number re-markings are typically accomplished as part of other airfield projects for practical funding purposes. The Airport Layout Plan (ALP) update prepared as part of the master planning effort should identify the future runway designations.

AIRFIELD LIGHTING

Airport lighting systems provide critical guidance to pilots during nighttime and low visibility operations. Runway 10-28 is equipped with a Runway Edge Medium Intensity Lighting System (MIRL). Runway 15-33 is equipped with a Low Intensity Runway Lighting System (LIRL). Both systems are in good condition and are considered adequate for the planning period.

Runway 10-28 is not equipped with Runway End Identifier Lights (REIL). The provision of these lights may allow for the reduction of the GPS approach minimums. The feasibility of providing such system will be examined in further details in the Development Alternatives Chapter.

The parallel taxiway to Runway 10-28 as well as the taxiway connecting Runway 33 to Runway 28 are equipped with reflectors. The reflectors are in good condition. OAP 2007, recommends that taxiways at Local GA Airport be equipped with Low Intensity Taxiway Lights (LITL) at a minimum. The State System Plan states that Medium Intensity Taxiway Lights (MITL) are desirable at Local GA Airports.

LANDSIDE REQUIREMENTS

Landside facilities support airside operations, such as the facilities necessary for handling aircraft and passengers while on the ground. The landside facilities consist of the terminal building, hangars, apron, aircraft tie-down space, access roads, and other support facilities. The capabilities and capacities of the various landside components are examined in relation to the projected demand to help identify future landside facility needs.

TERMINAL BUILDING

A 3,245 square foot terminal building was dedicated on May 17, 2008. The building features a flight planning room with two computers that allow pilots to prepare their flight plans, and a weather station where pilots can get up-to-date weather information along the route of their flight. The building is equipped with Wi-Fi and is insulated with heat and air conditioning. A small conference room is also available and serves business travelers' needs.

The estimation of the terminal facilities needs is based on the number of airport users that are expected to use these facilities during the design hour. Industry practices are to provide 120 square feet per design hour itinerant passenger (space includes area needed for management operation). The number of passengers is determined by multiplying design hour itinerant operations by the number of passengers per aircraft (occupancy factor). An increasing occupancy factor was used (1.6 in 2013 to 1.8 in 2032) to account for the industry trend moving towards larger, more sophisticated aircraft using the airport. **Table 4J** illustrates the terminal area facilities requirements.

Table 4J. General Aviation Terminal Space Requirements

	Current	2018	2023	2033
Design Hour Total Operations	**32**	**33**	**35**	**39**
Design Hour Itinerant Operations	**10**	**12**	**13**	**15**
Occupancy Factor	**1.6**	**1.6**	**1.7**	**1.8**
Design Hour Itinerant Passengers	**16**	**19**	**22**	**27**
Required Space (s.f.)	**1,920**	**2,280**	**2,640**	**3,240**

Source: WHPacific

As shown in **Table 4J**, the 3,245 square feet terminal building is adequate for the planning period.

HANGARS

The space required for hangar facilities is dependent upon the number and type of aircraft expected to be based at the airport. Other factors that can influence hangar use include the intensity of weather conditions, security concern, hangar lease rates and hangar space availability. Aircraft hangars at the Airport provide storage for many of the based aircraft as well as for some limited transient aircraft. There are County-owned hangars as well as tenant-built hangars on ground leases.

Currently, most based aircraft at the airport are stored in hangars with a small portion using tie-down space. The forecast chapter estimated that the number of based aircraft will increase by 21 aircraft by 2033. This increase includes 17 single engine aircraft, 1 multi-engine aircraft, 2 jets and one ultra-light aircraft.

The hangar space requirements analysis assumes that all newly based aircraft will require hangar space due to them representing newer and more expensive aircraft. Additionally, it is assumed that 75 percent of existing single engine aircraft fleet requires T-hangar space with the remaining 25 percent of single engine aircraft and 100 percent of multi-engine aircraft, jets and helicopters requiring conventional hangar space. It is assumed that the ultra-light aircraft will not be hangared.

A planning standard of 1,200 square feet per single engine aircraft has been used along with a planning standard of 3,000 square feet per multi-engine aircraft, jet or helicopter. Since portions of conventional hangars are also used for aircraft maintenance and servicing, requirements for maintenance/service hangar area were estimated using a planning standard of approximately 15 percent of the total hangar space needs.

Table 4K illustrates the additional hangar space needed throughout the 20-year planning period. For long-term planning purposes, possible hangar development area needs beyond the 20-year planning window (shown in Table 4K) should be considered in the development alternatives.

Table 4K. Additional Hangar Space Needed (square feet)

PLANNING ACTIVITY LEVEL	Short (2018)	Mid (2023)	Long (2033)	Planning Period Total
ADDITIONALAIRCRAFT TO BE HANGERED				
Additional Single Engine	4	3	10	17
Additional Multi-engine	1	0	0	1
Additional Jets	0	1	1	2
Additional Helicopters	0	0	0	0
HANGAR POSITIONS				
T-hangar	3	2	8	13
Conventional	2	2	4	7
Total	5	4	11	20
HANGAR AREA REQUIREMENTS (square feet.)				
T-hangar Area	3,600	2,700	9,000	15,300
Conventional Hangar Area	4,200	3,900	6,000	14,100
Maintenance Area	630	585	900	2,115
Total Additional Area Needed	8,430	7,950	17,430	33,810

Source: WHPacific

The airport manager indicated that the existing hangars are fully occupied. As shown in Table 4L, and additional 33,180 square feet of hangar space is needed for the 20-year planning period. This includes the need for 8,430 s.f. of hangar space by 2018, an additional 7,950 for the period between 2018 and 2023, and an additional 17,430 s.f. of space for the period between 2023 and 2033.

AIRCRAFT PARKING APRON

Apron frontage is considered a premium airport space and should be strategically utilized with the highest and best use. The planning and design of aprons must take into account the location of the airport terminal building, and other aviation related access facilities at an airport. Aprons

provide parking for based and transient airplanes, access to the terminal facilities, fueling, and surface transportation.

The apron space needs at Prineville Airport are separately determined for transient and based aircraft as the space requirements for these two categories differ. As mentioned in the Inventory Chapter, the Airport is served by two parking aprons with a total area of 26,600 square yards. Additionally, the northern end of the central apron is used for the single engine air tanker (SEAT) aircraft parking and ground operations associated with seasonal fire response activities and is reserved for that purpose.

As noted in the analysis of hangar space requirements above, it is expected that all future based aircraft – with the exception of the ultra-light - will be stored in enclosed hangar storage facilities. If hangars are not provided, additional apron space will be required. For planning purposes, it is assumed that 20 percent of locally based aircraft will require space on the parking apron due to some aircraft requiring both hangar storage and parking apron space.

Transient apron space is determined by estimating the percentage of busy-day operations that will require tie-down space at a given time. A planning criterion of 360 square yards per based aircraft and 500 square yards per transient aircraft was used to determine the apron requirements. These dimensions take into the account the space needed for circulation, taxilane Object Free Areas (OFA) and wingtip clearances.

Table 4L illustrates the apron space needs for the planning period. It shows that the existing apron space is sufficient for the planning period but the demand has already exceeded 60% of the available capacity and is expected to reach 80% by 2033.

This indicates the need for planning for additional apron capacity. Additionally, as previously mentioned, a portion of the existing apron space is reserved for the single engine air tanker (SEAT) aircraft parking and operations. Therefore, the space available for the based and itinerant aircraft parking is well below 26,600 square yards and the demand/capacity ratio is higher than the 66% shown in **Table 4L**.

Table 4L. Apron Space Requirements

Operations	Existing	2018	2023	2033
Annual operations	46,522	49,161	51,949	58,007
Peak Month	6,513	6,883	7,273	8,121
Design Day (Average Day of Peak Month)	210	222	235	262
Itinerant Operations (37% of Design Day)	78	82	87	97
ITINERANT AIRCRAFT				
Itinerant Aircraft Landing	39	41	44	49
Aircraft Simultaneously Parked (50%)	20	21	22	25
BASED AIRCRAFT				
Total Based Aircraft	124	129	134	145
Based Aircraft Using Apron	25	26	27	29
REQUIRED POSITIONS				
Total Aircraft Parked	45	47	49	54
APRON AREA REQUIREMENTS (SQUARE YARDS)				
Itinerant Aircraft Apron Area	10,000	10,500	11,000	12,500
Based Aircraft Apron Area	7,500	7,800	8,100	8,700
Total Apron Area Required	**17,500**	**18,300**	**19,100**	**21,200**
CAPACITY VS. DEMAND				
Existing Terminal Area Apron Available	26,600	26,600	26,600	26,600
Additional Apron Required	0	0	0	0
Demand/Capacity Ratio	66%	69%	72%	80%

Source: WHPacific

FIXED BASE OPERATORS (FBO)

As mentioned in the Inventory Chapter, the Airport is served by a number of Fixed Base Operators (FBOs). Prineville Aviation and High Desert Aviation provide aircraft maintenance, aircraft rentals and flight training instructions. Additionally, Hillsboro Aviation provides flight training instruction at the Airport.

Prineville Airport also has two courtesy cars and there are car rental facilities and hotel accommodations available off airport. The Airport also provides aircraft parking (ramp and tie-down), pilot supplies, and public telephone and restrooms. Avgas and Jet fuel are also provided by the Airport and will be discussed in a subsequent section.

FUEL STORAGE

The airport owns two underground fuel storage tanks (12,400 gallons capacity each). These tanks are equipped with leak detection systems and meet all environmental regulations. In addition, the Airport owns and operates a 750-gallon full service 100 LL truck and a 2,000-gallon full service Jet A truck.

It is generally recommended that the airport has the capacity to store a minimum of two-weeks supply of fuel. Fuel sales records provided by the Airport Manager and illustrated in **Table 2A** in Chapter 2, and the operations forecasts developed in Chapter 3 show that the existing fuel storage capacity is sufficient for the planning period.

VEHICULAR ACCESS AND PARKING

VEHICULAR ACCESS

Airport access is provided through an access road from State Road 126. It should be noted that the 2005 Prineville Transportation Plan proposes conceptual improvements to the Airport access that have yet to be finalized, but may include a "round-about". The Development Alternatives Chapter will examine a number of alternatives to improve access to the Airport.

VEHICULAR PARKING

Vehicle parking on the Airport consists of a paved parking area in front of the terminal building. Additionally, limited parking is included with each hangar unit. Private aircraft owners often park inside of their hangars and are provided access through the vehicle access gate.

It is recommended that Prineville Airport adds more parking spaces as more aeronautical activities are developed. Alternatives to provide for additional parking spaces will be developed in the next chapter.

EMERGENCY SERVICES AND SECURITY

EMERGENCY SERVICES AND LAW ENFORCEMENT

There are no aircraft rescue and firefighting (ARFF) facilities located at Prineville Airport. ARFF services are the responsibility of the Crook County Fire & Rescue. The closest fire station is located 3.9 miles away from the Airport and has an estimated response time of less than 8 minutes. Based on FAA regulations, Prineville Airport is not required to provide Aircraft Rescue and Fire Fighting (ARFF) since the Airport does not have the commercial passenger service that would require a Part 139 certificate.

AIRPORT SECURITY

With the exception of three general aviation airports located within the Flight Restriction Zone around Washington DC, the Transportation Security Administration (TSA) does not regulate GA airports.

The Airport Characteristics Measurement Tool (ACMT), published in the TSA Information Publication IP-001, is considered the standard security assessment tool available for GA airports. TSA states that the document aims to provide effective and reasonable security enhancements at GA facilities across the Nation; to the extent the procedures and recommendations are consistent with the airport's circumstances. The ACMT uses points to assess security risks for different airport characteristics. **Table 4M** summarizes the results of the Prineville Airport assessment.

The ACMT separates GA airports into four categories: 0 to 14 points, 15 to 24 points, 25 to 44 points, and greater than 45 points. Based on the assessment presented in **Table 4M**, the Prineville Airport currently falls into the 15-24 points category and will move to the 25 to 44 points category once the number of annual operations exceeds the 50,000 threshold in the medium-term (5 to 10 years).

Table 4M. GA Airport Security Assessment – Prineville Airport

Security Characteristics	Prineville Airport Existing Conditions	Prineville Airport Future Conditions
Greater than 101 Based Aircraft	3	3
Based Aircraft over 12,500 lbs.	3	3
Runway 5,000 feet or greater	5	5
Asphalt or Concrete Runway	1	1
Over 50,000 annual aircraft operations	0	4
Part 135 Operations	0	3[2]
Flight Training	3	3
Rental Aircraft	4	4
Total	**19**	**26**

Source: Security Guidelines for General Aviation Airports (IP A-001), May 2004, and Prineville Airport Conditions
[2] Based on a current tenant's future stated intentions.

The TSA recommendations for airports in the 15 to 24 points category include:

- Security Signs
- Documented Security Procedures
- Positive Passenger ID
- Fencing to limit access to the airport
- Community Watch to enlist the support of the pilot community to watch for suspicious activity
- Contact List
- Law Enforcement Officer Support
- Security Committee
- Transient Pilot Sign In/Out Procedures

In addition to the recommendations associated with the 15 to 24 points category, the TSA recommendations for the 25 to 44 category also include:

- Access Controls
- Lighting System
- Personnel ID System
- Vehicle ID System
- Challenge Procedure

The Airport has some of these security enhancements in place today, but should consider integrating and enforcing the rest of these recommendations as the airport grows.

FENCING AND GATES

The Prineville Airport has an access gate at the airport's entrance and another four-foot gate that controls entry to the aircraft movement areas. Perimeter fencing along the airport's boundaries is virtually nonexistent; remains of an old range fence are in bad condition and need to be removed. Security does not appear to be an issue, as no incidents have been reported. Fencing around the entire airport property is needed in order to ensure that wildlife hazards, such as deer and elk, do not access the airport operations area.

AIRPORT EQUIPMENT AND STORAGE

The Airport owns a dump truck/snow plow and a pick-up with an articulating blade attachment. The Airport also owns a sweeper that appears to be past its useful design life. The equipment was purchased with local funds 20-30 years ago. It is recommended that the Airport utilize state and local funding sources to acquire a new sweeper so that it is able to quickly and easily remove foreign object debris (FOD) off the airfield pavements for safer operations at the airport. It is also recommended that the Airport construct an SRE/Maintenance Building to house the snow plow, articulating blade and sweeper along with other equipment with state and local funds.

SUPPORT FACILITIES

It is recommended that the Airport consider adding an aircraft/equipment wash pad on the airport property for tenant and staff use. The Airport does currently have a designated area for tenants to clean their aircraft that could be used to accommodate the wash pad.

UTILITIES

The City of Prineville provides water and sewer to the airport. Electrical power is provided by Pacific Power & Light and telephone and fiber optic lines are provided by Bend Broadband and do reach the terminal building, but not the rest of the Airport. The area to the west of Runway 15-33, including the area where three banks of T-hangars are located, is not served by electrical power. The extension of utility lines to that portion of the Airport is needed.

Additionally, any new development must include the associated extension of utility lines to serve the development. As development alternatives are prepared in the next chapter, utility infrastructure needs for certain parts of the airfield will be examined.

AGRICULTURAL AIRCRAFT FACILITY

An agricultural aircraft facility is located near the end of Runway 28 and can accommodate up to two aircraft. The facility is used for aircraft loading and storage of equipment, water and mixing tanks, and chemical/pesticides drums. The need for expanding and/or relocating the agricultural facility area will be examined in the Development Alternatives.

BLM HELIPADS/OPERATIONS AREA

Two helipads are located to the southeast of Runway 28. These helipads are identified as separate operations from the airport with the OR77 designation and accommodate the operations of the Bureau of Land Management (BLM). Another BLM helicopter operations area is located to the southeast of Runway 33.

The possible consolidation of the BLM operations and aircraft parking areas will be examined in the next chapter. Airport management will work with BLM staff in the future to remove the OR77 designator and combine all operations under the single S39 designator based on the outcome of the development alternatives. Additionally, the need for additional helipads at the Airport to accommodate the increased helicopter traffic will also be discussed as part of the development alternatives.

SUMMARY

This chapter outlined the facilities required to meet aviation demand projected for Prineville Airport through the long-term planning horizon. The next chapter will present development alternatives that best serve the projected demand and facility improvement needs.

Chapter Five ALTERNATIVES

Prineville Crook County Airport Master Plan Update

The Inventory Chapter documented the airport's existing facilities and services and the Forecasts Chapter provided projections of estimated airport activity over the 20-year planning period. The Facility Requirements Chapter examined the ability of existing facilities and services to serve the projected demand. The need for improvement to existing facilities and services and/or the provisions of new and additional services and facilities was identified and documented.

The Development Alternatives Chapter examines the various alternatives for providing the needed facilities and services at the Prineville Airport while still complying with FAA design standards and serving the regional and national air transportation systems. While there may be numerous possibilities for airport development, this chapter presents three development alternatives that accommodate the identified airside and landside developments. It's important to note that the initial draft of the Alternatives Chapter preceded the Planning Advisory Committee (PAC) work session where the PAC members discussed and comparatively evaluated the various development possibilities. This chapter was subsequently updated following that work session so the results could be documented. The work session concluded with the PAC

members identifying a preferred development alternative that was recommended to the City of Prineville and Crook County. The City and County completed a preliminary review of the preferred alternative recommendation from the PAC including a review of the adjacent property impacts. This resulted in changes to the preferred alternative—all documented in later sections of the report.

Each of the presented development alternatives combines a set of components and land uses. The final preferred alternative that will emerge at the end of this chapter is a composite of the various alternatives presented. The preferred alternative consists of the components identified as the most favorable from each of the three alternatives provided. The PAC, public, City of Prineville and Crook County were encouraged to introduce new elements during the comparative evaluation.

It should be noted that the aviation forecasts, developed in Chapter 3, align with the current conservative national outlook. Airport businesses and tenants have indicated that their business plans, if and when fulfilled, would generate activity that far exceeds the projections presented in the forecasts chapter—an important factor to consider in identifying and evaluating long-term development options. Further, since aviation activity is highly susceptible to fluctuations in economic conditions and industry trends, the development of facility improvements and/or new facilities should be demand-driven rather than associated with specific years.

Accordingly, the development alternatives consider aviation demand and facility improvement needs beyond the projected 20-year planning period in order to protect the long-term viability of the Airport as well as accommodate accelerated and/or unanticipated demand within the planning period. This prudent planning approach allows the City of Prineville and Crook County to better respond to such unforeseen needs in the future.

Finally, it's important to point out that the development alternatives take a visionary approach and include various land use areas for types of airport uses/functions rather than detailed layouts of facilities, which often change as the planning process evolves. Ultimately, the details of future development will be incorporated into the Airport Layout Plan (ALP) drawing as the planned development is refined and finalized. However, some areas on the airport may remain designated by land use, such as aviation reserve, when development is anticipated in the long-term with future airport master planning updates expected to address that development.

SITE ANALYSIS

Prior to the identification of the development alternatives, it is important to understand the various opportunities for development and/or potential challenges or constraints associated with the improvements at the Airport. The site analysis element of this chapter provides an overview and understanding of these opportunities and challenges. Development opportunities are those site features that offer flexibility and possibility for development; an example might be the availability of vacant/undeveloped land on airport property. Development challenges and constraints are limitations that may restrict or prohibit the development and/or require substantial cost, mitigation and/or complex engineering solutions to overcome.

An overview of the physical development opportunities and challenges that influence the Airport's development potential follows.

DEVELOPMENT OPPORTUNITIES

Site development opportunities at Prineville Airport include:

- Undeveloped/vacant flight line property within the airport property, to the north of Runway 10-28 and to the west of Runway 15-33.
- Undeveloped airport property aligned with Runways 10 and 15 extended centerline (beyond runway ends) allows for long-term approach/departure airspace protection and possible runways extensions in the future, if and when such extensions are justified.
- Existing utility infrastructure on the southeast side of airport property.
- Limited to no known documented environmental issues on Airport. Additionally, residential development, which is noise-sensitive, is not located adjacent to the airport.
- Airport access provided via Highway 126, a major highway.

DEVELOPMENT CHALLENGES

Site development challenges and/or constraints include:

- Lack of utilities to the north of Runway 10-28 and to the west of Runway 15-33. The expansion of utilities to these areas is necessary to serve any future development and constitutes an added cost.
- Existing southeast portion of the Airport property has experienced significant growth. Given development patterns in that area, it is not possible to have any large scale or campus type developments in that area. Future large scale development must occur to the north of Runway 10-28 and/or west of Runway 15-33. As previously mentioned,

additional costs relating to the expansion of utilities to these portions of the Airport property would add to the cost of any future development(s).

- Close proximity of Highway 126 to Runways 28 and 33. Although the highway's proximity is considered a benefit in terms of access to the airport, it does constrain future extensions of these runways. Currently, the Runway Protection Zones (RPZ) for both Runways 28 and 33 encompass portions of Highway 126. The Federal Aviation Administration (FAA) considers roads passing through the RPZ an "incompatible land use".

IDENTIFICATION OF ALTERNATIVES

The identification of alternatives starts with a recap of the identified facility improvement needs for the planning period. This includes the airside as well as landside facility needs.

AIRSIDE FACILITY NEEDS

The requirements chapter identified a number of airside needs, which are summarized here.

- Runway 15-33 width of 40 feet does not comply with the FAA-recommended width of 60 feet for runways serving A-I and B-I small aircraft.
- Runway 15-33 pavement strength of 5,000 pounds single wheel is below the 12,500 pounds single wheel that is the standard for serving small aircraft.
- Highway 126 crosses the runway protection zones (RPZ) of Runways 28 and 33. This is considered an incompatible land use that will be addressed based on the Interim Guidance on Land Uses within a Runway Protection Zone published by the FAA in September of 2012. Additional discussion relating to the FAA guidance is provided later in the chapter.
- Pavement maintenance and rehabilitation needs were identified in the previous chapter. A five year pavement maintenance program was developed as part of the pavement management program. This Master Plan will recommend that this program be implemented.
- Runway lengths are adequate for the planning period. However, as noted in the Requirements Chapter, the City and County with the support of the advisory committee believe it is prudent to look in to the possibility that in the future, beyond the term of this master Plan, additional runway may be needed. Protection of the ability to extend either of the two runways is a prudent/sustainable approach to ensure the long term viability of the airport. Runway 15-33 is not served by a parallel taxiway. The provision of such a taxiway would reduce the Runway Occupancy Time and increase the capacity

of the runway system. Further, a parallel taxiway enhances the safety of airfield operations during peak seasonal activities and as total operations grow in the future.

LANDSIDE FACILITY NEEDS

The requirements chapter also identified the need for landside facilities at the Airport. These needs include:

- The need for additional hangar space including the need for 8,430 square feet of hangar space in the short term (2018) and a total need of 33,810 square feet of hangar space for the 20-year planning period.
- The existing apron space is sufficient for the planning period based on the forecasts. However, circulation issues identified by airport users and the high levels of activity during firefighting season support the need for apron improvements in the near term.
- The need for a new fuel farm has been documented prior to the kickoff of this Master Plan. The existing fuel farm was installed in fall 1979. Due to the age of the tanks, increasing cost of liability insurance, and maintenance costs, the Airport is presently in the process of securing funding for a new fuel farm facility. All development alternatives incorporate the near-term replacement of the fuel farm.
- The provision of a secondary access road to the airport might prove necessary and is a function of the recommended development concepts.
- As previously mentioned, the southeast portion of the Airport property has seen substantial development. While portions of that area can be redeveloped to increase efficiency of use and other limited areas provide for expansion opportunities, any substantial large scale development must be accommodated elsewhere. These other areas include the north side of Runway 10-28 and/or the west side of Runway 15-33. Such development would inherently require the extension of the existing access roads to serve the new development and/or the provision of new access.
- Based on the GA Airport Security Assessment Tool developed by the Transportation Security Administration (TSA), it is recommended that the Prineville Airport be fully fenced. Fencing is also an important element in protecting the airfield from wildlife hazards such as elk and deer that have been reported in the vicinity of the airport.

OTHER IMPORTANT ISSUES

This section reviews some of the important issues cited in previous chapters that are relevant to the alternatives development process.

RUNWAY 15-33 FUNDING ELIGIBILITY

Runway 15-33 serves as the crosswind runway. It is recognized as an essential part of the runway system by airport users.

The FAA considers a crosswind runway eligible for federal funding when the primary runway fails to provide a 95% crosswind coverage. As discussed in the previous chapter, historical wind data from Prineville is not available; an AWOS system was installed and commissioned on April 23, 2014. The FAA recommends the use of 10 years of wind data in order to determine the eligibility of a runway.

The closest historical wind data, from Redmond, indicates that Runway 15-33 is eligible for funding since the wind data reveals that Runway 10-28 does not provide the 95% coverage threshold. As a result, this Master Plan assumes that Runway 15-33 is eligible for funding. In the future, another wind analysis be conducted using Prineville's ten years of wind data.. This approach to determining the Runway 15-33 eligibility for federal funding has been coordinated with the FAA with their concurrence.

RUNWAY PROTECTION ZONE INTERIM GUIDANCE

As mentioned in the Requirements Chapter, Ochoco Highway passes through the Runway Protection Zones (RPZ) of both Runways 28 and 33.

On September 27, 2012, the FAA issued a Memorandum titled "Interim Guidance on Land Uses within a Runway Protection Zone." An excerpt from this guidance follows:

> *Regional and ADO [1] staff must consult with the National Airport Planning and Environmental Division, APP-400 (who will coordinate with the Airport Engineering Division, AAS-I OO), when any of the land uses described in Table 1 would enter the limits of the RPZ as the result of:*
>
> 1. *An airfield project (e.g., runway extension, runway shift)*
> 2. *A change in the critical design aircraft that increases the RPZ dimensions*
> 3. *A new or revised instrument approach procedure that increases the RPZ dimensions*
> 4. *A local development proposal in the RPZ (either new or reconfigured)*

[1] Airport District Office

Among the uses described in Table 1 of the Memorandum are transportation facilities such as public roads and highways.

The required coordination with the FAA is focused on finding a solution that addresses the incompatible use within the RPZ. The guidance also states that "This interim policy only addresses the introduction of new or modified land uses to an RPZ and proposed changes to the RPZ size or location. Therefore, at this time, the Regional Office and the Seattle Airport District Office staff will continue to work with sponsors to remove or mitigate the risk of any existing incompatible land uses in the RPZ as practical."

The FAA's interim guidance should be considered in the evaluation of development alternatives, with consideration for its interim status and the fact that final guidance, which may or may not differ from the existing interim guidance, will be published prior to any of the above mentioned triggering events taking place.

DEVELOPMENT ALTERNATIVES

The identification of long-term development alternatives or concepts followed the site analysis. These alternatives address the facility requirements outlined in the previous chapter as well as potential development beyond the 20-year master planning period. This ensures that the future airport property needed and the airport environs are protected now. This would be accomplished through a combination of land acquisition and City and County zoning strategies.

Three individual long-term development alternatives for the Airport were prepared. Although these concepts do not necessarily exhaust all the variations and development design that may be applied to the Airport, they do provide the appropriate base to produce the "preferred alternative" for the future development of the Airport. It's important to reiterate that the "preferred alternative" is most often a blend or composite of the most favorable components from each alternative.

In addition to the development alternatives that propose facility improvements, a "no-build alternative" is presented for the purpose of comparison.

All proposed improvements and developments are consistent with the applicable FAA design standards and FAR Part 77 airspace planning standards. Airside facilities proposed, including the primary runway, major taxiways, aircraft parking apron and access taxiways used by business aircraft, are designed for Airplane Design Group (ADG) II. While the aviation demand forecasts presented in Chapter 3 support the airport's continuing designation as a B-II airport through the 20-year planning period, one alternative identifies the implications of upgrading the airport in the distant future to C-II, which accommodates a greater range of business jets with faster

approach speeds. The other alternatives support a B-II scenario. Land use designations are used for several aviation uses/functions such as Flight Training, USFS, Corporate GA, and Small GA. Other land use designations are provided to generate discussion about the long-term vision and use of the airport. These land uses may be permanent, interim, or flexible such as suggested with reference to Aviation Reserve. Reference to Special Use Tenants, Large Aviation Tenants, and Aviation Compatible Development refer to a broad range of possibilities that could include aviation market niches or spinoff businesses associated with aviation that the Airport may pursue—possibly in coordination with local and regional economic development efforts. Interim land uses could include agriculture, and solar farms, to name a few. These are often identified as interim since the predominant purpose of the airport is to serve aviation users. Further, the airport property, as identified on a property map for the FAA, commits that property for aviation purposes. However, the FAA recognizes a sponsor's interest in generating revenue to make the airport as financially self-sufficient as possible and to support future improvements. Therefore, interim land uses suggest that property may be used for purposes other than aviation until such property is necessary for aviation use. Such interim uses must be compatible with airport operations. The development alternatives presented in this chapter make mention of possible interim uses at Prineville Airport since the existing airport property consists of substantial undeveloped areas of land that could generate income.

The alternatives presented below represent the first step in a multi-step process that involves the public and the PAC and leads to the City of Prineville and Crook County selecting a "preferred alternative" to be shown on the Airport Layout Plan (ALP).

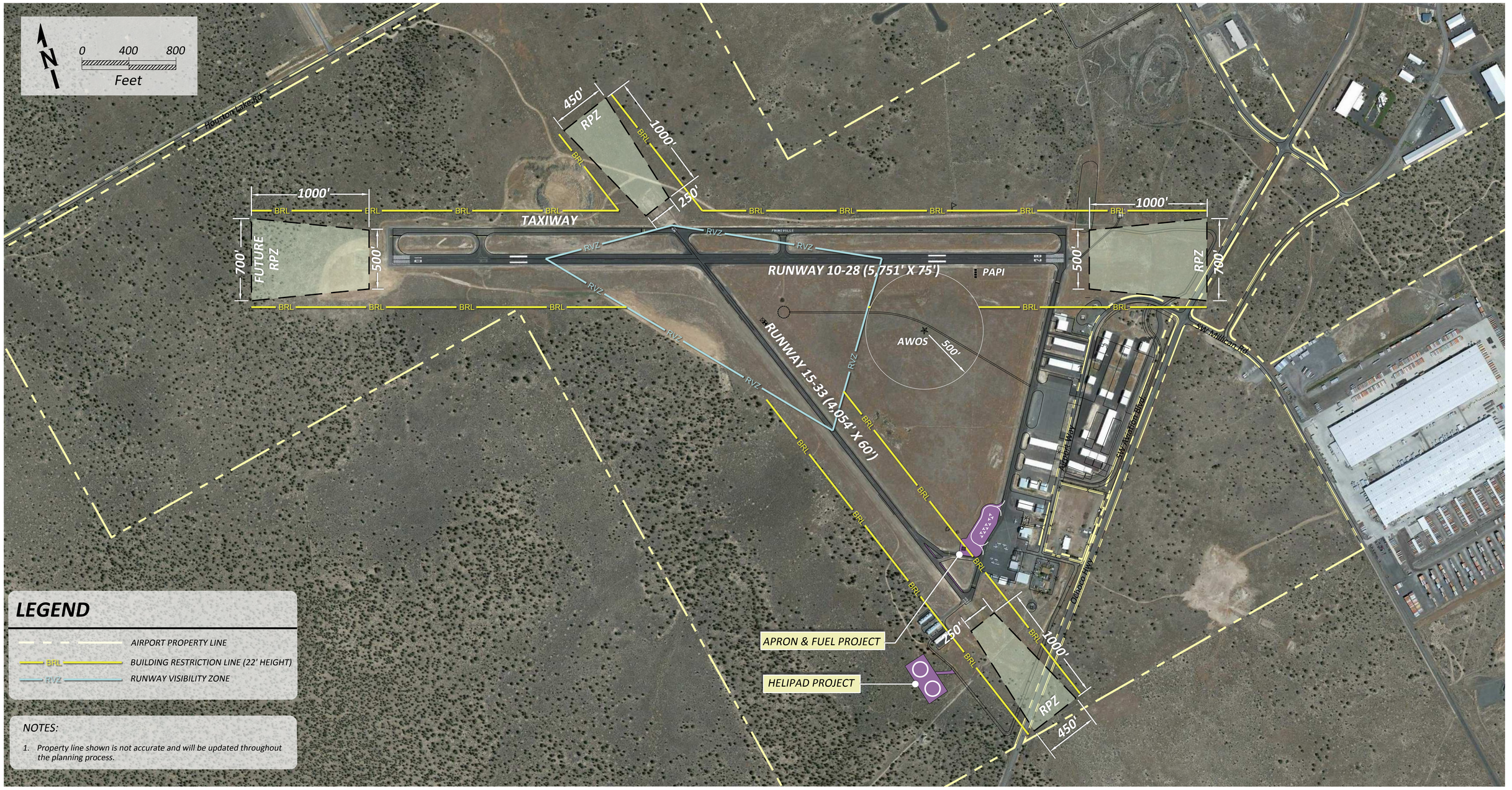
The following sections describe the development concepts identified for the Prineville Airport.

NO ACTION ALTERNATIVE (NO BUILD)

As noted above, the No Action alternative is specifically included for comparison purposes. This alternative, also known as the "no build" alternative, assumes the City and County would maintain the existing facilities, but would not construct any additional facilities to serve future demand. However, this does not preclude any operational improvements that may enhance safety and capacity. The No Action Alternative is shown in **Exhibit 5A**.

ALTERNATIVE 1

Alternative 1, depicted in **Exhibit 5B.1,** considers the distant future needs of growing business jet traffic, the limited capacity remaining for landside development to the east, the anticipated expansion needs of flight training (based on input from Hillsboro Aviation), and the fire response facility support needs of the USFS. Airside improvements include a runway extension to the west



City of Prineville

PRINEVILLE AIRPORT

AIRPORT MASTER PLAN UPDATE

No Action

Exhibit 5A

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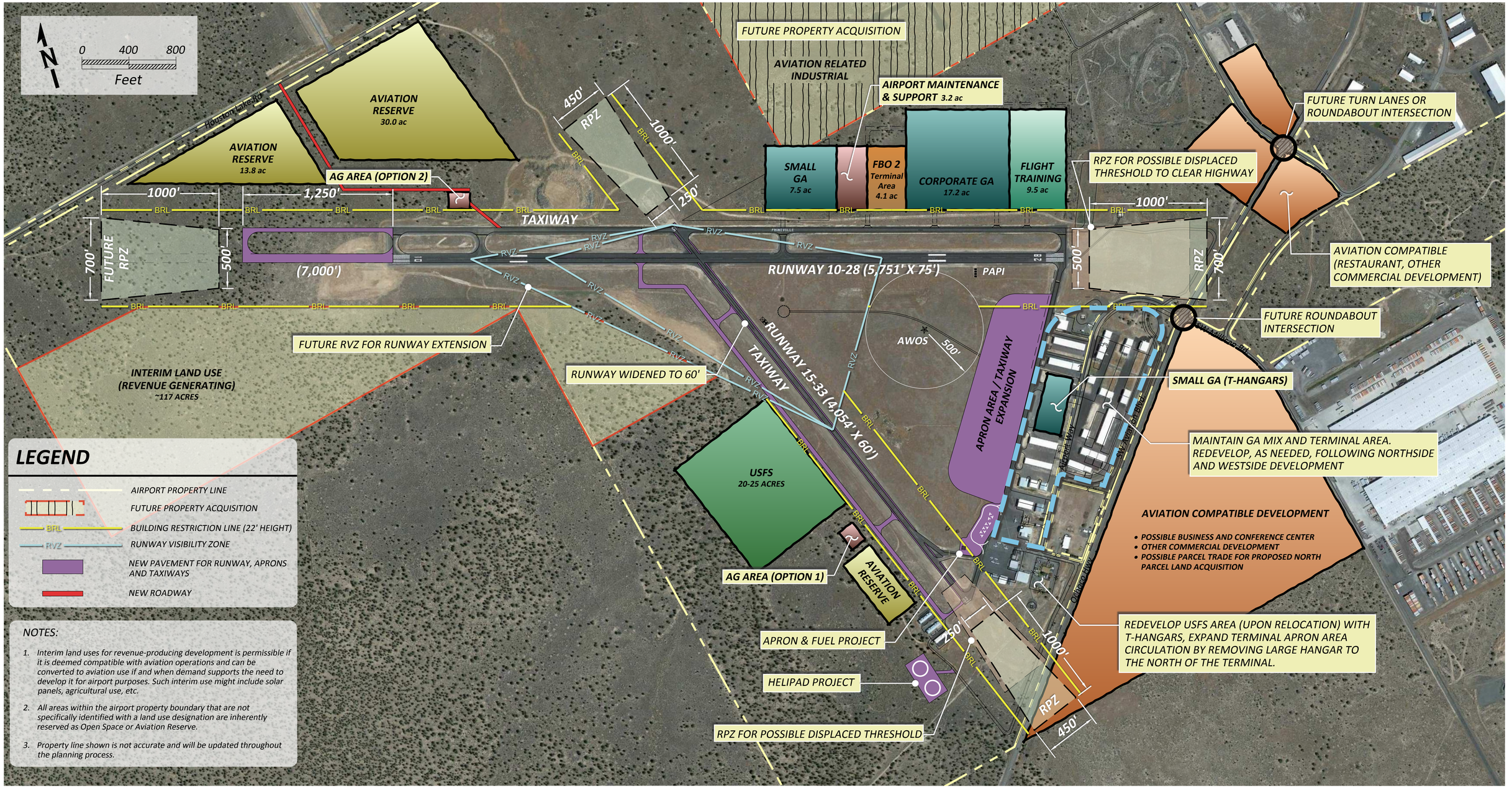

LEGEND

- AIRPORT PROPERTY LINE
- FUTURE PROPERTY ACQUISITION
- BRL — BUILDING RESTRICTION LINE (22' HEIGHT)
- RVZ — RUNWAY VISIBILITY ZONE
- NEW PAVEMENT FOR RUNWAY, APRONS AND TAXIWAYS
- NEW ROADWAY

NOTES:

1. Interim land uses for revenue-producing development is permissible if it is deemed compatible with aviation operations and can be converted to aviation use if and when demand supports the need to develop it for airport purposes. Such interim use might include solar panels, agricultural use, etc.
2. All areas within the airport property boundary that are not specifically identified with a land use designation are inherently reserved as Open Space or Aviation Reserve.
3. Property line shown is not accurate and will be updated throughout the planning process.

City of Prineville

PRINEVILLE AIRPORT
AIRPORT MASTER PLAN UPDATE

Alternative 1

Exhibit 5B.1

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to ultimately provide 7,000 feet of runway, which accommodates a greater range of B-II jets such as the Falcon 50 and Falcon 900 as well as some additional C-I and C-II activity on a less frequent basis. Possible displaced thresholds are noted for Runway 28 and 33 to eliminate the highway from the RPZ. With the Eastside development potential constrained between Runway 28 and Runway 33, this concept identifies the north side for long-term expansion of hangar and apron area to serve various segments of airport users while separating the seasonal high frequency USFS use for fire response. Redevelopment in the existing building area is also identified. Aviation reserve parcels, aviation compatible development parcels, and interim land use areas for revenue-generating purposes are also addressed.

Flight Training. Located at the east end of the north development area to provide an open 270-degree space for helicopter training and to allow separation from fixed wing aircraft to the west. With the significant increase in training activity anticipated, the location of the flight training area provides quick access to the highway.

Corporate GA. A large corporate GA area is designated to the west of the flight training, which provides substantial airfield frontage/flightline area with access to the highway nearby. Remaining near the east end of the airfield helps minimize auto access distance to the highway. Further, the aircraft taxi distance to the existing terminal area is minimized, which is beneficial as development on the north side is phased.

FBO 2/Terminal Area. The current terminal area and FBO services are sufficient for the master planning window of 20 years, but consideration of more distant future needs is important since there are various parcels of undeveloped land ideal for expansion of aviation facilities with the potential need for a second full-service FBO, particularly for the corporate GA users.

Airport Maintenance and Support. This land use area builds in flexibility to accommodate potential airport equipment storage and shop facility needs with quick and easy access to the primary runway.

Small GA. With smaller based aircraft flying less frequently than larger more sophisticated aircraft like Corporate GA, placement of this user farthest from highway access makes sense. This Small GA area location is also closer to Crosswind Runway 15-33, which primarily serves small aircraft most susceptible to crosswind conditions. Small GA (T-hangars) can be expanded in the existing building area as well with the adjacent expansion of apron.

USFS. This concept separates the USFS seasonal activity from other aviation users to the east and proposed to the north since fire response activity can include a high frequency of continuous operations during fire season by both rotor and fixed wing aircraft. This separation also provides the USFS with the flexibility to develop into an airbase. While shown closer to the south end of the airfield, this development could shift north providing closer access to Runway 10-28 and more central access to Runway 15-33.

Ag Area. The Agricultural Area (Ag Area) land use designation refers to the aerial applicator operations, which are often separated from other GA activity and require environmental design considerations beyond the typical needs of other land uses. This alternative identifies two possible options for the Ag Area placement – one to the northwest of the airfield and one located midfield to the west of Runway 15-33.

Roadway Access and Utility Infrastructure Improvements. While all necessary access roadways are not identified on the development alternatives, a new roadway would be needed to access the north development area from Ochoco Highway (Highway 126) -- likely via Tom McCall Road. Utility infrastructure improvements would also be required to extend water, power, and sewer to facilities. Access and utility improvements will be addressed as development plans for the Airport evolve.

Existing Eastside Facility Redevelopment. As development occurs around the Airport and tenants within the existing Eastside facilities relocate to their future land use areas, the Eastside facilities may be redeveloped. In the terminal area to the south, this redevelopment may include expansion of the apron area for increased circulation by removing the large hangar adjacent to the terminal building in addition to the planned project to relocate the fuel. Once the USFS moves from its location at the south end, this area may be redeveloped with T-hangars, but other options are possible to include one or business tenants. Additional T-hangars may be constructed on the north apron when additional apron is constructed to the west.

Aviation Compatible Development. This proposed development across the highway would generate revenue for the Airport with possibilities that could include a combination of uses. While development that is revenue-producing and compatible with airport operations may be identified and discussed as part of this study, the focus of the master plan is on aviation uses and needs. Once the general location of the aviation uses are identified for future development, other development may be considered. Revenue-producing development may include a business and conference center and other commercial development. All or part of this parcel could also be traded for the proposed north parcel acquisition. Aviation compatible development is also shown to the north.

ALTERNATIVE 1R

Alternative 1R is a modification of Alternative 1 to generate discussion about the possible closure of Crosswind Runway 15-33, identified in **Exhibit 5B.2**. While it is recognized that this runway is serving a number of operations, particularly by smaller aircraft during strong crosswind conditions, this concept is presented to address what it would mean to airport users/stakeholders to open up more flight line on the south side of Runway 10-28. Recently, the FAA stated that they are willing to consider funding Runway 15-33 improvements based on the wind data analysis conducted and submitted in early 2014. However, the lower priority ranking of this runway may ultimately require funding from sources other than the FAA. Further, the FAA

N

0 400 800

Feet

Houston Lake Rd

FUTURE PROPERTY ACQUISITION

AVIATION RELATED INDUSTRIAL

AIRPORT MAINTENANCE & SUPPORT

SMALL GA

FBO 2 Terminal Area

CORPORATE GA

FLIGHT TRAINING

FUTURE TURN LANES OR ROUNDABOUT INTERSECTION

RPZ FOR POSSIBLE DISPLACED THRESHOLD TO CLEAR HIGHWAY

AG AREA (OPTION 2)

1000'

1,250'

1000'

BRL

TAXIWAY

700'

FUTURE RPZ

500'

(7,000')

TAXIWAY

RUNWAY 10-28 (5,751' X 75')

PAPI

500'

RPZ

700'

FUTURE ROUNDABOUT INTERSECTION

AG AREA (OPTION 1)

USFS (20-25 ACRES)

AVIATION RESERVE

AWOS

500'

RUNWAY 15-33 (CLOSED)

MAINTAIN GA MIX AND TERMINAL AREA. REDEVELOP, AS NEEDED, FOLLOWING NORTHSIDE AND WESTSIDE DEVELOPMENT

AVIATION COMPATIBLE DEVELOPMENT

(POSSIBLE BUSINESS AND CONFERENCE CENTER, OTHER COMMERCIAL DEVELOPMENT)

NOTE: SECOND OPTION COULD BE TO TRADE THIS PROPERTY FOR PROPOSED NORTH PARCEL LAND ACQUISITION

REDEVELOP USFS AREA UPON RELOCATION WITH T-HANGARS, EXPAND TERMINAL APRON AREA CIRCULATION BY REMOVING LARGE HANGAR TO THE NORTH OF THE TERMINAL.

APRON & FUEL PROJECT

HELIPAD PROJECT

LEGEND

- AIRPORT PROPERTY LINE
- FUTURE PROPERTY ACQUISITION
- BRL — BUILDING RESTRICTION LINE (22' HEIGHT)
- RVZ — RUNWAY VISIBILITY ZONE
- NEW PAVEMENT FOR RUNWAY, APRONS AND TAXIWAYS

NOTES:

1. Interim land uses for revenue-producing development is permissible if it is deemed compatible with aviation operations and can be converted to aviation use if and when demand supports the need to develop it for airport purposes. Such interim use might include solar panels, agricultural use, etc.
2. All areas within the airport property boundary that are not specifically identified with a land use designation are inherently reserved as Open Space or Aviation Reserve.
3. Property line shown is not accurate and will be updated throughout the planning process.

City of Prineville

PRINEVILLE AIRPORT

AIRPORT MASTER PLAN UPDATE

Alternative 1R

Exhibit 5B.2

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wants to revisit the wind data analyses once 10 years of data is collected at the Prineville Airport since the current data analysis uses Redmond wind data, which is not necessarily representative of Prineville conditions.

ALTERNATIVE 2

Exhibit 5C illustrates Alternative 2. Like Alternative 1, Alternative 2 considers the future needs of growing business jet traffic, limited Eastside capacity for landside improvements, flight training expansion needs, and the fire response facility support needs of the USFS. Possible displaced thresholds are also shown in this alternative for Runway 28 and 33 to eliminate the highway from the RPZ. One of the key differences between Alternatives 1 and 2 is that Alternative 2 locates the USFS is to the north while flight training is to the south. Further, the north side reserves space to attract one or more large aviation tenants while future Corporate GA and FBO 2/Terminal development areas would be located to the southwest. Aviation Reserve as well as Aviation Compatible development parcels are also shown for discussion. Further, Special Use Aviation Tenant parcels are separated from other development and located near the proposed runway extension area at the far west end of the airfield. Agricultural area options are shown in two locations – both on the north side of Runway 10-28.

Flight training. Located at the south end of the airfield, this option still provides a 270-degree open area for helicopter training. Access would be from the highway.

Corporate GA. To the northwest of the Flight Training area where the RVZ is located, a large land use parcel for Corporate GA is designated with the assumption that a second FBO/terminal area would serve this corporate development. While Corporate GA would be located adjacent to the crosswind runway, users would have taxiway access at midfield of Runway 10-28 using the existing parallel taxiway on the north side, but a parallel taxiway on the south side could also be provided.

FBO 2/Terminal Area. A second FBO/terminal area would be developed in the distant future to serve development west of Runway 15-33. The FBO would be adjacent to Corporate GA to serve business aviation, but could also serve the Flight Training activity and future tenants locating in the Aviation Reserve parcel, which is designated to provide flexibility for this future development.

Airport Maintenance and Support. Like Alternative 1, this land use area is shown on the north side to build in flexibility to accommodate potential airport equipment storage and shop facility needs with quick and easy access to the primary runway, but this need could alternatively be placed where the Aviation Reserve parcel is located by FBO 2.

Small GA. This alternative envisions serving growth in small based aircraft in the distant future on the north side. This development is between the proposed Aviation Related Business/Industrial development and Airport Maintenance and Support. However, if Small GA

development is beyond anticipated growth, the Aviation Reserve parcel between the Flight Training and FBO 2 area could accommodate Small GA. Redevelopment in the existing building area on the Eastside offers additional hangar development area once the USFS is relocated.

USFS. In this development concept, the USFS is placed on the north side of Runway 28 providing a buffer of mostly undeveloped land around the north and east side of the parcel. This large parcel provides the USFS with the flexibility to expand, as needed, to serve its rotor and fixed wing operations. Further, its proximity at the east end of this future development area minimizes the travel distance to the highway.

Ag Area. The Ag Area options in this alternatives are both shown on the north side of Runway 10-28—one at the far east end of development near Runway 28 and the other option at the west end near Runway 10.

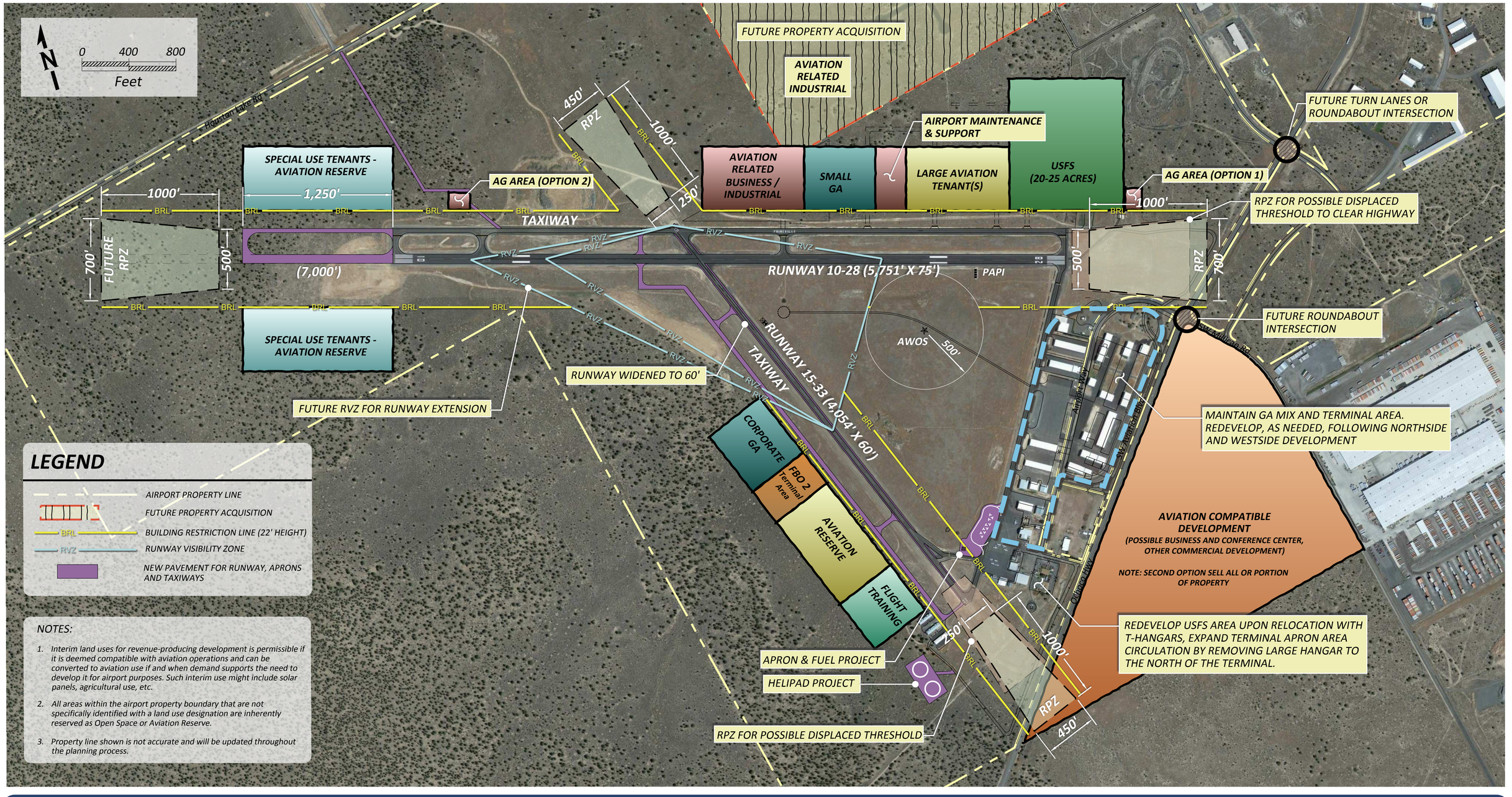
Roadway Access and Utility Infrastructure Improvements. Roadway and utility infrastructure improvements are inherently necessary to serve all future development. With the majority of existing infrastructure located on the Eastside, development proposed to the north and west of the airfield will require infrastructure improvements before the majority of the proposed development in these areas can proceed.

Existing Eastside Facility Redevelopment. Similar to Alternative 1, Alternative 2 anticipates redevelopment within the existing Eastside facilities based on the phasing of new development to the north and west on the airport.

Aviation Compatible Development. This proposed development area across the highway is the same as shown on Alternative 1 as it could generate revenue for the Airport or be traded for property to the north. Although its location does not provide airfield access, there are numerous opportunities for commercial development along the highway which could benefit the airport and vice versa. Spinoff businesses tied to current area businesses as well as new businesses could be attracted to this location with the presence of the airport as a plus. While a restaurant could be located on airport property on the west side of the highway or to the north at the intersection of the highway and Tom McCall Road, this large parcel on the east side of the highway could also offer dining options within the other future commercial development.

ALTERNATIVE 3

Unlike Alternatives 1 and 2, this alternative considers the distant future possibility of a more substantial increase in corporate jets within Aircraft Approach Category "C" (faster approach speeds) operations to exceed the 500 annual operations threshold. This scenario assumes that the City and County would consider accommodating this activity. The major implications associated with this alternative are evident around Runway 10-28. As shown in **Exhibit 5D**, the



LEGEND

- AIRPORT PROPERTY LINE
- FUTURE PROPERTY ACQUISITION
- BRL — BUILDING RESTRICTION LINE (22' HEIGHT)
- RVZ — RUNWAY VISIBILITY ZONE
- NEW PAVEMENT FOR RUNWAY, APRONS AND TAXIWAYS

NOTES:

1. Interim land uses for revenue-producing development is permissible if it is deemed compatible with aviation operations and can be converted to aviation use if and when demand supports the need to develop it for airport purposes. Such interim use might include solar panels, agricultural use, etc.
2. All areas within the airport property boundary that are not specifically identified with a land use designation are inherently reserved as Open Space or Aviation Reserve.
3. Property line shown is not accurate and will be updated throughout the planning process.

City of Prineville

PRINEVILLE AIRPORT
AIRPORT MASTER PLAN UPDATE

Alternative 2

Exhibit 5C

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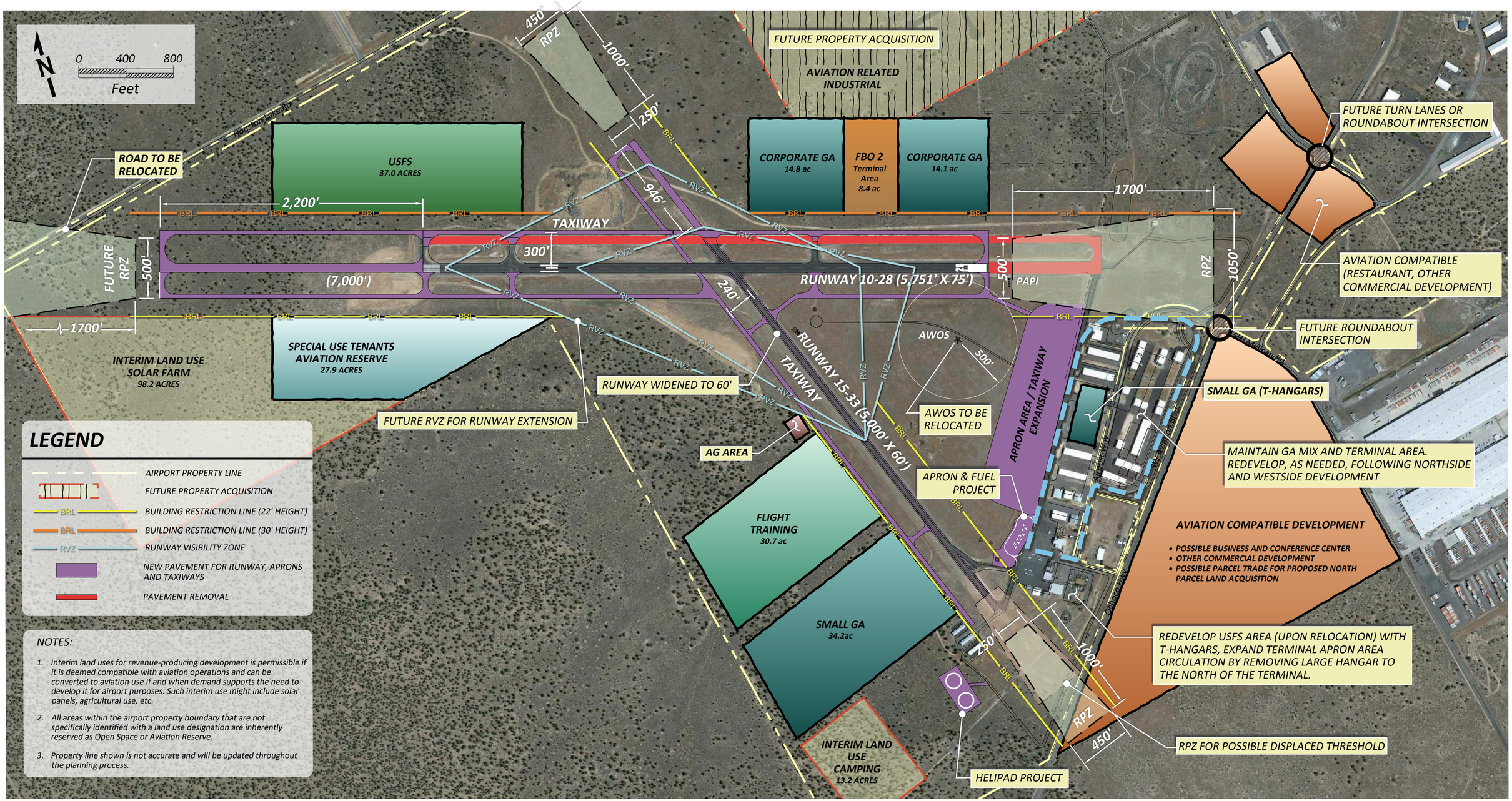

City of Prineville

PRINEVILLE AIRPORT
AIRPORT MASTER PLAN UPDATE

Alternative 3

Exhibit 5D

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RPZ off both runway ends is larger to serve C-II traffic (visibility minimums not less than one mile). While the inner width of the RPZ would remain at 500 feet like the RPZ for B-II, its length increases from 1,000 to 1,700 feet and its outer width increases to 1,010 feet resulting in a greater area of overlay on the highway. Since the FAA considers roadways in the RPZ an incompatible land use, this alternative shifts Runway 28 to the west to pull the proposed RPZ off of the highway. To maintain a longer runway length, this alternative depicts an extension to the west for a total length of 7,000 feet. As a result, the RPZ on the west end overlays Houston Lake Road. Consequently, this road is identified for relocation in this alternative to keep the future RPZ clear of roadways. While taxiways will be further detailed on the Airport Layout Plan once a long-term development concept is selected, it's important to note that providing more direct access from the primary runway and crosswind runway to Eastside facilities could necessitate the distant future relocation of the AWOS to maintain a proper clearance radius of the weather reporting equipment. Other key features of this alternative follow.

Flight training. This option designates a large parcel for flight training on the west side of Runway 15-33 and to the north of Small GA. This parcel is placed in an undeveloped area so future facilities can maintain a buffer, particularly for rotorcraft training. Access to the primary runway would be via a parallel taxiway on the crosswind connecting midfield on the primary runway. However, taxiway connectors would need to be modified, where appropriate, to minimize risk of runway incursions.

Corporate GA. This alternative places Corporate GA on the north side of Runway 10-28 with a second FBO to serve primarily business aviation. Its proximity to Runway 10-28 is beneficial to transient activity. In contrast to the other alternatives, the development shown in this northeast area is farther from the highway as it is located near the future Runway 28 threshold, which is farther west to accommodate the RPZ clearance from the highway. The location of Corporate GA adjacent to and just south of proposed aviation-related industrial development builds on the scenario that the northeast area of the airport will be business-focused, which could enhance the potential for a successful restaurant and other commercial development to the east at the highway intersection.

FBO 2/Terminal Area. Similar to the other alternatives, a second FBO/terminal area would be developed once high levels of activity justify and can financially support such expansion. As shown, the second FBO/terminal area is centered within the Corporate GA land use to primarily serve business aviation.

Airport Maintenance and Support. This alternative assumes airport maintenance and support would remain in the existing Eastside development area.

Small GA. Small GA is identified to the south of Flight Training in this alternative, locating it close to the crosswind runway and easy access to existing Eastside facilities. A large area is identified for long-term expansion well beyond the needs of the 20-year planning window. This land use

could consist of a combination of T-hangars, conventional/box hangars, and apron tiedowns for long-term parking.

USFS. Located in the northwest portion of the airport, the USFS is identified as the single user in this area to provide greater expansion opportunity and the separation from other users, which is beneficial during peak seasonal activity. While camping is identified as an interim land use in the south area of the airport, the USFS has indicated that camping adjacent to their facilities for their fire crews can also be beneficial. The substantial area available to the north east could serve the USFS and seasonal fire crew camping needs adequately.

Ag Area. The Ag Area option in this alternatives is located midfield of the crosswind runway.

Roadway Access and Utility Infrastructure Improvements. Similar to the other alternatives, roadway and utility infrastructure improvements are required to serve future development.

Existing Eastside Facility Redevelopment. This alternative is similar to the others with redevelopment anticipated to meet future needs. This will depend on aviation growth, new and expanded tenant needs, phasing, and funding (sponsor, private, and eligible federal).

Aviation Compatible Development. Like Alternatives 1 and 2, this proposed development area can generate funding for the airport or be traded. A trade may better serve the scenario of business development to the north of the airfield adjacent to the Corporate GA development.

COMPARATIVE EVALUATION

This section briefly outlines the comparative evaluation conducted in coordination with the PAC during a meeting in July 2014. The general evaluation criteria discussed at the PAC meeting in comparing the various development alternatives included:

- **Safety Criteria** – the ability to provide adequate safety for the intended aircraft and operations and comply with all applicable FAA and State recommendations and requirements.
- **Operational Criteria** – the ability to accommodate current and forecasted aircraft, passengers, vehicles and airport users' needs.
- **Environmental Criteria** – development that provides for minimal environmental disruption.
- **Compatible Land Use** – the compatible use of adjacent land that is affected by the airport improvements. This also include the compatibility of the various concepts with the Prineville Community Plan, the Prineville Transportation Plan, and other City and County plans.

- **Financial Criteria** – anticipated order of magnitude costs associated with the various alternatives relative to location and necessary extension of utilities, roadways, and similar infrastructure improvements.

PAC MEETING AND PREFERRED ALTERNATIVE

A Planning Advisory Committee (PAC) meeting was held on July 30, 2014, to discuss the development alternatives for the Prineville Airport. The review of the alternatives focused on the individual alternatives as well as the various components of each of these alternatives. As previously mentioned, the PAC is tasked with selecting a preferred alternative to be recommended to the City of Prineville (in coordination with Crook County) for review and approval. The PAC's approach was to select specific elements from the various alternatives presented, as long as they are not in conflict. Further, the elements combined to produce the preferred alternative were reviewed and modified to ensure that the alternative would comply with the FAA design standards, align with the City of Prineville's vision for the Airport, and preserve the Airport's ability to comply with its Federal and State Grant Assurances.

PREFERRED ALTERNATIVE ELEMENTS

This section provides a description of the various elements of the preferred alternative selected by the PAC and recommended to the City of Prineville for approval.

Runway 10-28: The PAC supports the approach of preserving for a future extension of Runway 10-28 to 7,000 feet. Although such an extension is not forecast to be needed within the planning period, the growth of corporate activity in the City of Prineville and the increase in jet traffic that is accompanying this growth make it prudent and desirable to protect for the feasibility of such an extension.

Currently, State Highway 126, the Ochoco Highway, passes through Runway 28's Runway Protection Zone (RPZ) which, as previously explained, is considered an incompatible land use. Consequently, Runway 28 threshold would need to be relocated 226 feet to the west in order to clear the RPZ from the highway, based on an Airport Reference Code (ARC) of B-II. If the Airport ARC were to be upgraded to C-II, the RPZ dimensions would increase and so would the length of the threshold relocation needed to clear the RPZ from the highway. A discussion relating to the future ARC for the Airport extended beyond the July 30 meeting and is detailed in the following sections.

The preferred alternative shows Runway 28 threshold relocated 226 feet to west and Runway 10 extended 1,475 feet to the west for an ultimate length of 7,000 feet. The preferred alternative

also notes the need to increase Runway 10-28 pavement strength to 60,000 lbs. Dual Wheel (DW) at the time of the runway extension.

Although the PAC agreed to plan for a future ARC of B-II, the committee also decided to preserve for the possibility of a future ARC upgrade to C-II by relocating the existing parallel taxiway to the north to the 300-footrunway-centerline-to-taxiway-centerline separation required for an ARC of C-II. Additionally, the proposed parallel taxiway to the south of Runway 10-28 would be located at the 300-foot separation.

Runway 15-33: The PAC restated its support for maintaining and improving Runway 33, especially since wind data from neighboring Redmond shows that Runway 10-28 fails to provide a 95 percent wind coverage.

The preferred alternative shows Runway 33 threshold relocated 406 feet to the northwest in order to clear the RPZ from Ochoco Highway. It also shows the extension of Runway 15 by 952 feet to the northwest for a total length of 4,600 feet. The basis for preserving the opportunity for an extension on Runway 15-33 is the same as for Runway 10-28. While not needed within the time horizon of this Master Plan, the City, County, and the advisory committee want to preserve the option for an extension in the future should it become warranted. The width of Runway 15-33 is shown to be increased to the FAA-required 60 feet and its pavement strength to the FAA-required 12,500 lbs. Single Wheel Loading (SWL).

The preferred alternative also provides for a parallel taxiway to the west of Runway 15-33, located at a 240-foot runway-centerline-to-taxiway-centerline separation.

Other Airside Features: The preferred alternative shows the Apron Area/Taxiway Expansion to the west of the existing airport development. This project is important not only because it reduces the circulation problems, mentioned on most user surveys, but also because it frees up the existing apron area for development that is needed in the short term.

The preferred alternative also shows the apron and fuel project to the northeast of Runway 33. Although this project was not successful in obtaining ConnectOregon V grant money this year, it remains a priority for the Airport.

The helipad project to the southwest of Runway 33 will provide a short-term location for the USFS helicopters to operate in the fire season. Ultimately, the USFS hopes to consolidate its operation to a single location in the intermediate to long term.

North of Runway 10-28 Development: The PAC discussed the cost differences in developing the area to the north of Runway 10-28 versus developing the area to the west of Runway 15-33. Both areas would require the extension of access and utilities to serve any future development. The

PAC ultimately decided that future development must start in the area to the north of Runway 10-28, mainly due to the fact that the cost of extending utilities and access to this area is considerably lower than the cost of extending utilities and access to the area west of Runway 15-33. The preferred alternative shows, from east to west, USFS, flight training, corporate GA, second FBO, airport maintenance and support and small GA areas to the north of Runway 10-28. Additionally, an agricultural area (AG area) and two areas of aviation reserve are shown to the northwest of Runway 10-28. It should be noted that the USFS originally indicated a preference to be located in the area to the west of Runway 15-33, but recognized the cost concerns associated with extending utilities and access as well as the feasibility of obtaining direct access from a State Highway (Ochoco Highway).

West of Runway 15-33 Development: The PAC decided to show the area to the west of Runway 15-33 as aviation reserve. The area provides prime flight line property and, despite the high cost of extending utilities and access to it, should eventually be developed to serve the Airport needs.

Property Acquisitions: The preferred alternative shows an area to the northeast of Runway 10-28 as property acquisition.

Surplus Property: On the south side of the airport, across Hwy 126 – the Ochoco Highway, is a 91.5 acre parcel that was previously identified as airport property. After completing the requirements and alternatives analysis, it became clear that this property is surplus to the needs of the airport. Because of its physical separation from the airport, it will be impractical to establish a connection which would make it usable for aeronautical purposes. The property was not originally acquired with nor has it been improved with federal assistance. A request was made of the FAA to release the land from the airport's FAA obligations which would make it possible to sell the land. That release was granted by a letter to the airport manager dated August 25, 2015 from Carolyn Read, Manager of the Seattle Airports District Office. A copy of the letter can be found in the appendix of this Master Plan. The release came with the following 6 conditions:

a. FAR Part 77 surfaces must be adhered to relating to any building, structure, poles, trees, or other objects. The airport must have the right to enter the property to remove, mark, or light any objects which are identified as obstructions.
b. Prior to constructing any structures, the land owner or developer must file a Form 7460-1 with the FAA.
c. No use on the property may create electrical interference with communications or make it difficult to distinguish lights at the airport or impair visibility in the vicinity of the airport or endanger any aircraft operation.
d. A right of flight for passage of aircraft in the airspace over the property shall be maintained specifying that any noise inherent to the operation of any aircraft is allowed.

e. No use on the property can create a potential for attracting wildlife which might pose a hazard to aircraft in accordance with current FAA guidance.
f. The City must update the Exhibit A to show the change in property ownership.

FUTURE AIRPORT ARC

As previously mentioned, the PAC had indicated a preference to planning for a future ARC of C-II. The City of Prineville and Crook County expressed concerns over the impact of such an ARC upgrade on lands adjacent to the airport property.

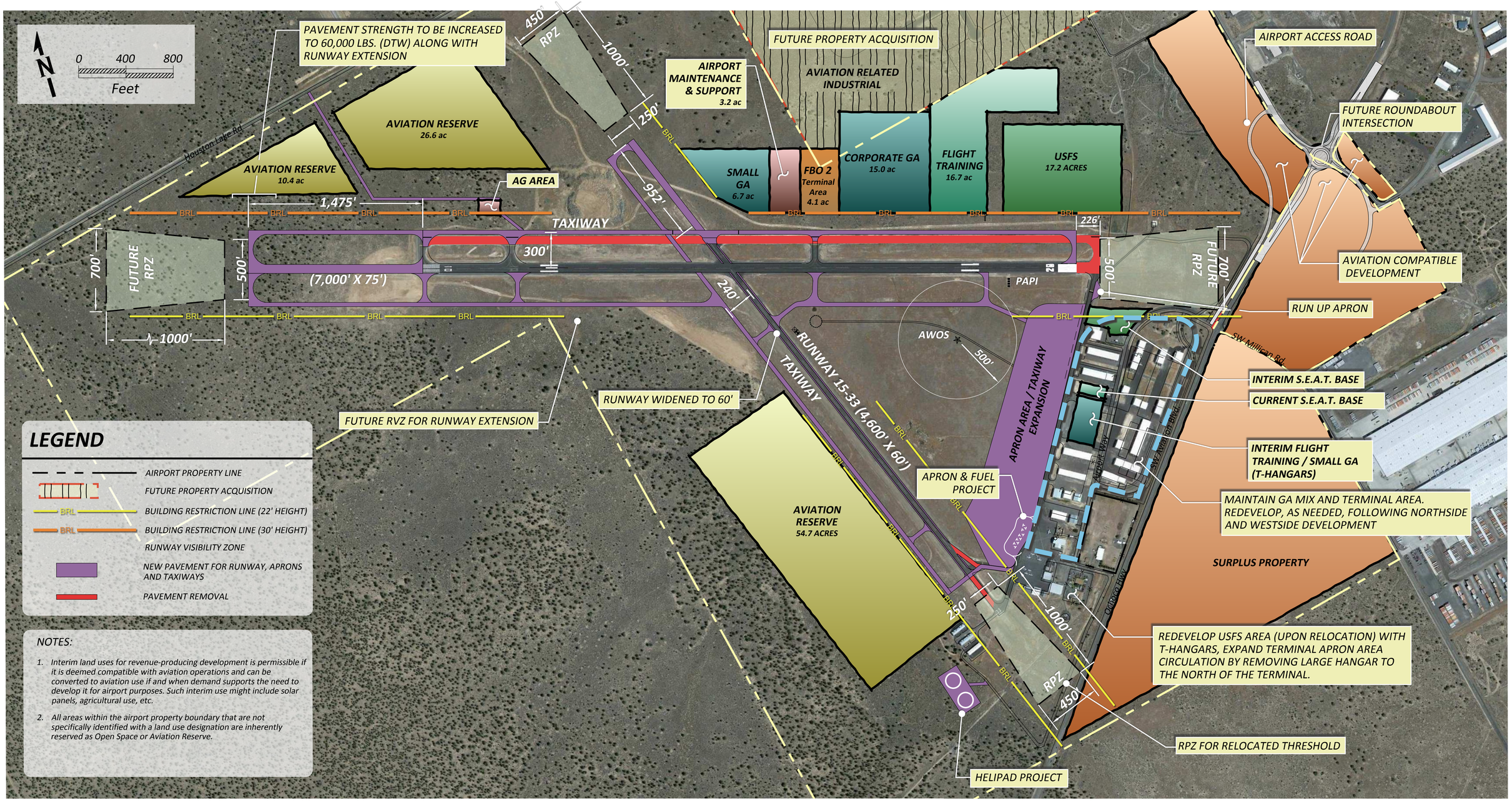
An ARC of C-II requires larger Runway Protection Zones (1,700' x 1,000' x 1,510'). The larger RPZ would translate to a required shift of the Runway 28 RPZ further west in order to clear Ochoco Highway. This shift would subsequently require extending Runway 10 further west in order to obtain the 7,000 feet of runway length that the City, County, and advisory committee want to plan for in the future. The resulting Runway 10 RPZ would overlay Houston Lake Rd., the County's landfill property and private property to the west of the Airport's boundary.

Four alternatives were developed to illustrate the possible effects of a C-II designation on adjacent properties and the various options to mitigate these effects. Alternatives P1 through P3, included in Appendix 5A, show the relocation of Runway 28 RPZ and the extension of Runway 10 for a total length of 7,000 feet. The rate of the curve needed for Houston Lake Road to shift it outside of the RPZ is based on its 65 mph design speed. Alternatives P1 through P3 show the impacts associated with reducing the road's design speed to 60, 50 and 40 mph respectively. It should be noted that the Crook County Comprehensive Plan classifies Houston Lake Road as a major collector. Alternative P4 shows a displaced threshold on Runway 28, which would allow for the runway to be extended to 7,000 feet with the Runway 10 RPZ remaining within airport property.

The County indicated that due to the role that Houston Lake Road plays as a major collector, reducing its design speed is highly unlikely. Additionally, displacing Runway 28 threshold is not considered as a favorable solution by the FAA.

The City of Prineville and Crook County agreed that the best alternative is to keep the Airport ARC at B-II. However, any new taxiways and facilities, built in the future, will comply with C-II separation requirements. This will maintain the feasibility of a future ARC upgrade and would allow the City of Prineville to revisit the issue of upgrading the ARC to C-II when such an upgrade is needed.

Exhibit 5E illustrates the preferred development alternative for the Prineville Airport.



LEGEND

- AIRPORT PROPERTY LINE
- FUTURE PROPERTY ACQUISITION
- BRL — BUILDING RESTRICTION LINE (22' HEIGHT)
- BRL — BUILDING RESTRICTION LINE (30' HEIGHT)
- RUNWAY VISIBILITY ZONE
- NEW PAVEMENT FOR RUNWAY, APRONS AND TAXIWAYS
- PAVEMENT REMOVAL

NOTES:

1. Interim land uses for revenue-producing development is permissible if it is deemed compatible with aviation operations and can be converted to aviation use if and when demand supports the need to develop it for airport purposes. Such interim use might include solar panels, agricultural use, etc.
2. All areas within the airport property boundary that are not specifically identified with a land use designation are inherently reserved as Open Space or Aviation Reserve.

City of Prineville

PRINEVILLE AIRPORT
AIRPORT MASTER PLAN UPDATE

Final Preferred Alternative

Exhibit 5E

WHPacific 9755 SW BARNES RD. STE 300 PORTLAND, OR 97225 503.626.0455

Appendix 5A Adjacent Property Impacts

Prineville Crook County Airport Master Plan Update

The alternatives presented in this appendix address the impacts of upgrading the Airport Reference Code (ARC) to C-II on adjacent properties. An ARC upgrade would result in larger RPZs for Runway 10 and 28. The larger RPZs would require the following:

- relocation of the Runway 28 threshold further to the west than is shown in the preferred alternative
- a longer extension of Runway 10 to the west in order to accommodate a total final length of 7,000 feet
- certain land use restrictions within the resultant RPZs

Various alternatives showing the impact of the ARC upgrade on Houston Lake Road and adjacent properties were presented to the City of Prineville and Crook County for review and are illustrated below. As stated in the Alternatives Chapter, the City and County ultimately chose to maintain the Airport ARC at B-II. However, all new taxiways and facilities, built in the future, will comply with C-II separation requirements. This will maintain the feasibility of a future ARC upgrade allowing the City of Prineville to revisit the ARC C-II option when aviation demand supports such an upgrade.

CROOK COUNTY LANDFILL

Design Speed = 60 mph

Houston Lake Rd

RUNWAY 10-28 (7,000' X 100')

RUNWAY 15-33 (5,000' X 60')

3,400'

Ochoco Hwy

BRL

LEGEND

- AIRPORT PROPERTY LINE
- FUTURE PROPERTY ACQUISITION
- BUILDING RESTRICTION LINE (22' HEIGHT)
- BUILDING RESTRICTION LINE (30' HEIGHT)
- RUNWAY VISIBILITY ZONE
- NEW PAVEMENT FOR RUNWAY, APRONS AND TAXIWAYS
- PAVEMENT REMOVAL

NOTES:

1. Interim land uses for revenue-producing development is permissible if it is deemed compatible with aviation operations and can be converted to aviation use if and when demand supports the need to develop it for airport purposes. Such interim use might include solar panels, agricultural use, etc.
2. All areas within the airport property boundary that are not specifically identified with a land use designation are inherently reserved as Open Space or Aviation Reserve.

N

0 600 1200

Feet

City of Prineville

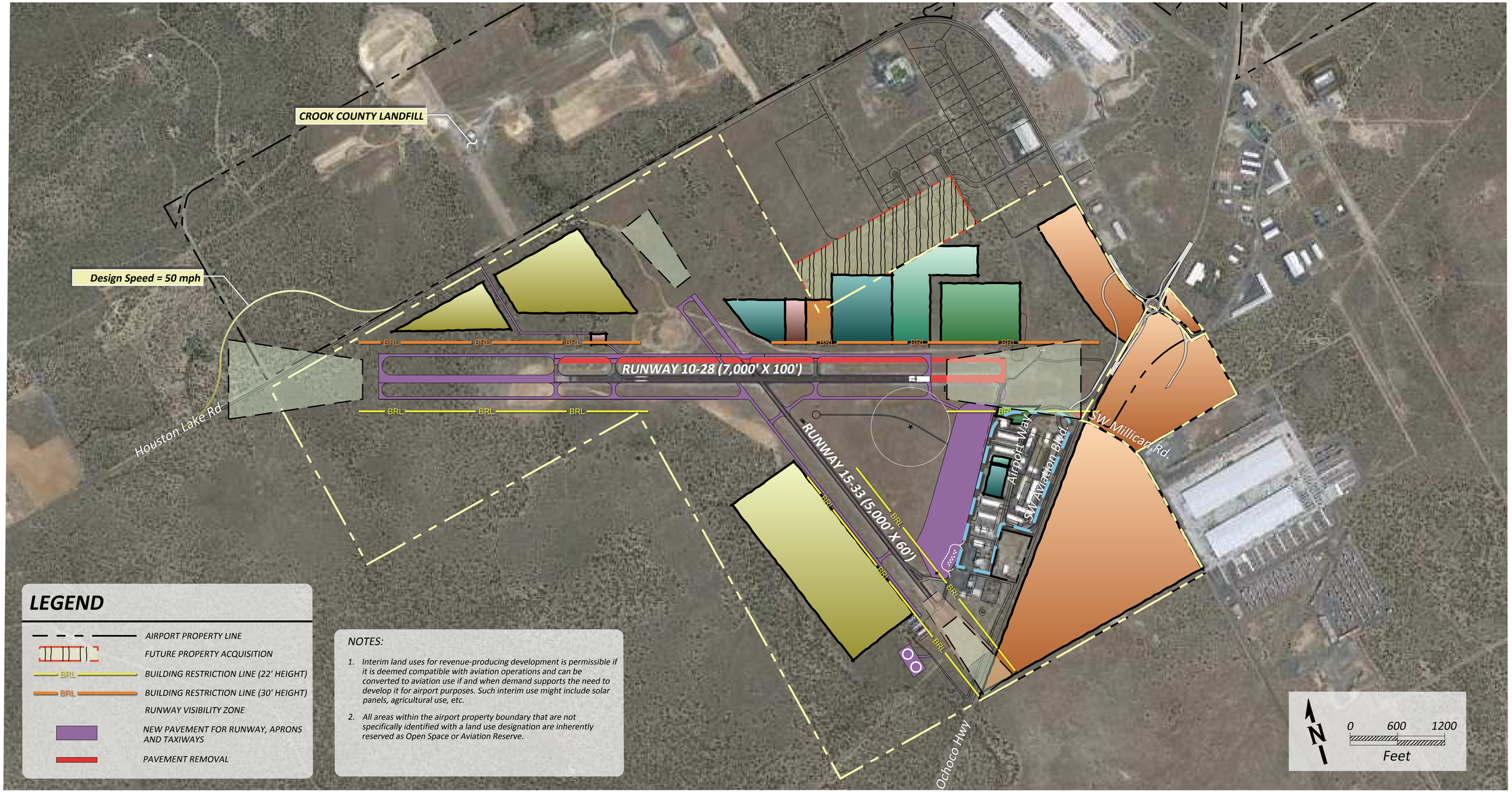
PRINEVILLE AIRPORT

AIRPORT MASTER PLAN UPDATE

Alternative P1
Adjacent Property Impacts

Exhibit P1

WHPacific 9755 SW BARNES RD. STE 300 PORTLAND, OR 97225 503.626.0455



LEGEND

- AIRPORT PROPERTY LINE
- FUTURE PROPERTY ACQUISITION
- BUILDING RESTRICTION LINE (22' HEIGHT)
- BUILDING RESTRICTION LINE (30' HEIGHT)
- RUNWAY VISIBILITY ZONE
- NEW PAVEMENT FOR RUNWAY, APRONS AND TAXIWAYS
- PAVEMENT REMOVAL

NOTES:

1. Interim land uses for revenue-producing development is permissible if it is deemed compatible with aviation operations and can be converted to aviation use if and when demand supports the need to develop it for airport purposes. Such interim use might include solar panels, agricultural use, etc.
2. All areas within the airport property boundary that are not specifically identified with a land use designation are inherently reserved as Open Space or Aviation Reserve.

City of Prineville

PRINEVILLE AIRPORT
AIRPORT MASTER PLAN UPDATE

Alternative P2
Adjacent Property Impacts
Exhibit P2

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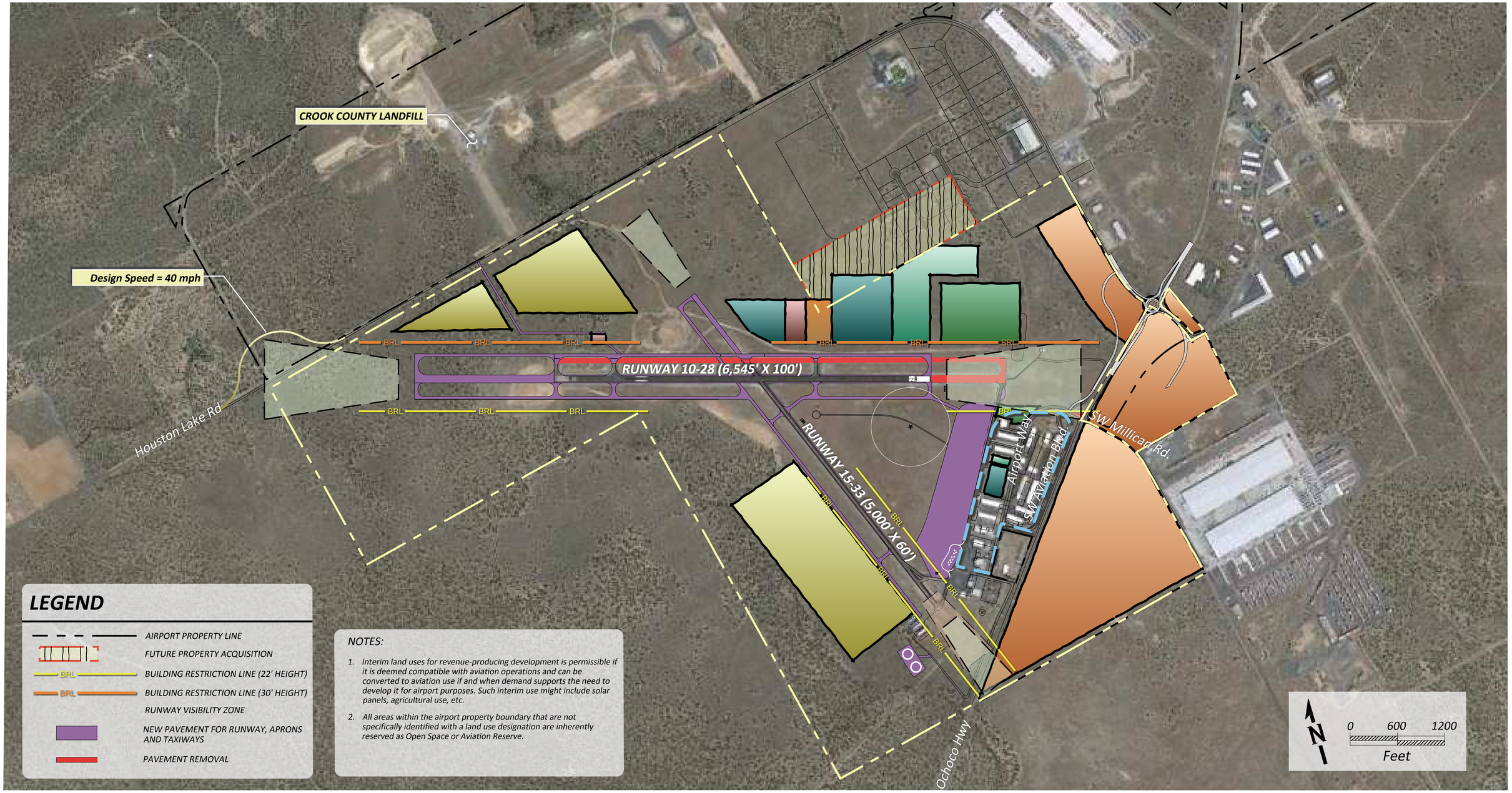

City of Prineville

PRINEVILLE AIRPORT
AIRPORT MASTER PLAN UPDATE

Alternative P3
Adjacent Property Impacts
Exhibit P3

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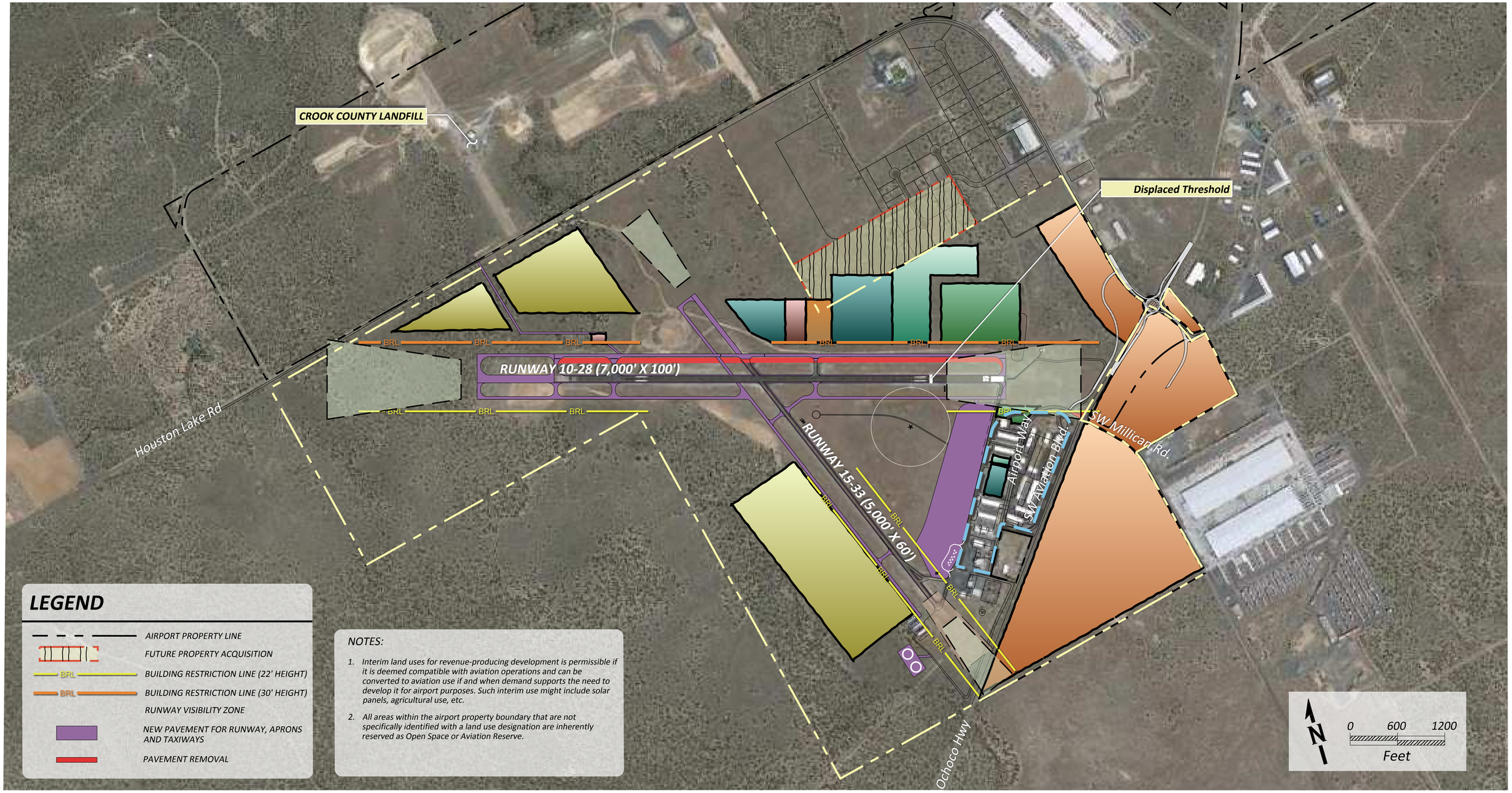

LEGEND

- AIRPORT PROPERTY LINE
- FUTURE PROPERTY ACQUISITION
- BUILDING RESTRICTION LINE (22' HEIGHT)
- BUILDING RESTRICTION LINE (30' HEIGHT)
- RUNWAY VISIBILITY ZONE
- NEW PAVEMENT FOR RUNWAY, APRONS AND TAXIWAYS
- PAVEMENT REMOVAL

NOTES:

1. Interim land uses for revenue-producing development is permissible if it is deemed compatible with aviation operations and can be converted to aviation use if and when demand supports the need to develop it for airport purposes. Such interim use might include solar panels, agricultural use, etc.
2. All areas within the airport property boundary that are not specifically identified with a land use designation are inherently reserved as Open Space or Aviation Reserve.

City of Prineville

PRINEVILLE AIRPORT
AIRPORT MASTER PLAN UPDATE

Alternative P4
Adjacent Property Impacts
Exhibit P4

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Chapter Six COMPLIANCE REVIEW

Prineville Crook County Airport Master Plan Update

Prineville – Crook County Airport, as a publicly owned airport which receives federal funds for construction, planning, and development projects is bound by federal obligations through agreements and/or property conveyances. These federal obligations are outlined in Federal Aviation Administration (FAA) Order 5190.6B, Airport Compliance Manual.

The contractual federal obligations that a sponsor accepts when receiving federal grant funds or transfer of federal property can be found in a variety of documents that include:

- Grant agreements issued under the Federal Airport Act of 1946, the Airport and Airway Development Act of 1970, and the Airport and Airport Improvement Act of 1982. Included in these agreements are the requirements for airport sponsors to comply with:
    a) Grant Assurances
    b) Advisory Circulars
    c) Application commitments
    d) Federal Aviation Regulation (FAR) procedures and submittals
    e) Special conditions
- Surplus airport property instruments of transfer
- Deeds of conveyance
- Commitments in environmental documents prepared in accordance with FAA requirements
- Separate written requirements between a sponsor and the FAA
- Land use compliance and compatible land use planning

This chapter will include a thorough review of the most recent approved ALP, Zoning Ordinance, Rules and Regulations, Minimum Standards, airport fund/budget leases, easements, permits and any other pertinent governing document to ascertain compliance with the Assurances. Existing and potential compliance issues will be listed, described, and referenced to the specific assurance involved. For any existing violations, remedies will be recommended as well as time frames for achieving compliance. For potential compliance issues, recommended strategies that eliminate the risk of noncompliance will be presented.

Historically, most compliance issues have been associated with the lack of education that airport sponsors receive regarding their commitment and obligations as they relate to the grant assurances. Despite the FAA's effort to continuously educate sponsors, most of its effort has been focused on addressing violations that came to the FAA's attention and required correction. The inclusion of the compliance review chapter in this master plan is aimed at taking a proactive, or even preventive, approach that ensures that the Airport is in compliance with the grant assurances it has made. Additionally, this document will provide the sponsor with an additional tool or guidance that can be used in conjunction with the tools provided by the FAA, AOPA, and others.

The compliance review presented in this chapter is guided by the FAA Airport Sponsor Grant Assurances (as amended in April of 2014) and the FAA Airport Compliance Manual – Order 5190.6B.

FEDERAL GRANT ASSURANCES GUIDING PRINCIPLES

In order to better understand the FAA compliance program, it is necessary to understand the FAA's goals for the national transportation system known as the National Plan of Integrated Airport Systems (NPIAS) which guides the program. The FAA states that "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." The FAA also states that cooperation between the FAA, state and local agencies should result in an airport system where:

- Airports should be safe and efficient, located at optimum sites, and developed and maintained to appropriate standards.
- Airports should be efficiently operated so that they are affordable to both users and Government. They must rely primarily on user fees and place 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 able to accommodate new aircraft types.

- Airports should be permanent, with the assurance that they remain open for use over the long term.
- Airports should be compatible with the surrounding communities. They must maintain 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 and technological advancements.
- 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 by having most of the population within 20 miles of a NPIAS airport.
- The airport system should help air transportation contribute to a productive national economy and international competitiveness.

GRANT ASSURANCES

In accepting Airport Improvement Program (AIP) grant funding, an airport sponsor agrees to a total of 39 grant assurances. The following section provides a listing of the grant assurances, a brief description of each of these assurances and a brief examination of the Prineville Airport compliance or lack thereof with the individual assurances.

While Airport Sponsors should understand and comply with all grant assurances, there are several assurances that are common and recurring issues for airport sponsors throughout the country. This section, while providing a brief description of all of the grant assurances, will provides a more detailed explanation of the assurances identified as possible recurring issues for airport sponsors.

It must be noted that the terms, conditions and assurances usually remain in effect for the useful life of a development project, typically 20 years from the receipt of the last AIP grant. However, terms, conditions and assurances associated with land purchased with federal funds do not expire. A description of the individual grant assurances, their applicability to the Prineville Airport and the City of Prineville's and Crook County's compliance status is provided below.

1 – General Federal Requirements. The airport sponsor 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.

- The City of Prineville has, and will continue to comply with all applicable federal guidance to the best of its ability.

2 – Responsibility and Authority of the Sponsor. The grant applicant must have the legal authority to apply for, finance, and administer the grant.

- The Airport is co-owned by Crook County and the City of Prineville. On August 12, 2011, the County and City entered into an Inter-Governmental Agreement for the management of the Airport. The agreement entrusts the management and operation of the Airport to the City of Prineville. Based on the Inter-Governmental agreement between Crook County and the City of the Prineville, the State of Oregon acknowledges the City of Prineville as the local discretionary authority for the Airport.

3 – Sponsor Fund Availability. The Sponsor must have sufficient funds to match their portion of the AIP grant.

- The Airport has is in compliance with this assurance. Additionally, the Capital Improvement Plan (CIP) to be developed as part of this master plan will identify funding needs and sources in order to ensure the availability of the local matching funds prior to applying for federal assistance.

4 – Good Title. The Sponsor must hold good title to the Airport, or to the site of proposed improvements.

- Exhibit A (included in the previous Master Plan) shows that the County/City own the entire Airport property. For future developments or projects shown to exceed the Airport's boundary, the City/County will secure the land via fee acquisition or avigation easement. Additionally, Exhibit A is being updated as part of this Master Plan.

5 – Preserving Rights and Powers. The Airport sponsor will not take or permit any action that would deprive it of the rights and powers necessary to perform any of the grant assurances, nor will it sell, lease, encumber, or transfer any part of its title or interests in the Airport property.

- This assurance requires that all existing and proposed access points used to taxi aircraft across the airport property boundary to be depicted on the ALP. Additionally, all through-the-fence (TTF) agreements must be submitted for FAA's review to ensure that they do not deprive the Airport of the rights and powers necessary to perform any of the grant assurances. Prineville Airport has no existing through-the-fence (TTF) agreements. The ALP, developed as part of this Master Plan, does not show any future TTF access points. If the Airport ever contemplates any TTF, it will notify the FAA and will submit the agreements to the FAA for review and approval and update the ALP drawing to reflect any TTF access points.

6 – Consistency with Local Plans. The proposed project must be reasonably consistent with Local, County, and State plans, to include the area surrounding the Airport.

- It appears that past projects undertaken at the Airport were consistent with Local, County, and State plans. Additionally, this Master Plan, which will ultimately be adopted by the City of Prineville and incorporated into its Comprehensive Plan, recommends that all Oregon Department of Aviation (ODA) land use regulations be adopted. It is anticipated that all future projects will comply with this assurance.

7 - Consideration of Local Interests. The sponsor will give fair consideration to the local community's interests.

- The environmental review section included in the Inventory Chapter did not identify any known public controversy at the Airport. This Master Plan has been conducted with the assistance of a Planning Advisory Committee (PAC) representative of the local community, with all meetings open to the public. Future projects will undergo public involvement and or public notice consistent with the project's scope.

8 – Consultation with Users. Consultation with affected parties using the Airport must be conducted prior to, and during, any proposed project.

- There are no indications that the City has not consulted with affected parties during prior projects. This Master Plan included a user survey and Airport users were represented on the Planning Advisory Committee. Notices of public houses associated with the Master Plan were posted throughout the Airport and users were encouraged to attend. The City will continue to coordinate with affected parties, as necessary, consistent with the nature of the project.

9 – Public Hearing. For major projects, the Airport sponsor must give the community an opportunity for a public hearing to consider economic, social, and environmental effects of the proposed project.

- The City will coordinate with the FAA to determine what qualifies as a major project. If necessary, the City will publish in its newspaper of record the availability of a public hearing. This Master Plan process included four public open houses, all of which were advertised on the Airport's website and in various media outlets including the local newspaper.

10 – Air and Water Quality Standards. For major construction projects, the sponsor must comply with applicable air and water quality standards to the satisfaction of concerned agencies.

- Consistent with the recommendations in Chapter 4, Development Alternatives, the City should, as it has in the past, coordinate with applicable agencies during project design to determine permit requirements, project design, and construction practices necessary to comply with applicable air and water quality standards as required.

11 - Pavement Preventative Maintenance. The sponsor must implement an effective airport pavement maintenance-management program for the useful life of any pavements construction with AIP assistance.

- The Oregon Department of Aviation (ODA) has a Pavement Evaluation/Maintenance Management Program. As part of the program, pavement tests were conducted in May of 2011 at Prineville Airport. As part of the Pavement Evaluation/Pavement Management Plan for Prineville Airport, Micro PAVER software was used to model projected pavement deterioration rates and create a pavement maintenance program. This Master Plan recommends that this Pavement Management Program be adopted and implemented by the City. The Airport Capital Improvement Plan (CIP) shows a pavement maintenance project scheduled for 2015 and several additional projects scheduled throughout the planning period.

12 - Terminal Development Prerequisites. If the sponsor were to develop a public-use terminal, it must certify that all safety and access equipment required by rule or regulation is provided to all passengers.

- The new terminal building, which opened in 2008, does provide, to the public and all passengers, all safety and access equipment required by rule and regulation.

13 - Accounting System, Audit, and Record Keeping Requirements. The City must keep all project accounts and records relative to the project in accordance with the Single Audit Act of 1984. Additionally, the City must make all records available for the purpose of audit and examination.

- Currently, it appears the City's recordkeeping satisfies FAA's requirements. However, the City should periodically evaluate their accounting system to ensure future compliance as this assurance has been identified as a recurring issue on the national level. Project documentation should be readily accessible and include such items as fund transfers, income received, expenditures, and any other information pertinent to the project.

14 – Minimum Wage Rates. For all contracts in excess of $2,000 that involve labor, the sponsor shall establish minimum wage rates in accordance with the Davis-Bacon Act (40 U.S.C. 276a-276a-5).

- The City has, and will continue to, establish minimum rates of wages consistent with the Davis-Bacon Act for all federally-assisted contracts meeting this requirement.

15 – Veteran's Preference. Contracts for work involving AIP grants must ensure that preference is given to available and qualified veterans.

- Although no specific projects were reviewed, it is believed that the City does comply with this assurance. It is recommended that all future project plans and specifications continue to include a clause regarding veteran's preference.

16 – Conformity to Plans and Specifications. The sponsor will execute the AIP projects per the plans, specifications, and schedule approved by the FAA. Any modifications to the project must obtain the FAA's approval.

- Regular contact with the FAA should be initiated by the City and the City's engineer to avoid any miscommunications or deviations from the approved program. Onsite construction inspection should help lessen the possibility of work being performed inconsistent with the project's plans and specifications.

17 - Construction Inspection and Approval. Competent technical supervision must be provided by the sponsor throughout the construction project to assure the work conforms to the plans, specifications, and schedule approved by FAA.

- All future projects should be overseen by qualified construction inspection personnel. A review of past projects indicates that the City has not violated this requirement.

18 – Planning Projects. During planning projects, the sponsor must execute the project as approved in the scope of work, while making the reports and documents available to the public.

- As it has in this Master Plan process, the City has developed plans in an open manner with input from the community. Draft documents generated by this master planning process are posted on the Airport's website and available for public review and comments. The City will continue this process for all future planning projects.

19 - Operation and Maintenance. The Airport and all facilities must be operated at all times in a safe and serviceable condition and in accordance with minimums standards set by the sponsor. Any temporary closure for non-aeronautical purposes must be approved by the FAA. The sponsor must promptly mark and/or light hazards and notify airmen of any condition affecting aeronautical use of the Airport.

- The City does meet the criteria of this grant assurance. The Airport is currently working on updating its Minimum Standards in order to ensure continued compliance. The FAA Seattle ADO is available to provide a cursory review of updated minimum standards.

20 – Hazard Removal and Mitigation. The sponsor must take appropriate action to assure the Airport's airspace is adequately cleared and protected.

- The City has always been committed to removing and/or mitigating any obstructions to airspace and air navigation. The City has indicated that it is committed to removing/mitigating any obstructions identified in this Master Plan.

21 - Compatible Land Use. To the extent reasonable, the sponsor shall include 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.

- Land uses around an airport should be planned and implemented in a manner which ensures surrounding development and activities are compatible with the airport. To ensure compatibility, the sponsor is expected to take appropriate action, to the extent reasonable, including the adoption of zoning laws to guide land use in the vicinity of airports under their jurisdiction. Incompatible land use around airports represents one of the greatest threats to the future viability of airports.

  The City of Prineville Land Use Code Section 153.070 – Airport zones general criteria and Section 153.071 – Airport specific zones identify a number of zones that are associated with the airport and its operation and provide restriction on land uses and building heights within these zones. The Code states that "Any use shall meet the standards established in FAA Regulations, Part 77 and OAR Chapter738, Division 70; no structure shall penetrate into the airport imaginary surfaces." The City has indicated that it will amend its zoning code to include any recommendations provided by this Master Plan.

22 - Economic Nondiscrimination. The sponsor 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. Any agreement the sponsor enters into with a third party must outline and enforce provisions that 1) services will not be unjustly discriminatory; 2) charges will be reasonable and just; 3) each FBO shall be subject to the same rates and charges; and 4) the sponsor will not grant any right which operates to prevent any person, firm, or corporation operating aircraft from performing any services that it may choose to perform.

- The Airport does comply with the provisions provided in this grant assurance.

23 – Exclusive Rights. The sponsor must not permit exclusive right for the use of the Airport by any person providing aeronautical services to the public. Services by a single FBO are not considered an exclusive right if it would be unreasonably costly or impractical for more than one FBO to provide the services and if allowing more than one FBO would require the reduction of the first FBO's lease area.

- A review of the City's and County's lease agreements did not reveal that exclusive rights were granted to any tenants. There is no indication that the Airport has in the past denied any lease requests on the basis of the request competing with an existing lease holder's business. The City will continue to review all requests for the provision of aeronautical services at the Airport to ensure a competitive airport environment and safe and efficient operations.

24 – Fee and Rental Structure. The fee and rental structure for Airport facilities and services must be developed and maintained by the sponsor with the goal of helping the Airport become financially self-sustaining.

- The current fee and rental structure is comparable to that of similar airports in the Central Oregon region. It is recommended that the City routinely review and revise the rental structure with the goal of becoming financially self-sustaining. However, higher fees might not always lead to higher revenue since the lower fees are the reason many aircraft owners choose to be based at the Airport. The fee structure must be based on a market study that looks at balancing the attractiveness of the Airport while generating the most possible revenue.

25 – Airport Revenues. All revenues generated by the Airport and any local taxes on aviation fuel will be expended by the Airport for the capital or operating costs of the Airport, the local airport system, and other facilities owned by the sponsor which are directly and substantially related to the actual air transportation of passengers or property.

- The City and County do comply with the provisions of this grant assurance.

26 – Reports and Inspections. The sponsor will submit annual financial and operations reports to the FAA, and make the reports available to the public. All Airport records for development projects must be available to the FAA upon request.

- The City has complied with all requests by the FAA for data and records pertaining to the Airport. These reports are also available to the public, as part of the City's records.

27 – Use by Government Aircraft. The sponsor shall 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 at all times without charge. However, 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.

- The City has, and will continue to, make its facilities available for government use as appropriate and in compliance with this grant assurance.

28 – Land for Federal Facilities. The sponsor shall furnish real estate, without cost to the Federal Government, for use in connection with any air navigation, weather reporting, or communication activities.

- The Airport has never denied a request or charged any fee to the Federal Government for the furnishing of real estate for use in connection with any air navigation, weather reporting, or communication activities.

29 – Airport Layout Plan. The Airport Layout Plan will be kept up-to-date at all times.

- The Airport Layout Plan was last updated in 2004. This Master Plan will update the Airport ALP. Additionally, the ALP will continue to be updated in the future as needed.

30 – Civil Rights. For the period the sponsor retains ownership of the Airport property it will assure that no person shall, on the grounds of race, creed, color, national origin, sex, age, or handicap be excluded from participating in any activity conducted with or benefiting from funds received from the grant.

- The City has, and continues to, comply with this assurance.

31 – Disposal of Land. When land purchased under a grant for airport development purposes is no longer needed for airport purposes, disposal of such land should be done at fair market value or the land must be made available to the US Transportation Secretary. Land is considered to be needed for airport purposes if it is needed for aeronautical purposes (such as the RPZ) or serve as a noise buffer, and the revenue from the interim uses of such land contributes to the financial self-sufficiency of the Airport. Disposition of the land must retain the rights necessary to ensure the land will only be used for airport-compatible purposes.

- This Master Plan does identify an Airport owned parcel as no longer needed for airport purposes and does recommend the surplus or "release" of the said parcel. The FAA states that "any property, when described as part of an airport in an agreement with the United States or defined by an airport layout plan (ALP) or listed in the Exhibit "A" property map, is considered to be "dedicated" or obligated property for airport purposes by the terms of the agreement. If any of the property so dedicated is not needed for present or future airport purposes, an amendment to, or a release from, the agreement is required." The FAA Administrator has delegated to the Airport District Offices (ADOs) and regional offices the authority to release, modify, or amend assurances of individual sponsor agreements under specific circumstances as prescribed in this chapter. ADOs and regional airports divisions do not have the authority to modify the list of assurances in a grant agreement. In addition, ADOs do not have the authority to effect a release permitting the abandonment, sale, or disposal of a complete airport. The Airport will, prior to the release of the property, submit the necessary documentations and request for approval to the ADO.

  Title 14 CFR Part 155.7(d) requires that any release of airport land for sale or disposal shall be subject to a written commitment of the airport sponsor to receive a fair market value for the property. The net proceeds realized from the sale of surplus property – or the equivalent amount if the property is not sold – must be placed in an identifiable interest bearing account to be used for the purposes listed below:

  a) Eligible items of airport development set forth in the current airport grant program and reflected in the airport's capital improvement program (CIP).

b) Any aeronautical items of airport development not eligible under the grant program.
c) Retirement of airport bonds that are secured by pledges of airport revenue, including repayment of loans from other federal agencies.
d) Development of common use facilities, utilities, and other improvements on dedicated revenue production property that clearly enhances the revenue production capabilities of the property.

32 – Engineering and Design Services. The sponsor will award engineering, planning, and design contracts based on qualifications, in the same manner as a contract for architectural and engineering services under Title IX.

- The City has, and will continue to secure professional services according to the guidance of Title IX.

33 – Foreign Market Restrictions. The sponsor shall not allow grant funds to finance any project that uses any product or service of a foreign country listed by the US Trade Representative as denying fair and equitable market opportunities.

- The City has not knowingly financed any product or services from a restricted country of origin. Materials and labor for any proposed project are readily available in the United States, so there should be no issues concerning securing them from non-listed countries.

34 – Policies, Standards and Specifications. The sponsor shall carry out the project in accordance with the policies, standards, and specification approved by the Secretary of Transportation.

- The City has, and will continue to, perform all projects in accordance with U.S. Department of Transportation policies, standards, and specifications.

35 – Relocation and Real Property Acquisition. If real property is to be acquired, the sponsor will reimburse property owners – to the extent practicable – for necessary expenses, including relocation assistance or comparable replacement dwelling in accordance with FAA regulations.

- The Master Plan does show a future acquisition and development of a number of properties located to the northeast of the existing airport property. The City will undergo the necessary Environmental Assessment (EA) and property appraisal for any future property acquisition, ensuring compliance with this grant assurance.

36 – Access by Intercity Buses. Intercity buses, if applicable, will have access to the Airport.

- No bus service is currently available. In the future, the City will provide access to any Intercity Buses which need access to the airport.

37 – Disadvantaged Business Enterprise (DBE). No discrimination on the basis of race, color, national origin, or sex will be tolerated in the award and performance of any FAA-assisted contract or in the administration of the sponsor's DBE Program.

- A review of past federally funded contracts entered into by the City indicates that all projects include a DBE clause and are in accordance with 49 CFR Part 26.

38 – Hangar Construction. If a third party constructs a hangar at their own expense, the sponsor will grant the third party a long-term lease subject to such terms and condition on the hangar as the sponsor may impose.

- Hangar lease agreements entered into by the City and/or County are consistent with FAA guidance and this grant assurance. It is recommended that the County and City periodically review their lease agreements to ensure continuous compliance.

39 – Competitive Access. This assurance only applies to medium or large hub airports.

- This assurance does not apply to Prineville Airport.

OTHER FAA COMPLIANCE REQUIREMENTS

FEDERAL CONTRACTING AND PROCUREMENT DOCUMENTS

When an airport sponsor accepts an FAA Airport Improvement Program (AIP) grant, they agree to adhere to all applicable federal contracting and procurement requirements. Advisory circulars are required for use in AIP-funded projects. A checklist identifying the requirements that the Airport must consider prior to accepting a federal grant is included in each grant request. Items on the checklist include:

- ALPs should be up to date
- Exhibit A Property Map may need to be updated if acquiring additional property
- Land Inventory may need to be updated if you have recently acquired land 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
- 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 constructing 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 above, 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 specific or administrative in nature. Airport sponsors need to be aware of such conditions that may be applied to their airport.

MULTIJURISDICTIONAL CHALLENGES

In some instances, airports are jointly owned and operated by more than one airport sponsor. In other instances, airports may be located within multiple jurisdictions. While the official airport sponsor is ultimately responsible for adherence to the grant assurance, the actions, or inactions, of surrounding jurisdictions can and do impact the airport sponsor's ability in meeting its sponsor obligations. This is particularly true with land use compatibility issues around airports.

As a result, it is important in either circumstance that all jurisdictions affected by the airport understand the operational needs and complexities of having an airport within its jurisdiction. Mutual agreements addressing airport operational or land use protection needs, or other cooperative measures, are recommended by all jurisdictions to both protect the functionality of the airport as well as the safety and well-being of airport user and neighbors.

AIRPORT COMPLIANCE PROGRAM

The Airport Compliance Program aims to ensure that the nation has a system of safe and properly maintained public use airports that operated according to the airport owners' federal obligations. The program is designed to safeguard the public's investment in civil aviation.

The Airport Compliance Program is not designed to control or direct operations at an airport, but to protect the federal investment by monitoring airports sponsors' compliance with the commitments they made to the federal government. More specifically, the program is designed to:

- Educate airport sponsors
- Promote dispute resolution through an informal process using CFR 14 Part 13.1 and/or an alternative dispute resolution (ADR).
- Eliminate duplication by distinguishing between the functions of local, regional, and national FAA offices.
- Speed the decision-making process.
- Enforce agreements when necessary.

The guidelines of the Airport Compliance Program are found in FAA Order 5190.6B, Airport Compliance Requirements Manual. Order 5190.6B offers more details than what is found in the AIP grant application. The Manual must be consulted to develop corrective action with regard to any grant assurance deficiencies. The topics covered in the Airport Compliance Manual include:

- Scope and Authority of the FAA
- Compliance Program
- Federal Obligations from Property Conveyances
- Federal Grant Obligations and Responsibilities
- Complaint Resolution
- Rights and Powers and Good Title
- Airport Operations
- Exclusive Rights
- Unjust Discrimination between Aeronautical Users
- Reasonable Commercial Minimum Standards
- Self-Service
- Review of Aeronautical Lease Agreements
- Airport Noise and Access Restrictions
- Restrictions Based on Safety and Efficiency Procedures and Organization
- Permitted and Prohibited Uses of Airport Revenue
- Resolution of Unlawful Revenue Diversion
- Self-sustainability
- Airport Rates and Charges
- Airport Financial Reports
- Compatible Land Use and Airspace Protection
- Land Use Compliance Inspection
- Releases from Federal Obligations
- Reversions of Airport Property
- Appendices

As previously mentioned, the Airport Compliance Requirements Manual will guide the development of remedial actions, if and when needed, addressing the City's and County's compliance with the FAA grant assurances.

COMPLIANCE ISSUES RESOLUTION

Traditionally, the FAA has resolved disputes relating to compliance using a three-step process. The process' first two steps are informal and reflect the FAA's understanding of many airport sponsors lack of full knowledge of their obligations relating to the Grant Assurances as well as the FAA's desire to solve compliance issues with the sponsors through educating them on their roles and responsibilities under the compliance program. The three steps used by the FAA to resolve compliance issues are:

FAA Notification and Initial Investigation: This step takes place at the Airport District Office (ADO) level. This step is based on guidelines provided in the Airport Compliance Handbook, current FAA policies and precedents established by similar cases in the past.

Informal Dispute Resolution: This step is also handled at the local and/or regional FAA level. This step includes the FAA using Investigative and Enforcement Procedures outlined in 14 CFR Section 13.1 and Alternative Dispute Resolution (ADR).

Formal Enforcement Procedures: This is the third and final step in handling a compliance-related dispute. This step is handled primarily by the FAA's Headquarters in Washington, DC and is based on the FAA Rules of Practice for Federally-Assisted Airport Proceedings (14 CFR, Part 16).

SUMMARY, RECOMMENDATIONS AND BEST MANAGEMENT PRACTICES

As detailed in the previous sections, the City of Prineville maintains a high degree of control over the operation of the Prineville Airport. The City meets all applicable financial reporting and record keeping requirements and employs a variety of "best practices" including periodic review of market rates and fees, land appraisals, formal procurement and contracting practices, and coordination with adjacent land owners, local government, and state government (airport overlay zoning, environmental agencies, etc.). There are no known compliance issues associated with airport development, tenant leases, airport land uses or other items.

It is recommended that the City maintain communication with the FAA on a regular basis to ensure the continued compliance with the 39 assurances described above. Additionally, a number of best management practices are presented below. These practices are aimed at providing a preemptive approach to avoid potential future issues regarding certain grant assurances.

Sponsor Fund Availability. This master plan will identify a capital improvement plan (CIP) that will propose a feasible and attainable action plan for development at the Airport. Along with the estimated cost for the projects, the CIP will project the City's share of the improvement costs. The City should use this to budget for anticipated projects. Additionally, the CIP should be updated regularly based on development demand.

Accounting System, Audit, and Record Keeping Requirements. Although there are no existing concerns regarding the City's accounting system, it is recommended the City periodically review their accounting practices. This proactive approach will ensure that all needs of the City and FAA are met.

Hazard Removal and Mitigation. It is recommended that City work aggressively towards removing and/or mitigating the effects of obstructions, if any, identified in this master plan. Additionally, the planned adoption of this Master Plan into the City's comprehensive plan will ensure that no future obstructions that could impact the Airport's operations are introduced.

Sponsor Continued Education. This chapter will serve as a tool to educate the airport sponsor and its employees on their roles and responsibilities as they relate to the Grant Assurances. Additional documents and resources are available on the FAA website as well as through other organizations such as the Aircraft Owners and Pilots Association (AOPA) publication *AOPA's Guide to Airport Compliance.* The Airport sponsor and its staff are encouraged to rely on these resources for their continued education as well as for answers on any compliance issues that may arise.

Chapter Seven SOLID WASTE AND RECYCLING MANAGEMENT

After 23 short-term extensions to the Federal Aviation Administration (FAA) authorization, the United States Congress passed and President Obama signed, on February 14, 2012, Public Law 112-95, the FAA Modernization and Reform Act of 2012 (FMRA), which will carry through to September 30, 2015. The FMRA incorporates reference guidance provided by the United States Environmental Protection Agency (EPA). Specifically, Section 133 of the FMRA states that the issuance of a grant for an airport master requires confirmation that the master plan scope of work includes a review of solid waste recycling at the airport.

In September 2012, the Federal Aviation Administration (FAA) issued Program Guidance Letter 12-08 which addresses the implementation of the relevant sections FMRA until such time when these sections can be included within future revisions of FAA Order 5100-38C, *Airport Improvement Handbook* and FAA Advisory Circular (AC) 150/5070-6B, *Airport Master Plans*. The

The FMRA contains a number of provisions that relate to improving the sustainability of airports. Section 133 of the FMRA states that an airport master plan must address issues relating to solid waste recycling at the airport including:

A. The feasibility of solid waste recycling at the airport;
B. Minimizing the generation of solid waste at the airport;
C. Operation and maintenance requirements;
D. The review of waste management contracts; and
E. The potential for cost savings or the generation of revenue.

The FAA Planning and Environmental Division is in the process of developing guidance aimed at helping airports address these new requirements. If this guidance is published prior to the completion of this master plan update process, its elements and recommendations will be incorporated into the final version of this master plan update.

In the absence of a final guidance from the FAA, a number of publications were used to guide the development of the Recycling and Solid Waste Management Plan for the Prineville Airport, these include:

- **FAA Program Guidance Letter 12-08, Guidance on Airport Recycling, Reuse, and Waste Reductions Plans**, published by the FAA in September, 2014.
- **Recycling of Airport Pavements**, by Samuel H. Carpenter, Luis Diaz and Damon Brandley for the FAA published in March of 2001.
- **Recycling, Reuse and Waste Reduction at Airports** published by the FAA in April of 2013.
- **EPA 530-K-08-002 - Developing and Implementing an Airport Recycling Program** published by the United States Environmental Protection Agency (EPA) in April of 2009.
- **ACRP Synthesis 10 – Airport Sustainability Practices** published by the Transportation Research Board (TRB) in 2008.
- **ACRP Report 80 – Guidebook for Incorporating Sustainability into Traditional Airport Projects** published by the Transportation Research Board (TRB) in 2012.
- **Interim Guidance for Airport Sustainable Master Plan Pilot Program** published by the FAA in May of 2010.
- **The Sustainable Airport Manual, Version 3 (SAM)** published by the Chicago Department of Aviation in November 2012 (first version was published in 2010).

TYPES OF AIRPORT GENERATED WASTE

This section provides a brief overview of the types of waste that are encountered at airports in general and at general aviation (GA) airports specifically. It's important to note that this list is not intended to be all-inclusive but does enumerate the most common types of airport waste encountered at GA airports.

Municipal Solid Waste (MSW) consists of everyday items that are used and then discarded, such as product packaging, furniture, clothing, bottles, food scraps, and newspapers.

Construction and Demolition Waste (C&D) is generally categorized as MSW. However, as it can be a major component of airport waste, it has been separated into its own category for the purposes of this chapter. C&D waste is any non-hazardous solid waste from land clearing, excavation, and/or the construction, demolition, renovation or repair of structures, roads, and utilities.

Green Waste is categorized as MSW and is also referred to as yard waste. Green waste consists of tree, shrub and grass clippings, leaves, weeds, small branches, seeds, pods and similar debris generated by landscape maintenance activities.

Spill cleanup and remediation wastes are another type of special waste. These materials are generated during cleanup of spills and/or the remediation of contamination from various types of sites on an airport (e.g. storage tanks, oil and gas production, vehicular leaks, spills from maintenance activities, etc.).

Hazardous Wastes are covered by regulations outlining legal handling, treatment or disposal. Hazardous wastes are either specifically "listed" in the regulation (40 CFR 261.31-.33), or are ignitable, corrosive, toxic or reactive (as defined in 40 CFR 261.21 - .24). Hazardous wastes most often encountered in the aviation industry include:

- solvents
- caustic parts washes
- heavy metal paint waste and paint chips
- wastewater sludges from metal etching and electroplating
- unused epoxies and monomers
- waste fuels (including sump fuel or tank sludges) and other ignitables
- unusable water conditioning chemicals
- illegal dumping of containerized chemicals
- contaminated sludge in GA aircraft wash rack oil/water separators
- nickel cadmium (ni-cad) batteries
- waste pesticides

Universal Hazardous Wastes. The EPA developed less stringent regulations for certain hazardous waste, known as universal wastes, set forth in 40 CFR part 273, the Universal Waste Rule. If handled in a responsible method prior to legal recycling, these wastes are less heavily regulated. This rule provides a set of streamlined regulations to reduce the regulatory burden by allowing longer time for the storage of the wastes, reduced record-keeping requirements and consolidation off-site without a permit. Universal wastes are:

- Generated in a wide variety of settings other than the industrial settings usually associated with hazardous wastes;
- Generated by a vast community (typically greater than 1,000 sources);
- May be present in significant volumes in non-hazardous waste management systems unless measures are made to separate out these recyclable wastes.

Federal and state regulations govern the collection and management of these widely generated wastes, thus facilitating environmentally sound collection and proper recycling or treatment

since economical recycling options exist for most of these wastes. These regulations also encourage the development of municipal and commercial programs to reduce the quantity of these types of wastes going to landfills. States can modify the universal waste rule and add additional universal waste(s) in individual state regulations, so the exact regulations for the applicable state should be consulted.

REVIEW OF FEDERAL, STATE AND LOCAL SOLID WASTE MANAGEMENT GUIDLINES

This section includes a review of the current recycling and waste management practices and regulations at the State and local level. It is important to note that on the national level, the United States Environmental Protection Agency (EPA) oversees a variety of waste issues. These include regulation of hazardous wastes, landfill regulations, and setting recycling goals. More specific recycling legislation is localized through city or state governments.

FEDERAL WASTE MANAGEMENT PRACTICES

Federally, the Airport follows FAA and the Environmental Protection Agency (EPA) regulations. The guidelines set by the FAA and EPA aid waste management efforts by providing guidance on how to manage materials such as hazardous wastes. The EPA implemented the Resource and Conservation and Recovery Act of 1976 (RCRA), which provides general guidelines for the waste management program envisioned by Congress. Under RCRA Subtitle C, the EPA has established a system for controlling hazardous waste from the time it is generated until its ultimate disposal. This federal law aids the Airport in the process of handling and disposing of hazardous waste. S39 also follows the EPA's Environmentally Preferred Products (EPP) program and Green Seal products that are certified by the EPA.

Along with the rules and regulations the EPA has put forth, there are also guidance documents for recycling efforts. A document published by the EPA called "Developing and Implementing an Airport Recycling Program" has helpful guidance on how to implement recycling at an airport. Included in this document is a set of worksheets and instructions for identifying and measuring waste.

The FAA provides guidance on preparing airport recycling, reuse, and waste reduction plans. An example of this guidance is the memorandum issued by the FAA on September 30, 2014, titled "Guidance on Airport Recycling, Reuse, and Waste Reduction Plans."

STATE OF OREGON WASTE MANAGEMENT PRACTICES

The 1991 Oregon Legislature enacted a menu of recycling program elements or options in Senate Bill 66 (numbers 1 through 8). The 1997 Oregon Legislature made changes to some of these

program options and added one more (number 9). Oregon Administrative Rules (OAR 340-090-0040) clarify requirements for each of the following program elements:

- Weekly, residential curbside collection of source-separated recyclable materials, on the same day as garbage service. (If this program element is not implemented, a minimum of monthly curbside collection is still required.) Local governments must also give notice to each person of the opportunity to recycle and encourage source separation of recyclable materials through an education and promotion program.
- An expanded recycling education and promotion program which includes, among other things, recycling collection promotion directed at residential and commercial solid waste service customers and generators at least four times a year.
- Provision of at least one durable recycling container directly to each residential collection service customer.
- Recycling collection service provided to multi-family dwelling complexes having five or more units.
- Residential yard debris collection program for collection and composting of residential yard debris.
- Regular, on-site collection of source-separated principal recyclable materials from commercial generators.
- Establishment of an expanded system of recycling depots which are conveniently located to the population served.
- Garbage collection rates established as a waste reduction incentive, including a mini-can option.
- A collection and composting program for commercial and institutional food waste, non-recyclable paper and other compostable waste.

All cities with population of 4,000 or more, such as is the case with Prineville, must provide a minimum of three recycling program elements and basic recycling education and promotion. All cities with population 10,000 or more must provide an additional one or two recycling program elements (depending on the activities chosen). The Oregon Department of Environmental Quality (DEQ) can also approve alternative recycling programs that comply with administrative rules adopted by the Oregon Environmental Quality Commission. It should be noted that the City of Prineville's population is expected to surpass the 10,000 threshold within the planning period.

CITY OF PRINEVILLE WASTE MANAGEMENT PRACTICES

The airport is operated by the City of Prineville. Section 50.01 of the Prineville City Code states that "it is the public policy of the City to regulate solid waste management to:

- Insure safe, efficient, economical and comprehensive solid waste service.
- Insure fair and equitable consumer rates and to prohibit rate preferences or other practices that might be discriminatory.
- Conserve energy and material resources, reduce solid wastes and promote material and energy recovery in all forms.
- Provide for technologically and economically feasible resource recovery.
- Eliminate overlapping service and thereby increase efficiency and decrease truck noise, street wear, energy waste, air pollution and public inconvenience.
- Protect public health and the environment.
- Provide public service standards.
- Protect against improper and dangerous handling of hazardous wastes and infectious wastes."

AIRPORT WASTE AUDIT

A waste audit survey was distributed to all airport tenants. The survey aims to identify the sources, types and quantities of recyclable materials generate on the Airport. The survey also identifies existing recycling practices and solid waste removal procedures.

The results from the survey provided are sparse. Surveys were mailed via USPS to an airport tenant list of approximately 30 addresses. A few were emailed to tenants previously communicated with early in the study regarding the airport user survey. Three surveys were "return to sender", a few received from private tenants with no waste service, one from City/Airport Manager, and one from an on-airport business tenant that, according to survey results, is the largest producer of solid waste on the airport.

REVIEW OF THE FEASIBILITY OF SOLID WASTE RECYCLING AT THE AIRPORT

This section examines the feasibility of solid waste recycling activity at the Prineville Airport. Airport staff were interviewed to gain a better understanding of the solid waste recycling activities, potential opportunities and challenges for the improvement and expansion of the recycling program.

Section 133 of the FMRA includes a list of factors that influence the scope and nature of an airport recycling program. These factors are listed and a brief discussion of their relevance and implication to the Airport is provided below:

- Local markets for recyclable commodities;
- Cost for transport and processing recyclables;
- Local recycling infrastructure;
- Willingness of an airport and its tenants to implement recycling programs;
- The nature of an airport's waste stream;
- Competition between recycling and landfilling firms; and
- Airport layout and logistics.

The Airport and its tenants have shown a willingness to implement recycling programs. The Airport does have appropriately marked recycling containers throughout the terminal building. Airport tenants are in charge of their garbage disposal and recycling practices. All airport tenants have waste collection contracts with the Prineville Disposal that are identical to the Airport's contract. Additionally, there are no logistical constraints of the Airport Terminal Building layout that would hinder recycling or trash collection.

The later sections of this report will provide specific recommendations for improving the solid waste recycling activity at the airport. That said, given the size of the airport and its activity levels, both current and projected, recycling and waste management practices and their feasibility is heavily influenced by the overall recycling and waste management practices of the City of Prineville.

While the amount of waste generated at the Airport is not sufficient to financially justify certain investments that will positively impact the Airport's ability to recycle its waste, such as the purchase of a compactor for co-mingled recyclables, these investments might be justified as part of the City's overall recycling plan. The Airport is reliant on the local recycling infrastructure which in turn is influenced by the regulations of the State of Oregon. As the population of the City of Prineville surpasses the 10,000 threshold, additional recycling measures will be provided by the City.

MINIMIZING THE GENERATION OF SOLID WASTE AT THE AIRPORT

Other than the requirements of Oregon Administrative Rules (OAR 340-090-0040), there are no mandatory requirements for solid waste management and reduction at the Airport. There are a number of voluntary measures that the Airport can take. These measures have proven successful at other airports and they include:

- Implementing a Source Reduction Program that encourages the purchase of recycled materials and products.
- Implementing a Green Waste to Compost Program that would recycle grass clippings and tree trimmings from landscape operations into compost and mulch.
- Implementing a Tire Recycling Program that would include grinding up tires from Airport vehicles and possibly tenant vehicles as well, and use them in paving materials for future construction and maintenance projects.
  Implementing a Pavement Recycling Program for new Airport pavement replacement projects.
- Implementing a new Recycling Advertising Program for recycling bins that would educate and alert passengers on the proper disposal of waste materials.
  Providing clearly marked collection bins in the terminal and around the Airport.

Not all of the changes above may be feasible for Prineville. Given the local climate and vegetation, there is a limited opportunity to generate grass or tree trimmings for green waste compost. At the present time, the opportunity for tire recycling would be similarly limited simply because of the limited number of tire replacements that occur on the airport.

OPERATIONS AND MAINTENANCE REQUIREMENTS

The terminal building as well as Airport tenants building have recycling bins. The Airport is working on updating its rules and regulations. It is recommended that the new document establishes a recycling plan that includes performance-based measures and goals for waste reduction.

The recycling plan must, at a minimum, include the following:

1. Coordination with the Prineville Disposal that leads to the establishment of an annual baseline data for all disposed and recycled waste at the Airport.
2. Establishing waste collection and recycling goals. These goals should be continuously updated as the program progresses.
3. Developing a methodology for the continuous monitoring of the program and its results.

Studies have shown that the key long-term success of any recycling and solid waste minimization plan is planning and education[1]. The Airport's plan must include realistic goals and objectives, based on the baseline data obtained from the Prineville Disposal, and continuous monitoring to

[1]"Decision Maker's Guide to Solid Waste Management", Volume II, (EPA 530-R-95-023), 1995

measure the program's success and adjust its goals accordingly. Examples of measurable goals include reducing the total generation of solid waste from airport operations by 5 percent annually and/or diverting 75 percent of the waste stream generated from the terminal by 2016.

REVIEW OF WASTE MANAGEMENT CONTRACTS

The Airport's waste is collected and recycled by the Prineville Disposal. The Airport does not have a signed copy of the contract but was able to provide copies of invoices that explain the services provided. Additionally, the Prineville Disposal indicated, through email, that it provides the Prineville Airport with one (1) 95-gallon recycle roll cart emptied every other week at no cost.

THE POTENTIAL FOR COST SAVINGS OR THE GENERATION OF REVENUE

Recycling is the transfer of material out of the waste stream and diverting it from landfills so that it can be reused, repurposed, or remanufactured into new products. As the volume of waste sent to landfills decreases, the cost of such trash disposal also decreases.

Establishment of a recycling program can provide appreciable cost savings. Initial costs to plan and implement the program, including the purchase of bins and pick-up/sorting service, if needed, will eventually be offset by reduced trash disposal fees and less waste creation over time. Material costs often include the purchase or leasing of collection bins, storage containers, container signage and employee education literature, and the cost of transporting recyclable materials to an off-site processing facility.

In addition to cost savings, recycling saves energy that would be used to extract resources or create products from virgin materials. Recycling also creates more jobs than traditional trash disposal services. For every one job at a landfill, there are 10 jobs in recycling processing and 25 jobs in recycling-based manufacturing[2].

The greatest potential for cost savings for the Airport would result from recycling programs aimed at keeping recycled material at the Airport instead of transporting off-site. Pavement recycling programs may provide the greatest opportunity in the future.

[2] Eco-cycle, accessed March 1st, 2014.

CONCLUSION

The Airport currently has an adequate recycling program. However, modest enhancements to the recycling and solid waste management process could potentially reduce costs. These enhancement include:

- Working with the Prineville Disposal on establishing baseline data for the current Airport recycling activity.
- Developing objectives and setting measurable targets to monitor the success of the plan. This includes working with the Prineville Disposal to assess the success of the plan and adjusting the objectives and targets based on the obtained results.
- Implementing a recycling education program for the Airport employees and tenants.

Chapter Eight
ALP DRAWINGS

This chapter describes the Airport Layout Plan (ALP) drawing set developed for the 20 year planning period of this master plan. These plans identify areas needed for aviation related development during and beyond the planning horizon, as well as the available land on the airport which should be reserved for future revenue streams resulting from non-aviation related development. The plan will also serve as a reference for the City and County to evaluate existing and/or future obstruction disposition in conjunction with Federal Aviation Administration (FAA) criteria. The ALP set presented becomes the official development plans for the Airport, which may be amended over time to reflect changes in the airfield environment or the demand affecting future facilities.

The ALP set consist of fifteen (15) separate drawings which have been prepared on a computer assisted drafting system to graphically depict the recommended airfield improvements, imaginary surfaces, and the layout of future facilities. This ALP set is compliant with all pertinent criteria established by the FAA in Advisory Circular (AC) 150/5070-6B, Airport Master Plans, and AC 150/5300-13, Airport Design.

Specifically, this drawing set includes:

1. Cover Sheet
2. Airport Layout Plan Data Sheet
3. Airport Layout Plan
4. Airport Airspace Plan
5. Airport Airspace Plan Runway Profile Drawings
6. Runway 10 Inner Approach Surface Plan and Profile
7. Runway 28 Inner Approach Surface Plan and Profile
8. Runway 15 Inner Approach Surface Plan and Profile
9. Runway 33 Inner Approach Surface Plan and Profile
10. Runway 10-28 Departure Surface Plan and Profile
11. Terminal Area Plan
12. Land Use Plan
13. Airport Noise Contours
14. Airport Property Map
15. Airport Utilities Plan

This chapter presents a half-size (11”x17”) version of the drawings with a brief discussion of each. A full-sized (22”x34”) ALP set is provided in conjunction with this report.

AIRPORT LAYOUT PLAN DRAWING SET

COVER SHEET

The Cover Sheet serves as an introduction to the ALP set. This sheet includes the name of the Airport, a location map, vicinity map, and an index of drawings included in the ALP set. This sheet provides pertinent information such as the airport sponsor, airport name, the FAA grant number that funded - in part - this master plan, and the required FAA disclaimer. Additionally, this sheet depicts the all-weather wind rose and the crosswind coverage for each runway as well as for the runway system.

AIRPORT LAYOUT PLAN DATA SHEET

A separate Data Sheet is included in an ALP set when adequate space is not available on the ALP sheet to include all the necessary tabular information about the Airport and its facilities. The Data Sheet includes a variety of information relative to the Airport and its runways, taxiways, instrument approach capabilities, and operational conditions.

AIRPORT LAYOUT PLAN

The ALP is a graphic representation of existing and proposed Airport facilities, their location, dimensional and clearance data, and the overall infrastructure of the Airport including runways, taxiways, and aprons. This information is presented on Drawing Sheet 3. Once approved by the FAA), the ALP becomes the official guidance for the City of Prineville for how to manage the development of the Airport while meeting state and federal obligations, ensuring the economic goals of the City are realized, and providing the greatest possible public benefit. The FAA refers to the ALP when considering grant applications for development assistance at the Airport as well as when analyzing the aeronautical impacts from some off-airport development in the near vicinity of the Airport.

AIRPORT AIRSPACE PLAN

Federal Aviation Regulations (FAR) Part 77, "Objects Affecting Navigable Airspace," prescribes airspace standards which establish criteria for evaluating navigable airspace. Airport imaginary surfaces are established relative to the Airport and its runways. The size of each imaginary surface is based on the runway category with respect to existing and proposed visual, nonprecision, or precision approaches for that runway. The space and dimensions of the respective approach surfaces are determined by the most demanding, existing or proposed, approach for each runway.

The imaginary surfaces definitions include:

Primary Surface: The primary surface is a rectangular area symmetrically located about the runway centerline and extending a distance of 200 feet beyond each runway end. The elevation of the primary surface is the same elevation as the nearest point of the runway.

Horizontal Surface: The horizontal surface is an oval shaped area situated 150 feet above the published airport elevation. Its dimensions are determined by circles, either 5,000 feet or 10,000 feet in radius depending on the sophistication and utility of the runway, which are centered about the midpoint of each end of the primary surface. These circles are then connected by lines of tangent to enclose the limits of the horizontal surface.

Conical Surface: The conical surface is a sloped area originating at the edge of the horizontal surface and extending outward and upward at a slope of 20:1 for a horizontal distance of 4,000 feet.

Transitional Surfaces: These surfaces extend outward and upward at right angles to the runway centerline and centerline extended at a slope of 7:1 from the sides of the primary surface as well as from the sides of the approach surface. Transitional surfaces for those portions of the prevision

approach, 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 at right angles to the Runway centerline.

Approach Surface: This surface begins at the ends of the primary surface and slopes upward at a predetermined ratio while at the same time flaring out horizontally. The width and elevation of the inner ends conform to that of the primary surface, while the slope, length, and outer width are determined by the runway service category and existing or proposed instrument approach capabilities.

INNER APPROACH SURFACES PLANS AND PROFILES

The inner portion of the approach surface drawings display the existing and future approach surface configurations and their interaction with airport and off-airport environs. The extended runway centerline ground profiles and the critical point profiles are shown for terrain clearance purposes. Notable objects of height are identified in both the plan and profile views in each plan and are tabulated with object height and penetration information as well as future mitigation efforts if required. These drawings are supplemental to the Part 77 Airspace Surface drawings. The plan and profile views for each runway end beginning 200' prior to a runway.

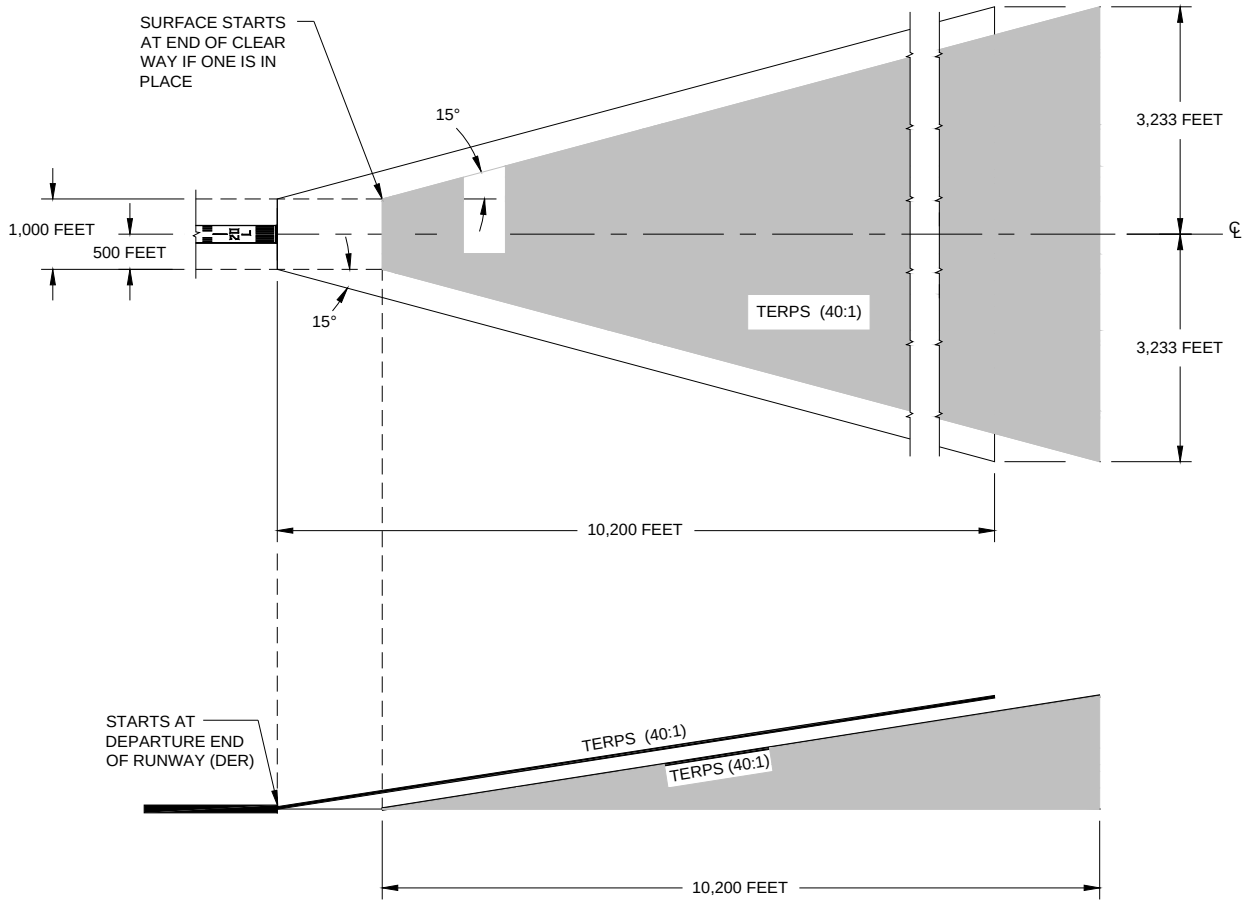
Drawing sheets 6, 7, 8, and 9 illustrate the inner approach surface plan and profile for Runways 10, 28, 15 and 33, respectively.

RUNWAY 10-28 DEPARTURE SURFACE PLAN AND PROFILE

The Runway Departure Surfaces Plan depicts the plan and profile view of the Runway 10/28 departure surface, which is applicable to all instrument runways with departure procedures. The departure surface is a surface longitudinally centered on the extended runway centerline, extending outward and upward from the end of the primary surface and at the same slope as the approach/departure zone height limitation slope.

The departure surface at the Airport begins at the end of the runway at a width of 1,000 feet. It extends outward for a length of 10,200 feet to an outer width of 6,466 feet as shown in **Figure 8A**. The designated obstacle clearance slope is 40:1.

Figure 8A. Departure Surfaces



TERMINAL AREA PLAN

The Terminal Area Plan presents an enlarged area of the ALP and illustrates existing and proposed building and apron facilities in greater detail. The Terminal Area Plan generally seeks to present a detailed view of the terminal building, aircraft parking aprons, automobile parking areas, general aviation (GA) and corporate hangars, and non-aviation development areas. For the Prineville Airport, the Terminal Area Plan includes two windows, one showing the existing development and future improvements to the area located the southeast of Runway 10-28, and the other showing the proposed future developments to the north of Runway 10/28.

LAND USE PLAN

The purpose of the existing land use plan is to identify the land uses currently surrounding the Airport so as to inform discussion about airport growth and development as well as the growth and development of properties surrounding the Airport. Additionally, a review of existing land uses surrounding the Airport enables the analysis of the Airport's land use compatibility. The majority of land surrounding the Prineville Airport is designated for exclusive farm use, though some limited residential, commercial, manufacturing and industrial uses do exist in the vicinity of the Airport.

AIRPORT NOISE CONTOURS

The FAA Integrated Noise Model (INM) Version 7.0D was used to generate contours for the base year (2013) and for the forecasted conditions five (5) years into the future (2018). The land use designations of the area within the day/night equivalent sound level (DNL) 55 decibels (dB) contour is shown for both 2013 and 2018.

Key noise modeling assumptions relate to fleet mix, runway utilization, the number and orientation of arriving and departing flight tracks, and the distribution of daytime and nighttime operations. These assumptions were made based on the information discussed in the Forecast Chapter, Chapter 3.

AIRPORT PROPERTY MAP

The airport property map is intended to depict the areas of existing airport sponsor ownership and areas proposed for ownership or release. The map also shows easement, buildings, aprons, fences, roads, and other features of concern. Parcels are shown for depiction purposed only and this map is not intended to be used for survey or land acquisition purposes. Property information includes ownership, date of acquisition, and federal involvement if applicable.

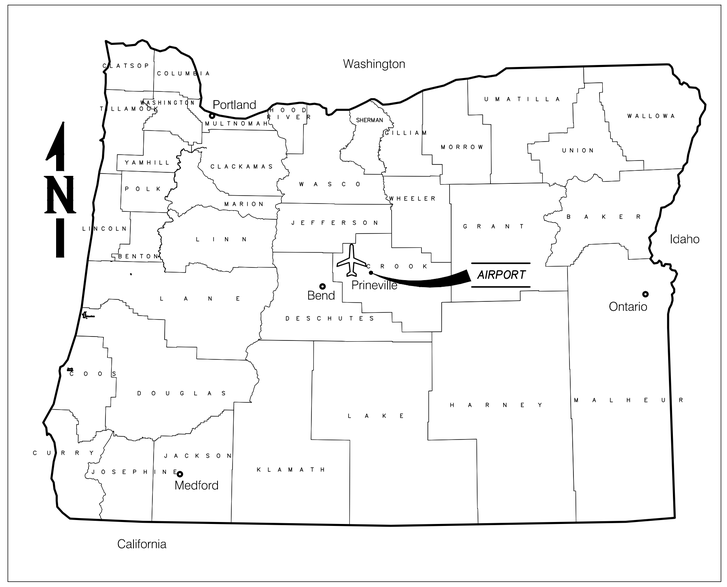
AIRPORT UTILITIES PLAN

The airport utilities map shows the existing utility lines at the Airport. These include water main, sanitary sewer, and communication lines (QWEST). The map also depicts the proposed extension of these lines to serve the future airport development projects within the 20-year planning period and beyond.

PRINEVILLE/CROOK COUNTY AIRPORT - S39
AIRPORT LAYOUT PLAN

FAA A.I.P. NO. 3-41-0051-011

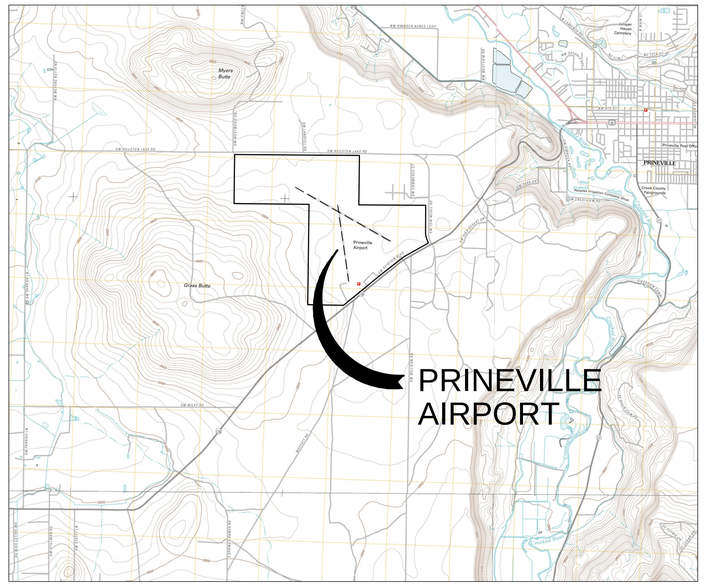
August 2017



LOCATION MAP

NOT TO SCALE

SHEET INDEX



VICINITY MAP

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COVER SHEET

PRINEVILLE/CROOK COUNTY AIRPORT LAYOUT PLAN
PRINEVILLE, OR

PROJECT NUMBER	DRAWING FILE NAME	SCALE
037648 / 0496W	037648-C-CS01	AS NOTED

SHEET NUMBER 1

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[PATH: P:\City of Prineville\037648\Design\Drawings\Civil\037648-C-CS01.dwg] [LAYOUT: Sheet 1]

Airport Data Table		
	Existing	Ultimate
Airport Reference Code	B-II	Same
Critical Aircraft	B-II	Same
Approach Speed	108	Same
Wingspan	52.1'	Same
Taxiway Design Group	TDG-2	Same
NAVAIDS	NDB, RNAV, GPS	Same
Mean Max Temperature	85°F	-
Max Variation		-
Airport Elevation	3251.3' MSL	-
NPIAS Service Level	GA - Local	Same
State Service Level	Local GA	Same

Airport Reference Point				
	Existing		Ultimate	
Latitude	44°17'16.02" N		44°17'22.05" N	
Longitude	120°54'18.61" W		120°54'25.86" W	
Runway End Coordinates				
	Existing		Ultimate	
	Latitude	Longitude	Latitude	Longitude
Runway 10 (E) 11 (U)	44° 17'36.14" N	120° 54'53.25" W	44° 17'43.66" N	120° 55'11.96" W
Runway 28 (E) 29 (U)	44° 17'08.37" N	120° 53'44.31" W	44° 17'09.81" N	120° 53'47.90" W
Runway 15 (E) 16 (U)	44° 17'26.98" N	120° 54'22.52" W	44° 17'37.37" N	120° 54'24.82" W
Runway 33 (E) 34 (U)	44° 16'47.21" N	120° 54'14.22" W	44° 16'52.47" N	120° 54'15.34" W
Runway End Station and Elevation				
	Existing		Ultimate	
	Station	Elevation	Station	Elevation
Runway 10 (E) 11 (U)	10+00	3,246.40'	-05+45	3,249.49'
Runway 28 (E) 29 (U)	67+51	3,236.20'	64+55	3,236.79'
Runway 15 (E) 16 (U)	50+54	3,239.50'	61+17	3,242.69'
Runway 33 (E) 34 (U)	10+00	3,250.30'	15+17	3,249.27'
Note: NAD83 coordinate system and NAVD88 vertical datum was used				

BUILDINGS AND FACILITIES

1. T-Hangars (3,255')
2. Conventional Hangar (3,256')
3. Conventional Hangar (3,256')
4. Conventional Hangar (3,256')
5. Conventional Hangar (3,260')
6. Conventional Hangar (3,256')
7. Airport Terminal Building/FBO (3,255')
8. Conventional Hangar and Airport Maintenance Equipment Storage (3,265')
9. Conventional Hangar (3,258')
10. Conventional Hangar (3,258')
11. Conventional Hangar (3,256')
12. Conventional Hangar (3,256')
13. Conventional Hangar (3,256')
14. T-Hangar (3,255')
15. T-Hangar (3,253')
16. T-Hangar (3,252')
17. Conventional Hangar (3,253')
18. Flight School Class Room (3,250')
19. BLM Interagency Dispatch Center (3,256')
20. Rappel Base (3,256')
21. Non-Aviation Building (3,258')
22. USFS/BLM Helicopter Parking (To be removed)
23. Aviation Fueling Area/Storage
24. Single Engine Air Tanker (SEAT) Apron
25. AG Aircraft Loading/Operations (Closed)
26. Helicopter Parking
27. Aircraft Parking Apron
28. BLM Helicopter Parking Area
29. Airport Beacon (Future)
30. Aircraft Parking Apron (Future)
31. Aircraft Hangars (Future/Reserve)
32. Aviation Use (Reserve)
33. Military/Government Aviation Lease (Reserve)
34. Future AG Area (Reserve)
35. Aircraft Parking (Reserve)
36. Emergency Services Building (Future)
37. Aviation Use Lease (Existing)
38. T-Hangers (Future)
39. Not Used
40. Not Used
41. AWOS
42. FBO Reserve
43. USFS (Future)

NOTE:
SEE SHEETS 3 AND 10 FOR ALL BUILDING/FACILITY LOCATIONS LISTED IN THE ABOVE TABLE.

Runway 10 - 28 (E) 11 - 29 (U) Data Table		
	Existing	Ultimate
Approach Reference Code - APRC	B/II/5000	B/III/5000 D/II/5000
Departure Reference Code - DPRC	B/II/5000	B/III D/II
Runway Design Code - RDC	B/II	Same
Critical Aircraft	Citation Ultra (CE560)	Same
Runway Length and Width	5751' x 75'	7000' x 75'
Runway High Point - MSL	3,246.4'	3,249.5'
Runway Low Point - MSL	3,236.2'	3,236.8'
Runway Approach	Non-Precision	Same
Runway Gradient	0.18%	0.002%
Pavement Type	Asphalt	Same
Pavement Strength	30,000 SWG	60,000 DWG
Runway Pavement Strength - PCN	20.9/F/Y/T	Same
Runway Lighting	MIRL	Same
Runway Marking	Non-Precision	Same
14 CFR Part 77 Approach Category	Rwy 10 - 34:1 Rwy 28 - 34:1	Rwy 10 - 34:1 Rwy 28 - 34:1
Runway Visual Aids	Rwy 10 - None Rwy 28 - PAPI	PAPI, REIL PAPI, REIL
Departure Surface	Yes - 40:1	Same
TORA, TODA, ASDA, LDA	5751'	7000'
Notes:		

Runway 15 - 33 (E) 16 - 34 (U) Data Table - Utility		
	Existing	Ultimate
Approach Reference Code - APRC	B/I(s)/VIS	Same
Departure Reference Code - DPRC	B/I(s)/VIS	Same
Runway Design Code - RDC	B/I(s)	Same
Critical Aircraft	Beech Baron Be-58	Same
Runway Length and Width	4054' x 40'	4600' x 60'
Runway High Point - MSL	3,250.3'	3,249.3'
Runway Low Point - MSL	3,239.5'	Same
Runway Approach	Visual	Same
Runway Gradient	0.08%	0.003%
Pavement Type	Asphalt	Same
Pavement Strength	5,000 SWG	12,500 SWG
Runway Pavement Strength - PCN	4.3/F/Z/T	13.3/F/Z/T
Runway Lighting	LIRL	MIRL
Runway Marking	Basic	Same
14 CFR Part 77 Approach Category	Rwy 15 - 20:1 Rwy 33 - 20:1	Same
Runway Visual Aids	Rwy 05 - None Rwy 23 - None	Same Same
Departure Surface	No	Same
TORA, TODA, ASDA, LDA	4054'	4600'
Notes:		

Existing Airport Apporach Minimums			
Approach Procedure	**Minimum Altitude (AMSL)**	**Visibility (mi)**	**Category**
RNAV (GPS) RWY 10			
LP MDA	3,840'	1	A,B
LP MDA	3,840'	1 3/4	C,D
*LP MDA	3,680'	1	A,B
*LP MDA	3,680'	1 1/4	C,D
LNAV MDA	3,940'	1	A,B
LNAV MDA	3,940'	2	C,D
Circling	4,000'	1	A
	4,100'	1 1/4	B
	4,100'	2 1/2	C
	4,100'	2 3/4	D
RNAV (GPS) RWY 28			
LP MDA	3,640'	1 1/4	A,B,C,D
LNAV MDA	3,700'	1 1/4	A,B
LNAV MDA	3,700'	1 3/8	C,D
Circling	4,000'	1 1/4	A
	4,100'	1 1/4	B
	4,100'	2 1/2	C
	4,100'	2 3/4	D

Notes:
1. 40:1 Departure Surfaces
2. Future visibility minimums greater than or equal to 1 mile

Runway 10 - 28 (E) 11 - 29 (U) Design Surfaces Table			
Runway Protection Zone			
	Inner Width	Length	Outer Width
Existing	500'	1,000'	700'
Ultimate	Same	Same	Same
Runway Safety Area			
	Width	Length Beyond Runway End	
Existing	150'	300'	
Ultimate	Same	Same	
Runway Object Free Area			
	Width	Length Beyond Runway End	
Existing	500'	300'	
Ultimate	Same	Same	
Runway Obstacle Free Zone			
	Width	Length Beyond Runway End	
Existing	250'	200'	
Ultimate	Same	Same	

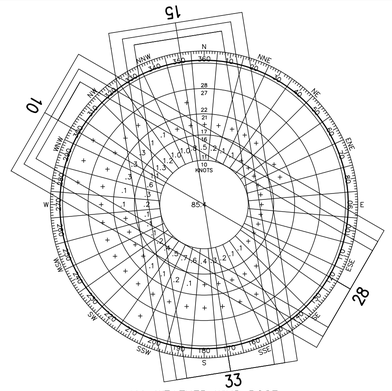
Runway 15 - 33 (E) 16 - 34 (U) Design Surfaces Table			
Runway Protection Zone			
	Inner Width	Length	Outer Width
Existing	250'	1,000'	450'
Ultimate	Same	Same	Same
Runway Safety Area			
	Width	Length Beyond Runway End	
Existing	120'	240'	
Ultimate	Same	Same	
Runway Object Free Area			
	Width	Length Beyond Runway End	
Existing	250'	240'	
Ultimate	Same	Same	
Runway Obstacle Free Zone			
	Width	Length Beyond Runway End	
Existing	250'	200'	
Ultimate	Same	Same	

Touchdown Zone Elevation		
	Existing	Ultimate
Runway 10 (E) 11 (U)	3,246.40'	3,249.49'
Runway 28 (E) 29 (U)	3,242.20'	3,242.80'
Runway 15 (E) 16 (U)	3,241.90'	3,242.69'
Runway 33 (E) 34 (U)	3,250.30'	3,249.27'

Obstacle Free Zone (OFZ) Object Penetrations		
Description	Penetration	Elevation
None		
Threshold Siting Surface Object Penetration		
Description	Penetration	Elevation
No TSS Penetration		

Taxiway Data Table					
	Existing				
	Lighting	Length and Width	Object Free Area Width	Safety Area Width	Runway Seperation
Parallel Taxiway 10-28 (E) 11-29 (U)	Reflectors	5,751' x 35'	131'	79'	240'
Parallel Taxiway 15-33 (E) 16-34 (U)	-	-	-	-	-
Apron Taxiway	Reflectors	2,660' x 35'	131'	79'	NA
	Ultimate				
	Lighting	Length and Width	Object Free Area Width	Safety Area Width	
Parallel Taxiway 10-28 (E) 11-29 (U)	MITL	7,000' x 35'	Same	Same	300'
Parallel Taxiway 15-33 (E) 16-34 (U)	MITL	4,600' x 35'	89'	49'	240'
Apron Taxiway	MITL	2,000' x 40'	131'	79'	NA

ALL WEATHER WINDROSE



ALL WEATHER WIND ROSE

WIND ROSE SOURCE:
NATIONAL CLIMATIC CENTER
CITY OF REDMOND MUNICIPAL AIRPORT, ROBERTS FIELD
PERIOD 2006-2015

	10.5 KNOTS	13 KNOTS	16 KNOTS
RWY 10-28	94.69%	97.08%	99.04%
RWY 15-33	95.06%	97.36%	98.97%
COMBINED	98.91%	99.56%	99.88%

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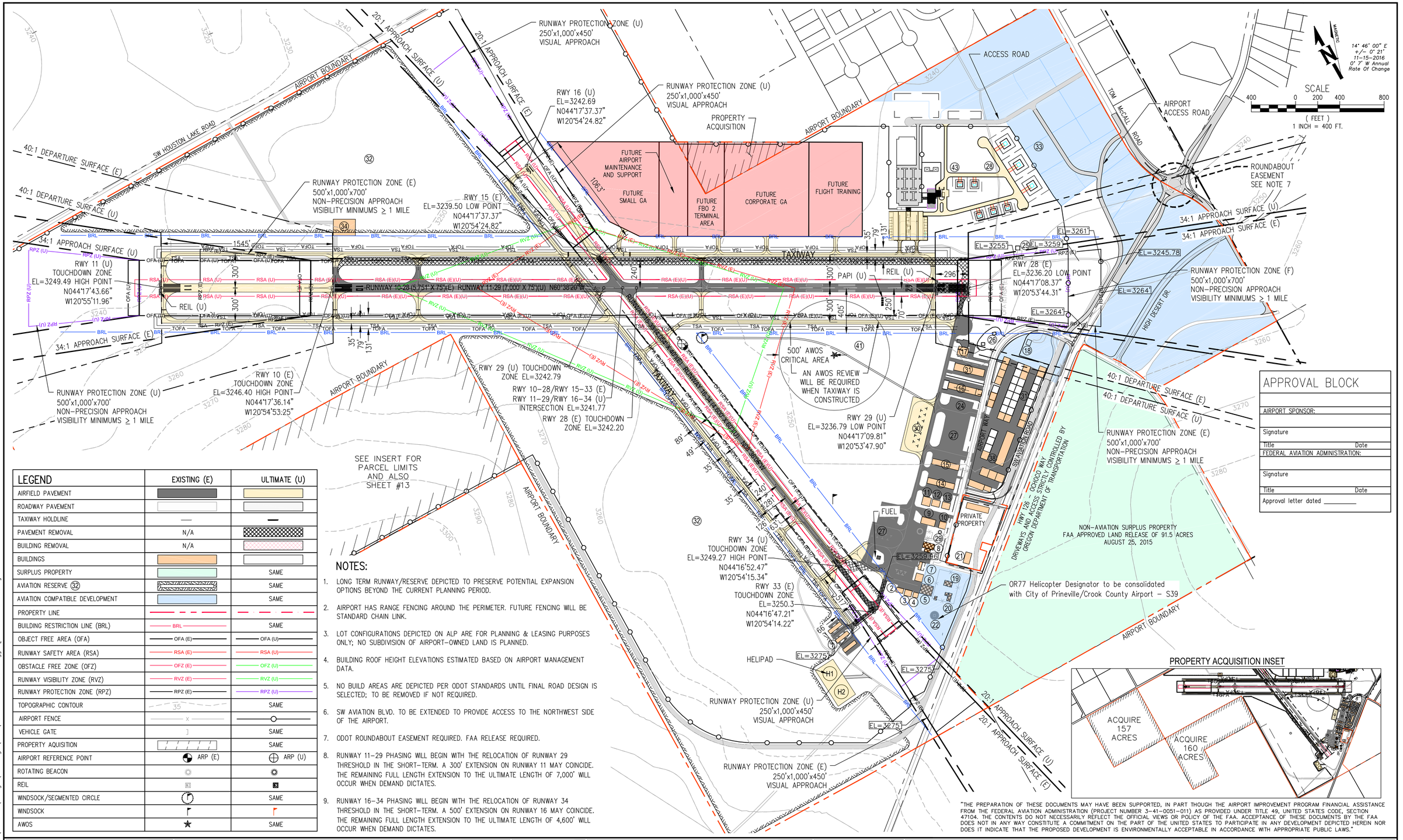
AIRPORT LAYOUT PLAN DATA SHEET

PRINEVILLE, OR
PRINEVILLE/CROOK COUNTY AIRPORT LAYOUT PLAN

PROJECT NUMBER	DRAWING FILE NAME	SCALE
037648 / 0496W	037648-C-AD01	AS NOTED

SHEET NUMBER
2



LEGEND	EXISTING (E)	ULTIMATE (U)
AIRFIELD PAVEMENT		
ROADWAY PAVEMENT		
TAXIWAY HOLDLINE	—	—
PAVEMENT REMOVAL	N/A	
BUILDING REMOVAL	N/A	
BUILDINGS		
SURPLUS PROPERTY		SAME
AVIATION RESERVE (32)		SAME
AVIATION COMPATIBLE DEVELOPMENT		SAME
PROPERTY LINE		
BUILDING RESTRICTION LINE (BRL)	BRL	SAME
OBJECT FREE AREA (OFA)	OFA (E)	OFA (U)
RUNWAY SAFETY AREA (RSA)	RSA (E)	RSA (U)
OBSTACLE FREE ZONE (OFZ)	OFZ (E)	OFZ (U)
RUNWAY VISIBILITY ZONE (RVZ)	RVZ (E)	RVZ (U)
RUNWAY PROTECTION ZONE (RPZ)	RPZ (E)	RPZ (U)
TOPOGRAPHIC CONTOUR	35	SAME
AIRPORT FENCE	x	
VEHICLE GATE		SAME
PROPERTY AQUISITION		SAME
AIRPORT REFERENCE POINT	ARP (E)	ARP (U)
ROTATING BEACON		
REIL		
WINDSOCK/SEGMENTED CIRCLE		SAME
WINDSOCK		
AWOS		SAME

NOTES:

1. LONG TERM RUNWAY/RESERVE DEPICTED TO PRESERVE POTENTIAL EXPANSION OPTIONS BEYOND THE CURRENT PLANNING PERIOD.
2. AIRPORT HAS RANGE FENCING AROUND THE PERIMETER. FUTURE FENCING WILL BE STANDARD CHAIN LINK.
3. LOT CONFIGURATIONS DEPICTED ON ALP ARE FOR PLANNING & LEASING PURPOSES ONLY; NO SUBDIVISION OF AIRPORT-OWNED LAND IS PLANNED.
4. BUILDING ROOF HEIGHT ELEVATIONS ESTIMATED BASED ON AIRPORT MANAGEMENT DATA.
5. NO BUILD AREAS ARE DEPICTED PER ODOT STANDARDS UNTIL FINAL ROAD DESIGN IS SELECTED; TO BE REMOVED IF NOT REQUIRED.
6. SW AVIATION BLVD. TO BE EXTENDED TO PROVIDE ACCESS TO THE NORTHWEST SIDE OF THE AIRPORT.
7. ODOT ROUNDABOUT EASEMENT REQUIRED. FAA RELEASE REQUIRED.
8. RUNWAY 11-29 PHASING WILL BEGIN WITH THE RELOCATION OF RUNWAY 29 THRESHOLD IN THE SHORT-TERM. A 300' EXTENSION ON RUNWAY 11 MAY COINCIDE. THE REMAINING FULL LENGTH EXTENSION TO THE ULTIMATE LENGTH OF 7,000' WILL OCCUR WHEN DEMAND DICTATES.
9. RUNWAY 16-34 PHASING WILL BEGIN WITH THE RELOCATION OF RUNWAY 34 THRESHOLD IN THE SHORT-TERM. A 500' EXTENSION ON RUNWAY 16 MAY COINCIDE. THE REMAINING FULL LENGTH EXTENSION TO THE ULTIMATE LENGTH OF 4,600' WILL OCCUR WHEN DEMAND DICTATES.

PROPERTY ACQUISITION INSET

APPROVAL BLOCK

AIRPORT SPONSOR:

Signature

Title Date

FEDERAL AVIATION ADMINISTRATION:

Signature

Title Date

Approval letter dated _____

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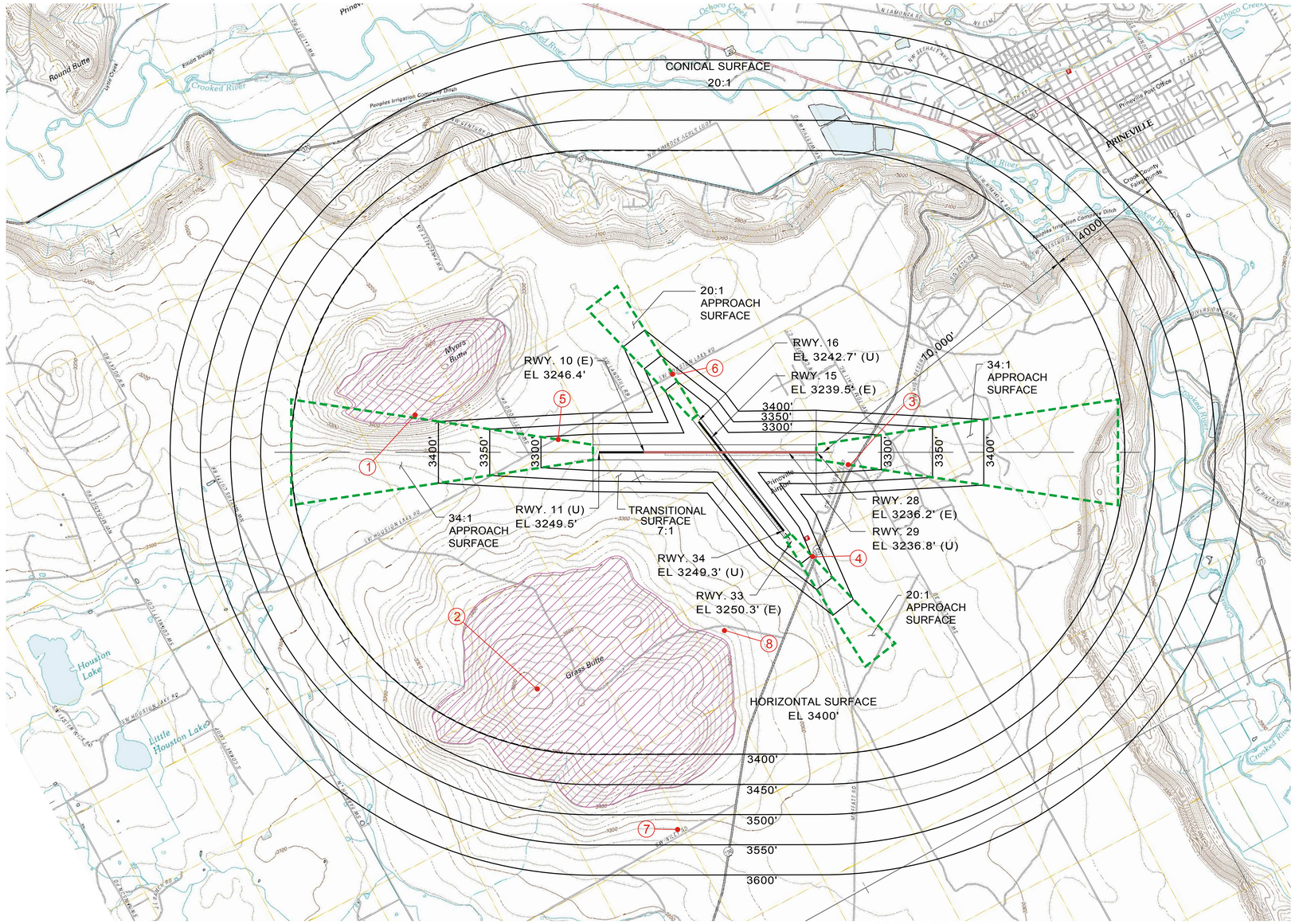
3

[DATE: 8/14/2017 1:11 PM] [AUTHOR: mdane] [PLOTTER: DWG To PDF.pc3] [STYLE: WHP-Standard.ctb]
[PATH: P:\City of Prineville\037648\Design\Drawings\Civil\037648-C-AL01.dwg] [LAYOUT: Sheet 3]



MAGNETIC

14° 46' 00" E
+/- 0° 21'
11-15-2016
0° 7' W Annual
Rate Of Change

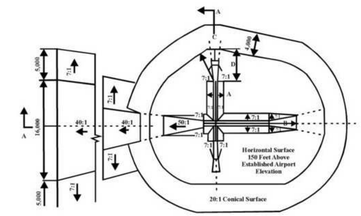
SCALE

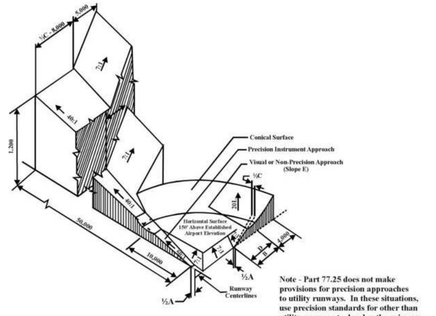
2000 0 1000 2000 4000

(FEET)
1 INCH = 2000 FT.

LEGEND:

- OBSTRUCTIONS
- GROUP AND MULTIPLE OBSTRUCTIONS
- APPROACH (U)





Note – Part 77.25 does not make provisions for precision approaches to utility runways. In these situations, use precision standards for other than utility runways to develop the primary, approach, and transition surfaces.

PART 77 ISOMETRIC VIEW

NOTES

1. THIS DRAWING REFLECTS PLANNING STANDARDS SPECIFIC TO THIS AIRPORT, AND IS NOT A PRODUCT OF DETAILED ENGINEERING DESIGN ANALYSIS. IT IS NOT INTENDED TO BE USED FOR CONSTRUCTION DOCUMENTATION OR NAVIGATION.
2. ALL COORDINATES ARE NAD 83.
3. OBSTRUCTION INFORMATION OBTAINED FROM FAA ORS DATABASE AS OF MARCH 2014.
4. TOPOGRAPHIC INFORMATION OBTAINED FROM USGS 7.5 MINUTE SURVEY MAPS, "PRINEVILLE, OREGON" 2011, "HOUSTON LAKE, OREGON" 2011, "POWELL BUTTES, OREGON" 2011, & "STERNS BUTTE, OREGON" 2011.

OBSTRUCTION TABLE

NO. (#)	ITEM	PART 77 SURFACE	TOP ELEV (NAD 83)	DISTANCE FROM RWY CL	DISTANCE FROM RWY END	AMOUNT OF PENETRATION (ESTIMATED)	AIRPORT PROPERTY	DISPOSITION
1	TERRAIN	HORIZONTAL/APPROACH ✱(RWY 10)	3600'	2417'	6471'	199'	NO	OBSTRUCTION- LIGHT ✱✱
2	TERRAIN	HORIZONTAL/CONICAL	3622'	7841'	3550'	221'	NO	OBSTRUCTION- LIGHT ✱✱
3	HIGHWAY 126	APPROACH (RWY 28)	3255' EST	399'	1071'	0	NO	NO OBSTRUCTION - FOR REFERENCE ONLY
4	HIGHWAY 126	APPROACH (RWY 33)	3255' EST	213' (RWY 33)	841' (RWY 33)	0	NO	NO OBSTRUCTION - FOR REFERENCE ONLY
5	HUSTON LAKE ROAD	APPROACH (RWY 10)	3245'	608'	2502'	0	NO	NO OBSTRUCTION - FOR REFERENCE ONLY
6	HUSTON LAKE ROAD	APPROACH (RWY 15)	3264'	376' (RWY 15)	2380' (RWY 15)	0	NO	NO OBSTRUCTION - FOR REFERENCE ONLY
7	CELL TOWER	CONICAL	3360'	12,500' (RWY 10)	-1,100 (RWY 10)	0	NO	NO OBSTRUCTION - FOR REFERENCE ONLY
8	WATER TANKS	HORIZONTAL	3440' EST	3595' (RWY 33)	966' (RWY 33)	39'	NO	OBSTRUCTION- LIGHT ✱✱

✱ A SMALL PORTION OF THIS TERRIAN PENETRATES THE RUNWAY 10 APPROACH SURFACE (20').
✱✱ NO LIGHTING OR UNKNOWN IF LIGHTING EXISTS OR PLANNED FOR FUTURE.

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SHEET INFO	
DESIGNED	GE/MD
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CHECKED	MD
APPROVED	REA
LAST EDIT	8/14/2017
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SUBMITTAL	

REVISIONS			
NO.	BY	DATE	REMARKS
1	JC	1/25/16	WORKING DRAFT
2	JC	2/8/16	WORKING DRAFT
3	JC	3/3/16	WORKING DRAFT

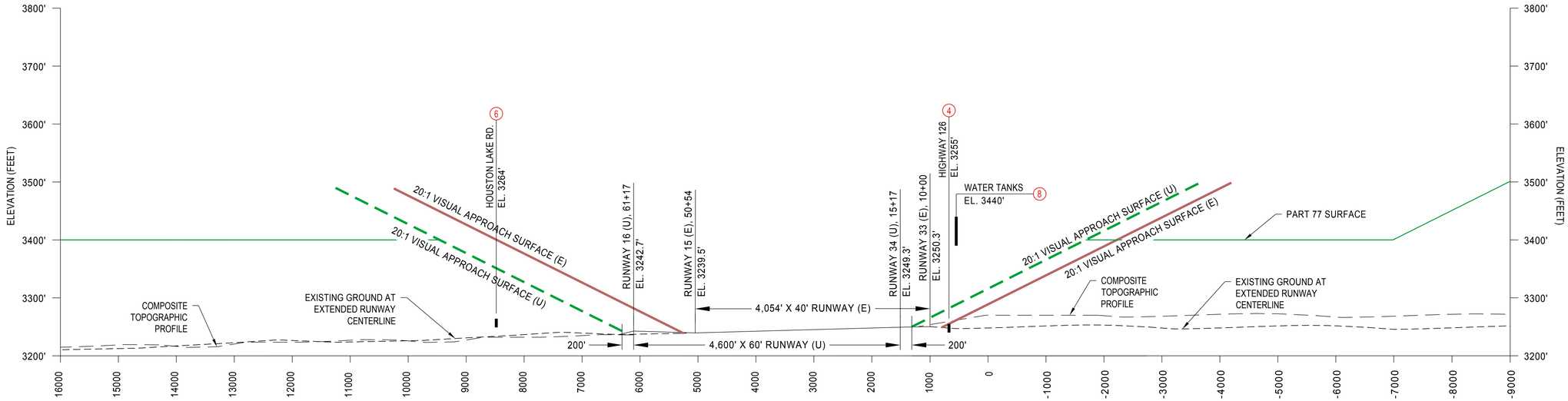
AIRPORT AIRSPACE PLAN

PRINEVILLE, OR
PRINEVILLE/CROOK COUNTY AIRPORT LAYOUT PLAN

PROJECT NUMBER	DRAWING FILE NAME	SCALE
037648 / 0496W	037648-C-AS01	AS NOTED

SHEET NUMBER
4

[DATE: 4/28/2015 9:09 AM] [AUTHOR: mdane] [PLOTTER: None] [STYLE: WHP-Standard.ctb]
[PATH: P:\City of Prineville\037648\Design\Drawings\Civil\037648-C-AS01.dwg] [LAYOUT: Sheet 4]



PROFILE VIEW - RUNWAY 15-33 (E) 16-34 (U)

AIRPORT ELEVATION - 3251' MSL

HORIZ. SCALE
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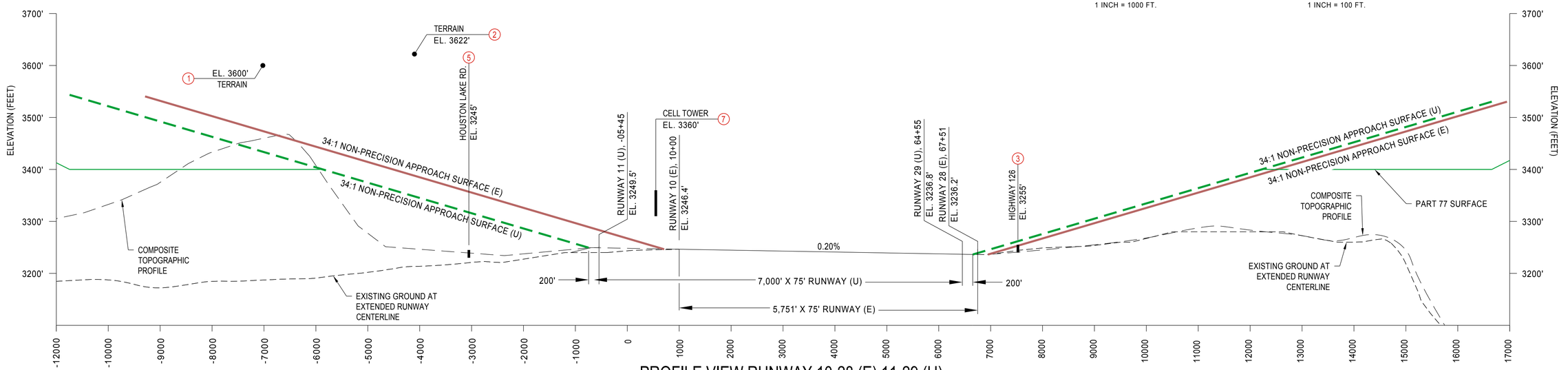
(FEET)
1 INCH = 1000 FT.

VERT. SCALE
100 0 50 100 200
(FEET)
1 INCH = 100 FT.



PROFILE VIEW RUNWAY 10-28 (E) 11-29 (U)

AIRPORT ELEVATION - 3251' MSL

OBSTRUCTION TABLE

NO. (#)	ITEM	PART 77 SURFACE	TOP ELEV (NAD 83)	DISTANCE FROM RWY CL	DISTANCE FROM RWY END	AMOUNT OF PENETRATION (ESTIMATED)	AIRPORT PROPERTY	DISPOSITION
1	TERRAIN	HORIZONTAL/APPROACH ✱ (RWY 10)	3600'	2417'	6471'	199'	NO	OBSTRUCTION- LIGHT ✱✱
2	TERRAIN	HORIZONTAL/CONICAL	3622'	7841'	3550'	221'	NO	OBSTRUCTION- LIGHT ✱✱
3	HIGHWAY 126	APPROACH (RWY 29)	3255' EST	399'	1071'	0	NO	NO OBSTRUCTION - FOR REFERENCE ONLY
4	HIGHWAY 126	APPROACH (RWY 34)	3255' EST	213' (RWY 34)	841' (RWY 34)	0	NO	NO OBSTRUCTION - FOR REFERENCE ONLY
5	HUSTON LAKE ROAD	APPROACH (RWY 11)	3245'	608'	2502'	0	NO	NO OBSTRUCTION - FOR REFERENCE ONLY
6	HUSTON LAKE ROAD	APPROACH (RWY 16)	3264'	376' (RWY 16)	2380' (RWY 16)	0	NO	NO OBSTRUCTION - FOR REFERENCE ONLY
7	CELL TOWER	CONICAL	3360'	12,500' (RWY 11)	-1,100 (RWY 11)	0	NO	NO OBSTRUCTION - FOR REFERENCE ONLY
8	WATER TANKS	HORIZONTAL	3440' EST	3595' (RWY 34)	966' (RWY 34)	39'	NO	OBSTRUCTION- LIGHT ✱✱

✱ A SMALL PORTION OF THIS TERRAIN PENETRATES THE RUNWAY 11 APPROACH SURFACE (20').
✱✱ NO LIGHTING OR UNKNOWN IF LIGHTING EXISTS OR PLANNED FOR FUTURE.

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SHEET INFO	
DESIGNED	MD
DRAWN	JC
CHECKED	MD
APPROVED	REA
LAST EDIT	8/14/2017
PLOT DATE	8/14/2017
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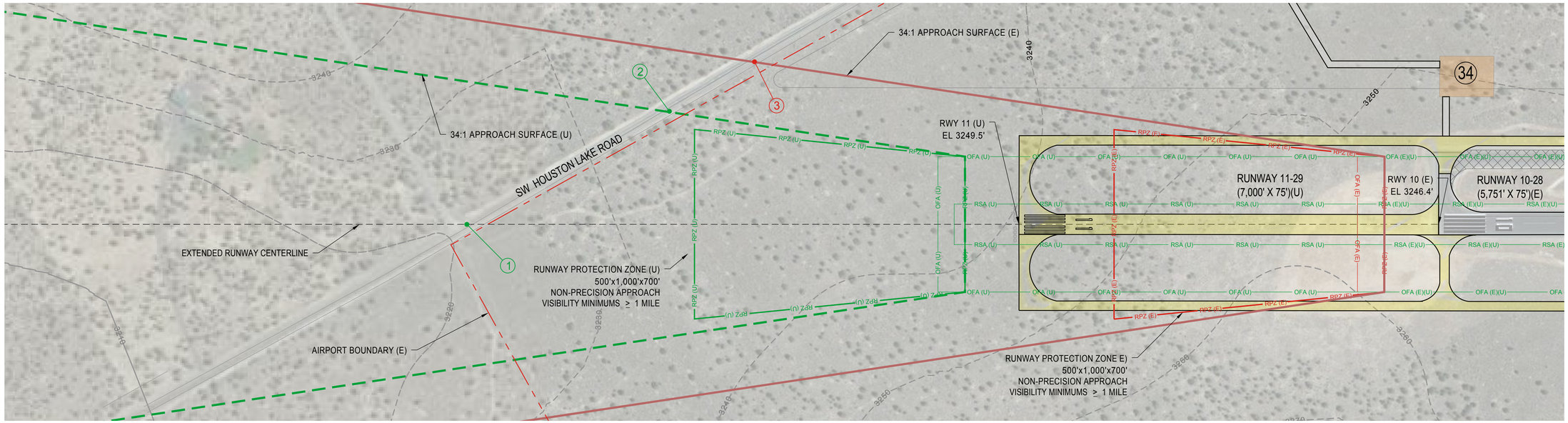
REVISIONS			
NO.	BY	DATE	REMARKS
1	JC	1/26/16	WORKING DRAFT
2	JC	2/9/16	WORKING DRAFT
3	JC	3/3/16	WORKING DRAFT

AIRPORT AIRSPACE PLAN
RUNWAY PROFILE DRAWINGS
PRINEVILLE, OR
PRINEVILLE/CROOK COUNTY AIRPORT LAYOUT PLAN

PROJECT NUMBER	DRAWING FILE NAME	SCALE
037648 / 0496W	037648-C-AP03	AS NOTED

SHEET NUMBER
5



OBSTRUCTION DATA TABLE						
NO.	DESCRIPTION	GROUND SURFACE ELEVATION*	PART 77 SURFACE	OBJECT HEIGHT / TOP ELEVATION (AGL/MSL)	PENETRATION	DISPOSITION
1	SW HOUSTON RD	3222'	APPROACH SURFACE-RWY 10 (E)	15' / 3237'	-109	NO OBSTRUCTION-FOR REFERENCE ONLY
1	SW HOUSTON RD	3222'	APPROACH SURFACE-RWY 11 (U)	15' / 3237'	-66	NO OBSTRUCTION-FOR REFERENCE ONLY
2	SW HOUSTON RD	3240'	APPROACH SURFACE-RWY 11 (U)	15' / 3255'	-26	NO OBSTRUCTION-FOR REFERENCE ONLY
3	SW HOUSTON RD	3240'	APPROACH SURFACE-RWY 10 (E)	15' / 3255'	-59	NO OBSTRUCTION-FOR REFERENCE ONLY

* ELEVATION IS APPROXIMATE AND NEEDS TO BE SURVEYED FOR CONFIRMATION PRIOR TO ADDRESSING IT AS AN OBSTRUCTION.

PLAN VIEW - RUNWAY 10 (E) 11 (U)

SCALE: 1" = 200' HORZ

HORIZ. SCALE
200 0 100 200 400
(FEET)
1 INCH = 200 FT.

VERT. SCALE
20 0 10 20 40
(FEET)
1 INCH = 20 FT.

MAGNETIC
14° 46' 00" E
+/- 0° 21'
11-15-2016
0° 7' W Annual
Rate Of Change

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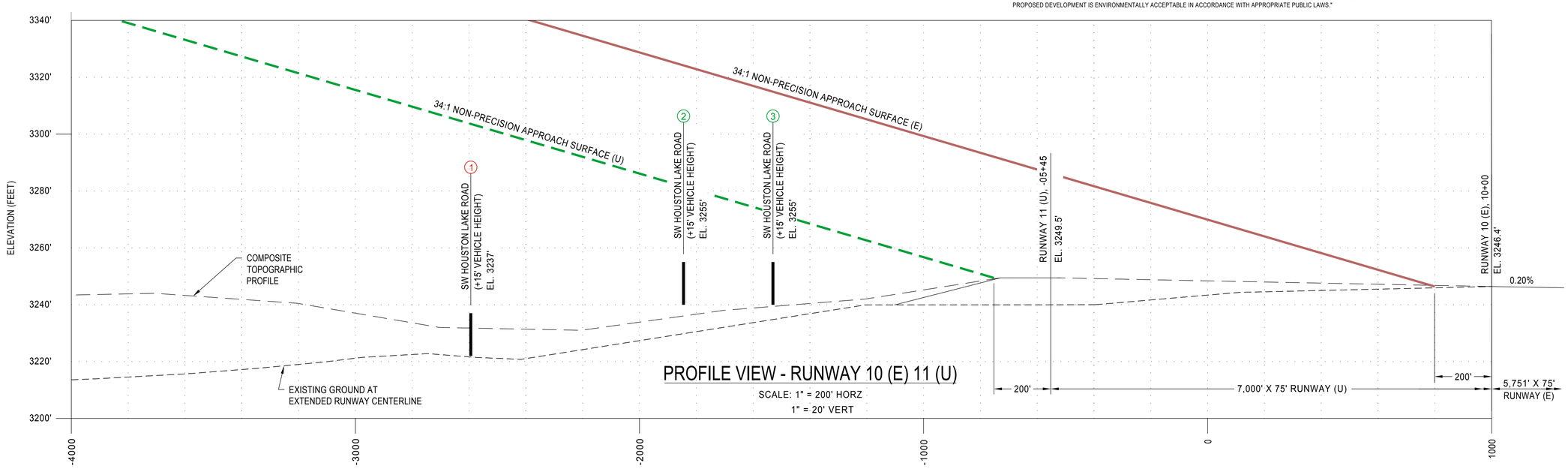

PROFILE VIEW - RUNWAY 10 (E) 11 (U)

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

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NO.	BY	DATE	REMARKS
1	JC	1/22/16	WORKING DRAFT
2	JC	2/9/16	WORKING DRAFT
3	JC	3/3/16	WORKING DRAFT

RUNWAY 10 INNER APPROACH SURFACE PLAN AND PROFILE

PRINEVILLE, OR
PRINEVILLE/CROOK COUNTY AIRPORT LAYOUT PLAN

PROJECT NUMBER	DRAWING FILE NAME	SCALE
037648 / 0496W	037648-C-AP01	AS NOTED

SHEET NUMBER
6

[DATE: 1/19/2016 9:28 AM] [AUTHOR: mdane] [PLOTTER: None] [STYLE: WHP-Standard.ctb]
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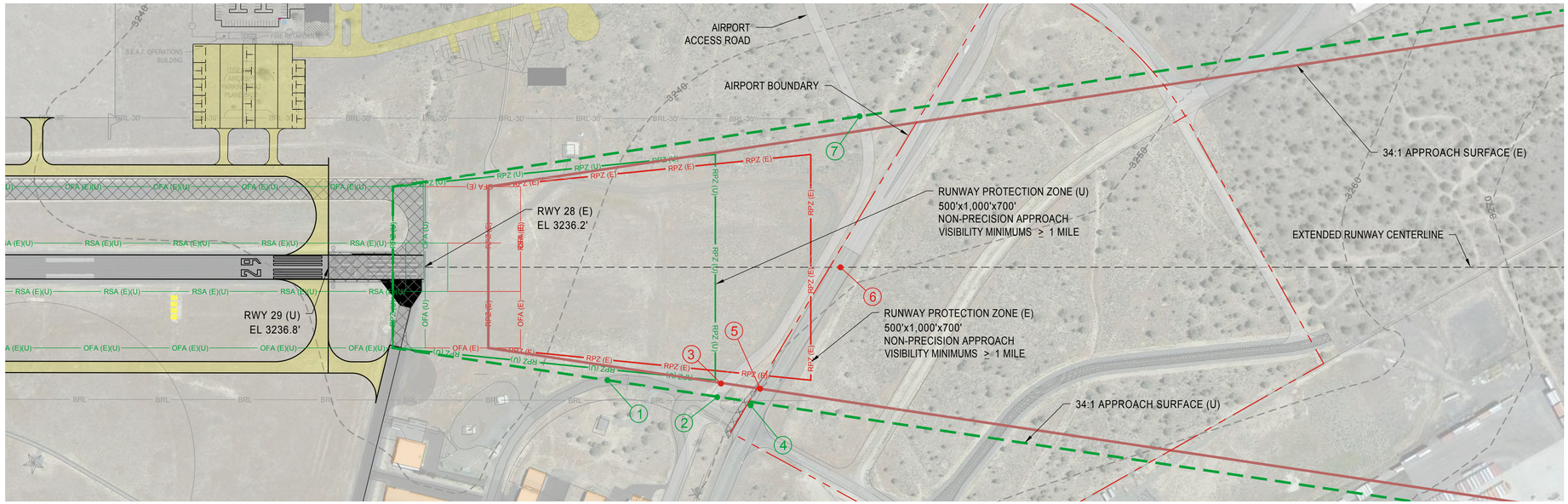


OBSTRUCTION DATA TABLE

NO.	DESCRIPTION	GROUND SURFACE ELEVATION*	PART 77 SURFACE	OBJECT HEIGHT / TOP ELEVATION (AGL / MSL)	PENETRATION	DISPOSITION
1	AIRPORT WAY	3241'	APPROACH SURFACE-RWY 29 (U)	15' / 3256'	+0	NO OBSTRUCTION - FOR REFERENCE ONLY
2	SW AVIATION BLVD.	3249'	APPROACH SURFACE-RWY 29 (U)	15' / 3264'	-2	NO OBSTRUCTION - FOR REFERENCE ONLY
3	SW AVIATION BLVD.	3248'	APPROACH SURFACE-RWY 28 (E)	15' / 3263'	+6	RUNWAY THRESHOLD TO BE RELOCATED
4	HIGHWAY 126	3251'	APPROACH SURFACE-RWY 28 (E)	15' / 3266'	-2	NO OBSTRUCTION - FOR REFERENCE ONLY
5	HIGHWAY 126	3251'	APPROACH SURFACE-RWY 28 (E)	15' / 3266'	+6	RUNWAY THRESHOLD TO BE RELOCATED
6	HIGHWAY 126	3249'	APPROACH SURFACE-RWY 28 (E)	15' / 3264'	-4	NO OBSTRUCTION - FOR REFERENCE ONLY
6	HIGHWAY 126	3249'	APPROACH SURFACE-RWY 29 (U)	15' / 3264'	-13	NO OBSTRUCTION - FOR REFERENCE ONLY
7	SW AVIATION BLVD.	3242'	APPROACH SURFACE-RWY 29 (U)	15' / 3257'	-22	NO OBSTRUCTION - FOR REFERENCE ONLY

* ROAD ELEVATION IS APPROXIMATE AND NEEDS TO BE SURVEYED FOR CONFIRMATION PRIOR TO ADDRESSING IT AS AN OBSTRUCTION.

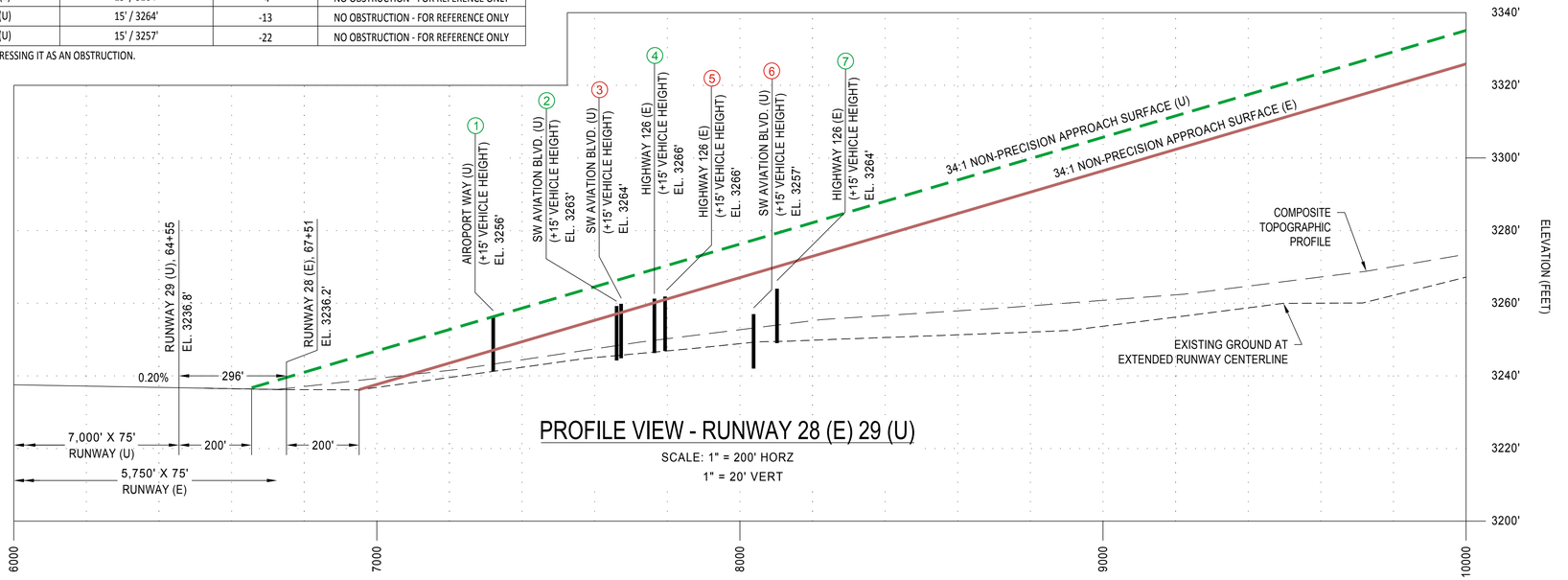
PLAN VIEW - RUNWAY 28 (E) 29 (U)

SCALE: 1" = 200' HORZ

HORIZ. SCALE
200 0 100 200 400
(FEET)
1 INCH = 200 FT.

VERT. SCALE
20 0 10 20 40
(FEET)
1 INCH = 20 FT.

MAGNETIC
14° 46' 00" E
+/- 0° 21'
11-15-2016
0° 7' W Annual
Rate Of Change



PROFILE VIEW - RUNWAY 28 (E) 29 (U)

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

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SHEET INFO	
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CHECKED	MD
APPROVED	REA
LAST EDIT	8/14/2017
PLOT DATE	8/14/2017
SUBMITTAL	

REVISIONS			
NO.	BY	DATE	REMARKS
1	JC	1/22/16	WORKING DRAFT
2	JC	2/9/16	WORKING DRAFT
3	JC	3/3/16	WORKING DRAFT

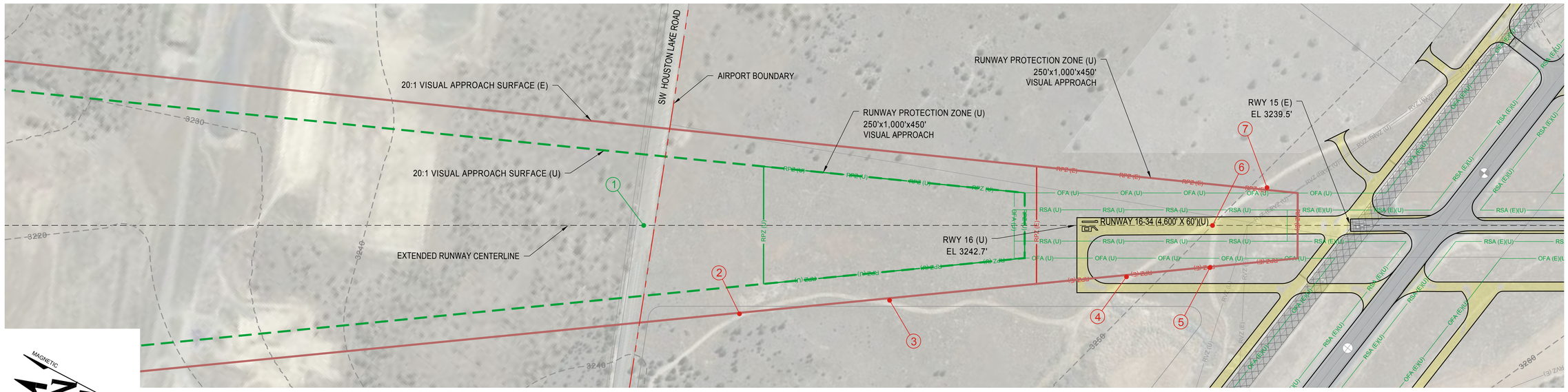
RUNWAY 28 INNER APPROACH SURFACE PLAN AND PROFILE

PRINEVILLE, OR
PRINEVILLE/CROOK COUNTY AIRPORT LAYOUT PLAN

PROJECT NUMBER	DRAWING FILE NAME	SCALE
037648 / 0496W	037648-C-AP01	AS NOTED

SHEET NUMBER
7

[DATE: 4/27/2015 1:37 PM] [AUTHOR: mdane] [PLOTTER: None] [STYLE: WHP-Standard.ctb]
[PATH: P:\City of Prineville\037648\Design\Drawings\Civil\037648-C-AP01.dwg] [LAYOUT: Sheet 7]



MAGNETIC

14° 46' 00" E
+/- 0° 21'
11-15-2016
0° 7' W Annual
Rate Of Change

HORIZ. SCALE
200 0 100 200 400
(FEET)
1 INCH = 200 FT.

VERT. SCALE
20 0 10 20 40
(FEET)
1 INCH = 20 FT.

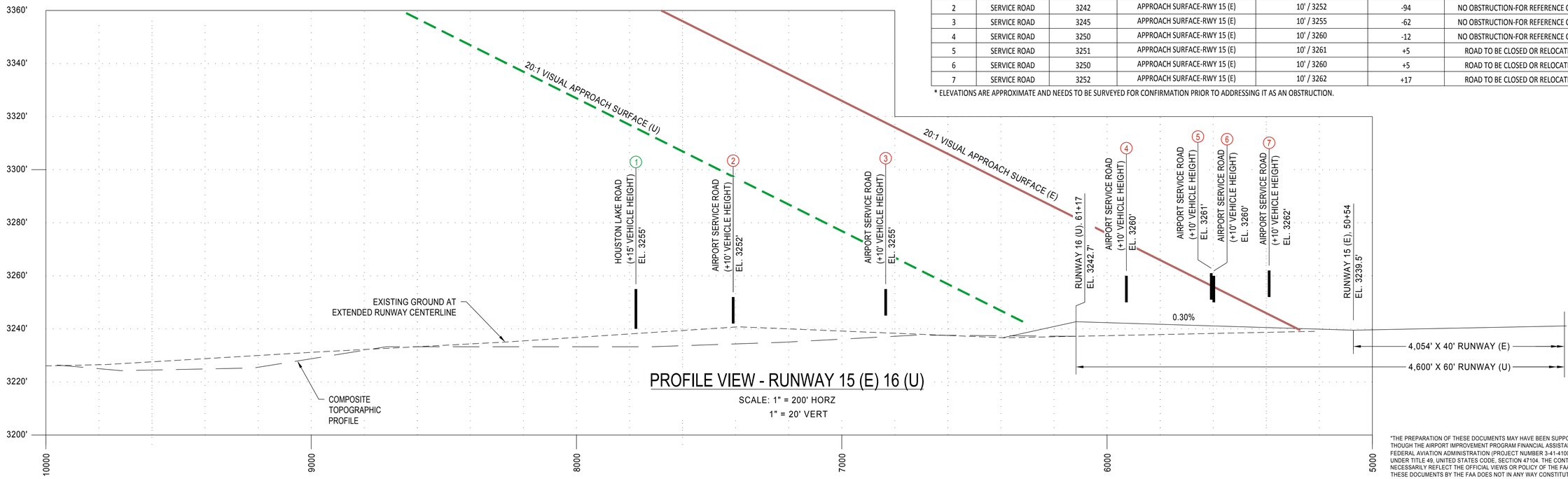
PLAN VIEW - RUNWAY 15 (E) 16 (U)

SCALE: 1" = 200' HORZ

OBSTRUCTION DATA TABLE

NO.	DESCRIPTION	GROUND SURFACE ELEVATION*	PART 77 SURFACE	OBJECT HEIGHT / TOP ELEVATION (AGL / MSL)	PENETRATION	DISPOSITION
1	SW HOUSTON RD	3240	APPROACH SURFACE-RWY 15 (E)	15' / 3255	-109	NO OBSTRUCTION-FOR REFERENCE ONLY
1	SW HOUSTON RD	3240	APPROACH SURFACE-RWY 16 (U)	15' / 3255	-60	NO OBSTRUCTION-FOR REFERENCE ONLY
2	SERVICE ROAD	3242	APPROACH SURFACE-RWY 15 (E)	10' / 3252	-94	NO OBSTRUCTION-FOR REFERENCE ONLY
3	SERVICE ROAD	3245	APPROACH SURFACE-RWY 15 (E)	10' / 3255	-62	NO OBSTRUCTION-FOR REFERENCE ONLY
4	SERVICE ROAD	3250	APPROACH SURFACE-RWY 15 (E)	10' / 3260	-12	NO OBSTRUCTION-FOR REFERENCE ONLY
5	SERVICE ROAD	3251	APPROACH SURFACE-RWY 15 (E)	10' / 3261	+5	ROAD TO BE CLOSED OR RELOCATED
6	SERVICE ROAD	3250	APPROACH SURFACE-RWY 15 (E)	10' / 3260	+5	ROAD TO BE CLOSED OR RELOCATED
7	SERVICE ROAD	3252	APPROACH SURFACE-RWY 15 (E)	10' / 3262	+17	ROAD TO BE CLOSED OR RELOCATED

* ELEVATIONS ARE APPROXIMATE AND NEEDS TO BE SURVEYED FOR CONFIRMATION PRIOR TO ADDRESSING IT AS AN OBSTRUCTION.



PROFILE VIEW - RUNWAY 15 (E) 16 (U)

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

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SHEET INFO	
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CHECKED	MD
APPROVED	REA
LAST EDIT	8/14/2017
PLOT DATE	8/14/2017
SUBMITTAL	

REVISIONS			
NO.	BY	DATE	REMARKS
1	JC	1/25/16	WORKING DRAFT
2	JC	2/9/16	WORKING DRAFT
3	JC	3/3/16	WORKING DRAFT

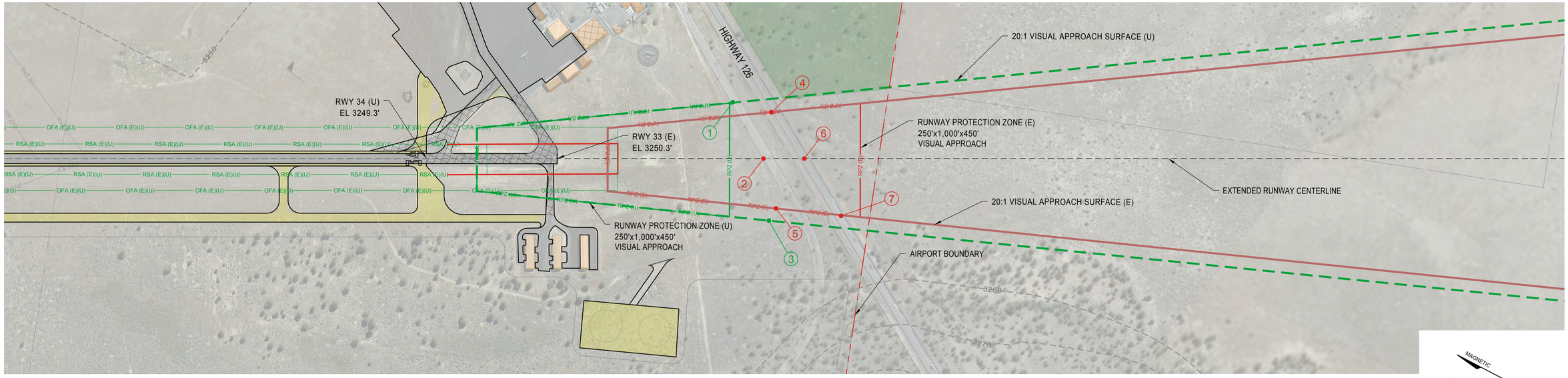
RUNWAY 15 INNER APPROACH SURFACE PLAN AND PROFILE

PRINEVILLE, OR
PRINEVILLE/CROOK COUNTY AIRPORT LAYOUT PLAN

PROJECT NUMBER	DRAWING FILE NAME	SCALE
037648 / 0496W	037648-C-AP02	AS NOTED

SHEET NUMBER
8

[DATE: 1/22/2016 1:42 PM] [AUTHOR: mdane] [PLOTTER: None] [STYLE: WHP-Standard.ctb]
[PATH: P:\City of Prineville\037648\Design\Drawings\Civil\037648-C-AP02.dwg] [LAYOUT: Sheet 8]



OBSTRUCTION DATA TABLE

NO.	DESCRIPTION	GROUND SURFACE ELEVATION*	PART 77 SURFACE	OBJECT HEIGHT / TOP ELEVATION (AGL / MSL)	PENETRATION	DISPOSITION
1	SW AVIATION BLVD.	3246'	APPROACH SURFACE-RWY 34 (U)	15' / 3261'	-38	NO OBSTRUCTION-FOR REFERENCE ONLY
2	SERVICE ROAD	3240'	APPROACH SURFACE-RWY 33 (E)	10' / 3250'	-32	NO OBSTRUCTION-FOR REFERENCE ONLY
2	SERVICE ROAD	3240'	APPROACH SURFACE-RWY 34 (U)	15' / 3255'	-51	NO OBSTRUCTION-FOR REFERENCE ONLY
3	SERVICE ROAD	3245'	APPROACH SURFACE-RWY 34 (U)	10' / 3255'	-52	NO OBSTRUCTION-FOR REFERENCE ONLY
4	HIGHWAY 126	3243'	APPROACH SURFACE-RWY 33 (E)	15' / 3258'	-24	NO OBSTRUCTION-FOR REFERENCE ONLY
5	SERVICE ROAD	3245'	APPROACH SURFACE-RWY 33 (E)	10' / 3255'	-28	NO OBSTRUCTION-FOR REFERENCE ONLY
6	HIGHWAY 126	3238'	APPROACH SURFACE-RWY 33 (E)	15' / 3253'	-36	NO OBSTRUCTION-FOR REFERENCE ONLY
6	HIGHWAY 126	3238'	APPROACH SURFACE-RWY 34 (U)	15' / 3253'	-61	NO OBSTRUCTION-FOR REFERENCE ONLY
7	HIGHWAY 126	3242'	APPROACH SURFACE-RWY 33 (E)	15' / 3257'	-39	NO OBSTRUCTION-FOR REFERENCE ONLY

* ELEVATIONS ARE APPROXIMATE AND NEEDS TO BE SURVEYED FOR CONFIRMATION PRIOR TO ADDRESSING IT AS AN OBSTRUCTION.

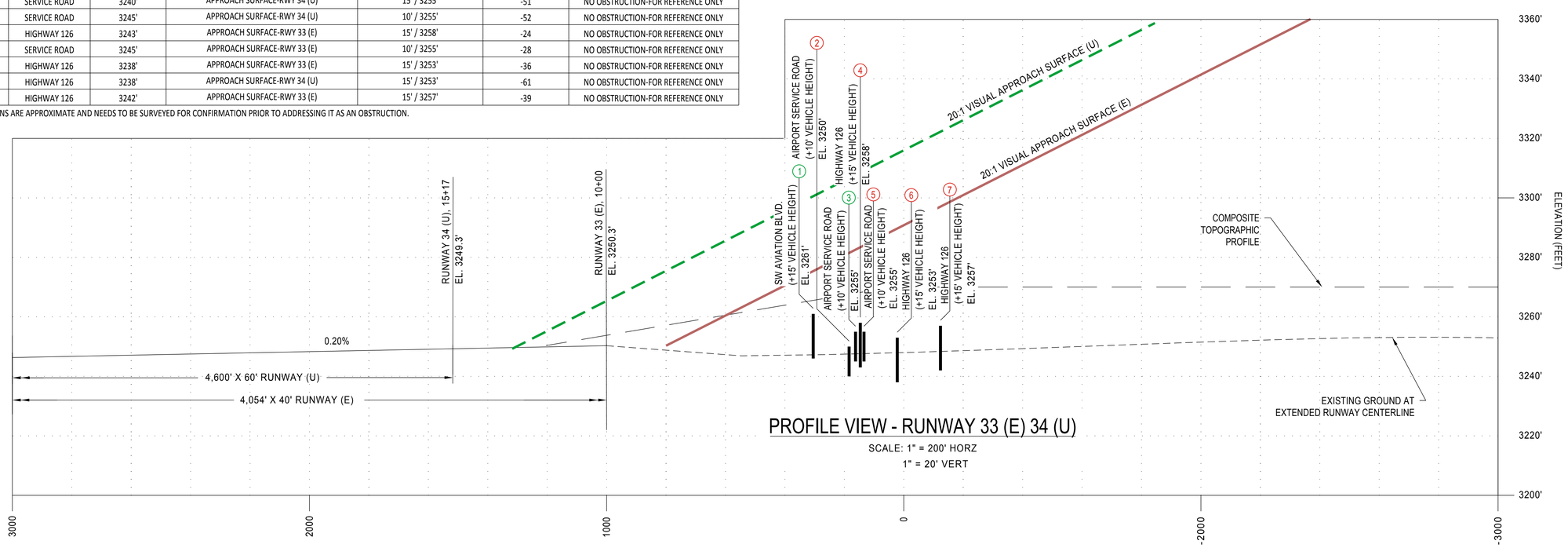
PLAN VIEW - RUNWAY 33 (E) 34 (U)

SCALE: 1" = 200' HORZ

HORIZ. SCALE
200 0 100 200 400
(FEET)
1 INCH = 200 FT.

VERT. SCALE
20 0 10 20 40
(FEET)
1 INCH = 20 FT.

MAGNETIC
14° 46' 00" E
+/- 0° 21'
11-15-2016
0° 7' W Annual
Rate Of Change



PROFILE VIEW - RUNWAY 33 (E) 34 (U)

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

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PRINEVILLE, OR 97754

CITY OF PRINEVILLE
387 NE 3RD ST.
PRINEVILLE, OR 97754

SHEET INFO	
DESIGNED	GE/MD
DRAWN	RT/JC
CHECKED	MD
APPROVED	REA
LAST EDIT	8/14/2017
PLOT DATE	8/14/2017
SUBMITTAL	

REVISIONS			
NO.	BY	DATE	REMARKS
1	JC	1/25/16	WORKING DRAFT
2	JC	2/11/16	WORKING DRAFT
3	JC	3/3/16	WORKING DRAFT

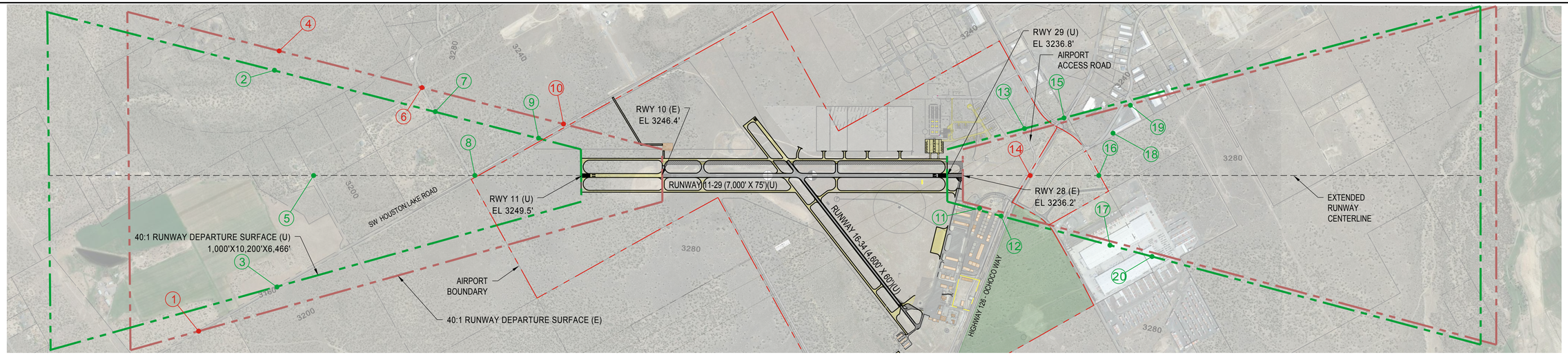
RUNWAY 33 INNER APPROACH SURFACE PLAN AND PROFILE

PRINEVILLE, OR
PRINEVILLE/CROOK COUNTY AIRPORT LAYOUT PLAN

PROJECT NUMBER	DRAWING FILE NAME	SCALE
037648 / 0496W	037648-C-AP02	AS NOTED

SHEET NUMBER
9

[DATE: 4/27/2015 1:37 PM] [AUTHOR: mdane] [PLOTTER: None] [STYLE: WHP-Standard.ctb]
[PATH: P:\City of Prineville\037648\Design\Drawings\Civil\037648-C-AP02.dwg] [LAYOUT: Sheet 9]

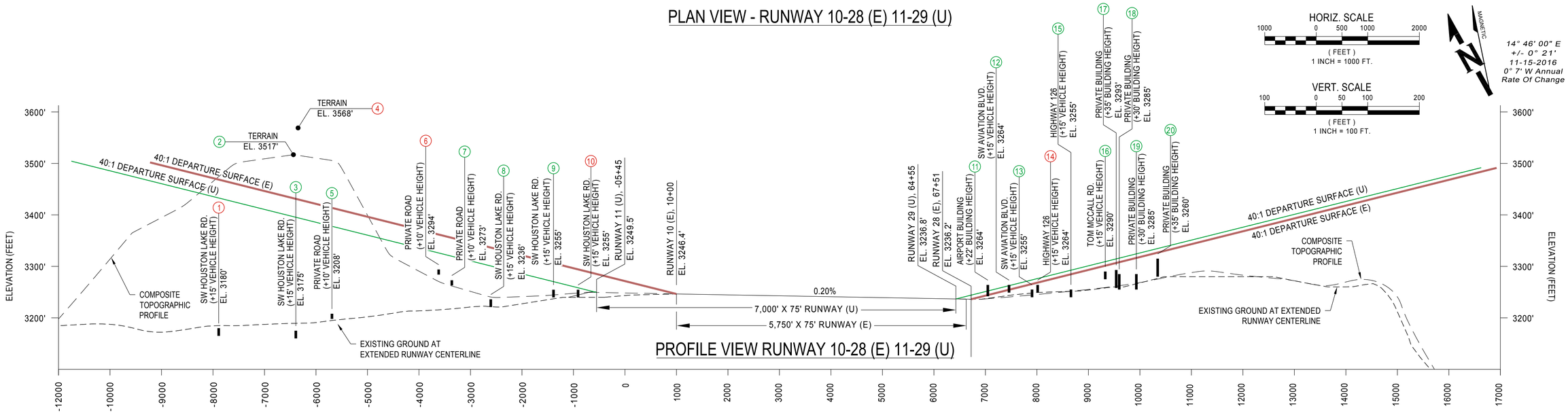


PLAN VIEW - RUNWAY 10-28 (E) 11-29 (U)

HORIZ. SCALE
1000 0 500 1000 2000
(FEET)
1 INCH = 1000 FT.

VERT. SCALE
100 0 50 100 200
(FEET)
1 INCH = 100 FT.

MAGNETIC
14° 46' 00" E
+/- 0° 21'
11-15-2016
0° 7' W Annual
Rate Of Change



PROFILE VIEW RUNWAY 10-28 (E) 11-29 (U)

OBSTRUCTION DATA TABLE

NO.	DESCRIPTION	ELEVATION	DEPARTURE SURFACE	SURFACE ELEVATION	PENETRATION	DISPOSITION
1	SW HOUSTON LAKE RD.	3180	DEPARTURE SURFACE-RWY 10 (E)	3468	-288	NO OBSTRUCTION-FOR REFERENCE ONLY
2	TERRAIN	3517	DEPARTURE SURFACE-RWY 11 (U)	3396	+121	OBSTRUCTION TO REMAIN
3	SW HOUSTON LAKE RD.	3175	DEPARTURE SURFACE-RWY 11 (U)	3395	-220	NO OBSTRUCTION-FOR REFERENCE ONLY
4	TERRAIN	3568	DEPARTURE SURFACE-RWY 10 (E)	3429	+139	OBSTRUCTION TO REMAIN
5	PRIVATE ROAD	3208	DEPARTURE SURFACE-RWY 10 (E)	3413	-205	NO OBSTRUCTION-FOR REFERENCE ONLY
5	PRIVATE ROAD	3208	DEPARTURE SURFACE-RWY 11 (U)	3377	-170	NO OBSTRUCTION-FOR REFERENCE ONLY
6	PRIVATE ROAD	3294	DEPARTURE SURFACE-RWY 10 (E)	3361	-67	NO OBSTRUCTION-FOR REFERENCE ONLY
7	PRIVATE ROAD	3273	DEPARTURE SURFACE-RWY 11 (U)	3319	-46	NO OBSTRUCTION-FOR REFERENCE ONLY
8	SW HOUSTON LAKE RD.	3236	DEPARTURE SURFACE-RWY 10 (E)	3336	-99	NO OBSTRUCTION-FOR REFERENCE ONLY
8	SW HOUSTON LAKE RD.	3236	DEPARTURE SURFACE-RWY 11 (U)	3300	-64	NO OBSTRUCTION-FOR REFERENCE ONLY
9	SW HOUSTON LAKE RD.	3255	DEPARTURE SURFACE-RWY 11 (U)	3270	-15	NO OBSTRUCTION-FOR REFERENCE ONLY
10	SW HOUSTON LAKE RD.	3255	DEPARTURE SURFACE-RWY 10 (E)	3293	-38	NO OBSTRUCTION-FOR REFERENCE ONLY

OBSTRUCTION DATA TABLE (CONT.)

NO.	DESCRIPTION	ELEVATION	DEPARTURE SURFACE	SURFACE ELEVATION	PENETRATION	DISPOSITION
11	AVIATION BUILDING	3264	DEPARTURE SURFACE-RWY 29 (U)	3252	+12	OBSTRUCTION TO REMAIN
12	SW AVIATION BLVD.	3264	DEPARTURE SURFACE-RWY 29 (U)	3262	+2	OBSTRUCTION TO REMAIN
13	SW AVIATION BLVD.	3255	DEPARTURE SURFACE-RWY 29 (U)	3273	-18	NO OBSTRUCTION-FOR REFERENCE ONLY
14	HIGHWAY 126	3264	DEPARTURE SURFACE-RWY 28 (E)	3268	-4	NO OBSTRUCTION-FOR REFERENCE ONLY
14	HIGHWAY 126	3264	DEPARTURE SURFACE-RWY 29 (U)	3276	-12	NO OBSTRUCTION-FOR REFERENCE ONLY
15	HIGHWAY 126	3255	DEPARTURE SURFACE-RWY 29 (U)	3292	-37	NO OBSTRUCTION-FOR REFERENCE ONLY
16	TOM MCCALL RD.	3290	DEPARTURE SURFACE-RWY 29 (U)	3309	-19	NO OBSTRUCTION-FOR REFERENCE ONLY
17	PRIVATE BUILDING	3293	DEPARTURE SURFACE-RWY 29 (U)	3314	-21	NO OBSTRUCTION-FOR REFERENCE ONLY
18	PRIVATE BUILDING	3285	DEPARTURE SURFACE-RWY 29 (U)	3315	-31	NO OBSTRUCTION-FOR REFERENCE ONLY
19	PRIVATE BUILDING	3285	DEPARTURE SURFACE-RWY 29 (U)	3324	-39	NO OBSTRUCTION-FOR REFERENCE ONLY
20	PRIVATE BUILDING	3315	DEPARTURE SURFACE-RWY 29 (U)	3334	-19	NO OBSTRUCTION-FOR REFERENCE ONLY

* ELEVATIONS ARE APPROXIMATE AND NEEDS TO BE SURVEYED FOR CONFIRMATION PRIOR TO ADDRESSING IT AS AN OBSTRUCTION.

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CHECKED	MD
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SUBMITTAL	

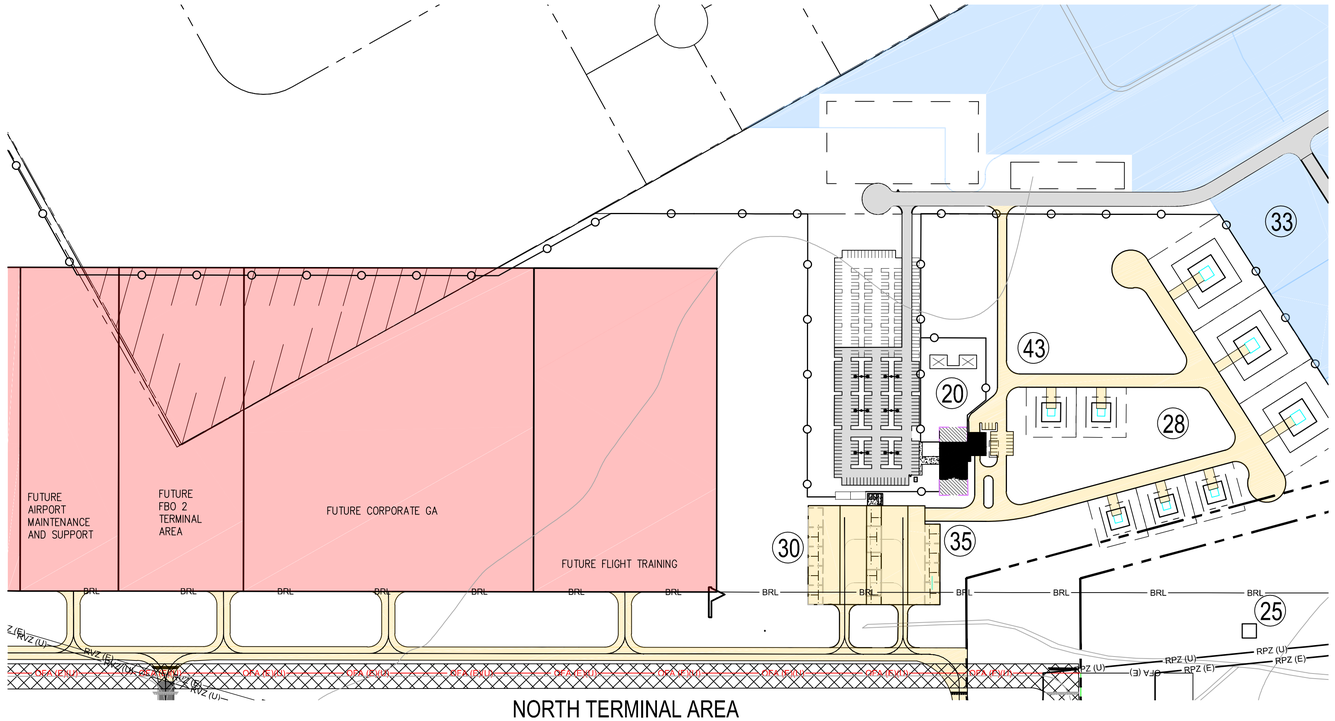
REVISIONS			
NO.	BY	DATE	REMARKS
1	JC	1/25/16	WORKING DRAFT
2	JC	2/12/16	WORKING DRAFT
3	JC	3/3/16	WORKING DRAFT

RUNWAY 10-28 DEPARTURE SURFACE PLAN AND PROFILE

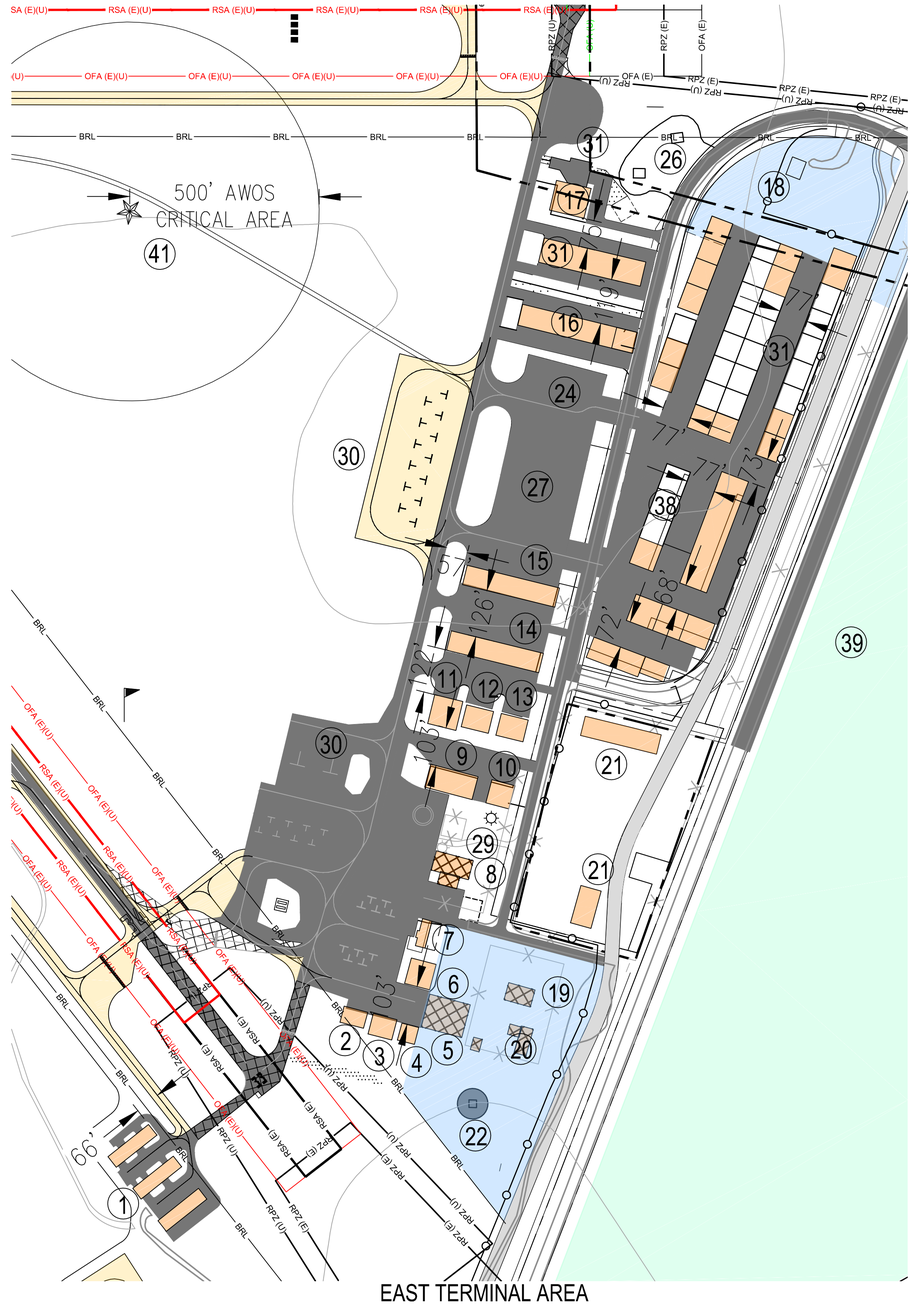
PRINEVILLE, OR
PRINEVILLE/CROOK COUNTY AIRPORT LAYOUT PLAN

PROJECT NUMBER	DRAWING FILE NAME	SCALE
037648 / 0496W	037648-C-DP01	AS NOTED

SHEET NUMBER
10



NORTH TERMINAL AREA



EAST TERMINAL AREA

BUILDINGS AND FACILITIES

1. T–Hangars (3,255')
2. Conventional Hangar (3,256')
3. Conventional Hangar (3,256')
4. Conventional Hangar (3,256')
5. Conventional Hangar (3,260')
6. Conventional Hangar (3,256')
7. Airport Terminal Building/FBO (3,255')
8. Conventional Hangar and Airport Maintenance Equipment Storage (3,265')
9. Conventional Hangar (3,258')
10. Conventional Hangar (3,258')
11. Conventional Hangar (3,256')
12. Conventional Hangar (3,256')
13. Conventional Hangar (3,256')
14. T–Hangar (3,255')
15. T–Hangar (3,253')
16. T–Hangar (3,252')
17. Conventional Hangar (3,253')
18. Flight School Class Room (3,250')
19. BLM Interagency Dispatch Center (3,256')
20. Rappel Base (3,256')
21. Non–Aviation Building (3,258')
22. USFS/BLM Helicopter Parking (To be removed)
23. Aviation Fueling Area/Storage
24. Single Engine Air Tanker (SEAT) Apron
25. AG Aircraft Loading/Operations (Closed)
26. Helicopter Parking
27. Aircraft Parking Apron
28. BLM Helicopter Parking Area
29. Airport Beacon (Future)
30. Aircraft Parking Apron (Future)
31. Aircraft Hangars (Future/Reserve)
32. Aviation Use (Reserve)
33. Military/Government Aviation Lease (Reserve)
34. Future AG Area (Reserve)
35. Aircraft Parking (Reserve)
36. Emergency Services Building (Future)
37. Aviation Use Lease (Existing)
38. T–Hangers (Future)
39. Not Used
40. Not Used
41. AWOS
42. FBO Reserve
43. USFS (Future)

LEGEND	EXISTING (E)	ULTIMATE (U)
AIRFIELD PAVEMENT		
ROADWAY PAVEMENT		
TAXIWAY HOLDLINE		
PAVEMENT REMOVAL	N/A	
BUILDING REMOVAL	N/A	
BUILDINGS		
SURPLUS PROPERTY		SAME
AVIATION RESERVE (32)		SAME
AVIATION COMPATIBLE DEVELOPMENT		SAME
PROPERTY LINE		
BUILDING RESTRICTION LINE (BRL)		SAME
R/W OBJECT FREE AREA (OFA)		
R/W SAFETY AREA (RSA)		RSA (U)
R/W OBJECT FREE ZONE (OFZ)		
R/W VISIBILITY ZONE (RVZ)	RVZ (E)	RVZ (U)
RUNWAY PROTECTION ZONE (RPZ)	RPZ (E)	RPZ (U)
TOPOGRAPHIC CONTOUR	35	SAME
AIRPORT FENCE	X	
VEHICLE GATE		
PROPERTY AQUISITION		SAME
AIRPORT REFERENCE POINT	ARP (E)	ARP (U)
ROTATING BEACON		
REIL		
WINDSOCK/SEGMENTED CIRCLE		SAME
WINDSOCK		
AWOS		SAME

NOTE: SEE DRAWING 3 FOR ALL BUILDING/FACILITY LOCATIONS LISTED IN THE ABOVE TABLE.

MAGNETIC NORTH

14° 46' 00" E
+/– 0° 21'
11–15–2016
0° 7' W Annual
Rate Of Change

SCALE
200 0 100 200 400
(FEET)
1 INCH = 200 FT.

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SHEET INFO	
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CHECKED	MD
APPROVED	REA
LAST EDIT	8/14/2017
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SUBMITTAL	

REVISIONS			
NO.	BY	DATE	REMARKS
1	JC	1/22/16	WORKING DRAFT
2	JC	2/11/16	WORKING DRAFT
3	JC	3/3/16	WORKING DRAFT

TERMINAL AREA PLAN

PRINEVILLE, OR
PRINEVILLE/CROOK COUNTY AIRPORT LAYOUT PLAN

PROJECT NUMBER	DRAWING FILE NAME	SCALE
037648 / 0496W	037648-C-TA01	AS NOTED

SHEET NUMBER
11

[DATE: 8/14/2017 2:18 PM] [AUTHOR: mdane] [PLOTTER: DWG To PDF.pc3] [STYLE: WHP–Standard.ctb]
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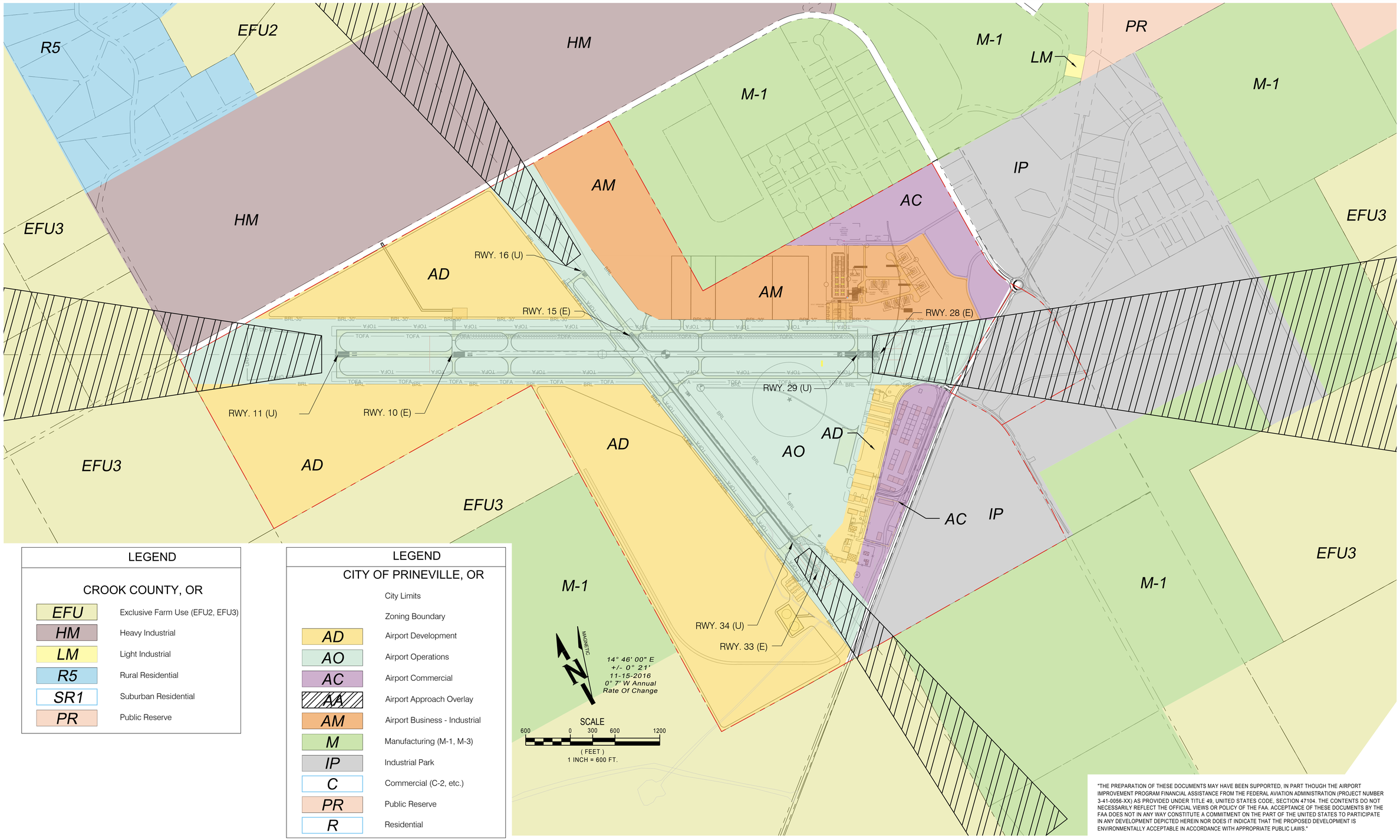

LEGEND	
CROOK COUNTY, OR	
EFU	Exclusive Farm Use (EFU2, EFU3)
HM	Heavy Industrial
LM	Light Industrial
R5	Rural Residential
SR1	Suburban Residential
PR	Public Reserve

LEGEND	
CITY OF PRINEVILLE, OR	
	City Limits
	Zoning Boundary
AD	Airport Development
AO	Airport Operations
AC	Airport Commercial
AA	Airport Approach Overlay
AM	Airport Business - Industrial
M	Manufacturing (M-1, M-3)
IP	Industrial Park
C	Commercial (C-2, etc.)
PR	Public Reserve
R	Residential

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APPROVED	REA
LAST EDIT	8/14/2017
PLOT DATE	8/14/2017
SUBMITTAL	

REVISIONS			
NO.	BY	DATE	REMARKS
1	JC	1/25/16	WORKING DRAFT
2	JC	2/11/16	WORKING DRAFT
3	JC	3/3/16	WORKING DRAFT

LAND USE PLAN

PRINEVILLE, OR
PRINEVILLE/CROOK COUNTY AIRPORT LAYOUT PLAN

PROJECT NUMBER	DRAWING FILE NAME	SCALE
037648 / 0496W	037648-C-LU01	AS NOTED

SHEET NUMBER
12

[DATE: 2/23/2015 7:52 AM] [AUTHOR: mdane] [PLOTTER: None] [STYLE: WHP-Standard.ctb]
[PATH: P:\City of Prineville\037648\Design\Drawings\Civil\037648-C-LU01.dwg] [LAYOUT: Sheet 12]

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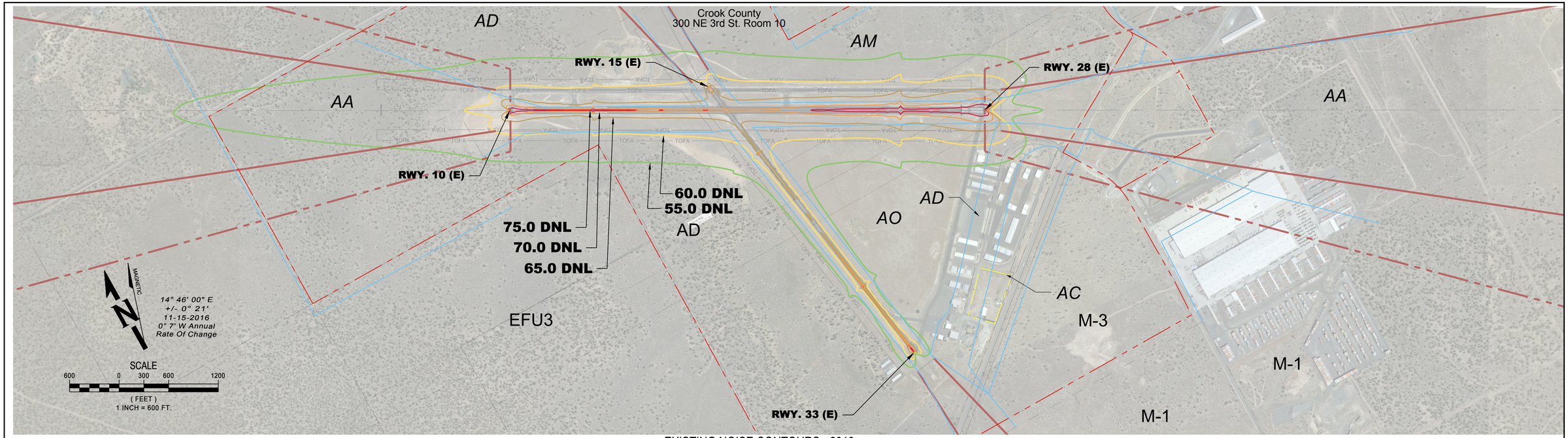
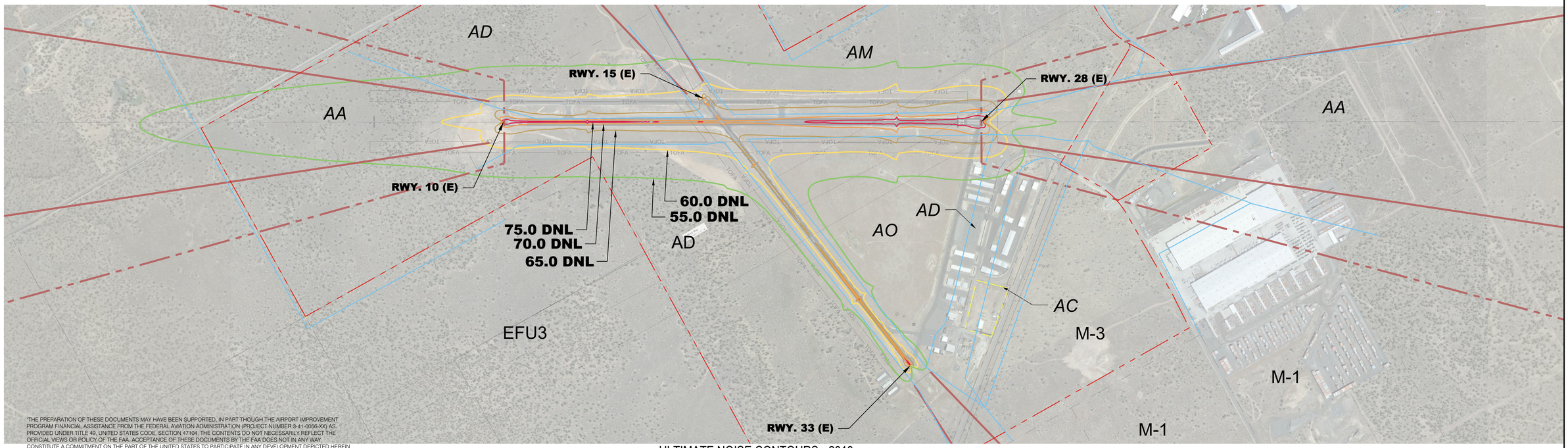


EXISTING NOISE CONTOURS - 2013

SCALE: HORIZONTAL 1"=1000'



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ULTIMATE NOISE CONTOURS - 2018

SCALE: HORIZONTAL 1"=1000'

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LAST EDIT	8/14/2017
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SUBMITTAL	

REVISIONS			
NO.	BY	DATE	REMARKS
1	JC	1/26/16	WORKING DRAFT
2	JC	2/11/16	WORKING DRAFT
3	JC	3/3/16	WORKING DRAFT

AIRPORT NOISE CONTOURS

PRINEVILLE, OR
PRINEVILLE/CROOK COUNTY AIRPORT LAYOUT PLAN

PROJECT NUMBER	DRAWING FILE NAME	SCALE
037648 / 0496W	037648-C-NC01	AS NOTED

SHEET NUMBER

13

[DATE: 2/23/2015 7:50 AM] [AUTHOR: mdane] [PLOTTER: None] [STYLE: WHP-Standard.ctb]
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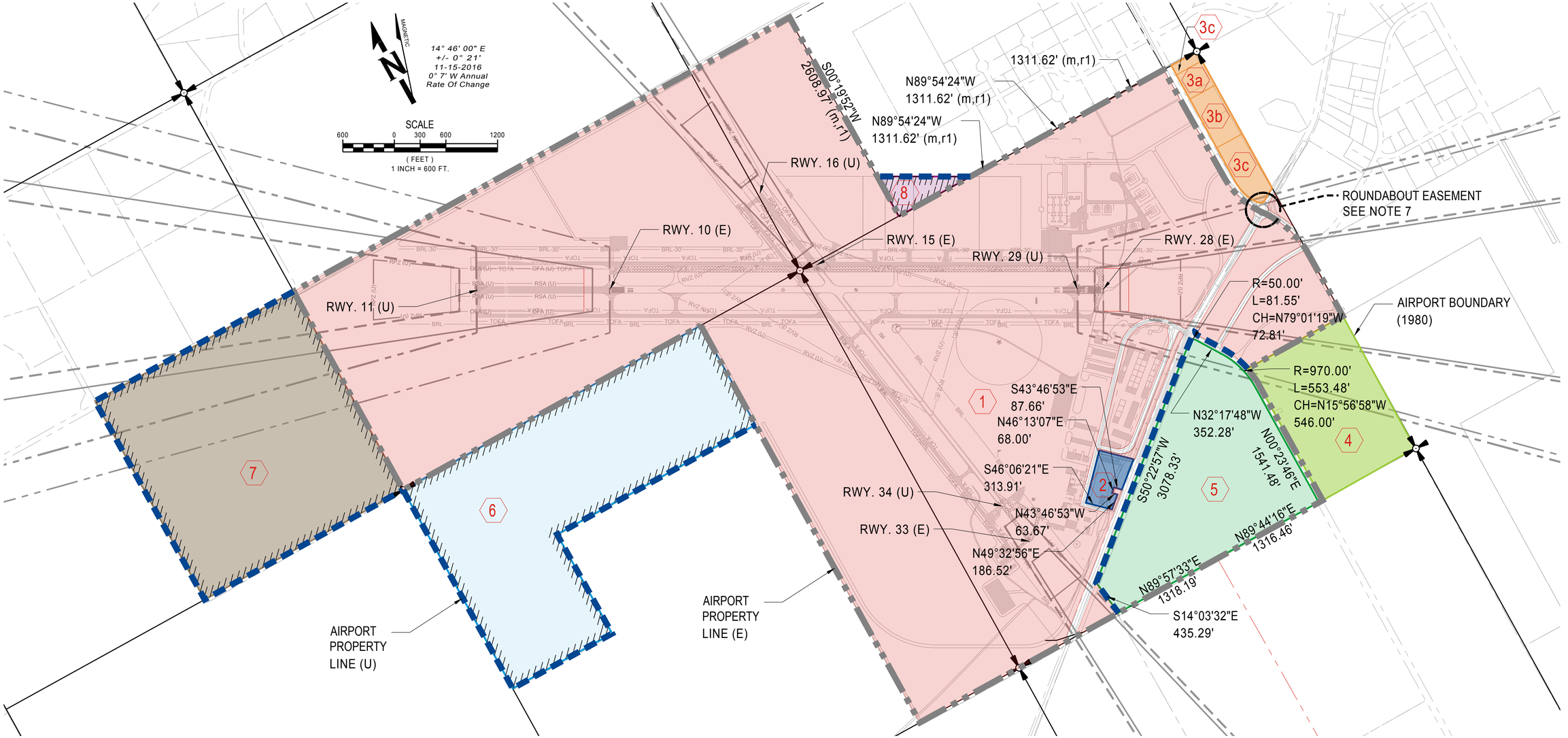

OWNERSHIP DATA												
	PARCEL	LAND OWNER	ACRES	RECORDED DATE	RECORDED No.	INTEREST ACQUIRED	INTEREST REIMBURSED	EASEMENT TYPE	ACRES ACQU.	AREA	PREVIOUS OWNER	NOTES
	1	Crook County, Oregon	953		MF249614	See Note Below						
	2	Mark Stafford	5.17	3/25/1998	MF138026						Crook County, Oregon	FAA Request for Release approved 4-8-1996
	3a	Wangler Enterprises	5	2/3/2003	MF167952						Crook County, Oregon	Removed from Airport-Partition Plat 2002-02
	3b	Humane Society of Ochoco	2	2/3/2003	138028						Crook County, Oregon	Removed from Airport-Partition Plat 1997-36
	3c	Crook County, Oregon	8	2/3/2003	MF249614							
	4	Les Schwab Warehouse Center	50	5/24/1995	MF200638						Crook County, Oregon	FAA Request for Release approved 01-23-1996
	5	Crook County, Oregon	94		MF249614	See Note Below						FAA Request for Release approved 8-25-2015
TO BE ACQUIRED	6	State of Oregon, Dept of State	160									
TO BE ACQUIRED	7	State of Oregon, Dept of State	158									
TO BE ACQUIRED	8	Spencer/Freund Investments	6									

LEGEND:

EXISTING AIRPORT PROPERTY LINE

FUTURE AIRPORT PROPERTY LINE

Note: Airport was originally established and built on Crook County property. No FAA grant assistance or surplus property transfer from the U.S. Government has occurred.

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3	JC	3/3/16	WORKING DRAFT

AIRPORT PROPERTY MAP

PRINEVILLE, OR
PRINEVILLE/CROOK COUNTY AIRPORT LAYOUT PLAN

PROJECT NUMBER	DRAWING FILE NAME	SCALE
037648 / 0496W	037648-C-PM01	AS NOTED

SHEET NUMBER 14

[DATE: 1/22/2016 1:42 PM] [AUTHOR: mdane] [PLOTTER: None] [STYLE: WHP-Standard.ctb]
[PATH: P:\City of Prineville\037648\Design\Drawings\Civil\037648-C-PM01.dwg] [LAYOUT: Sheet 14]

AIRPORT BOUNDARY

CONNECT TO EXISTING UTILITIES

UTILITIES (PLANNING PERIOD)

Houston Lake Rd

FUTURE EXTENSIONS

SEE UTILITY BLOWUP DETAIL BELOW

RUNWAY 10-28 (5,751' X 75')

PAPI

SW Millican Rd.

AWOS

RUNWAY 15-33 (4,054' X 60')

UTILITIES (BEYOND PLANNING PERIOD)

AIRPORT BOUNDARY

CONNECT TO EXISTING UTILITY

Airport Way

SW Aviation Blvd.

AIRPORT BEACON

CONNECT TO EXISTING UTILITY

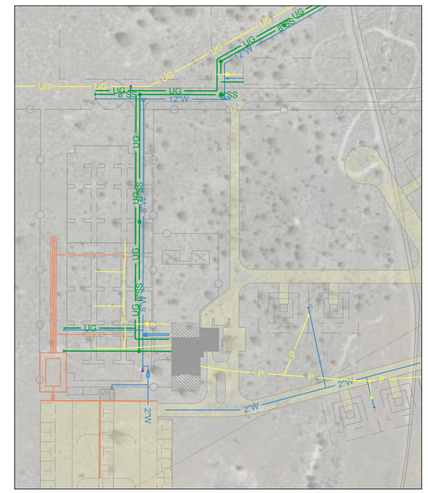
CONNECT TO EXISTING UTILITY

Ochoco Hwy

CONNECT TO EXISTING UTILITY

LEGEND

- AIRPORT PROPERTY LINE
- W — W — EXISTING WATER MAIN
- SS — EXISTING SANITARY SEWER
- UG — EXISTING COMMUNICATION LINES (QWEST)
- W — W — WATER MAIN - PLANNING PERIOD
- SS — SANITARY SEWER - PLANNING PERIOD
- UG — COMMUNICATION LINES (QWEST) - PLANNING PERIOD
- W — W — WATER MAIN - BEYOND PLANNING PERIOD
- SS — SANITARY SEWER - BEYOND PLANNING PERIOD
- UG — COMMUNICATION LINES (QWEST) - BEYOND PLANNING PERIOD



UTILITY BLOWUP DETAIL

MAGNETIC

14° 46' 00" E
+/- 0° 21'
11-15-2016
0° 7' W Annual
Rate Of Change

SCALE
400 0 200 400 800
(FEET)
1 INCH = 400 FT.

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AIRPORT UTILITIES PLAN

PRINEVILLE, OR
PRINEVILLE/CROOK COUNTY AIRPORT LAYOUT PLAN

PROJECT NUMBER	DRAWING FILE NAME	SCALE
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Chapter Nine IMPLEMENTATION PLAN

Prineville Crook County Airport Master Plan Update

The preceding chapters have identified the projects necessary for the Prineville Airport to accommodate the forecast levels of demand and provide for substantive economic development opportunities in the future. As discussed in Chapter 4, Demand Capacity and Facility Requirements, and Chapter 5, Airport Development Plan, specific improvements to both airside and landside elements of the Airport are recommended for implementation over the 20-year planning period. The projects included in the development plan form the basis of the Airport's capital improvement program (CIP).

The primary purpose of this chapter to:

1. Itemize the individual development projects or development related projects required to fulfill the preferred development plan for the Prineville Airport as depicted in the Airport Layout Plan (ALP);
2. Establish a phasing plan for the development projects which meets the forecasted needs;
3. Review available funding sources and make assumptions as to the probable funding structure for each itemized project;
4. Summarize recent and future potential cash flows for the airports;
5. Present a financially feasible CIP for each development phase.

The CIP includes projects that represent the facility's planned growth over the next 20+ years. Additionally, the proposed facilities reflect strategic development initiatives intended to maximize the safety and utilization of the Airport. As part of the development process, project phasing and cost estimates are developed and included in the CIP in order to manage and plan for the implementation requirements associated with these development projects.

DEVELOPMENT PHASES

This section of the Airport's master plan report seeks to establish a tentative schedule for the various projects required to fulfill the future development goals of the Prineville Airport. Essentially the schedule represents a prioritized Airport development plan to meet regulatory requirements, forecast increases in aeronautical activity, and/or economic development initiatives of the City. Projects appearing in the first phase are of the greatest importance to the Airport and have the least tolerance for delay. Additionally, some projects included in an early phase may be a prerequisite for other planned improvements in a later phase. The development phasing for the Prineville Airport has been divided into four phases as follows:

- Phase I (2016-2020)
- Phase II (2021-2025)
- Phase III (2026 – 2035)
- Phase IV (beyond the 20-year planning period).

It should be pointed out here, however, that the phasing of individual projects should undergo periodic review to determine the need for changes based upon variations in forecast demand, available funding, economic conditions, and/or other factors that may reasonably influence airport development. Additionally, other projects not foreseen in this report may be identified in the future and would, therefore, likely necessitate changes in the phasing of projects and the overall CIP. Further, the projects and overall development identified in the CIP, though tied to a time table, will only occur once the triggering demand and/or need is realized.

A listing of projects by phase is provided below along with a brief description of these projects:

PHASE I (2016 – 2020)

2016 – Tie-Down Apron, Run-Up Apron, Beacon Tower: Expansion of the itinerant aircraft parking apron in the terminal area and the provision of a new self-serve fuel station on the south end of the existing landside development. Project also includes a run-up apron on Taxiway A, south of Runway 28 and to the east of the taxiway connecting Runways 28 and 33. The run up apron increases safety as it eliminates head-to-head aircraft taxiing. The existing rotating beacon

and tower are near the end of their useful life. The new beacon tower and rotating beacon, along with their associated equipment, will be located at an adjacent site identified on the ALP.

2016 – Surplus Property Release: 91.5 acres of land located east of the airport across Hwy 126, the Ochoco Hwy, have been released from encumbrance as airport property. The property was identified as surplus to airport needs because it does not and cannot serve the airport because it is physically separated from the airport by Hwy 126. The letter (addressed to the airport manager, Kelly Coffelt) from the FAA releasing the property was received in August 2015. The fiscal impact of the release will be evaluated as part of this project and the land will eventually be sold or leased. Revenue from either transaction must go back to support the operation and development of the airport. A copy of the release letter can be found in the Appendix of this Master Plan.

2016 - Helipad Project -Private: Construction of two helipads to the south of Runway 33 as shown on the ALP. The helipads will provide for the separation of rotorcraft and fixed wing activity, increasing the safety of operations.

2017 – Property Swap/Transfer: Negotiations and exchange of existing City property to obtain existing Mark Stafford property (5.17 Acres – Parcel 2 on Exhibit A) which falls within airport property boundary.

2017 – Construct Apron (USFS Airbase Joint Use Facility) – Phase 1 – Environmental and Design: Environmental, preliminary engineering, and design phase for the USFS airbase to the north of Runway 10-28. A significant portion of the project is not eligible for AIP funding. Eligible portion may include access taxiways and taxilanes, and helipads.

2018 – Construct Apron (USFS Airbase Joint Use Facility) – Phase 2 – Construction: Construction phase for the USFS airbase to the north of Runway 10-28. A significant portion of the project is not eligible for AIP funding. Eligible portion may include access taxiways and taxilanes, and helipads.

2018 - Pavement Maintenance – ODA: Scheduled pavement maintenance as needed.

2019 – Transfer to McDermitt: Transfer 2019 Non-Primary Entitlement funds to McDermitt.

2019 – Land Acquisition: Acquisition of 6 acres on north side of airport (identified as Parcel 8 - Spencer/Freund Investments in Exhibit A) for future aviation reserve development areas. Environmental may be required if the land was purchased with local money and later used as match on future federal projects.

2019 - Interim Flight School - Private: Redevelopment of the northern portion of the existing apron (currently being used by the USFS) to accommodate the needs of the flight school on an interim basis. This project will be privately funded.

2019 – Rehabilitate Runway 10-28 Phase I – Environmental and Preliminary Design: Environmental and preliminary design to update the runway designator markings on Runway 10-28 to 11-29 to account for the declination change, and restriping/remarking the runway. Project also includes the temporary displacement of Runway 28 threshold by 226 feet to the west to remove the airport entrance road from the RPZ.

2020 – Rehabilitate Runway 10-28 Phase II – Design and Construction: Completion of the final design and construction associated with changing the runway designator markings on Runway 10-28 to 11-29 to account for the declination change, and restriping/remarking the runway. Project also includes the temporary displacement of Runway 28 threshold by 226 feet to the west to remove the airport entrance road from the RPZ.

PHASE II (2021 – 2025)

1 (2021) - Pavement Maintenance – ODA (2021): Scheduled pavement maintenance as needed.

2 (2022) – Rehabilitate Runway 15-33 Phase I – Widening, Relocate, and MIRL - Environmental & Preliminary Design: EA & preliminary design for the widening of Runway 15-33 from its current 40 feet to the FAA recommended 60 feet. Includes installation of Medium Intensity Runway Lighting (MIRL). Project also includes strengthening the runway pavement from the current 5,000 lbs. Single Wheel Gear (SWG) to the FAA recommended 12,500 lbs. SWG for this class of runway.

3 (2023) - Runway 15-33 Rehabilitation Phase II – Widening, Relocate, and MIRL – Final Design & Construction: Design and construction for the widening of Runway 15-33 from its current 40 feet to the FAA recommended 60 feet. Includes installation of Medium Intensity Runway Lighting (MIRL). Project also includes strengthening the runway pavement from the current 5,000 lbs. Single Wheel Gear (SWG) to the FAA recommended 12,500 lbs. SWG.

4 – Apron Connector Reconstruction: Removal of existing pavement and reconstruction of two taxiway connectors between the main apron area and the taxiway connecting runways 28 and 33.

5 - Environmental for Property Acquisitions (North): Complete environmental analysis required for the acquisition of several parcels to the north of Runway 10-28, as shown on the ALP. These properties will allow for the development of the north side of the airport property.

6 - Property Acquisitions (North): Acquisition of several parcels to the north of Runway 10-28, as shown on the ALP. These properties will allow for the development of the north side of the airport property.

7 - EA and Preliminary Design for Flight Training North Development: Conduct EA and preliminary design for the development of the area to the north of Runway 10-28 and to the west of the USFS north development to serve the need of flight training at the airport.

8 - Final Design and Construction of Flight Training North Development: This project includes the development of the area to the north of Runway 10-28 and to the west of the USFS north development to serve the need of flight training at the airport. As discussed in previous chapters, the continued growth of flight training operations at the airport would ultimately drive the need for a separate area to accommodate the training activities.

9 - Environmental and Preliminary Design for Apron Expansion: Conduct environmental assessment and preliminary design for the construction of an aircraft apron adjacent to the taxiway connecting Runways 28 and 33.

10 – Final Design and Construction of Apron Expansion: Construction of an aircraft apron adjacent to the taxiway connecting Runways 28 and 33. This apron will provide additional capacity for aircraft parking as well aircraft circulation. The project will also free up the existing apron area for redevelopment and allow the construction of T-hangars.

11 - Redevelopment of USFS Area (includes expansion of the terminal building apron and construction of new T-hangars): Construction of new T-hangars in the area currently occupied by the USFS. Additionally, the relocation of the USFS would allow for the expansion of the existing terminal building. ***This project may be developed in phases and driven by the actual demand and need.*

12 - Pavement Maintenance – ODA (2024): Scheduled pavement maintenance as needed.

13 – Medium Intensity Taxiway Lights – Taxiway A: Installation of Medium Intensity Taxiway Lighting (MITL) on Taxiway A.

14 – Install PAPI on Runway 10 and REILS on Runway 10-28: Installation of 4-box PAPI on Runway 10 and Runway End Identifier Lights (REILS) on both ends of Runway 10-28.

15 – Redevelopment of Fuel Tank Area: Fuel storage tanks are reaching the end of their useful life and will need to be replaced. New fuel tanks will be installed in a new location which will allow for development of additional hangar space.

16 – Apron Reconstruction: Reconstruction of 120,000 SF of apron space in front of the Airport Office

PHASE III (2026 – 2035)

1 - T-Hangar Development (Current Apron Area): Construction of T-hangars in the area currently occupied by the apron (this includes the area to serve as interim flight school).

2 – Ag Area Development: Development of an area to the north of Runway 10-28 and west of Runway 15-33 to serve the needs of the agricultural operators based at the Airport. The project includes the provision of an additional airport access road off of Houston Lake Rd., the construction of an apron area for the parking and circulation of agricultural aircraft and the construction of a taxiway connecting the apron to the parallel taxiway serving Runway 10-28.

3 - Small GA Development (North): Development of a small GA area to the north of Runway 10-28 to include an apron for aircraft parking and maneuvering, T-hangars for aircraft storage and taxilanes for access. This development becomes needed as airport activity continues to grow and no space is available for development/redevelopment in the existing landside development area.

4 - Environmental and Preliminary Design for Runway 10-28 South Parallel Taxiway: Conduct environmental assessment and preliminary design for the construction of a parallel taxiway to the south of Runway 10-28 to connect existing apron area to Runway 10 end and eliminate the need to cross Runway 10-28.

5 - Final Design and Construction of Runway 10-28 South Parallel Taxiway: Construction of a parallel taxiway to the south of Runway 10-28 to connect existing apron area to Runway 10 end and eliminate the need to cross Runway 10-28. The project will also include the construction of two taxiway connectors to Runway 10-28.

6- Environmental and Preliminary Design for Runway 15-33 Parallel Taxiway: Conduct environmental assessment and preliminary design for the construction of a parallel taxiway to the west of Runway 15-33.

7 – Final Design and Construction of Runway 15-33 Parallel Taxiway: Construction of a parallel taxiway to the west of Runway 15-33.

8 - Corporate GA Development (North): Development of a corporate GA area to the north of Runway 10-28. Although the project is expected to be privately financed, the airport will be responsible for the provision of apron space and taxilanes. As with all developments to the north of the Runway 10-28, the project includes the provision of an access road to serve the new development.

9 - Second FBO: Development of an area to serve the needs of a future FBO to the north of Runway 10-28.

10 - Pavement Maintenance – ODA (2027, 2030, and 2033): Scheduled pavement maintenance as needed.

11 – Taxiway A Relocation: Relocation of Taxiway A to achieve 300' separation from Runway 10-28 centerline. Construction includes 5800' length at 35' wide for Taxiway A along with 4 taxiway connectors, new Medium Intensity Taxiway Lights (MITL), as well as new location and directional signage.

12 – Runway 15-33 REILS and PAPIs: Installation of 4-Box PAPIs and REILS on both ends of Runway 15-33.

PHASE IV (BEYOND THE PLANNING PERIOD)

Runway 10-28 extension (and relocation): Project includes the relocation of Runway 28 end to the west to clear Ochoco Hwy. from the RPZ. Project also includes the extension of Runway 10 end 1,475 feet to the west for a total runway length of 7,000 feet. This project will require justification and full environmental review and FAA approval prior to implementation.

Extension of Runway 10-28 south parallel taxiway: Extension of the parallel taxiway to the south of Runway 10-28 to the full length of the runway. This project will require justification and full environmental review and FAA approval prior to implementation.

Runway 15-33 Extension (and Rwy 33 Threshold Relocation): Project includes the relocation of Runway 33 threshold in order to clear RPZ from Hwy 126 – the Ochoco Hwy. It also includes the extension of the runway 952 feet to the north for a total length of 4,600 feet.

Extension of Parallel Taxiway to the West of Runway 15-33: Extension of the parallel taxiway to the west of Runway 15-33 to serve the full length of the runway. This project will require justification and full environmental review and FAA approval prior to implementation.

Aviation Compatible Development along Tom McCall Rd: Aviation-related private development to occur based on demand and market conditions.

Development of Aviation Reserve Areas to the North: Aviation-related private development to occur based on demand and market conditions.

Extension of Utilities to the West of Runway 15-33: Aviation-related private development to occur based on demand and market conditions.

Development of Aviation Reserve Areas to the West of Runway 15-33: Aviation-related private development to occur based on demand and market conditions.

COST ESTIMATES

Cost estimates for individual projects, based on 2014 dollars, have been prepared for improvements that have been identified for implementation during the 20-year planning period. The estimates have been categorized by the total cost for each project, that portion to be borne by the City of Prineville as the Airport sponsor, and that part of the total cost anticipated to be paid by the FAA under the Airport Improvement Program (AIP) or similar programs. In addition to airport sponsor funds, the local share can include sources such as Oregon Department of Aviation (ODA) funding, State and/or local economic development funds, regional commissions and organizations, other units of local government, as well as funding from private individuals or businesses.

These estimates are intended to be used for planning purposes only and should not be construed as detailed construction cost estimates, which can only be compiled following the preparation of detailed design documentation.

CAPITAL IMPROVEMENT PROGRAM (CIP) AND PHASING PLAN

The CIP projects and associated costs presented in this Master Plan are the best projections that can be made at the time of formulation. The purpose is to provide a reasonable projection of capital needs, which can then be used in fiscal programming to test for financial feasibility.

The airport keeps a rolling 5 year list of CIP projects on file with the FAA, The first phase of the projects list in this Master Plan has been organized in a format similar to that used by the FAA.

The cost estimates are organized in three time horizons: the short-, intermediate-, and long-term. This phasing is also provided in tabular form at the end of this chapter, **Table 9A**.

These are preliminary schedules, and variance from them will occur, especially during the latter time periods. The first five years of projects contain the greatest level of detail, and the timing and sequence should adhered to as much as is possible. The demand for certain facilities, especially in the latter time frame, and the economic feasibility of their development, are the prime factors influencing the timing of individual project implementation. Care must be taken to provide for adequate lead-time for detailed planning, environmental review, detailed design, and construction of facilities in order to meet aviation demands. It is also important to minimize the disruptive scheduling, where a portion of the facility may become inoperative due to construction, and to prevent extra costs resulting from improper project scheduling.

SOURCES OF CAPITAL FUNDING

The following section provides a description of capital improvement funding sources that are listed in **Table 9A**.

FEDERAL FUNDING

There are several Federal funding programs that are available for the Prineville Airport. A description of these programs is provided below.

FEDERAL AIP ENTITELEMENT GRANTS

The current program, known as the Airport Improvement Program (AIP), was established by the Airport and Airway Improvement Act of 1982 (Public Law 97-248). Since then, the AIP has been amended several times, most recently with the passage of the FAA Modernization and Reform Act of 2012. Funds obligated for the AIP are drawn from the Airport and Airway Trust fund, which is supported by user fees, fuel taxes, and other similar revenue sources. For small primary, reliever, and general aviation airports (such as Prineville), the grant covers a range of 90 percent of eligible costs.

The Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (AIR-21), enacted in April 2000, established the first-ever Non-Primary Airports Entitlement Program. AIR-21 sets aside grant funding for general aviation airports listed in the National Plan of Integrated Airport Systems (NPIAS) for pavement maintenance work. General aviation airports can each receive up to $150,000 per year based on the FAA's assessment of maintenance needs over a five-year period.

This funding set-aside is available for each federal fiscal year when Congress appropriates at least $3.2 billion for the FAA's AIP grant program. For the convenience of the Airport Sponsor, if a project is anticipated to cost in excess of $150,000, participating airports can rollover the Non-Primary Entitlement funds for up to three years, at which time the accumulated total of rolled-over funds can be used for larger projects. For the purposes of this chapter, it is assumed that this program will be funded throughout the 20-year planning period.

FEDERAL AIP DISCRETIONARY GRANTS

The FAA also provides discretionary grants on a 90/10% basis to airports similar to Prineville Airport. This source of funding is over and above entitlement funding and is provided to airports for projects that have a high federal priority for enhancing safety, security, and capacity of the Airport and would be difficult to fund otherwise. The dollar amounts of individual grants vary and can be significant in comparison to entitlement funding. Discretionary grants are awarded at the FAA's sole prerogative. Discretionary grant applications are evaluated based on need, the FAA's

project priority ranking system, and the FAA's assessment of a project's significance within the national airport and airway system.

STATE FUNDING

CONNECTOREGON

In 2005, the Oregon Legislature authorized funding for air, marine, rail, and transit infrastructure, known as ConnectOregon. The purpose of this program is to improve commerce, reduce delay, and enhance safety for the state's multi-modal transportation system. In July 2013, the Oregon Legislature approved $42 million in funding for a fifth installment of the multimodal ConnectOregon program.

Currently, there two grant types available for airport under the ConnectOregon program, one that matches up to 80% of a project and another that matches the 5% local amount needed for FAA AIP projects.

FINANCIAL AID TO MUNICIPALITIES (FAM) GRANT PROGRAM

The Oregon Department of Aviation's FAM Grant Program is a program for funding planning, development, and capital improvement projects at airports across Oregon, as defined in Oregon Revised Statute 738-120. Grants are provided on a discretionary basis, with funding dependent as outlined in the Department's budget, which is approved by the Oregon Legislature. FAM grants are funded by state taxes on aviation fuel, allowing revenue collected at Oregon airports to be spent on these same facilities.

FAM Grants are awarded annually for an amount not to exceed $150,000 for projects including planning, development and capital improvement.

PAVEMENT MAINTENANCE PROGRAM (PMP)

This program was developed by the Oregon Department of Aviation to protect Oregon's airport investments by preserving airport pavement. The PMP provides airports the opportunity to complete preventative maintenance which extends the life of pavement and ultimately reduces costs to airport sponsors, the state, and the federal government.

PRIVATE FUNDING

Many airports use private third-party financing when the planned improvements will be primarily used by a private business or other organization. Such projects are not ordinarily eligible for federal funding. Projects of this kind typically include hangars, fixed base operator (FBO) facilities, private use fuel storage, non-public aircraft parking aprons, industrial aviation-use facilities, and

non-aviation office/commercial/industrial developments. Private development proposals are considered on a case-by-case basis. Often, airport funds for infrastructure, preliminary site work, and site access are required to facilitate privately developed projects on airport property.

AIRPORT GENERATED REVENUE FINANCING

Typically, the revenues generated by airports are used to support the local match of eligible state and federal projects. However, some projects are either non-eligible for state or federal funding participation, or do not compete well for eligible funding. In these cases, the Airport Sponsor would be responsible for 100% of the project cost to implement the proposed development.

Table 9A - Prineville Capital Improvement Plan (CIP) Estimates

Year/ Priority	ALP Note #	Project Description	Total Cost	City of Prineville	FAA		ODA	Other Description
					Non-Primary Entitlement	State Apportion/ Discretionary		
Phase I (2016 - 2020)								
2016	I-1	Tie-Down Apron, Run-up Apron, Beacon Tower	$ 1,387,554	$ 138,755	$ 421,008	$ 827,791		
2016	I-2	Surplus Property Release	$ (2,730,000)					
2016	I-3	Helipad Project - Private	****					
2017	I-4	Property Swap/Transfer	$ -					Exchange of 5 acres of property.
2017	I-5	Construct Apron, PH 1 (env/design) - NPE funds for CO VI Match	$ 2,000,000	$ 1,700,000	$ 150,000	$ 150,000		City of Prineville funds will come from Connect Oregon VI and Crook County.
2018	I-6	Construct Apron, PH 2 (construction) - ST/DI funds for CO VI Match	$ 4,000,000	$ 3,380,000	$ 130,000	$ 490,000		City of Prineville funds will come from Connect Oregon VI and Crook County.
2018	I-7	PMP (placeholder) Apron	$ 22,222	$ 2,222	$ 20,000			
2019	I-8	Transfer to McDermitt	$ (150,000)		$ (150,000)			
2019	I-9	Land Acquisition	$ -					Costs will be offset by Land Release approved by FAA
2019	I-10	Interim Flight School - Private	****					
2019	I-11	Rehab Runway 10/28 -Phase I Env. & Prelim Design	$ 166,667	$ 16,667	$ 150,000			
2020	I-12	Rehab Runway 10/28 -Phase II Design & Construction	$ 388,889	$ 38,889	$ 150,000	$ 200,000		
		Phase I Totals	$ 5,085,332	$ 5,276,533	$ 871,008	$ 1,667,791	$ -	
Phase II (2021-2025)								
2021	II-1	PMP (placeholder)	$ 22,222	$ 2,222	$ 20,000			
2022	II-2	Rehab Runway 15-33 (widen/relocate/MIRL), Ph 1 (env/design)	$ 333,333	$ 33,333	$ 130,000	$ 170,000		
2023	II-3	Rehab Runway 15-33 (widen/relocate/MIRL), Ph 2 (design/construction)	$ 3,222,222	$ 322,222	$ 150,000	$ 2,750,000		
4	II-4	Apron Connector Reconstruction	$ 62,000	$ 6,200	$ 55,800			PCI T04PR-01 & T05PR-01
5	II-5	Environmental for Property Acquisitions - North	$ 150,000	$ 15,000	$ 135,000			
6	II-6	Property Acquisitions - North	$ 188,000					
7	II-7	Environmental for Flight Training North Development - Private	$ 150,000	$ 15,000	$ 135,000			
8	II-8	Flight Training North Development - Private	$ 1,219,000					Private funding
9	II-9	Environmental for Apron Expansion	$ 150,000	$ 15,000	$ 135,000			
10	II-10	Apron Expansion	$ 937,000					
11	II-11	Redevelopment of USFS Area	$ 3,000,000					
12	II-12	Pavement Maintenance - ODA 2024	$ 6,667	$ 667			$ 6,000	
13	II-13	Medium Intensity Taxiway Lights - Taxiway A	$ 853,000					
14	II-14	Install PAPI on RW10 and REILS on 10-28	$ 558,000					
15	II-15	Redevelopment of Fuel Tank Area	$ 1,927,000					
16	II-16	Apron Reconstruction	$ 987,000					A01PR-01,-02, AFPR-01
		Phase II Totals	$ 13,765,444	$ 409,644	$ 760,800	$ 2,920,000	$ 6,000	
Phase III (2026-2035)								
1	III-1	T-Hangar Development (Current Apron Area)	$ 3,368,000					
2	III-2	Ag Area Development	$ 683,000					
3	III-3	Small GA Development - North	$ 2,468,000					
4	III-4	Environmental for Runway 10/28 South Parallel Taxiway	$ 150,000					
5	III-5	Runway 10/28 South Parallel Taxiway	$ 1,868,000					
6	III-6	Environmental for Runway 15/33 Parallel Taxiway	$ 150,000					
7	III-7	Runway 15/33 Parallel Taxiway	$ 1,855,000					
8	III-8	Corporate GA Development - North	$ 1,466,000					
9	III-9	Second FBO - North	$ 1,466,000					Apron and Connectors only
10	III-10	Pavement Maintenance - ODA 2027/2030/2033	$ 22,222	$ 2,222			$ 20,000	
11	III-11	Taxiway A Relocation	$ 4,279,000					
12	III-12	RW 15-33 REILs and PAPIs	$ 640,000					
		Phase III Totals	$ 18,415,222	$ 2,222	$ -	$ -	$ 20,000	
		Total All Phases	$ 37,265,998	$ 5,688,399	$ 1,631,808	$ 4,587,791	$ 26,000	

RATES AND CHARGES COMPARISON AND ANALYSIS

The objective of this analysis is to evaluate the Airport's existing rates and charges to assess if any changes are recommended to meet capital improvement program (CIP) funding needs. This is accomplished through a comparison of the Airport's rates and charges with data from the rates and charges survey recently completed by the Oregon Department of Aviation (ODA) and supplemented by the rates and charges imposed at a sample of airports located in the general vicinity of the Airport. The analysis concludes with an assessment of the Airport's leasing policies.

PRINEVILLE AIRPORT RATES AND CHARGES

Prineville's primary revenue source is its fuel sales. The next largest source of income is from ground leases, hangar leases, and aircraft storage fees, which are largely driven by the rates and charges set by the airport. This information was obtained from airport management and is discussed below.

IMPROVED SITE LEASE RATE

The improved site lease rate is the rate charged for the lease of Airport property to construct a hangar and related improvements for aircraft storage. The premises are generally leased for a term of 20 or 30 years with an option to extend for an additional 10 years, with leases since 2008 having a 30-year term. The rate charged by the Airport is negotiable, but currently ranges from as low as $0.10 per square foot (for older facilities) up to $0.175 per square foot for current leases. Escalation clauses typically allow for annual rate adjustments for inflation. Leases allow for increasing rates to market levels when lease options are exercised.

TIE DOWN FEES

The Airport charges a monthly and nightly tie down fee. The monthly fee is $20. The nightly fee varies based on aircraft type and is waived if fuel is purchased. The nightly fee for each aircraft type is as follows:

- Single-engine piston – $5
- Multi-engine/turboprop – $25
- Jet – $50

HANGAR RENT

All hangars available for rent at the Airport are conventional hangars, of which there are two types: open hangar (no door) and closed hangar. The monthly rent is $40 for an open hangar and $75 for a closed hangar. Electricity (120v outlet) is included in both of these rates.

Table 9B summarizes the rates and charges currently assessed at the Airport.

Table 9B: Prineville-Crook County Airport Rates and Charges, 2015

Fee Category	Rate
Improved Site Lease	Negotiable; currently $0.16 to $0.175/sq. ft.
Tie Down	$20/month; $5 to $50/night based on aircraft type (waived with fuel purchase)
Hangar	Open hangar - $40/month; Closed hangar - $75/month

Source: Prineville-Crook County Airport

STATEWIDE AND LOCAL AIRPORTS RATES AND CHARGES

To determine if the Airport's rates and charges are competitive and adequate, a comparison with other airports in Oregon was conducted. This analysis was performed on two levels. First, the ODA's recently completed rates and charges survey was used to enable comparison of the Airport's rates and charges with statewide data. Second, rates and charges assessed at airports located in proximity to the Airport were identified to allow for comparison to geographically similar airports. Data from local airports were collected by contacting those airports directly. Local airports surveyed include:

- Bend Municipal Airport
- Burns Municipal Airport
- Christmas Valley Airport
- Grant County Regional Airport/Ogilvie Field
- Roberts Field Airport
- Sunriver Airport

Table 9C presents the statewide and local airports rates and charges and compares them with those currently assessed by the Airport. As shown in Table 9C, compared to statewide rates and charges, the Airport's improved site lease rate is higher ($0.16/sq. ft. to $0.175/sq. ft. versus $0.126/sq. ft. statewide), and its tie down fees are generally higher ($20 per month and $5 to $50 per night versus $10 to $20 per month and $3 per night). Comparison of hangar rental rates is not possible, since no statewide data is available. When comparing the Airport to local airports, Table 9C shows that the Airport's improved site lease rate is similar to the rate charged at Burns Municipal ($0.14/sq. ft.) and Grant County Regional ($0.16/sq. ft.), but lower than Bend Municipal ($0.31/ sq. ft.). Nightly tie down fees charged by the Airport for smaller aircraft are in the range of the local airports, but the fees for larger aircraft reach $50 per night, which exceeds the nightly rate at all of the local airports. The monthly tie down rate of $20 per month at the Airport is lower than all of the local airports except Burns Municipal. In terms of conventional hangar rental rates, data for the local airports is limited. Compared to the two local airports with conventional hangars, the Airport charges less than Grant County Regional ($40 to $75 per month versus $50 to $100 per month) and significantly less than Bend Municipal ($1,200 to $1,580 per month). It should be noted that Bend Municipal bases its hangar rates on the appraised value of the hangar rather than aircraft type.

Table 9C: Comparison of Prineville/Crook County Airport Rates and Charges with Statewide and Local Airports

Airport	Improved Site Lease	Tie down Fees	Hangar Rent
Prineville-Crook County	**Negotiable; currently $0.16 to $0.175/sq. ft.**	**$20/month; $5 to $50/night based on aircraft type (waived with fuel purchase)**	**Open hangar - $40/month; Closed hangar - $75/month (both rates include electricity)**
ODA Statewide Survey	$0.126/sq. ft. (average)	State-owned airports non-commercial tie down fees: Category II - $20/month; Category III and IV - $17.50/month; Category V - $15/month; All airports daily fee - $3/day; FBO tie down fees: $10/month (average)	Data not available
Bend Municipal	$0.31/sq. ft.	City - $41/month (no jet parking); FBO - $7/night (one day waived with fuel purchase)	T-hangars - $199 to $332/month (includes electricity); Box hangar - $1,200 to $1,580/month; Corporate hangar - $0.33/sq. ft.
Burns Municipal	$0.14/sq. ft.	$20/month	Not applicable - No hangars for rent
Christmas Valley	Not applicable - Lots available for hangar construction are located off airport property	$27/month	Not applicable - No hangars for rent
Grant County Regional	$0.16/sq. ft.	$50 to $250/month based on aircraft type; $5 to $25/night based on aircraft type	One conventional hangar available for rent - $100/month for the entire hangar or $50/month for half (rates do not include utilities)
Roberts Field	Not applicable	$50/month; $5 to $10/night based on aircraft type; FBO - $10 to $30/night based on aircraft type (one day waived with fuel purchase)	T-hangars - $182/month for their older T-hangars and $230/month for newer T-hangars (rates include electricity)
Sunriver	Not applicable - No land available for hangars	$25 to $75/month based on aircraft type; $10/night	Not applicable - hangars are privately owned

Sources: Airport management and ODA 2015 Rates and Charges Survey

PRINEVILLE MUNICIPAL LEASING POLICY ANALYSIS

The Airport Cooperative Research Program published Report 47: *Guidebook for Developing and Leasing Airport Property* in 2011. It includes a section on best practices for airport property leases. It highlights the following provisions as recommended key components of a leasing policy.

- Hangar lease rates that account for the size of the aircraft that the hangar can accommodate in terms of hangar door size, height, and clear span distance.
- Standard lease terms that are compliant with state and local law.
- A process for adjusting lease rates.
- Insurance requirements.
- Obligations of lessee, covered in a Rules and Regulations document that the lessee is obligated to adhere to.
- Routine inspection provisions for safety and compliance of airport regulations.
- Construction and improvement standards that outline pre-approval by the landlord and the airport sponsor, local permitting agency requirements, and FAA notification of proposed construction once all other approvals are secured.
- Subletting policy.

The review of Prineville's leases found that they contained all of the best practices recommended by ACRP Report 47, with the exception of lease rate adjustment clauses for two tenants – Hillsboro Aviation leases and Carson Oil. It is recommended that when these leases come up for renewal that a lease rate adjustment clause is added allowing the airport to adjust the lease rate to the current market rate and make periodic adjustments to that rate. Ideally, the periodic adjustments should be made annually, although less frequent adjustments are commonly found in airport leases.

RATES AND CHARGES SUMMARY AND RECOMMENDATIONS

This analysis reviewed the rates and charges assessed at Prineville-Crook County Airport and compared them with the rates and charges imposed at statewide and local airports. Key findings of the analysis include:

- The Airport's improved site lease rate of $0.16 to $0.175/sq. ft. is higher than the statewide average of $0.126/sq. ft. from the ODA's recent survey and similar to the rate at the local airports.
- The Airport charges a lower monthly tie down fee ($20/month) than all but one of the six local airports considered in this analysis.
- Although comparative data is limited, the rates charged by the Airport to rent conventional hangars are lower than those charged at Grant County Regional and significantly lower than Bend Municipal.

Based on these findings, the Airport's improved site lease rate is competitive with statewide and local airports. It appears, however, that the Airport may want to consider increasing its monthly tie down fee. There is insufficient data in this analysis to make any recommendations regarding the Airport's

conventional hangar rental rates. A survey of airports located throughout the state may be needed to determine if adjustments to the rates are warranted.

A review of the Airport's leases found that they adhered to the best practices recommended by ACRP Report 47: *Guidebook for Developing and Leasing Airport Property.* It is recommended that the leases for Hillsboro Aviation and Carson Oil include escalation clauses to permit the Airport to adjust lease rates the next time the leases come up for renewal.

FINANCIAL FORECAST

In order to plan for future development of the Airport, an assessment of the Airport's future financial condition is needed. This is accomplished through a financial forecast of the Airport's revenues and expenses, which will determine how much Airport funding, if any, is available for investment in capital projects.

As explained in the Inventory Chapter, the Airport generates revenues through fuel sales, hangar and tie down rentals, leases, and miscellaneous other sources. Of these, fuel sales constitute the overwhelming majority of the Airport's revenues. The Airport's revenues are supplemented through subsidies from the City of Prineville and Crook County as needed.

Expenses consist of personnel costs, materials and services, facility maintenance, utilities, marketing, and services provided by the City of Prineville.

The financial projections that appear in this document are estimated revenues, expenses, and capital costs, which are based on research and the assumptions discussed throughout this document. The Airport's expected revenues, expenses, and capital costs for the projected periods are subject to uncertainty resulting from variability in demand for services, economic conditions, and other unknowns. No guarantee is presented or implied as to the accuracy of the financial projections or predicative statements in this document.

The forecast of revenues and expenses out to 2024 is shown in **Table 9D**. In general, expenses are predicted to exceed Airport revenues during the planning period. However, because the operational subsidies provided by the city and county are calculated to cover any annual shortfall, the forecast doesn't anticipate any loss by the Airport during the forecast period. In other words, each annual financial loss by the Airport is anticipated to be exactly offset by subsidies from the city and county.

Each source of revenue and expense is described below following Table 9D.

Table 9D: Forecast of Prineville Airport Operating Revenues and Expenses

Operating Revenues and Expenses	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Revenues											
Leases	$68,300	$70,400	$73,100	$72,200	$72,300	$74,700	$75,700	$77,100	$78,200	$79,300	$80,500
Fuel	$600,000	$609,500	$619,100	$628,600	$638,100	$645,400	$652,600	$659,800	$667,100	$674,300	$681,600
Hangar and Tie Down Rent	$38,400	$38,900	$39,300	$39,800	$40,300	$40,800	$41,200	$41,700	$42,200	$42,800	$43,300
Miscellaneous Sales	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500
Interest	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100
Crook County Op. Subsidy	$21,700	$25,500	$27,500	$30,900	$34,500	$36,400	$39,700	$42,900	$46,900	$50,000	$54,200
City of Prineville Op. Subsidy	$21,700	$25,500	$27,500	$30,900	$34,500	$36,400	$39,700	$42,900	$46,900	$50,000	$54,200
Total Revenues	**$752,700**	**$772,400**	**$789,100**	**$805,000**	**$822,300**	**$836,300**	**$851,500**	**$867,000**	**$883,900**	**$899,000**	**$916,400**
Expenses											
Salary	$49,200	$50,400	$51,600	$52,800	$54,100	$55,400	$56,700	$58,100	$59,500	$60,900	$62,400
FICA/Medicare	$3,800	$3,900	$4,200	$4,500	$4,800	$5,200	$5,600	$6,000	$6,400	$6,900	$7,400
Pers	$7,100	$7,300	$9,000	$9,200	$11,100	$11,300	$12,400	$13,400	$15,700	$16,100	$18,400
Health/Dental/Vision/Life	$17,100	$18,300	$19,300	$20,300	$21,400	$22,600	$23,800	$25,100	$26,400	$27,800	$29,300
Worker's Compensation	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500
Unemployment	$900	$900	$900	$1,000	$1,000	$1,000	$1,000	$1,100	$1,100	$1,100	$1,100
Fuel	$475,000	$482,400	$490,100	$497,500	$505,100	$510,900	$516,600	$522,200	$528,000	$534,100	$539,600
City of Prineville Services	$82,100	$84,100	$86,100	$88,200	$90,300	$92,400	$94,700	$96,900	$99,300	$101,600	$104,100
Contracted Employees	$40,000	$41,000	$41,900	$42,900	$44,000	$45,000	$46,100	$47,200	$48,400	$49,500	$50,700
Training and Travel	$5,000	$5,100	$5,200	$5,400	$5,500	$5,600	$5,800	$5,900	$6,000	$6,200	$6,300
Facility Maintenance	$15,000	$15,500	$16,000	$16,500	$17,000	$17,600	$18,100	$18,700	$19,300	$19,900	$20,600
Equipment Upkeep	$18,000	$23,400	$24,000	$24,600	$25,200	$25,800	$26,400	$27,000	$27,700	$28,300	$29,000
Supplies (Weed Control)	$8,000	$8,200	$8,400	$8,600	$8,800	$9,000	$9,200	$9,400	$9,700	$9,900	$10,100
Utilities	$16,000	$16,100	$16,300	$16,900	$17,100	$17,300	$17,400	$18,000	$18,000	$17,900	$18,200
Insurance/License/Permits	$9,000	$9,200	$9,400	$9,700	$9,900	$10,100	$10,400	$10,600	$10,900	$11,100	$11,400
Marketing	$5,000	$5,100	$5,200	$5,400	$5,500	$5,600	$5,800	$5,900	$6,000	$6,200	$6,300
Total Expenses	**$752,700**	**$772,400**	**$789,100**	**$805,000**	**$822,300**	**$836,300**	**$851,500**	**$867,000**	**$883,900**	**$899,000**	**$916,400**
Income/Loss	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

Source: CDM Smith and Prineville Airport

PRINEVILLE AIRPORT REVENUES

- Leases – Lease revenues were estimated based upon the lease agreements in effect for the Airport properties, the majority of which are ground leases for privately built hangars. For leases that reach their expiration date during the forecast period, it was assumed that any options were exercised with changes in lease rates to market levels. As stipulated in the leases and confirmed by the Airport manager, lease rates are escalated annually by the increase in the Portland/Vancouver consumer price index (CPI). For conservative purposes, this increase was estimated at 50 percent of the average increase in the CPI for the past 10 years, or 1.2 percent. Notable exceptions of leases that did not contain escalation clauses include Hillsboro Aviation's leases and the Carson Oil lease. Airport management estimated that approximately half of the available hangar lots would be leased in the next 10 years. Based on this estimate, it was assumed that the airport would add a lease for a 3,600-square foot hangar at $0.16 per square foot every year, starting in 2016. These lease rates were also escalated as described previously. Leasing revenue drops slightly in 2017 because a two-year lease for a NOAA weather station on the airport expires then. If NOAA receives budget authority to continue the lease beyond the two-year time frame, the airport can expect an additional $3,600 in annual lease payments. The additional hangar leases, increases in lease rates when options are exercised, and the annual escalation of lease rates results in lease revenue increasing by more than $12,000 over the 10-year forecast period.
- Fuel – Fuel is the largest contributor to the Airport's revenues. Using historical fuel sales and aircraft operations, it was found that total operations had a strong correlation with fuel sales, as indicated by the 0.9 correlation coefficient between the two data sets. Forecasted operations were used to estimate future fuel revenues, assuming each operation generated approximately $12.90 in fuel sales. Over the 10-year forecast period, increased aviation activity is expected to increase fuel sale revenues by more than $80,000.
- Hangar and Tie Down Rent – This revenue source was projected to increase at an annual average rate of 1.2 percent per year, as rate adjustments are made to keep in line with inflation. This is the same rate used in the escalation of leasing rates. Hangar and tie down rent is forecast to increase by nearly $5,000 by the end of the 10-year forecast period. No additional tie downs or airport-owned hangar space is anticipated during the forecast period.
- Miscellaneous Sales – Miscellaneous sales revenues was assumed to remain constant over the forecast period.
- Interest – Interest revenue was assumed to remain constant over the forecast period.
- Crook County Subsidy – Crook County provides financial support to the airport, both its operational budget and capital budget, on an as-needed basis. This support is split evenly with the City of Prineville. The operational subsidy from Crook County was estimated at $21,700 in 2014 and forecast to more than double to $54,200 by 2024.
- Prineville Subsidy – The City of Prineville provides financial support to the airport, both its operational budget and capital budget, on an as-needed basis. This support is split evenly with

Crook County. The operational subsidy from the City of Prineville was estimated at $21,700 in 2014 and forecast to more than double to $54,200 by 2024.

The primary driver of revenue is the sale of fuel, which increases the Airport's bottom line by an estimated $17,000 by 2024 (after accounting for the estimated cost of that fuel). Ground leases are the second largest contributor to Airport revenues.

Because the operational subsidies provided by the city and county are estimated to cover any annual shortfall, the forecast doesn't anticipate any loss by the Airport during the forecast period. In other words, each annual financial loss by the Airport is assumed rectified by subsidies from the city and county.

PRINEVILLE AIRPORT EXPENSES

- Salary – changes in salary for airport staff was matched to the average increase in the Portland CPI for the past 10 years, which was 2.4 percent.
- FICA/Medicare - The Office of the Actuary in the Centers for Medicare & Medicaid Services estimated that Medicare expenses would increase by only 2.7 percent in 2015, thanks to reduction in payment rates. However, from 2016 and beyond, Medicare expenses are expected to increase at an annual rate of 7.3 percent due to higher enrollment rates and increased demand for Medicare services as the U.S. population ages.
- PERS – The Public Employees Retirement System (PERS) underwent significant changes in 2013 when the Oregon legislature enacted legislation intended to rein in rapidly rising costs. However, those changes were challenged by public employees and it is up to the Oregon Supreme Court to decide if those changes remain in effect. The Oregon Supreme Court decision is expected sometime in 2015, too late to change the PERS costs for that year, which declined to 11.17 percent. Should the Oregon Supreme Court uphold the legislative changes, it is expected that PERS costs will increase slowly. If the Oregon Supreme Court overturns the changes, it is expected that costs will increase as much as allowed under the rate collar (3 percent under most conditions). To keep the cost estimate conservative, it was assumed that the ruling would overturn the legislative changes and rates would increase as much as allowed under the current law. Rates are set every biennium, so the PERS costs are increased 3 percentage points every two years.
- Health/Dental/Vision/Life - The Office of the Actuary in the Centers for Medicare & Medicaid Services projected health care costs would increase by 6.9 percent in 2015, followed by annual increases of 5.4 percent out through 2023.
- Worker's Compensation – Costs for 2015 are projected to drop by 5.3 percent in 2015, according to the Oregon Department of Consumer and Business Services. This is the second year in a row that worker's compensation costs have declined in Oregon. To keep the estimate of the Airport's worker's compensation costs conservative, it is held steady throughout the 10-year period.
- Unemployment – Costs for unemployment insurance are tied to salary costs, increasing at the same rate of 2.4 percent.

- Fuel – The forecast of fuel cost was based on the assumption that the Airport would continue to generate the same margins on fuel that were projected for 2014. This was accomplished by keeping the cost of fuel at approximately 79 percent of the estimated fuel revenues for the year.
- City of Prineville Services – The City of Prineville charges the Airport for various support services it provides, such as accounting and legal assistance. These charges, estimated at more than $82,000 in 2014, were escalated 2.4 percent annually, using the historic CPI for Portland.
- Contracted Employees – The cost for contracted employees was assumed to rise at the same rate as salaried employees, or 2.4 percent annually, based on the historic CPI for Portland.
- Training, Travel and Subsistence – Expenditures in this category were forecast to grow annually at 2.4 percent, matching the average CPI for Portland over the last 10 years.
- Facility Maintenance – Costs for facility maintenance were projected to increase 3.2 percent annually, based upon costs of capital projects and their maintenance by ECONorthwest in the July 2011 publication of *Fiscal Challenges for Oregon's Cities*.
- Equipment Repair and Maintenance – Equipment repair and maintenance costs increased at 2.4 percent per year, matching the average increase in Portland's CPI over the past 10 years. Costs totaling $5,000 were added in 2015 to reflect the expense of certifying and maintaining the newly installed AWOS.
- Supplies (Weed Control) – The cost of supplies were increased at an annual rate of 2.4 percent, the same as the historic Portland CPI growth rate.
- Utilities – Utility costs increased at 1.3 percent annually based upon the forecast of wholesale electricity price from *The Fifth Northwest Electric Power and Conservation Plan*, published by the Northwest Power and Conservation Council.
- Insurance/License/Permits – These costs were projected to increase at the same rate as the Portland CPI has historically – 2.4 percent annually.
- Marketing – Expenditures in this category were forecast to grow annually at 2.4 percent, in line with the increase in the Portland CPI for the past 10 years.

After the cost of fuel, services provided by the City of Prineville are the largest Airport expense, accounting for approximately 11 percent of overall costs. This expense also adds the greatest cost (after fuel) over the 10-year period, increasing by $22,000 by 2024.

The other primary drivers of the increase in expenses are personnel costs in the form of salary, health care, retirement benefits, and contracted employees. These categories each contribute more than $10,000 in additional expenses over the 10-year forecast period. Equipment repair also adds $10,000 in expenses by 2024. While fuel costs comprise nearly two-thirds of the expenses, it is assumed that any increase in fuel cost is reflected in higher fuel revenues, which offsets the additional costs.

The forecast shows that total revenues are projected to increase at an annual average rate of approximately 1.3 percent, while total expenses increase at an annual average rate of approximately 2.0 percent. With expenses increasing faster than revenues, the operational subsidies from the City of Prineville and Crook County must grow at a significant rate to make up the difference. The rise in this

subsidy from an estimated $21,700 for each jurisdiction in 2014 to more than $54,000 by 2024 results in an average annual growth rate of 9.6 percent.

One way to illustrate the variability of this forecast is to examine how much additional Airport revenue in percentage terms is needed to eliminate the need for Airport subsidies. For example, **Table 9E** shows the Airport's bottom line (without subsidies) if Airport revenues were increased 10 percent for selected years. With 10 percent higher revenues, the Airport shows income in 2014, but that income contracts through 2019. Starting in 2020, a subsidy is needed for the Airport to break even, and that subsidy grows each year to the end of the forecast period.

Table 9E: Hypothetical 10 Percent Increase in Airport Revenues

	2014	…	2019	2020	…	2024
Revenues w/o City or County Subsidy	$709,300		$763,500	$772,100		$808,000
10 Percent Increase	$70,930		$76,350	$77,210		$80,800
Revised Revenues	$780,230		$839,850	$849,310		$888,800
Expenses	$752,700		$836,300	$851,500		$916,400
Income/Loss	**$27,530**		**$3,550**	**$(2,190)**		**$(27,600)**

Source: CDM Smith and Prineville Airport

The boundaries of this variability can be established by determining the highest revenue increase that still requires a subsidy every year and the lowest revenue increase that eliminates subsidies out through 2024. For the assumptions used in this financial model, those boundaries are 6.1 percent and 13.4 percent. To break even in 2014 (the year requiring the smallest subsidy), Airport revenues would need to be increased by at least 6.1 percent. To break even in 2024 (when the largest subsidy is needed), Airport revenues would need to increase by at least 13.4 percent.

One ramification of these financial assumptions is that it is anticipated that the larger subsidy needed from the city and county will result in fewer financial resources available for Airport capital improvements in later years, as explained in the next section.

FINANCIAL PLAN AND EVALUATION

As shown in Table 9A, there are more than $37 million worth of planned improvement projects for the Airport in the next 20 years. The next section will analyze the funding stream for these improvements and evaluate the overall feasibility of the plan.

CAPITAL IMPROVEMENTS FINANCIAL FORECAST

Table 9F summarizes the capital costs from Table 9A for each phase of the planning period. It also details the planned funding from the following sources:

- FAA Non-Primary Entitlement (NPE) Grants – It was assumed that the annual $150,000 FAA NPE grant available to the Airport would continue to be available in the future without any changes.
- FAA Discretionary Grants – The funds in this category represent FAA discretionary grants. In general, any project that was judged AIP eligible and was not fully funded by other sources, had its funding fulfilled with FAA discretionary money.
- Oregon Department of Aviation (ODA) – This is the grant money expected from the ODA.
- ConnectOregon VI Grant – The ConnectOregon VI program funds 70 percent of eligible projects and Prineville Municipal Airport anticipates winning approval for grants exceeding $4 million to fund improvements to the U.S. Forest Service Airbase on the Airport.
- Airport Land Release Sale – This is the expected revenue from the sale of 91.5 acres of Airport land that the FAA released in August 2015.
- Transfer to McDermitt – This shows a planned repayment of NPE grant money that was transferred from Prineville to McDermitt State Airport.
- City of Prineville/Crook County Capital Subsidy – Any shortfall in capital funding is assumed to be picked up by the City of Prineville and Crook County.

Table 9F – Prineville Capital Improvement Financing Plan

	Phase I Totals (2016-2020)	Phase II Totals (2021-2025)	Phase III Totals (2026-2035)
Total Capital Improvement Expenditures	**$7,965,000**	**$12,546,000**	**$18,415,000**
Funding Sources			
Capital Carryover from Previous Phase	$0	$1,804,000	$565,000
FAA NPE Grant	$1,021,000	$750,000	$1,500,000
FAA Discretionary Grant	$1,668,000	$10,551,000	$9,801,000
ODA	$0	$6,000	$20,000
Connect Oregon VI Grant	$4,200,000	$0	$0
Airport Land Release Sale	$2,730,000	$0	$0
Transfer to McDermitt Repayment	$150,000	$0	$0
City of Prineville/Crook County Capital Subsidy	$0	$0	$6,529,000
Total Funding Sources	**$9,769,000**	**$13,111,000**	**$18,415,000**
Capital Carryover	**$1,804,000**	**$565,000**	**$0**

Table 9F compares the total funding sources to the total capital expenditures in each phase to determine what amount of capital subsidy is needed from the City of Prineville and Crook County.

Some key assumptions were made in drafting this financial plan. They include:

- Financial calculations were carried out using exact numbers, but results were rounded to the nearest thousands of dollars to avoid implying a level of precision that does not apply to these forecasts.
- All dollar figures are expressed in current dollars. No adjustments have been made to express dollar figures in a base year.

- All the costs of a given project were assumed to be either eligible or ineligible for federal funding. No projects were broken down into eligible and ineligible parts.

With these assumptions in mind, it can be seen that there are several critical components of this financial plan. One is that this plan relies heavily on grant money, both from discretionary FAA AIP funds and the ConnectOregon program. Another is that because of the revenue from the sale of the released airport property, no subsidy is projected during the first two phases (it is assumed that the sale of the released airport land funds all matching funds required from the City of Prineville and Crook County during the first two phases). However, once the funds from the land sale are used up, the City of Prineville and Crook County will need to provide more than $6 million to accomplish Phase III of the development program.

The next section will assess the feasibility of executing the financial plan as stated.

FINANCIAL EVALUATION

The financial plan drafted above hinges on a number of assumptions used to develop it. Among the key assumptions are that Prineville Municipal Airport will receive more than $20 million in FAA AIP discretionary grants over the 20-year planning period. This seems unlikely since the Airport has not received anywhere near this amount in discretionary grants in the past. If this discretionary funding is not available during the planning period, the Airport may consider several options.

- Airport secured financing. Some airports finance their development programs by raising capital through debt instruments. Airport issued bonds, effectively a loan made by the airport sponsor to investors, are typically secured by airport revenues (airport revenue bonds), or by the taxing authority of the airport sponsor (general obligation bonds). Since the airport's operational budget is subsidized by the City of Prineville and Crook County, there typically are no excess revenues available to fund debt service so an airport revenue bond is not feasible. It is also unlikely that the City of Prineville or Crook County would take on substantial amounts of debt to fund airport improvements with a general obligation bond since the county assumed airport debt in the past and is now at odds with the FAA over whether the Airport can be held responsible for the debt.
- Request the City of Prineville and Crook County fund the improvements. This option seems unlikely since the financial plan already imposes a substantial fiscal burden on the city and county in Phase III.
- Seek alternative funding. The Airport has been successful obtaining grants beyond those available through the FAA (e.g., the grant from the ConnectOregon VI program) and may be able to secure funding from alternative sources or through some sort of public-private partnership.
- Delay the implementation of the improvements until funding is available. By pushing back when projects are scheduled to be accomplished, the Airport can save up its FAA AIP NPE grant money over several years until it has accumulated an amount (up to $600,000) sufficient to fund the desired project. Delaying projects also gives the Airport the opportunity to apply again for any grant awards for which the project is eligible.

- Scale back the improvements to fit within the funds available. The Airport could take steps to reduce the scale of the improvements, either by discarding entire projects, or reducing the scope of individual projects, in order to reduce the overall cost.

The Airport may be able to employ a combination of these alternatives to achieve its objectives. It is worth noting that even without any FAA discretionary funds, the remaining funding sources forecast for Phase I are sufficient to meet the expected capital costs without any capital subsidy from the city or county.

The plan also relies on multiple grants from the ConnectOregon program. This program, which is funded by lottery-backed revenue bonds, has granted more than $380 million to assorted transportation projects. Aviation projects have garnered approximately a quarter of those funds. Given the importance of the U.S. Forest Service airbase, it is not unreasonable to assume that ConnectOregon funding will be provided for this development.

DEFINITIONS

ABOVE GROUND LEVEL. The elevation of a point or surface above the ground.

ACCELERATE – STOP DISTANCE AVAILABLE (ASDA). See declared distances

ADVISORY CIRCULAR. External publication issued by the FAA consisting of non-regulatory material providing for the recommendations relative to a policy, guidance and information relative to a specific aviation subject.

AIR CARRIER. An operator, which: (1) performs at least five round trips per week between two or more points and publishes flight schedules which specifies the times, days of the week, and places between which such flights are performed; or (2) transport mail by air pursuant to a current contract with the U.S. Postal Service. Certified in accordance with Federal Aviation Regulation (FAR) Parts 121 and 127.

AIR ROUTE TRAFFIC CONTROL CENTER (ARTCC). A facility established to provide air traffic control service to an aircraft operating on an IFR flight plan within controlled airspace and principally during the enroute phase of flight.

AIR TAXI. An air carrier certificated in accordance with FAR Part 135 and authorized to provide, on demand, public transportation of persons and property by aircraft. Generally operates small aircraft for hire for specific trips.

AIR TRAFFIC CONTROL FACILITIES (ATC-F). Electronic equipment and buildings aiding air traffic control (ATC)- for communications, surveillance of aircraft including weather detection and advisory systems.

AIRCRAFT. An aircraft is a device that is used or intended to be used for flight in the air.

AIRCRAFT APPROACH CATEGORY. A grouping of aircraft based on 1.3 times the stall speed in 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 that 166 knots.
- Category E: Speed greater than 166 knots.

AIRCRAFT OPERATION. The landing, takeoff, or touch-and-go procedure by an aircraft on a runway at an airport.

AIRCRAFT OPERATIONS AREA (AOA). A restricted and secure area on the airport property designed to protect all aspects related to aircraft operations.

AIRFIELD. The portion of an airport which contains the facilities necessary for the operation of aircraft.

AIRPLANE. An engine-driven fixed-wing aircraft heavier than air that is supported in flight by the dynamic reaction of the air against its wings.

AIRPLANE DESIGN GROUP (ADG). A grouping of aircraft based upon relative wingspan or tail height (whichever is most demanding). The groups are as follows:

Group	Tail Height (ft)	Wingspan (ft)
1	<20	<49
II	20 - <30	49 - <79
III	30 - <45	79 - <118
IV	45 - <60	118 - <171
V	60 - <66	171 - <214
VI	66 - <80	214 - <262

AIRPORT. An airport is 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 navigational aid located at an airport which displays a rotating light beam to identify whether an airport is lighted.

AIRPORT ELEVATION. The highest point on an airport's usable runway expressed in feet above mean sea level (MSL).

AIRPORT IMPROVEMENT PROGRAM. A program authorized by the Airport and Airway Improvement Act of 1982 that provides funding for airport planning and development.

AIRPORT LAYOUT DRAWING (ALD). The drawing of the airport showing the layout of existing and proposed airport facilities.

AIRPORT LAYOUT PLAN (ALP). A scaled drawing of the existing and planned land and facilities necessary for the operation and development of the airport.

AIRPORT LAYOUT PLAN DRAWING SET. A set of technical drawings depicting the current and future airport conditions. The FAA required drawings include the Airport Layout Plan, the Airport Airspace Drawing, and the Inner Portion of the Approach Surface Drawing, On-Airport Land Use Drawing, and Property Map.

AIRPORT MOVEMENT AREA SAFETY SYSTEM. A system that provides automated alerts and warnings of potential runway incursions or other hazardous aircraft movement events.

AIRPORT OBSTRUCTION CHART. A scaled drawing depicting the Federal Aviation Regulation (FAR) Part 77 surfaces, a representation of objects that penetrate these surfaces, runway, taxiway and ramp areas, navigational aids, buildings, roads and other details in the vicinity of the airport.

AIRPORT REFERENCE CODE (ARC). A coding system used to relate airport design criteria to the operational (Aircraft Approach Category) to the physical characteristics (Airplane Design Group) of the airplanes intended to operate at the airport.

AIRPORT REFERENCE POINT (ARP). The latitude and longitude of the approximate center of the airport.

AIRPORT TRAFFIC CONTROL TOWER (ATCT). A central operations facility in the terminal air traffic control system, consisting of a tower, including an associated instrument flight rule (IFR) room if radar equipped, using air/ground communications and/or radar, visual signaling, and other devices to provide safe and expeditious movement of terminal air traffic.

AIRSIDE. The portion of an airport that contains facilities necessary for the operation of aircraft.

AIRSPACE. The volume of space above the surface of the ground that is provided for the operation of aircraft.

ALERT AREA. See special-use airspace.

ALTITUDE. The vertical distance measured in feet above mean sea level.

ALIGNED TAXIWAY. A taxiway with its centerline aligned with a runway centerline. Sometimes referred to as an "inline taxiway."

APPROACH PROCEDURE WITH VERTICAL GUIDANCE (APV). An Instrument Approach Procedure (IAP) providing both vertical and lateral electronic guidance.

ANNUAL INSTRUMENT APPROACH (AIA). An approach to an airport with the intent to land by an aircraft in accordance with an IFR flight plan when visibility is less than three miles and/or when the ceiling is at or below the minimum initial approach altitude.

APPROACH LIGHTING SYSTEM (ALS). An airport lighting facility, which provides visual guidance to landing aircraft by radiating light beams by which the pilot aligns the aircraft with the extended centerline of the runway on his/her final approach and landing.

APPROACH MINIMUMS. The altitude below which an aircraft may not descend while on an IFR approach unless the pilot has the runway in sight.

APPROACH SURFACE. An imaginary obstruction limiting surface defined in FAR Part 77 which is longitudinally centered on an extended runway centerline and extends outward and upward from the

primary surface at each end of a runway at a designated slope and distance based upon the type of available or planned approach by aircraft to a runway.

APPROACH SURFACE BASELINE (ASBL). A horizontal line tangent to the surface of the earth at the runway threshold aligned with the final approach course.

APRON. A specified portion of the airfield used for passenger, cargo or freight loading and unloading, aircraft parking, and the refueling, maintenance and servicing of aircraft.

AREA NAVIGATION. The air navigation procedure that provides the capability to establish and maintain a flight path on an arbitrary course that remains within the coverage area of navigational sources being used.

AUTOMATIC DIRECTION FINDER (ADF). An aircraft radio navigation system, which senses and indicates the direction to a non-directional radio beacon (NDB) ground transmitter.

AUTOMATED SURFACE OBSERVATION SYSTEM (ASOS). A reporting system that provides frequent airport ground surface weather observation data through digitized voice broadcasts and printed reports.

AUTOMATED WEATHER OBSERVATION STATION (AWOS). Equipment used to automatically record weather conditions (i.e. cloud height, visibility, wind speed and direction, temperature, dew-point, etc.).

AUTOMATED TERMINAL INFORMATION SERVICE (ATIS). The continuous broadcast of recorded non-control information at towered airports. Information typically includes wind speed, direction and active runway.

AVIGATION EASMENT. A contractual right or a property interest in land over which a right of unobstructed flight in the airspace is established.

AZIMUTH. Horizontal direction expressed as the angular distance between true north and the direction of a fixed point (as the observer's heading).

BASE LEG. A flight path at right angles to the landing runway off its approach end. The base leg normally extends from the downwind leg to the intersection of the extended runway centerline. See Traffic Pattern.

BASED AIRCRAFT. The general aviation aircraft that uses a specific airport as a home base.

BEARING. The horizontal direction to or from any point, usually measured clockwise from true north or magnetic north.

BLAST FENCE. A barrier used to divert or dissipate jet blast or propeller wash.

BLAST PAD. A prepared surface adjacent to the end of a runway for the purpose of eliminating the erosion of the ground surface by the wind forces produced by airplanes at the initiation of takeoff operations.

BUILDING RESTRICTION LINE (BRL). A line that identifies suitable building area locations on the airport.

BYPASS TAXIWAY. A taxiway used to reduce aircraft queuing demand by providing multiple takeoff points.

CAPITAL IMPROVEMENT PLAN. The planning program used by the FAA to identify, prioritize, and distribute funds for airport development and the needs of the National Airspace System to meet specified national goals and objectives.

CATEGORY-I (CAT-I). An instrument approach or approach and landing with a Height Above Threshold (HATh) or minimum descent altitude not lower than 200 ft (60 m) and with either a visibility not less than ½ statute mile (800m), or a runway visual range not less than 1800 ft (550m).

CATEGORY-II (CAT-II). An instrument approach or approach and landing with a Height Above Threshold (HATh) lower than 200 ft (60 m) but not lower than 100 ft (30 m) and a runway visual range not less than 1200 ft (350m).

CATEGORY-III (CAT-III). An instrument approach or approach and landing with a Height Above Threshold (HATh) lower than 100 ft (30m), or no HATh, or a runway visual range less than 1200 ft (350m).

CEILING. The height above the ground surface to the location of the lowest layer of clouds which is reported as either broken or overcast.

CIRCLING APPROACH. A maneuver initiated by the pilot to align the aircraft with the runway for landing when flying a predetermined circling instrument approach under IFR.

CLASS A AIRSPACE. See Controlled Airspace.

CLASS B AIRSPACE. See Controlled Airspace.

CLASS C AIRSPACE. See Controlled Airspace.

CLASS D AIRSPACE. See Controlled Airspace.

CLASS E AIRSPACE. See Controlled Airspace.

CLASS G AIRSPACE. See Controlled Airspace.

CLEARWAY (CYW). A defined rectangular area beyond the end of the runway cleared or suitable for use in lieu of runway to satisfy takeoff distance requirements.

COMMON TRAFFIC ADVISORY FREQUENCY. A radio frequency identified in the appropriate aeronautical chart which is designated for the purpose of transmitting airport advisory information and procedures while operating to and from an uncontrolled airport.

COMPASS LOCATOR (LOM). A low power, low/medium frequency radio-beacon installed in conjunction with the instrument landing system at one or two or the marker sites.

CONICAL SURFACE. An imaginary obstruction-limiting surface defined in FAR Part 77 that extends from the edge of the horizontal surface outward and upward at a slope of 20 to 1 for a horizontal distance of 4,000 feet.

CONTROLLED AIRPORT. An airport that has an operating airport traffic control tower.

CONTROLLED AIRSPACE. Airspace of defined dimensions within which air traffic control services are provided to instrument flight rules (IFR) and visual flight rules (VFR) flights in accordance with the airspace classification. Controlled airspace in the United States is designated as follows.

- **CLASS A.** The airspace from 18,000 feet mean sea level (MSL) up to but not including 60,000 MSL (flight level FL600).

- **CLASS B.** Generally, the airspace from the surface to 10,000 feet MSL surrounding the nation's busiest airports. The configuration of Class B airspace is unique to each airport, but typically consists of two or more layers of airspace and is designed to contain all published instrument approach procedures to the airport. An air traffic control clearance is required for all aircraft to operate in the area.

- **CLASS C.** Generally, the airspace from the surface to 4,000 feet above the airport elevation (charted as MSL) surrounding those airports that have an operational control tower and radar approach and are served by a qualifying number of IFR operations or passenger enplanements. Although individually tailored for each airport, Class C airspace typically consists of a surface area with a five nautical miles (nm) radius and an outer area with a 10 nm radius that extends from 1,200 feet to 4,000 feet above the airport elevation. Two-way radio communication is required for all aircraft.

- **CLASS D.** Generally, that airspace from the surface to 2,500 feet above the airport elevation (charted as MSL) surrounding those airports that have an operational control tower. Class D airspace is individually tailored and configured to encompass published instrument approach procedures. Unless otherwise authorized, all persons must establish two-way radio communications.

- **CLASS E.** Generally, controlled airspace not classified as Class A, B, C or D. Class E airspace extends upward from either the surface or a designated altitude to the overlying or adjacent controlled airspace. When designated as a surface area, the

airspace will be configured to contain all instrument procedures. Class E airspace encompasses all Victor Airways. Only aircraft following instrument flight rules are required to establish two-way radio communications with air traffic control.

- **CLASS G.** Generally, that airspace not classified as Class A, B, C, D or E. Class G airspace extends from the surface to the overlying Class E airspace

CONTROLLED FIRING AREA. See special-use airspace.

CROSSWIND. Wind flow that is not parallel to the runway of the flight of an aircraft.

CROSSWIND COMPONENT. The component of wind that is at a right angle to the runway centerline or the intended flight path of an aircraft.

CROSSWIND LEG. A flight path at right angles to the landing runway off its upwind end. See Traffic Pattern.

DECIBEL. A unit of noise representing a level relative to a reference of a sound pressure 20 micro newtons per square meter.

DECISION HEIGHT. The height above the end of the runway surface at which a decision must be made by a pilot during the ILS or Precision Approach Radar approach to either continue the approach or to execute a missed approach.

DECLARED DISTANCES. The distances declared available for the airplane's takeoff run, takeoff distance, accelerate-stop distance and landing distance requirements. The distances are:

- **TAKEOFF RUN AVAILABLE (TORA).** The runway length declared available and suitable for the ground run of an airplane taking off.

- **TAKEOFF DISTANCE AVAILABLE (TODA).** The TORA plus the length of any remaining runway and/or clearway beyond the far end of the TORA.

- **ACCELERATE – STOP DISTANCE AVAILABLE (ASDA).** The runway plus stopway length declared available for the acceleration and deceleration of an aircraft aborting a takeoff.

- **LANDING DISTANCE AVAILABLE (LDA).** The runway length declared available and suitable for landing.

DESIGN AIRCRAFT. An aircraft with characteristics that determine the application of airport design standards for a specific runway, taxiway, taxilane, apron, or other facility (such as Engineered Materials Arresting System [EMAS]). This aircraft can be a specific aircraft model or a composite of several aircraft using, expected, or intended to use the airport or part of the airport. (Also called "critical aircraft" or "critical design aircraft.")

DISPLACED THRESHOLD. A threshold that is located at a point on the runway other than the designated beginning of the runway.

DISTANCE MEASURING EQUIPMENT (DME). Equipment (airborne and ground) used to measure, in nautical miles, the slant range distance of an aircraft from the DME navigational aid.

DNL. The 24-hour average sound level, in A-weighed decibels, obtained after the addition of ten decibels to sound levels for the periods between 10 pm and 7 am as averaged over a span of one year. It is the FAA standard metric for determining the cumulative exposure of individuals to noise.

DOWNWIND LEG. A flight path parallel to the landing runway in the direction opposite to landing. The downwind leg normally extends between the crosswind leg and the base leg. Also see Traffic Pattern.

EASEMENT. The legal right of one party to use a portion of the total rights in real estate owned by another party. This may include the right of passage over, on or below property; certain air rights above property, including view rights; and the rights to any specified form of development or activity, as well as any other legal rights in the property that may be specified in the easement document.

END-AROUND TAXIWAY (EAT). A taxiway crossing the extended centerline of a runway, which does not require specific clearance from air traffic control (ATC) to cross the extended centerline of the runway.

ENPLANED PASSENGERS. The total number of revenue passengers boarding aircraft, including originating, stop-over, and transfer passengers, in scheduled and non-scheduled services.

ENPLANMENT. The boarding of a passenger, cargo, freight or mail on an aircraft at an airport.

ENTITLEMENT. Federal funds for which a commercial service airport may be eligible based upon its annual passenger enplanements.

ENTRANCE TAXIWAY. A taxiway designed to be used by an aircraft entering a runway. Entrance taxiways may also be used to exit a runway.

EXIT TAXIWAY. A taxiway designed to be used by an aircraft only to exit a runway.

ENVIRONMENTAL ASSESSMENT (EA). An environmental analysis performed pursuant to the National Environmental Policy Act to determine whether an action would significantly affect the environment and thus require a more detailed environmental impact assessment.

ENVIRONMENTAL AUDIT. An assessment of the current status of a party's compliance with applicable environmental requirements of a party's environmental compliance policies, practices and controls.

FEDERAL AVIATION REGULATIONS. The general and permanent rules established by the executive departments and agencies of the Federal Government for aviation, which are published in the Federal Register. These are aviation subset of the Code of Federal Regulations.

FINAL APPROACH. A flight path in the direction of landing along the extended runway centerline. The final approach normally extends from the base leg to the runway. See Traffic Pattern

FINAL APPROACH AND TAKEOFF AREA (FATO). A defined area over which the final phase of the helicopter approach to a hover, or a landing is completed and from which takeoff is initiated.

FINAL APPROACH FIX. The designated point at which the final approach segment for an aircraft landing on a runway begins for a non-precision approach.

FIXED BASE OPERATOR (FBO). An FBO typically offers the following services (or a combination thereof): aircraft charter operation, aircraft rental, aircraft storage, flight training, aircraft sales/leasing, aircraft component maintenance, aircraft parts sales, and aircraft maintenance.

FLIGHT SERVICE STATION. An operations facility in the national flight advisory system which utilizes data interchange facilities for the collection and dissemination of Notices to Airmen, weather, and administrative data and which provides pre-flight and in-flight advisory services to pilots through air and ground based communication facility.

FRANGIBLE NAVAID. A navigational aid which retains its structural integrity and stiffness up to a designated maximum load, but on impact from a greater load, breaks, distorts, or yields in such a manner as to present the minimum hazard to aircraft.

GENERAL AVIATION. That portion of civil aviation that encompasses all facets of aviation except air carriers holding a certificate of convenience and necessity, and large aircraft commercial operators.

GENERAL AVIATION AIRPORT. An airport that provides air service to only general aviation.

GLIDE PATH ANGLE (GPA). The GPA is the angle of the final approach descent path relative to the approach surface baseline.

GLIDE PATH QUALIFICATION SURFACE (GQS). An imaginary surface extending from the runway threshold along the runway centerline extended to the Decision Altitude (DA) point.

GLIDE SLOPE (GS). Provides vertical guidance for aircraft during approach and landing. The glide slope consists of 1) electronic components emitting signals which provide vertical guidance by reference to airborne instruments during instrument approaches such as ILS; or 2) visual ground aids, such as VASI, which provide vertical guidance for VFR approach or for the visual portion of an instrument approach and landing.

GLOBAL POSITIONING SYSTEM (GPS). A system of 24 satellites used as reference points to enable navigators equipped with GPS receivers to determine their latitude, longitude and altitude.

HAZARD to AIR NAVIGATION. An existing or proposed object that the FAA, as a result of an aeronautical study, determines will have a substantial adverse effect upon the safe and efficient use of navigable airspace by aircraft, operation of air navigation facilities, or existing or potential airport capacity.

HEIGHT ABOVE THRESHOLD (HATh). The height of the Decision Altitude (DA) above the threshold.

HELIPAD. A designated area for the takeoff, landing and parking of helicopters.

HIGH INTENSITY RUNWAY LIGHTS. The highest classification in terms of intensity or brightness for lights designated for use in delineating the sides of a runway.

HIGH-SPEED EXIT TAXIWAY. A long radius taxiway designed to expedite aircraft turning off the runway after land (at speeds up to 60 knots), thus reducing runway occupancy time.

HORIZONTAL SURFACE. An imaginary obstruction-limiting surface defined in FAR Part 77 that is specified as a portion of a horizontal plane surrounding a runway located 150 feet above the established airport elevation. The specific horizontal dimensions of this surface are a function of the types of approaches existing or planned for the runway.

INTERGOVERNMENTAL AGREEMENT. An agreement whereby two or more public agencies (i.e. City of Prineville and Crook County) may contract with each other provided that such contracts are authorized by the governing bodies of each agency and that the contracts are executed in accordance with Oregon law.

INITIAL APPROACH FIX. The designated point at which the initial approach segment begins for an instrument approach to a runway.

INSTRUMENT APPROACH PROCEDURE. A series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing or to a point from which a landing may be made visually.

INSTRUMENT FLIGHT RULES (IFR). Rules governing the procedures for conducting instrument flight. Also a term used by pilots and controllers to indicate type of flight plan.

INSTRUMENT LANDING SYSTEM (ILS). A precision instrument approach system, which normally consists of the following electronic components and visual aids: 1) localizer, 2) glide slope, 3) outer marker, 4) middle marker and 5) approach lights.

INSTRUMENT METEOROLOGICAL CONDITIONS. Meteorological conditions expressed in terms of specific visibility and ceiling conditions that are less than the minimums specified for visual meteorological conditions.

ITINERANT OPERATIONS. All aircraft operations other than local operations.

KNOTS. A unit of speed length used in navigation that is equivalent to the number of nautical miles traveled in one hour.

LANDSIDE. The portion of an airport that provides the facilities necessary for the processing of passengers, cargo, freight and ground transportation vehicles.

LANDING DISTANCE AVAILABLE (LDA). See declared distances.

LARGE AIRPLANE. An airplane that has a maximum certified takeoff weight in excess of 12,500 pounds.

LOCAL AREA AUGMENTATION SYSTEM. A differential GPS system that provides localized measurement correction signals to the basic GPS signals to improve navigational accuracy, integrity, continuity and availability.

LOCAL OPERATIONS. Aircraft operations performed by aircraft that are based at the airport and that operate in the local traffic pattern or within sight of the airport, that are known to be departing for or arriving from flights in local practice areas within a prescribed distance from the airport, or that execute simulated instrument approaches at the airport.

LOCAL TRAFFIC. Aircraft operating in the traffic pattern or within site of the tower, or aircraft known to be departing or arriving from the local practice areas, or aircraft executing practice instrument approach procedures. Typically, this includes touch-and-go training operations.

LOCALIZER. The component of an ILS, which provides course guidance to the runway.

LOCALIZER TYPE DIRECTIONAL AID (LDA). A facility of comparable utility and accuracy to a localizer, but is not part of a complete ILS and is not aligned with the runway.

LORAN. Long range navigation, an electronic navigational aid which determines aircraft position and speed by measuring the difference in the time of reception of synchronized pulse signals from two fixed transmitters. Loran is used for en route navigation.

LOW IMPACT RESISTANT (LIR) SUPPORT. A support designed to resist operational and environmental static loads and fail when subjected to a shock load such as that from a colliding aircraft.

LOW INTENSITY RUNWAY LIGHTS. The lowest classification in terms of intensity or brightness for lights designated for use in delineating the sides of a runway.

MAIN GEAR WIDTH (MGW). The distance from the outer edge to outer edge of the widest set of main gear tires.

MEDIUM INTENSITY RUNWAY LIGHTS. The middle classification in terms of intensity or brightness for lights designated for use in delineating the sides of a runway.

MICROWAVE LANDING SYSTEM (MLS). An instrument approach and landing system that provides precision guidance in azimuth, elevation, and distance measurement.

MILITARY OPERATIONS AREA (MOA). See special-use airspace.

MILITARY TRAINING ROUTE. An air route depicted on aeronautical charts for the conduct of military flight training at speeds above 250 knots.

MISSED APPROACH COURSE (MAC). The flight route to be followed if, after an instrument approach, a landing is not effected, and occurring normally when the aircraft has descended to the decision height and has not established visual contact or when directed by air traffic control to pull up or to go around again.

MODIFICATION to STANDARDS. Any approved nonconformance to FAA standards, other than dimensional standards for Runway Safety Areas (RSAs), applicable to an airport design, construction, or equipment procurement project that is necessary to accommodate an unusual local condition for a specific project on a case-by-case basis while maintaining an acceptable level of safety.

MOVEMENT AREA. The runways, taxiways, and other areas of an airport which are utilized for taxiing/hover taxiing, air taxiing, takeoff, and landing of aircraft, exclusive of loading ramps and parking areas. At those airports with a tower, air traffic control clearance is required for entry onto the movement area.

NATIONAL AIRSPACE SYSTEM. The network of air traffic control facilities, air traffic control areas, and navigational facilities through the US.

NATIONAL PLAN OF INTEGRATED AIRPORT SYSTEMS. The national airport system plan developed by the Secretary of Transportation on a bi-annual basis for the development of public use airports to meet national air transportation needs.

NAUTICAL MILE. A unit of length used in navigation which is equivalent to the distance spanned by one minute of arc in latitude, that is, 1,852 meters or 6,076 feet. It is equivalent to approximately 1.15 statute mile.

NAVAID. A term used to describe any electrical or visual air navigational aid, light, sign, and associated supporting equipment.

NOISE CONTOUR. A continuous line on a map of the airport vicinity connecting all points of the same noise exposure level.

NONDIRECTIONAL BEACON (NDB). A beacon transmitting non-directional signals whereby the pilot of an aircraft equipped with direction finding equipment can determine his/her bearing to and from the radio beacon and home on, or track to, the station. When the radio beacon is installed in conjunction with the Instrument Landing System marker, it is normally called a compass locator.

NONPRECISION APPROACH PROCEDURE. A standard instrument approach procedure in which no electronic glide slope is provided, such as VOR, TACAN, NDB or LOC.

OBJECT FREE AREA (OFA). An area on the ground centered on a runway, taxiway or taxilane centerline provided to enhance the safety of aircraft operations by having the area free of objects, except for objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes.

OBSTACLE FREE ZONE (OFZ). The airspace below 150 feet above the established airport elevation and along the runway and extended runway centerline that is required to be kept clear of all objects, except for frangible visual NAVAIDs that need to be located in the OFZ because of their function, in order to provide clearance for aircraft landing or taking off from the runway, and for missed approaches.

OPERATION. A takeoff or landing.

OUTER MARKER (OM). An ILS navigation facility in the terminal area navigation system located four to seven miles from the runway edge on the extended centerline indicating to the pilot that he/she is passing over the facility and can begin final approach.

PILOT CONTROLLED LIGHTING. Runway lighting systems at an airport that are controlled by activating the microphone of a pilot on a specified radio frequency.

PRECISION APPROACH. A standard instrument approach procedure, which provides runway alignment and glide slope (descent) information. It is categorized as follows:

- **CATEGORY I.** A precision approach which provides for approaches with a decision height of not less than 200 feet and visibility not less than ½ mile or Runway Visual Range (RVR) 2400 with operative touchdown zone and runway centerline lights.

- **CATEGORY II.** A precision approach, which provides for approaches with a decision height of not less than 100 feet and visibility not less than 1200 feet RVR.

- **CATEGORY III.** A precision approach, which provides for approaches with minima less than Category II.

PRECISION APPROACH PATH INDICATOR (PAPI). A lighting system providing visual approach slope guidance to aircraft during a landing approach. It is similar to a Visual Approach Slope Indicator (VASI) but provides a sharper transition between the colored indicator lights.

PRECISION OBJECT FREE ZONE (POFZ). An area centered on the extended runway centerline, beginning at the runway threshold and extending behind the runway threshold that is 200 feet long by 800 feet wide. The POFZ is a clearing standard, which requires the POFZ to be kept clear of above ground objects protruding above the runway safety area edge elevation (except for NAVAIDs). The POFZ applies to all new authorized instrument approach procedures with less than ¾ mile visibility.

PRIMARY AIRPORT. A commercial service airport that enplanes at least 10,000 annual passengers.

PRIMARY SURFACE. An imaginary obstruction limiting surface defined in FAR Part 77 that is specified as a rectangular surface longitudinally centered about a runway. The specific dimensions of this surface are a function of the types of approaches existing or planned for the runway.

PROHIBITED AREA. See special-use airspace.

REMOTE TRANSMITTER / RECEIVER (RTR). See remote communications outlet. RTRs serve ARTCCs.

RELIEVER AIRPORT. An airport to serve general aviation aircraft, which might otherwise use a congested air-carrier served airport.

RESTRICTED AREA. See special-use airspace.

RNAV. Area Navigation – airborne equipment, which permits flights over determined tracks within prescribed accuracy tolerances without the need to overfly ground-based navigation facilities. Used en route and for approaches to an airport.

RUNWAY. A defined rectangular area on an airport prepared for an aircraft landing and taking off. Runways are normally numbered in relation to their magnetic direction, rounded off to the nearest 10 degrees. The runway heading on the opposite end of the runway is 180 degrees from that runway end. Aircraft can takeoff or land from either end of a runway, depending upon wind direction.

RUNWAY ALIGNEMENT INDICATOR LIGHT. A series of high intensity sequentially flashing lights installed on the extended centerline of the runway usually in conjunction with an approach lighting system.

RUNWAY BLAST PAD. A surface adjacent to the ends of runways provided to reduce the erosive effect of jet blast and propeller wash.

RUNWAY END IDENTIFIER LIGHTS (REIL). Two synchronized flashing lights, one on each side of the runway threshold, which provide rapid and positive identification of the approach end of a particular runway.

RUNWAY GRADIENT. The average slope, measured in percent, between the two ends of a runway.

RUNWAY PROTECTION ZONE (RPZ). An area off the runway end to enhance the protection of people and property on the ground. The RPZ is trapezoidal in shape. Its dimensions are determined by the aircraft approach speed and runway approach type/minima.

RUNWAY REFERENCE CODE (RRC). A code signifying the current operational capabilities of a runway and associated parallel taxiway.

RUNWAY SAFETY AREA (RSA). A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot or excursion from the runway.

RUNWAY VISUAL RANGE (RVR). An instrumentally derived value, in feet, representing the horizontal distance a pilot can see down the runway from the runway end.

RUNWAY VISIBILITY ZONE (RVZ). An area on the airport to be kept clear of permanent objects so that there is an unobstructed line-of-site from any point five feet above the runway centerline to any point five feet above an intersecting runway centerline.

SEGMENTED CIRCLE. A system of visual indicators designed to provide traffic pattern information at airports without operating control towers.

SHOULDER. An area adjacent to the edge of paved runways, taxiways or aprons providing a transition between the pavement and the adjacent surface; support for aircraft running off the pavement; enhanced drainage; and blast protection. The shoulder does not necessarily need to be paved.

SLANT-RANGE DISTANCE. The straight line distance between an aircraft and a point on the ground.

SMALL AIRPLANE. An airplane that has a maximum certified takeoff weight of up to 12,500 pounds.

SPECIAL USE AIRSPACE. Airspace of defined dimensions identified by a surface area wherein activities must be confined because of their nature and/or wherein limitations may be imposed upon aircraft operations that are not a part of those activities. Special-use airspace classifications include:

- **ALERT AREA.** Airspace that may contain a high volume of pilot training activities or an unusual type of aerial activity, neither of which is hazardous to aircraft.

- **CONTROLLED FIRING AREA.** Airspace wherein activities are conducted under conditions so controlled as to eliminate hazards to nonparticipating aircraft and to ensure the safety of persons or property on the ground.

- **MILITARY OPERATIONS AREA (MOA).** Designated airspace with defined vertical and lateral dimensions established outside Class A airspace to separate/segregate certain military activities from instrument flight rule (IFR) traffic and to identify for visual flight rule (VFR) traffic where these activities are conducted.

- **PROHIBITED AREA.** Designated airspace within which the flight of aircraft is prohibited.

- **RESTRICTED AREA.** Airspace designated under FAR 73, within which the flight of aircraft, while not wholly prohibited, is subject to restriction. Most restricted areas are designated joint use. When not in use by the using agency, IFR/VFR operations can be authorized by the controlling air traffic control facility.

- **WARNING AREA.** Airspace, which may contain hazards to nonparticipating aircraft.

STANDARD INSTRUMENT DEPARTURE (SID). A preplanned coded air traffic control IFR departure routing, preprinted for pilot use in graphic and textual form only.

STANDARD TERMINAL ARRIVAL (STAR). A preplanned coded air traffic control IFR arrival routing, preprinted for pilot use in graphic and textual or textual form only.

STOP-AND-GO. A procedure wherein an aircraft will land, make a complete stop of the runway, and then commence a takeoff from that point. A stop-and-go is recorded as two operations: one operations for the landing and one operations for the takeoff.

STOPWAY. An area beyond the takeoff runway, no less wide than the runway and centered on the extended centerline of the runway, able to support an airplane during an aborted takeoff, without causing structural damage to the airplane, and designated for use in decelerating the airplane during an aborted takeoff.

STRAIGHT-IN LANDING / APPROACH. A landing made on a runway aligned within 30 degrees of the final approach course following completion of an instrument approach.

TACTICAL AIR NAVIGATION (TACAN). An ultra-high frequency electronic air navigation system, which provides suitably-equipped aircraft a continuous indication of bearing and distance to the TACAN station.

TAKEOFF DISTANCE AVAILABLE (TODA). See declared distances.

TAKEOFF RUN AVAILABLE (TORA). See declared distances.

TAXILANE. A taxiway designed for low speed and precise taxiing. Taxilanes are usually, but not always, located outside the movement area, providing access from taxiways (usually an apron taxiway) to aircraft parking positions and other terminal areas.

TAXIWAY. A defined path established for the taxiing of aircraft from one part of an airport to another.

TAXIWAY DESIGN GROUP (TDG). A classification of airplanes based on outer to outer Main Gear Width (MGW) and Cockpit to Main Gear (CMG) distance.

TAXIWAY SAFETY AREA (TSA). A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an airplane unintentionally departing the taxiway.

TETRAHEDRON. A device used as a landing indicator. The small end of the tetrahedron points in the direction of landing.

THRESHOLD. The beginning of that portion of the runway available for landing. In some instances the landing threshold may be displaced.

TOUCH-AND-GO. An operation by an aircraft that lands and departs on a runway without stopping or exiting the runway. A touch-and-go is recorded as two operations: one operation for the landing and one operation for the takeoff.

TOUCHDOWN ZONE (TDZ). The first 3,000 feet of the runway beginning at the threshold.

TOUCHDOWN ZONE ELEVATION (TDZE). The highest elevation in the touchdown zone.

TOUCHDOWN ZONE (TDZ) LIGHTING. Two rows of transverse light bars located symmetrically about the runway centerline normally at 100-foot intervals. The basic system extends 3,000 feet along the runway.

TRAFFIC PATTERN. The traffic flow that is prescribed for an aircraft landing or taking off from an airport. The components of a typical traffic pattern are the upwind leg, crosswind leg, downwind leg, and final approach.

UNCONTROLLED AIRPORT. An airport without an air traffic control tower at which the control of visual VFR traffic is not exercised.

UNCONTROLLED AIRSPACE. Airspace within which aircraft are not subject to air traffic control.

UNICOM. A nongovernmental communication facility, which may provide airport information at certain airports. Locations and frequencies of UNICOMs are shown on aeronautical charts and publications.

UPWIND LEG. A flight path parallel to the landing runway in the direction of landing. See traffic pattern.

VECTOR. A heading issued to an aircraft to provide navigational guidance by radar.

VERY HIGH FREQUENCY / OMNIDIRECTIONAL RANGE STATION (VOR). A ground-based electronic navigation aid transmitting very high frequency navigation signals, 360 degrees in azimuth, oriented from magnetic north. Used as the basis for navigation in the national airspace system. The VOR periodically identifies itself by Morse code and may have an additional voice identification feature.

VERY HIGH FREQUENCY OMNIDIRECTIONAL RANGE STATION / TACTICAL AIR NAVIGATION (VORTAC). A navigation aid providing VOR azimuth, TACAN azimuth and TACAN distance-measuring equipment (DME) at one site.

VICTOR AIRWAY. A control area or portion thereof established in the form of a corridor, the centerline of which is defined by radio navigational aids.

VISUAL APPROACH. An approach wherein an aircraft on an IFR flight plan, operating in VFR conditions under the control on an air traffic control facility and having an air traffic control authorization, may proceed to the airport of destination in VFR conditions.

VISUAL APPROACH SLOPE INDICATOR (VASI). An airport lighting facility providing vertical visual approach slope guidance to aircraft during approach to landing by radiating a directional pattern of high-intensity red and white focused light beams, which indicate to the pilot whether or he or she is on path. Some airports serving large aircraft have three-bar VASIs that provide two visual guide paths to the same runway.

VISUAL FLIGHT RULES (VFR). Rules that govern the procedures for conducting flight under visual conditions. The term VFR is also used in the United States to indicate weather conditions that are equal to or greater than minimum VFR requirement. In addition, it is used by pilots and controllers to indicate type of flight plan.

VISUAL METEOROLOGICAL CONDITIONS. Meteorological conditions expressed in terms of specific visibility and ceiling conditions which are equal to or greater than the threshold values for instrument meteorological conditions.

WARNING AREA. See special-use airspace.

WIDE AREA AUGMENTATION SYSTEM (WAAS). The Wide Area Augmentation System (WAAS) uses a system of ground stations to provide necessary augmentations to the GPS Standard Positioning Service (SPS) navigation signal. A network of precisely surveyed ground reference stations is strategically positioned across the country to collect GPS satellite data. Using this information, a message is developed to correct any signal errors.

WINGSPAN The maximum horizontal distance from one wingtip to the other wingtip, including the horizontal component of any extensions such as winglets or raked wingtips.

ACRONYMS / ABBREVIATIONS

AC. Advisory circular

ADF. Automatic direction finder

ADG. Airplane design group

AFSS. Automated flight service station

AGL. Above ground level

AIA. Annual instrument approach

AIP. Airport improvement program

ALS. Approach lighting system

ALSF-1. Standard 2,400-foot high- intensity approach lighting system with sequenced flashers (Cat I configuration)

ALSF-2. Standard 2,400-foot high-intensity approach lighting system with sequenced flashers (Cat II configuration)

APV. Instrument approach procedure with vertical guidance

ARC. Airport reference code

ARFF. Aircraft rescue and firefighting

ARP. Airport reference point

ARTCC. Air route traffic control center

ASDA. Accelerate-stop distance available

ASR. Airport surveillance radar

ASOS. Automated surface observation station

ATCT. Air traffic control tower

ATIS. Automated terminal information service

AVGAS. Aviation gasoline (typically 100 low lead (LL))

AWOS. Automated weather observation station

BRL. Building restriction line

CFR. Code of Federal Regulations

CIP. Capital improvement program

CPO. Community Planning Organization

DME. Distance measuring equipment

DNL. Day-night noise level

DWL. Runway weight bearing capacity for aircraft with dual wheels per strut

DTWL. Runway weight bearing capacity for aircraft with dual-tandem type landing gear

EAA. Experimental Aircraft Association

FAA. Federal Aviation Administration

FAM. Financial Aid to Municipalities

FAR. Federal Aviation Regulation

FBO. Fixed base operator

FY. Fiscal year

GA. General Aviation

GPS. Global positioning system

GS. Glide slope

HIRL. High-intensity runway edge lighting

IFR. Instrument flight rules

ILS. Instrument landing system

IM. Inner marker

LDA. Landing distance available

LIRL. Low-intensity runway edge lighting

LMM. Compass locator at middle marker

LOC. ILS localizer

LOM. Compass locator at ILS outer marker

LORAN. Long range navigation

MALS. Medium-intensity approach lighting system

MALSR. Medium-intensity approach lighting system with runway alignment indicator lights

MIRL. Medium-intensity runway edge lighting

MITL. Medium-intensity taxiway edge lighting

MLS. Microwave landing system

MM. Middle marker

MOA. Military operations area

MSL. Mean sea level

NAVAID. Navigational aid

NDB. Nondirectional radio beacon

NM. Nautical mile (6,076.1 feet)

NOTAM. Notice to airmen

NPIAS. National plan of integrated airport systems

NPRM. Notice of proposed rulemaking

ODA. Oregon Department of Aviation

ODALS. Omnidirectional approach lighting system

OFA. Object free area

OFZ. Object free zone

OM. Outer marker

OPA. Oregon Pilots Association

PAC. Project Advisory Committee

PAPI. Precision approach path indicator

PFC. Passenger facility charge

PCL. Pilot-controlled lighting

PLASI. Pulsating visual approach slope indicator

PMP. Pavement Maintenance Program

POFA. Precision object free area

PVASI. Pulsating/steady visual approach slope indicator

RCO. Remote communications outlet

RDG. Runway design group

REIL. Runway end identifier lights

RNAV. Area navigation

RPZ. Runway protection zone

RTR. Remote transmitter/receiver

RVR. Runway visibility range

RVZ. Runway visibility zone

SALS. Short approach lighting system

SASP. State Aviation System Plan

SEL. Sound exposure level

SID. Standard instrument departure

SM. Statute mile (5,280 feet)

SRE. Snow removal equipment

SSALF. Simplified short approach lighting system with sequenced flashers

SSALR. Simplified short approach lighting system with runway alignment indicator lights

STAR. Standard terminal arrival route

SWL. Runway weight bearing capacity for aircraft with single-wheel type landing gear

STWL. Runway weight bearing capacity for aircraft with single-wheel tandem type landing gear

TACAN. Tactical air navigation

TDG. Taxiway design group

TDZ. Touchdown zone

TDZE. Touchdown zone elevation

TAF. Terminal Area Forecast

TODA. Takeoff distance available

TORA. Takeoff run available

TRACON. Terminal radar approach control

VASI. Visual approach slope indicator

VFR. Visual flight rules

VHF. Very high frequency

VOR. Very high frequency omnidirectional range

VORTAC. VOR and TACAN collocated

WAAS. Wide Area Augmentation System

Prineville Airport User Survey

The City of Prineville is in the initial stages of updating the Master Plan for the Prineville Airport (S39). Please help us better understand the airport current use and improvement needs. Your input will be documented and included in the master plan update (your personal information will not). Please fill in the blank or mark your answer, as appropriate.

What zip code do you live in?

What type aircraft do you own or fly? (List Model/Type)

Estimate your number of annual landings. (Include Touch & Go)

What percent of your annual landings are at S39? %

What is your primary use of S39? *(Circle which applies most to you.)*

☐ Business ☐ Emergency

☐ Training ☐ Recreational

☐ Other:

Is your aircraft based at S39?

☐ Yes Do you lease from the City or from Private Business ☐ City ☐ Private Business

☐ No Where is your aircraft based? (List Airport ID)

Why don't you base your aircraft at S39? *(Mark all that apply.)*

☐ Inadequate Runway Length ☐ No Precision Instrument Approach

☐ Lack of Suitable Hangar ☐ Inconvenient Location

☐ Cost of Hangar ☐ Lack of Air Traffic Control Tower

☐ Other:

What should be done to improve S39?

Optional

Name:

Mailing Address:

Phone Number: Email Address:

Would you like to be added to the mailing list and notified of future public meetings ☐ Yes ☐ No

May we contact you for more information related to the Master Plan ☐ Yes ☐ No

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Thank you for your participation!

Economic Impact Analysis

The 2014 Update focuses on the Economic Impact Study that was completed as part of the Oregon Aviation Plan 2007. The Economic Impact Study Update (Update) was conducted to determine the value of the Oregon Aviation System. The Update includes fifty-seven Oregon airports listed in the National Plan of Integrated Airport Systems (NPAIS). The economic impact analysis of airports in Oregon was developed for each airport, measuring economic impacts of airport facilities, within regions and throughout the state. This study used the five regions of *ConnectOregon* to measure local/regional economic impacts of airports and for dependent non-aviation businesses.

Total economic impacts are the sum of on-airport economic activities, off-airport spending by visitors who arrive by air, and spin-off impacts (multiplier effect). Airport impacts are provided by region and state to show the contribution of each airport to the regional and state economies. In addition, aviation dependent impacts are provided by region to show the importance of airports in each region to non-aviation businesses. All impacts reported represent a base year of 2012. Each type of impact is defined in the following paragraphs.

On-Airport direct impacts represent economic activities that occur on airport grounds. Aviation related activities are those that would not occur without the airport, such as airlines, fixed base operators (FBO), government, and other tenants located at the airport or directly dependent on the airport. This category also includes airport management and other individuals employed directly by the airport, as well as retail and service operations for passengers, pilots, and other airport employees. In some cases, airports provide land or building space for companies that are not affiliated with aviation. These tenants are not related to the aviation mission of the airport, but are using the facility as a convenient and affordable business or industrial parks.

Off-Airport visitor spending (Direct Impacts) are expenditures made by air travelers who are visiting from outside the region, and occurs off the airport, in the regional economy. Visitor spending includes lodging, food, entertainment, retail purchases and ground transportation (retail purchases and on-airport car rentals are captured by on-airport impacts). Visitor spending is analyzed for commercial passengers as well as for general aviation pilots and passengers. Visitors flying into Oregon from another state or nation contribute to the airport's regional economy as well as to the state. However, passengers flying within Oregon, from one region to another, contribute to the region of their destination airport, but are not bringing additional money into Oregon. Therefore, in regions with air carrier airports, the direct impact of visitor spending for the region is higher than the impact of visitor spending for the state.

Airport dependent impacts represent area businesses that are dependent on an airport for incoming and outgoing, and for business travel. These businesses may relocate or suffer substantial loss if the airport were not available. This impact is not included in traditional economic impact methodology and is analyzed and reported by region for this study. Thus the economic dependence of a region on aviation represents the cumulative impacts of all airports within a region. The analysis is provided as an indicator of the importance of airports to regional economies.

Spin-off impacts (Multiplier Affect) are calculated using impact multipliers, which are used to reflect the recycling of dollars through both the regional and state economy. A dollar spent in the economy does not disappear; rather, it continues to move through the local economy in successive rounds until it is incrementally exported from the community. As the expenditures described above are released into the economy, they circulate among other industry sectors, creating successive waves of additional economic benefit in the form of jobs, payroll, and output (expenditures). These successive rounds of spending are known as spin-off impacts, and help to represent the full impact of each dollar spent in a region. An example would be an airport employee spending his or her salary for housing, food, and other services. Spending occurring outside the area is considered economic leakage and is not reflected in the multiplier. Spin-off impacts are often reported as indirect and induced impacts. Indirect impacts reflect the purchase of goods and services by businesses. Induced impacts reflect worker making consumer purchases.

The project team analyzed the economic contributions of 57 airports under the jurisdiction of the Oregon Department of Aviation (ODA) that are part of the NPIAS. The Port of Portland commissioned a separate economic impact study of Portland International Airport which is included by reference. The sum of economic impacts derived from the 2012 Update and the 2011 Port of Portland study account for economic impacts generated by the NPIAS airports in Oregon.

Contribution of Airports to the Economy of Oregon

As shown in **Table 1**, NPIAS airports in Oregon contributed a total economic impact of $9.1 billion to the state economy, including $3.6 billion from NPIAS airports and $5.5 billion from Portland International Airport.

Additional study highlights include:

- Oregon's NPIAS airports (excluding PDX), including airport tenants, directly employ 7,700 people for aviation related activities and expend $495 million in wages. PDX supports an additional 16,300 jobs and $922 million in wages.
- Oregon's NPIAS airports' (excluding PDX) employees and tenants earned an average annual salary $64,500 per year for aviation activities, including jobs related to administrating and maintaining airport facilities, servicing air carriers and GA aircraft, and providing terminal services to passengers, as well as to air crews and other employees.
- 5,000 jobs across the state are directly attributed to visitor spending at Oregon's NPIAS airports (excluding PDX).
- Air cargo and business travel services directly contribute $8 billion to the state economy by enabling long distance business sales of goods and services produced in Oregon. The value of instate productivity supported by aviation supports more than 23,700 jobs to State residents.

Table 1 2012 Economic Contribution of Airports to the Oregon Economy

	Jobs	Wages	Business Sales
Direct Effects of ODA On-Airport Aviation Activities and Visitor Spending			
On-Airport, including aviation-related tenants	7,677	$494,920,000	$1,680,058,000
Off-Airport: visitor spending	4,938	$102,187,000	$342,540,000
Subtotal of Direct Effects From ODA Airports	12,615	$597,107,000	$2,022,598,000
ODA Spin-off Effects of Supplier and Income Re-spending			
Due to On-Airport Aviation	11,193	$365,742,000	$1,351,803,000
Due to Visitor Spending	2,054	$80,250,000	$250,918,000
Subtotal of Spin-off Effects	13,247	$445,992,000	$1,602,721,000
Total ODA Airport Aviation Related Impacts	25,862	$1,043,099,000	$3,625,319,000
Portland International Airport Totals			
Airport Generated	16,308	$922,000,000	$3,725,000,000
Visitor Generated	35,963	$1,020,400,000	$1,752,700,000
Total Impact Portland International Airport	52,271	$1,942,500,000	$5,477,700,000
Grand Total – NPIAS Airports	**76,711**	**$2,811,790,000**	**$8,721,948,000**

Source: Airport and Tenant Surveys, EDR Group and Mead & Hunt Analyses, IMPLAN econometric package.
Note: Numbers may not add due to rounding.

Comparisons of 2007 and 2012 Studies

The 2007 and 2012 studies bracketed the severe national downturn that began in late 2008, and for which the effects are still being felt in states and communities across the United States. From 2007-2012 the Oregon gross state product increased in real terms by 15% but worker earnings fell by 2% and the number of jobs fell by 3%. Together, these data indicate that productivity per job of Oregon workers has increased, meaning on average it takes more economic activity to create a job and generate wages to those who are working.

Significant economic changes are also seen in air cargo. The International Trade Administration of the U.S. Census Bureau traces annual value and metric tonnage of international air exports from point of origin as well as by airport. (Unfortunately, no such data set is available for domestic cargo shipments.) Tonnage has decreased by 27% for goods produced in Oregon and shipped from Oregon airports (primarily Portland International Airport), while the value of Oregon generated goods has increased by 63% in constant value. Thus, less production is needed to sustain overall value across commodities. For domestic cargo shipments, PDX reported 127,890 tons enplaned in 2007 and 91,480 tons in 2012, a decrease of 28%.

The scopes of the 2007 and 2012 studies have two major differences. The first difference is in the airports that are covered by the two studies. The 2007 study encompassed all 93 public use airports in the state of Oregon, other than those operated by the Port of Portland. In contrast the 2012 study is limited to 56 NPIAS airports (National Plan for Integrated Air Service; NPIAS designation is by the Federal Aviation Administration). Three airports, Wasco State Airport, Hillsboro Airport and Troutdale airport are part of the 2012 study but were not included in the 2007 effort. Thus, 53 airports are in common in the two studies.

The second difference is that on-airport impacts counted in the 2007 studies included both aviation related and non-aviation related tenants, although these were separated when impacts were reported. The 2012 study is limited to aviation related tenants. A comparison of the 2007 and 2012 studies is shown in **Table 2**.

Table 2 Aviation impact comparison: 2007 vs. 2012 (in 2012 dollars) for 53 NPIAS airports

Impact Type	Jobs		Wages (thousands)		Business Sales (thousands)	
	2007	2012	2007	2012	2007	2012
On Airport tenants	7,287	6,774	$301,970	$417,349	$953,175	$1,445,103
Off Airport Visitor Spending	6,945	4,434	$120,299	$89,221	$377,978	$304,029
Subtotal Direct Contribution	14,232	11,208	$422,269	$422,269	$1,331,153	$1,749,132
Tenant Spin Off	12,033	9,836	$352,319	$309,185	$1,018,264	$1,173,627
Visitor Spending Spin Off	3,153	1,845	$92,081	$70,353	$357,883	$223,355
Subtotal Spin Off	15,186	11,681	$444,400	$379,538	$1,376,148	$1,396,982
Total Aviation Impacts	29,418	22,889	$866,669	$886,108	$2,707,300	$3,146,114
Reliant/Dependent Impacts	**91,645**	**75,984**	**$4,211,110**	**$4,680,386**	**$17,446,481**	**$15,500,260**

As shown is **Table 3**, it took 49% more business sales to generate a job in 2012 than in 2007, and workers were paid 31% more for the increase in productivity. For economic activities reliant on Oregon's NPIAS airports, labor productivity rose by 7% and wages were 34% higher, but as discussed above less cargo was moved and value per ton increased. Following **Table 3** is a summary entitled *Airport Role in Economy*, which illustrates the individual airport economic impact.

Table 3 Productivity analysis-change in wage and sales per job 2007 vs. 2012 (in 2012 dollars)

Impact Type	Wages per Job		Output per Job		% Change Wage	% Change Output
	2007	2012	2007	2012		
Total Aviation Related Impacts	$29,461	$38,713	$92,029	$137,451	31%	49%
Air Reliant/Dependent impacts	$45,950	$61,597	$190,371	$203,994	34%	7%

Oregon Aviation Plan 2014

Version OR 3.1 4/10/14

Airport Role in Economy

Airport: Prineville
Airport Code: S39

County: Crook

Region: Central Oregon

Evaluated for Year: 2012

Activity Data

Total Commercial Operations:	0
Total Commercial Enplanements:	0
Total Commercial Visitors:	0
Total GA Operations:	7,356
Total GA Passengers:	7,356
Total GA Visitors:	7,356
Total Military Operations:	0

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On-going Contribution to the Regional and State Economies

	Jobs		Wages		Business Sales	
	Local	**State**	**Local**	**State**	**Local**	**State**
Direct Effects of On Airport Activities and Visitor Spending						
1. On Airport (incl. FBO and air related tenants)	22	22	$793,000	$793,000	$3,481,000	$3,481,000
2. Off-Airport: Visitor Spending	5	5	$105,000	$105,000	$325,000	$325,000
Total Direct	27	27	$898,000	$898,000	$3,806,000	$3,806,000
Spin-off Effects: Supplier and Income Re-spending						
3. Due to On Airport Aviation	19	25	$447,000	$551,000	$2,048,000	$2,853,000
4. Due to Visitor Spending	2	2	$54,000	$79,000	$169,000	$237,000
Total Spin-off	20	27	$501,000	$630,000	$2,217,000	$3,090,000
Total Airport Aviation Related Impacts	47	54	$1,399,000	$1,528,000	$6,023,000	$6,896,000
Total Airport Generated Impacts - Not Aviation						
5. On Airport Non-aviation Activities	0	0	$0	$0	$0	$0
6. Spin-offs due to Non-aviation Activities	0	0	$0	$0	$0	$0
Total Airport Non-aviation Impacts	0	0	$0	$0	$0	$0
Total Aviation and Non-aviation Related	47	54	$1,399,000	$1,528,000	$6,023,000	$6,896,000
Regional Off-Airport Aviation Dependent Business Activity						
7. Direct Business Activity	1,025	1,025	$54,505,000	$54,505,000	$241,318,000	$241,318,000
8. Spin-offs due to Dependent Activity	1,017	1,330	$39,630,000	$61,649,000	$111,807,000	$172,835,000
Total Off-airport Aviation Dependent Activity	2,042	2,355	$94,135,000	$116,154,000	$353,125,000	$414,153,000

Note: Regional Off-airport Aviation Dependent Business Activities account for business activity in the region that rely on aviation for business travel and cargo, and do not reflect a specific airport.

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Oregon Aviation Plan 2007

Version OR 2.1 5/22/07

Airport Role in Economy

Airport: Prineville
Airport Code: S39

County: Crook

Region: Central Oregon

Evaluated for Year: 2005

Activity Data

Total Commercial Operations:	0
Total Commercial Emplanements:	0
Total Commercial Visitors:	0
Total GA Operations:	10,400
Total GA Passengers:	20,800
Total GA Visitors:	700
Total Military Operations:	0

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On-going Contribution to the Regional and State Economies

	Jobs		Wages		Business Sales	
	Local	**State**	**Local**	**State**	**Local**	**State**
Direct Effects of On Airport Activities and Visitor Spending						
1. On Airport (incl. FBO and air related tenants)	11	11	$423,000	$423,000	$1,263,000	$1,263,000
2. Off-Airport: Visitor Spending	1	1	$14,000	$14,000	$47,000	$47,000
Total Direct	12	12	$437,000	$437,000	$1,310,000	$1,310,000
Spin-off Effects: Supplier and Income Re-spending						
3. Due to On Airport Aviation	18	21	$508,000	$567,000	$1,081,000	$1,304,000
4. Due to Visitor Spending	0	0	$11,000	$14,000	$37,000	$46,000
Total Spin-off	18	22	$519,000	$581,000	$1,118,000	$1,350,000
Total Airport Aviation Related Impacts	30	34	$956,000	$1,018,000	$2,428,000	$2,660,000
Total Airport Generated Impacts - Not Aviation						
5. On Airport Non-aviation Activities	0	0	$0	$0	$0	$0
6. Spin-offs due to Non-aviation Activities	0	0	$0	$0	$0	$0
Total Airport Non-aviation Impacts	0	0	$0	$0	$0	$0
Total Aviation and Non-aviation Related	30	34	$956,000	$1,018,000	$2,428,000	$2,660,000
Regional Off-Airport Aviation Dependent Business Activity						
7. Direct Business Activity	1,320	1,320	$51,683,000	$51,683,000	$259,644,000	$259,644,000
8. Spin-offs due to Dependent Activity	1,875	2,576	$52,282,000	$68,562,000	$180,818,000	$241,098,000
Total Off-airport Aviation Dependent Activity	3,195	3,895	$103,965,000	$120,245,000	$440,462,000	$500,742,000

Note: Regional Off-airport Aviation Dependent Business Activities account for business activity in the region that rely on aviation for business travel and cargo, and do not reflect a specific airport.

Oregon Aviation Plan 2012

Version OR 3.1 December 2013

Airport Role in Economy

Airport: Prineville
Airport Code: S39

County: Crook

Region: Central Oregon

Evaluated for Year: 2012

Activity Data

Total Commercial Operations:	0
Total Commercial Enplanements:	0
Total Commercial Visitors:	0
Total GA Itinerant Operations:	7,356
Total GA Visitors:	7,356

On-going Contribution to the Regional and State Economies

	Jobs		Wages		Business Sales	
	Local	**State**	**Local**	**State**	**Local**	**State**
Direct Effects of On Airport Activities and Visitor Spending						
1. On Airport (incl. FBO and air related tenants)	22	22	$595,000	$595,000	$3,306,000	$3,306,000
2. Off-Airport: Visitor Spending	5	5	$88,000	$88,000	$325,000	$325,000
Total Direct	27	27	$683,000	$683,000	$3,631,000	$3,631,000
Spin-off Effects: Supplier and Income Re-spending						
3. Due to On Airport Aviation	19	25	$342,000	$419,000	$1,945,000	$2,709,000
4. Due to Visitor Spending	2	2	$54,000	$79,000	$169,000	$237,000
Total Spin-off	20	27	$396,000	$498,000	$2,114,000	$2,946,000
Total Airport Aviation Related Impacts	47	54	$1,079,000	$1,181,000	$5,745,000	$6,577,000
Regional Off-Airport Aviation Dependent Business Activity						
5. Direct Business Activity	1,025	1,025	$54,505,000	$54,505,000	$241,318,000	$241,318,000
6. Spin-offs due to Dependent Activity	1,017	1,330	$39,630,000	$66,885,000	$111,807,000	$187,586,000
Total Off-airport Aviation Dependent Activity	2,042	2,355	$94,135,000	$121,390,000	$353,125,000	$428,904,000

Note: Regional Off-airport Aviation Dependent Business Activities account for business activity in the region that rely on aviation for business travel and cargo, and do not reflect a specific airport.

Oregon Aviation Plan 2014

Version OR 3.1 4/10/14

Airport Role in Economy

Airport: Prineville
Airport Code: S39

County: Crook

Region: Central Oregon

Evaluated for Year: 2012

Activity Data

Total Commercial Operations:	0
Total Commercial Enplanements:	0
Total Commercial Visitors:	0
Total GA Operations:	7,356
Total GA Passengers:	7,356
Total GA Visitors:	7,356
Total Military Operations:	0

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On-going Contribution to the Regional and State Economies

	Jobs		Wages		Business Sales	
	Local	**State**	**Local**	**State**	**Local**	**State**
Direct Effects of On Airport Activities and Visitor Spending						
1. On Airport (incl. FBO and air related tenants)	22	22	$793,000	$793,000	$3,481,000	$3,481,000
2. Off-Airport: Visitor Spending	5	5	$105,000	$105,000	$325,000	$325,000
Total Direct	27	27	$898,000	$898,000	$3,806,000	$3,806,000
Spin-off Effects: Supplier and Income Re-spending						
3. Due to On Airport Aviation	19	25	$447,000	$551,000	$2,048,000	$2,853,000
4. Due to Visitor Spending	2	2	$54,000	$79,000	$169,000	$237,000
Total Spin-off	20	27	$501,000	$630,000	$2,217,000	$3,090,000
Total Airport Aviation Related Impacts	47	54	$1,399,000	$1,528,000	$6,023,000	$6,896,000
Total Airport Generated Impacts - Not Aviation						
5. On Airport Non-aviation Activities	0	0	$0	$0	$0	$0
6. Spin-offs due to Non-aviation Activities	0	0	$0	$0	$0	$0
Total Airport Non-aviation Impacts	0	0	$0	$0	$0	$0
Total Aviation and Non-aviation Related	47	54	$1,399,000	$1,528,000	$6,023,000	$6,896,000
Regional Off-Airport Aviation Dependent Business Activity						
7. Direct Business Activity	1,025	1,025	$54,505,000	$54,505,000	$241,318,000	$241,318,000
8. Spin-offs due to Dependent Activity	1,017	1,330	$39,630,000	$61,649,000	$111,807,000	$172,835,000
Total Off-airport Aviation Dependent Activity	2,042	2,355	$94,135,000	$116,154,000	$353,125,000	$414,153,000

Note: Regional Off-airport Aviation Dependent Business Activities account for business activity in the region that rely on aviation for business travel and cargo, and do not reflect a specific airport.

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