Cottage Grove State Airport

Master Plan Update

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OREGON DEPARTMENT OF AVIATION

WHPacific

AN NV5 COMPANY

ACKNOWLEDGMENTS

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CHAPTER 1. INTRODUCTION

1.1 PURPOSE OF THE MASTER PLAN

The purpose of this Master Plan Update is to provide a 20-year planning tool that identifies the necessary improvements to serve current and projected aviation demand, comply with Federal Aviation Administration (FAA) design standards, and address issues identified by the Oregon Department of Aviation (ODA), airport users, and other stakeholders. This Airport Master Plan Update will reflect the numerous changes that have occurred in aviation and at Cottage Grove State Airport since the last Master Plan in 1987. ODA obtained and matched a grant from the FAA to fund this study.

The purpose of this first chapter of the Airport Master Plan Update (Plan) is threefold:

1. Outline the planning process.
2. Summarize major issues and opportunities that the Plan should address.
3. Determine the Airport's current and future role within the system of airports.

The goals of this Master Plan, like any other, are to provide a flexible and evolving framework necessary to guide future planning and airport development which will cost-effectively satisfy aviation demand while considering potential on-and-off airport environmental and socioeconomic impacts. The Airport Master Plan depicts both short-term and long-term development for the Airport and reports data upon which proposed development is based.

The specific goals and objectives for the Airport Master Plan are to:

1. Address and document the issues while meeting the existing and future aviation needs of the community and customers.
2. Justify the proposals and protect and enhance community land use goals and regional aviation needs.
3. Provide effective graphic presentation through the preparation of a narrative report and Airport Layout Plan (ALP).
4. Establish a realistic schedule while ensuring that any short-term actions and recommendations do not preclude long-term planning objectives
5. Propose an achievable financial plan.
6. Identify potential environmental considerations.
7. Evaluate facility layout and address and satisfy local, state, and federal regulations.
8. Document policies and demand in order to support local decision making.
9. Set the stage and establish the framework for future planning.

1.2 PLANNING PROCESS

The planning process and documentation will follow FAA Advisory Circular 150/5070 6B, Airport Master Plans. A list of FAA terms and acronyms is included as **Appendix A** for reference. The Master Plan Update Study involves several tasks to be undertaken in an estimated 16-month study time frame. A copy of this schedule, the study's Scope of Work, as well as other FAA correspondence is included in **Appendix B**.

A successful master planning process includes the early identification of community goals for the Master Plan, as well as airport issues and opportunities derived from discussions with a broad range of stakeholders including ODA staff, airport users, area businesses, and other interested parties. Involving diverse perspectives in the identification of issues and opportunities ensures that a more comprehensive list of topics is discussed. Furthermore, communicating with stakeholders in the early stages on issues helps establish working relationships that will benefit the study process and, ultimately, the development plans.

Within this study, the following chapters will be prepared:

1. Introduction
2. Inventory and Data Collection
3. Aeronautical Activity Forecast
4. Facility Requirements
5. Airport Development Alternatives
6. Recycling and Solid Waste Management Plan
7. Airport Layout Plan and Associated Drawings
8. Capital Improvement and Financial Plans

These chapters will be published in draft for review and comment throughout the planning process. Once comments are incorporated into all draft chapters, a comprehensive report will be published for ODA and FAA's review and approval. The Final Report will then be incorporated into the City of Cottage Grove Comprehensive Plan.

1.2.1 Public Involvement

ODA organized a Planning Advisory Committee (PAC), representing Airport users and stakeholders, to participate in the planning process. PAC meetings were planned to coincide with the phases of the Master Plan and intended to be working meetings where the PAC and consultant team could engage to develop a comprehensive understanding of the information obtained, generate solutions to the issues and opportunities identified, and build consensus on the implementation strategies.

In addition to the PAC meetings, one public open house was planned to inform the general public and other interested stakeholders of the work accomplished by the planning team and PAC as well as to receive citizen input on plan development and products.

The first PAC Meeting introduces the project and informs the public of the services and benefits the Airport offers, identifies the goals and objectives of the Master Plan, and seeks comment on the Airport Issues and Opportunities, Existing Conditions Inventory, and Aviation Forecasts. The second and third PAC meetings are focused on the Facility Goals and Requirements and Development Alternatives. The public open house following the third PAC meeting provides an opportunity for interested stakeholders and community members to provide input that will be considered during the solutions phase of the planning process, and ultimately ODA's selection of the preferred development alternative.

In addition to the four PAC meetings and public open house meeting, the public involvement process for the Master Plan Update included regular notices via mail and public notice requirements within the community as well as regular updates to the Cottage Grove State Airport Master Plan Update project website. The project website was developed to disseminate information and receive comments and questions. An online user survey was also published on the Master Plan Website for PAC members, Airport users, and citizens of Cottage Grove to provide input.

The materials developed for and from the PAC meetings are available for review in **Appendix C - PAC Meeting Summary Materials.**

1.3 ISSUES AND OPPORTUNITIES

Identification of issues and opportunities for the Master Plan Update were the subject of the first PAC meeting held January 24, 2018. The common themes of PAC members' statements have been summarized and are presented below.

1.3.1 Issues

The following issues were presented and discussed at the first PAC meeting:

Fencing and Security

Fencing has been noted as an area of concern at the Airport.

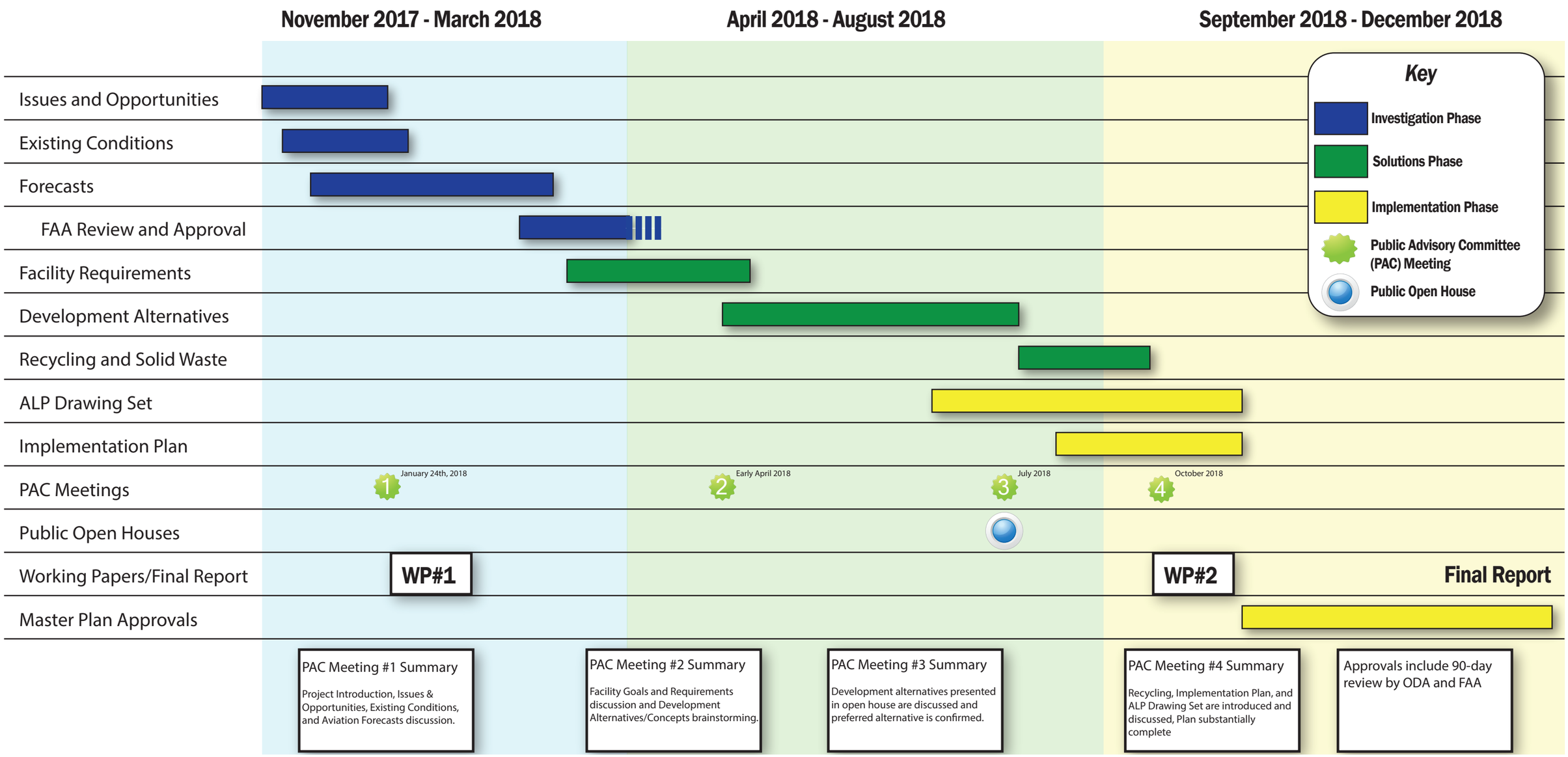
- Currently the Airport is not fully fenced which can make it easy for someone to get near the runway or parked aircraft.
- The lack of perimeter fencing can also allow wildlife such as elk, deer, and raccoons to roam on the runway and in the runway safety areas. Wildlife in or around the vicinity of an airport can lead to collisions resulting in property damage, injury or death.
- Issues with fencing the entire perimeter arise due to the Airport being located in a floodplain. City zoning code (Ordinance 3.7.200) does not allow chain-link or similar types of solid fencing in areas where there is a debris flow hazard. The zoning variance/conditional use process may support the installation of fences in certain areas.

Land Use Zoning and Permitting

- The current annexation of the Airport into the Cottage Grove city limits which has resulted in land use zoning changes.

COTTAGE GROVE STATE AIRPORT (61S) - MASTER PLAN SCHEDULE

Dates are Approximate and Subject to Change



- The Airport was moved into the City's Parks and Recreation zone, however an Airport specific zone, as recommended in ODA's Airport Land use Compatibility Guidebook, would provide more specific protections.

Floodplain

- Approximately 1,800 feet of the northerly existing runway is within the 100-year floodplain.
- Approximately 700 feet of the northerly end of the runway is located in the designated floodway of the Row River.
- The flooding of the Row River in 1964 was considered a 100-year frequency flood by the Army Corps of Engineers. The flow of the Row River near the Airport during that event was 5,900 cubic feet per second and caused backwater from the river to reach the runway.

Bank Stabilization

- North end bank stabilization has been a recurring issue for the Airport.
- Previous attempts to slow the flow of Row River with the placement of large off-bank boulders have been unsuccessful and the boulders have been dislodged.

Utilities / Services (water, sewer, electric)

- The Airport is currently connected to water and sanitary sewer services provided by the city; and electric service provided by Emerald People's Utility District.
- Additional utility services (water, sewer and electric) will need to be brought on site to serve any further development. Doing so will require funding. A source of funding will need to be determined.
- The Airport will need to use City water to provide the fire water supply.

1.3.2 Opportunities

The following opportunities were presented and discussed at the first PAC meeting:

Community Opportunities

- Community benefits of the Airport are apparent as soon as you discuss the Airport and its history with the people in the community. Whether it is the planned fly-ins to promote the City and all that it offers, the history museum and early plans for an attached convention/meeting center, or the occasional use of the Airport for med-evac fixed wing and helicopter operations, it is understood there are opportunities and needs within the community the Airport can satisfy.

Source: Precision Approach Engineering, Inc

Environmental Improvements / Habitat Restoration

- The removal of invasive plants (blackberry bushes) and restoration of natural habitat to wetland area near the golf course would serve to improve the environment
- The most significant biotic community on the Airport property is the riparian zone along the Row River. This riparian area supports a diverse range of plants and wildlife. Improvements to this area could improve water quality and fish habitat in the Row River.
- Planting vegetation along the river bank in areas which are currently mowed or sparsely covered could help improve water quality and reduce erosion on the Airport property.

Airport Specific Zoning

- The transition of the Airport from County to City provides an opportunity for the City to employ best planning principles as established in ODA's Airport Land Use Compatibility Guidebook.

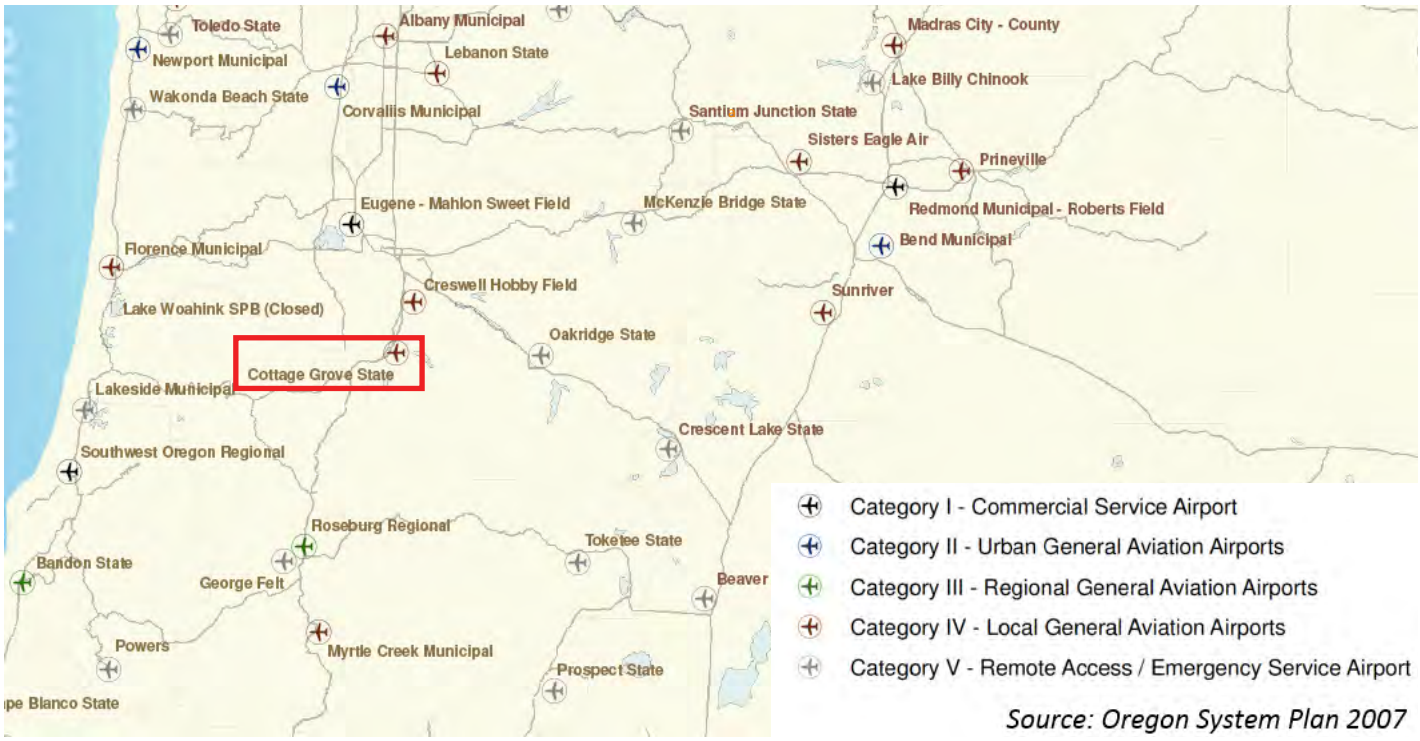
With the recent annexation into the City of Cottage Grove and the ongoing support of the community and airport users it is expected that the Airport will continue to be a critical asset to the City of Cottage Grove, Lane County, and the State of Oregon.

1.4 AIRPORT ROLE ANALYSIS

This section identifies the current role of Cottage Grove State Airport and analyzes whether or not that role should change in the future. First, the current role assignment for the Airport within the national and state system of airports is described. Then the Airport's role within the regional system of airports is examined in depth, including analysis of other airports in the region. Finally, the appropriate future role of the Airport is recommended.

1.4.1 National System Role

Cottage Grove State Airport is identified by the FAA as one of 2,553 General Aviation (GA) facilities nationwide, as of 2014, and is included within the National Plan of Integrated Airport Systems (NPIAS). GA airports do not have scheduled passenger service. Order 5090.3C defines several criteria that determine if an airport may be included in the NPIAS. The general criteria are that an airport be included in an accepted State Airport System Plan (SASP) or Metropolitan Airport System Plan (MASP), has at least 10 based aircraft and is located at least 20 miles (30 minute drive time) from another NPIAS airport. With 26 based aircraft according to 5010 data available at the time of this draft report, the Airport meets the based aircraft threshold. The order also states that an airport included in the previous NPIAS



Source: Oregon System Plan 2007

should remain in the NPIAS if it is subject to a current compliance obligation resulting from a FAAP, ADAP, or AIP grant. Cottage Grove State Airport was previously included in the NPIAS and is currently under compliance obligations related to AIP grants. Therefore the Airport is eligible for inclusion, and is included in the current NPIAS.

As a NPIAS airport, Cottage Grove State Airport is eligible to receive Federal grants administered by FAA under the Airport Improvement Program (AIP). Under the current AIP, Federal grants cover up to 90% of Airport eligible costs. Eligible costs include planning, development, and noise compatibility projects that are in the approved Master Plan and on the Airport Layout Plan. As a condition of receiving AIP grants, the Oregon Department of Aviation must accept all conditions and obligations under FAA grant assurances. In general, such assurances require the State to operate and maintain the Airport in a safe and serviceable condition, not grant exclusive rights, mitigate hazards to airspace, and use airport revenue properly.

1.4.2 State System Role

The Oregon Aviation Plan 2007 (OAP 2007) classifies the Airport as a Category IV, Local General Aviation Airport. A Category IV airport supports primarily 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. Key performance criteria associated with these airports are an FAA Airport Reference Code (ARC) of at least B-I (including the "small" classification), minimum runway size of 3,000 feet by 60 feet, a rotating beacon, and a visual approach system. Cottage Grove State Airport is classified as B-I (small); has a runway 3,188 feet long and 60 feet wide; a rotating beacon; and PAPIs located at each runway end. As such the Airport meets and exceeds the minimum standards to qualify as a Local General Aviation Airport. FAA Airport Reference Code is discussed in Chapter 3 of this study. The OAP is currently being updated and these figures may be revised accordingly in future drafts of this plan.

1.4.3 Regional System Role

The Airport serves a role in the region by accommodating 26 based aircraft and an estimated 8,900 annual operations. The **Table 1A** provides a comparison of the facilities and services at the Cottage Grove State Airport, in comparison to other area airports within approximately 60 nautical miles from the Airport.

1.4.4 Airport Role Conclusions and Recommendations

Cottage Grove State Airport's facilities, services, and activity align with its current designated role in the OAP 2007 as a Local General Aviation Airport. Activity by small, single engine and some twin-engine aircraft represents a consistent, year-round presence at the Airport. Subsequent chapters will further describe the projected aviation growth and future improvement to better serve the demand.

Based on the information presented above and discussion with the Planning Advisory Committee at Meeting #1, the recommendation is to maintain the current role designation of Local GA Airport at Cottage Grove State Airport.

Table 1A Area Airports Within 60 Nautical Miles of Cottage Grove State Airport

Airport, Location	Oregon Aviation Plan Role (Category)	Distance from 61S	Paved Runways	Lighting, Navaids	Services	Based Aircraft and Operations
Cottage Grove State Airport **Cottage Grove, OR**	Local GA (IV)		Rwy 15-33 (3,188' x 60')	MIRL, PAPI	Avgas, Pilot Lounge	26* aircraft 8,900 ops
Hobby Field Airport **Creswell, OR**	Local GA (IV)	9 nm N	Rwy 15-33 (3,100' x 60')	MIRL, PAPI	Avgas, Jet A, Pilot Lounge	103* aircraft 38,300 ops
Mahlon Sweet Field Airport **Eugene, OR**	Commercial Service Airports (I)	21 nm N	Rwy 16R-34L (8,009'x 150') Rwy 16L-34R (6,000' x 150')	HIRL, REIL, PAPI, VASI, ILS, MALSR, ODALS, GPS	Avgas, Jet A, Air charter, Restaurant, Flight Training	185* aircraft 61,700 ops
Roseburg Regional Airport, **Roseburg, OR**	Regional General Aviation Airports (III)	37 nm SW	Rwy 16-34 (4,402' x 100')	REIL, MIRL, VASI, VOR	Avgas, Jet A, Flight Training, Aircraft Rental	90* aircraft 31,800 ops
Corvallis Municipal Airport **Corvallis, OR**	Urban General Aviation Airports (II)	43 nm N	Rwy 17-35 (5,900'x150') Rwy 9-27 (3,545' x 75')	MIRL, MITL, ILS, DME, VOR, GPS, NDB, MALSR	Avgas, Jet A, Aircraft Rental, Flight Training	134* aircraft 52,200 ops
Albany Municipal **Albany, OR**	Local GA (IV)	50 nm SE	Rwy 16-34 (3,004' x 75')	VASI, DME, VOR, GPS, MIRL	Avgas, Restaurant, Aircraft Rental, Flight Training	92* aircraft 23,000 ops

A&P - Airframe & Powerplant Mechanic

ALSF - Approach Lighting System with Sequenced Flashing Light

ATCT - Air Traffic Control Tower

AWOS - Automated Weather Observing System

DME - Distance Measuring Equipment

GPS - Global Positioning System

HIRL/MIRL - High/Medium Intensity Runway Lighting

MALSR - Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights

ODAL - Omnidirectional Approach Lighting

Operations - Total number of Takeoffs and Landings

PAPI - Precision Approach Path Indicator

REIL - Runway End Identifier Lights

RNAV - Area Navigation

VASI - Visual Approach Slope Indicator

VOR - Very High Frequency Omnidirectional Range Station

* Based aircraft counts subject to revision in future drafts.

CHAPTER 2. INVENTORY

2.1 BACKGROUND DATA

The City of Cottage Grove is located in Lane County in southwestern Oregon (**Figure 2B**). The City is approximately 135 miles south of Portland and 20 miles south of Eugene. Cottage Grove is bisected by I-5, the primary north-south interstate in Oregon.

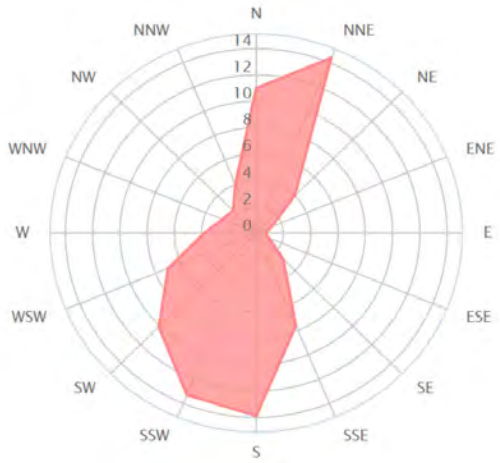
2.1.1 Area Topography

Cottage Grove State Airport is bounded on three sides by the Row River. It is situated at the end of the Willamette Valley. The Airport has a recorded elevation of 641 feet MSL.

2.1.2 Climate and Weather

The area around Cottage Grove State Airport has a predominantly modified marine climate with relatively cool summers and mild, wet winters. The average annual participation is 45 inches, with less than 5 inches of snow. November through February is when the majority of the precipitation falls. The number of days with any measurable precipitation is 104. The mean maximum temperature of 81°F occurs in July. The January low is 34°F. Prevailing winds at Eugene Airport, the nearest airport with available historic wind information, are typically out of the south or north (**Figure 2A**).

Figure 2A: Annual Wind Direction % Distribution



Eugene Airport (2008-2017) www.windfinder.com

2.1.3 Community and Airport History

Cottage Grove State Airport was originally established in 1965 on 40 acres of land purchased by donations from the Woodard Foundation, a local charitable organization. The Federal Aviation Administration and State of Oregon funded the construction of the Airport, which, since inception, has been publicly owned and operated by ODA.

Improvements and additions to the Airport continued since its opening. In 1969, the Village Green donated a taxiway and tie-down area, and constructed a road from Bowling Green to intersect with Thornton Road South. In 1977 the local community worked in conjunction with the City and ODA to upgrade the Airport. During this effort, both sides and ends of the runway were cleared, the east-west taxiway was graded, the tie-down area was fenced, and the ground was treated for dust control.

In the last 20 years over $4.4 million in Federal Grants have been invested in safety and improvement projects on the Airport (**Table 2A**). These improvements, and more, have been the result of a ongoing and successful partnership between the FAA, ODA, and the local community.

In 2015 the State Aviation Board unanimously passed a petition to request the City of Cottage Grove annex the Airport into the City. On August 8, 2016 the Cottage Grove City Council voted unanimously to adopt ordinance number 3065 and annexed the Airport into the City limits.

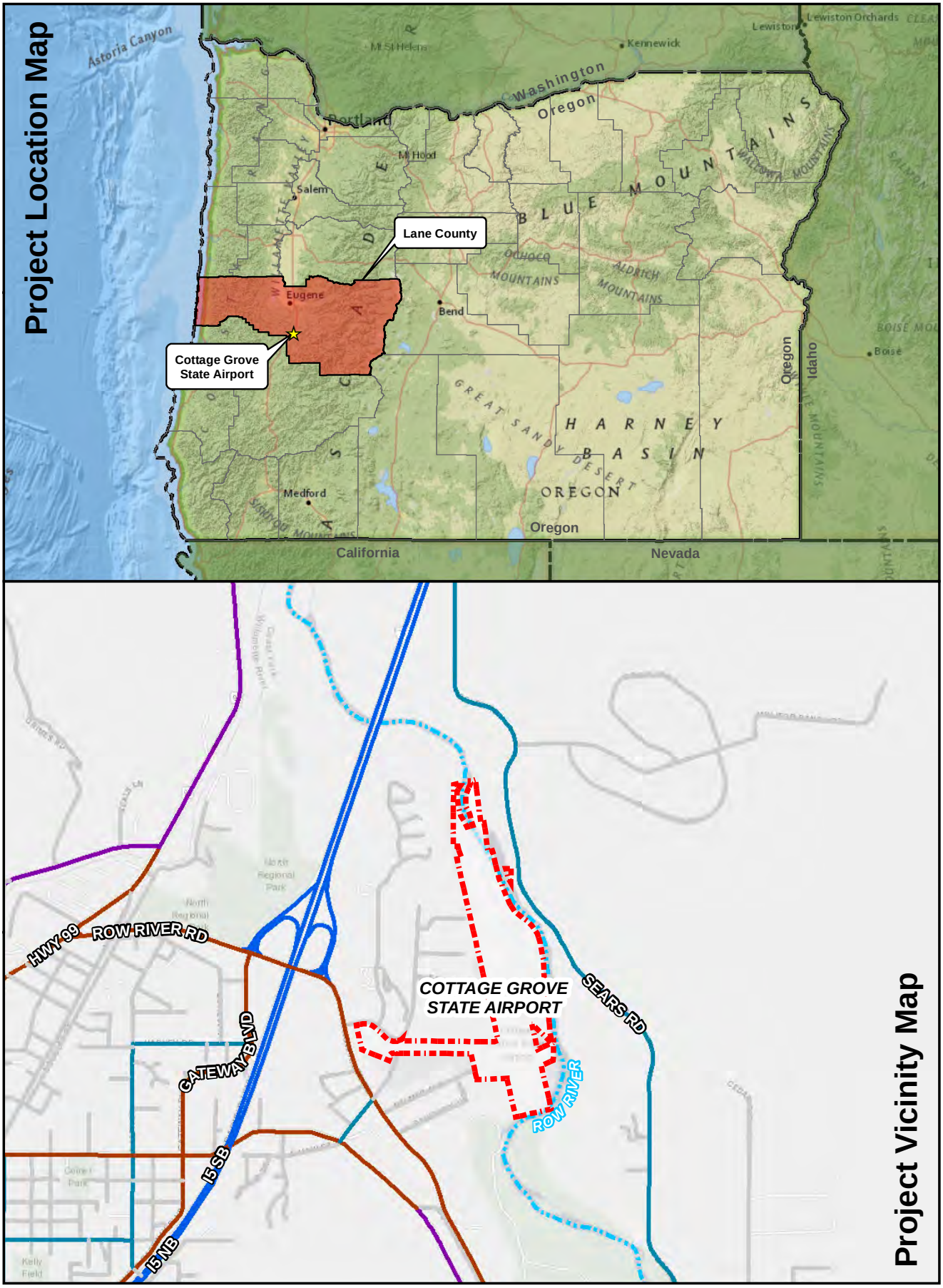

Project Location Map
Astoria Canyon
Kennewick
Lewiston
Lewiston Orchards
Washington
Oregon
Portland
Mt Hood
Salem
Lane County
Eugene
Bend
Cottage Grove State Airport
BLUE MOUNTAINS
OCHOCO MOUNTAINS
ALDRICH MOUNTAINS
GREAT SANDY DESERT
HARNEY BASIN
OREGON
Medford
Oregon
California
Nevada
Idaho
Boise
Project Vicinity Map
HWY 99
ROW RIVER RD
COTTAGE GROVE STATE AIRPORT
SEARS RD
GATEWAY BLVD
ROW RIVER
I5 SB
I5 NB

Figure 2B

Table 2A: FAA Grant Funded Airport Improvements			
Year	**Project Description**	**Total Dollars**	**Grant Number**
1997	Improve RSA, Install Runway Lighting	$1,314,207	002-1997
2007	Improve RSA, Install Apron Lighting, Install Perimeter Fencing	$199,000	003-2007
2008	Improve RSA, Install Apron Lighting, Install Perimeter Fencing, Remove Obstructions	$591,967	004-2008
2009	Remove Obstructions	$80,000	005-2009
2012	Remove Obstructions, Improve RSA	$95,757	006-2012
2013	Install Taxiway Lighting, Rehab Runway, Install Beacon, Install Guidance Signs	$359,751	007-2013
2014	Install Taxiway Lighting, Rehab Runway, Install Beacon, Install Guidance Signs	$1,492,618	008-2014
2017	Master Plan Update	$288,551	009-2017

2.1.4 Community Data

The following section provides an overview of the community including a summary of relevant studies and socioeconomic conditions.

Relevant Studies

Development and implementation of the Airport Master Plan will be in alignment with other local and regional plans and studies including:

- Comprehensive Plan (City of Cottage Grove, adopted 1980, most recent update 1993)
- Vision and Action Plan 2037 (City of Cottage Grove, 2008)
- Transportation System Plan (City of Cottage Grove, 2015)
- Natural Hazards Mitigation Plan (City of Cottage Grove, 2016)

These existing plans provide community data and direction that will be utilized throughout the development of the Airport Master Plan when and where appropriate.

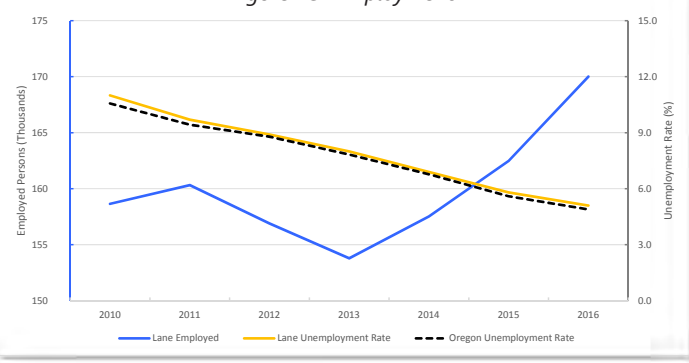
Socio-Economic

Socioeconomic characteristics of a population such as employment, income, and population, aid in determining the growth of a community and its overall economic status within the state.

Employment Data

The unemployment rate in Lane County has decreased by approximately 6 percent over the last 6 years, matching the statewide trend (**Figure 2C**). The number of employed persons has added approximately 12,000 jobs over the same period.

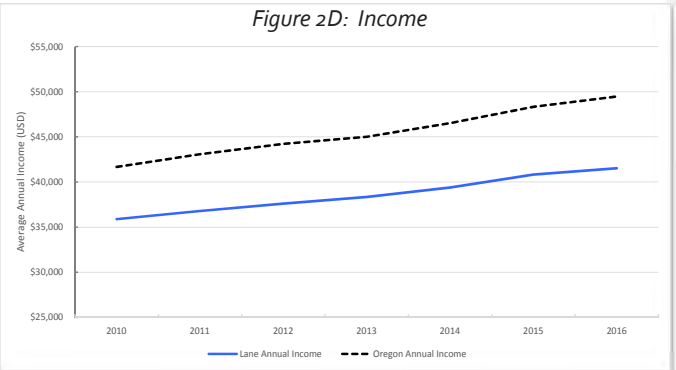
Figure 2C: Employment



Income Data

Figure 2D shows that the average annual income in Lane County has increased steadily since 2010 and in 2016 was approximately $41,000, representing a $5,000 increase since 2010. The State of Oregon has a higher average income, with the 2016 average being approximately $50,000.

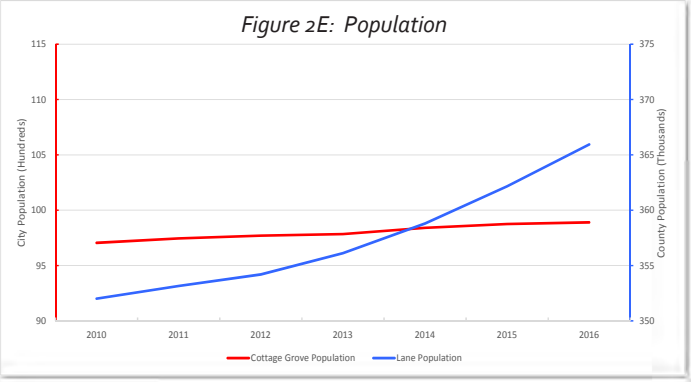
Figure 2D: Income



Population Data

The population in Cottage Grove remained nearly the same between 2010 and 2016 and is currently 9,800. In the last 3 years the population of Lane County has grown much more quickly at 0.90% compared to Cottage Grove which has grown at 0.3% (**Figure 2E**).

Figure 2E: Population



2.2 EXISTING FACILITIES

Airport facilities generally are classified as either Airside or Landside facilities. Airside facilities include the runway, taxiways, aircraft parking aprons, airfield signage/lighting, weather instruments, and navigational equipment. Although not an airport facility, the airspace can also be described as an airside element that requires protection. Landside facilities include hangars and other buildings, vehicle parking, the main access road, and other roadways on the Airport. Also included are support facilities such as fueling systems, utilities, and fencing. Each is described in further detail in the next two sections.

2.3 AIRSIDE FACILITIES

2.3.1 Pavement Condition Index

In 2015 the Airport's Pavement Condition Index (PCI) was updated for those airfield pavements located on Airport property as part of a three-year rotation. The condition of the Airport pavements were rated on a scale of 0-100, with 0 being an unusable paved surface and 100 reflecting a just-constructed paved surface. Generally, ratings with a PCI above 70 require only preventative maintenance in the short term, while ratings between 40 and 70 require major rehabilitation and ratings less than 40 typically require reconstruction.

PCI ratings at Cottage Grove State Airport range from a low of 71 ("Satisfactory") to a high of 100 ("Good"). The area-weighted average PCI for all Airport pavements is 90, corresponding to an overall rating of "Good". Current and forecasted PCI classifications are displayed in **Figure 2F**.

2.3.2 Runway 15-33

The single runway at Cottage Grove State Airport (Runway 15-33) is 3,188 feet long by 60 feet wide . The Runway is asphalt and in good condition. The weight rating is 12,500 pounds for Single Wheel Gear (SWG).

2.3.3 Taxiways and Taxilanes

There is one existing full-length parallel taxiway (Taxiway A) on the west side of Runway 15-33. This taxiway is 25 feet wide and has four connector taxiways and an aircraft run-up area at the Runway 33 threshold. The majority of the pavement on Taxiway A is considered to be in satisfactory condition.

2.3.4 Aprons and Aircraft Parking

The total aircraft apron area at the Airport is approximately 12,300 square yards, or an estimated 2.54 acres. Thirty tiedowns are provided on the apron serving both based and transient aircraft. The apron has the lowest rated pavement on the airfield and will need to be

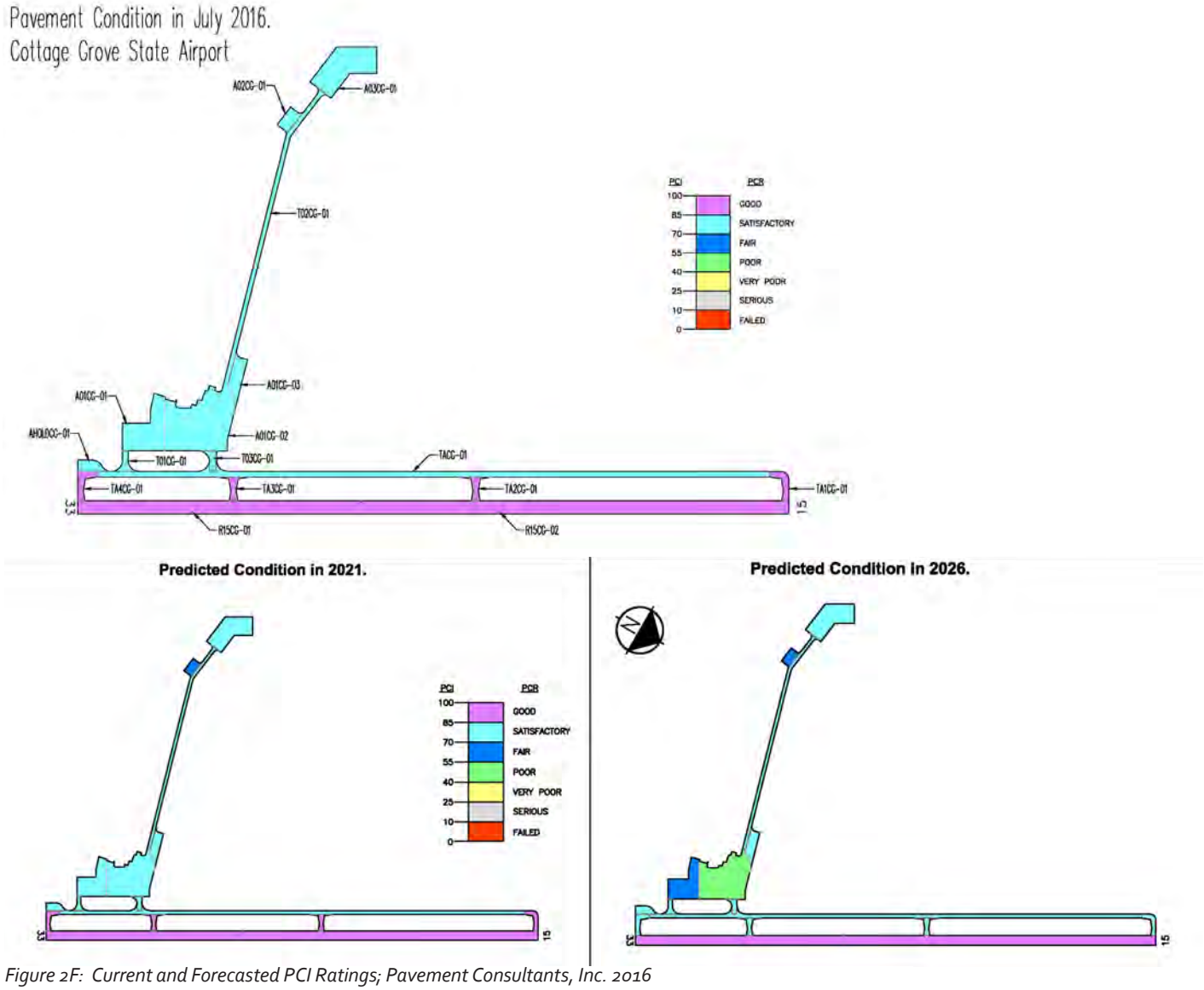


Figure 2F: Current and Forecasted PCI Ratings; Pavement Consultants, Inc. 2016

addressed within the next 10 years. The PCI is predicted to fall to "Fair" to "Poor" in the next decade.

Additionally there are 13 tiedown spaces located outside the Oregon Aviation History Center on the far west side of the airfield. That pavement is rated in satisfactory condition

2.3.5 Airfield Lighting and Signage

Airfield edge lighting systems are categorized as low, medium, or high intensity. The color of the lights is also important as it indicates to pilots where they are in the airport environment.

Runway 15-33 is equipped with white medium intensity runway edge lighting (MIRL). Taxiway A is currently unlit and marked with blue reflectors. There is lighted signage on the connector taxiways at the hold positions.

2.3.6 Airport Navigational Aids (NAVAIDS)

NAVAIDS provide navigational assistance to aircraft for instrument approaches to an airport. NAVAIDS are classified as visual approach aids or instrument approach aids; the former providing a visual navigational tool and the latter being an instrument-based navigational tool. The types of approaches available at an airport are based on the NAVAIDS provided.

Visual Approach Aids

Runway 15-33 is established as a visual approach runway. There is a segmented circle containing a lighted wind indicator to the east of Runway 15-33 at mid-field. A rotating beacon is located on a tower west of Runway 15-33.

Both ends of Runway 15-33 have a four-light Precision Approach Path Indicator (PAPI). A PAPI provides

glideslope information to pilots on final approach by displaying sequences of different colored lights to maintain a safe glide path for landing.

Instrument Approach Aids

Instrument approach aids include the equipment associated with the Airport's instrument approach. At this time, the Airport does not have an instrument approach.

2.3.7 Automated Weather Observing System (AWOS)

Many GA airports have weather reporting equipment. There is not an Automated Weather Observing System (AWOS) at Cottage Grove State Airport. An AWOS updates weather observations every minute, continually reporting significant weather changes as they occur. This system also reports cloud ceiling, visibility, temperature, dew point, wind direction, wind speed, altimeter setting, and density altitude (airfield elevation corrected for temperature).

2.3.8 FAA Airfield Design Standards

FAA AC 150/5300-13, Airport Design, sets forth the FAA's recommended standards for airport design. A few of the more critical design standards are those for runways and the areas surrounding runways, including:

- Runway Safety Area (RSA)
- Object Free Area (OFA)
- Obstacle Free Zone (OFZ)
- Runway Protection Zone (RPZ)

Each of these standards, as they apply to a B-1 (small) airport, is described in greater detail below and a graphical representation of the areas are displayed in **Figure 2G**.

The **RSA** is a defined surface surrounding the runway that is prepared or suitable for reducing the risk of damage to airplanes in the event of an airplane undershoot, overshoot, or an excursion from the runway.

The **OFA** is an area on the ground centered on the runway or taxiway centerline that is provided to enhance the safety of aircraft operations. No above ground objects are allowed except for those that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes.

The **OFZ** is a volume of airspace that is required to be clear of obstacles, except for frangible items required for the navigation of aircraft. It is centered along the runway and extended runway centerline.

The **RPZ** is defined a trapezoidal area off each runway end intended to enhance the protection of people and property on the ground. The dimensions of an RPZ are a function of the runway ARC and approach visibility

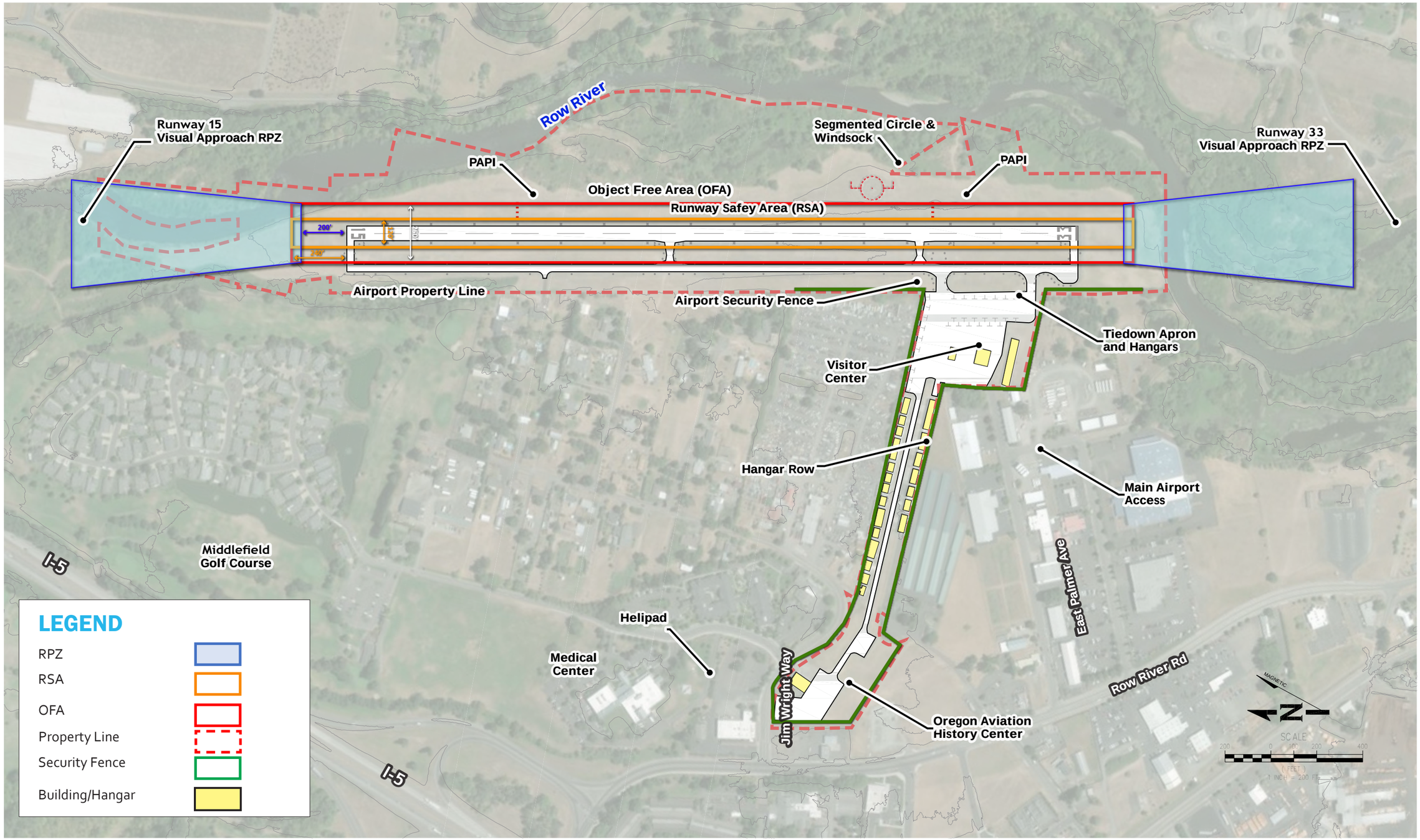


Figure 2G: Existing Airport Facilities

minimums. The FAA recommends that RPZs be clear of all residences and places of public assembly (churches, schools, hospitals, etc.) and that airports own the land within the RPZs.

Generally speaking, all of the design standards mentioned above are met at Cottage Grove State Airport However, there is a potential issue with the Runway RPZs that may need to be addressed as the plan progresses. Both runway RPZ's extend off of Airport property and past the Urban Growth Boundary onto property within Lane County. It is preferred that the Airport own the full extents of the property within the RPZ in fee simple. However, if an airport does not own those properties in fee, and cannot secure acquisition of the land, land use control can be achieved through avigation easements. An evaluation of future standards to meet will be provided in Chapter 4, Facility Requirements.

2.3.9 Airspace

Federal Aviation Regulation (FAR) Part 77, Objects Affecting Navigable Airspace defines and establishes the standard for determining obstructions that affect airspace in the vicinity of an airport. FAR Part 77 is published separately and is primarily concerned with the identification of objects on and near airports that could be hazards to air navigation. Airports are responsible for identifying FAR Part 77 imaginary surfaces and protecting them through land ownership or other means of land use controls (such as zoning, easements, etc.).

The imaginary surfaces are geometric shapes that surround the runways of an airport and vary in size and slope depending on the category of the runway. The five imaginary surfaces are the Primary, Approach, Horizontal, Conical, and Transitional. Any object that 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. Hazards to air navigation may include terrain, trees, construction equipment, or permanent or temporary structures.

The five surfaces are depicted in **Figure 2H** and more detailed definition follows:

Primary Surface. The primary surface is longitudinally centered on a runway that extends 200 feet beyond each end of the runway. The width of a primary surface ranges depending on the existing or planned approach and runway type.

Horizontal Surface. The horizontal surface is a horizontal plan 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 end of the primary surface and connecting the adjacent arcs by lines tangent to those areas. For approaches to runways supporting aircraft smaller than 12,500 pounds, like Cottage Grove State Airport, the radius of each arc used to construct the horizontal surface is 5,000 feet.

Conical Surface. The conical surface extends 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.

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. FAA approach surfaces have an inclined slope of 20:1 for visual and approaches and circling instrument procedures, 34:1 for non-precision approaches, and 50:1 for precision approaches.

The Cottage Grove State Airport has a significant amount of obstacles according to a cursory review of publicly available LiDAR data from the Oregon Department of Geology and Mineral Industries (DOGAMI) that displays highest hit, bare earth, and bare earth slope imagery.

The DOGAMI data, when compared to the modeled PART 77 surfaces for the Airport, identified obstructions throughout the Airport's airspace due to terrain and trees, which are predominately the result of the areas topography.

As a part of the master planning process, an Airport Geographic Information Survey (AGIS) will be conducted to provide better and more accurate survey data that will allow the planning team to better analyze potential obstruction data. The updated data from the AGIS survey and the FAR Part 77 surfaces will be illustrated as part of the Airport Layout Plan (ALP) drawing set. FAR Part

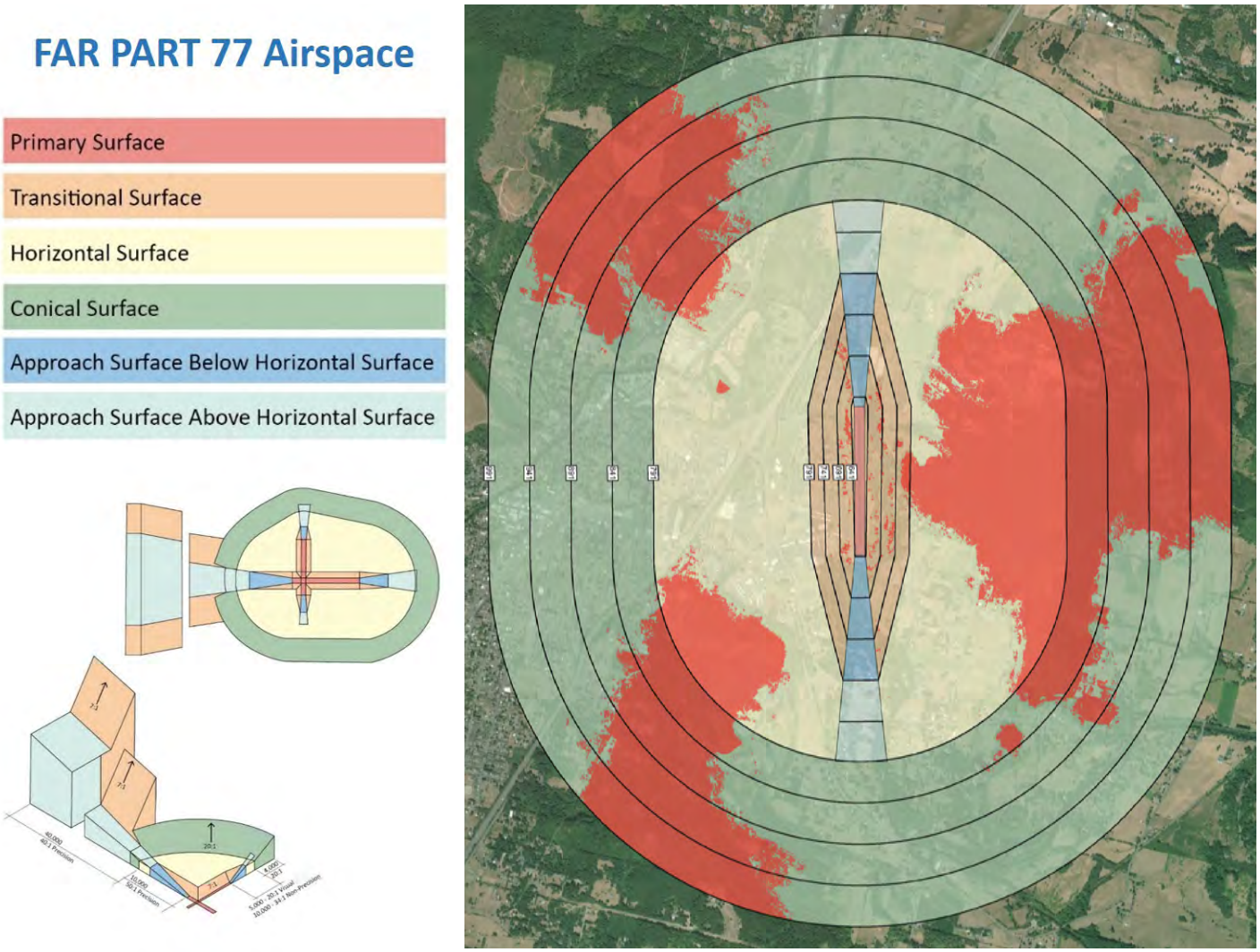


Figure 2H: FAR Part 77 Airspace surrounding Cottage Grove State Airport. Existing penetrations to surfaces are shown in solid red. Obstruction mitigation will be addressed in Chapter 4, Facility Requirements and in the Airport Layout Plan set that will accompany this report.

77 surfaces will be evaluated during the development of the ALP and any penetrations will be noted and recommended for removal or marking, as appropriate.

2.3.10 Protection of Airport Airspace

The FAA requires that airport sponsors – to the extent of their ability – restrict zoning on adjacent lands and lands within an airport's immediate vicinity to compatible land uses. Lane County Zoning Code (Chapter 16.245) and the City of Cottage Grove Development Code (Section 2.6.200) have established Airport Overlay Zones to protect the Airport and its airspace from hazards to air navigation, such as tall structures or non-compatible land uses. An overlay zone may restrict the height of buildings and other structures or trees. Airport overlay zones also may restrict any land use that would create such hazards as electrical interference with airport radio communications, cause glare or impair visibility near the Airport or would attract wildlife.

The City's Airport Overlay District (2.6.200) applies to properties that lie within the air approaches. Compliance with Federal Aviation Administration and Oregon State Aviation Department requirements is also required within this overlay.

The City prohibits the following uses:

- New residential development
- Public assembly uses
- Building or expanding industrial uses that would emit smoke, dust, or steam that would obscure visibility within Airport approach corridors.
- Building or expanding outdoor lighting that would project directly onto an existing runway, taxiway or into an existing airport approach corridor.
- Height limitations specific to each underlaying zone

2.4 LANDSIDE FACILITIES

The landside area of the Airport generally encompasses the land areas within the Airport that support its operations but are not dedicated to aircraft operations. However, due to the economic and land-use impacts, airports can have in a region, the landside area will include an analysis of those land areas and facilities immediately outside of the Airport boundary.

2.4.1 Hangars/Airport Buildings

At Cottage Grove State Airport there are 28 buildings/structures. There are 25 privately-owned hangars built on leased lots. Of those hangars, there are 23 box hangars, 1 single-unit T-hangar and 1 seven-unit, nested T-hangar. In addition to the hangars, a visitor center and two sheds supporting the fueling system and airport beacon are on the property and are owned by ODA. There are two 10,000 gallon Avgas underground fuel tanks (one has been abandoned), a fuel pumping station, one pilot lounge/terminal building, and the Oregon Aviation History Center.

2.4.2 Hangar and Airport Access

The hangars are accessed from East Palmer Ave, which also serves as the main Airport entrance to the pilot lounge. Once on Airport property, vehicles use the taxilane to the hangars. The Oregon Aviation History Center and parking lot can be accessed off of Jim Wright Way.

2.4.3 Vehicle Parking

There are two ODA-owned vehicle parking lots at the Airport for airport users and visitors to the Aviation History Center. The primary parking lot for airport users is the paved parking lot located on the west side of the airfield near the visitor center, which provides approximately 10 parking spaces. Additionally, there is a paved parking lot at the Oregon Aviation History Center which provides approximately 20 parking spaces.

2.4.4 Aviation Services/Support Facilities

A fixed based operator (FBO) is an individual or a business that offers aviation-related services such as a pilot lounge, restroom facilities, flight instruction, aircraft rental, aircraft maintenance, hangar/tiedown storage, and aircraft fueling to Airport users.

There is currently not an FBO at the Airport. There is however a visitor center with a pilot lounge and restroom for itinerant pilots. The building is maintained by the local pilot community. A self-fueling area with Low Lead aviation fuel (Avgas) is provided for aircraft with piston engines. The fueling area and equipment are owned and managed by ODA. The Airport does not provide aircraft maintenance or flight training.

2.4.5 Airport Fencing

The Airport is partially fenced on the west side and unfenced along the eastern boundary where the property abuts the Row River. The unfenced areas on the west side of the airfield border several homes as well as the City's public golf course. There is one approved Residential Through the Fence (RTTF) on the west side of the airfield with an existing access agreement with ODA in place.

2.4.6 Utilities

The Airport is currently connected to water and sanitary sewer services provided by the city, and electric service provided by Emerald People's Utility District. Sewer service is provided to the terminal area only.

2.5 ADMINISTRATION

The management of the Cottage Grove State Airport is administered by ODA. The ODA mission is three-fold and includes focusing on advocating for the economic growth, infrastructure improvement, and safe operation of aviation in Oregon. As the owner, operator, and sponsor of 28 airports, including Cottage Grove State Airport, ODA is responsible for the day-to-day maintenance and upkeep of aviation facilities as well as managing the capital improvements required to satisfy demand and FAA requirements.

2.5.1 Airport Administration and Maintenance

ODA State Airports Division is responsible for the management of the Airport. The State Airports Division manages lease agreements for hangars, access/egress, financial records, and maintenance of facilities. The administration and maintenance of the Airport falls under the purview of both state and federal law. Oregon Revised Statutes (ORS) dictate much of what the Airport can achieve through comprehensive planning (ORS Chapter 197), aviation fuel taxes (ORS Chapter 319), airports and landing field regulations (ORS Chapter 836), and aircraft operations (ORS Chapter 837). The Oregon Administrative Rules (OAR) provide guidance on the Airport Planning Rule (OAR 660-013) and the ODA Rule (OAR 738-140), which specifies certain standards

required of airports throughout the state including a minimum standards policy, residential through the fence access, commercial and non-commercial leasing policies, and more.

Additionally, ODA is responsible for ensuring compliance with federal grant assurances and regulatory standards. This Master Plan is one element to help ensure ODA is planning for the long-term facility development needs safely and efficiently according to current FAA design standards.

2.5.2 Airport Financial Data

Part of the planning for an airport involves assessing its financial condition. To accomplish this, 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 data are summarized and presented in **Table 2B** below, and will be used later in the Master Plan as inputs to the Capital Improvement/Financial Plan.

On average, from 2012-2017 the average annual revenue for the Airport was $379,275. It is worth noting that 87% of the annual revenues come from federal revenue, 8.85% from fuel income, and 3.5% from land lease fees. In 2017, ODA returned an unused portion of a prepaid environmental testing grant to the FAA. The Airport accepted no other grant funding that year which resulted in a total Federal revenue of -$16,103.

Expenditures on average during the same period averaged approximately $433,166. 80% of annual expenditures go to capital construction, 8% to fuel stations,5% to GA entitlement, and 2% to Airport maintenance.

The Cottage Grove State Airport currently requires additional funds from ODA to meet current operational and capital requirements. This will be factored into the financial feasibility evaluation in a later chapter of this study.

Table 2B: Cottage Grove State Airport Financial Data

	Fiscal Year						Forecast Year					
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Revenue	**$ 84,108**	**$ 152,203**	**$ 248,307**	**$ 1,655,960**	**$ 112,996**	**$ 22,081**	**$ 145,596**	**$ 394,019**	**$ 228,312**	**$ 872,883**	**$ 42,281**	**$ 50,327**
10% Admin Late Fees		$ 32				$ 34				$ 33		
Connect Oregon Admin	$ 127											
Federal Revenue	$ 25,207	$ 98,845	$ 194,445	$ 1,613,365	$ 71,022	$ (16,103)	$ 100,000	$ 350,000	$ 186,225	$ 830,000		$ 7,220
Fuel Income	$ 43,722	$ 37,167	$ 40,306	$ 27,626	$ 28,226	$ 24,544	$ 31,574	$ 30,455	$ 28,485	$ 28,657	$ 28,743	$ 29,583
Ingress/Egress Fees			$ 360	$ 180	$ 180	$ 180	$ 180	$ 180	$ 180	$ 180	$ 180	$ 180
Land Lease Fees	$ 13,563	$ 12,229	$ 13,196	$ 13,715	$ 13,392	$ 13,427	$ 13,192	$ 13,384	$ 13,422	$ 13,363	$ 13,358	$ 13,344
Operations 5010 Inspections	$ 650			$ 650			$ 650			$ 650		
Tie Down Fees	$ 840	$ 3,931		$ 425	$ 175							
Expenditure	**$ 131,243**	**$ 191,460**	**$ 294,937**	**$ 1,844,601**	**$ 59,817**	**$ 76,942**	**$ 178,377**	**$ 440,074**	**$ 249,217**	**$ 967,007**	**$ 47,931**	**$ 55,287**
Personal Services												
Airport Maintenance	$ 8,327	$ 10,951	$ 12,717	$ 10,828	$ 3,585	$ 11,477	$ 9,912	$ 9,704	$ 9,101	$ 8,756	$ 9,790	$ 9,453
Service & Supplies												
Airport Maintenance	$ 6,815	$ 6,815	$ 4,669	$ 777	$ 1,406	$ 1,020	$ 2,937	$ 2,162	$ 1,660	$ 1,837	$ 1,923	$ 2,104
Airport Services	$ 5,989	$ 4,627	$ 4,795	$ 4,895	$ 4,673	$ 5,773	$ 4,953	$ 5,018	$ 5,062	$ 5,096	$ 5,032	$ 5,032
Capital Construction	$ 307	$ 1	$ 198,833	$ 1,827,850	$ 31,506				$ 177,779	$ 922,222		
Fuel Stations	$ 38,223	$ 46,429	$ 71,839	$ 181	$ 18,646	$ 34,085	$ 34,236	$ 34,236	$ 24,277	$ 29,096	$ 31,186	$ 30,606
Fuel Tax Increase - State Owned Airports						$ 18,624						
Ga Entitlement	$ 26,530	$ 112,337	$ 2,084	$ -		$ -	$ 112,166	$ 388,885				
Inspections				$ 69				$ 69				$ 69
Pmp Ga Entitlement	$ 4,742	$ 1,084					$ 1,575		$ 22,200			
State Owned Pmp	$ 40,309	$ 9,215					$ 12,598		$ 2,222			
System Plan			$ -			$ 5,962			$ 6,916			$ 8,023
Profit/(Loss)	**$ (47,135)**	**$ (39,256)**	**$ (46,630)**	**$ (188,641)**	**$ 53,179**	**$ (54,861)**	**$ (32,781)**	**$ (46,055)**	**$ (20,905)**	**$ (94,124)**	**$ (5,650)**	**$ (4,959)**

Source: ODA

2.6 ENVIRONMENTAL INVENTORY

The purpose of this section is to summarize the environmental setting of the Airport and identify any potential environmental constraints to the future development and normal operations of the Airport. FAA methodology for master plan development has planners examine the environmental factors early in the process so that projects and alternatives can be proposed with avoidance of environmental resources or impacts in mind.

The Airport property is located between residential and commercial areas, to the west, and agricultural fields, to the east. The Airport is located about 1.25 miles east of the historic center of downtown Cottage Grove and about 0.5 miles west of the main highway exit from Interstate 5 for the city. The Row River flows northward along the eastern side of the Airport. The Row River Nature Park is located along the Row River immediately south of the Airport.

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, and the general controversial nature of airports. Natural environmental elements include various aspects of air quality, water resources, fish and wildlife, hazardous materials, energy and other resource issues.

2.6.1 Human Environment

Human factors that can constrain airports include existing settlements and incompatible land use, noise, social or socioeconomic conditions, light and glare, and the general controversial nature of airports.

Noise

The Airport currently supports an average of 8,900 aircraft operations per year, which are mostly (57%) transient general aviation aircraft. Twenty-six single engine aircraft are based at the Airport.

The federal threshold of concern for noise is when the 65 DNL contour extends over noise-sensitive land uses. The State of Oregon has established a threshold of 55 DNL in 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 a wide variety of uses, including residential, commercial, industrial, and educational activities, some of which may be sensitive to noise. However, the Airport has no documented noise complaints.

The Airport's operations count falls below the 90,000 annual adjusted propeller operations threshold under which a noise study is recommended. Therefore, noise modeling has not been prepared for Cottage Grove and estimates for the 65 or 55 DNL threshold cannot be provided.

Most of the adjacent uses are residential and agricultural areas, though a commercial salvage yard is located 200 feet west of the runway. The nearest school is located 1.5 miles southwest of the runway. The school campus includes an elementary school and associated recreational sports fields. The residential areas to the north of the runway include a cluster of homes and an associated golf course (built circa 1994) approximately 500 feet northeast of the end of the runway, east of the approach zone. Additional, older homes are located 200 feet west of the runway.

Aircraft landing and approach is over agricultural fields or a water treatment facility from both directions for a minimum of 0.5 miles. No structures are located along the north or south approach zones for at least 2,500 feet with the exception of an agricultural outbuilding on a property to the north of the Airport. This structure is located on the opposite side of the Row River from the Airport. The nearest homes are part of a small residential area located approximately 200 feet west of the runway and under the FAR Part 77 transitional airspace surface. Aircraft approaching from the north will pass approximately 400 feet from the nearest home in the golf course residential development. Aircraft approaching from the south will pass directly over the Row River Nature Park, but the park contains no structures. Maintenance staff reported that there have been no noise-related complaints registered in the last year.

Land Use

On November 9, 2016 the 74 acres of Airport property were annexed into the City of Cottage Grove city limits and urban growth boundary. The annexation required a change in zoning, changing the property zoning code from Lane Code Chapter 10 AO - Airport Operations to Cottage Grove PR - Parks & Recreation District.

The entirety of Cottage Grove State Airport is within both the Urban Growth Boundary and Cottage Grove City limits, with the exception of the RPZs which extend off City property. The Parks & Recreation (PR) zone

is compatible to surrounding land uses to the Airport property.

Surrounding properties within the Cottage Grove Urban Growth Boundary and City limits are designated either Industrial (I) or Community Commercial (C). The eastern boundary of the property is the Row River and its floodplain.

Additionally, the City's Airport Overlay District, Chapter 2.6.200 applies to the Airport property, as it does to the surrounding area within the Airport's imaginary surfaces. It is intended to prevent airspace obstructions through height restrictions on structures and vegetation. Compliance with Federal Aviation Administration and Oregon State Aviation Department requirements is also required within this overlay.

Lane County also has an Airport Safety Combining Zone, which is applied to lands adjacent to the Cottage Grove State Airport. The Airport Safety Combining Zone (AS-RCP) serves several purposes, including:

- Prevent the creation or establishment of obstructions that are a hazard to air navigation and flight.
- Prevent the creation or establishment of other hazards to air navigation and flight such as distracting light and glare producing surfaces, radio interference, smoke, steam and dust, areas which attract birds and hazards of a similar nature.
- Limit the height of structures or objects.

Social Impact/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, etc.) Access to the Airport is from Palmer Avenue from Row River Road and Airport Road through mixed use commercial and industrial area. Hangar access is also available from Jim Wright Way through the grounds of the Oregon Aviation Historical Society. The Oregon Aviation Historical Society facility consists of a single hangar which opens onto the Airport grounds and a public parking lot which opens onto Jim Wright Way.

Children may be present in residential areas and the golf course (circa 1994) west of the runway. The residential areas and the golf course are under the FAR Part 77 transitional airspace surface. The nearest park, school, or similar public space to the Airport is Gateway Park, located 0.8 miles west of the runway. An elementary school is located 1.5 miles southwest of the runway. Gateway Park and the school are located outside the FAR Part 77 transitional airspace surface.

Socioeconomic issues 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. According to the 2014 Oregon Aviation Plan Economic Impact Study, the Airport provides positive economic benefit to the community through the provision of aircraft flights and aircraft repair. The Oregon Aviation Historical Society provides a regional attraction which depends on the Airport.

Environmental justice is a specific aspect of socioeconomic impact that addresses whether a proposed action places a disproportionate burden on a low-income or minority population. The closest census block group including and surrounding the Airport is 410390013.012. Based on 2010 data, 26.9% of families are below the poverty line, in contrast to 11.51% in Oregon as a whole and 11.47 nationwide.

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

Historic Properties and Cultural Resources (Section 106 Resources)

The Airport was constructed in 1964. Disturbance at this property includes pre-airport use as agricultural fields then the construction of the airport runways and associated buildings.

A formal review for Section 106 resources has not been prepared for the site. A review of the Oregon State Historical Preservation Office (SHPO) database indicates that cultural resources survey of the Airport property is of small areas and over a decade old. The majority of Airport property has not been subjected to a cultural resources evaluation. Airport property is located on the west bank of the Row River roughly 1 mile south of the confluence of the Row with the Coast Fork of the Willamette River

this suggests a moderate to high probability for historic and prehistoric cultural resources. Archaeological sites and isolates have been identified within a 2-mile radius of the Airport. Furthermore, the age of the airport places it within the range of buildings subject to consideration for the that National Register of Historic Places.

At the time of any development action a formal cultural resources determination assessment will need to be prepared, with a and Section 106 consultation with applicable Native American tribes, local governments and interested organizations and individuals to discuss areas or properties of religious or cultural significance and the potential adverse impacts or other effects that may ensue from a specific proposed activity

Recreational Lands - Section 4(f) Resources

Section 4(f) requires that transportation projects limit their impact on public recreation. The Row River flows along the eastern side of the Airport but does not have any designated recreational status. Row River Nature Park is owned by the City of Cottage Grove and is located near the southern end of the runway. The park includes a dock with fishing access to a pond stocked with trout and walking trails through a large wooded area along the Row River. Aircraft approaching the Airport from the south pass directly over the park but the aircraft traffic is unlikely to substantially impact recreational use of the Row River Nature Park. Airport operations currently do not affect usage of any of these areas and are unlikely to do so in the future. The City of Cottage Grove has not received any complaints regarding Airport operations near the park.

Wild and Scenic Rivers

The Row River is not a designated wild and scenic river. No other wild and scenic rivers are located near the Airport and thus the Airport is not expected to impact any designated wild and scenic rivers.

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 Natural Resources Conservation Service on-line soil database map (Soil Survey of Lane County, Oregon) found seven soil types in the Airport area.

The majority (60%) of the soils mapped within the

property are designated as a version of Prime Farmland. Approximately half of these soils are designated as "All Areas are Prime Farmland" and half are "Farmland of Statewide Importance". The remaining soils mapped on the property are designated as "Not Prime Farmland". These areas are soils near the Row River and low enough in the floodplain that regular flooding reduces agricultural productivity.

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.

The current property has been in Airport ownership since before the 1984 threshold (i.e. 1964), therefore the FPPA is not applicable.

Light and Glare

Cottage Grove State Airport accommodates both day and nighttime operations. The runway is equipped with edge lighting and runway end identifier lights (REIL). Lights are pilot-activated. Taxiways have edge reflectors. Overhead lighting is present in the Airport hangar/apron 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. With the proximity of residential uses, additional lighting or structures will need to be focused such that light or glare is not projected into the community.

2.6.2 Natural Environment

Natural environmental elements include various aspects of air quality, water resources, fish and wildlife, hazardous materials, energy and other resource issues.

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 (NO2), ozone (O3), sulfur dioxide (SO2), lead (Pb), and particulate matter (PM). Two size classes of particulate matter are monitored, PM10 and PM2.5. 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 Cottage Grove State Airport is in an area that is currently in attainment (i.e. does not have any air quality monitoring violations) for air quality. Air quality monitoring is conducted on a continual basis by the Oregon Department of Environmental Quality using automated monitoring stations located throughout the state.

Any proposed projects will need to consider the impact of particulate material on the local environment, including water quality and other resources. The Airport does not currently generate a significant amount of surface traffic, and that is anticipated to continue in the future.

Water Quality

The Airport site is on an upland plain near the Row River. Drainage across the site is general east towards the river. Airport staff have stated that flooding is a periodic issue largely in the northern end of the runway where it is closest to the river. When flooding occurs, it is driven by the Row River overflowing into adjacent low lying areas, not from insufficient drainage of the Airport. The wooded areas between the runway and the river contain areas of impounded water and wetlands which receive drainage

from the Airport. Because of the proximity of the Airport to the Row River, it would be difficult to add additional water filtration or impoundment measures between the paved surfaces and the Row River.

Plants and Animals, Including Coastal Resources, Endangered and Threatened Species, and Essential Fish Habitat

The Airport is not in a Coastal Zone and does not include any Coastal Resources. According to the Oregon Biodiversity Information Center (ORBIC), eight federal or state listed species have been documented in a 2-mile radius of Cottage Grove State Airport. This list includes six aquatic species and two terrestrial species.

One of the species is federally listed as endangered and state listed as sensitive, Columbia White-tailed Deer (Odocoileus virginianus leucurus). However, the last documented record is from 1897 and the species is considered locally extinct in Lane County. Another species, Chinook Salmon (Oncorhynchus tshawytscha) is federally listed as threatened and state listed as sensitive, but is entirely aquatic and not expected to occur on Airport property outside the Row River.

The remaining species are federally and state listed as species of concern, sensitive-critical, or sensitive-vulnerable, which are listings which have lower levels of protection than formal endangered or threatened status. Streaked Horned Lark (Eremophila alpestris strigata) did not appear in the ORBIC listing but is included below because the Airport is within the range for the species and has been identified as potential habitat in past state-wide reviews for the species. Specific listing status appear in the descriptions for each species below.

- Streaked Horned Lark (Eremophila alpestris strigata) is a ground-nesting bird about 6-8 inches in length which prefers open prairies with no trees and few or no shrubs. ORBIC data did not include any species sightings within a 2-mile radius of the Airport. The Airport is located at the southern edge of the range of the species. The nearest airport with a known presence for the species is the Eugene Airport, approximately 23 miles to the north. Habitat for species is present around runway and taxiway areas. No surveys for the species have been conducted at the Cottage Grove State Airport. However, surveys will take place in Spring/Summer 2018.
- Western Pond Turtle (Actinemys marmorata) is a freshwater turtle found in streams, lakes, and wetlands. They spend most of their time in the water, but travel on land between waterbodies and when nesting. The pond turtle is a federal species of concern and a state sensitive-critical species. The species was sighted multiple times at the nearby Row River Nature Park and other areas along the

Row River as recently as 2006. Though the species could use areas within the Airport for nesting or travel, expected use would be limited to the forested riparian area to the east of the runway.

- Oregon floater (Anodonta oregonensis) is a freshwater mussel found low gradient and low elevation rivers, lakes, and reservoirs. The species is federally classified as G5Q (Global, Abundant, Taxonomic Questions) and state classified S3 (Sensitive, Rare but not immediately imperiled). The species is entirely aquatic and is not expected to occur on property outside of the Row River. The species was last sighted in 1967 downstream from the Airport in the Row River.
- Ringtail (Bassariscus astutus) is a small mammal which is related to a raccoon. It occurs in low elevation forests and riparian areas. The species is federally classified as G5 (Global, Abundant) and state classified as sensitive-vulnerable. The ringtail was last sighted in 1978 along the Row River north of the Airport and may occur in the riparian areas east of the runway.
- Townsend's Big-eared Bat (Corynorhinus townsendii) is a cave roosting bat species which uses hollow trees and bridges for short-term roosting. The bat is a federally species of concern and state sensitive-critical species. Roosting habitat for the species could occur in the forested riparian area east of the runway. The species is too small to present a collision risk to aircraft.
- Pacific Lamprey (Entosphenus tridentatus) is a fish species which occurs in freshwater and marine environments. It is a federal species of concern and state sensitive-vulnerable species. The species is entirely aquatic and not expected to occur on Airport property outside of the Row River. The last sighting was 2011 downstream from the Airport in the Row River.
- Chinook Salmon is a fish species known to spawn in the Willamette River basin and expected in the Row River. The species is federally listed as threatened and state listed as sensitive-critical. The species is entirely aquatic and not expected to occur on Airport property outside of the Row River.
- Oregon Chub (Oregonichthys crameri) is a small fish which inhabits still areas of rivers in the Willamette Valley. It was federally delisted, due to population recovery, in 2015. It remains state-listed as sensitive. The species is entirely aquatic and is not expected to occur on Airport property outside of the Row River.

The Cottage Grove State Airport property includes site conditions typical of an airport facility, with regard to the maintenance of the grounds and vegetation. The Airport is located on a flat floodplain adjacent to the Row River. Areas to the west are a mix of residential and agricultural land uses with limited natural habitat. Natural habitat present on the Airport is limited to the grassland areas around the runway and taxiway which are largely undisturbed except for periodic mowing and an area of mixed riparian woodland and shrubs between the runway and the Row River. Depressional and riparian wetlands are present throughout the woodland/shrub area between the runway and the Row River. An extensive mowing schedule maintains all vegetation for airport safety and visibility as required by FAA regulations.

The Row River may attract migratory waterfowl or other wildlife hazards to aviation. Both the northern and southern approaches pass directly over the river a short distance from the end of the runway. Other wetlands areas on the Airport are forested or shrub areas and

are less likely to attract migratory waterfowl due to tall vegetation.

The FAA wildlife strike database recorded one wildlife strike at the Airport in January 1992 which resulted in minor damage to the aircraft from a collision with a grouse, a species not considered migratory waterfowl. This single event, over 25 years ago, does not indicate issues with wildlife or bird strikes at the Airport.

Any activity on the Airport would need to consider impacts to these species under the Endangered Species Act and Migratory Bird Treaty Act. A survey to investigate possible presence of Streak Horned Lark at the Airport is scheduled to be completed in the Spring of 2018, as part of this Master Plan update.

Wetlands and Floodplains

Based on the national and local wetland inventories, the Airport contains wetlands in areas along the edge of the Row River. Site observations indicated that a wooded drainage along the northwestern side of the Airport may also contain some wetland areas. However, this drainage is outside the Airport boundary. The majority of the wetland areas are located in a mixed wooded and shrub area between the runway and the Row River. This area contains multiple depressional wetlands and riverine oxbow areas in addition to a wooded riparian wetland fringe along the river. At the time of any development action a formal wetland determination will need to be prepared to identify any changes in condition or regulatory status.

FEMA floodplain mapping indicates that nearly the entire airport is within a FEMA Floodplain (FIRM 2009). The northern half of the runway and taxiway areas and the runway protection zone at the southern end of the runway are in the 1% annual chance flood hazard area (FEMA Flood Insurance Rate Map AE zone). The remainder of the Airport, including all airport structures is in the 0.2% annual chance flood hazard zone. ODA has indicated that the northern end of the runway has recently been flooded during high rain events by the Row River.

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. There are no dump sites or areas of potential aggregation of solid waste in or around the Airport.

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 an 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

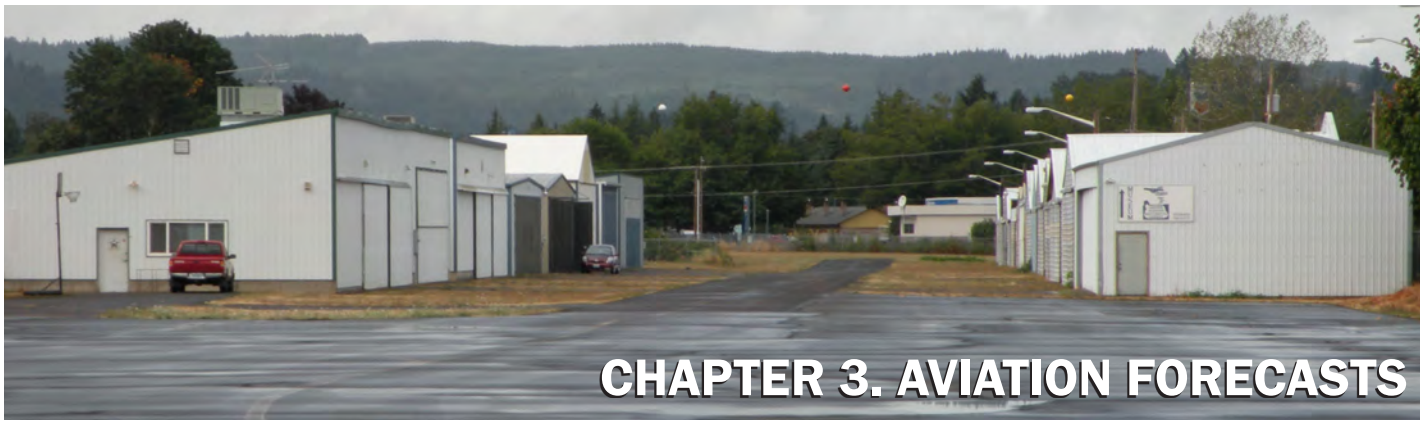
Controversy is typically associated with off-airport impacts. In the case of Cottage Grove State Airport, there appears to be minimal, if any, controversy surrounding the Airport.

Other Issues

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

2.6.3 Environmental Analysis Conclusion

There may be significant environmental issues on the Airport or in the Airport vicinity related to species listed under the Federal and state Endangered Species List, wetland impacts, and flooding. Possible hazardous material issues may also be present if fuel spills have occurred in the past. Additional study regarding these issues should be conducted once a project is defined. Alternatives examined in subsequent chapters of this study will refer to this inventory in order to identify ways to meet aviation demand with the least possible environmental consequences.



CHAPTER 3. AVIATION FORECASTS

3.1 INTRODUCTION

Aviation demand forecasts help determine the size and timing of needed airport improvements. This chapter indicates types and levels of aviation activity expected at Cottage Grove State (Airport) during a 20-year forecast period. Projections of Airport aviation activity were prepared for near-term (2022), mid-term (2027), and long-term (2037) planning period. These projections are generally unconstrained and assume that ODA has opportunity to develop the various facilities necessary to accommodate based aircraft and future operations.

The primary objective of a forecasting effort is to define the magnitude of change in aviation activity expected over time. Because of the cyclical nature of the economy, it is essentially impossible to predict with certainty year-to-year fluctuations in activity, especially when looking 20 years into the future. However, trends can be identified and used to study long-term growth potential. While a single line shown on a graph is often used to express anticipated growth, it is important to remember that actual growth may fluctuate above and below this projected line. Forecasts serve only as guidelines and planning must remain flexible to respond to unforeseen changes in aviation activity and resultant facility needs.

Aviation activity at general aviation airports like Cottage Grove State Airport is measured by the number of based aircraft and by the number of annual aircraft operations (takeoffs and landings). Forecasts for the following aviation activity parameters are presented in this chapter:

- **Based Aircraft**: Number and type of based aircraft help determine future aircraft hangar, tiedown apron, and auto parking facility requirements.
- **Aircraft Operations:** An operation is defined as either an aircraft landing or taking off. Forecasting aircraft operations data helps in analyzing runway capacity and determining runway, taxiway, and navigational aid requirements.
- **Critical Aircraft and Airport Reference Code**: The critical aircraft, with its airport reference code, determines airfield design requirements, such as runway / taxiway size and strength, as well as safety clearances around aircraft movement areas.

The FAA is responsible for reviewing and approving all aviation forecasts submitted to their agency in airport planning studies. The FAA reviews these forecasts with the objective of including them in its Terminal Area Forecasts (TAF) and the National Plan of Integrated Airport Systems (NPIAS), two important sources of forecasting data.

3.2 METHODOLOGY

This forecasting effort has developed realistic forecasts based on the latest available data that reflect the current conditions at the Airport. Supported with additional information in this study, the following methodology based on FAA guidance was utilized to ultimately provide an adequate justification for future airport planning and development proposals discussed later in the Airport Master Plan.

Identify Aviation Activity Parameters To Forecast

The first step in the forecasting process is to determine and select the aviation activity parameters to forecast. The parameters selected to forecast at general aviation airports are selected based on the level and type of aviation activity expected at the airport. For Cottage Grove State Airport, the forecasting effort is focused on based aircraft and aircraft operations.

Projecting operations is the most important activity forecast for airfield planning at general aviation airports. Understanding the existing aircraft operations at the Airport defines the level and type of aviation demand generated (as measured by aircraft operations). It

is this demand that defines the runway and taxiway requirements.

Based aircraft activity is also an important activity that directly influences facilities at a general aviation airport. Based aircraft forecasts are utilized to determine the type and number of aircraft storage facilities and apron tiedowns needed throughout the forecast planning period.

Collect And Review Previous Airport Forecasts

After the aviation activity data to be forecast has been determined, the next step is to collect and evaluate previous forecast data developed from national, state, and local sources. The data collected should be current and relevant to the existing conditions for the airport as well as provide an overview of the national and regional aviation system.

Gather And Analyze Data

This step of the forecasting process expands on the previous two steps to insure that all relevant and pertinent data is being utilized for the forecasting process. Once the sources of forecast data have been determined and the data has been gathered, the next step in the forecasting process is to analyze the data to identify any trends or correlations in the data. It is also important to screen the data for reasonableness to determine if anomalies or errors in the data are present which could affect the outcome of the aviation forecasts. For general aviation airports like Cottage Grove State Airport, historical aviation data relevant to an airport (operations and based aircraft), FAA Aviation Forecasts like the TAF, other FAA and aviation industry forecasts, and socioeconomic data are recommended sources of data to be obtained for analysis.

Select Forecast Methods

The next step in preparing forecasts is to select the most appropriate method to develop the projections for the activities to be measured. A forecast for an airport can involve a number of different techniques. They include:

- Regression and Trend Analysis
- Share Analysis
- Exponential Smoothing
- Comparison with Other Airports
- Survey Techniques
- Cohort Analysis
- Choice and Distribution Models

While there are several acceptable techniques and procedures for forecasting aviation activity at a specific airport, as identified above, most forecasts at general aviation airports utilize basic techniques such as regression analysis or trend analysis.

Regression analysis is an econometric analysis that uses statistical methods to estimate the relationship between a dependent variable and one or more independent variables at a future point in time. Regression is most useful when forecasts of the independent variables are more readily available than the dependent variable to be forecasted. Most regression models for aviation demand at general aviation airports use gross economic measures like income, population, and employment.

Trend analysis is a method of projecting historic trends into the future. The trend analysis formula is similar to the regression analysis formula except time is the independent variable.

Apply Forecast Methods And Evaluate Results

After historical aviation activity and forecast data has been obtained and analyzed, appropriate forecast methodologies have been selected, the methods need to be applied in order to obtain the forecasts of aviation activity such as based aircraft and aircraft operations.

A useful way to evaluate the reasonableness of forecast results is to compare the data against historic trend rates or other relevant similar forecasts such as state system plans and FAA TAF forecasts.

Summarize And Document Results And Compare To FAA TAF

The next and final step in the forecast process is to summarize and document the results and compare the proposed preferred forecast to the FAA TAF. The planning forecast write-up should summarize each forecast element, explain the forecast methods used, highlight significant assumptions, clearly present the forecast results, and provide a brief evaluation of the forecast.

3.3 FORECAST GUIDANCE AND DATA SOURCES

A summary of data sources and forecasting guidance references used to prepare forecasts in this chapter are described here.

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 GA to large commercial service facilities. This AC contains the key guidance that explains steps required for development of master plans, including the preparation of aviation activity forecasts and which elements should be forecast.

Airport Cooperative Research Program Report (ACRP): Counting Aircraft Operations at Non-Towered Airports

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

ACRP Report: Airport Aviation Activity Forecasting

This document discusses methods and practices for aviation activity forecasting. This report identifies common aviation metrics, issues in data collection and preparation, and data sources.

Forecasting Aviation Activity by Airport

This document provides guidance for preparing airport activity forecasts. FAA also utilizes this guidance when developing the TAF.

FAA Terminal Area Forecasts (TAF)

The TAF is the official FAA forecast of aviation activity for US airports. It contains active airports in the NPIAS including FAA-towered airports, federal contract-towered airports, non-federal 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 (GA), and military. Forecasts are prepared to meet the budget and planning needs of the FAA and provide information for use by state and local authorities, the aviation industry, and the public.

FAA Aerospace Forecasts, Fiscal Years 2017-2037

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 US aircraft fleet. The Fiscal years 2016-2037 report was released in March of 2017.

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 US pilot population, airports, safety, international data, and forecast information. The report also contains the year-end shipments and billings for GA aircraft divided into four different segments: business jets, turboprops, piston engine airplanes, and helicopters.

Federal and State Data Sources

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

Local Data Sources

Other sources of data, such as the Oregon Department of Aviation's Oregon Aviation Plan, Lane County Comprehensive Plans and economic development information for the county and region, were obtained and researched to understand local economic issues. Airport users and community organizations were also contacted through phone interviews and questionnaires to understand how the Airport is used and viewed by these groups.

3.4 TRENDS AFFECTING AVIATION

Trends in national, state, and local aviation activity can be correlated to the aviation activity at any particular GA airport. This section will assess these current trends and their possible influence on activity at the Airport.

3.4.1 National Trends and Forecasts

FAA publishes forecasts of aviation activity annually. Cottage Grove State Airport is part of an air transportation system and, as such, is subject to national and regional aviation trends. This means that the Airport is directly affected by trends impacting these larger systems. As a GA Airport, Cottage Grove State

Airport is mostly affected by trends in the GA segment of the industry. General Aviation refers to a wide range of flight activity and, by general definition, is all flight activity excluding commercial airline and military aircraft.

General Aviation in the US peaked in the 1970s, then experienced years of decline until growth returned in the 1990s. The growth in the 1990s was due not only to an expanding economy, but also to the General Aviation Revitalization Act (GARA) of 1994. GARA effectively protected most aircraft manufacturers and aircraft parts from liability for accidents involving products that are 18 years old or older (at the time of the accident), even if manufacturer negligence was a cause. Setting these limitations spurred production of single engine piston aircraft, as reduced product liability costs reduced the purchase price to a point that was more affordable. Single engine piston is the aircraft type that currently accounts for the majority of the nation's GA activity.

The business aviation portion of GA grew rapidly in the 1990s and into the first part of the 21st century. Since 9/11, business aviation has benefited from the increased regulations and security processing required by airline travel. Additional imposed airline passenger and baggage security as well as reductions in air service, particularly to smaller communities, have stimulated business use of aircraft since the economic recovery. GA business aircraft ranges from small, single engine aircraft rentals to multiple aircraft corporate fleets supported by dedicated flight crews and mechanics. Airplanes used for business tend to be larger and faster than those typically chosen for personal use. Until 2008, business aviation grew rapidly as various chartering, leasing, time-sharing, fractional ownership, interchange agreements, partnerships, and management contracts emerged. Business aviation is predicted to show stronger growth than the personal and recreational aviation segments, as businesses avoid factors such as possible commercial airline flight delays, and security issues associated with airline travel.

The number of Sport Aircraft is expected to grow at 4.1% over the next 20 years while the average annual hours flown for these aircraft is projected to grow at a higher rate of 4.6%.

The number of Turboprop Aircraft is expected to grow at 1.4% over the next 20 years while the average annual hours flown for these aircraft is projected to grow at a higher rate of 1.6%.

The number of Piston Single-Engine Aircraft is expected to shrink at -0.8% over the next 20 years and the average annual hours flown for these aircraft is also projected to decline at a slower rate of -0.6%.

General Aviation growth began to decline in 2008 and 2009, due primarily to the economic recession that began toward the end of 2007. Soaring fuel prices in mid-2008 only reinforced the decline. The recession dampened every aspect of GA, from flight training and aircraft production to the number of pilots and the hours aircraft were flown.

General Aviation aircraft are widely varied, although the majority of GA aircraft are piston-powered, fixed-wing airplanes. The FAA tracks individual aircraft in the fleet along with the number of hours flown by each aircraft type – common indicators of industry changes. Aircraft type is categorized by either body, fixed wing or rotorcraft, or engine type and number, piston or turbine. The source of historic numbers is the FAA GA and Air Taxi Activity Surveys. As the operational environment continues to evolve, the FAA Aerospace Forecast suggests that the timing and strength of a recovery in aviation demand remains highly uncertain, although the long-term outlook remains favorable due to growth in turbine aircraft.

3rd Class Medical Reform

In July 2016, as part of the FAA Extension, Safety and Security Act of 2016, third-class medical reform was signed in to law. The impacts of the new law are not yet certain. However, it is anticipated by many that the new law removing the third class medical requirement for private pilots may generate a boost in recreational flying opportunities and growth in GA and recreational flying overall.

Under the new provisions, pilots holding current driver's licenses and third-class medicals would never need to see an Airman Medical Examiner (AME) again. Instead, pilots would be required to visit their personal physician once every four years and make a notation in their logbook, as well as complete an online aeromedical test every two years and medically self-certify their fitness before each flight.

Pilots would be allowed to operate aircraft with up to six seats, up to 6,000 pounds (no limitations on horsepower, number of engines, or gear type) under day and night VFR and IFR with up to five passengers. Pilots cannot operate for compensation or hire, and are limited to altitudes of up to 18,000 feet msl and airspeeds up to 250 knots indicated airspeed.

National General Aviation Fleet

The FAA projects the number of all active GA aircraft will grow 0.1% annually over the next two decades. The more expensive and sophisticated turbine-powered fleet (including helicopters) will grow at an average of 1.9% annually over the next two decades. Of that fleet,turbine jets will see the strongest growth of 2.3% annually. In contrast, the piston-powered aircraft fleet is projected to decrease at -0.8% annually. The decline in piston fixed wing aircraft does not include the relatively new category of light sport aircraft which is expected to experience 4.1% annual growth in the fleet.

Table 3A - National Fleet Mix Average Annual Growth Rate

Aircraft Type	2016 (Estimated)	2010-2016 Historical	2016-2037 Forecast
Total Piston Fixed Wing	140,020	-1.7%	-0.8%
Single Engine	126,820	-1.6%	-0.9%
Multi-engine	13,200	-3.1%	-0.5%
Total Turbine Fixed Wing	23,230	1.8%	1.9%
Turboprop	9,460	0.2%	1.4%
Turbojet	13,770	3.1%	2.3%
Total Rotorcraft	10,700	1.0%	1.6%
Piston	3,335	-1.2%	1.3%
Turbine	7,365	2.1%	1.8%
Experimental	28,475	2.3%	1.0%
Sport Aircraft	2,530	N/A	4.1%
Other	4,950	-2.3%	0.1%
Total GA	209,905	-1.0%	0.1%
National Piston Growth Rate	-0.8%	-1.7%	-0.8%
National Turbine Growth Rate	0.7%	1.9%	1.9%

Source: FAA Aerospace Forecasts, 2016-2037

Table 3B - National Average Hours Flown			
Aircraft Type	2016 (Estimated)	2010-2016 Historical	2016-2037 Forecast
Total Piston Fixed Wing	12,794	-1.5%	-0.8%
Single Engine	11,191	-1.4%	-0.9%
Multi-engine	1,603	-2.1%	-0.1%
Total Turbine Fixed Wing	6,712	2.8%	2.5%
Turboprop	2,539	1.5%	1.6%
Turbojet	4,173	3.6%	3.0%
Total Rotorcraft	3,350	-0.3%	2.0%
Piston	784	-0.2%	1.7%
Turbine	2,565	-0.3%	2.1%
Experimental	1,335	1.4%	2.0%
Light Sport Aircraft	204	N/A	4.6%
Other	162	-1.8%	0.1%
Total GA	24,558	-0.2%	0.9%
National Piston Growth Rate	1.4%	-1.4%	-0.6%
National Turbine Growth Rate	3.7%	1.9%	2.4%

Source: FAA Aerospace Forecasts, 2016-2037

The FAA cautions its forecasts depend on many unknown factors. Some of these factors include the national and world economies, US unemployment, price of oil, and national fiscal issues. **Table 3A** on the previous page shows these projected growth rates.

National General Aviation Hours Flown

As the active aircraft fleet grows, the number of GA hours flown is projected to increase at 0.9% per year. 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 3.0% for jet aircraft, and an even higher growth rate 4.6% for light sport aircraft. **Table 3B** presents the FAA's forecast for aircraft hours flown.

Rotorcraft hours were relatively immune to the recession compared to other categories. Turbine fixed wing aircraft utilization was also less impacted from the GA decline related to the recession when compared to other categories because turbine aircraft are flown primary for business rather than recreational flying. Growth in the light sport aircraft category has continued since its introduction in 2005.

Single engine piston airplanes (not including light sport aircraft) represent nearly 62% of the active fleet but fly less than 47% of the total hours flown, while the higher performance, more expensive turbine-powered aircraft often used for business represent a smaller portion of the fleet and a much larger portion of the total number of hours flown. For the first time in aviation history, turbine-powered aircraft are forecast to exceed piston-powered aircraft for total hours flown around the year 2025.

3.4.2 State And Local Aviation Trends

While broad industry trends influence aviation activity at individual airports, regional and local factors may have a greater influence. Primary sources for discussion of state and local aviation trends are local aviation activity information and data, the Oregon Aviation Plan (OAP) completed in 2007, and the FAA Terminal Area Forecast.

The OAP describes the following trends impacting aviation demand in Oregon:

- Continued migration into the state – new residents who depend on air transportation to maintain ties with family and friends.
- Continued increases in socioeconomic indicators, such as total employment, per capita income, and retail sales.

As of 2013, there were 97 public-use and over 360 private-use airports in the State of Oregon; all of those airports were included in the state airport system in 2007. The airports in the state system had an estimated

4,875 based aircraft in 2005 (the base year for data). In comparison, the aircraft registry shows 7,594 aircraft registered in the State of Oregon as of March 2016. The 2007 OAP projected that based aircraft in the state would grow 1.2% by 2030. For the same time-frame, GA operations were projected to grow at an estimated 1.6% annual growth rate, which is slightly above the based aircraft growth rate. These growth rates were prepared prior to the economic downturn of 2008, and are not seen as applicable to the post-recession economy.

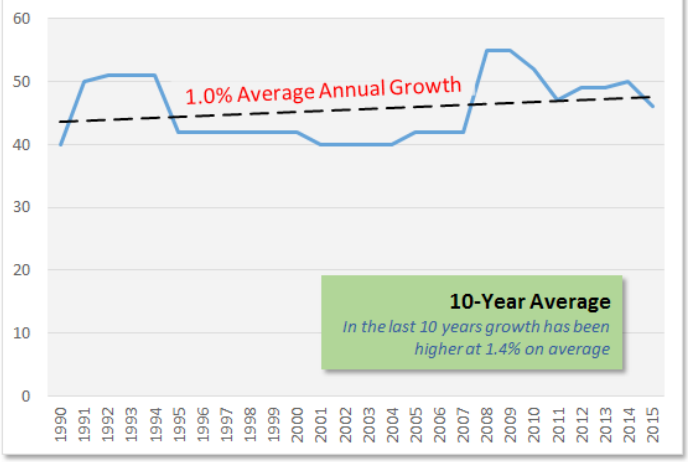
Historic Based Aircraft

Based aircraft counts are the number of aircraft that are stored at an airport in a hangar or tied down on either a paved apron surface or a grassy area designated for such a use. The FAA's 2017 TAF data show an overall increase in based aircraft over the period of 1990 - 2015 (**Figure 3A**). Based on the TAF data, the number of based aircraft grew at an average annual rate of 1% over the 25-year period and 1.4% over the most recent 10-year period.

The TAF is the primary source for historical based aircraft numbers from which to discern trends at general aviation airports. However, in recognizing the importance of accurate based aircraft counts at each airport, the FAA established a National Based Aircraft Inventory Program. A website (www.basedaircraft.com) has been established to allow airport managers direct on-line entry of their based aircraft counts, which is then validated via cross-reference of aircraft tail numbers entered for other airports. For aircraft listed at more than one airport, there is a procedure for determining how the aircraft is counted.

In the latest based aircraft inventory update using the stricter validation methods for determining based aircraft inventory (**Table 3C**), ODA reports 26 actual based aircraft in 2017, which the Master Plan assumes to be accurate since it has been verified through the National Based Aircraft Inventory database. Of these based aircraft reported, all 26 are single-engine piston aircraft. There are no helicopters, multi-engine, turbine or turboprop aircraft based at the Airport. This adjusted baseline information will be used as the starting point for aviation activity forecasts projected to occur at the Cottage Grove State Airport over the planning period.

Figure 3A - Historic Based Aircraft at Cottage Grove State Airport



Source: FAA TAF, 2017

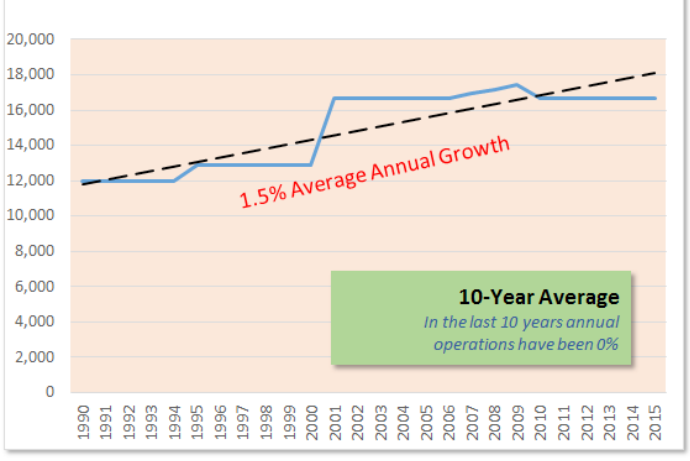
Table 3C - Based Aircraft at Cottage Grove State Airport	
Aircraft Category	Number Based
Single-Engine Piston	26
Multi-Engine Piston	0
Jet/Turboprop	0
Helicopter	0
Total	26

Historic Aircraft Operations

Annual operations are the total number of aircraft takeoffs and landings occurring at the Airport in a year. Airport operations are divided between local and itinerant activity and further categorized by Air Taxi, General Aviation Local, General Aviation Itinerant, and Military. Local operations count as two operations, one take-off and one landing. Operations that remain within 20 miles of the Airport are categorized as local. Itinerant activity refers to all other operations that depart to or arrive from another Airport.

Operations estimates published in the TAF show an overall growth trend over the past 25-year period. Over that term, operations have increased at an average annual rate of 1.5%. However, since the recession, growth of operations at the Airport have stagnated,

Figure 3B - Historic Annual Operations at Cottage Grove State Airport



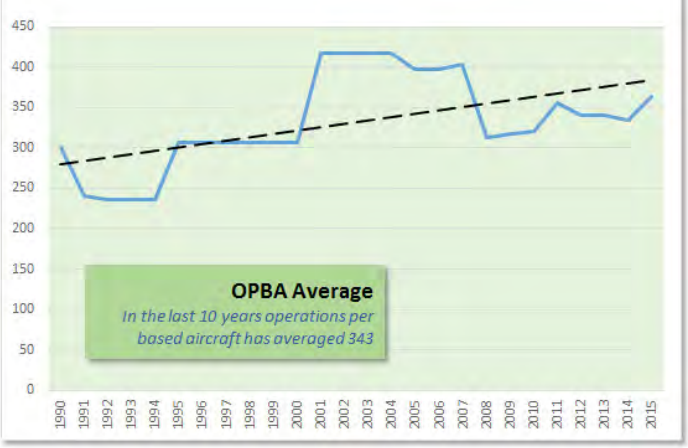
Source: FAA TAF, 2017

hovering near the 17,000 annual operations level for the past decade (**Figure 3B**).

A method to estimate operations at GA airports is the metric, Operations per Based Aircraft (OPBA). Over the 25-year period between 1990 and 2015 the TAF-based OPBA have ranged between 235 and 417. OPBA has averaged 343 OPBA over the past decade (**Figure 3C**).

Due to the adjustment in based aircraft noted in the

Figure 3C- Historic Annual OPBA at Cottage Grove State Airport



Source: FAA TAF, 2017

most recent validated counts, the OPBA was revisited in discussions with ODA and FAA personnel in order to ensure an appropriate level of operational data was established prior to finalizing aviation activity data and forecasts. Ultimately, the 10-year TAF average of 343 OPBA was determined to be an appropriate level to establish the latest operations estimates.

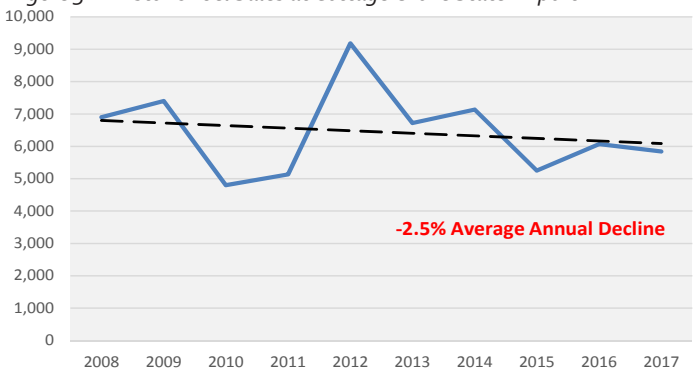
Historic Fuel Sales at Cottage Grove

Fuel sales can be an indicator of aviation activity at an airport. **Figure 3D** shows fuel purchased for the Airport from Fiscal Year (FY) 2008 through FY 2017. Overall, fuel purchase receipts depict no standard trend, but appear to range consistently between 5,000 and 7,000 gallons of Avgas. The average annual growth for fuel sales is -2.5%. However, in FY 2012 fuel sales rose to an all time high with 9,180 gallons of 100LL sold. The runway closure and Airport construction in 2013 could account for the steepest decline of fuel sales over the 10 year period.

Estimated Aircraft Operations

With the updated based aircraft count of 26 total aircraft and the selection of 343 OPBA, the planning team has estimated the total operations at Cottage Grove State Airport to be approximately 8,900 annual operations. When distributed by operations type, as shown in **Table 3D**, these relationships are consistent with the data in the FAA TAF.

Figure 3D- Historic Fuel Sales at Cottage Grove State Airport



Source: FAA TAF, 2017

Table 3D Operations Estimates at Cottage Grove State Airport last 12 Months	
Operation Type	**Operations**
Air Taxi	50
General Aviation Itinerant	5,075
General Aviation Local	3,775
Military	0
Total	**8,900**

3.5 AVIATION FORECASTS

Forecasts of aviation activity are developed to enable operators and other groups involved in the development of aviation facilities to properly plan for the future. During the forecasting process, data was collected and demand projections for based aircraft and aircraft operations were calculated. The following forecasts provide insight into how aviation activity at the Cottage Grove State Airport is projected to change over the next 20 years.

3.5.1 Based Aircraft Forecast

The number of aircraft based at the Airport 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.

The based aircraft forecast begins by analyzing historical numbers of based aircraft. Then various forecast models prepared for the Airport are analyzed and presented through the planning period.

Seven different forecasting models were analyzed to provide a range of the possible numbers of based aircraft. The average annual growth rates for these models range from -0.8% to 4.1%. All of the analyzed models are graphically summarized in **Figure 3E.**

National Sport Aircraft Growth Rate Model (4.1%)

As GA aviation needs are changing to meet the needs of users, the growth of smaller, lighter, and cheaper sport aircraft is significant. An increase in the number of these ultra light planes is expected over the course of the planning period. However, the majority of the based aircraft are still piston powered and the sport craft growth rate model is the most aggressive when compared to other models. This forecast model would increase the total based aircraft by 32 for a total of 58 by 2037.

Historic Trend (1.7%)

Using TAF based aircraft data from 2005 through 2015, the historic trend model projects a continuation of the based aircraft trends experienced at the Airport into the future. As previously mentioned, there have been discrepancies with historic based aircraft counts at Cottage Grove State Airport prior to online verification. Forecasting this historic trend out, an additional 11 based aircraft would base at the Airport for a total of 37 by 2037. Other models may be more reliable.

Terminal Area Forecast (1.6%)

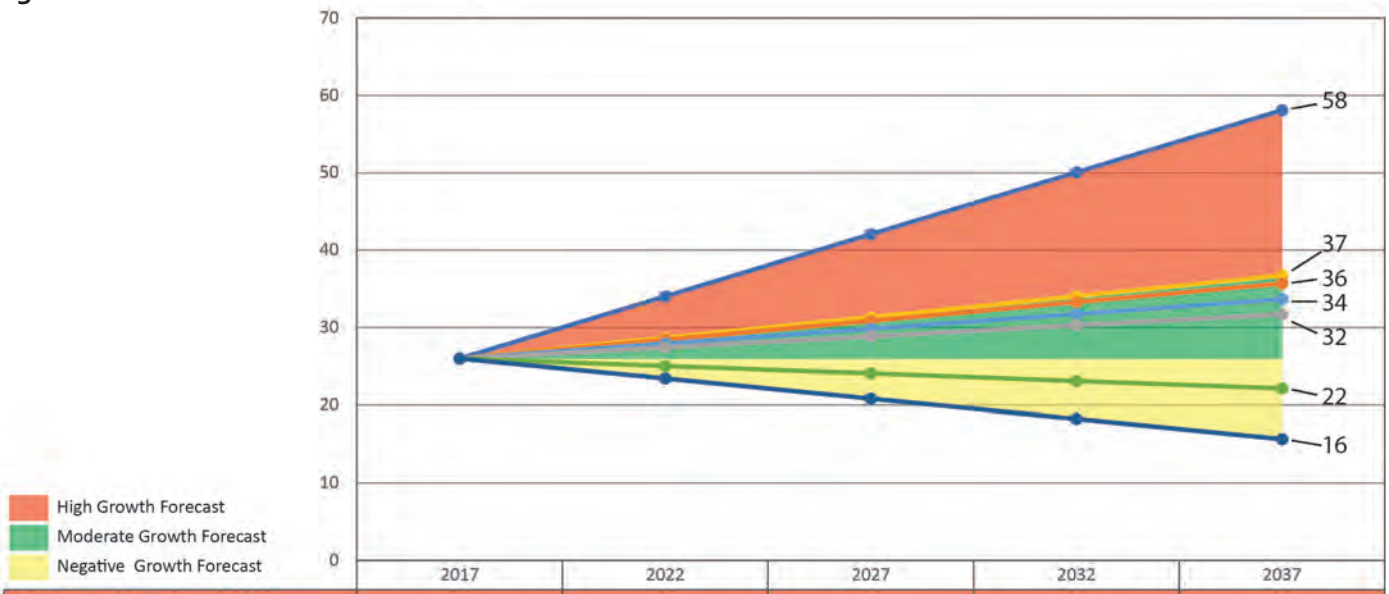
The FAA's TAF for the Airport, prepared in 2017, shows an increase of 1.6% annual aircraft over the 20-year planning period. The TAF growth rate represents nationwide trends in GA airports and it is reasonable to apply this growth rate even though the starting inventory of based aircraft has been adjusted downward. As such the 1.6% growth trend was applied to the verified aircraft count (26) and projected out to 2013. This method resulted in an increase of 10 based aircraft for a total of 36 at the end of the planning period. This adjusted TAF model falls within the upper end of the mid-range forecast range.

Oregon Aviation System Plan Model (1.3%)

The forecast for the Airport in the Oregon Aviation Plan equates to 1.3% average annual growth. This forecast accounts for local socioeconomic factors; however, the national, state, and local economic climate has changed since the forecast was produced. Still, it reflects a slightly lower growth rate than airports statewide, which is consistent with the current economic indicators. This forecast would increase based aircraft by 8 to 34 by 2037.

National Experimental Aircraft (1.0%)

Figure 3E - Based Aircraft Forecasts



	2017	2022	2027	2032	2037
National Sport Aircraft (4.1%)	26	34	42	50	58
CG Historic Based Aircraft (1.7%)	26	29	31	34	37
Cottage Grove Adjusted TAF (1.6%)	26	28	31	33	36
State System Plan Growth Rate (1.3%)	26	28	30	32	34
National Experimental Aircraft (1.0%)	26	27	29	30	32
National Piston (-0.8%)	26	25	24	23	22
Cottage Grove Fuel Trends (-2.5%)	26	23	21	18	16

The forecast for the The National Experimental Aircraft is 1% average annual growth. While this rate is significantly less than the Sport Aircraft growth rate mode, the correlation between these two model should be noted. If the National Experimental Aircraft growth rate were applied to the based aircraft count of 26 independently, without consideration of any other model, the result would project a modest increase in based aircraft to a total 32 by 2037.

National Piston Growth Rate Model (-0.8%)

The majority of airplanes based at the Airport now and in the past have been piston-powered. Therefore, it would appear reasonable to apply the same growth rate at the Airport as forecast for piston-powered airplanes nationwide. However, this model does not take into consideration the expected influx of more affordable light sport aircraft into the Airport, as the national trends and local economics would indicate. This forecast model would decrease the total based aircraft by 4 for total of 22 by 2037.

Cottage Grove Fuel Trends (-2.5%)

Historic Avgas fuel sales at the Airport indicate declining sales at the Airport over the past decade. The downward revision of the based aircraft inventory may or may not be reflected in these trends as there are many more factors in how pilots decide where to purchase fuel. While fuel sales may not directly correlate with fluctuations in based aircraft, applying the -2.5% growth rate to all based aircraft at the Airport would result in a decrease of 10 based aircraft to a total of 16 by 2037.

3.5.2 Preferred Based Aircraft Forecast

The previously discussed based aircraft forecasts models were aggregated into three generalized forecast ranges representing high growth, moderate growth, and negative growth of based aircraft at the Airport. The High Growth Forecast range spans between the National Sport Aircraft Forecast (4.1%) and the 10-year Cottage Grove Based Aircraft model (1.7%). The Moderate Growth Forecast Range contains all models that predict positive growth, up to that of the 10-year Cottage Grove Based Aircraft model (1.7%). The Negative Growth range includes all forecasts that exhibit negative growth. The lowest extent of this range is represented by the Cottage Grove Fuel Trends model (-2.5%).

It should be noted that forecasting is not a precise science; it is an educated estimate based on approved methods and data. As such, in the event the Preferred Based Aircraft Forecast over- or underestimates demand, the range of error will likely be accounted for in the selection of the "Preferred Range". If demand falls in line with any of the forecast ranges, it is anticipated there is land available for hangar development to accommodate the full range of projections.

Figure 3D on the previous page graphically compares these forecast ranges. While the exhibit presents the forecasts as increasing year-by-year according to average growth rates, actual growth over time will occur in phases as facilities are constructed and made available for based aircraft.

High Growth Forecast

The High Growth Forecast is the most optimistic of the forecasts and accounts for growth in the recreational aviation market generated primarily from the growing light sport aircraft market. The high growth range scenario would likely result in the addition of 11 - 32 aircraft, many of which would be light sport models, with a few small multi-engine turbine aircraft. At the end of the 20 year planning period it is estimated the based aircraft count would fall between 37-58 based aircraft.

Moderate Growth Forecast

The slightly less optimistic Moderate Growth Forecast predicts positive growth,but at a rate less than the 10-year Cottage Grove Historic Based Aircraft Model (1.7%) . The range includes the Cottage Grove TAF Model (1.6%), the Oregon Aviation System Plan Model (1.3%), and the National Experimental Aircraft Growth Model (1.0%). This scenario presents moderate growth over the 20 year planning period and will likely add up to 10 new aircraft to the fleet at Cottage Grove State Airport. Similar to the High Growth scenario, it is anticipated that a portion of the new based aircraft at the end of the 20 year planning period would include small multi-engine turbine business aircraft based at the Airport seasonally. By the end of the 20 year planning period it is estimated the based aircraft count would range between 26-36 based aircraft.

Negative Growth Forecast

The Negative Growth Forecast Range is characterized by a decrease of aircraft based at the Airport. The range includes the National Piston Model (-0.8%), and the Cottage Grove State Airport Fuel Trends Model (-2.5%). The low range scenario projects the existing situation at the Airport out to the end of the 20 year planning period where small multi-engine turbine aircraft are still using the Airport seasonally and itinerantly but are not permanently based at the Airport. By the end of the 20-year planning period it is estimated the based aircraft

count would fall between 16-26 aircraft.

Preferred Based Aircraft Forecast

The preferred forecast range is the Moderate Growth Forecast. The National Experimental Aircraft model falls very near to the center of the forecasted range and as such, is an appropriate representation of the preferred range and will be adopted as the preferred based aircraft forecast model. This forecast model represents an average annual growth rate of 1.0%. The model, when projected out across the 20 year planning period, estimates an additional 6 based aircraft over the planning period for a total of 32 aircraft.

Forecast Based Aircraft Fleet Mix

The fleet mix of aircraft based at the Airport may slightly change over the forecast period, although single engine, piston-powered aircraft will still be predominant. **Table 3E** presents the forecast based aircraft fleet mix.

Table 3E Forecast Based Aircraft Fleet Mix at Cottage Grove State Airport

Aircraft Category	2017	2037
Single-Engine Piston	26	28
Multi-Engine Piston	0	2
Jet/Turboprop	0	1
Helicopter	0	1
Total	26	32

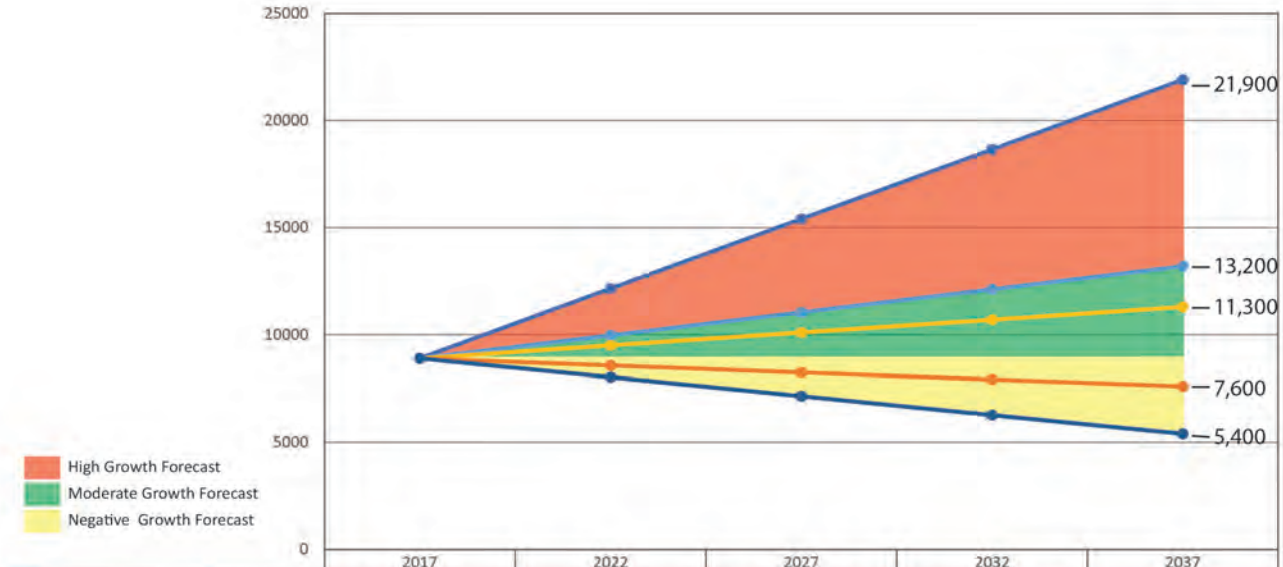
3.5.3 AIRCRAFT OPERATIONS FORECAST

Aircraft operation forecast data helps in analyzing runway capacity and determining runway, taxiway, and navigational aid requirements. The aircraft operations forecast begins with a review of historic trends in aircraft operations. Similar to the based aircraft forecast, various forecast models are then analyzed and presented through the forecast planning period. Forecast information presented in this section includes operations fleet mix, local vs. itinerant operations, peak activity, and critical aircraft and Runway Design Code (RDC).

Seven different forecasting models were analyzed to provide a range of the possible scenarios to depict aircraft operations at the Airport. The average annual growth rates for these models range from -2.5% to 4.6%. After the analysis, five models that depicted different potential scenarios, but generally covered the full range of the models analyzed, were selected for presentation in **Figure 3F.**

The FAA Aerospace Forecast indicates that GA aircraft usage will increase. While the nationwide fleet is projected to grow 0.2% per year, hours flown are projected to grow 1.2% per year. For the piston fleet,

Figure 3F - Operations Forecasts



	2017	2022	2027	2032	2037
National Sport Aircraft (4.6%)	8900	12150	15400	18650	21900
National Experimental Aircraft (2.0%)	8900	9975	11050	12125	13200
Cottage Grove Adjusted TAF (1.2%) State System Plan (1.2%)	8900	9500	10100	10700	11300
National Piston (-0.8%)	8900	8575	8250	7925	7600
Cottage Grove Fuel Trends (-2.5%)	8900	8025	7150	6275	5400

however, the hours flown are expected to decrease by -0.6% annually – alternatively, the turbine fleet is expected to increase usage by 2.1% annually. Although the piston and turbine fleet forecasts diverge, the overall trend is that aircraft use will increase at a faster rate than the total number of aircraft.

Terminal Area Forecast (1.2%)

The FAA's TAF model projects an average annual growth of 1.2% through 2037. Projecting the TAF-established growth rate from the estimated current operations count will yield an increase of 2,400 annual operations for a total of 11,300 in 2037.

National Sport Aircraft Growth Rate Model (4.6%)

The National Growth Rate model for sport craft is the most aggressive of those analyzed. While the growth of sport craft operations is expected at Cottage Grove State, an applied rate would increase annual operations to 21,900 which would likely overstate operations at the Airport.

National Experimental (2.0%)

The National Experimental Aircraft has an annual growth rate of 2% . The OAP uses base data from 2005 to project 2.0% average annual growth in aircraft operations at the Airport, which may be somewhat outdated. When the growth rate is applied to the model, the projected growth in operations could potentially reach 13,200 annual operations at the end of the planning period.

Oregon Aviation System Plan Model (1.2%)

The OAP uses base data from 2005 to project 1.2% average annual growth in aircraft operations at the Airport. While this plan was prepared prior to the economic recession, the growth in operations yields a growth of 2,400 operations over the planning period. In 2037 this plan projects 11,300 operations at the Airport.

Historic Trend (0.0%)

This forecast model analyzes historical growth from 2005 to 2016 provided by the TAF and continues that trend into the future. According to the most recent data, operations at Cottage Grove State Airport have remained nearly static over the last decade. Because the past based aircraft estimates in the TAF have been revised downward, the historic trends in the TAF data are no longer a reliable indicator of future activity.

National Piston Growth Rate Model (-0.8%)

Applying the piston-only growth rate would show a decrease in annual operations over the forecast period. The applied rate would result in a decrease of 1,300 operations over the planning period. In 2037 this plan projects 7,600 operations at the Airport.

Cottage Grove Fuel (-2.5%)

As discussed in the based aircraft forecast, historic Avgas fuel sales at the Airport indicate a reduction in fuel sales and by association, operations at the Airport over the past decade. Applying the -2.5% rate to the existing operations estimate of 8,900 would result in an estimated 5,400 annual operations at the end of the 20-year planning period.

3.5.4 Preferred Aircraft Operations Forecast

Much like with the Based Aircraft forecasts, the preceding established forecast models were aggregated into three generalized forecast ranges representing High Growth, Moderate Growth, and Negative Growth forecasts. The High Growth Forecast range is characterized by aggressive growth and spans between the National Sport Aircraft Forecast (4.6%) and the National Experimental Aircraft model (2.0%). The Moderate Growth range contains all models that forecast positive growth up to the rate of the National Experimental Aircraft model (2.0%). The Negative Growth range includes all forecasts that predict a decrease in operations over the planning period. This range includes the National Piston (-0.8%) and Cottage Grove State Airport Fuel Trends (-2.5%) models.

Again, forecasting is not a precise science; it is an educated estimate based on approved methods and data. As such, in the event the Preferred Aircraft Operations Forecast over or under-estimates demand, the range of error will likely be accounted for in the selection of the "Preferred Range".

Figure 3F graphically compares these forecast ranges. While the exhibit presents the forecasts as increasing year-by-year according to average growth rates, actual growth over time will occur in phases as facilities are constructed and made available for based aircraft.

High Growth Forecast

The High Growth Forecast range is the most optimistic of the scenarios presented and accounts for growth in the recreational aviation market generated partly from the growing light sport aircraft market as well as the growing turbine jet market. The high range scenario would likely result in an increase of 4,300 - 13,000 operations at the Airport. At the end of the 20 year planning period it is estimated there would be a range of 13,200 to 21,900 operations per year.

Moderate Growth Forecast

The Moderate Growth Forecast range predicts continued growth over the 20 year planning period but at a rate less than that of the High Growth Forecast range. The National Experimental Aircraft (2.0%), the Cottage Grove Adjusted TAF (1.2%), and the Oregon Aviation System Plan (1.2%) models are represented in this range. The anticipated increase of up to 4,300 operations per year will likely be due to slow steady growth in the light sport recreation markets along with a noticeable increase in the number of small multi-engine piston and turbine business aircraft operating at the Airport. In this scenario at the end of the 20 year planning period it is estimated there would be a range of 8,900 to 13,200 operations per year.

Negative Growth Forecast

The Negative Growth Forecast range is the scenario that depicts the least optimistic forecast for the planning period. The National Piston and Cottage Grove Fuel Trend models are represented in this forecast range. The forecast range predicts as many as 3,500 fewer annual operations at the Airport by the end of the planning period. The model projects the existing situation at the Airport out to the end of the 20 year planning period where small multi-engine piston and turbine aircraft are using the Airport seasonally and itinerantly on an occasional basis. At the end of the 20 year planning period it is estimated there would be a range of 5,400 to 8,900 operations per year.

Preferred Aircraft Operations Forecast

The Moderate Growth Forecast range the preferred scenario. This range is best represented by the Cottage Grove TAF Growth Rate and Oregon Aviation State System Plan models. Both of these models predict a 1.2% increase in operations per year. Applying that growth rate over the 20-year planning period, the model forecasts that operations will increase by 2,400 over the planning period for an anticipated 11,300 annual operations in 2037.

As discussed previously, th FAA also uses the relationship between the number of aircraft based at an airport and the number of operations at that airport. This measure, known as OPBA, can be compared regionally to see if the relationship is in line with what nearby airports are experiencing or forecasting (**Figure 3G**). With an OPBA of 343, the preferred forecast for Cottage Grove State Airport compares well with other nearby airports that have similar characteristics.

Operations Fleet Mix

Table 3F presents the fleet mix breakdown of the preferred forecast by single-engine piston, multi-engine piston, turboprop, turbojet, and helicopter.

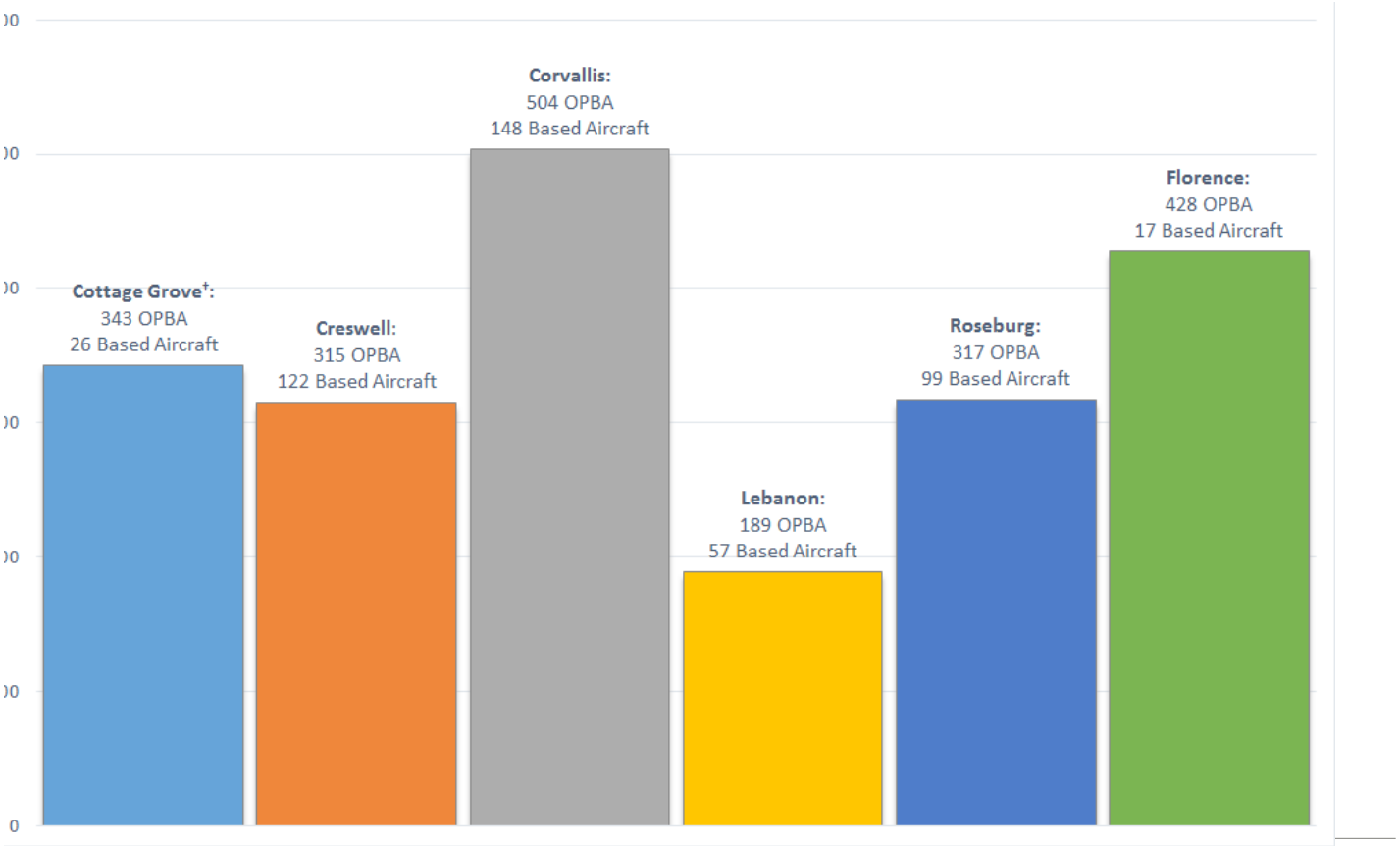


Table 3F Forecast Operations Fleet Mix		
	2017	2037
Single-Engine Piston	8,075	10,295
Single-Engine Turbine	50	70
Multi-Engine Piston	690	800
Turboprop & Turbojet	25	35
Helicopter	60	100
Total	**8,900**	**11,300**

Local and Itinerant Operations

Table 3G presents the breakdown of the preferred forecast for aircraft operations. The operation estimates represent a similar trending of the operations per based aircraft by category ratio as currently exists at the Airport.

Table 3G Forecast Local and Itinerant Operations		
Operation Type	**2017**	**2037**
Air Taxi - Itinerant	50	50
GA - Itinerant	5,075	6,000
GA - Local	3,775	5,250
Military	0	0
Total	**8,900**	**11,300**

Peak Demand

Airport activity fluctuates from month to month, day to day, and hour to hour; therefore, airfield and landside facilities are traditionally designed to accommodate reasonable peak levels of use. In reviewing local vacation destination and seasonal trends, and subsequently verifying with ODA Staff, it is clear the Airport is consistently busier in the summer than in the winter. Without clear airport operations data at the Airport it is difficult to determine the exact ratio of peak demand.

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). Peak hour is assumed to be 15% of the day peak. **Table 3H** summarizes the peak operations forecast.

Table 3H Peak Operations Forecasts		
	2017	2037
Annual Operations	8,900	11,300
Peak Month	1,780	2,260
Design Day	57	73
Design Hour	9	11

3.6 CRITICAL AIRCRAFT AND RUNWAY DESIGN CODE

According to FAA criteria, a runway's design is based on the characteristics of the critical aircraft, which is the most demanding aircraft that uses the runway "regularly" or "substantially." The FAA defines regular or substantial use as at least 500 annual itinerant operations. The Runway Design Code (RDC) can vary for individual runways by providing standards to serve different design aircraft on different runways and taxiways. The RDC also includes a component for instrument approach visibility minimums, which will be discussed further in the Facility Requirements chapter. The largest RDC at an airport dictates the overall Airport Reference Code (ARC) for a particular airport.

The RDC and 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, and is represented by the letters A, B, C, D, and E. The Airplane Design Group is based on the aircraft's wingspan or tail height, and is denoted by Roman numerals I, II, III, IV, V, and VI. **Table 3I** shows the RDC and ARC component definitions and typical aircraft that meet those definitions.

The current ARC and RDC for Runway 15-33 is B-I (small). The designation "small" refers to the size of the airplane as weighing less than 12,500 lbs. Prior planning efforts used the Beechcraft King Air B100, a B-I (small) aircraft, to define the ARC. Based on the aviation activity analysis, and discussions with airport users and ODA, there are very few actual turbine or turboprop aircraft that use the Airport. It is more fitting that the critical aircraft reflect the actual "typical" aircraft seen at the Airport on a regular basis, likely a piston driven aircraft.

Although all aircraft currently based at Cottage Grove State Airport are classified as A-I, current operations estimates, as well as aviation forecasts indicate that there are, and will continue to be more than 500 annual

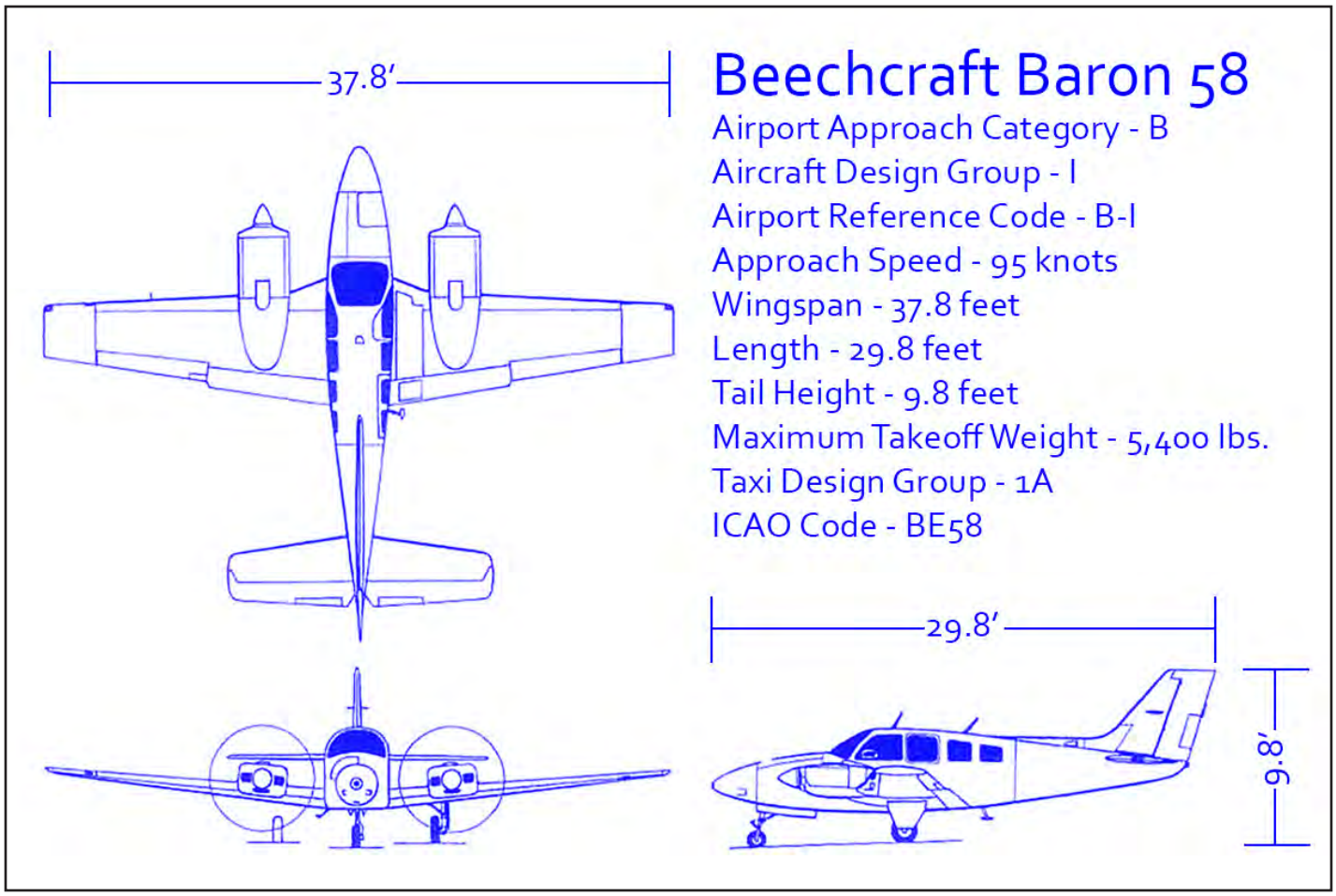


Figure 3G - Beechcraft Baron 58

operations by itinerant B-I (small) aircraft throughout the planning period. The Airport also has facilities on site capable of accommodating B-I (small) aircraft, including a 60' x 60' hangar located on the apron.

Considering these factors, B-I (small) is the appropriate ARC for Cottage Grove State Airport. The twin-engine piston driven Beechcraft Baron 58, which is a B-I (small) was identified as the critical aircraft for the 20-year planning period. The Baron has a wing span of 37' 10", an approach speed of 95 kts, and a gross weight of 5,400 lbs

3.7 SUMMARY OF FORECASTS

The long-term growth of the Airport will be influenced by national and regional trends outlined within this chapter. Elements of the aeronautical activity forecast for the Airport are summarized in **Table 3J**.

With this forecast data, the next step in the master planning process is to calculate the ability of existing facilities to meet the forecast demand. Additionally, the next chapter will identify needed enhancements of airside and landside facilities to accommodate forecast demand. It is noteworthy that the aviation industry tends to cycle through highs and lows. Actual growth may be more aggressive or passive at times over the forecast period. It is essential to identify opportunities within the forecast period and beyond so the State can pro-actively accommodate potential growth.

Table 3I Runway Design and Airport Reference Code Components with Typical Critical Aircraft

Approach Category	Approach Speed	Typical Aircraft	Airplane Design Group	Wingspan	Typical Aircraft
A	Less than 91 knots	Cessna 150, 172, 206, Beech Bonanza	I	Less than 49 feet	Cessna 150, 172, 206, Learjet
B	91 to 120 knots	King Air, Piper Navajo, Gulfstream I	II	49 to 78 feet	King Air, Cessna Citation, Metroliner
C	121 to 140 knots	C-130 Hercules, Learjet, Challenger	III	79 to 117 feet	Bae 146, P2V, DC-6, MD-87
D	141 to 165 knots	Boeing 747, Gulfstream V	IV	118 to 171 feet	C-130 Hercules, DC-10

Source: WHPacific

Figure 3H - Airport Reference Codes & Typical Critical Aircraft

Table 3J Summary of Preferred Aeronautical Activity Forecast				
Forecast Element	2017	2022	2027	2037
Based Aircraft				
Single Engine Piston	26	26	27	28
Multi-Engine Piston	0	1	1	2
Jets/Turboprop	0	0	1	1
Helicopter	0	0	0	1
Total	**26**	**27**	**29**	**32**
Aircraft Operations				
Air Taxi - Itinerant	50	50	50	50
GA - Itinerant	5,075	5,300	5,475	6,000
GA - Local	3,775	4,150	4,500	5,250
Military	0	0	0	0
Total	**8,900**	**9,500**	**10,025**	**11,300**
Operations Fleet Mix				
Single Engine Piston	8,075	8,650	9,145	10,295
Single Engine Turbine	50	55	60	70
Multi Engine Piston	690	700	710	800
Turboprop & Turbojet	25	25	30	35
Helicopter	60	70	80	100
Total	**8,900**	**9,500**	**10,025**	**11,300**
Peak Demand (Operations)				
Peak Month - (20%)	1,780	1,900	2,020	2,260
Design Day	57	61	65	73
Peak Design Hour (15%)	9	9	10	11
Preferred Based Aircraft Forecast vs TAF (Preferred/TAF)				
Preferred	**26**	**27**	**29**	**32**
TAF	50	53	57	67
Percent Difference	-48.0%	-47.2%	-47.4%	-52.2%
Preferred Operations Forecast vs TAF (Preferred/TAF)				
Preferred	**8,900**	**9,500**	**10,025**	**11,300**
TAF	**16,897**	**17,955**	**19,021**	**21,343**
Percent Difference	-47.3%	-47.1%	-46.9%	-47.1%
Preferred Operations per Based Aircraft (OPBA)				
OPBA	**343**	**352**	**346**	**353**

CHAPTER 4. FACILITY REQUIREMENTS

4.1 FACILITY REQUIREMENTS

The Facility Requirements chapter provides analysis that quantifies the needed facilities over the 20-year planning period. In general, facilities are classified according to their function. Runways, taxiways, navigational equipment, lighting, etc. are classified as airside facilities. Hangars, aprons, smaller taxilanes, vehicle parking, and access roadways are classified as landside facilities. Other necessary facilities include utilities, stormwater drainage, aircraft fueling systems, airport-owned equipment, and the like are classified as support facilities.

Facility requirements are derived from several sources. Some facility requirements are identified through comparison of existing conditions to the FAA or state design criteria for the existing traffic. Other facility requirements are needed to accommodate future demand levels or aircraft types as determined from the forecasts prepared in the previous chapter. Normal lifecycle replacement, rehabilitation or maintenance of facilities also drive requirements as does ensuring the compatibility of the airport with the surrounding land uses. The airport sponsor, through this master plan, can also plan other facilities that are intended to fulfill a vision for how the airport should develop and generate economic activity, regardless of whether they are needed for aviation purposes or funded through agency grants. The result of these analyses is a determination as to what facilities will be needed and in what quantities. The location and/or orientation of each of these required facility types will be the subject of the Alternatives chapter.

Airport planning and development criteria are often defined by both federal and state agencies. The FAA provides specific guidance concerning dimensional standards and many state agencies provide generalized guidance based on facilities offered and aircraft activity levels. Both sets of planning criteria are discussed below.

4.1.1 FAA Design Standards

The FAA specifies design standards by Airport Reference Code (ARC) and instrument approach visibility minimums. Based on forecasts described in the previous chapter, it was determined that the ARC for the Airport is B-I (small) and will remain at B-I (small) beyond the 20-year planning period.

As discussed in Chapter 3, an airport's design is based on the characteristics of the critical design aircraft. The Beechcraft Baron 58 was identified as an appropriate design aircraft for the Airport. The Baron is a twin-engine piston driven aircraft with a wing span of 42′ 8″, an approach speed of 94 kt, and a gross weight of 8,700 lbs.

4.1.2 Oregon Aviation Plan (OAP)

The Oregon Department of Aviation (ODA) has created general guidelines in the Oregon Aviation Plan (OAP) for airport planning and development based on the roles, or categories, of airports within the statewide system. The OAP identified five airport categories, each with its own set of performance criteria. The categories are based on factors such as the airport's function, the type and level of activity at the airport, and the facilities and services available. The categories are:

Category I – Commercial Service Airports

Category II – Urban General Aviation Airports

Category III – Regional General Aviation Airports

Category IV – Local General Aviation Airports

Category V – RAES (Remote Access/Emergency Service) Airports

Cottage Grove State Airport is classified as Category IV – Local General Aviation Airport. The function of this category is to support primarily single engine aircraft, but airports in this category are capable of accommodating smaller multi-engine general aviation (GA) aircraft.

In addition to defining the categories listed above, the ODA has identified airports within each category that have the potential to maintain or quickly restore operational functions after a major earthquake and arranged them into a 3-Tier system to indicate priorities for future investment. The tiers are:

Tier 1 – Essential Airports that will allow access to major population center and vital areas

Tier 2 – Larger network of airports that provide access to most rural areas

Tier 3 – Airports that will provide economic and commercial restoration

Cottage Grove State Airport is designated as Tier 3 and will provide economic and commercial restoration to the entire region in the event of a major disaster such as a Cascadia subduction zone earthquake

The OAP Facilities Summary indicates that the Cottage Grove State Airport meets the objectives for NPIAS, Based Aircraft, 95% wind coverage, and primary runway length. (OAP Table 5-35)

4.2 LANDSIDE REQUIREMENTS

Landside facilities are those facilities necessary for handling aircraft on the ground, and those facilities that provide an interface between the air and ground transportation modes. Landside requirements are addressed for the following subjects:

- Hangars/Airport Buildings
- Hangar and Airport Access
- Vehicle Parking
- Aviation Services/Support Facilities
- Airport Fencing
- Utilities

4.2.1 Hangars/Airport Buildings

Cottage Grove State Airport has 28 buildings and/or structures on the property, including 25 hangars buildings, a fueling station and pilot lounge/terminal building, and the Oregon Aviation History Center.

Of the 25 hangars, 23 are traditional box hangars and 2 are T-hangars. There is one single-unit T-hangar and one 7-unit T-hangar. The Preferred Aeronautical Activity Forecast for Cottage Grove State Airport, as detailed in Chapter 3, estimates an increase of 6 based aircraft over the 20 year planning period, for a total of 32 based aircraft. It is normally the preference of owners to store their aircraft in hangars. In order to accommodate 32 aircraft, one additional hangar will need to be constructed. There is adequate space along the Hangar Row taxiway and apron to accommodate the anticipated construction. So, further property acquisitions are not necessary.

FACILITY REQUIREMENT: It is recommended that the Airport plan for 1 additional hangar to be constructed over the planning period.

4.2.2 Hangar and Airport Access

The Airport is typically accessed via East Palmer Ave which also provides access to the terminal building/pilot lounge. Hangars are accessible via the taxiway to hangar row. Generally, access to the existing airport facilities is adequate. The current airport and hangar access configuration is appropriate and should be maintained through the planning period.

4.2.3 Vehicle Parking

Public surface parking at the Airport is available at two lots. Approximately 10 spaces are available to airport users and visitors in the paved lot located off of East Palmer Ave next to the terminal building and pilot lounge. An additional 20 spaces are available at the Oregon Aviation History Center, located off of Jim Wright Way. This lot is primarily used by visitors to the museum. It is also common for users to park their vehicles near or inside of their leased hangar spaces while they are using their aircraft.

FACILITY REQUIREMENT: The current parking configuration is sufficient for the Airport and should be maintained through the planning period. However, addition parking facilities should be considered with any future development.

4.2.4 Aviation Services/Support Facilities

Currently there isn't an FBO located on the Airport. However, a pilot lounge, restrooms and a self-serve fuel facility are located at the terminal building. The terminal building and pilot lounge area are maintained by the local pilot community. No flight training or aircraft maintenance services are offered on site .

The fuel station is comprised of 2, 10,000-gallon underground fuel tanks. Only one of those is presently in operation. The state has approved a plan to replace the inoperable tank with a new above-ground 10,000-gallon tank. Comments during the first PAC meeting indicated that there was interest in offering MoGas in addition

to Avgas at the fueling station. It was suggested that doing so could be a draw for both pilots and community citizens.

FACILITY GOAL: **Further inquiry into the interest and feasibility of offering MoGas at the Airport is recommended.**

4.2.5 Airport Fencing

The Airport is partially fenced on the west side of the property and unfenced on the east side where it abuts the Row River. The Oregon System Plan lists fencing around the terminal area as a desired criteria. At present time the Airport meets this requirement. However, in PAC #1 to topic of additional perimeter fencing was discussed as a way to address issues concerning public safety, wildlife encroachment and vagrancy issues that have been observed near unfenced areas. City zoning requirements limit the ability to construct security fence (i.e. chain link) in the Row River floodway. However, it was suggested in PAC #1 that fence may be permitted in the floodplain. This could allow for approximately 1,500 feet of addition fencing along the west side of the Airport.

FACILITY REQUIREMENT: **It is recommended that the Airport construct additional chain-link fencing along its west boundary. The Airport should work with the City of Cottage Grove to assure that any additional fence constructed meets city code requirements.**

4.2.6 Utilities

The Airport has electric, sanitary sewer and water services on site. Only the terminal building and Welcome Center have sanitary sewer access. Currently there is not a dedicated fire supression system in place.

FACILITY GOAL: **In addition to the existing domestic water system, a dedicated fire suppression water supply should be considered. The Airport will likely need additional capacity from the City's water system to supply a dedicated system.**

4.3 AIRSIDE REQUIREMENTS

Airside facilities are those necessary for the arrival, departure and ground movement of aircraft. In addition to these ground facilities, the airspace and imaginary surfaces surrounding the Airport and facilities is also included in the airside discussion. Airside facility requirements are addressed for the following topics:

- Pavement Condition Index
- Runway 15-33
- Taxiways and Taxilanes
- Aprons and Aircraft Parking
- Airfield Lighting and Signage
- Airport Navigational Aids (NAVAIDs)
- Automated Weather Observing System (AWOS)
- FAA Airfield Design Standards
- Airspace
- Protection of Airport Airspace

4.3.1 Pavement Condition Index

In 2016, the Airport's Pavement Condition Index (PCI) was updated for those pavements on the property as part of a three-year pavement assessment rotation. Generally, PCI ratings above 70 require only preventative maintenance in the short term, while ratings between 40 and 70 require major rehabilitation. Ratings below 40 typically require reconstruction. According to the 2016 study, Cottage Grove Airport's PCI values ranged from 71 ("Satisfactory") to 100 ("Good"). The area-weighted average for all pavement was 90 ("Good").

FACILITY REQUIREMENT: **As these PCI values are nearing the end of the planned three-year assessment cycle, it is recommended that a new pavement assessment be performed in 2019. Any pavement found to have PCI values less than 70 should be rehabilitated and any with values less than 40 should be considered for reconstruction. All remaining pavement should receive preventative maintenance in accordance with the Airport's pavement management plan.**

4.3.2 Runway 15-33

Runway Orientation

For the operational safety and efficiency of an airport, it is desirable for the primary runway to be oriented as close as possible to the direction of the prevailing wind. This reduces the impact of crosswind components during landing or takeoff.

The FAA recommends providing a crosswind runway when the primary runway configuration provides less than 95 percent wind coverage at specific crosswind components. The 95 percent wind coverage is computed on the basis of crosswinds not exceeding 10.5 knots for aircraft in ADG I.

A runway wind analysis was completed for Runway 15-33 using data and tools provided by the FAA and NOAA. The results show that the runway in its current orientation has appropriate wind coverage 95.36% of the time. The

current runway orientation is appropriate for the Airport and should be maintained through the planning period.

Runway Length and Width

A runway should be long enough to support takeoffs, and landings of the design aircraft, a Beechcraft Baron 58. Accelerated stop distance and obstacle clearance also need to be accounted for when determining the runway length. According to runway distance curves published in AC 150/5325-4C, Runway Length Recommendations for Airport Design, runway lengths of 3,200 feet and 3,550 feet will accommodate 95% and 100%, respectively, of the Airport's anticipated fleet. In order to realize the 100% length recommendation, the runway would need to be extended by 362 feet. The Airport's surrounding terrain make extending the runway to that length impractical. The current runway length meets the 95% requirement and should be maintained through the planning period.

It should also be noted that, as stated in the 4C, manufacturers of small aircraft have noted that the runway length curves within the AC are not necessarily accurate for all small aircraft at higher temperatures and at higher elevations. The FAA instead recommends determining required runway lengths based on aircraft manufacturers' specifications if the fleet mix is known.

The current width of Runway 15-33 is 60 feet. This width meets the FAA design standard of 60 feet for B-I (Small) aircraft with visual approaches. It is recommended that the 60 foot runway width be maintained through the planning period.

4.3.3 Taxiways and Taxilanes

Runway 15-33 at Cottage Grove State Airport has a full-length taxiway (Taxiway A) on the west side with four connector taxiways and a run-up area paved at the Runway 33 threshold. The FAA recommends a parallel taxiway for non-precision instrument approaches with visibility minimums of one mile or greater and requires a parallel taxiway for instrument approaches with visibility minimums lower than one mile.

Recommended taxiway widths are based on the Taxiway Design Group (TDG) of the design aircraft. The Beechcraft Baron 58 is classified as TDG 1A and requires a 25 foot wide taxiway The parallel taxiway and connectors at the Airport meet that standard at 25 feet wide. However, the Hangar Row Taxiway is 20 feet wide, 5 feet below the standard.

FACILITY REQUIREMENT: The Hangar Row Taxiway width should be increased to 25 feet.

Runway centerline to parallel taxiway centerline separation distance is another important consideration. According to the Runway Design Standards Matrix, the minimum distance from runway centerline to parallel taxiway for minimums lower than ¾ mile is 150 feet. The current separation distance at Cottage Grove is 150 feet which satisfies FAA standards for minimums of not lower than ¾ mile. This should be maintained through the planning period.

4.3.4 Aprons and Aircraft Parking

Currently, there are 30 tiedown positions at the Airport. As it is the preference of aircraft owners to store their aircraft in hangars, it is assumed that no based aircraft will be stored at tiedowns throughout the planning period. Transient aircraft typically use tiedowns during the short time they visit an airport.

The FAA has developed an approach for determining the number of tiedowns needed for transient aircraft operating at an airport. The following general methodology was taken from Airport Design, Appendix 5, and Change 10 is based on peak operations calculations:

Peak Day Operations (from Chapter Three)

Divide by 2 (50% of operations are departures)

Multiply by 50% (assumes 50% of the transient airplanes will be on the apron during the peak day)

$$73 \div 2 \times .5 = 18.25$$

Using this methodology, it is evident that the Airport will require 19 tiedown locations to accommodate the forecasted demand through 2037. The existing 30 spots currently available at the Airport are sufficient for the planning period.

At this time, the Airport has 12,300 square yards of apron pavement. The existing apron configuration has 30 tiedown spaces which, as discussed above, meets the forecasted need. As such, no additional apron surface is required to account for anticipated parking needs over the planning period.

4.3.5 Heliport

PeaceHealth Cottage Grove Community Medical Center currently has a helipad for Medevac operations. The helipad is located on the southern portion of its property north of the airport's western extension. The proposed relocation to the airport property would maintain close

proximity to the Medical Center while also providing better connectivity with airport aviation facilities such as hangar space, fueling and maintenance. The new location will also be included in the City of Cottage Grove Airport District. The heliport layout plan is included in the Airport Layout Plan.

4.3.6 Airfield Lighting and Signage

Runway 15-33 has medium intensity runway edge lighting (MIRL) installed. Cottage Grove State Airport meets the OAP objective for Category IV Taxiway Lighting: Low Intensity Taxiway Lighting (LITL) or Taxiway Reflectors. (OAP Taxiway Lighting)

FACILITY REQUIREMENT: It is recommended that the existing reflectors be replace with either LITL or MITL on the parallel taxiway.

Lighted signage is installed on the connector taxiway at the hold positions. This system is adequate for the Airport's configuration and should be maintained throughout the planning period.

4.3.7 Airfield Navigational Aids (NAVAIDS)

Visual Approach Aids

As discussed in chapter 2, Runway 15-33 is classified as a visual approach runway. It has a rotating beacon, segmented circle with a lighted wind indicator, and a four-light PAPI in place at each runway end. The OAP recommends a visual approach aid at one end of the runway. The PAPI system installed at both ends of the runway exceed the recommendation. No addition visual aids are required for the duration of this plan.

Instrument Approach Aids

There are no instrument approach aids located on the Airport, nor are there any instrument approach procedures published for the Airport at this time. Instrument Approach Aids are not required for Cottage Grove State Airport.

4.3.8 Weather Observation System (AWOS)

Currently automated weather monitoring is not available at Cottage Grove. An Automatic Weather Observation System (AWOS) is appropriate for an airport of the type and size of Cottage Grove State Airport. An AWOS reports significant weather changes in near-real time, up to the minute. The system reports cloud ceiling, visibility, temperature, dew point, wind direction, wind speed, altimeter setting and density altitude. This system was recommended in the Oregon System Plan.

FACILITY REQUIREMENT: It is recommended that the Airport install an AWOS on the property.

4.3.9 Airfield Design Standards

FAA AC 150/5300-13, Airport Design, defines the FAA's recommended standards for airport design. A few of the more critical design standards are those for runways and the areas surrounding runways, including:

- Runway Safety Area (RSA)
- Object Free Area (OFA)
- Obstacle Free Zone (OFZ)
- Runway Protection Zone (RPZ)

The RSA is a defined surface surrounding the runway that is prepared or suitable for reducing the risk of damage to airplanes in the event of an airplane undershoot, overshoot, or an excursion from the runway.

The OFA is an area on the ground centered on the runway or taxiway centerline that is provided to enhance the safety of aircraft operations. No above ground objects are allowed except for those that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes.

The OFZ is a volume of airspace that is required to be clear of obstacles, except for frangible items required for the navigation of aircraft. It is centered along the runway and extended runway centerline.

The RPZ is defined a trapezoidal area off each runway end intended to enhance the protection of people and property on the ground. The dimensions of an RPZ are a function of the runway ARC and approach visibility minimums. The FAA recommends that RPZs be clear of all residences and places of public assembly (churches, schools, hospitals, etc.) and that airports own the land within the RPZs.

Generally, the Airport meets all of the standards discussed above, with one exception. Both runway RPZs extend off of Airport property and past the City's Urban Growth Boundary (UGB). The FAA recommends that an airport have control of all land use within its RPZs either through ownership in fee or through avigation easements.

FACILITY REQUIREMENT: It is recommended that the Airport either acquire all property under the RPZ or work with city and county officials to create avigation easements in order to properly control all land use in those areas.

4.3.10 Airspace

As previously mentioned, (FAR) Part 77, defines three-dimensional imaginary airspace surfaces used to identify obstacles and obstructions to air traffic in the vicinity of an airport. A detailed discussion of the Part 77 surfaces and procedures is available in Chapter 2.

A cursory review of the Part 77 surfaces compared to LiDAR-based Digital Surface Model (DSM) was performed. This exercise showed that Cottage Grove has a significant number of obstacles due to both vegetation (trees) and topography (surrounding hills). As part of the planning process, a comprehensive Part 77 Airspace analysis will be completed using data collected through the FAA's Airports Geographic Information System (AGIS) survey program. The AGIS survey will provide precise and current data for airspace and obstruction modeling.

FACILITY REQUIREMENT: At the completion of the Part 77 analysis, all reasonable efforts should be taken to clear or mitigate any and all obstructions identified.

4.3.11 Protection of Airport Airspace

The FAA requires that airport sponsors restrict zoning on land within the immediate vicinity of airport property. Lane County and the City of Cottage Grove have established Airport Overlay Zones to protect the Airport and its airspace from hazards to air navigation. The City's Airport Overlay Zones prohibit the following uses:

- New residential development
- Public assembly uses
- Building or expanding industrial uses that emit smoke, dust or steam that would obscure visibility within an airport approach corridors.
- Building or expanding outdoor lighting that would project directly onto an existing runway or taxiway or into an existing airport approach corridor.
- Building structures that exceed height limitations specific to each underlying zone.

FACILITY REQUIREMENT: It is recommended that the Airport continue to work with the City and County to protect the Airport and airspace through enforcement of the Airport Overlay Zoning.

4.4 ADMINISTRATIVE

Cottage Grove State Airport is managed by the ODA. As the owner, operator and sponsor of the Airport, ODA State Airports Division is responsible for the management of all aspects of the Airport, including hangar lease agreements, access/egress, financial record keeping, and the continuing maintenance of facilities. Below are several general administrative topics/goals for ODA to consider throughout the planning period.

4.4.1 Airport Administration and Maintenance

As part of its charge as airport sponsor, ODA must manage the maintenance of the Airport in accordance with standards and regulations set forth by Oregon Revised Statutes (ORS), Oregon Administrative Rules (OAR), and FAA. Failure to comply with federal grant assurances and regulatory standards may compromise the Airport's eligibility to receive grant funding.

FACILITY REQUIREMENT: It is recommended that ODA continue to work with FAA officials to assure that all federal grant assurances and regulatory standards are met.

An important aspect of FAA compliance is record keeping. The ODA must keep all project accounts and records relative to the project in accordance with the Single Audit Act of 1984. Additionally, ODA must make all records available for the purpose of audit and examination.

FACILITY REQUIREMENT: It is recommended the ODA continue to keep financial records and logs of activity at the Airport. In addition, it is recommended the ODA continue to comply with Oregon Revised Statutes and implement the Oregon Aviation Plan.

4.4.2 Airport Financials

Cottage Grove State Airport has historically operated at a loss and requires supplimental support from ODA. However, the Airport provides jobs and services to the region and as such, is a good investment for the community.

FACILITY REQUIREMENT: The Airport should continue to make every effort increase efficiencies and operate in a manner to reduce or eliminate annual losses.

4.5 ENVIRONMENTAL

The Environmental Inventory narrative found in section 2.6 details the current environmental setting of the Airport, identifies potential environmental constraints, and makes several recommendations based on current conditions. The purpose of this section is to build upon those findings and identify related facility requirements and goals for the Airport through the forecasted period.

4.5.1 Human Environment

Human factors that can potentially constrain airports operation and development may include existing settlements and incompatible land use; noise issues; social or socioeconomic conditions; and light and glare. The general controversy that often exists between an airport and surrounding community can also a concern.

Noise

Airports are commonly a major generator of noise in the community. Noise levels are assessed through noise studies that determine Day-Night Noise Level (DNL) contours surrounding a facility. The federal threshold of concern for noise is when a 65 DNL contour extends over noise-sensitive land use areas. The State of Oregon has established a threshold of 55 DNL in noise-sensitive areas.

FAA Order 5010.1F states that noise analysis is not needed for projects involving Design Group I and II aircraft in Approach Categories A through D as long as the total annual adjusted propeller operations of the facility are less than 90,000. Cottage Grove State Airport (B-I small) is forecasted to accommodate 15,000 annual operations in 2037. The forecasted operations falls below the federal threshold and hence the need for a noise study is not anticipated for the planning period.

FACILITY GOAL: Noise impacts should be considered for any future development at the Airport.

Social Impact/Induced Socioeconomic Issues

Social impacts should be considered for all airport development projects. These could include health and safety risks, socioeconomic impacts such as relocation of businesses, the alteration of established patterns of life, or disproportionate burdens on disadvantaged populations in the community. Specific issues are discussed at length in section 2.6.1.

Currently there are no specific requirements related to the Social Impacts and Socioeconomic issues at the Airport, nor are any requirements anticipated through the planning period.

FACILITY GOAL: Future development projects should consider how the construction activities and implementation of those projects will potentially impact health, safety, and socioeconomic issues of the community.

Historic Properties and Cultural Resources (Section 106 Resources)

Section 106 of the National Historic Preservation Act of 1966 (NHPA) requires Federal agencies to take into account the effects of their undertakings on historic properties, and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment. A formal review for Section 106 resources has not been prepared for Cottage Grove State Airport.

FACILITY REQUIREMENT: A formal cultural resources determination will need to be prepared, with a Section 106 consultation with applicable Native American tribes, local governments, and interested organizations or individuals for any future development projects.

Recreational Lands – Section 4(f) Resources

Section 4(f) of the U.S. Department of Transportation (USDOT) Act of 1966 requires that transportation projects limit their impacts on public recreation. As previously stated in the Environmental Inventory, recreational land use in the area is limited to a few municipal parks in Cottage Grove, the Row River to the east of the Airport, and Row River Nature Park south of the Airport. The nature park is located in the approach of Runway 33. However, current operations on the Airport do not affect the usage of any of these areas and they are unlikely to be affected in the future.

Wild and Scenic Rivers

The National Wild and Scenic Rivers System was created by Congress in 1968 to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. The Row River is not designated as a wild and scenic river. Furthermore, no other area rivers or streams are designated as such. As such, neither the Airport in its current state, nor any anticipated future development at the Airport is expected to impact any designated wild and scenic rivers.

Farmland Preservation

The USDA classifies certain soil types as "Prime Farmland" due to drainage, mineral content, and other characteristics. The majority (60%) of the soils mapped within the Airport property are designated as a version of Prime Farmland. Approximately half of these soils are designated as "All Areas are Prime Farmland" and half are "Farmland of Statewide Importance". The remaining soils mapped within the Airport property are designated as "Not Prime Farmland".

While "Prime Farmland" soils are present at the Airport, FAA guidelines state that Farmland Protection Policy Act (FPPA) is not applicable if, among other criteria, the impacted land was purchased prior to August 6th, 1984 for the purpose of being converted. The current airport property was purchased in 1964 and therefore the FPPA does not apply for the Airport in its current configuration.

FACILITY REQUIREMENT: Any future property acquisitions should be evaluated for prime farmland soil types. FAA guidance should be consulted for exemption criteria if protected soils are located within the acquired properties.

Light and Glare

Cottage Grove State Airport accommodates both day and nighttime operations. The runway is equipped with edge lighting, and runway end identifier lights (REIL). Airfield lighting is pilot-activated. Currently the taxiways are not lit, but instead have blue edge reflectors. Overhead lighting is present in the hangar/apron area and other landside areas.

FACILITY REQUIREMENT:Any additional facilities will need to consider the impact of light or glare, including the use of windows or roofing material, on aviation. With the proximity of residential uses, additional lighting or structures will need to be focused such that light or glare is not projected into the community.

Air Quality

The EPA has developed the National Air Quality Standards (NAAQS) for seven major pollutants, including two sizes particulate matter. Currently Cottage Grove State Airport is located in an area that is classified as "in attainment" for air quality.

Generally, surface traffic is considered to be a significant generator of airborne particulate material. The Airport does not currently generate a significant amount of surface traffic and that is anticipated to continue through the planning period.

FACILITY REQUIREMENT: Any future development projects will need to consider the impacts of particulate material and the local environment, including air quality, water quality, as well as other resources.

Water Quality

The Airport is on an upland plain near the Row River. Drainage over the site is generally from the west towards the river. Flooding driven by the Row River overflowing into adjacent low-lying areas is a periodic issue and primarily affects the northern end of the runway. However, flooding related to insufficient drainage on the Airport has not been an issue.

FACILITY REQUIREMENT: Due to the proximity to the Row River, it would be difficult to add additional water filtration or impoundment measures between the paved surfaces and the river. However, any further development on the Airport should consider the effects of impervious surface runoff on the water quality of nearby waterways and reasonable efforts to mitigate any issues should be made.

Historically, stabilization of the Row River bank at the north end of the runway has been a recurring issue at the Airport. Previous attempts to address the problem through slowing the flow of the river in that area with large off-bank boulders have proven unsuccessful.

FACILITY GOAL: The bank stabilization issue at the north end of the Airport should be investigated and addressed in order to prevent erosion from encroaching further onto the airfield.

Endangered and Threatened Species

The Federal Government has classified several species of plants and animals as threatened and endangered through legislation such as Endangered Species Act, Migratory Bird Act, and the Lacey Act among others. Under these acts, these species and their habitats are provided special protections. A detailed breakdown of

Table 4A: Endangered and Threatened Species

Species	Federal Status	State Status	Potential Habitat Area	Probability of Impact
Streaked Horned Lark	Threatened	None	Runway & taxiway areas	Low-Moderate
Western Pond Turtle	Species of Concern	Sensitive-Critical	All Airport property, especially forested riparian area east of the runway	Moderate
Townsend's Big-eared Bat	Species of Concern	Sensitive-Critical	Forested riparian areas east of runway	Low-Moderate

species classified as threatened and endangered that are potentially present in the area of the Airport can be found in Section 2.6.2. **Table 4A** below summarizes the species, their status and the likelihood of their impacting the operations of the Airport.

FACILITY REQUIREMENT: Any activity on the Airport, including future development, will need to consider impacts to these species under the Endangered Species Act as well as other legislation and policies that provide protection to endangered and threatened flora and fauna.

Wetland and Floodplains

Based on the National Wetland Inventory (NWI) and local wetland inventories, there are wetlands on the east side of the Airport, along the west bank of the Row River. It should also be noted that drainage areas are not mapped waters of the US, but they may be considered jurisdictional waters under review of the US Army Corps of Engineers.

FACILITY REQUIREMENT: A formal wetland determination will need to be prepared to identify any changes in wetland condition or regulatory status prior to any future development.

Approximately half of the northerly existing runway falls within the 100-year floodzone. Additionally, the northernmost 700 feet of the runway is located in Row River floodway. Historically, that end of the Airport has been prone to flooding.

FACILITY REQUIREMENT: Prior to future development, the project sites should be checked to identify any changes in flood zone classification or regulatory status.

Energy Supply and Natural Resources

Airport operations and development, especially construction activities, can have an impact on the availability of energy and natural resources available in the area. In general, construction materials are not in short supply, fuel is readily available and the site has adequate electrical supply to power the site. It is not anticipated that the current conditions will change significantly over the course of the planning period.

Solid Waste

Typically, GA airports do not produce significant quantities of solid waste. There are no dump sites or areas of potential aggregation on the property or in the immediate vicinity. These conditions are not anticipated to change over the course of the planning period.

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.

FACILITY REQUIREMENT: Any areas where construction is proposed will need to undergo some level of due diligence, such as a Phase I 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.

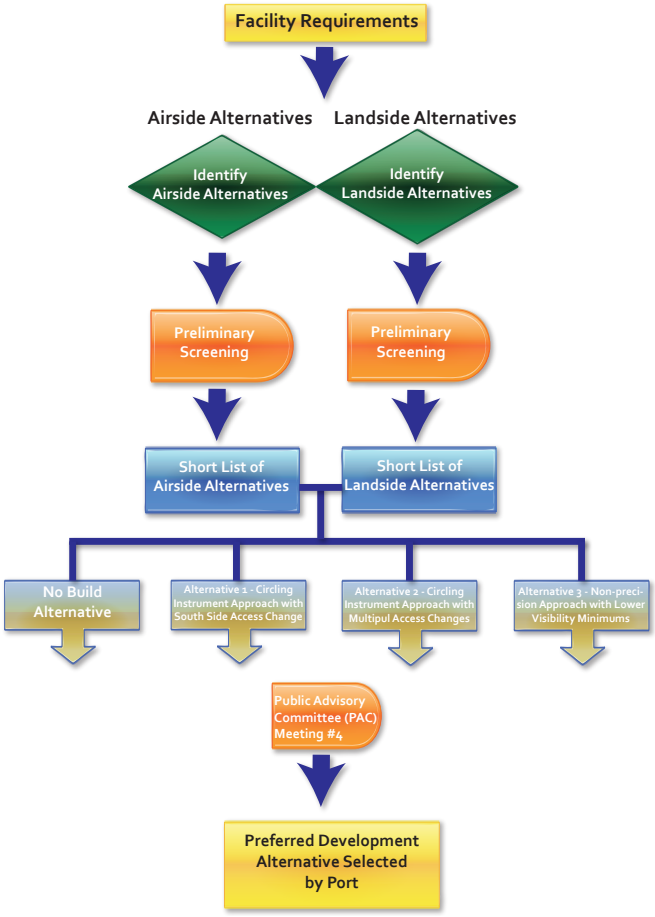
FACILITY REQUIREMENT: Once construction activities are identified, construction timing, phasing and mitigation measures need to be considered.

CHAPTER 5. DEVELOPMENT ALTERNATIVES

5.1 INTRODUCTION

The objective of Chapter Five, Development Alternatives, is to identify and evaluate a set of alternatives for the Airport that not only meet the demand levels identified in Chapter 3, Forecasts, but are also constructible, financially feasible, and environmentally sustainable. Figure 5A depicts the typical process flow to develop the preferred alternative. A number of realistic airport layouts that incorporate the facility needs and recommendations identified in Chapter 4, Facility Requirements, are presented and reviewed in the following chapter.

FIGURE 5A-
DEVELOPMENT ALTERNATIVES PROCESS FLOW CHART



Although the master plan update is limited to a 20-year planning period, the ODA's vision for the development of Cottage Grove State Airport extends well beyond this planning period. To account for and protect the long-term vision and to ensure flexibility in planning and development to respond to unforeseen needs, the alternatives presented consider the maximum development of the airport property.

The development alternatives presented address the facility requirements outlined in the previous chapter and also investigate potential development beyond the 20-year Master Plan period. The identification of development possibilities in the distant future and beyond the planning period is important for the evolution of a well-defined vision for the airport. This in turn helps prioritize and focus the planning, policy making, and essential actions necessary to achieve the vision and protect the long-term viability of the Airport.

Acquiring land and implementing land use controls are examples of steps to protect the Airport over the long-term and its future development. Otherwise, development around the Airport could occur in a way that would prohibit, limit, or make financially unattainable the proposed future improvements that would best meet the needs of local airport private and business users as well as the state and regional air transportation system.

The constraints, opportunities, constructability, economic feasibility and environmental impacts associated with each of the alternatives are discussed and a comparative evaluation of the alternatives is presented.

Two build alternatives and a single No-Build Alternative were prepared to discuss the advantages and disadvantages of each alternative. The build alternatives presented include both the airside and landside development concepts combined in to a single exhibit.

Although these alternatives do not necessarily exhaust all the variations and development design concepts that may be applied to the Airport, they do provide the appropriate base to produce the "preferred alternative" for the development of the Airport. The selection of a "preferred alternative" most often represents a composite of the alternatives with the most favorable elements from each alternative included. The No-Build Alternative is presented for comparison. While no new development is proposed in the No-Build Alternative, existing facilities are maintained so costs are limited to maintenance and upkeep of existing facilities.

These alternatives were reviewed and discussed with the PAC and the public, so ODA could consider comments and recommendations prior to the official selection of a "preferred alternative".

5.2 SUMMARY OF FACILITY REQUIREMENTS

The following section summarizes some of the development recommendations provided in Chapter 4, Facility Requirements, needed to accommodate forecast aeronautical activity. The requirements identified below are requisite to accommodate forecast aeronautical activity as well as to correct existing nonstandard conditions.

5.2.1 Landside Requirements

Landside facilities are those facilities necessary for handling aircraft on the ground, and those facilities that provide an interface between the air and ground transportation modes. Landside facility requirement recommendations relevant to the development alternatives chapter include:

Hangars/Airport Buildings

Hangars - It is recommended that the Airport plan for 1 additional hangar to be constructed over the planning period.

Vehicle Parking

Future Parking Areas - The current parking configuration is sufficient for the Airport and should be maintained through the planning period. However, addition parking facilities should be considered with any future development.

Aviation Services/Support Facilities

Alternative Fuels - Further inquiry into the interest and feasibility of offering MoGas at the Airport is recommended.

Airport Fencing

Boundary Fencing - It is recommended that the Airport construct additional chain-link fencing along the entire property boundary. The Airport should work with the City of Cottage Grove to assure that any additional fence constructed meets city code requirements.

Utilities

Fire Suppression - In addition to the existing domestic water system, a dedicated fire suppression water supply should be considered. The Airport will likely need additional capacity from the City's water system to supply a dedicated system.

5.2.2 Airside Requirements

Airside facilities are those that are related to the arrival, departure and ground movement of aircraft. Airside facility requirement recommendations relevant to the development alternatives chapter include:

Pavement Condition Index

Airfield Pavement - As these PCI values are nearing the end of the planned three-year assessment cycle, it is recommended that a new pavement assessment be performed in 2019. Any pavement found to have PCI values less than 70 should be rehabilitated and any with values less than 40 should be considered for reconstruction. All remaining pavement should receive preventative maintenance in accordance with the Airport's pavement management plan.

Taxiways and Taxilanes

Hangar Row - The Hangar Row Taxiway width should be increased to 25 feet.

Airfield Lighting and Signage

Taxiway Lighting - It is recommended that the existing reflectors be replace with either LITL or MITL on the parallel taxiway.

Weather Observation System (AWOS)

AWOS - It is recommended that the Airport install an AWOS on the property.

Airfield Design Standards

RPZ Protection - It is recommended that the Airport either acquire all property under the RPZs or work with

City and County officials to create avigation easements in order to properly control all land use in those areas.

Airspace

Airspace Obstacles - At the completion of the Part 77 analysis, all reasonable efforts should be taken to clear or mitigate all obstructions identified.

Protection of Airport Airspace

Overlay Zoning - It is recommended that the Airport continue to work with the City and County to protect the Airport and airspace through enforcement of the Airport Overlay Zoning.

5.2.3 Airport Administration Requirements

ODA State Airports Division is responsible for the administration and management of all aspects of Cottage Grove State Airport, including hangar lease agreements, access/egress, financial record keeping, and the continuing maintenance of facilities. Below are the general administrative requirements relevant to the development alternatives.

Airport Administration and Maintenance

Regulatory Standards - It is recommended that ODA continue to work with FAA officials to assure that all federal grant assurances and regulatory standards are met.

Airport Financials

Financials Records - It is recommended the ODA continue to keep financial records and logs of activity at the Airport

Revenue - The Airport should continue to make every effort increase efficiencies and operate in a manner to reduce or eliminate annual losses.

5.2.4 Environmental Requirements

Environmental factors, both natural and human, should be considered as part of the development alternatives process. Below are the environmental facility requirements relevant to the development alternatives.

Human Environment

Noise - Noise impacts should be considered for any future development at the Airport.

Social Impact/Induced Socioeconomic Issues - Future development projects should consider how the construction activities and implementation of those projects will potentially impact residents and socioeconomic issues of the community.

Historic Properties and Cultural Resources - A formal cultural resources determination will need to be prepared, with a Section 106 consultation with applicable Native American tribes, local governments, and interested organizations or individuals for any future development projects.

Natural Environment

Prime Farmland - Any future property acquisitions should be evaluated for prime farmland soil types. FAA guidance should be consulted for exemption criteria if protected soils are located within the acquired properties.

Light and Glare - Any additional facilities will need to consider the impact of light or glare, including the use of windows or roofing material, on aviation. With the proximity of residential uses, additional lighting or structures will need to be focused such that light or glare is not projected into the community.

Air Quality - Any future development projects will need to consider the presence of contaminants or pollutant substances in the air that interfere with health or welfare, or produce other harmful environmental effects.

Water Quality - Due to the proximity to the Row River, it would be difficult to add additional water filtration or impoundment measures between the paved surfaces and the river. However, any further development on the airport should consider the effects of impervious surface runoff on the water quality of nearby waterways and reasonable efforts to mitigate any issues should be made.

Bank Erosion - The bank stabilization issue at the north end of the Airport should be investigated and addressed in order to prevent erosion from encroaching further onto the airfield.

Endangered and Threatened Species - Any activity on the Airport, including future development, will need to consider impacts to these species under the Endangered Species Act as well as other legislation and policies that provide protection to endangered and threatened flora and fauna.

Wetlands - A formal wetland determination will need to be prepared to identify any changes in wetland condition or regulatory status prior to any future development.

Floodplains - Prior to future development, the project sites should be checked to identify any changes in flood zone classification or regulatory status.

Hazardous Materials - Any areas where construction is proposed will need to undergo some level of due diligence, such as a Phase I Environmental Site Assessment to identify any history of possible contamination.

Construction Impacts - Once construction activities are identified, construction timing, phasing and mitigation measures need to be considered.

5.3 CRITERIA ANALYSIS DISCUSSION

The criteria used in the analysis of development alternatives draws from FAA Advisory Circular 150/5070-6B, Airport Master Plans. These criteria provide a way to view strengths and weaknesses of alternative concepts while maintaining concise and consistent evaluation among them. Four main criteria were chosen from the FAA guidance circular and adapted to serve the needs of this airport master planning process. These criteria are discussed and presented in greater detail at the end of each development alternative, but for purposes of this evaluation are generally defined below.

5.3.1 Planning Principles

Best Planning Principles aim to identify concept elements that best conform to FAA guidance on safety, security, feasibility, and flexibility. Planning principles also pertain to conformance with local planning documents including, but not limited to the Cottage Grove Transportation System Plan. recommendations identified by ODA and other relevant local (and state) agencies, and the Airport's strategic vision determined in the early part of the planning process.

5.3.2 Operational Considerations

Operational Considerations review the performance of the airport as a system relative to capacity, capability, and efficiency. The planning process should result in realistic concepts that when individual elements are combined, capacity, capability, and efficiency of the airport as a system can be evaluated in its entirety to identify the best performing alternative.

5.3.3 Fiscal Factors

Fiscal Factors consider the overall cost to implement each alternative concept. Rough order of magnitude (ROM) cost estimates have been prepared for each alternative. Additional analysis also considers the amount of funding potentially available to implement each alternative.

5.3.3 Environmental Considerations

Environmental Considerations assess the potential environmental effects resulting from each alternative. The methodology for this level of study differs from the more in-depth level of analysis performed in full environmental documentation. For this analysis, key environmental components will be highlighted for alternatives assessment only. A more rigorous environmental analysis will be required prior to design and construction of any future projects.

5.4 NO BUILD ALTERNATIVE

The No-Build Alternative assumes maintenance of existing facilities and no expansion of airside or landside facilities. By depicting the No-Build Alternative early in the development alternatives process the ODA can objectively assess the advantages and disadvantages of each of the development alternatives against the existing conditions. The No-Build Alternative is shown on Figure 5B.

In the information presented in Chapter 3, the Airport is expected to experience a slight increase in demand over the 20-year planning period. If no development were to take place, the airport would likely be able to support the forecasted aeronautical uses and demand, however it would not optimize the potential of the Airport.

5.4.1 Criteria Analysis

Planning Principles

The No-Build Alternative does not address important issues that are currently impacting the Airport. From a safety standpoint, the No-Build does not meet best practices for safety or conform to FAA design standards by allowing several known issues to remain. These include the substandard width of Hangar Row Taxilane, the elevated powerline that crosses Hangar Row Taxilane, non-airport-controlled land use in the RPZs, and lack of adequate fencing around the airport boundary.

Operational Considerations

The forecasted demands of the Airport will increase only slightly over the planning period, thus the existing operation considerations meet desired criteria.

Fiscal Factors

While the No-Build Alternative is essentially a do-nothing option, it does have a financial impact. Most notably, there would still be a cost associated with maintaining the current pavements and facilities. The hidden costs associated with maintaining the existing facilities in this alternative are driven by continued basic maintenance of the Airport and may eventually outweigh the cost benefits of doing nothing now.

Environmental Considerations

The No Build Alternative does not present a significant change with respect to land use compatibility concerns, noise concerns, changes to the social environment, or direct threats to plant and animal communities in relation to FAA levels of significance.

5.5 BUILD ALTERNATIVES

This section describes the two build alternatives with each alternative addressing both airside and landside components of the Airport such as the runway, taxiways, apron, hangars, and roadways both on and off airport property.

5.5.1 Common Features

While various development alternatives are presented in the following section to offer options for accommodating the anticipated demand at Cottage Grove State Airport, there are some basic improvements included in both of the build alternative scenarios. These basic improvements, which are displayed in Figure 5C, are identified as common features since they are inherent in both development alternatives.

Common Features Include:

Property Acquisitions

In both scenarios, a total of 20.3 acres will be purchased over the planning period. Land totaling 16.5 acres located in and around the RPZs and runway approaches would be purchased to allow the Airport to fully control the land use in those areas. A single, 0.9-acre non-airport-owned parcel located on the east side of the airport near the river would be acquired to better control access to the airport from the Row River. Three parcels, totaling 2.9 acres south of the west parking apron would be purchased for future aeronautical and compatible non-aeronautical development. The specific use of these parcels is discussed further in the following build alternatives.

Hangar Row Taxilane

The east/west taxiway, commonly known as Hangar Row Taxilane is currently 20 feet wide. Both alternatives widen the taxilane to 25 feet, the FAA design standard for TDG 1A and 1B.

Install AWOS

Both build alternatives propose an AWOS to the Airport, which would be installed on the side of the runway to provide real-time weather reporting to airport users. As part of the installation process, trees and other vegetation within the AWOS Critical Area that exceed height limits will be mitigated and appropriate ground cover vegetation would be installed to prevent potential erosion issues.

Fencing

Approximately 3,000 feet of wildlife fencing would be installed on the east side of the runway and 2,000 feet of security fence would be installed on the west side of the property between the parallel taxiway, and the adjacent neighborhood and golf course. The design and construction of this fence will be done in careful coordination with the City of Cottage Grove to assure that all requirements for erecting a fence in or near flood zones and/or floodways are followed.

Powerline

Approximately 2,700 feet of high-voltage powerline that is suspended over Hangar Row Taxiway and the adjacent neighborhood, near the airport boundary, would buried from Row River Road to Middlefield Golf Course to increase the safe utilization of the airport.

Hangars

Additional Hangars are planned on the terminal apron, along the Hangar Row Taxiway and west side apron area. As hangars at Cottage Grove State Airport are user-owned but built on lots leased from the Airport, the alternatives simply identify locations available for development as the need arises. Although the current forecast does not anticipate a need for additional hangar space, it is appropriate to identify potential sites for long term planning purposes.

Welcome Area

Construct general site improvements to the welcome center area. These improvements include relocating fuel tanks and pumps to the north of the welcome center, planting grass areas, and installing walkways with decorative landscaping. A preliminary concept sketch is depicted in **Figure 5D**.

5.5.2 Alternative 1: Terminal Apron Expansion and Helicopter Facilities

As discussed above, the two development alternative scenarios share several common features. In addition to those common features, Alternative 1 introduces the construction of a helipad, taxiway, and apron with hangar sites to be located on purchased property south of the west apron. A non-precision GPS approach and appurtenant departure procedure are also introduced.

The need for helicopter GPS approach/departure procedures was suggested in the 2nd PAC meeting to allow local medevac flights to access the neighboring hospital in inclement weather. Constructing the facilities on Airport property will serve the hospital, the greater helicopter pilot community, and provide a source of revenue for the Airport through hangar leases and facility use fees. The Heliport Protection Zones (HPZ), Touchdown and Liftoff Area (TLOF), Final Approach and Takeoff Area (FATO), and safety area associated with the helipad facility are located on the airport property allowing ODA to fully control the land use in each of these areas. A portion of the property (0.96 acre) is not occupied by the helipad or associated facilities. This area is reserved for future development capable of generating further revenue for the Airport.

Alternative 1 also recommends the purchase of a 1.2-acre piece of property to the south of the existing terminal apron. The primary reason for purchasing this property is for boundary and approach protection. While the current forecast does not support the need for additional apron space, a 3,900 sq. yd. apron and adjacent hangar space is depicted in this scenario as a long-term planning item.

Alternative 1, including all common features, is depicted in Figure 5E.

5.5.3 Alternative 1 Criteria Analysis

Planning Principles

Alternative 1 addresses land use issues in Runways 15 through the purchase of all property within the RPZs that is not currently owned by ODA. The land use of the Runway 33 RPZ is addressed through purchasing unowned land within the RPZs. Additional property, surrounding the Airport's south boundary and the land-locked parcel along the Row River are also purchased in Alternative 1 for approach airspace and boundary protection. The HPZs associated with the proposed heliport are entirely located within either existing ODA-owned property or within the property slated for purchase under Alternative 1.

Operational Considerations

Alternative 1 meets the anticipated airfield capacity and capability requirements of the Airport. The based aircraft and operations counts at Cottage Grove State Airport are only expected to increase slightly over the planning period. The current conditions at the Airport can handle most of the anticipated growth of the airport over the next 20 years with the exception of hangar space. Chapter 4, Facility Requirements indicates that 1 additional hangar will be built over the planning period. Alternative 1 can accommodate 18 new box hangars and 7 new large commercial hangars, exceeding the forecasted need.

Fiscal Factors

The primary costs required to implement Alternative 1 are associated with land acquisitions along Row River for boundary and land use protection and the purchase of the property along Row River Road needed to construct the helipad and associated facilities. The purpose of the latter property is especially of interest because of its higher cost per acre due to its commercial zoning, location along Row River Road, and the current commercial real estate market. While the investment in this commercial property is a significant expense, revenue generated in the form of lease fees from aeronautical and other compatible uses of the property would allow the Airport to recover those fees over time. Construction of the helipad facilities on the west side, as well as the expansion of the current terminal apron would also significantly impact costs. The costs of burying the powerline, where it runs over or adjacent to Airport property, are unknown, but would likely be significant. The total ROM cost estimate for Alternative 1 is $3,967,000.

Environmental Considerations

Construction of the helipad facilities on the west side, and the terminal apron expansion will involve adding pavement to previously unpaved plots of land. Paving operations may include building embankments to prevent erosion, alteration of existing drainage systems, and remediation of wetlands impacted by construction. Construction of the terminal apron and perimeter fencing may also involve construction in flood zones/floodways and impacts to existing wetlands along Row River. The clearing of vegetation in the 500-feet AWOS critical area could lead to erosion issues unless appropriate

compatible vegetative land cover is installed at the time of clearing, which is included in the alternative scenario. The introduction of helicopter operations to the west side apron has the potential to generate increased social and environmental impacts, most notably noise issues, to the neighboring commercial businesses along Row River Road.

5.5.4 Alternative 2: Hangar Area Expansion and AWOS Installation

In addition to the previously discussed common features, Alternative 2 again recommends the purchase of three parcels (2.9 acres) south of the west apron. However, in this scenario the purchased property is intended for the construction of a new taxiway and leased hangar sites. While the current forecast does not show a need for additional hangars over the 20-year planning period, the Airport is nearly completely constrained by the river to the east and south, and by existing development to the west. The properties identified are some of the few remaining undeveloped parcels that abut the Airport. It would be advisable for ODA to acquire the property for long term planning purposes while the properties are vacant and available. Much like in Alternative 1, a portion of the property (0.8 acre) does not lend itself geometrically to additional hangar and taxiway sites. This area is instead reserved for future non-aeronautical development capable of generating additional revenue for the Airport.

Alternative 2 also recommends the purchase of a 1.2-acre piece of property to the south of the existing terminal apron. The primary reason for purchasing this property is for boundary and approach protection, but this scenario also holds it in reserve for long-term future aeronautical development use.

Alternative 2, including all common features, is depicted in Figure 5F.

Planning Principles

Much like the previous concept, Alternative 2 addresses land use issues in Runways 15 through the purchase of all property within the RPZs that is not currently owned by ODA. Additional property, surrounding the Airport's south boundary and the land-locked parcel along the Row River are again purchased in Alternative 2 for approach airspace, and boundary protection.

Operational Considerations

Alternative 2 meets the anticipated airfield capacity and capability requirements of the Airport. The facility requirements, discussed in Chapter 4 specify that 1 additional hangar will be built over the planning period. No additional apron area is needed to accommodate growth. Alternative 2 proposes 30 new box hangars and 770 square yards of new apron, exceeding the forecasted need.

Fiscal Factors

The most substantial costs of Alternative 2 are associated with land acquisitions along Row River for boundary and land use protection, and the purchase of the property along Row River Road for the construction of the new hangar area. The price of the Row River Road properties is heavily influenced by commercial zoning, location along Row River Road, and the current commercial real estate market. It should be noted that since the forecasted activity does not support the need for more hangar sites, it is unlikely that the FAA would participate in the purchase of the property for that purpose. While the investment in this commercial property is a significant expense, the return on the investment in the form of lease fees generated from aeronautical and other compatible uses of the property have the potential to offset those costs over time. Construction of the taxiway on the west side, as well as the expansion of the west parking apron would also significantly impact costs. The costs of burying the powerline, where it runs over or adjacent to Airport property, are unknown, but would likely be significant. The ROM cost estimate for Alternative 2 is $2,920,000.

Environmental Considerations

Construction of the apron and taxiway on the west side will involve adding pavement to previously unpaved plots of land. Paving operations may include building embankments to prevent erosion, the alteration of existing drainage systems, and the remediation of wetlands impacted by construction. Construction of the perimeter fencing may involve work within flood zones/floodways and possibly impact existing wetlands along Row River. The clearing of vegetation in the 500-feet AWOS critical area could create erosion issues unless appropriate compatible vegetative land cover is installed at the time of clearing. While the introduction of new hangars and taxiways would likely have less social impacts than the helipad facilities proposed in Alternative 1, the increase in aeronautical activity in the

Table 5A: Build Alternatives Comparison			
Features	Alternative 1	Alternative 2	Preferred Alternative
Property aqcuisition (20.3 acres)	✓	✓	✓*
Hangar row taxilane widen (25 feet)	✓	✓	✓
Automated Weather Observing System (AWOS) intallation	✓	✓	✓
Fencing (~3,000 feet)	✓	✓	✓
Powerline burial (~2,700 feet)	✓	✓	
Powerline burial (between Row River Road and Jim Wright Way)			✓
New hangars (multiple locations)	✓	✓	✓
Hangar area expansion		✓	
Welcome Area improvements	✓	✓	✓
Terminal property acquistion (1.2 acres)	✓	✓	✓
Helipad, taxiway and apron	✓		✓**

* No acquisition of the City-owned property in the Runway 33 RPZ

** Relocation of Alternative 1 helipad site to avoid conflict with Eastern Trail Connection

proposed hangar area would likely generate increased noise to the area, impacting the neighboring businesses along Row River Road.

5.5.5 PAC Discussion Summary

The development alternatives were presented at the third PAC Meeting. As described previously, the two alternatives featured many similar features. The primary differences between the two are related to the intended use of the development areas off the west apron, and south of the terminal apron. Most commenters, PAC and public, did not have a strong preference for either of the presented scenarios. However, many were strongly in favor of purchasing the property to the south of the west apron for event auto parking and boundary protection. There was also strong support by most in attendance for the construction of additional security fence, as well as general site improvements at the Welcome Center. Of those who expressed a preference, alternative 1 was preferred by most, as the helipad development would likely serve a greater need for the community, including the neighboring hospital.

A representative from the City of Cottage Grove Planning Department offered several comments of note during the discussion. First it was pointed out that a portion of the city-owned property in the Runway 33 RPZ was purchased with funds from the U.S. Department of Interior (DOI) Land and Water Conservation Fund (LWCF). As federal grant funds were used for the purchase, the City is unable to sell any of the property without repaying the grant. Next the planning team was informed that the derelict house on a parcel identified for acquisition had recently been purchased and was being renovated by the new owner. During the alternatives process, it had been assumed that this property had not and would not be improved and was available for acquisition. Third, it was pointed out that the proposed location of the helipad conflicted with the routing of a planned multi-use path proposed in the City's Transportation System Plan.

5.6 PREFERRED ALTERNATIVE

The alternatives were presented at the third PAC meeting and a public open house. ODA selected a preferred alternative that incorporates the key concepts of Alternative 1, while also including specific feedback from the FAA, PAC members, ODA and members of the community. Figure 5G depicts the features of the preferred alternative, which in addition to the features presented in Alternative 1, include a slightly repositioned helipad and associated facilities, changes to the planned land acquisitions, and restricting the powerline to be buried to that only between Row River Road and Jim Wright Way.

The siting of the helipad in Alternative 1 conflicts with the planned route of the Eastern Trail Connection, a

Table 5B: Alternatives Evaluation Summary			
Criteria	Alternative 1	Alternative 2	Preferred Alternative
Planning Principles	Project Non-conformance*	Project Non-conformance*	Project Conformance
Operational Considerations	Adequate Capacity	Expanded Capacity	Adequate Capacity
Fiscal Factors	Moderate Costs	Moderate Costs	Incremental Costs
Environmental Considerations	Moderate Impacts	Moderate Impacts	Minimal Impacts
* Property cannot be acquired without grant repayment **Preferred alternative does not recommend acquistion of City-owned Row River Park property in RW 33 RPZ			

multi-use trail connection between Jim Wright Way and Palmer Avenue that was proposed in the City of Cottage Grove's 2015 Transportation System Plan. By moving the proposed helipad location approximately 50 feet to the north, the preferred alternative provides enough space to route the Eastern Trail Connection between the HPZs and Row River Road. Routing the trail in such a manner will keep trail users off Row River Road, a primary objective of the proposed project as it was initially proposed by the City.

The preferred alternative does not recommend the acquisition of the City-owned property in the Runway 33 RPZ. This property is part of the Row River Nature Park. Discussions with City of Cottage Grove Planning staff indicated that the park was purchased with funds from the U.S. Department of Interior (DOI) Land and Water Conservation Fund (LWCF). The LWCF requires that property be used for conservation related uses for a period of 99 years from the purchase. In the case of Cottage Grove's grant, the property is used to create Row River Nature Park. The park is compatible with ODA's land use compatibility standards and, based on the terms of the LWCF funding, it is considered to be adequately protected from future incompatible land uses over the planning period.

Following discussions with ODA, it was decided that it is only necessary for the State to participate in a project to bury the powerlines that directly impact the Airport's property. So, the preferred alternative proposes that the powerline be routed underground between Jim Wright Way and Row River Road, where it either crosses or abuts the property.

5.7 SUMMARY

With the selection of the preferred alternative completed there are several steps remaining in the airport master planning process. The next phase is the development of a Recycling and Solid Waste Management Plan to help the community minimize generation of solid waste at the airport. Then, the Airport Layout Plan (ALP) drawing set will be completed, followed by the development of a Capital Improvement and Financial Plan, which will be produced to depict the 20-year development plan for the airport as well as to provide the cost estimates and phasing scenario over the planning period.

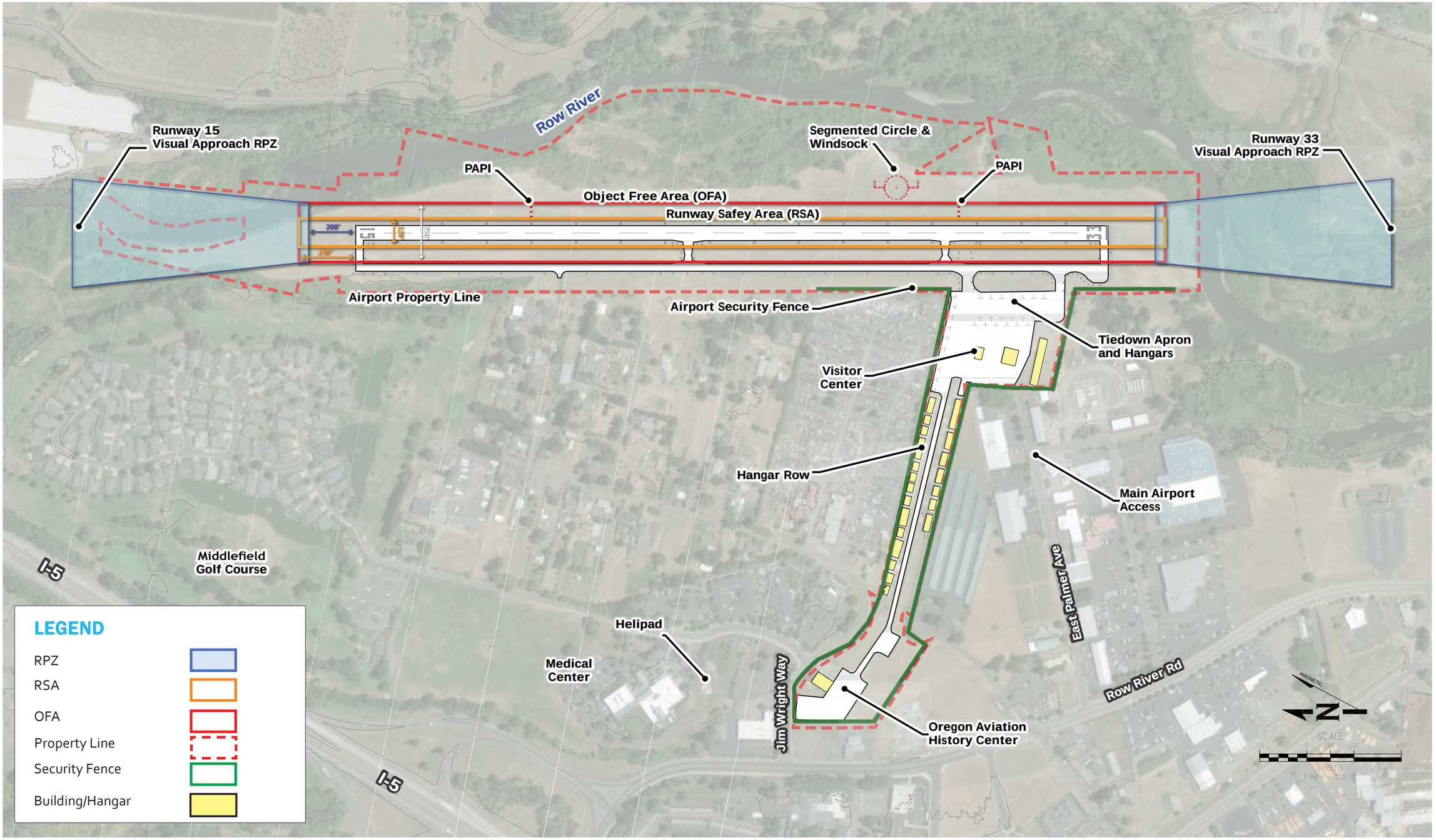
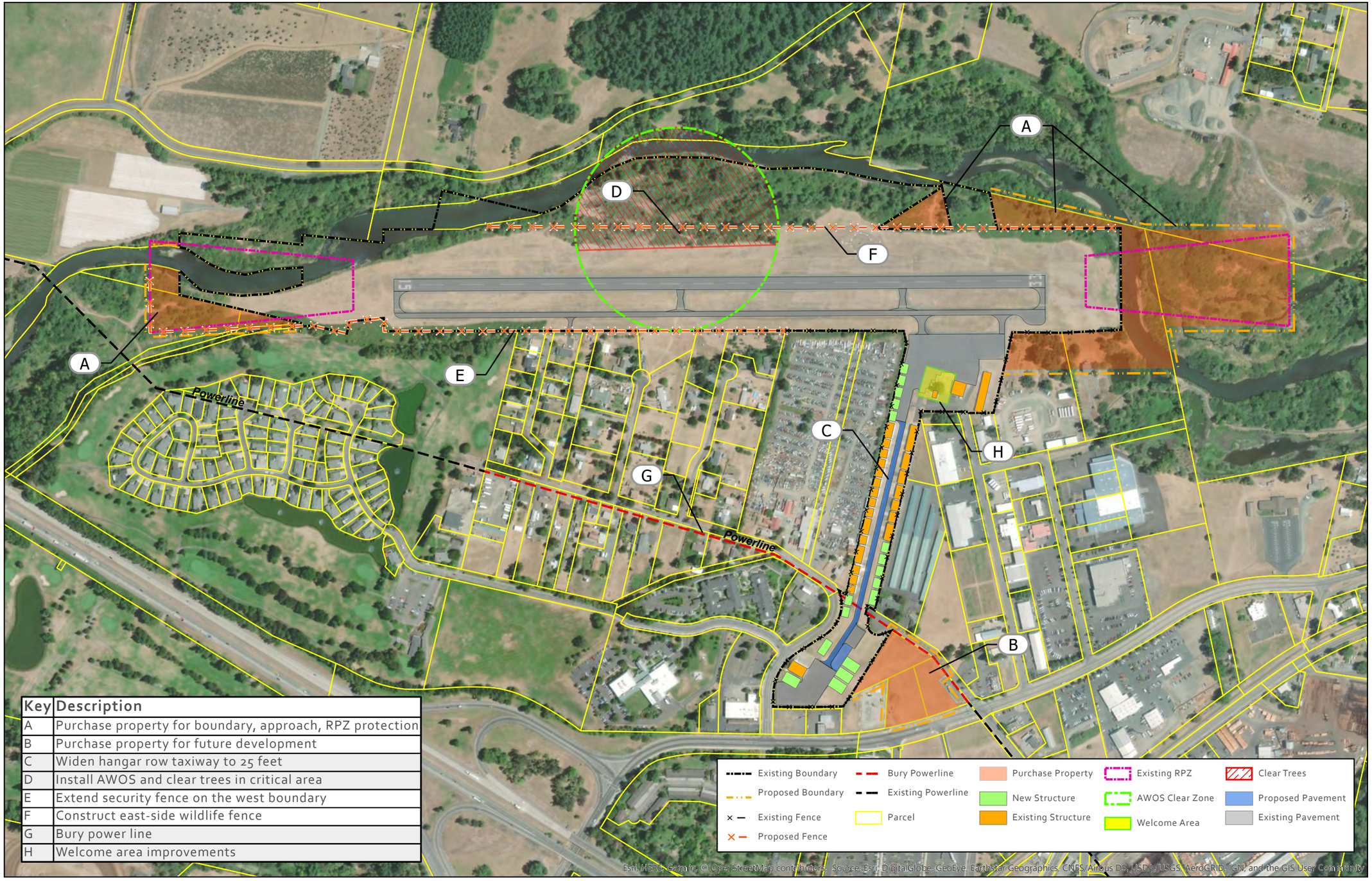


Figure 5B: Existing Airport Facilities



Key	Description
A	Purchase property for boundary, approach, RPZ protection
B	Purchase property for future development
C	Widen hangar row taxiway to 25 feet
D	Install AWOS and clear trees in critical area
E	Extend security fence on the west boundary
F	Construct east-side wildlife fence
G	Bury power line
H	Welcome area improvements

Figure 5C: Common Features

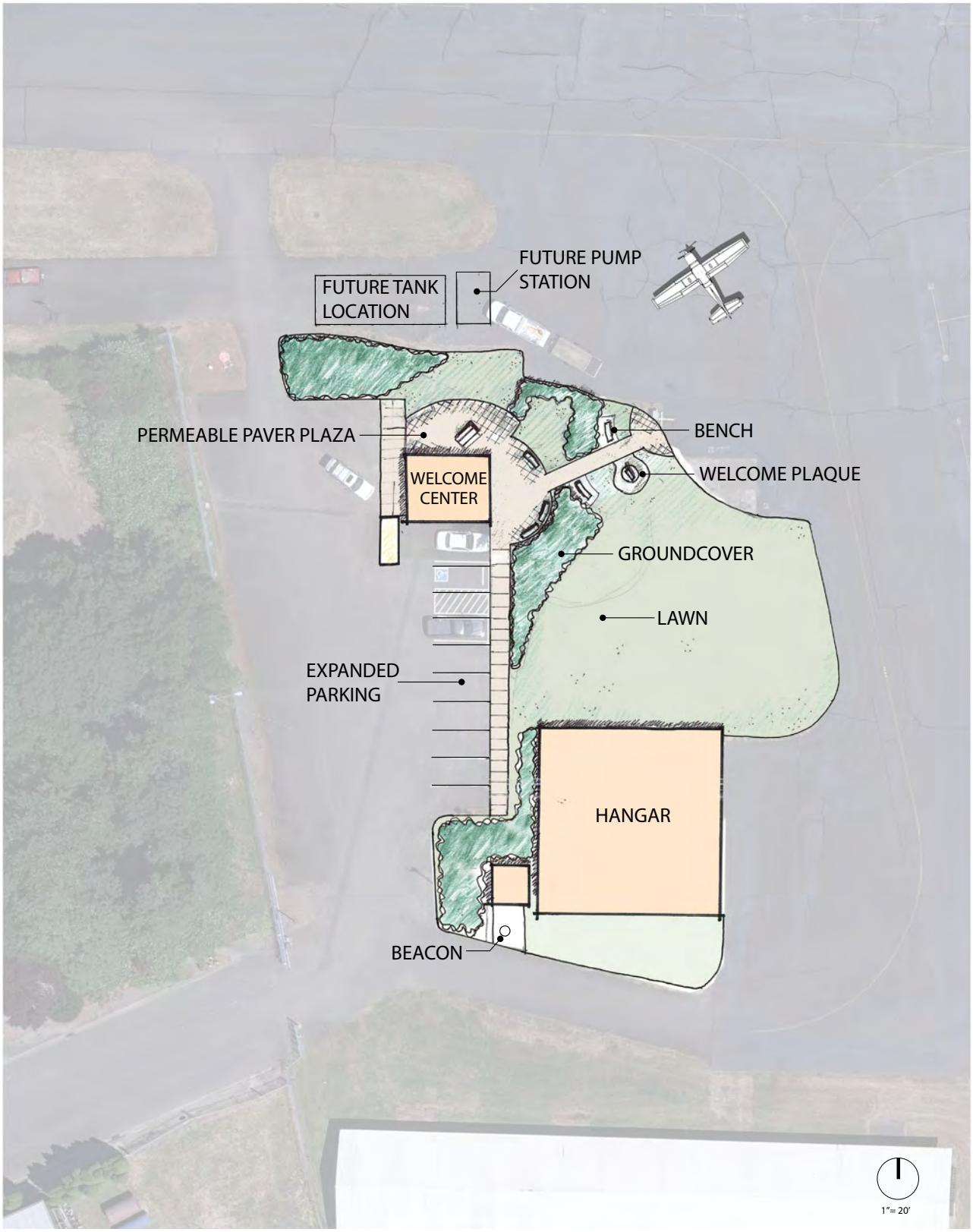


Figure 5D: Welcome Center Concept

Development Alternative 1: Terminal Ramp Extension and Helicopter Facilities

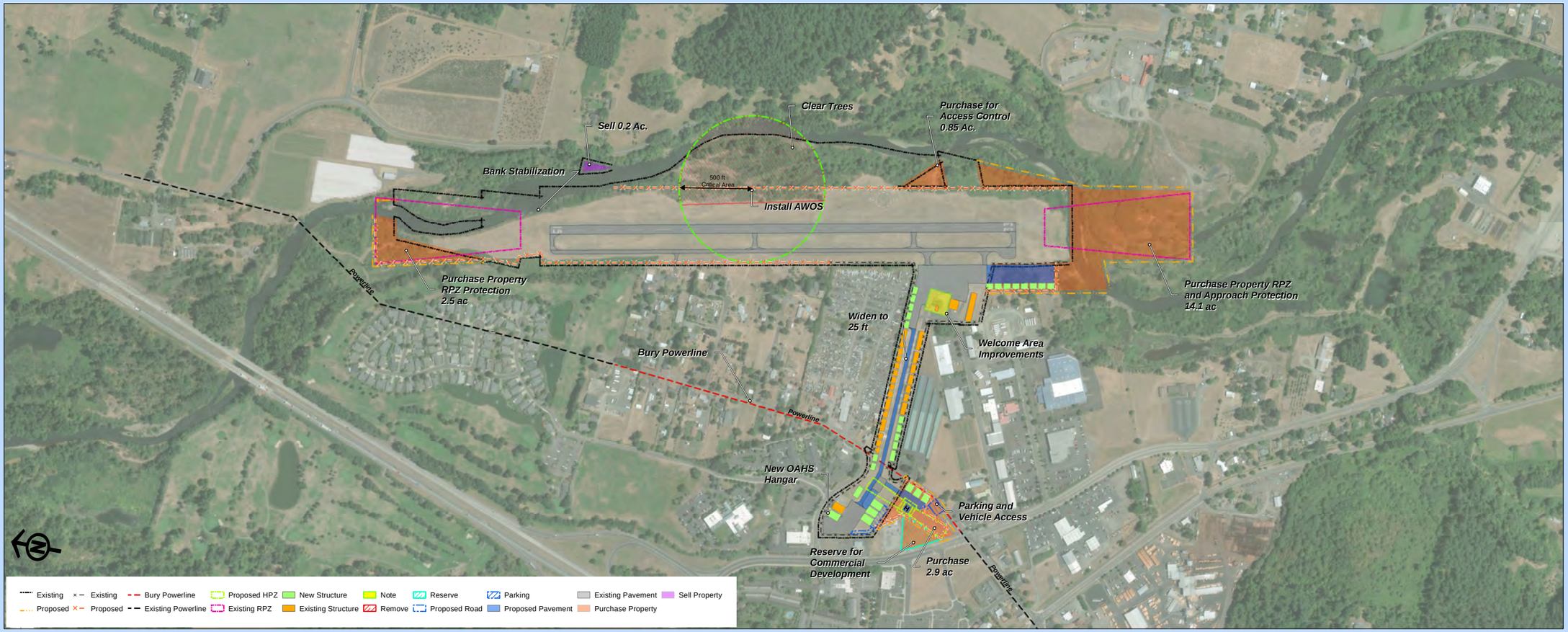


Figure 5E: Development Alternative 1

Property/Land Use

- Property acquisitions to protect RPZ, Approach and AWOS
- Property acquisition for helipad/hangar facility
- Reserve 2.9 acres for future compatible, non-aviation development
- Clear trees along RowRiver for AWOS installation

Operational Features

- Construct helipad and hangars off of west apron
- Install AWOS east of runway
- Construct additional ramp and hangar space south of termimal ramp
- Widen hangar rowtaxiway to 25 ft
- Establish helipad GPS approach/departure procedures

Environmental Considerations

- River bank stablization needed at Runway 15 end
- Appropriate vegetation should be installed in areas of tree clearing to prevent bank erosion
- Possible Streak Horned Lark habitat

Fiscal Factors

RPZ/approach protection property:	$300,000
Future development property:	$1,300,000
Taxiway construction:	$390,000
Ramp construction:	$1,240,000
Helipad construction:	$95,000
AWOS installation	$86,000
Security fence construction	$366,000
Road/parking lot construction	$190,000
TOTAL PROJECT COST:	$3,967,000

Development Alternative 2: Hangar Area Expansion and AWOS Installation

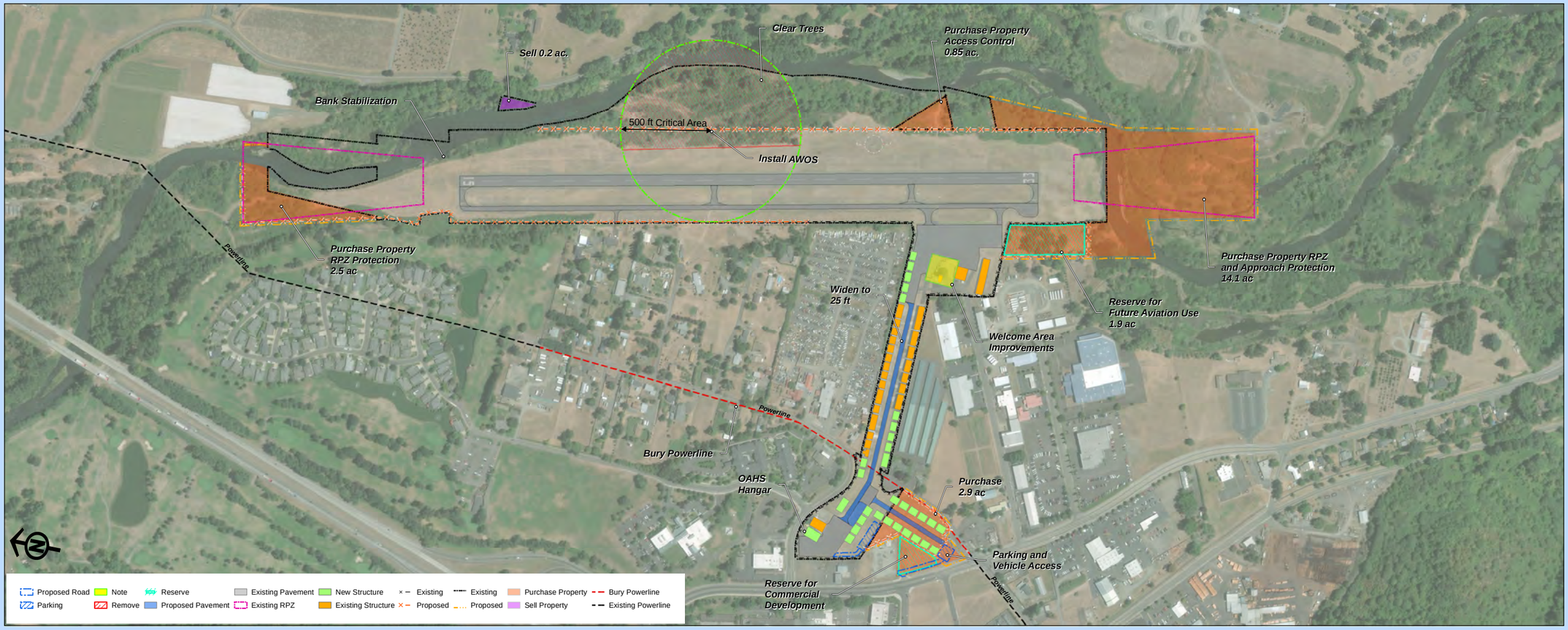


Figure 5F: Development Alternative 2

Property/Land Use

- Property acquisitions to protect RPZ, Approach and AWOS
- Property acquisition for hangar construction
- Reserve 2.9 acres for future compatible, non-aviation development
- Reserve 1.9 acres for future aviation use
- Clear trees along RowRiver for AWOS installation

Operational Features

- Install AWOS east of runway
- Widen hangar rowtaxiway to 25 ft
- Construct additional hangars and taxiway off west auxilary ramp

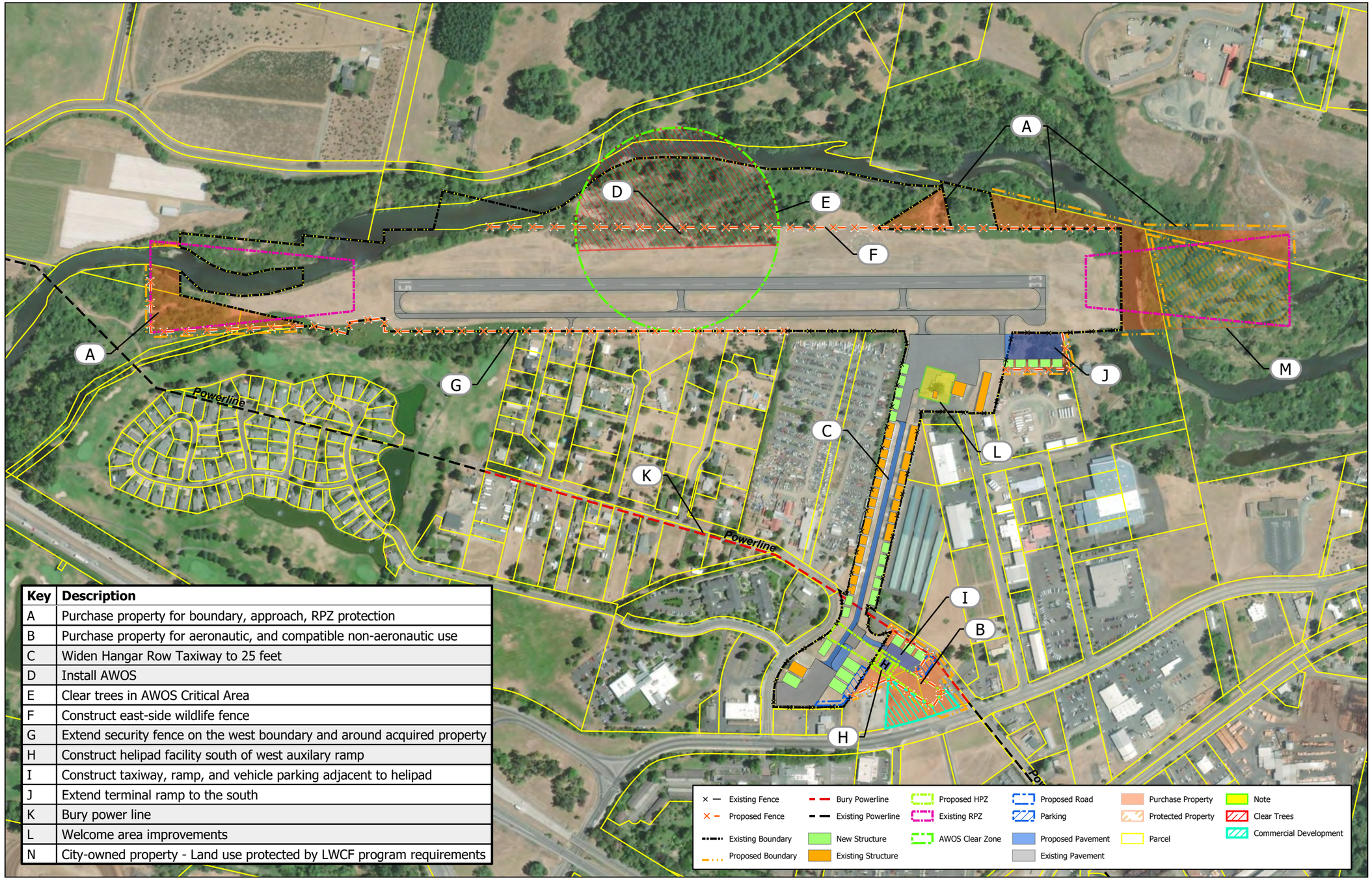
Environmental Considerations

- River bank stablization needed at Runway 15 end
- Appropriate vegetation should be installed in areas of tree clearing to prevent bank erosion
- Possible Streak Horned Lark habitat

Fiscal Factors

RPZ/approach protection property:	$300,000
Future development property:	$1,300,000
Taxiway construction:	$515,000
Ramp construction:	$113,000
AWOS installation	$86,000
Security fence construction	$372,000
Road/parking lot construction	$234,000
TOTAL PROJECT COST:	**$2,920,000**

Figure 5G: Preferred Alternative



Key	Description
A	Purchase property for boundary, approach, RPZ protection
B	Purchase property for aeronautic, and compatible non-aeronautic use
C	Widen Hangar Row Taxiway to 25 feet
D	Install AWOS
E	Clear trees in AWOS Critical Area
F	Construct east-side wildlife fence
G	Extend security fence on the west boundary and around acquired property
H	Construct helipad facility south of west auxilary ramp
I	Construct taxiway, ramp, and vehicle parking adjacent to helipad
J	Extend terminal ramp to the south
K	Bury power line
L	Welcome area improvements
N	City-owned property - Land use protected by LWCF program requirements

CHAPTER 6. RECYCLING AND SOLID WASTE MANAGEMENT

6.1 INTRODUCTION

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). 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 plan requires confirmation that the master plan scope of work includes a review of solid waste recycling at the airport.

In January 2015, the FAA issued Change 2 to Advisory Circular (AC) 150/5070-6B, Airport Master Plans, which addresses the implementation of the relevant sections FMRA. 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:

- The feasibility of solid waste recycling at the airport;
- Minimizing the generation of solid waste at the airport;
- Operation and maintenance requirements;
- The review of waste management contracts; and
- The potential for cost savings or the generation of revenue.

The FAA Planning and Environmental Division is in the process of developing guidance aimed at helping airports address these new requirements. 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 Cottage Grove State Airport, these include:

- FAA Program Guidance Letter 12-08, Guidance on Airport Recycling, Reuse, and Waste Reductions Plans, FAA (September, 2014)
- Recycling of Airport Pavements, Samuel H. Carpenter, Luis Diaz and Damon Brandley (March, 2001)
- EPA 530-K-08-002 - Developing and Implementing an Airport Recycling Program, US EPA (April, 2009)
- ACRP Synthesis 10 – Airport Sustainability Practices, Transportation Research Board (TRB) (2008)
- ACRP Report 80 – Guidebook for Incorporating Sustainability into Traditional Airport Projects, TRB (2012)
- Interim Guidance for Airport Sustainable Master Plan Pilot Program, FAA (May, 2010)
- The Sustainable Airport Manual, Version 3 (SAM), Chicago Department of Aviation (November, 2012)

6.2 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. While this list is not intended to be all-inclusive, it 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 combustibles
- Unusable water conditioning chemicals
- Illegal dumping of containerized chemicals
- Contaminated sludge in GA aircraft wash rack oil/water separators
- Nickel-cadmium (NiCad) 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 regulations for Oregon are reviewed below.

6.3 REVIEW OF FEDERAL, STATE, AND LOCAL SOLID WASTE MANAGEMENT GUIDELINES

This section includes a review of the current recycling and waste management practices and regulations at the Federal, State, and Local level. It is important to note that on the national level, the 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.

6.3.1 Federal Waste Management Practices

Federally, the Airport follows FAA and EPA regulations for the management of solid waste. 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 guides the City in the process of handling and disposing

of hazardous waste. The City 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.

6.3.2 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 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.

6.3.3 City of Cottage Grove Waste Management Practices

Through a review of the City's website, it does not appear that the City of Cottage Grove has any specific rules or regulations beyond the State's policy listed above. Curbside recycling is available within the city limits of Cottage Grove, and there are sixteen transfer stations located throughout the county where residents dispose and recycle household waste.

City or County Ordinance

The City of Cottage Grove regulates the management of solid waste through Chapter 9 of the Lane County Code, "Environment and Health":

- Prohibit and provide for abatement of accumulated solid waste on both public and private property in such a manner so as to prevent a public nuisance, hazard to health, or condition of unsightliness;
- Provide for the proper and lawful disposal of waste materials;
- Provide opportunities, education, and encouragement for recycling;

- Encourage coordinated solid waste collection, disposal, and recycling programs with the cities located in the County; and
- Comply with the requirements of applicable laws and regulations.

6.4 AIRPORT WASTE AUDIT

A waste audit survey was distributed to all airport tenants. The intent of the survey was to identify the sources, types and quantities of recyclable materials, along with identifying existing recycling practices. The results of the survey are provided below and included in **Appendix D**. In total, the survey collected responses from three airport tenants.

Three survey responses were received. All the respondents were individual Airport tenants, personally responsible for the removal of their own waste. None of these users rely on a commercial service to haul away waste from their hangars. All respondents indicated that they do not generate any waste in their spaces. Two of the tenants indicated that they do not have waste containers in their hangars, while the third stated that they have two waste containers on site but does not generate any waste.

ODA is responsible for two buildings at Cottage Grove State Airport, the Welcome Center, and the fuel pump house. The pump house generates a minimal amount of waste which is picked up periodically by ODA staff and disposed of off-site. The Welcome Center is maintained by volunteers who transport the waste to their home once every two to three weeks to be mixed in with their household garbage and recycling. The majority of the waste generated at the Welcome Center consists of paper towels from the restroom, and a small number of cans and bottles which are recycled.

6.5 REVIEW OF THE FEASIBILITY OF SOLID WASTE RECYCLING AT THE AIRPORT

This section examines the feasibility of solid waste recycling activity at the Airport. Airport staff and Airport users 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.

Airport tenants are responsible for their garbage disposal and recycling practices. 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 within Lane County and the City of Cottage Grove.

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 County'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.

6.6 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 Cottage Grove State Airport. That said, 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.

6.7 OPERATIONS AND MAINTENANCE REQUIREMENTS

There is no recycling service available at the Airport. Recyclable goods must be transported off the property and dropped off at a local transfer station. It is recommended that the Airport establish a recycling plan that includes performance-based measures and goals for waste reduction.

The recycling plan should, at a minimum, include the following:

- Establishment of an annual baseline data for all disposed and recycled waste at the Airport.
- Establishment of waste collection and recycling goals. These goals should be continuously updated as the program progresses.
- Development of a methodology for the continuous monitoring of the program and its results.

The key to the long-term success of a recycling and solid waste minimization plan is planning and education. The Airport's plan should include realistic goals and objectives, based on the baseline data obtained from the Airport Waste Audit, the local waste service provider, and continuous monitoring to measure the program's success and adjust its goals accordingly. Examples of measurable goals could include reducing the total generation of solid waste from airport operations by a certain percent annually and/or diverting a defined percent of the waste stream generated from the Airport by a predetermined date.

6.8 REVIEW OF WASTE MANAGEMENT CONTRACTS

The Airport's waste is not collected by a commercial company. The minimal amount of solid waste generated by the tenants and the Welcome Center is regularly collected by responsible parties and transported off of the airport for disposal or recycling. As there is not a waste management contract in place, a contract review was not completed for this report.

6.9 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.

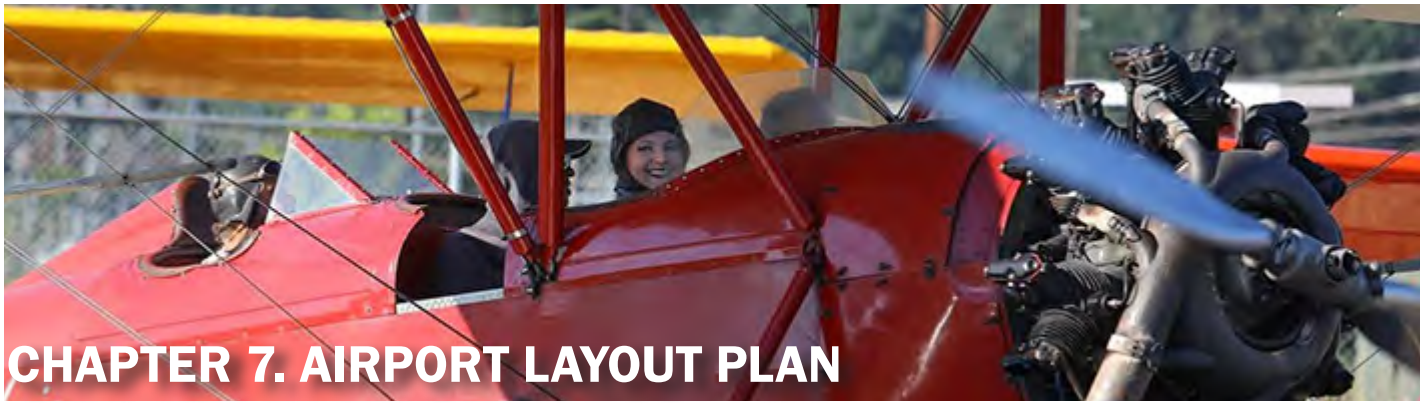
In addition to cost savings, recycling saves energy that would be used to extract resources or create products from virgin materials. Recycling also creates more jobs than traditional trash disposal services. According to Ecocycle.org (Accessed on October 10th, 2018), for each job at a landfill, there are 10 jobs in recycling processing and 25 jobs in recycling-based manufacturing.

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.

6.10 CONCLUSION

The Airport does not currently have a recycling program. Given the minimal amounts of waste produced, current practices are adequate for the facility. However, modest enhancements to the recycling and solid waste management process could potentially improve the current system. These enhancements include:

- Developing objectives and setting measurable targets to monitor the success of the plan. This includes working with tenants to assess the success of the plan and adjusting the objectives and targets based on the obtained results.
- Established designated recycling procedures at the Airport including the addition of a recycling bin for State and tenant use.
- Implementing a recycling education program for the Airport volunteers and tenants.
- Implementing a recycling pick up service for all tenants at the Airport.



CHAPTER 7. AIRPORT LAYOUT PLAN

7.1 NARRATIVE REPORT

The Airport Layout Plan (ALP) drawings are a depiction of the development solutions derived throughout the master planning process. A major purpose of the ALP drawing set is to establish funding eligibility for the Federal Aviation Administration's (FAA's) Airport Improvement Program (AIP), as capital projects must appear on an FAA-approved ALP to receive AIP grant funding. As such, the approval of this ALP is a required element of this master plan.

The ALP has been developed with input from the Planning Advisory Committee (PAC), FAA, public stakeholders, Oregon Department of Aviation, and City of Cottage Grove. The Preferred Alternative is reflected in the Airport Layout Plan and subsequent drawings.

7.2 AIRPORT LAYOUT PLAN DRAWINGS

The following paragraphs provide an overview of major elements found on each sheet within the ALP drawing set. The ALP drawing set was developed utilizing ARP SOP 2.00 – Standard Procedures for FAA Review and Approval of Airport Layout Plans (ALPs).

COVER SHEET

The cover sheet is an index to the ALP drawing set. It also provides pertinent information such as the airport sponsor, airport name, grant number the project is funded through, location and vicinity maps, and date the plan was completed.

AIRPORT LAYOUT PLAN

The ALP depicts the current airport layout and proposed improvements to the Airport for the 20-year planning period and beyond. Detailed descriptions of the improvements and expected capital costs over the next 20 years are included in Chapter 8, Capital Improvement Plan. The Preferred Alternative, derived from forecasted facility needs and requirements, was the basis for determining the proposed improvement at the Airport. The ALP is a development guide; the timing of development depends on demand for a facility and the availability of funding.

Some noteworthy items reflected on the ALP include, but are not limited to:

- AWOS critical area tree clearing
- AWOS installation
- Hangar row taxiway widening
- Helipad construction south of west auxilary apron
- Helipad taxiway, apron, and vehicle parking
- Powerline burial
- Property purchase for compatible non-aeronautic, boundary, approach, and RPZ protection.
- Security fencing extension along west boundary
- Terminal apron extension to the south
- Welcome area improvements
- Wildlife fencing on east side

DATA SHEET

The Airport Data Sheet is a companion to the ALP that contains detailed information relative to the Airport, including:

- Airport, runway, and taxiway data tables that identify relevant current and future FAA design criteria at the Airport.
- Existing and future instrument approach components and lowest approach minimums for each runway end.

FACILITIES LAYOUT PLAN

This drawing depicts existing and future facilities, and only critical, non-overlapping clearance criteria, with minimal text. It is essentially a simplified Airport Layout Plan.

TERMINAL AREA DRAWING

The Terminal Area Plan drawing provides a large-scale view of the terminal area depicted on the ALP. This expanded view allows the plan to provide additional details pertaining to features such as aprons, buildings, hangars, and parking lots making them easier to discern. For Cottage Grove, the terminal area plan shows future buildings which include hangars and aprons along with information on the size and distances between various facilities.

AIRPORT AIRSPACE DRAWING

This drawing shows the Part 77 Imaginary Surfaces for the existing and future layout of the Airport with a USGS topographic map as the background. The Part 77 surfaces are the basis for protecting airspace around an airport; therefore, it is ideal to keep these surfaces clear of obstructions whenever possible. The FAA decides if any of the obstructions to Part 77 surfaces are hazardous to aviation.

Part 77 defines five distinct surfaces, each with a different size and shape. The dimensions of these surfaces are based on the type of runway and the type of approach ultimately planned for the Airport. The imaginary surfaces are defined below.

Primary Surface

The primary surface is rectangular, centered on the runway, extends 200 feet beyond each end of the runway, and has a width that varies according to airport-specific criteria and for Cottage Grove State is 250 feet. The elevation of the primary surface corresponds to the elevation of the nearest point of the runway centerline. The current width of the primary surface for Runway 15/33 is 60 feet; as is required for a runway with a visual approach procedure and it is planned for the width to remain the same throughout the planning period.

Approach Surface

Each runway end has an approach surface. The approach surface is centered on the extended runway centerline, starts at the end of the primary surface (200 feet beyond each end of the runway), and has a width equal to that of the primary surface. Approach surfaces slope upward and outward from the runway ends. Please refer to Runway Departure Surface Drawings for detailed descriptions and discussion of obstructions within those surfaces.

Runway Protection Zones (RPZs)

RPZs are not Part 77 surfaces, but at Cottage Grove they share the same dimensions as the inner portions of approach surfaces on the ground. The future and existing Runway 16 RPZ dimensions are based on the standards of B-I (small) Runway Design Code (RDC) that result in RPZ dimensions of 250 feet (inner width) by 1,000 feet (length) by 450 feet (outer width) to accommodate visual approaches. The Runway Design Code signifies the design standards to which the runway is to be built.

Transitional Surface

The transitional surface is a sloping 7:1 surface that extends outward and upward at right angles to the runway centerline from the sides of the primary surface and from the sides of the approach surfaces. It extends outward and upward until intersecting the horizontal surface.

Horizontal Surface

The horizontal surface is a flat, elliptical surface at an elevation 150 feet above the established airport elevation. For Cottage Grove the extent of the horizontal surface is determined by swinging arcs of 5,000-foot radius from the center of each end of the primary surface.

Conical Surface

The conical surface extends outward and upward from the horizontal surface at a slope of 20:1 for a horizontal distance of 4,000 feet.

INNER PORTION OF THE APPROACH SURFACE DRAWINGS

Runway 15 Approach Surface

This drawing presents the plan and profile view of the Runway 15 approach surfaces shown in the Airport Airspace Drawing. The highest composite terrain, along with known features, is shown in the profile view. 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. Details of the inner and outer approach surfaces are shown as indicated on the plan view.

Runway 33 Approach Surface

This drawing presents the plan and profile view of the Runway 33 approach surfaces shown in the Airport Airspace Drawing. The highest composite terrain, along with known features, is shown in the profile view. 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. Details of the inner and outer approach surfaces are shown as indicated on the plan view.

Inner Portion of Runway 15 Approach Surface Plan and Profile

This drawing is a close-in view of the inner approach area of Runway 15. This sheet provides a larger scale view of the inner Runway 15 approach surface and the objects/obstructions up to 100' above the runway end.

Inner Portion of Runway 33 Approach Surface Plan and Profile

This drawing is a close-in view of the inner area of Runway 33. This sheet provides a larger scale view of the inner Runway 33 approach surface and objects/obstructions up to 100' above the runway end or to the extents of the RPZ.

ON-AIRPORT LAND USE DRAWING

This drawing depicts the land uses within the airport property boundary.

OFF-AIRPORT LAND USE DRAWING

The purpose of the land use plan is to identify the land uses currently surrounding the Airport. The drawing also depicts the proposed land use overlay zones associated with the future FAA Part 77 surfaces so as to inform future local discussions about airport growth and development as well as the growth and development of properties surrounding the Airport. The land surrounding the Cottage Grove State Airport is currently a mix of uses including parks and recreation to the northwest and south; heavy industrial to the southwest; residential to the west; and unincorporated agricultural lands to the east. The City of Cottage Grove Development Code has an Airport Overlay District which defines development requirements.

AIRPORT PROPERTY MAP / EXHIBIT A

The airport Exhibit "A" property map is intended to depict the areas of existing airport 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 purposes only and this map is not intended to be used for survey or land acquisition purposes. Required property information includes known and recorded information including ownership, date of acquisition, and federal involvement if applicable.

RUNWAY DEPARTURE SURFACE DRAWINGS

Runway 15/33 Departure Surface Drawing

The Runway Departure Surface drawing depicts the plan and profile views of the Runway 15/33 departure surfaces, which apply to runways with instrument departure procedures. Each departure surface at the Airport begins at the departure end of the runway at a width of 1,000 feet, extends outward 10,200 feet to an outer width of 6,466 feet, and slopes up at 40:1.

Airspace Obstruction Table

Runway 15 Obstruction Table

Runway 33 Obstruction Table

Runway 15-33 Departure Obstruction Table

The obstruction data tables present the data depicted in the Airport Airspace Plan along with data depicted in the approach departure plan and profile drawings. Required information includes the object identification number, description, top elevation, affected PART 77 surface elevation, and a future disposition for the object. The data was obtained from an Airport Geographic Information System (AGIS) Survey conducted in 2018.

UTILITY DRAWING

The airport utilities map shows the existing utility lines at the Airport. These include drainage, water, and power. The map also depicts the proposed extension of some of these lines to serve the future airport development projects within the 20-year planning period and beyond.

Figure 7A: Cover Sheet

COTTAGE GROVE STATE AIRPORT
COTTAGE GROVE, OREGON

A.I.P. 3-41-0015-009-2017
AIRPORT LAYOUT PLAN
DRAWING SET
FEBRUARY 2020

SHEET NO.		TITLE	REVISION
1	C1	AIRPORT LAYOUT PLAN	02/01/2020
2	C2	ALP WITH AERIAL OVERLAY	02/01/2020
3	C3	TERMINAL PLAN EAST	02/01/2020
4	C4	TERMINAL PLAN WEST	02/01/2020
5	C5	AIRSPACE PLAN (1 OF 2)	02/01/2020
6	C6	AIRSPACE PLAN (2 OF 2)	02/01/2020
7	C7	AIRSPACE APPROACH	02/01/2020
8	C8	RW 15 INNER APPROACH	02/01/2020
9	C9	RW 33 INNER APPROACH	02/01/2020
10	C10	OBSTRUCTION TABLES (1 OF 2)	02/01/2020
11	C11	OBSTRUCTION TABLES (2 OF 2)	02/01/2020
12	C12	ON AIRPORT LAND USE	02/01/2020
13	C13	OFF AIRPORT LAND USE	02/01/2020
14	C14	EXHIBIT A	02/01/2020
15	C15	UTILITY MAP	02/01/2020

LOCATION MAP

VICINITY MAP

Modifications to Design Standards			
Approval Date	Case Number	Modification	Description

WHPacific

OREGON DEPARTMENT OF AVIATION

SHEET INFO	
DESIGNED	ALB
DRAWN	ALB
CHECKED	RS
APPROVED	----
LAST EDIT	2/3/2020
PLOT DATE	2/3/2020
SUBMITTAL	

REVISIONS			
NO	BY	DATE	REMARKS

COVER

OREGON DEPARTMENT OF AVIATION
COTTAGE GROVE, OR

PROJECT NUMBER	DRAWING FILE NAME	SCALE
P0020107W	COT-ALP-COVER	NO SCALE

SHEET NUMBER
COVER

Figure 7B: Airport Layout Plan

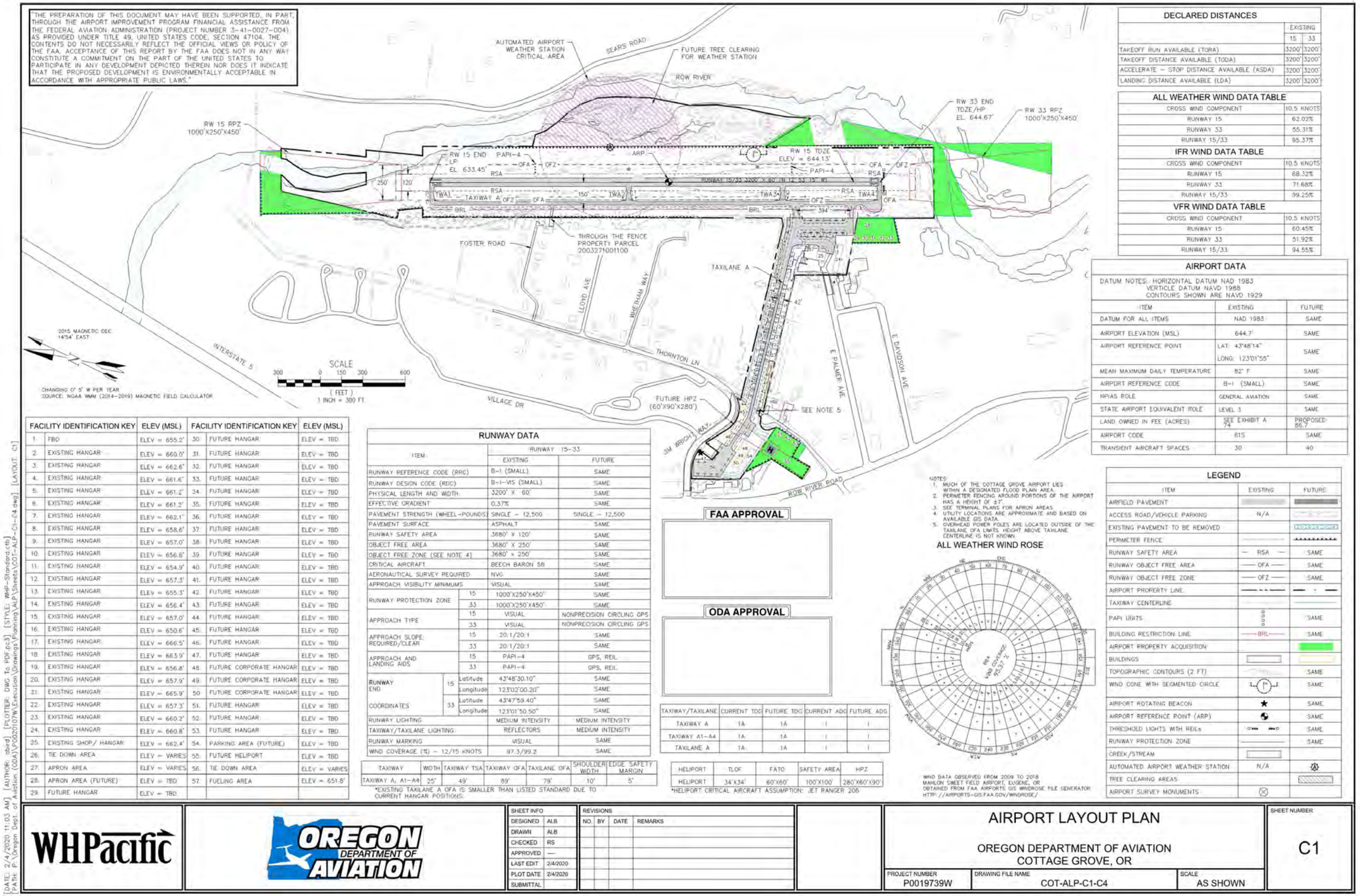
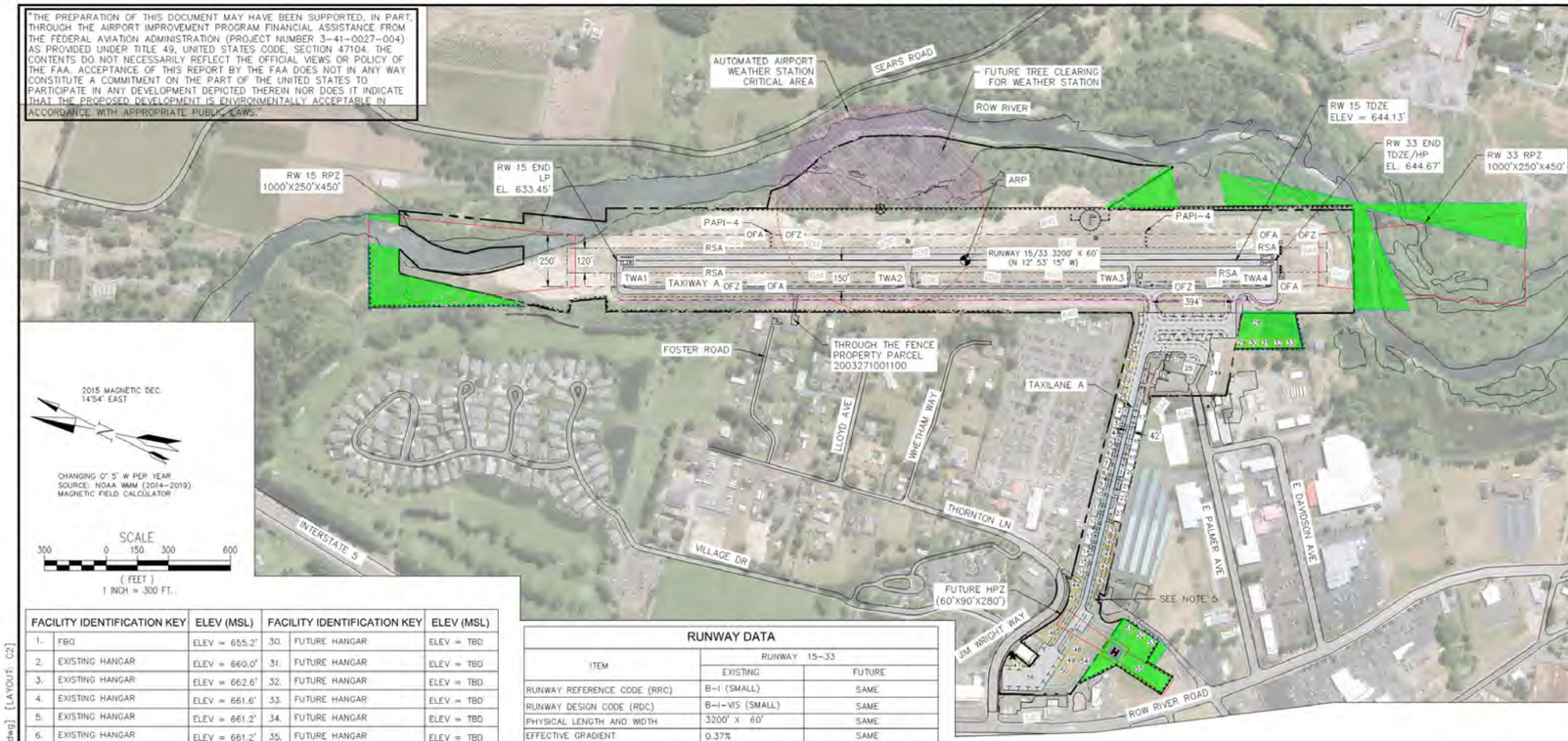


Figure 7C: ALP with Aerial Overlay

"THE PREPARATION OF THIS DOCUMENT MAY HAVE BEEN SUPPORTED, IN PART, THROUGH THE AIRPORT IMPROVEMENT PROGRAM FINANCIAL ASSISTANCE FROM THE FEDERAL AVIATION ADMINISTRATION (PROJECT NUMBER 3-41-0027-004) AS PROVIDED UNDER TITLE 49, UNITED STATES CODE, SECTION 47104. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THIS REPORT BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED THEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."



DECLARED DISTANCES	EXISTING 15	EXISTING 33
TAKEOFF RUN AVAILABLE (TORA)	3200'	3200'
TAKEOFF DISTANCE AVAILABLE (TODA)	3200'	3200'
ACCELERATE – STOP DISTANCE AVAILABLE (ASDA)	3200'	3200'
LANDING DISTANCE AVAILABLE (LDA)	3200'	3200'

ALL WEATHER WIND DATA TABLE	
CROSS WIND COMPONENT	10.5 KNOTS
RUNWAY 15	62.02%
RUNWAY 33	55.31%
RUNWAY 15/33	95.37%
IFR WIND DATA TABLE	
CROSS WIND COMPONENT	10.5 KNOTS
RUNWAY 15	68.32%
RUNWAY 33	71.68%
RUNWAY 15/33	99.25%
VFR WIND DATA TABLE	
CROSS WIND COMPONENT	10.5 KNOTS
RUNWAY 15	60.45%
RUNWAY 33	51.92%
RUNWAY 15/33	94.55%

AIRPORT DATA

DATUM NOTES: HORIZONTAL DATUM NAD 1983
VERTICLE DATUM NAVD 1988
CONTOURS SHOWN ARE NAVD 1929

ITEM	EXISTING	FUTURE
DATUM FOR ALL ITEMS	NAD 1983	SAME
AIRPORT ELEVATION (MSL)	644.7'	SAME
AIRPORT REFERENCE POINT	LAT: 43°48'14" LONG: 123°01'55"	SAME
MEAN MAXIMUM DAILY TEMPERATURE	82° F	SAME
AIRPORT REFERENCE CODE	B-I (SMALL)	SAME
NPIAS ROLE	GENERAL AVIATION	SAME
STATE AIRPORT EQUIVALENT ROLE	LEVEL 3	SAME
LAND OWNED IN FEE (ACRES)	SEE EXHIBIT A 74	PROPOSED 86.7
AIRPORT CODE	61S	SAME
TRANSIENT AIRCRAFT SPACES	30	40

FACILITY IDENTIFICATION KEY	ELEV (MSL)	FACILITY IDENTIFICATION KEY	ELEV (MSL)
1. FBO	ELEV = 655.2'	30. FUTURE HANGAR	ELEV = TBD
2. EXISTING HANGAR	ELEV = 660.0'	31. FUTURE HANGAR	ELEV = TBD
3. EXISTING HANGAR	ELEV = 662.6'	32. FUTURE HANGAR	ELEV = TBD
4. EXISTING HANGAR	ELEV = 661.6'	33. FUTURE HANGAR	ELEV = TBD
5. EXISTING HANGAR	ELEV = 661.2'	34. FUTURE HANGAR	ELEV = TBD
6. EXISTING HANGAR	ELEV = 661.2'	35. FUTURE HANGAR	ELEV = TBD
7. EXISTING HANGAR	ELEV = 662.1'	36. FUTURE HANGAR	ELEV = TBD
8. EXISTING HANGAR	ELEV = 658.6'	37. FUTURE HANGAR	ELEV = TBD
9. EXISTING HANGAR	ELEV = 657.0'	38. FUTURE HANGAR	ELEV = TBD
10. EXISTING HANGAR	ELEV = 656.8'	39. FUTURE HANGAR	ELEV = TBD
11. EXISTING HANGAR	ELEV = 654.9'	40. FUTURE HANGAR	ELEV = TBD
12. EXISTING HANGAR	ELEV = 657.3'	41. FUTURE HANGAR	ELEV = TBD
13. EXISTING HANGAR	ELEV = 655.3'	42. FUTURE HANGAR	ELEV = TBD
14. EXISTING HANGAR	ELEV = 656.4'	43. FUTURE HANGAR	ELEV = TBD
15. EXISTING HANGAR	ELEV = 657.0'	44. FUTURE HANGAR	ELEV = TBD
16. EXISTING HANGAR	ELEV = 650.6'	45. FUTURE HANGAR	ELEV = TBD
17. EXISTING HANGAR	ELEV = 666.5'	46. FUTURE HANGAR	ELEV = TBD
18. EXISTING HANGAR	ELEV = 663.9'	47. FUTURE HANGAR	ELEV = TBD
19. EXISTING HANGAR	ELEV = 656.8'	48. FUTURE CORPORATE HANGAR	ELEV = TBD
20. EXISTING HANGAR	ELEV = 657.9'	49. FUTURE CORPORATE HANGAR	ELEV = TBD
21. EXISTING HANGAR	ELEV = 665.9'	50. FUTURE CORPORATE HANGAR	ELEV = TBD
22. EXISTING HANGAR	ELEV = 657.3'	51. FUTURE HANGAR	ELEV = TBD
23. EXISTING HANGAR	ELEV = 660.2'	52. FUTURE HANGAR	ELEV = TBD
24. EXISTING HANGAR	ELEV = 660.8'	53. FUTURE HANGAR	ELEV = TBD
25. EXISTING SHOP/ HANGAR	ELEV = 662.4'	54. PARKING AREA (FUTURE)	ELEV = TBD
26. TIE DOWN AREA	ELEV = VARIES	55. FUTURE HELIPORT	ELEV = TBD
27. APRON AREA	ELEV = VARIES	56. TIE DOWN AREA	ELEV = VARIES
28. APRON AREA (FUTURE)	ELEV = TBD	57. FUELING AREA	ELEV = 651.8'
29. FUTURE HANGAR	ELEV = TBD		

RUNWAY DATA

ITEM		RUNWAY 15-33 EXISTING	RUNWAY 15-33 FUTURE
RUNWAY REFERENCE CODE (RRC)		B-I (SMALL)	SAME
RUNWAY DESIGN CODE (RDC)		B-I-VIS (SMALL)	SAME
PHYSICAL LENGTH AND WIDTH		3200' X 60'	SAME
EFFECTIVE GRADIENT		0.37%	SAME
PAVEMENT STRENGTH (WHEEL-POUNDS)		SINGLE – 12,500	SINGLE – 12,500
PAVEMENT SURFACE		ASPHALT	SAME
RUNWAY SAFETY AREA		3680' X 120'	SAME
OBJECT FREE AREA		3680' X 250'	SAME
OBJECT FREE ZONE (SEE NOTE 4)		3680' x 250'	SAME
CRITICAL AIRCRAFT		BEECH BARON 58	SAME
AERONAUTICAL SURVEY REQUIRED		NVG	SAME
APPROACH VISIBILITY MINIMUMS		VISUAL	SAME
RUNWAY PROTECTION ZONE	15	1000'X250'X450'	SAME
	33	1000'X250'X450'	SAME
APPROACH TYPE	15	VISUAL	NONPRECISION CIRCLING GPS
	33	VISUAL	NONPRECISION CIRCLING GPS
APPROACH SLOPE REQUIRED/CLEAR	15	20:1/20:1	SAME
	33	20:1/20:1	SAME
APPROACH AND LANDING AIDS	15	PAPI-4	GPS, REIL
	33	PAPI-4	GPS, REIL
RUNWAY END COORDINATES	15 Latitude	43°48'30.10"	SAME
	15 Longitude	123°02'00.20"	SAME
	33 Latitude	43°47'59.40"	SAME
	33 Longitude	123°01'50.50"	SAME
RUNWAY LIGHTING		MEDIUM INTENSITY	MEDIUM INTENSITY
TAXIWAY/TAXILANE LIGHTING		REFLECTORS	MEDIUM INTENSITY
RUNWAY MARKING		VISUAL	SAME
WIND COVERAGE (%) – 12/15 KNOTS		97.3/99.2	SAME

TAXIWAY	WIDTH	TAXIWAY TSA	TAXIWAY OFA	TAXILANE OFA	SHOULDER WIDTH	EDGE SAFETY MARGIN
TAXIWAY A, A1-A4	25'	49'	89'	79'	10'	5'

*EXISTING TAXILANE A OFA IS SMALLER THAN LISTED STANDARD DUE TO CURRENT HANGAR POSITIONS.

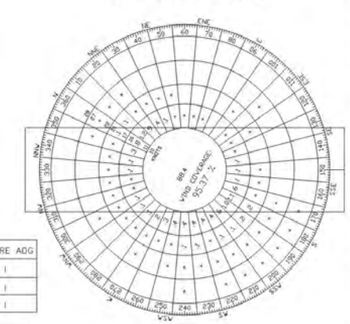
NOTES:
1. MUCH OF THE COTTAGE GROVE AIRPORT LIES WITHIN A DESIGNATED FLOOD PLAIN AREA.
2. PERIMETER FENCING AROUND PORTIONS OF THE AIRPORT HAS A HEIGHT OF ±7'.
3. SEE TERMINAL PLANS FOR APRON AREAS.
4. UTILITY LOCATIONS ARE APPROXIMATE AND BASED ON AVAILABLE GIS DATA.
5. OVERHEAD POWER POLES ARE LOCATED OUTSIDE OF THE TAXILANE OFA LIMITS. HEIGHT ABOVE TAXILANE CENTERLINE IS NOT KNOWN.

TAXIWAY/TAXILANE	CURRENT TDG	FUTURE TDG	CURRENT ADG	FUTURE ADG
TAXIWAY A	1A	1A	I	I
TAXIWAY A1-A4	1A	1A	I	I
TAXILANE A	1A	1A	I	I

HELIPORT	TLOF	FATO	SAFETY AREA	HPZ
HELIPORT	34'X34'	60'X60'	100'X100'	280'X60'X90'

*HELIPORT CRITICAL AIRCRAFT ASSUMPTION: JET RANGER 206

ALL WEATHER WIND ROSE



WIND DATA OBSERVED FROM 2009 TO 2018
MAHLON SWEET FIELD AIRPORT, EUGENE, OR
OBTAINED FROM FAA AIRPORTS GIS WINDROSE FILE GENERATOR
HTTP://AIRPORTS-GIS.FAA.GOV/WINDROSE/

LEGEND

ITEM	EXISTING	FUTURE
AIRFIELD PAVEMENT		
ACCESS ROAD/VEHICLE PARKING	N/A	
EXISTING PAVEMENT TO BE REMOVED		
PERIMETER FENCE		
RUNWAY SAFETY AREA	RSA	SAME
RUNWAY OBJECT FREE AREA	OFA	SAME
RUNWAY OBJECT FREE ZONE	OFZ	SAME
AIRPORT PROPERTY LINE		
TAXIWAY CENTERLINE		
PAPI UNITS		SAME
BUILDING RESTRICTION LINE	BRL	SAME
AIRPORT PROPERTY ACQUISITION		
BUILDINGS		
TOPOGRAPHIC CONTOURS (2' FT)		SAME
WIND CONE WITH SEGMENTED CIRCLE		SAME
AIRPORT ROTATING BEACON		SAME
AIRPORT REFERENCE POINT (ARP)		SAME
THRESHOLD LIGHTS WITH REILs		SAME
RUNWAY PROTECTION ZONE		SAME
CREEK/STREAM		
AUTOMATED AIRPORT WEATHER STATION	N/A	
TREE CLEARING AREAS		
AIRPORT SURVEY MONUMENTS		

WHPacific

OREGON DEPARTMENT OF AVIATION

SHEET INFO	
DESIGNED	ALB
DRAWN	ALB
CHECKED	RS
APPROVED	----
LAST EDIT	2/3/2020
PLOT DATE	2/3/2020
SUBMITTAL	

REVISIONS			
NO.	BY	DATE	REMARKS

ALP WITH AERIAL OVERLAY

OREGON DEPARTMENT OF AVIATION
COTTAGE GROVE, OR

PROJECT NUMBER	DRAWING FILE NAME	SCALE
P0019739W	COT-ALP-C1-C4	AS SHOWN

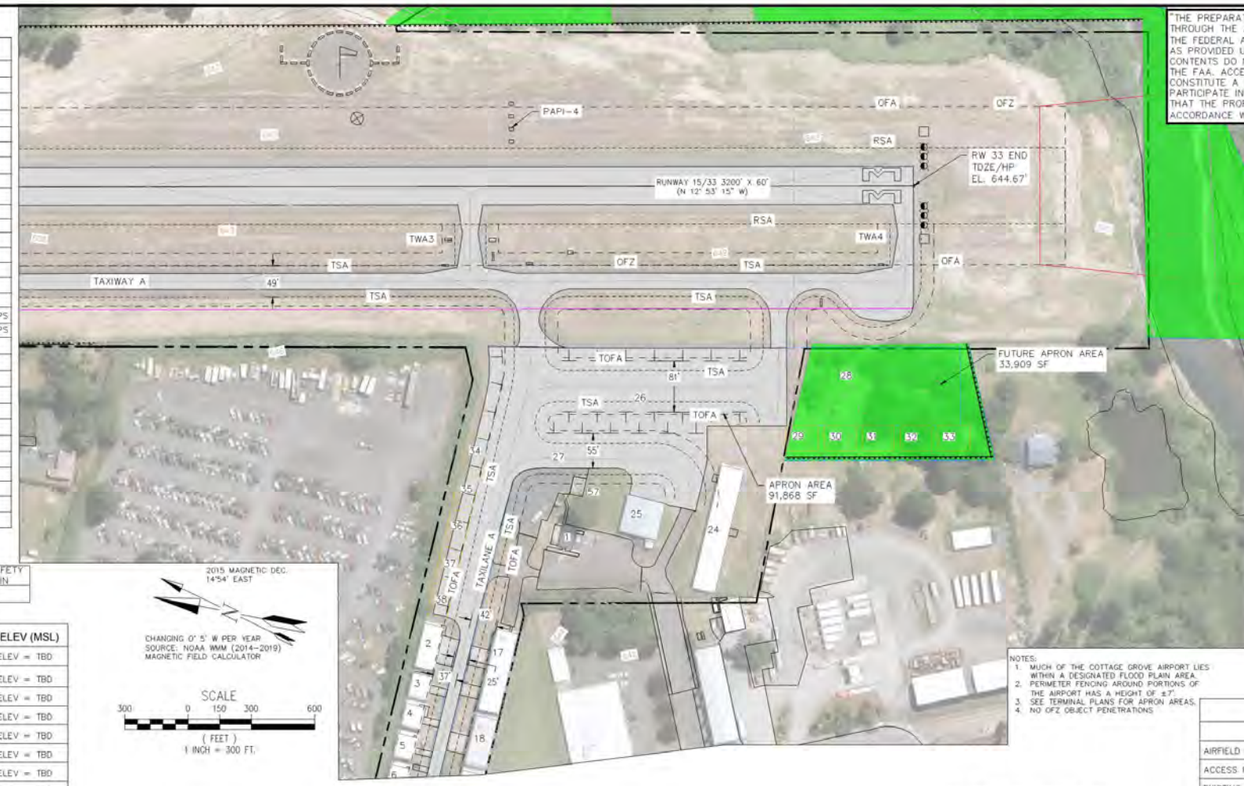
SHEET NUMBER C2

[DATE: 2/3/2020 9:17 AM] [AUTHOR: obrid] [PLOTTER: _DWG To PDF.pc3] [STYLE: WHP-Standard.ctb]
[PATH: P:\Oregon Dept of Aviation (ODA)\P0020107WE\Execution\Drawings\Planning\ALP\Sheets\COT-ALP-C1-C4.dwg] [LAYOUT: C2]

Figure 7D: Terminal Plan East

RUNWAY DATA

ITEM		RUNWAY 15–33 EXISTING	RUNWAY 15–33 FUTURE
RUNWAY REFERENCE CODE (RRC)		B–I (SMALL)	SAME
RUNWAY DESIGN CODE (RDC)		B–I–VIS (SMALL)	SAME
PHYSICAL LENGTH AND WIDTH		3200' X 60'	SAME
EFFECTIVE GRADIENT		0.37%	SAME
PAVEMENT STRENGTH (WHEEL–POUNDS)		SINGLE – 12,500	SINGLE – 12,500
PAVEMENT SURFACE		ASPHALT	SAME
RUNWAY SAFETY AREA		3680' X 120'	SAME
OBJECT FREE AREA		3680' X 250'	SAME
OBJECT FREE ZONE (SEE NOTE 4)		3680' x 250'	SAME
CRITICAL AIRCRAFT		BEECH BARON 58	SAME
AERONAUTICAL SURVEY REQUIRED		NVG	SAME
APPROACH VISIBILITY MINIMUMS		VISUAL	SAME
RUNWAY PROTECTION ZONE	15	1000'X250'X450'	SAME
	33	1000'X250'X450'	SAME
APPROACH TYPE	15	VISUAL	NONPRECISION CIRCLING GPS
	33	VISUAL	NONPRECISION CIRCLING GPS
APPROACH SLOPE: REQUIRED/CLEAR	15	20:1/20:1	SAME
	33	20:1/20:1	SAME
APPROACH AND LANDING AIDS	15	PAPI–4	GPS, REIL
	33	PAPI–4	GPS, REIL
RUNWAY END COORDINATES	15 Latitude	43°48'30.10"	SAME
	15 Longitude	123°02'00.20"	SAME
	33 Latitude	43°47'59.40"	SAME
	33 Longitude	123°01'50.50"	SAME
RUNWAY LIGHTING		MEDIUM INTENSITY	MEDIUM INTENSITY
TAXIWAY/TAXILANE LIGHTING		REFLECTORS	MEDIUM INTENSITY
RUNWAY MARKING		VISUAL	SAME
WIND COVERAGE (%) – 12/15 KNOTS		97.3/99.2	SAME



"THE PREPARATION OF THIS DOCUMENT MAY HAVE BEEN SUPPORTED, IN PART, THROUGH THE AIRPORT IMPROVEMENT PROGRAM FINANCIAL ASSISTANCE FROM THE FEDERAL AVIATION ADMINISTRATION (PROJECT NUMBER 3–41–0027–004) AS PROVIDED UNDER TITLE 49, UNITED STATES CODE, SECTION 47104. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THIS REPORT BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED THEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

DECLARED DISTANCES

	EXISTING 15	EXISTING 33
TAKEOFF RUN AVAILABLE (TORA)	3200'	3200'
TAKEOFF DISTANCE AVAILABLE (TODA)	3200'	3200'
ACCELERATE – STOP DISTANCE AVAILABLE (ASDA)	3200'	3200'
LANDING DISTANCE AVAILABLE (LDA)	3200'	3200'

ALL WEATHER WIND DATA TABLE

CROSS WIND COMPONENT	10.5 KNOTS
RUNWAY 15	62.02%
RUNWAY 33	55.31%
RUNWAY 15/33	95.37%

IFR WIND DATA TABLE

CROSS WIND COMPONENT	10.5 KNOTS
RUNWAY 15	68.32%
RUNWAY 33	71.68%
RUNWAY 15/33	99.25%

VFR WIND DATA TABLE

CROSS WIND COMPONENT	10.5 KNOTS
RUNWAY 15	60.45%
RUNWAY 33	51.92%
RUNWAY 15/33	94.55%

TAXIWAY	WIDTH	TAXIWAY TSA	TAXIWAY OFA	TAXILANE OFA	SHOULDER WIDTH	EDGE SAFETY MARGIN
TAXIWAY A, A1–A4	25'	49'	89'	79'	10'	5'

*EXISTING TAXILANE A OFA IS SMALLER THAN LISTED STANDARD DUE TO CURRENT HANGAR POSITIONS.

FACILITY IDENTIFICATION KEY		ELEV (MSL)	FACILITY IDENTIFICATION KEY		ELEV (MSL)
1.	FBO	ELEV = 655.2'	30.	FUTURE HANGAR	ELEV = TBD
2.	EXISTING HANGAR	ELEV = 660.0'	31.	FUTURE HANGAR	ELEV = TBD
3.	EXISTING HANGAR	ELEV = 662.6'	32.	FUTURE HANGAR	ELEV = TBD
4.	EXISTING HANGAR	ELEV = 661.6'	33.	FUTURE HANGAR	ELEV = TBD
5.	EXISTING HANGAR	ELEV = 661.2'	34.	FUTURE HANGAR	ELEV = TBD
6.	EXISTING HANGAR	ELEV = 661.2'	35.	FUTURE HANGAR	ELEV = TBD
7.	EXISTING HANGAR	ELEV = 662.1'	36.	FUTURE HANGAR	ELEV = TBD
8.	EXISTING HANGAR	ELEV = 658.8'	37.	FUTURE HANGAR	ELEV = TBD
9.	EXISTING HANGAR	ELEV = 657.0'	38.	FUTURE HANGAR	ELEV = TBD
10.	EXISTING HANGAR	ELEV = 656.8'	39.	FUTURE HANGAR	ELEV = TBD
11.	EXISTING HANGAR	ELEV = 654.9'	40.	FUTURE HANGAR	ELEV = TBD
12.	EXISTING HANGAR	ELEV = 657.3'	41.	FUTURE HANGAR	ELEV = TBD
13.	EXISTING HANGAR	ELEV = 655.3'	42.	FUTURE HANGAR	ELEV = TBD
14.	EXISTING HANGAR	ELEV = 656.4'	43.	FUTURE HANGAR	ELEV = TBD
15.	EXISTING HANGAR	ELEV = 657.0'	44.	FUTURE HANGAR	ELEV = TBD
16.	EXISTING HANGAR	ELEV = 650.6'	45.	FUTURE HANGAR	ELEV = TBD
17.	EXISTING HANGAR	ELEV = 666.5'	46.	FUTURE HANGAR	ELEV = TBD
18.	EXISTING HANGAR	ELEV = 663.9'	47.	FUTURE HANGAR	ELEV = TBD
19.	EXISTING HANGAR	ELEV = 656.8'	48.	FUTURE CORPORATE HANGAR	ELEV = TBD
20.	EXISTING HANGAR	ELEV = 657.9'	49.	FUTURE CORPORATE HANGAR	ELEV = TBD
21.	EXISTING HANGAR	ELEV = 665.9'	50.	FUTURE CORPORATE HANGAR	ELEV = TBD
22.	EXISTING HANGAR	ELEV = 657.3'	51.	FUTURE HANGAR	ELEV = TBD
23.	EXISTING HANGAR	ELEV = 660.2'	52.	FUTURE HANGAR	ELEV = TBD
24.	EXISTING HANGAR	ELEV = 660.8'	53.	FUTURE HANGAR	ELEV = TBD
25.	EXISTING SHOP/ HANGAR	ELEV = 662.4'	54.	PARKING AREA (FUTURE)	ELEV = TBD
26.	TIE DOWN AREA	ELEV = VARIES	55.	FUTURE HELIPORT	ELEV = TBD
27.	APRON AREA	ELEV = VARIES	56.	TIE DOWN AREA	ELEV = VARIES
28.	APRON AREA (FUTURE)	ELEV = TBD	57.	FUELING AREA	ELEV = 651.8'
29.	FUTURE HANGAR	ELEV = TBD			

NOTES:
1. MUCH OF THE COTTAGE GROVE AIRPORT LIES WITHIN A DESIGNATED FLOOD PLAIN AREA.
2. PERIMETER FENCING AROUND PORTIONS OF THE AIRPORT HAS A HEIGHT OF ±7'.
3. SEE TERMINAL PLANS FOR APRON AREAS.
4. NO OFZ OBJECT PENETRATIONS

AIRPORT DATA

DATUM NOTES: HORIZONTAL DATUM NAD 1983
VERTICLE DATUM NAVD 1988
CONTOURS SHOWN ARE NAVD 1929

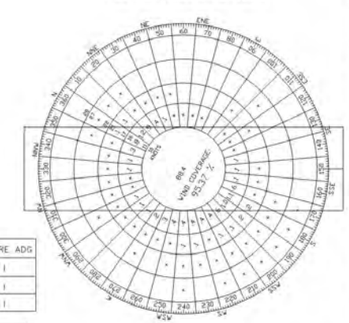
ITEM	EXISTING	FUTURE
DATUM FOR ALL ITEMS	NAD 1983	SAME
AIRPORT ELEVATION (MSL)	644.7'	SAME
AIRPORT REFERENCE POINT	LAT: 43°48'14" LONG: 123°01'55"	SAME
MEAN MAXIMUM DAILY TEMPERATURE	82° F	SAME
AIRPORT REFERENCE CODE	B–I (SMALL)	SAME
NPIAS ROLE	GENERAL AVIATION	SAME
STATE AIRPORT EQUIVALENT ROLE	LEVEL 3	SAME
LAND OWNED IN FEE (ACRES)	SEE EXHIBIT A 74	PROPOSED 86.7
AIRPORT CODE	61S	SAME
TRANSIENT AIRCRAFT SPACES	30	40

TAXIWAY/TAXILANE	CURRENT TDG	FUTURE TDG	CURRENT ADG	FUTURE ADG
TAXIWAY A	1A	1A	I	I
TAXIWAY A1–A4	1A	1A	I	I
TAXILANE A	1A	1A	I	I

HELIPORT	TLOF	FATO	SAFETY AREA	HPZ
HELIPORT	34'X34'	60'X60'	100'X100'	280'X60'X90'

*HELIPORT CRITICAL AIRCRAFT ASSUMPTION: JET RANGER 206

ALL WEATHER WIND ROSE



WIND DATA OBSERVED FROM 2009 TO 2018
MAHLON SWEET FIELD AIRPORT, EUGENE, OR
OBTAINED FROM FAA AIRPORTS GIS WINDROSE FILE GENERATOR
HTTP://AIRPORTS-GIS.FAA.GOV/WINDROSE/

LEGEND

ITEM	EXISTING	FUTURE
AIRFIELD PAVEMENT		
ACCESS ROAD/VEHICLE PARKING	N/A	
EXISTING PAVEMENT TO BE REMOVED		
PERIMETER FENCE		
RUNWAY / TAXIWAY SAFETY AREA	– RSA – TSA –	SAME
RUNWAY / TAXIWAY OBJECT FREE AREA	– OFA – TOFA	SAME
RUNWAY OBJECT FREE ZONE	OFZ	SAME
AIRPORT PROPERTY LINE		
TAXIWAY CENTERLINE		
PAPI UNITS		SAME
BUILDING RESTRICTION LINE	BRL	SAME
AIRPORT PROPERTY ACQUISITION		
BUILDINGS		
TOPOGRAPHIC CONTOURS (2' FT)		SAME
WIND CONE WITH SEGMENTED CIRCLE		SAME
AIRPORT ROTATING BEACON		SAME
AIRPORT REFERENCE POINT (ARP)		SAME
THRESHOLD LIGHTS WITH REILs		SAME
RUNWAY PROTECTION ZONE		SAME
CREEK/STREAM		
AUTOMATED AIRPORT WEATHER STATION	N/A	
TREE CLEARING AREAS		
AIRPORT SURVEY MONUMENTS		

WHPacific

OREGON DEPARTMENT OF AVIATION

SHEET INFO	
DESIGNED	ALB
DRAWN	ALB
CHECKED	RS
APPROVED	----
LAST EDIT	2/3/2020
PLOT DATE	2/3/2020
SUBMITTAL	

REVISIONS			
NO.	BY	DATE	REMARKS

TERMINAL PLAN EAST

OREGON DEPARTMENT OF AVIATION
COTTAGE GROVE, OR

PROJECT NUMBER	DRAWING FILE NAME	SCALE
P0019739W	COT-ALP-C1-C4	AS SHOWN

SHEET NUMBER: C3

[DATE: 2/3/2020 9:17 AM] [AUTHOR: alb/rd] [PLOTTER: _DWG To PDF.pc3] [STYLE: WHP-Standard.ctb]
[PATH: P:\Oregon Dept. of Aviation (ODA)\P0020107W\Execution\Drawings\Planning\ALP\Sheets\COT-ALP-C1-C4.dwg] [LAYOUT: C3]

Figure 7E: Terminal Plan West

RUNWAY DATA

ITEM		RUNWAY 15–33 EXISTING	RUNWAY 15–33 FUTURE
RUNWAY REFERENCE CODE (RRC)		B–I (SMALL)	SAME
RUNWAY DESIGN CODE (RDC)		B–I–VIS (SMALL)	SAME
PHYSICAL LENGTH AND WIDTH		3200' X 60'	SAME
EFFECTIVE GRADIENT		0.37%	SAME
PAVEMENT STRENGTH (WHEEL–POUNDS)		SINGLE – 12,500	SINGLE – 12,500
PAVEMENT SURFACE		ASPHALT	SAME
RUNWAY SAFETY AREA		3680' X 120'	SAME
OBJECT FREE AREA		3680' X 250'	SAME
OBJECT FREE ZONE (SEE NOTE 4)		3680' x 250'	SAME
CRITICAL AIRCRAFT		BEECH BARON 58	SAME
AERONAUTICAL SURVEY REQUIRED		NVG	SAME
APPROACH VISIBILITY MINIMUMS		VISUAL	SAME
RUNWAY PROTECTION ZONE	15	1000'X250'X450'	SAME
	33	1000'X250'X450'	SAME
APPROACH TYPE	15	VISUAL	NONPRECISION CIRCLING GPS
	33	VISUAL	NONPRECISION CIRCLING GPS
APPROACH SLOPE: REQUIRED/CLEAR	15	20:1/20:1	SAME
	33	20:1/20:1	SAME
APPROACH AND LANDING AIDS	15	PAPI–4	GPS, REIL
	33	PAPI–4	GPS, REIL
RUNWAY END COORDINATES	15 Latitude	43°48'30.10"	SAME
	15 Longitude	123°02'00.20"	SAME
	33 Latitude	43°47'59.40"	SAME
	33 Longitude	123°01'50.50"	SAME
RUNWAY LIGHTING		MEDIUM INTENSITY	MEDIUM INTENSITY
TAXIWAY/TAXILANE LIGHTING		REFLECTORS	MEDIUM INTENSITY
RUNWAY MARKING		VISUAL	SAME
WIND COVERAGE (%) – 12/15 KNOTS		97.3/99.2	SAME

TAXIWAY	WIDTH	TAXIWAY TSA	TAXIWAY OFA	TAXILANE OFA	SHOULDER WIDTH	EDGE SAFETY MARGIN
TAXIWAY A, A1–A4	25'	49'	89'	79'	10'	5'

*EXISTING TAXILANE A OFA IS SMALLER THAN LISTED STANDARD DUE TO CURRENT HANGAR POSITIONS.

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CHANGING 0° 5' W PER YEAR
SOURCE: NOAA WMM (2014–2019)
MAGNETIC FIELD CALCULATOR

2015 MAGNETIC DEC. 14°54' EAST

SCALE
300 0 150 300 600
(FEET)
1 INCH = 300 FT.

DECLARED DISTANCES

	EXISTING 15	EXISTING 33
TAKEOFF RUN AVAILABLE (TORA)	3200'	3200'
TAKEOFF DISTANCE AVAILABLE (TODA)	3200'	3200'
ACCELERATE – STOP DISTANCE AVAILABLE (ASDA)	3200'	3200'
LANDING DISTANCE AVAILABLE (LDA)	3200'	3200'

ALL WEATHER WIND DATA TABLE

CROSS WIND COMPONENT	10.5 KNOTS
RUNWAY 15	62.02%
RUNWAY 33	55.31%
RUNWAY 15/33	95.37%

IFR WIND DATA TABLE

CROSS WIND COMPONENT	10.5 KNOTS
RUNWAY 15	68.32%
RUNWAY 33	71.68%
RUNWAY 15/33	99.25%

VFR WIND DATA TABLE

CROSS WIND COMPONENT	10.5 KNOTS
RUNWAY 15	60.45%
RUNWAY 33	51.92%
RUNWAY 15/33	94.55%

LEGEND

ITEM	EXISTING	FUTURE
AIRFIELD PAVEMENT		
ACCESS ROAD/VEHICLE PARKING	N/A	
EXISTING PAVEMENT TO BE REMOVED		
PERIMETER FENCE		
RUNWAY / TAXIWAY SAFETY AREA	– RSA – TSA –	SAME
RUNWAY / TAXIWAY OBJECT FREE AREA	– OFA – – TOFA	SAME
RUNWAY OBJECT FREE ZONE	— OFZ —	SAME
AIRPORT PROPERTY LINE		
TAXIWAY CENTERLINE		
PAPI UNITS		SAME
BUILDING RESTRICTION LINE	BRL	SAME
AIRPORT PROPERTY ACQUISITION		
BUILDINGS		
TOPOGRAPHIC CONTOURS (2 FT)		SAME
WIND CONE WITH SEGMENTED CIRCLE		SAME
AIRPORT ROTATING BEACON		SAME
AIRPORT REFERENCE POINT (ARP)		SAME
THRESHOLD LIGHTS WITH REILs		SAME
RUNWAY PROTECTION ZONE		SAME
CREEK/STREAM		
AUTOMATED AIRPORT WEATHER STATION	N/A	
TREE CLEARING AREAS		
AIRPORT SURVEY MONUMENTS		

FACILITY IDENTIFICATION KEY		ELEV (MSL)	FACILITY IDENTIFICATION KEY		ELEV (MSL)
1.	FBO	ELEV = 655.2'	30.	FUTURE HANGAR	ELEV = TBD
2.	EXISTING HANGAR	ELEV = 660.0'	31.	FUTURE HANGAR	ELEV = TBD
3.	EXISTING HANGAR	ELEV = 662.6'	32.	FUTURE HANGAR	ELEV = TBD
4.	EXISTING HANGAR	ELEV = 661.6'	33.	FUTURE HANGAR	ELEV = TBD
5.	EXISTING HANGAR	ELEV = 661.2'	34.	FUTURE HANGAR	ELEV = TBD
6.	EXISTING HANGAR	ELEV = 661.2'	35.	FUTURE HANGAR	ELEV = TBD
7.	EXISTING HANGAR	ELEV = 662.1'	36.	FUTURE HANGAR	ELEV = TBD
8.	EXISTING HANGAR	ELEV = 658.6'	37.	FUTURE HANGAR	ELEV = TBD
9.	EXISTING HANGAR	ELEV = 657.0'	38.	FUTURE HANGAR	ELEV = TBD
10.	EXISTING HANGAR	ELEV = 656.8'	39.	FUTURE HANGAR	ELEV = TBD
11.	EXISTING HANGAR	ELEV = 654.9'	40.	FUTURE HANGAR	ELEV = TBD
12.	EXISTING HANGAR	ELEV = 657.3'	41.	FUTURE HANGAR	ELEV = TBD
13.	EXISTING HANGAR	ELEV = 655.3'	42.	FUTURE HANGAR	ELEV = TBD
14.	EXISTING HANGAR	ELEV = 656.4'	43.	FUTURE HANGAR	ELEV = TBD
15.	EXISTING HANGAR	ELEV = 657.0'	44.	FUTURE HANGAR	ELEV = TBD
16.	EXISTING HANGAR	ELEV = 650.6'	45.	FUTURE HANGAR	ELEV = TBD
17.	EXISTING HANGAR	ELEV = 666.5'	46.	FUTURE HANGAR	ELEV = TBD
18.	EXISTING HANGAR	ELEV = 663.9'	47.	FUTURE HANGAR	ELEV = TBD
19.	EXISTING HANGAR	ELEV = 656.8'	48.	FUTURE CORPORATE HANGAR	ELEV = TBD
20.	EXISTING HANGAR	ELEV = 657.9'	49.	FUTURE CORPORATE HANGAR	ELEV = TBD
21.	EXISTING HANGAR	ELEV = 665.9'	50.	FUTURE CORPORATE HANGAR	ELEV = TBD
22.	EXISTING HANGAR	ELEV = 657.3'	51.	FUTURE HANGAR	ELEV = TBD
23.	EXISTING HANGAR	ELEV = 660.2'	52.	FUTURE HANGAR	ELEV = TBD
24.	EXISTING HANGAR	ELEV = 660.8'	53.	FUTURE HANGAR	ELEV = TBD
25.	EXISTING SHOP/ HANGAR	ELEV = 662.4'	54.	PARKING AREA (FUTURE)	ELEV = TBD
26.	TIE DOWN AREA	ELEV = VARIES	55.	FUTURE HELIPORT	ELEV = TBD
27.	APRON AREA	ELEV = VARIES	56.	TIE DOWN AREA	ELEV = VARIES
28.	APRON AREA (FUTURE)	ELEV = TBD	57.	FUELING AREA	ELEV = 651.8'
29.	FUTURE HANGAR	ELEV = TBD			

AIRPORT DATA

DATUM NOTES: HORIZONTAL DATUM NAD 1983
VERTICLE DATUM NAVD 1988
CONTOURS SHOWN ARE NAVD 1929

ITEM	EXISTING	FUTURE
DATUM FOR ALL ITEMS	NAD 1983	SAME
AIRPORT ELEVATION (MSL)	644.7'	SAME
AIRPORT REFERENCE POINT	LAT: 43°48'14" LONG: 123°01'55"	SAME
MEAN MAXIMUM DAILY TEMPERATURE	82° F	SAME
AIRPORT REFERENCE CODE	B–I (SMALL)	SAME
NPIAS ROLE	GENERAL AVIATION	SAME
STATE AIRPORT EQUIVALENT ROLE	LEVEL 3	SAME
LAND OWNED IN FEE (ACRES)	SEE EXHIBIT A 74	PROPOSED 86.7
AIRPORT CODE	61S	SAME
TRANSIENT AIRCRAFT SPACES	30	40

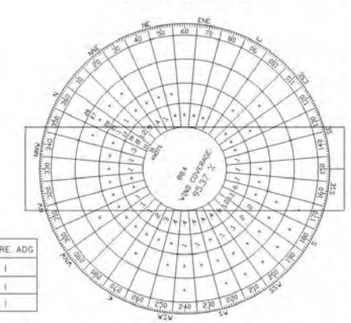
NOTES:
1. MUCH OF THE COTTAGE GROVE AIRPORT LIES WITHIN A DESIGNATED FLOOD PLAIN AREA.
2. PERIMETER FENCING AROUND PORTIONS OF THE AIRPORT HAS A HEIGHT OF ±7'.
3. SEE TERMINAL PLANS FOR APRON AREAS.
4. UTILITY LOCATIONS ARE APPROXIMATE AND BASED ON AVAILABLE GIS DATA.
5. OVERHEAD POWER POLES ARE LOCATED OUTSIDE OF THE TAXILANE OFA LIMITS. HEIGHT ABOVE TAXILANE CENTERLINE IS NOT KNOWN.

TAXIWAY/TAXILANE	CURRENT TDG	FUTURE TDG	CURRENT ADG	FUTURE ADG
TAXIWAY A	1A	1A	I	I
TAXIWAY A1–A4	1A	1A	I	I
TAXILANE A	1A	1A	I	I

HELIPORT	TLOF	FATO	SAFETY AREA	HPZ
HELIPORT	34'X34'	60'X60'	100'X100'	280'X60'X90'

*HELIPORT CRITICAL AIRCRAFT ASSUMPTION: JET RANGER 206

ALL WEATHER WIND ROSE



WIND DATA OBSERVED FROM 2009 TO 2018
MAHLON SWEET FIELD AIRPORT, EUGENE, OR
OBTAINED FROM FAA AIRPORTS GIS WINDROSE FILE GENERATOR
HTTP://AIRPORTS-GIS.FAA.GOV/WINDROSE/

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TERMINAL PLAN WEST

OREGON DEPARTMENT OF AVIATION
COTTAGE GROVE, OR

PROJECT NUMBER	DRAWING FILE NAME	SCALE
P0019739W	COT-ALP-C1-C4	AS SHOWN

SHEET NUMBER
C4

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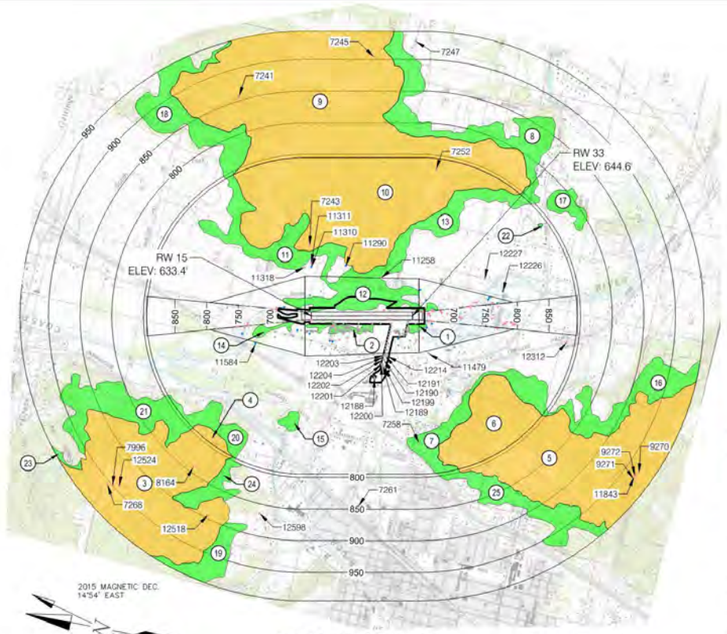
Figure 7F: Airspace Plan (1 of 2)



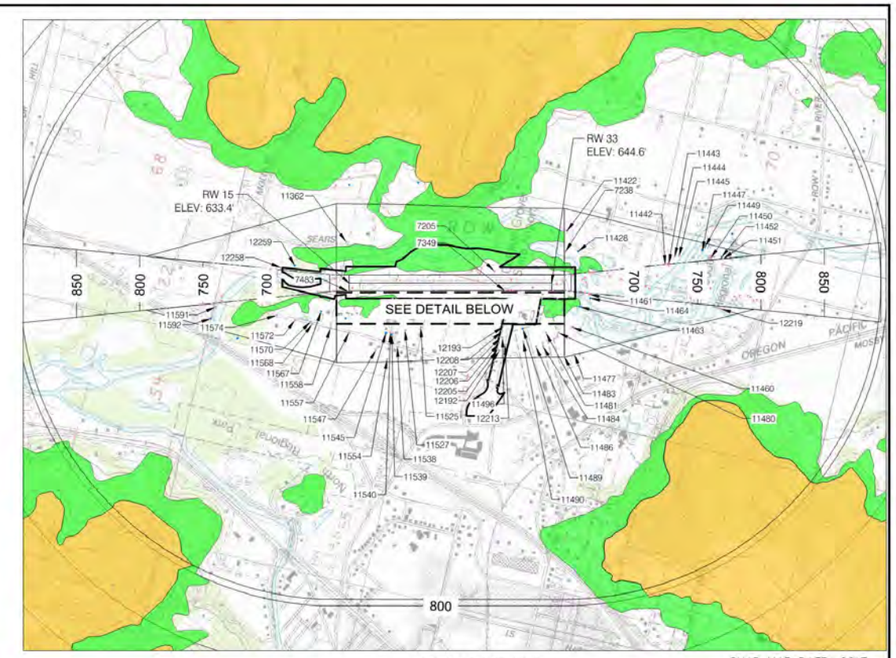
AIRPORT AIRSPACE
HORIZONTAL & CONICAL OBSTRUCTIONS
SCALE: 1" = 2000' HORZ

QUAD MAP DATE: 2017

DRAWING LEGEND	
RUNWAY PROTECTION ZONE	
AIRPORT PROPERTY LINE	
FAR PART 77 SURFACE	
PENETRATING OBSTRUCTION	
NON PENETRATING OBSTRUCTION	
NON-PENETRATING TREES (<10' CLEARANCE)	
MAJOR GRIDLINE	
MINOR GRIDLINE	
COMPOSITE LANDMASS OBSTRUCTION AREA	
COMPOSITE TREE OBSTRUCTION AREA	

*SEE SHEETS C10 AND C11 FOR CONICAL, HORIZONTAL AND TRANSITIONAL OBSTRUCTION TABLES.

SCALE
2000 0 1000 2000 4000
(FEET)
1 INCH = 2000 FT.



AIRPORT AIRSPACE
TRANSVERSE OBSTRUCTIONS
SCALE: 1" = 1000' HORZ

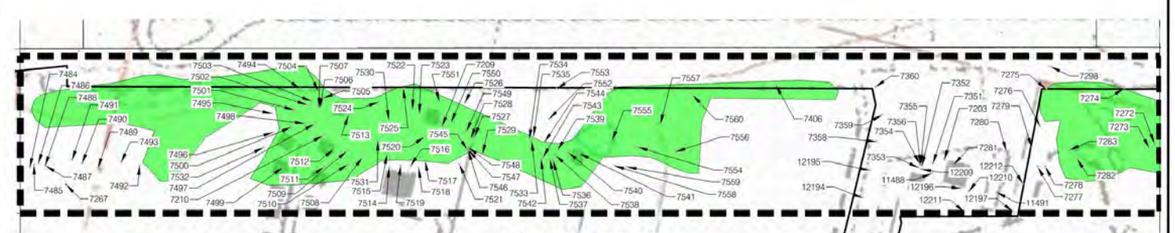
QUAD MAP DATE: 2017

2015 MAGNETIC DEC.
14°54' EAST
CHANGING 0° 5' W PER YEAR

SCALE
1000 0 500 1000 2000
(FEET)
1 INCH = 1000 FT.

TERRAIN AND TREE GROUP OBSTRUCTION DATA					TERRAIN AND TREE GROUP OBSTRUCTION DATA				
OBSTRUCTION GROUP NUMBER	GROUP	TALLEST OBSTRUCTION NUMBER	TALLEST ELEVATION	CONTROLLING SURFACE	OBSTRUCTION GROUP NUMBER	GROUP	TALLEST OBSTRUCTION NUMBER	TALLEST ELEVATION	CONTROLLING SURFACE
1	TREES	7214	748.9	TRANSITIONAL	14	TREES	11577	769.6	TRANSITIONAL
2	TREES	7263	754.4	TRANSITIONAL	15	TREES	11615	829.5	HORIZONTAL
3	TERRAIN	7984	1348.3	CONICAL	16	TREES	12369	1139.3	CONICAL
4	TREES	8154	955.2	HORIZONTAL	17	TREES	12377	963.5	CONICAL
5	TERRAIN	9299	1506.1	CONICAL	18	TREES	12451	1149.4	CONICAL
6	TERRAIN	9559	1263.3	HORIZONTAL	19	TREES	12490	1107	CONICAL
7	TREES	9664	956.8	HORIZONTAL	20	TREES	12540	885.6	HORIZONTAL
8	TREES	10010	1093.4	CONICAL	21	TREES	12578	1061.4	CONICAL
9	TERRAIN	10046	1399.6	CONICAL	22	TREES	12597	814.8	HORIZONTAL
10	TERRAIN	11029	1235.8	HORIZONTAL	23	TREES	12599	994.8	CONICAL
11	TREES	11116	954.2	HORIZONTAL	24	TREES	12601	1012	CONICAL
12	TREES	11282	941	TRANSITIONAL	25	TREES	12613	1128	CONICAL
13	TREES	11285	957.8	HORIZONTAL					

*SEE SHEETS C10 AND C11 FOR CONICAL, HORIZONTAL AND TRANSITIONAL OBSTRUCTION TABLES.



2015 MAGNETIC DEC.
14°54' EAST
CHANGING 0° 5' W PER YEAR

AIRPORT AIRSPACE
TRANSVERSE OBSTRUCTIONS
SCALE: 1" = 200' HORZ

SCALE
200 0 100 200 400
(FEET)
1 INCH = 200 FT.

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AIRSPACE PLAN (1 OF 2)

OREGON DEPARTMENT OF AVIATION
COTTAGE GROVE, OR

PROJECT NUMBER	DRAWING FILE NAME	SCALE
P0020107W	COT-ALP-C5-C6	AS SHOWN

SHEET NUMBER
C5

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Figure 7G: Airspace Plan (2 of 2)

AIRPORT AIRSPACE
PRIMARY OBSTRUCTIONS
SCALE: 1" = 200' HORZ

QUAD MAP DATE: 2017

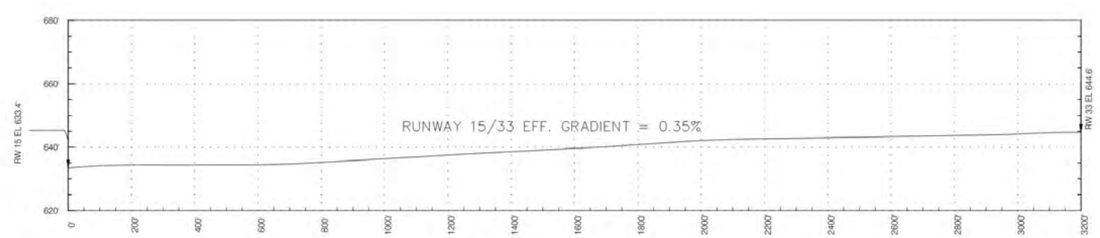
2015 MAGNETIC DEC.
14°54' EAST

CHANGING 0° 5' W PER YEAR

SCALE
200 0 100 200 400
(FEET)
1 INCH = 200 FT.

DRAWING LEGEND	
RUNWAY PROTECTION ZONE	
AIRPORT PROPERTY LINE	
FAR PART 77 SURFACE	
PENETRATING OBSTRUCTION	
NON PENETRATING OBSTRUCTION	
NON-PENETRATING TREES (<10' CLEARANCE)	
MAJOR GRIDLINE	
MINOR GRIDLINE	
COMPOSITE LANDMASS OBSTRUCTION AREA	
COMPOSITE TREE OBSTRUCTION AREA	

*SEE SHEET C10 FOR PRIMARY OBSTRUCTION TABLE.



RW 15/33 PROFILE
SCALE: 1" = 200' HORZ
SCALE: 1" = 20' VERT

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OREGON DEPARTMENT OF AVIATION

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REVISIONS			
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AIRSPACE PLAN (2 OF 2)

OREGON DEPARTMENT OF AVIATION
COTTAGE GROVE, OR

PROJECT NUMBER	DRAWING FILE NAME	SCALE
P0020107W	COT-ALP-C5-C6	AS SHOWN

SHEET NUMBER
C6

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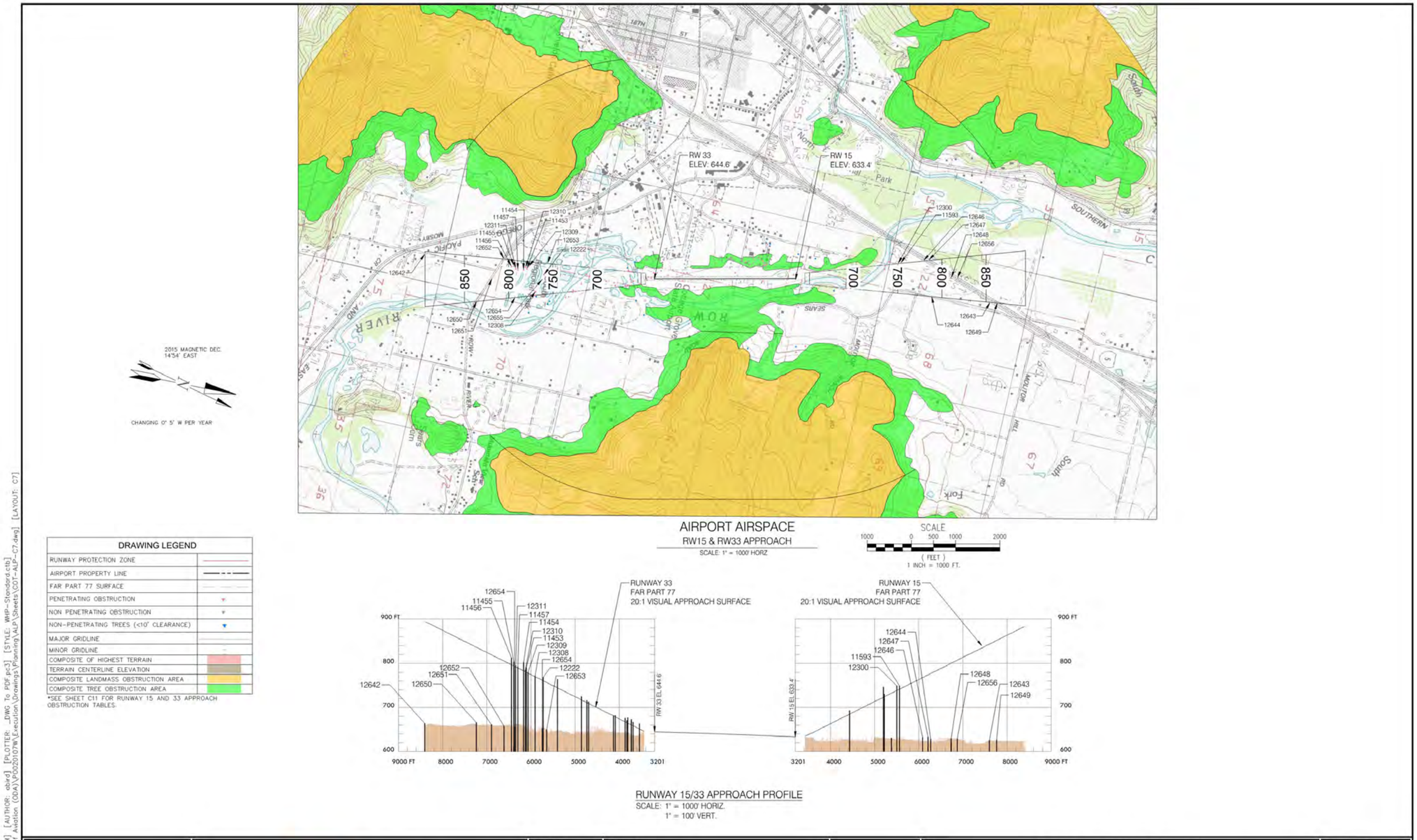
Figure 7H: Airspace Approach



DRAWING LEGEND	
RUNWAY PROTECTION ZONE	
AIRPORT PROPERTY LINE	
FAR PART 77 SURFACE	
PENETRATING OBSTRUCTION	
NON PENETRATING OBSTRUCTION	
NON-PENETRATING TREES (<10' CLEARANCE)	
MAJOR GRIDLINE	
MINOR GRIDLINE	
COMPOSITE OF HIGHEST TERRAIN	
TERRAIN CENTERLINE ELEVATION	
COMPOSITE LANDMASS OBSTRUCTION AREA	
COMPOSITE TREE OBSTRUCTION AREA	

*SEE SHEET C11 FOR RUNWAY 15 AND 33 APPROACH OBSTRUCTION TABLES.

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AIRSPACE APPROACH

OREGON DEPARTMENT OF AVIATION
COTTAGE GROVE, OR

PROJECT NUMBER	DRAWING FILE NAME	SCALE
P0020107W	COT-ALP-C7	AS SHOWN

SHEET NUMBER
C7

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Figure 7I: Runway 15 Inner Approach

DRAWING LEGEND	
RUNWAY PROTECTION ZONE	
AIRPORT PROPERTY LINE	
FAR PART 77 SURFACE	
RUNWAY SAFETY AREA	
RUNWAY OBJECT FREE AREA	
BUILDING RESTRICTION LINE	BRL
PENETRATING OBSTRUCTION	
NON PENETRATING OBSTRUCTION	
NON-PENETRATING TREES (<10' CLEARANCE)	
TOPOGRAPHIC CONTOURS (2 FT)	
MAJOR GRIDLINE	
MINOR GRIDLINE	
THRESHOLD SITING SURFACE	
COMPOSITE OF HIGHEST TERRAIN	
TERRAIN CENTERLINE ELEVATION	
AIRPORT PROPERTY ACQUISITION	

*SEE SHEET C11 FOR RUNWAY 15 INNER APPROACH OBSTRUCTION TABLES.

2015 MAGNETIC DEC. 14°54' EAST

CHANGING 0° 5' W PER YEAR

SCALE
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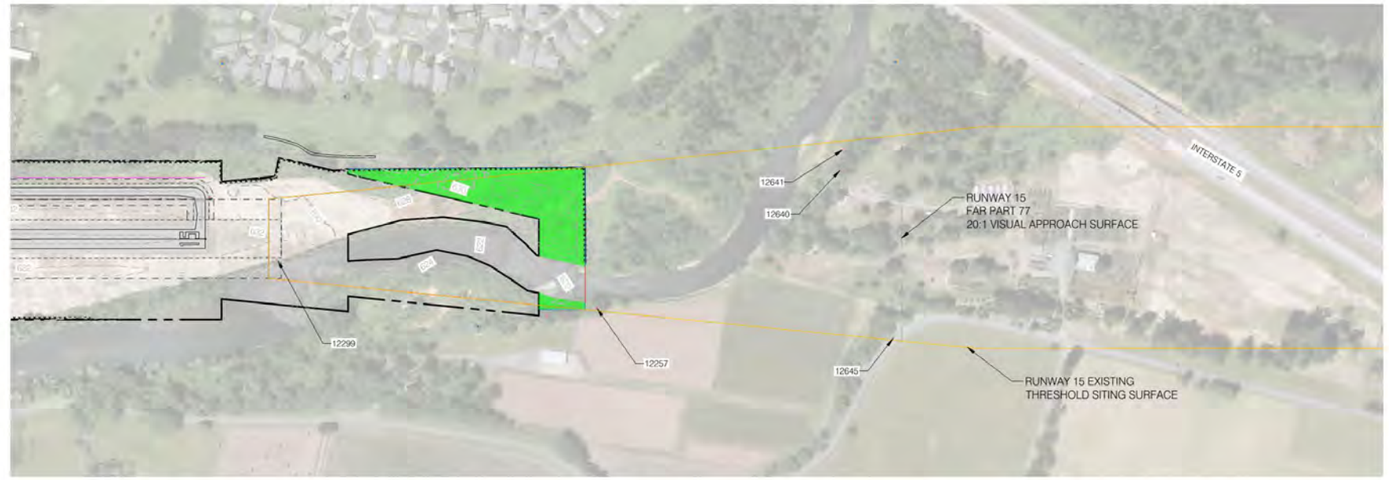
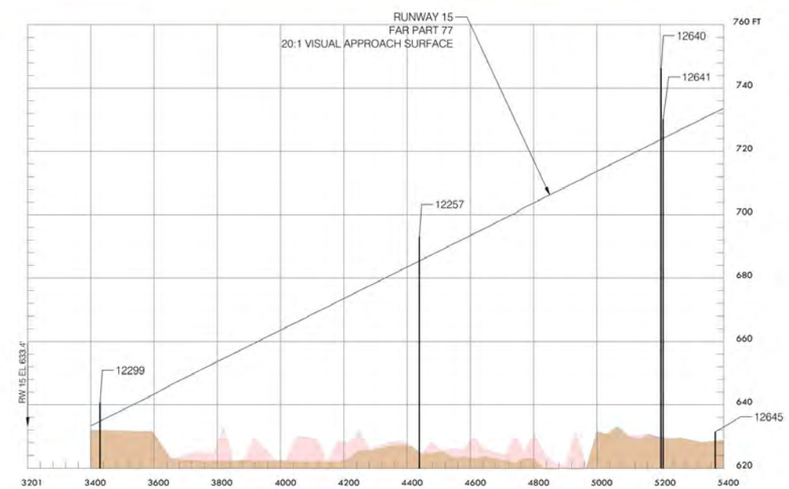
(FEET)
1 INCH = 200 FT.





RUNWAY 15 INNER APPROACH PROFILE
SCALE: 1" = 200' HORIZ.
1" = 20' VERT.

[DATE: 2/3/2020 9:19 AM] [AUTHOR: abird] [PLOTTER: _DWG To PDF.pc3] [STYLE: WHP-Standard.ctb]
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RW 15 INNER APPROACH

OREGON DEPARTMENT OF AVIATION
COTTAGE GROVE, OR

PROJECT NUMBER	DRAWING FILE NAME	SCALE
P0020107W	COT-ALP-C8	AS SHOWN

SHEET NUMBER
C8

Figure 7J: Runway 33 Inner Approach

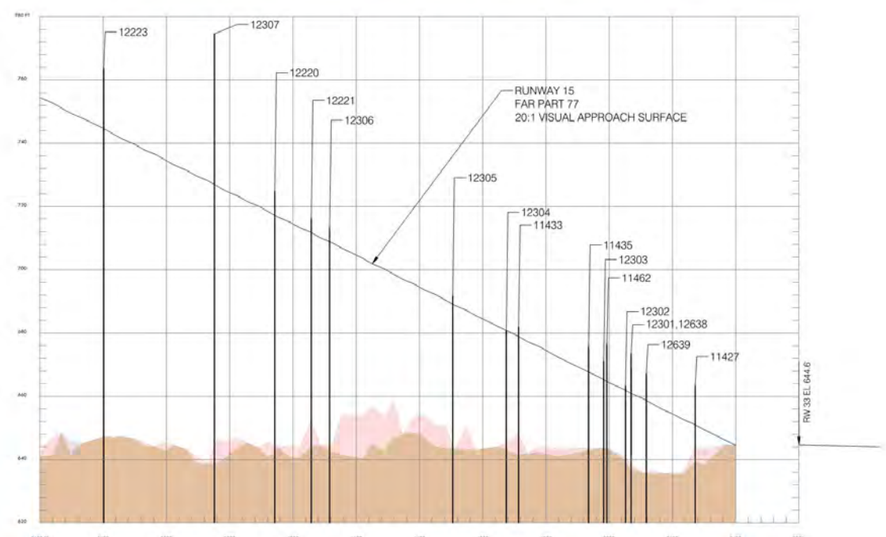
DRAWING LEGEND	
RUNWAY PROTECTION ZONE	
AIRPORT PROPERTY LINE	
FAR PART 77 SURFACE	
RUNWAY SAFETY AREA	
RUNWAY OBJECT FREE AREA	
BUILDING RESTRICTION LINE	BRL
PENETRATING OBSTRUCTION	
NON PENETRATING OBSTRUCTION	
NON-PENETRATING TREES (<10' CLEARANCE)	
TOPOGRAPHIC CONTOURS (2 FT)	
MAJOR GRIDLINE	
MINOR GRIDLINE	
THRESHOLD SITING SURFACE	
COMPOSITE OF HIGHEST TERRAIN	
TERRAIN CENTERLINE ELEVATION	
AIRPORT PROPERTY ACQUISITION	

*SEE SHEET C9 FOR RUNWAY 33 INNER APPROACH OBSTRUCTION TABLES.

2015 MAGNETIC DEC. 14°54' EAST

CHANGING 0° 5' W PER YEAR

SCALE
200 0 100 200 400
(FEET)
1 INCH = 200 FT.



RUNWAY 33 INNER APPROACH PROFILE
SCALE: 1" = 200' HORIZ.
1" = 20' VERT.

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RW 33 INNER APPROACH

OREGON DEPARTMENT OF AVIATION
COTTAGE GROVE, OR

PROJECT NUMBER	DRAWING FILE NAME	SCALE
P0020107W	COT-ALP-C9	AS SHOWN

SHEET NUMBER C9

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Figure 7K: Obstruction Tables (1 of 2)

SHEET C5 – Transitional Obstruction Table 1 OF 2

Object ID	Name	Observation Date	Object Elevation	Ground Elevation	Penetration	Disposition
7203	POLE	6/19/2018	683.2	642.9	-10	No Obstruction - For Reference Only
7205	VERTICAL STRUCTURE	6/19/2018	665.6	644.1	13	To Remain
7209	ANTENNA	6/19/2018	678.2	642.7	7	To Remain
7210	POLE	6/19/2018	675.0	641.8	2	To Remain
7238	TREE	6/19/2018	723.1	632.6	24	To Be Removed/Relocated
7267	TREE	6/19/2018	691.1	635.4	-3	No Obstruction (<10' below restricting surface)
7272	BUILDING	6/19/2018	676.5	647.2	-10	No Obstruction - For Reference Only
7273	BUILDING	6/19/2018	661.6	646.5	-26	No Obstruction - For Reference Only
7274	VERTICAL STRUCTURE	6/19/2018	654.9	647.2	-7	No Obstruction - For Reference Only
7275	VERTICAL STRUCTURE	6/19/2018	653.1	646.5	-9	No Obstruction - For Reference Only
7276	VERTICAL STRUCTURE	6/19/2018	648.3	645.3	-31	No Obstruction - For Reference Only
7277	VERTICAL STRUCTURE	6/19/2018	654.7	646.0	-43	No Obstruction - For Reference Only
7278	VERTICAL STRUCTURE	6/19/2018	654.6	645.9	-42	No Obstruction - For Reference Only
7279	POLE	6/19/2018	670.0	645.1	-15	No Obstruction - For Reference Only
7280	BUILDING	6/19/2018	660.0	643.3	-30	No Obstruction - For Reference Only
7281	BUILDING	6/19/2018	661.2	643.1	-34	No Obstruction - For Reference Only
7282	DEBRIS/RUINS	6/19/2018	653.5	646.0	-40	No Obstruction - For Reference Only
7283	DEBRIS/RUINS	6/19/2018	655.5	646.2	-35	No Obstruction - For Reference Only
7298	SIGN	6/19/2018	646.0	643.8	-6	No Obstruction - For Reference Only
7349	SIGN	6/19/2018	643.9	641.4	1	To Remain
7351	SIGN	6/19/2018	647.2	642.9	-48	No Obstruction - For Reference Only
7352	BUILDING	6/19/2018	651.9	642.6	-44	No Obstruction - For Reference Only
7353	VERTICAL STRUCTURE	6/19/2018	644.5	642.4	-52	No Obstruction - For Reference Only
7354	VERTICAL STRUCTURE	6/19/2018	645.0	642.6	-50	No Obstruction - For Reference Only
7355	VERTICAL STRUCTURE	6/19/2018	645.0	642.4	-50	No Obstruction - For Reference Only
7356	VERTICAL STRUCTURE	6/19/2018	646.4	642.3	-49	No Obstruction - For Reference Only
7358	POLE	6/19/2018	668.0	642.3	-17	No Obstruction - For Reference Only
7359	POLE	6/19/2018	668.0	642.8	-5	No Obstruction - For Reference Only
7360	VERTICAL STRUCTURE	6/19/2018	651.3	642.9	-9	No Obstruction - For Reference Only
7406	VERTICAL STRUCTURE	6/19/2018	650.3	643.0	-8	No Obstruction - For Reference Only
7483	SIGN	6/19/2018	639.3	639.6	0	To Remain
7484	BUILDING	6/19/2018	643.4	636.1	-37	No Obstruction - For Reference Only
7485	VERTICAL STRUCTURE	6/19/2018	649.5	635.7	-35	No Obstruction - For Reference Only
7486	VERTICAL STRUCTURE	6/19/2018	649.5	635.7	-35	No Obstruction - For Reference Only
7487	VERTICAL STRUCTURE	6/19/2018	639.3	636.7	-46	No Obstruction - For Reference Only
7488	VERTICAL STRUCTURE	6/19/2018	638.4	636.6	-47	No Obstruction - For Reference Only
7489	VERTICAL STRUCTURE	6/19/2018	655.7	637.9	-31	No Obstruction - For Reference Only
7490	VERTICAL STRUCTURE	6/19/2018	658.3	641.0	-26	No Obstruction - For Reference Only
7491	VERTICAL STRUCTURE	6/19/2018	642.6	639.6	-40	No Obstruction - For Reference Only
7492	VERTICAL STRUCTURE	6/19/2018	656.2	638.9	-30	No Obstruction - For Reference Only
7493	VERTICAL STRUCTURE	6/19/2018	635.0	632.3	-49	No Obstruction - For Reference Only
7494	VERTICAL STRUCTURE	6/19/2018	647.7	641.8	-4	No Obstruction - For Reference Only
7495	VERTICAL STRUCTURE	6/19/2018	647.7	641.5	-15	No Obstruction - For Reference Only
7496	VERTICAL STRUCTURE	6/19/2018	650.0	641.9	-21	No Obstruction - For Reference Only
7497	POLE	6/19/2018	663.3	642.3	-3	No Obstruction - For Reference Only
7498	BUILDING	6/19/2018	653.0	642.4	-15	No Obstruction - For Reference Only
7499	VERTICAL STRUCTURE	6/19/2018	657.6	640.8	-30	No Obstruction - For Reference Only
7500	BUILDING	6/19/2018	666.6	641.9	-3	No Obstruction - For Reference Only
7501	BUILDING	6/19/2018	662.7	641.8	1	To Remain
7502	ANTENNA	6/19/2018	666.4	642.2	7	To Remain
7503	BUILDING	6/19/2018	655.4	642.7	-2	No Obstruction - For Reference Only
7504	BUILDING	6/19/2018	647.2	641.5	-6	No Obstruction - For Reference Only
7505	VERTICAL STRUCTURE	6/19/2018	649.0	641.4	-7	No Obstruction - For Reference Only
7506	VERTICAL STRUCTURE	6/19/2018	648.1	642.2	-13	No Obstruction - For Reference Only
7507	VERTICAL STRUCTURE	6/19/2018	644.9	642.4	-16	No Obstruction - For Reference Only
7508	VERTICAL STRUCTURE	6/19/2018	647.2	640.9	-37	No Obstruction - For Reference Only
7509	VERTICAL STRUCTURE	6/19/2018	651.0	642.2	-30	No Obstruction - For Reference Only
7510	VERTICAL STRUCTURE	6/19/2018	650.5	642.0	-36	No Obstruction - For Reference Only
7511	BUILDING	6/19/2018	651.2	641.2	-36	No Obstruction - For Reference Only
7512	VERTICAL STRUCTURE	6/19/2018	661.6	641.9	-18	No Obstruction - For Reference Only
7513	VERTICAL STRUCTURE	6/19/2018	662.9	642.3	-2	No Obstruction - For Reference Only
7514	DEBRIS/RUINS	6/19/2018	647.5	640.6	-42	No Obstruction - For Reference Only
7515	DEBRIS/RUINS	6/19/2018	647.6	641.4	-35	No Obstruction - For Reference Only
7516	DEBRIS/RUINS	6/19/2018	649.3	640.6	-39	No Obstruction - For Reference Only
7517	DEBRIS/RUINS	6/19/2018	651.1	641.8	-36	No Obstruction - For Reference Only
7518	VERTICAL STRUCTURE	6/19/2018	646.8	641.3	-43	No Obstruction - For Reference Only
7519	VERTICAL STRUCTURE	6/19/2018	647.3	640.8	-41	No Obstruction - For Reference Only
7520	VERTICAL STRUCTURE	6/19/2018	646.1	642.3	-28	No Obstruction - For Reference Only
7521	VERTICAL STRUCTURE	6/19/2018	647.7	641.7	-41	No Obstruction - For Reference Only
7522	BUILDING	6/19/2018	653.1	641.1	-4	No Obstruction - For Reference Only
7523	ANTENNA	6/19/2018	650.3	641.7	-14	No Obstruction - For Reference Only
7524	VERTICAL STRUCTURE	6/19/2018	646.6	640.1	-13	No Obstruction - For Reference Only
7525	VERTICAL STRUCTURE	6/19/2018	645.8	640.3	-8	No Obstruction - For Reference Only
7526	VERTICAL STRUCTURE	6/19/2018	644.4	640.4	-17	No Obstruction - For Reference Only
7527	VERTICAL STRUCTURE	6/19/2018	650.2	641.5	-21	No Obstruction - For Reference Only
7528	VERTICAL STRUCTURE	6/19/2018	650.2	641.7	-27	No Obstruction - For Reference Only
7529	VERTICAL STRUCTURE	6/19/2018	650.0	641.2	-36	No Obstruction - For Reference Only
7530	DEBRIS/RUINS	6/19/2018	642.9	638.8	-25	No Obstruction - For Reference Only
7531	DEBRIS/RUINS	6/19/2018	645.8	642.7	-31	No Obstruction - For Reference Only
7532	VERTICAL STRUCTURE	6/19/2018	645.6	641.0	-33	No Obstruction - For Reference Only
7533	BUILDING	6/19/2018	650.0	641.0	-30	No Obstruction - For Reference Only
7534	BUILDING	6/19/2018	647.1	640.9	-32	No Obstruction - For Reference Only
7535	BUILDING	6/19/2018	648.3	640.8	-29	No Obstruction - For Reference Only
7536	BUILDING	6/19/2018	650.2	640.6	-39	No Obstruction - For Reference Only
7537	BUILDING	6/19/2018	647.3	640.5	-41	No Obstruction - For Reference Only
7538	BUILDING	6/19/2018	648.5	640.3	-38	No Obstruction - For Reference Only

SHEET C5 – Transitional Obstruction Table 2 OF 2

Object ID	Name	Observation Date	Object Elevation	Ground Elevation	Penetration	Disposition
7539	BUILDING	6/19/2018	650.3	640.4	-34	No Obstruction - For Reference Only
7540	ANTENNA	6/19/2018	675.0	639.9	-10	No Obstruction - For Reference Only
7541	VERTICAL STRUCTURE	6/19/2018	656.7	638.2	-29	No Obstruction - For Reference Only
7542	VERTICAL STRUCTURE	6/19/2018	646.7	640.4	-41	No Obstruction - For Reference Only
7543	VERTICAL STRUCTURE	6/19/2018	645.1	640.5	-42	No Obstruction - For Reference Only
7544	POLE	6/19/2018	674.4	640.8	-6	No Obstruction - For Reference Only
7545	VERTICAL STRUCTURE	6/19/2018	644.0	642.1	-38	No Obstruction - For Reference Only
7546	VERTICAL STRUCTURE	6/19/2018	643.5	641.7	-39	No Obstruction - For Reference Only
7547	VERTICAL STRUCTURE	6/19/2018	646.0	641.7	-36	No Obstruction - For Reference Only
7548	VERTICAL STRUCTURE	6/19/2018	648.2	641.4	-33	No Obstruction - For Reference Only
7549	VERTICAL STRUCTURE	6/19/2018	647.1	642.6	-27	No Obstruction - For Reference Only
7550	BUILDING	6/19/2018	653.1	642.6	-17	No Obstruction - For Reference Only
7551	VERTICAL STRUCTURE	6/19/2018	646.6	640.1	-14	No Obstruction - For Reference Only
7552	VERTICAL STRUCTURE	6/19/2018	642.7	638.1	-27	No Obstruction - For Reference Only
7553	VERTICAL STRUCTURE	6/19/2018	644.3	640.2	-12	No Obstruction - For Reference Only
7554	POLE	6/19/2018	662.2	637.4	-22	No Obstruction - For Reference Only
7555	POLE	6/19/2018	670.8	636.1	-10	No Obstruction - For Reference Only
7556	VERTICAL STRUCTURE	6/19/2018	654.5	638.6	-33	No Obstruction - For Reference Only
7557	ANTENNA	6/19/2018	661.9	637.8	-12	No Obstruction - For Reference Only
7558	VERTICAL STRUCTURE	6/19/2018	643.8	638.1	-48	No Obstruction - For Reference Only
7559	VERTICAL STRUCTURE	6/19/2018	644.1	638.7	-49	No Obstruction - For Reference Only
7560	VERTICAL STRUCTURE	6/19/2018	648.9	643.5	-13	No Obstruction - For Reference Only
11362	POLE	6/19/2018	689.2	639.9	-20	No Obstruction - For Reference Only
11422	TREE	6/19/2018	745.5	643.1	-1	No Obstruction (<10' below restricting surface)
11428	TREE	6/19/2018	700.2	643.5	-6	No Obstruction (<10' below restricting surface)
11442	TREE	6/19/2018	776.6	646.8	51	To Be Removed/Relocated
11443	TREE	6/19/2018	785.2	647.2	55	To Be Removed/Relocated
11444	TREE	6/19/2018	764.2	646.9	18	To Be Removed/Relocated
11445	TREE	6/19/2018	760.1	644.6	7	To Be Removed/Relocated
11447	TREE	6/19/2018	774.6	648.8	-4	No Obstruction (<10' below restricting surface)
11449	TREE	6/19/2018	787.6	649.2	-1	No Obstruction (<10' below restricting surface)
11450	TREE	6/19/2018	774.1	651.3	6	To Be Removed/Relocated
11451	TREE	6/19/2018	775.5	652.6	4	To Be Removed/Relocated
11452	TREE	6/19/2018	768.3	649.4	-8	No Obstruction (<10' below restricting surface)
11460	TREE	6/19/2018	739.6	643.3	9	To Be Removed/Relocated
11461	TREE	6/19/2018	680.3	651.9	14	To Be Removed/Relocated
11463	TREE	6/19/2018	691.0	643.2	-8	No Obstruction (<10' below restricting surface)
11464	TREE	6/19/2018	665.5	648.4	-10	No Obstruction (<10' below restricting surface)
11477	BUILDING	6/19/2018	683.2	646.4	-110	No Obstruction - For Reference Only
11480	BUILDING	6/19/2018	671.2	648.3	-68	No Obstruction - For Reference Only
11481	BUILDING	6/19/2018	668.4	646.6	-70	No Obstruction - For Reference Only
11483	BUILDING	6/19/2018	682.3	646.9	-110	No Obstruction - For Reference Only
11484	BUILDING	6/19/2018	668.8	644.0	-101	No Obstruction - For Reference Only
11486	BUILDING	6/19/2018	671.8	643.6	-98	No Obstruction - For Reference Only
11488	TREE	6/19/2018	731.4	644.3	32	To Be Removed/Relocated
11489	TREE	6/19/2018	727.2	643.5	-1	No Obstruction (<10' below restricting surface)
11490	ANTENNA	6/19/2018	671.0	648.0	-87	No Obstruction - For Reference Only
11491	BUILDING	6/19/2018	660.2	643.3	-48	No Obstruction - For Reference Only
11496	POLE	6/19/2018	665.6	640.8	-83	No Obstruction - For Reference Only
11525	TREE	6/19/2018	719.7	641.4	1	To Be Removed/Relocated
11527	TREE	6/19/2018	732.3	640.9	9	To Be Removed/Relocated
11538	POLE	6/19/2018	691.4	638.9	-70	No Obstruction - For Reference Only
11539	TREE	6/19/2018	725.8	639.7	-6	No Obstruction - For Reference Only
11540	TREE	6/19/2018	728.1	639.9	0	To Be Removed/Relocated
11545	TREE	6/19/2018	723.0	638.9	-5	No Obstruction (<10' below restricting surface)
11547	POLE	6/19/2018	672.3	637.7	-94	No Obstruction - For Reference Only
11554	BUILDING	6/19/2018	646.6	637.0	-139	No Obstruction - For Reference Only
11557	POLE	6/19/2018	691.7	635.1	-38	No Obstruction - For Reference Only
11558	POLE	6/19/2018	692.5	633.3	-29	No Obstruction - For Reference Only
11567	TREE	6/19/2018	678.4	634.2	-10	No Obstruction (<10' below restricting surface)
11568	POLE	6/19/2018	690.8	634.0	-32	No Obstruction - For Reference Only
11570	POLE	6/19/2018	650.0	633.4	-68	No Obstruction - For Reference Only
11572	POLE	6/19/2018	699.3	633.5	-25	No Obstruction - For Reference Only
11574	POLE	6/19/2018	696.2	629.8	-29	No Obstruction - For Reference Only
11591	TREE	6/19/2018	749.6	627.0	6	To Be Removed/Relocated
11592	TREE	6/19/2019	761.6	623.3	-10	No Obstruction (<10' below restricting surface)
12192	POLE	6/19/2018	666.4	640.5	-111	No Obstruction - For Reference Only
12193	POLE	6/19/2018	668.2	640.3	-54	No Obstruction - For Reference Only
12194	POLE	6/19/2018	667.8	640.5	-42	No Obstruction - For Reference Only
12195	POLE	6/19/2018	666.8	641.6	-31	No Obstruction - For Reference Only
12196	POLE	6/19/2018	682.2	643.0	-24	No Obstruction - For Reference Only
12197	POLE	6/19/2018	672.5	644.6	-44	No Obstruction - For Reference Only
12205	POLE	6/19/2018	665.1	640.5	-110	No Obstruction - For Reference Only
12206	POLE	6/19/2018	673.9	640.9	-87	No Obstruction - For Reference Only
12207	POLE	6/19/2018	663.7	640.7	-84	No Obstruction - For Reference Only
12208	POLE	6/19/2018	684.7	640.3	-69	No Obstruction - For Reference Only
12209	FLAGPOLE	6/19/2018	679.3	643.1	-18	No Obstruction - For Reference Only
12210	ANTENNA	6/19/2018	701.6	643.1	-6	No Obstruction - For Reference Only
12211	POLE	6/19/2018	669.6	642.6	-57	No Obstruction - For Reference Only
12212	POLE	6/19/2018	664.4	644.2	-40	No Obstruction - For Reference Only
12213	VERTICAL STRUCTURE	6/19/2018	642.3	640.3	-123	No Obstruction - For Reference Only
12219	TREE	6/19/2018	784.2	652.0	10	To Be Removed/Relocated
12258	TREE	6/19/2018	699.4	630.0	13	To Be Removed/Relocated
12259	TREE	6/19/2018	681.2	631.8	-1	No Obstruction - For Reference Only
12647	SECONDARY ROAD	6/19/2018	633.0	633.0	-151	No Obstruction - For Reference Only

WHPacific

OREGON DEPARTMENT OF AVIATION

SHEET INFO	
DESIGNED	ALB
DRAWN	ALB
CHECKED	RS
APPROVED	—
LAST EDIT	3/21/2019
PLOT DATE	2/3/2020
SUBMITTAL	

REVISIONS			
NO.	BY	DATE	REMARKS

OBSTRUCTION TABLES (1 OF 2)

OREGON DEPARTMENT OF AVIATION
COTTAGE GROVE, OR

PROJECT NUMBER	DRAWING FILE NAME	SCALE
P0020107W	COT-ALP-C10-11	AS SHOWN

SHEET NUMBER: C10

DATE: 2/3/2020 9:20 AM [AUTHOR: abid] [PLOTTER: .DWG To PDF.pc3] [STYLE: WHP-Standard.ctb]
PATH: P:\Oregon Dept. of Aviation (ODA)\P0020107W\Execution\Drawings\Planning\ALP\Sheets\COT-ALP-C10-11.dwg] [LAYOUT: C10]

Figure 7L: Runway Obstruction Tables (2 of 2)

SHEET C5 - Conical Obstruction Table

Object ID	Name	Observation Date	Object Elevation	Ground Elevation	Penetration	Disposition
7241	BUILDING	6/19/2018	1161.2	1135.9	254	To Remain
7245	BUILDING	6/19/2018	1121.6	1089	167	To Remain
7247	POLE	6/19/2018	899	849	-80	No Obstruction - For Reference Only
7261	CELL TOWER	6/19/2018	742.4	640.7	-103	No Obstruction - For Reference Only
7268	POLE	6/19/2018	1166	1133.5	211	To Be Removed/Relocated
7984	TERRAIN GROUP	6/19/2018	1346.3	1201.5	354	To Remain
7986	POLE	6/19/2018	1156.2	1127.4	207	To Be Removed/Relocated
8164	BUILDING	6/19/2018	1063.8	1045	223	To Remain
9270	COMMUNICATION TOWER	6/19/2018	1624.2	1437.5	653	To Remain
9271	COMMUNICATION TOWER	6/19/2018	1629.6	1439.3	660	To Remain
9272	ANTENNA	6/19/2018	1635.7	1445.4	667	To Remain
9299	TERRAIN GROUP	6/19/2018	1506.1	1419.9	548	To Remain
10010	TREE GROUP	6/19/2018	1093.4	976	110	To Be Removed/Relocated
10046	TERRAIN GROUP	6/19/2018	1899.6	1526.8	406	To Remain
11843	ANTENNA	6/19/2018	1584.3	1442.9	626	To Remain
12369	TREE GROUP	6/19/2018	1139.3	966.3	173	To Be Removed/Relocated
12377	TREE GROUP	6/19/2018	963.5	790	127	To Be Removed/Relocated
12451	TREE GROUP	6/19/2018	1149.4	976.5	186	To Be Removed/Relocated
12490	TREE GROUP	6/19/2018	1197	979	118	To Be Removed/Relocated
12516	SLASH PILE	6/19/2018	993	972.9	100	To Be Removed/Relocated
12524	POLE	6/19/2018	1139.4	1105.7	186	To Be Removed/Relocated
12578	TREE GROUP	6/19/2018	1061.4	963.5	113	To Be Removed/Relocated
12598	TREE	6/19/2018	882.2	753.5	18	To Be Removed/Relocated
12599	TREE GROUP	6/19/2018	994.8	943.6	21	To Be Removed/Relocated
12601	TREE GROUP	6/19/2018	1012	884.5	117	To Be Removed/Relocated
12613	TREE GROUP	6/19/2018	1129	985.5	146	To Be Removed/Relocated

SHEET C5 - Horizontal Obstruction Table

Object ID	Description	Observation Date	Object Elevation	Ground Elevation	Penetration	Disposition
7243	BUILDING	6/19/2018	976.4	849.9	82	To Remain
7252	VERTICAL STRUCTURE	6/19/2018	996.7	987.7	202	To Remain
7259	POLE	6/19/2018	759.5	723.5	-35	No Obstruction - For Reference Only
8154	TREE GROUP	6/19/2018	955.2	866.1	161	To Be Removed/Relocated
9559	TERRAIN GROUP	6/19/2018	1269.3	1115.9	469	To Remain
9964	TREE GROUP	6/19/2018	950.8	790.9	162	To Be Removed/Relocated
11029	TERRAIN GROUP	6/19/2018	1235.8	1082.6	441	To Remain
11116	TREE GROUP	6/19/2018	954.2	794.7	159	To Be Removed/Relocated
11258	TREE	6/19/2018	830.8	668.3	36	To Be Removed/Relocated
11285	TREE GROUP	6/19/2018	957.6	801.9	169	To Be Removed/Relocated
11290	TREE	6/19/2018	791.5	784.6	-3	No Obstruction - For Reference Only
11310	TREE	6/19/2018	785.9	693.8	-9	No Obstruction - For Reference Only
11311	TREE	6/19/2018	803.2	711.7	9	To Be Removed/Relocated
11318	TREE	6/19/2018	801.6	688.6	7	To Be Removed/Relocated
11479	TANK	6/19/2018	713.8	646.2	-81	No Obstruction - For Reference Only
11584	TREE	6/19/2018	786.2	629.2	-9	No Obstruction - For Reference Only
11615	TREE GROUP	6/19/2018	829.5	658.7	35	To Be Removed/Relocated
12188	LIGHT POLE	6/19/2018	675	634.2	-120	No Obstruction - For Reference Only
12189	LIGHT POLE	6/19/2018	663.5	636.2	-131	No Obstruction - For Reference Only
12190	LIGHT POLE	6/19/2018	664.7	638.7	-130	No Obstruction - For Reference Only
12191	LIGHT POLE	6/19/2018	665.8	639.1	-129	No Obstruction - For Reference Only
12199	POWER POLE	6/19/2018	666.6	637.7	-128	No Obstruction - For Reference Only
12200	POWER POLE	6/19/2018	698.2	637.4	-97	No Obstruction - For Reference Only
12201	POWER POLE	6/19/2018	670.8	637.6	-124	No Obstruction - For Reference Only
12202	POWER POLE	6/19/2018	664.5	638.9	-130	No Obstruction - For Reference Only
12203	POWER POLE	6/19/2018	669.2	639.3	-126	No Obstruction - For Reference Only
12204	POWER POLE	6/19/2018	661.3	639.2	-133	No Obstruction - For Reference Only
12214	ELECTRICAL BOX	6/19/2018	639.9	638.4	-155	No Obstruction - For Reference Only
12226	TREE	6/19/2018	794.1	651.4	-3	No Obstruction - For Reference Only
12227	TREE	6/19/2018	794.6	657.9	0	To Be Removed/Relocated
12312	TREE	6/19/2018	796.7	659.1	2	To Be Removed/Relocated
12540	TREE GROUP	6/19/2018	885.8	797.1	91	To Be Removed/Relocated
12597	TREE GROUP	6/19/2018	814.8	710.4	20	To Be Removed/Relocated
12650	ROAD ELEVATION	6/19/2018	665.6	665.6	-129	No Obstruction - For Reference Only

SHEET C6 - Primary Obstruction Table

Object ID	Description	Observation Date	Object Elevation	Ground Elevation	Penetration	Disposition
7285	VERTICAL STRUCTURE	6/19/2018	646.8	644.5	2	To Remain
7290	SIGN	6/19/2018	646.8	644.1	2	To Remain
7297	SIGN	6/19/2018	645.8	643.7	1	To Remain
7299	VERTICAL STRUCTURE	6/19/2018	644.6	641.6	1	To Remain
7347	SIGN	6/19/2018	643.9	641.6	1	To Remain
7348	SIGN	6/19/2018	644.2	641.8	1	To Remain
7350	VERTICAL STRUCTURE	6/19/2018	644.5	641.5	1	To Remain
7439	SIGN	6/19/2018	638.4	635.9	0	To Remain
7447	VERTICAL STRUCTURE	6/19/2018	636.4	633.1	1	To Remain
7468	VERTICAL STRUCTURE	6/19/2018	634.1	631.5	0	To Remain

SHEET C7 - Runway 33 Approach Obstruction Table

Object ID	Description	Observation Date	Object Elevation	Ground Elevation	Penetration	Disposition
11453	TREE	6/19/2018	790.1	653.3	11	To Be Removed/Relocated
11454	TREE	6/19/2018	802	659.7	19	To Be Removed/Relocated
11455	TREE	6/19/2018	803.3	661.4	9	To Be Removed/Relocated
11456	TREE	6/19/2018	812.4	661.5	16	To Be Removed/Relocated
11457	TREE	6/19/2018	792.3	659.4	3	To Be Removed/Relocated
12222	TREE	6/19/2018	768.3	654.2	8	To Be Removed/Relocated
12306	TREE	6/19/2018	771.3	650.8	2	To Be Removed/Relocated
12309	TREE	6/19/2018	779.6	648.6	2	To Be Removed/Relocated
12310	TREE	6/19/2018	785.4	649.8	5	To Be Removed/Relocated
12311	TREE	6/19/2018	795.2	656.3	3	To Be Removed/Relocated
12642	SECONDARY ROAD	6/19/2018	664.2	664.2	-230	No Obstruction - For Reference Only
12651	SECONDARY ROAD	6/19/2018	660.7	660.7	-158	No Obstruction - For Reference Only
12652	SECONDARY ROAD	6/19/2018	657.4	657.4	-148	No Obstruction - For Reference Only
12653	SECONDARY ROAD	6/19/2018	650.3	650.3	-106	No Obstruction - For Reference Only
12654	SECONDARY ROAD	6/19/2018	656.2	656.2	-137	No Obstruction - For Reference Only
12655	SECONDARY ROAD	6/19/2018	653	653	-109	No Obstruction - For Reference Only

SHEET C7 - Runway 15 Approach Surface

Object ID	Description	Observation Date	Object Elevation	Ground Elevation	Penetration	Disposition
12300	TREE	6/19/2018	749.0	623.8	10	To Be Removed/Relocated
12643	SECONDARY ROAD	6/19/2018	625.9	625.9	-217	No Obstruction - For Reference Only
12644	SECONDARY ROAD	6/19/2018	628.4	628.4	-149	No Obstruction - For Reference Only
12646	SECONDARY ROAD	6/19/2018	632.9	632.9	-135	No Obstruction - For Reference Only
12648	SECONDARY ROAD	6/19/2018	629.0	629.0	-170	No Obstruction - For Reference Only
12649	SECONDARY ROAD	6/19/2018	626.3	626.3	-225	No Obstruction - For Reference Only
12656	SECONDARY ROAD	6/19/2018	629.1	629.0	-177	No Obstruction - For Reference Only

SHEET C9 - Runway 33 Inner Approach Obstruction Table

Object ID	Description	Observation Date	Object Elevation	Ground Elevation	Penetration	Disposition
11427	TREE	6/19/2018	653.3	639.1	12	To Be Removed/Relocated
11433	TREE	6/19/2018	682	649.1	3	To Be Removed/Relocated
11435	TREE	6/19/2018	675.7	645.3	8	To Be Removed/Relocated
11462	TREE	6/19/2018	676.6	648.5	12	To Be Removed/Relocated
12220	TREE	6/19/2018	725	649.1	7	To Be Removed/Relocated
12221	TREE	6/19/2018	710.2	646.7	5	To Be Removed/Relocated
12222	TREE	6/19/2018	763.6	647.2	19	To Be Removed/Relocated
12801	TREE	6/19/2018	673.6	637.9	13	To Be Removed/Relocated
12802	TREE	6/19/2018	663.3	640.2	7	To Be Removed/Relocated
12803	TREE	6/19/2018	671.1	644.7	6	To Be Removed/Relocated
12804	TREE	6/19/2018	680.8	641.2	0	To Be Removed/Relocated
12805	TREE	6/19/2018	691.7	646.5	2	To Be Removed/Relocated
12806	TREE	6/19/2018	712.1	641.5	5	To Be Removed/Relocated
12807	TREE	6/19/2018	774.6	646.2	48	To Be Removed/Relocated
12808	TREE	6/19/2018	669.1	637.2	8	To Be Removed/Relocated
12809	TREE	6/19/2018	667.2	635.8	9	To Be Removed/Relocated

SHEET C8 - Runway 15 Inner Approach Surface

Object ID	Description	Observation Date	Object Elevation	Ground Elevation	Penetration	Disposition
12257	TREE	6/19/2018	693.0	628.5	8	To Be Removed/Relocated
12299	TREE	6/19/2018	640.7	627.1	6	To Be Removed/Relocated
12640	TREE	6/19/2018	746.3	627.0	22	To Be Removed/Relocated
12641	TREE	6/19/2018	730.2	624.2	6	To Be Removed/Relocated
12645	SECONDARY ROAD	6/19/2018	631.4	631.4	101	No Obstruction - For Reference Only

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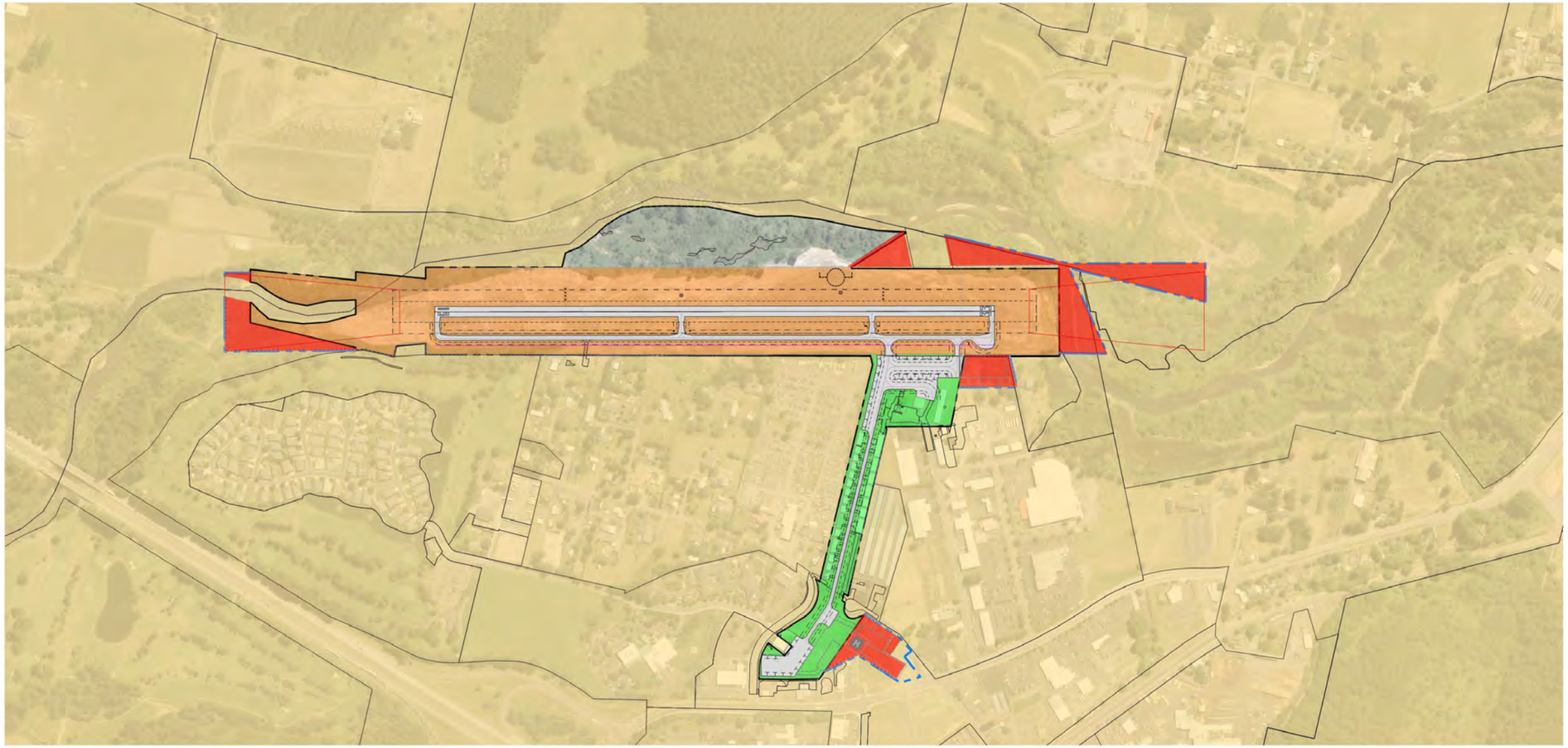
OBSTRUCTION TABLES (2 OF 2)

OREGON DEPARTMENT OF AVIATION
COTTAGE GROVE, OR

PROJECT NUMBER	DRAWING FILE NAME	SCALE
P0020107W	COT-ALP-C10-11	AS SHOWN

SHEET NUMBER C11

Figure 7M: On Airport Land Use



2015 MAGNETIC DEC.
14°54' EAST

CHANGING 0° 5' W PER YEAR

SCALE
300 0 150 300 600
(FEET)
1 INCH = 300 FT.

DRAWING LEGEND	
EXISTING AIRPORT PROPERTY LINE	
FUTURE AIRPORT PROPERTY LINE	
EXISTING HANGAR AREA	
FUTURE HANGAR AREA	
AIRFIELD	
FUTURE AIRPORT PROPERTY	

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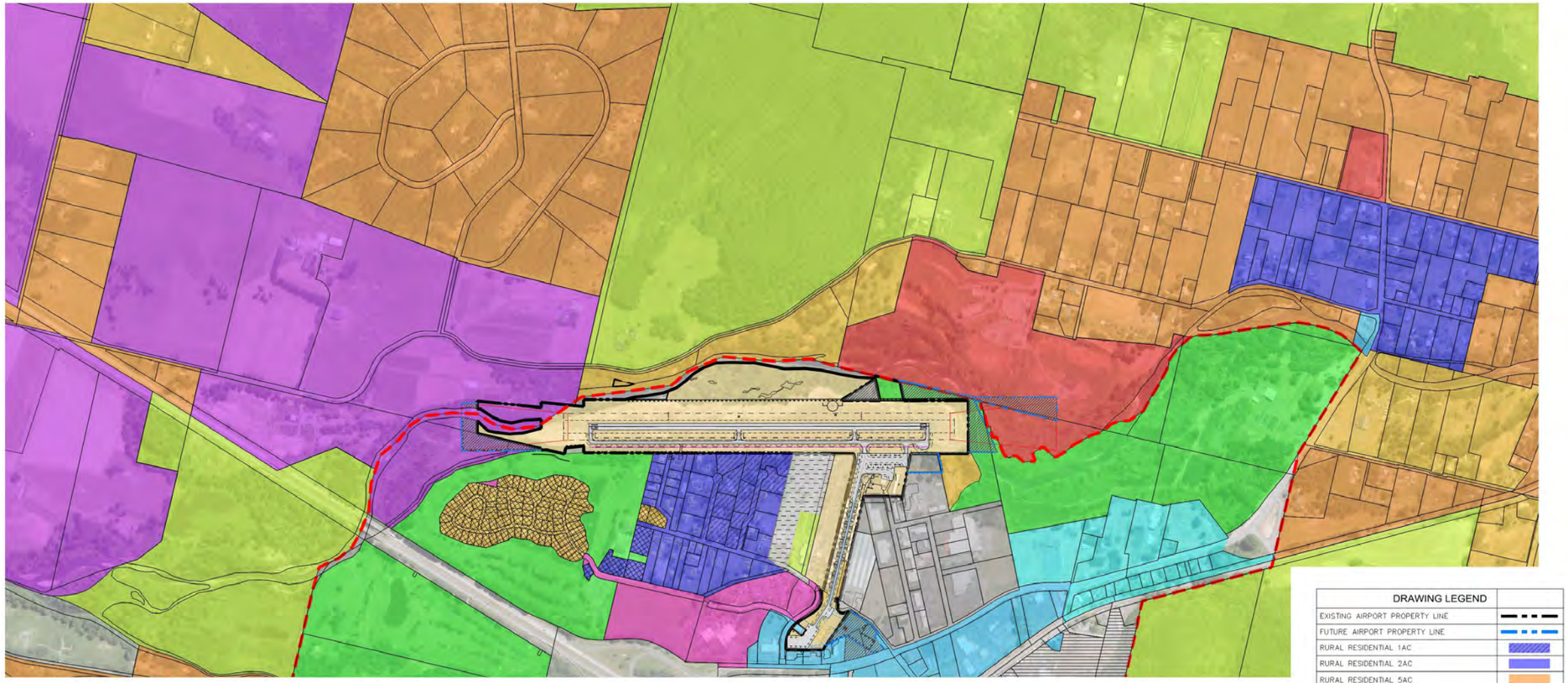
ON AIRPORT LAND USE

OREGON DEPARTMENT OF AVIATION
COTTAGE GROVE, OR

PROJECT NUMBER	DRAWING FILE NAME	SCALE
P0020107W	COT-ALP-C12	AS SHOWN

SHEET NUMBER
C12

Figure 7N: Off Airport Land Use



DRAWING LEGEND	
EXISTING AIRPORT PROPERTY LINE	
FUTURE AIRPORT PROPERTY LINE	
RURAL RESIDENTIAL 1AC	
RURAL RESIDENTIAL 2AC	
RURAL RESIDENTIAL 5AC	
RURAL RESIDENTIAL 10AC	
RURAL RESIDENTIAL DISTRICT	
RURAL COMMERCIAL	
LIGHT INDUSTRIAL	
HEAVY INDUSTRIAL	
LIGHT INDUSTRIAL DISTRICT	
LIMITED INDUSTRIAL DISTRICT	
COMMUNITY COMMERCIAL	
IMPACTED FOREST	
PARKS & RECREATION	
EXCLUSIVE FARM USE	
COMMERCIAL TOURIST LIMITED	
RURAL PUBLIC FACILITY	
EXISTING AIRPORT PROPERTY	
AIRPORT VICINITY DISTRICT	
FUTURE AIRPORT PROPERTY ACQUISITION	
SINGLE FAMILY RESIDENTIAL	
MULTI FAMILY RESIDENTIAL	
COTTAGE GROVE ZONING LIMITS	

OFF AIRPORT LAND USE ZONING SOURCES INCLUDE THE CITY OF COTTAGE GROVE ZONING JUNE 2018, AND LANE COUNTY ZONING.

2015 MAGNETIC DEC.
14°54' EAST

CHANGING 0° 5' W PER YEAR

SCALE
300 0 150 300 600
(FEET)
1 INCH = 300 FT.

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OFF AIRPORT LAND USE

OREGON DEPARTMENT OF AVIATION
COTTAGE GROVE, OR

PROJECT NUMBER	DRAWING FILE NAME	SCALE
P0020107W	COT-ALP-C13	AS SHOWN

SHEET NUMBER
C13

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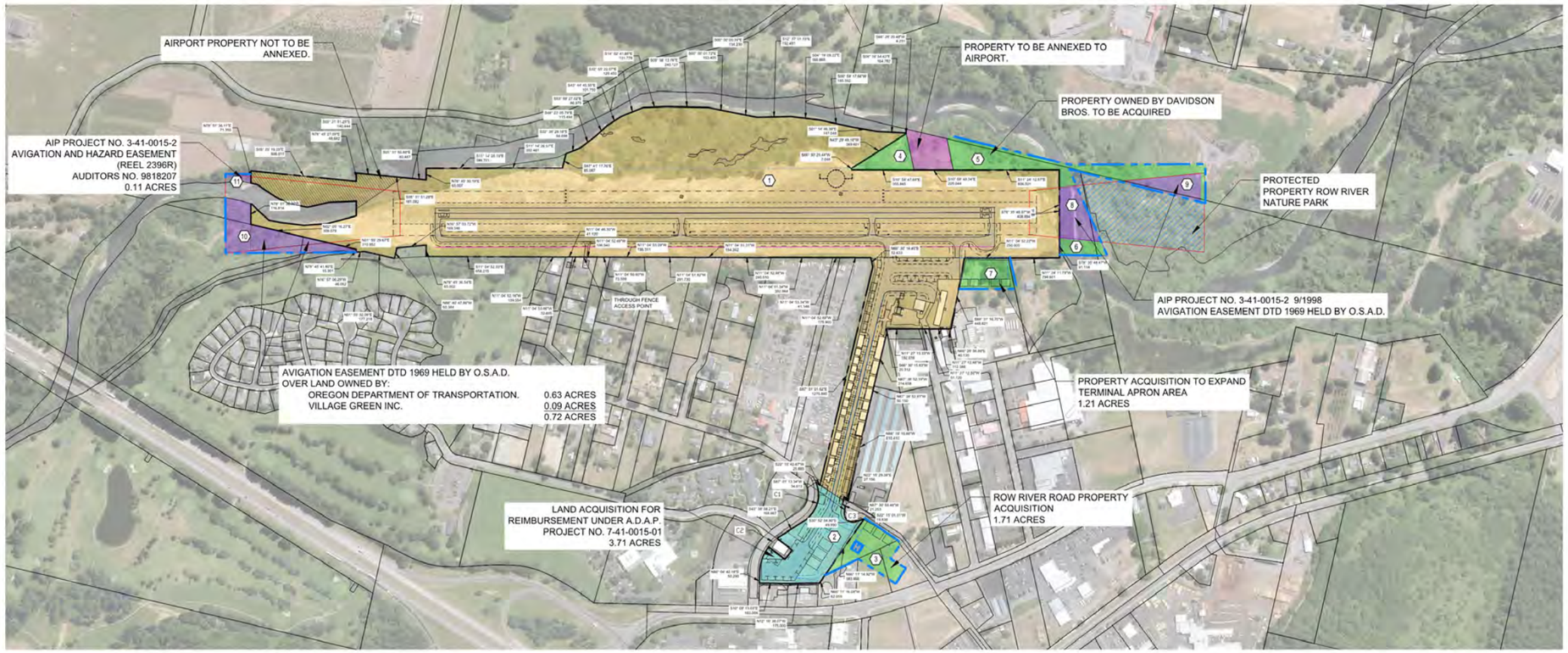
Figure 7O: Exhibit A



OWNERSHIP DATA

PARCEL	LAND OWNER	ACRES	RECORDED DATE	RECORDED VOLUME, PAGE	INTEREST ACQU.	PARCEL NUMBER	PREVIOUS OWNER	PURPOSE OF AQUISITION	AIP NUMBER
1	Oregon Department of Aviation	68.97	1965,1971	DOC#24190 DOC#24277	–	100,200	O.S.A.D.	AIRPORT PROPERTY	
2	Oregon Department of Aviation	3.71	1971	DOC#1008893	–	3600	O.S.A.D.	AIRPORT PROPERTY	ADAP 7-41-0015-01
3	Kristen Woodard, LLC	1.71	2004	2004,035716 2005,084508	–	208,210,211	–	AIRPORT PROPERTY	N/A
4	Charles Cook	0.72	11/08/17	DOC#2017-055735	–	401	–	AIRPORT PROPERTY	N/A
5	OPM Enterprises, LLC	3.19	04/15/2019	DOC#2019-017082	–	614	–	AIRPORT PROPERTY	N/A
6	OPM Enterprises, LLC	0.52	04/15/2019	DOC#2019-017082	–	614	–	AIRPORT PROPERTY	N/A
7	Welt & Welt Inc.	1.21	2002	DOC#2002-026387	–	603	–	AIRPORT PROPERTY	N/A

ODA APPROVAL

2015 MAGNETIC DEC: 14°54' EAST

CHANGING 0° 5' W PER YEAR

SCALE

300 0 150 300 600

(FEET)
1 INCH = 300 FT.

DRAWING LEGEND

EXISTING AIRPORT PROPERTY LINE	
FUTURE AIRPORT PROPERTY LINE	
FUTURE AIRPORT PROPERTY	
EXISTING AVIGATION EASEMENT TO BE ACQUIRED AS AIRPORT PROPERTY	
FUTURE PAVEMENT AREAS	
EXISTING STRUCTURES	
FUTURE STRUCTURES	
PARCEL TO BE ANNEXED BY CITY AS AIRPORT PROPERTY	
AIRPORT PROPERTY NOT ANNEXED BY CITY	
PROTECTED PROPERTY ROW RIVER NATURE PARK	

EXISTING EASEMENTS

PARCEL	RECORDED DATE	RECORDED BOOK, PAGE	INTEREST ACQU.	EASEMENT TYPE/DESCRIPTION	GRANTOR/GRANTEE	DOCUMENT NO. / YEAR	DESCRIPTION
8	3/16/1998	N/A	Easement	Clear Zone Easement	Woodard Foundation	3452745 / 2016	AVIGATION EASEMENT
9	9/27/1998	N/A	Easement	Clear Zone Easement	R.R. Wood	3452745 / 2016	AVIGATION EASEMENT
10	3/16/1998	N/A	Easement	Clear Zone Easement	Oregon Department of Transportation	3348829 / 2010	AVIGATION EASEMENT
11	3/16/1998	N/A	Easement	Clear Zone Easement	Mark Kintigh	9818207 / 2016	AVIGATION EASEMENT

CURVE TABLE

CURVE	RADIUS	DELTA	LENGTH
C1	179.78'	69°34'42"	218.32'
C2	256.48'	56°20'12"	252.19'
C3	50.2'	117°12'34"	102.693'

GENERAL NOTES:
1. ALL BEARING AND DISTANCE VALUES ARE FROM LANE COUNTY GIS PROPERTY DATA.

"THE PREPARATION OF THIS DOCUMENT MAY HAVE BEEN SUPPORTED, IN PART, THROUGH THE AIRPORT IMPROVEMENT PROGRAM FINANCIAL ASSISTANCE FROM THE FEDERAL AVIATION ADMINISTRATION (PROJECT NUMBER 3-41-0027-004) AS PROVIDED UNDER TITLE 49, UNITED STATES CODE, SECTION 47104. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THIS REPORT BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED THEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

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EXHIBIT A

OREGON DEPARTMENT OF AVIATION
COTTAGE GROVE, OR

PROJECT NUMBER	DRAWING FILE NAME	SCALE	SHEET NUMBER
P0020107W	COT-ALP-C14	AS SHOWN	C14

DATE: 2/4/2020 11:05 AM] [AUTHOR: abird] [PLOTTER: DWG To PDF.pc3] [STYLE: WHP-Standard.ctb]
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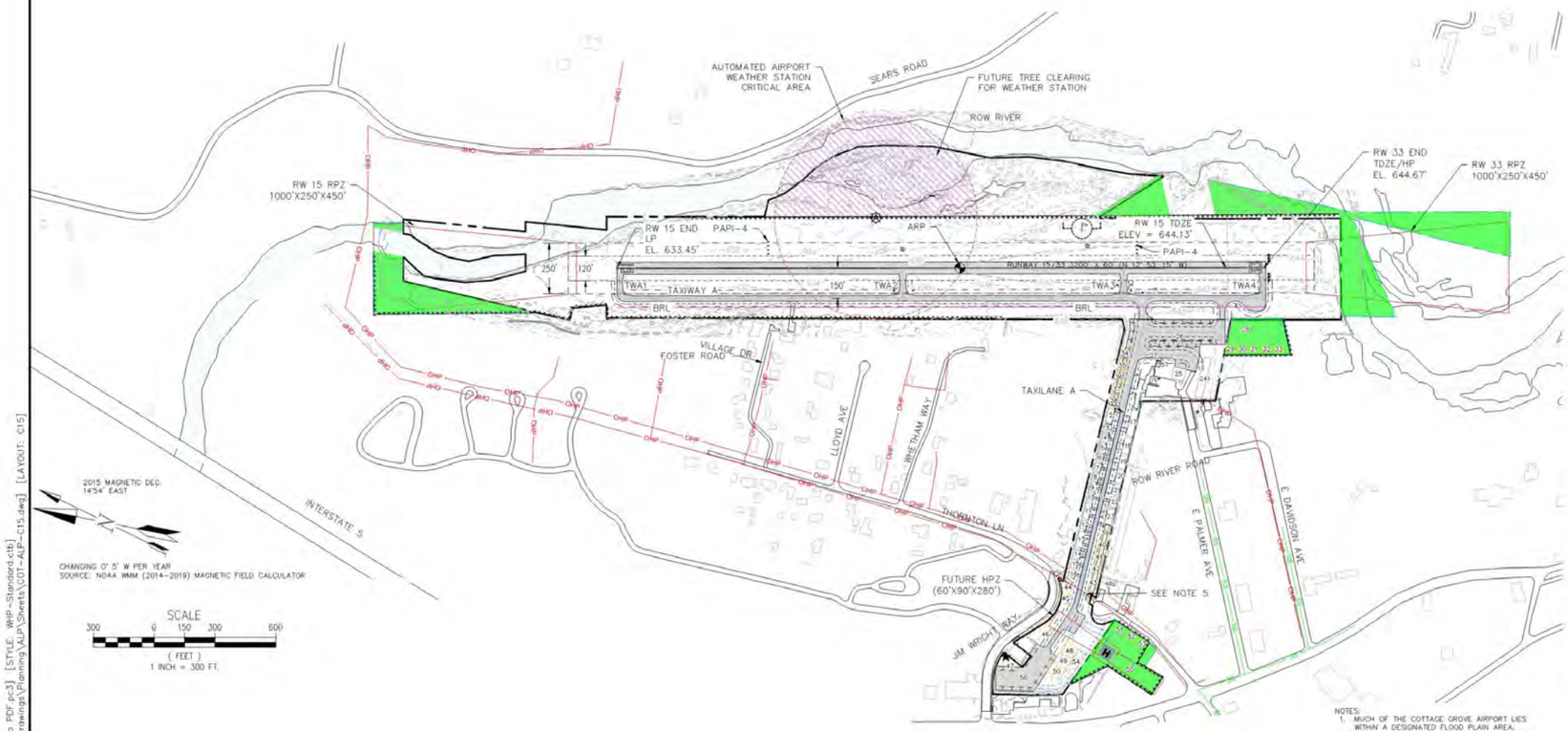

NOTES:
1. MUCH OF THE COTTAGE GROVE AIRPORT LIES WITHIN A DESIGNATED FLOOD PLAIN AREA.
2. PERIMETER FENCING AROUND PORTIONS OF THE AIRPORT HAS A HEIGHT OF ±7'.
3. SEE TERMINAL PLANS FOR APRON AREAS.
4. UTILITY LOCATIONS ARE APPROXIMATE AND BASED ON AVAILABLE GIS DATA.
5. OVERHEAD POWER POLES ARE LOCATED OUTSIDE OF THE TAXILANE OFA LIMITS. HEIGHT ABOVE TAXILANE CENTERLINE IS NOT KNOWN.

LEGEND

ITEM	EXISTING	FUTURE
AIRFIELD PAVEMENT		
ACCESS ROAD/VEHICLE PARKING	N/A	
EXISTING PAVEMENT TO BE REMOVED		
PERIMETER FENCE		
RUNWAY SAFETY AREA		SAME
RUNWAY OBJECT FREE AREA		SAME
AIRPORT PROPERTY LINE		
TAXIWAY CENTERLINE		
PAPI UNITS		SAME
BUILDING RESTRICTION LINE	BRL	SAME
AIRPORT PROPERTY ACQUISITION		
BUILDINGS		
TOPOGRAPHIC CONTOURS (2 FT)		SAME
WIND CONE WITH SEGMENTED CIRCLE		SAME
AIRPORT ROTATING BEACON		SAME
AIRPORT REFERENCE POINT (ARP)		SAME
THRESHOLD LIGHTS		SAME
RUNWAY PROTECTION ZONE		SAME
CREEK/STREAM		
AUTOMATED AIRPORT WEATHER STATION	N/A	
TREE CLEARING AREAS		
AIRPORT SURVEY MONUMENTS		
EXISTING SANITARY SEWER LINE		N/A
EXISTING OVERHEAD POWER LINE	OHP	N/A

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OREGON DEPARTMENT OF AVIATION

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UTILITY MAP

OREGON DEPARTMENT OF AVIATION
COTTAGE GROVE, OR

PROJECT NUMBER	DRAWING FILE NAME	SCALE
P0019739W	COT-ALP-C15	AS SHOWN

SHEET NUMBER C15

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CHAPTER 8. CAPITAL IMPROVEMENT PLAN

8.1 INTRODUCTION

The preceding chapters have identified the projects necessary for the Airport to accommodate the forecast levels of demand, provide for economic development opportunities in the future and satisfy federal design standards. As discussed in Chapter 4 - Facility Requirements and Chapter 5 - Airport Development Alternatives, specific improvements to both airside and landside elements of the Airport are recommended for implementation over the 20-year planning period. The development plan includes projects that form the basis of the Airport's capital improvement program (CIP).

The purpose of this chapter is to establish an implementation strategy that meets these objectives:

1. Itemizes the individual development projects, or development related projects, required to fulfill the preferred alternative for the Airport as depicted in the Airport Layout Plan (ALP);
2. Establishes a phasing plan for the development projects that meet the forecasted needs;
3. Reviews available funding sources and make assumptions as to the probable funding structure for projects;
4. Presents a financially feasible CIP for each development phase;
5. Summarizes recent and future potential cash flows for the airports.

The CIP and financial analysis includes projects that meet the Airport's planned facility improvements over the next 20 years. Each phase reflects strategic development initiatives intended to maximize safety and utilization of the Airport. Facility improvements are depicted in the following phases:

- Phase I Short-Term (2019-2023)
- Phase II Mid-Term (2024-2028)
- Phase III Long-Term (2029 – 2038)

As part of the development process, project phasing and cost estimates are determined and included in the CIP to manage and plan implementation requirements associated with each project.

During the Planning Advisory Committee (PAC) meeting held on June 15th, 2017, members of the planning team led PAC members though an interactive exercise to discuss priority of future Airport improvement projects. These projects, including short, mid, and long range projects, were arranged by the PAC to reflect the order in which members found them most important to complete based on the need and funding availability. After the PAC meeting, further discussion was held with the Oregon Department of Aviation and the FAA to finalize the project priority list. It is the intent of the PAC to continue to participate in ODA's Pavement Management Program (PMP) to insure all airfield pavements are maintained to the highest extent possible. The preferred priority of major capital projects (excluding PMP projects) for the 20-year planning period are as follows:

Short Term:

- 2019 - Install west fence
- 2019 - Conduct environmental assessment
- 2020 - Schedule PMP as needed
- 2020 - Rehabilitate apron (design)
- 2021 - Rehabilitate apron (construct)
- 2022 - Carryover
- 2023 - Schedule PMP as needed

Mid Term:

- 2024 - Install taxiway A lighting
- 2024 - Install AWOS; tree clearing
- 2025 - Install east fence
- 2026 - Design and construct hangar row taxilane widening
- 2027 - Improve Welcome Area / Relocate fuel tanks
- 2027 - Schedule PMP as needed
- 2028 - Purchase Row River Road Properties

Long Term:

- 2029 - Expand west apron
- 2029 - Construct west apron hangar vehicle parking/ access
- 2031 - Construct helipad and facilities
- 2032 - Update Master Plan
- 2035 - Rehabilitate taxiway A
- 2036 - Purchase property for boundary, approach, RPZ protection
- 2037 - Design terminal apron expansion
- 2038 - Construct terminal apron expansion

8.2 SOURCES OF CAPITAL FUNDING

Capital funding is critical to airport development and essential for project success. There are several options available for Cottage Grove State Airport to partner with state and federal agencies to fund the capital development requirements needed to continue operating safely, efficiently, and economically. This section describes those funding resources.

Federal Funding

There are several Federal funding programs available for airport capital improvements. A description of these federal programs is provided below.

Federal AIP Entitlement 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 Cottage Grove State), the grant covers 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.

The 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 and the current year funding (4 years total) can be used for larger projects. For the purposes of this chapter, it is assumed that these entitlement funds will continue to be available 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 Cottage Grove State. This source of funding is over and above entitlement funding. AIP grants are provided to airports for projects that have a high federal priority for enhancing safety, security, and capacity of the Airport that 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 airport need, an FAA project priority ranking system, and the FAA's assessment of a project's significance within the national airport and airway system. For the purposes of this chapter it is assumed that discretionary funds will be available for high priority projects that are needed to meet FAA design criteria. However, just because a project is eligible for FAA discretionary funding, the funding may not be available in the amounts shown in this plan – or perhaps not at all. Such projects would be deferred until sufficient funds are available, sized back to match available funds, or phased over a longer period of time.

Federal AIP State Apportionment Grants

Another way in which the federal government provides funding is through state apportionment grants. Under the statutory restrictions, State apportionment grants may be used at qualifying airports subject to a requirement that FAA has consulted with the pertinent State and the State supports the project as part of its State airport capital plan. In 2017, the State of Oregon received $2,686,017 from the FAA for state apportionment.

State Funding

There are several State funding programs available to support Airport development. State funding availability varies from year to year and is highly coveted as a

resource by many agencies throughout the state; as such, ODA can compete on an annual basis for a grant to reduce the local match required on federally funded projects. A description of the available programs is provided below.

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.

ConnectOregon projects are eligible for grants that cover up to 70 percent of project costs with a minimum 30 percent cash match being required from the recipient for all grant funded projects. ConnectOregon is currently not providing funding for aviation projects, but may be available in the future. If funding is available, there will be a competitive grant process that may occur in 2019-2021 or 2021-2023 biennia.

Aviation System Action Program (ASAP) Grants

In 2015, the Oregon State Legislature passed House Bill 2075 to increase the fuel tax on Aviation Gas and Jet Fuel by .02 cents per gallon to invest in aviation for specific purposes, resulting in the Aviation System Action Program (ASAP) Fund. The fuel tax increase became effective January 1, 2016 and currently has a sunset date of January 1, 2022.

The program allocates funds into three programs: the Critical Oregon Airport Relief Program (COAR), the Rural Oregon Aviation Relief Program (ROAR), and the (SOAR) State Owned Airports Reserve Program. The COAR distributes fifty percent of the amounts from the fuel tax increase while the ROAR and SOAR distribute 25 percent respectively.

Twenty-five percent of the amounts from the fuel tax increase will be distributed to state-owned airports for the purpose of safety improvements recommended by the Oregon State Aviation Board and local community airports, and infrastructure projects at public airports.

SOAR funds infrastructure projects and safety improvements for the 28 state-owned airports in Oregon. Most applicants are from the 16 state-owned airports that do not receive federal funding to prevent "double-dipping" for the 12 state-owned airports that do receive federal support and can apply through COAR.

Pavement Maintenance Program (PMP)

Developed by the Oregon Department of Aviation, this program works 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. Airports pay a small part of this program through their non-primary entitlement funds.

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 by the funding party. If not already available, airport funds for infrastructure, preliminary site work, and site access projects may be needed to attract or facilitate privately developed projects on airport property.

Airport Generated Revenue Financing

Typically, any operating surplus revenues generated by airports are used to support the local match of eligible state and federal projects. The Airport sponsor may also need to contribute additional funds to match grant funding if operational revenues do not cover the matching requirements. A discussion of airport revenues is provided in the following section. However, some projects are either not eligible for state or federal funding participation or do not compete well for eligible grant funding. In these cases, the Oregon Department of Aviation would be responsible for 100% of the project cost to implement the proposed development.

8.3 FINANCIAL FORECAST

This section builds upon the information gathered from historic and budgeted Airport financials provided by the Oregon Department of Aviation. Presented in **Table 8A** is a snap shot of existing and forecast revenues and expenses, which provides an assessment of Cottage Grove State Airport's financial condition. The Airport's historic rates and charges are analyzed, including an evaluation of revenue enhancement opportunities.

Before presenting these evaluations, it is useful to summarize certain assumptions and simplifications that were made in this estimate of financial performance.

- This analysis assumes that Cottage Grove State will continue to function as an airport during the forecast period without major changes or uncertainties in its operations. This assumption provides the foundation for ODA and businesses at the airport to operate and make decisions in a more certain business environment. Without this assumption, future investment by ODA or airport businesses is less likely. For example, if an airport business believes that there is a chance the airport could be sold or closed in the next year, the business has no incentive to invest in commercial improvements or marketing efforts that need a year or more to achieve a return on that investment.
- Financial projections that appear in this document are estimated revenues and expenses based on data provided by the Oregon Department of Aviation, research by WHPacific, and assumptions discussed throughout this document.
- Expected revenues, expenses, and capital costs for 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.
- Financial calculations were carried out using exact numbers, but results were rounded to the nearest hundreds of dollars to avoid implying a level of precision that does not apply to these forecasts.
- All dollar figures are expressed in current (2019) dollars. No adjustments have been made to express dollar figures in a base year.
- Unless otherwise noted, all financial figures are expressed on an accrual basis.

Forecast

The forecast of airport operating revenues and expenses uses the same categories of revenues and expenses identified in the existing airport budget provided by ODA. In general, the forecast of revenues and expenses used the FY18 budget amounts as a starting point for future estimates.

Assumptions used in developing the forecast are outlined below for each category. **Table 9A** lists the actual operating revenues and expenses by category for FY2015 and FY2016, the budgeted operating revenue and expenses for FY 2017 and FY2018, and the forecast revenue and expenses by category for FY2019 - FY2023.

Expenses

The major categories of expenses at the Airport and the underlying assumptions for each are described in the following section.

- The largest expense has been capital construction, which peaded at over $1.8 million in 2014. Significant construction projects will also be initiated in 2020 for almost $1 million.
- Fuel costs can vary based on multiple factors including market constraints and fire season demand. Forecasted expenditures are at below $10,000 annually.
- Facility & Equipment Maintenance – Airport facility and equipment maintenance has been relatively consistent at about $10,000 annually.
- Utilities – Utility expenses have remained stable over the past few years and are expected to remain as such in the forecast period.

Revenues

The major categories of revenue generation and the underlying assumptions for each are described in the following section.

- Fuel Sales – Revenues from fuel sales are are not projected to attain previous levels and are projected to remain around $30,000 annually.
- Rents & Leases – Forecast lease revenues were estimated based on lease agreements in effect for existing hangars and Airport properties at about $13,000 annually. For leases that reach their expiration date during the forecast period, planners assumed any options were exercised with changes in lease rates to market levels, if needed. As stipulated in lease agreement, lease rates are escalated at the end of the lease period by 5%.

Other sources of revenue are not significantly large enough to have much impact on the size of the operating subsidy.

8.4 IMPLEMENTATION PLAN

This section of the Airport's master plan report seeks to establish a schedule for the various projects required to fulfill the future development goals of the Cottage Grove State Airport. Essentially, the schedule represents a prioritized Airport development implementation plan to meet FAA design standards, regulatory requirements, forecast increases in aeronautical activity, and/or economic development initiatives of the ODA. Projects appearing in the first phase have been programmed with FAA andare generally considered to be locked in. Additionally, some projects included in an early phase may be a prerequisite for other planned improvements in a later phase. As previously mentioned, the development phasing has been divided into three phases:

- Phase I Short-Term (2019-2023)
- Phase II Mid-Term (2024-2028)
- Phase III Long-Term (2029 – 2038)

The phasing of individual projects will 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.

Cost Estimates

Cost estimates for individual projects, based on 2018 dollars, were prepared for improvements that have been identified for implementation during the 20-year planning period and beyond. These estimates have been categorized by the total cost for each project, that portion to be borne by ODA 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 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 Airport's CIP is based on recommendations from the preferred alternative, developed in Chapter 5. This section details the projects in the CIP and establishes a tentative schedule for those projects.

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 projects and their associated cost estimates are organized in three time horizons: short-, mid-, and long-term. A listing of projects by phase is provided in **Table 8B**, followed by a brief description of these projects.

Phase I Short-Term (2019 – 2023)

The projects in phase one are the most detailed, and of the greatest importance to the Airport to meet existing federal design standards. These projects are listed on the Federal and State CIP program and are unlikely to change. The funding for these projects has been designed to closely match discretionary funding similar to past grants, helping to insure the necessary funds will be available.

2019 – West Fence: Construct fence along western boundary.

2019 – Environmental Assessment: Conduct Environmental Assessment to comply with NEPA requirements.

2020 – Pavement Maintenance Program (PMP): Schedule pavement maintenance as needed.

2020 – Apron Phase I: Design apron rehabilitation.

2021 – Apron Phase II: Construct apron rehabilitation.

2022 – Carryover: Carry over placeholder of 2021 Non-Primary Entitlement funds from the FAA to provide adequate funding for projectsw in the following years.

2023 – Pavement Maintenance Program (PMP): Schedule pavement maintenance as needed.

Table 8B. Capital Improvement Plan				
YEAR	PROJECT	Grant Funds	Sponsor Match	Estimated Cost
2019-2023	SHORT TERM PROJECTS	$1,780,000	$197,666	$1,976,666
2019	Install West Fence: Phase II - Construction	$450,000	$50,000	$500,000
2019	Environmental Assessment	$270,000	$30,000	$300,000
2020	Pavement Maintenance Program (PMP)	$18,000	$2,000	$20,000
2020	Rehabilitate Apron: Phase I - Design	$193,000	$21,444	$214,444
2021	Rehabilitate Apron: Phase II - Construction	$830,000	$92,222	$922,222
2022	Carry Over			$0
2023	Pavement Maintenance Program (PMP)	$18,000	$2,000	$20,000
2024-2028	MID TERM PROJECTS	$2,497,833	$277,537	$2,775,370
2024	Install Taxiway A Lighting	$333,333	$37,037	$370,370
2024	Install AWOS; Tree Clearing	$163,800	$18,200	$182,000
2025	Install East Fence	$189,000	$21,000	$210,000
2026	Hangar Row Taxilane Widening Design & Construction	$315,000	$35,000	$350,000
2027	Welcome area improvements/Relocate Fuel Tanks; PMP	$326,700	$36,300	$363,000
2028	Purchase Row River Road Properties	$1,170,000	$130,000	$1,300,000
2029-2038	LONG TERM PROJECTS	$2,620,800	$291,200	$2,912,000
2029	Expand West Apron	$148,500	$16,500	$165,000
2029	Construct West Apron Hangar Vehicle Parking/Access	$179,100	$19,900	$199,000
2031	Construct helipad and facilities	$457,200	$50,800	$508,000
2032	Master Plan Update	$275,400	$30,600	$306,000
2035	Taxiway A Rehab: Phase - Design/ Construction	$755,100	$83,900	$839,000
2036	Purchase property for boundary, approach, RPZ protection	$270,000	$30,000	$300,000
2037	Expand Terminal Apron: Phase I - Design & Construction	$268,200	$29,800	$298,000
2038	Expand Terminal Apron: Phase II - Design & Construction	$267,300	$29,700	$297,000

Phase II Mid-Term (2024 – 2028)

Similar to phase one, the projects in phase two are of significant importance to the Airport. These projects may be directly linked to projects in phase one, such as the non-standard geometry improvements which will be designed and constructed in this phase of the CIP. Project costs and funding amounts have been considered for this phase, and are reasonable when compared to past grant amounts. ODA should continue to monitor demand to justify medium/long term projects including record-keeping on hangar space demand and critical aircraft operations.

2024 – Taxiway A Lighting: Install taxiway A lighting.

2024 – AWOS: Install AWOS and clear tree obstructions.

2025 – East Fence: Install east fencing.

2026 – Hangar Row Taxilane: Design and construct hangar row taxilane widening.

2027 – Welcome Area - Improve Welcome Area

2017 – Fuel Tanks: Relocate fuel tanks.

2027 – Pavement Maintenance Program (PMP): Schedule pavement maintenance as needed.

2028 – Row River Road: Purchase Row River Road properties.

Phase III Long-Term (2029 – 2038)

The projects in the long-term phase are the projects mostly likely to change over time. Projects suggested in phase will likely be re-evaluated in the next master plan to better determine if they suite the direction and demands of the Airport at that time. NPE Carryover placeholders and PMP projects have been removed from the final planning phase.

2029 – West Apron: Expand west apron.

2029 – Vehicle Parking/Access: Construct west apron hangar vehicle parking/access.

2031 – Helipad: Construct helipad and facilities.

2032 – Master Plan Update: Conduct Master Plan Update

2035 – Taxiway A: Design/construct taxiway A rehabilitation.

2036 – Property Acquisition: Purchase property for boundary, approach, RPZ protection.

2037 – Terminal Apron Phase I: Design terminal apron.

2038 – Terminal Apron Phase II: Construct terminal apron.

8.5 SUMMARY OF FINANCIAL AND CIP

As Table 8B shows, Cottage Grove State Airport plans on over $7 million of capital improvements resulting from this master plan. The sources for funding these improvements and associated assumptions are as follows:

- FAA Non-Primary Entitlement (NPE) Grants – It was assumed that the annual $150,000 FAA NPE grants available to the Airport would continue to be available in the future without any changes. The Airport would rollover NPE amounts as necessary.
- FAA Discretionary Grants – The funds in this category represent FAA discretionary grants. In general, any project that is judged AIP eligible and is not fully funded by other sources, will have funding fulfilled with FAA discretionary money. Currently, it is not expected that discretionary money will be required during the planning period.
- Local Funds – These funds are assumed to be from the Oregon Department of Aviation. A further assumption is that ODA will compete for state grant matching opportunities to reduce the local share when possible.
- Other – This funding source constitutes any capital provided from sources other than those listed previously. The most likely source of these funds is private capital.

Using these assumptions, this plan relies heavily on FAA AIP NPE funding in order to be feasible, especially in outlying years.

If the Airport is unable to secure these NPE or any potential discretionary grants as required, there are other options for the Airport to consider. The Airport may be able to employ a combination of these alternatives to achieve its objectives.

- 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). XI-Q bonds are

the most cost-effective bonds and provide funds to acquire, construct, remodel, repair, equip, or furnish real or personal proprty owner and;/or operated by the State of Oregon. XI-N bonds are authorized to provide funds for the planning and implementation of seismic rehabilitation of emergency services buildings.Lottery bond capacity is a scarce resource and limited to only the most critical state projects.

- Seek alternative funding. The Airport 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.

Cottage Grove State Airport Financial Data

	Fiscal Year						Forecast Year					
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Revenue	**$ 84,108**	**$ 152,203**	**$ 248,307**	**$ 1,655,960**	**$ 112,996**	**$ 22,081**	**$ 145,596**	**$ 394,019**	**$ 228,312**	**$ 872,883**	**$ 42,281**	**$ 50,327**
10% Admin Late Fees		$ 32				$ 34				$ 33		
Connect Oregon Admin	$ 127											
Federal Revenue	$ 25,207	$ 98,845	$ 194,445	$ 1,613,365	$ 71,022	$ (16,103)	$ 100,000	$ 350,000	$ 186,225	$ 830,000		$ 7,220
Fuel Income	$ 43,722	$ 37,167	$ 40,306	$ 27,626	$ 28,226	$ 24,544	$ 31,574	$ 30,455	$ 28,485	$ 28,657	$ 28,743	$ 29,583
Ingress/Egress Fees			$ 360	$ 180	$ 180	$ 180	$ 180	$ 180	$ 180	$ 180	$ 180	$ 180
Land Lease Fees	$ 13,563	$ 12,229	$ 13,196	$ 13,715	$ 13,392	$ 13,427	$ 13,192	$ 13,384	$ 13,422	$ 13,363	$ 13,358	$ 13,344
Operations 5010 Inspections	$ 650			$ 650			$ 650			$ 650		
Tie Down Fees	$ 840	$ 3,931		$ 425	$ 175							
Expenditure	**$ 131,243**	**$ 191,460**	**$ 294,937**	**$ 1,844,601**	**$ 59,817**	**$ 76,942**	**$ 178,377**	**$ 440,074**	**$ 249,217**	**$ 967,007**	**$ 47,931**	**$ 55,287**
Personal Services												
Airport Maintenance	$ 8,327	$ 10,951	$ 12,717	$ 10,828	$ 3,585	$ 11,477	$ 9,912	$ 9,704	$ 9,101	$ 8,756	$ 9,790	$ 9,453
Service & Supplies												
Airport Maintenance	$ 6,815	$ 6,815	$ 4,669	$ 777	$ 1,406	$ 1,020	$ 2,937	$ 2,162	$ 1,660	$ 1,837	$ 1,923	$ 2,104
Airport Services	$ 5,989	$ 4,627	$ 4,795	$ 4,895	$ 4,673	$ 5,773	$ 4,953	$ 5,018	$ 5,062	$ 5,096	$ 5,032	$ 5,032
Capital Construction	$ 307	$ 1	$ 198,833	$ 1,827,850	$ 31,506				$ 177,779	$ 922,222		
Fuel Stations	$ 38,223	$ 46,429	$ 71,839	$ 181	$ 18,646	$ 34,085	$ 34,236	$ 34,236	$ 24,277	$ 29,096	$ 31,186	$ 30,606
Fuel Tax Increase - State Owned Airports						$ 18,624						
Ga Entitlement	$ 26,530	$ 112,337	$ 2,084	$ -		$ -	$ 112,166	$ 388,885				
Inspections				$ 69				$ 69				$ 69
Pmp Ga Entitlement	$ 4,742	$ 1,084					$ 1,575		$ 22,200			
State Owned Pmp	$ 40,309	$ 9,215					$ 12,598		$ 2,222			
System Plan			$ -			$ 5,962			$ 6,916			$ 8,023
Profit/(Loss)	**$ (47,135)**	**$ (39,256)**	**$ (46,630)**	**$ (188,641)**	**$ 53,179**	**$ (54,861)**	**$ (32,781)**	**$ (46,055)**	**$ (20,905)**	**$ (94,124)**	**$ (5,650)**	**$ (4,959)**

***FY 2018 captures actual revenues and expenditures through 10/31/2018. The rest of FY 2018 are forecasted $'s based on the average of 5 years.*

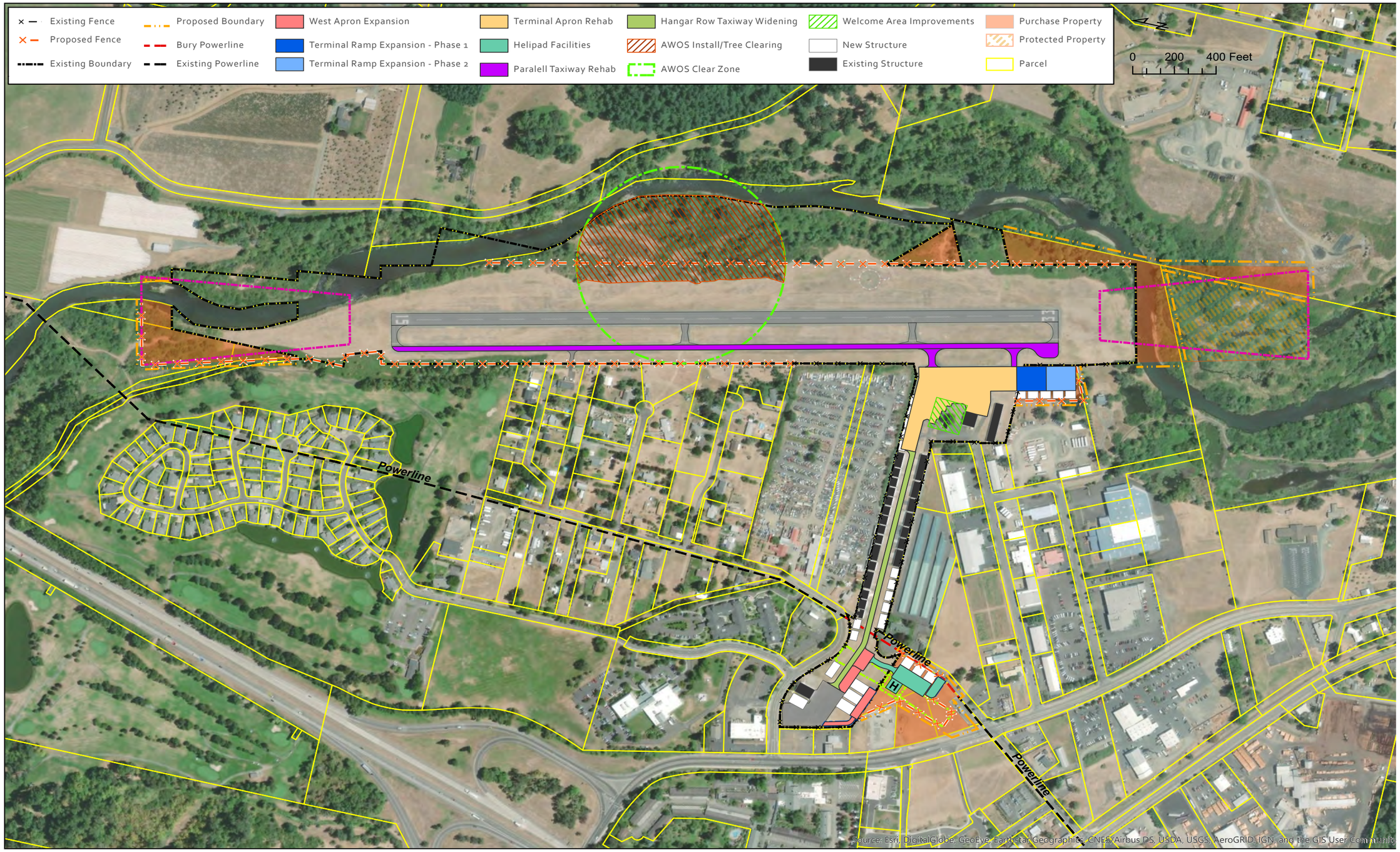

Figure 8A: Capital Improvement Plan Projects

DEFINITIONS

acoustical - Relating to the deadening or absorbing of sound.

Advisory Circular (AC) - A document published by the Federal Aviation Administration (FAA) giving guidance on aviation issues, and which becomes binding on those airports receiving federal grant funding.

Aeronautical Study - A study performed pursuant to FAR Part 77 "Objects Affecting Navigable Airspace" concerning the effect of proposed construction or alternation on the use of air navigation facilities or navigable airspace by aircraft. The conclusion of each study is normally a determination as to whether the specific proposal studied would be a hazard to air navigation and/r a determination for marking and/or lighting.

Air Traffic Control (ATC) - Control of the airspace by an appropriate authority to promote the safe, orderly and expeditious movement of terminal air traffic.

aircraft - Includes airplanes and helicopters, but not hot air balloons or ultralights.

aircraft operation - An aircraft arrival or departure from an airport. There are two types of operations: local and itinerant.

airport – 1) Any area of land or water, within or without this state, that is used, or intended for use, for the landing and take-off of aircraft, and any appurtenant areas that are used, or intended for use, for airport buildings or other airport facilities or rights of way, together with all airport buildings and facilities located thereon. 2) The strip of land used for taking off and landing aircraft, together with all adjacent land used in connection with the aircraft landing or taking off from the strip of land, including but not limited to land used for existing airport uses.

airport approach safety zone - An element of either an Airport Impact Zone or an Airport Overlay Zone which consists of a portion of the Airport Approach surface as defined in FAR Part 77. The actual boundaries and land use provisions are determined by the local jurisdiction.

airport development zone - A zone which replaces the existing zoning for the airport property encompassing the land presently owned by the airport and, if feasible, areas identified for future purchase, clear zones and areas with noise levels greater than DNL 70.

airport direct impact area - The area located within 5,000 feet of an airport runway, excluding lands within the runway protection zone and approach surface.

airport elevation - The highest point on an airport's usable runway(s) expressed in feet above mean sea level.

airport environs - The land use and people in the areas surrounding an airport which can be directly affected by the operation of the airport.

airport hazard - Any structure or object of man-made or natural growth located on or near the airport, or any use of land near the airport that obstructs the airspace required for the flight of aircraft in landing or taking off, or is otherwise hazardous to such landing and taking off.

airport imaginary surfaces - Imaginary areas in space and on the ground that are established in relation to the airport and its runways. Imaginary areas are defined by the primary surface, runway protection zone, approach surface, horizontal surface, conical surface and transitional surface.

airport impact zones - A zone used to place land use conditions on land impacted by airport operations. It establishes a new zone and provisions which replaces an existing zone and standards.

Airport Improvement Program (AIP) - The AIP is authorized by the Airport and airway Improvement Act of 1982 (P.L. 97-248, as amended). The Act's broad objective is to assist in the development of a nationwide system of public- use airports adequate to meet the current and projected growth of civil aviation. The Act provides funding for airport planning and development projects at airports included in the National Plan of Integrated Airport Systems. The Act also authorizes funds for noise compatibility planning and to carry out noise compatibility programs as set forth in the Aviation Safety and Noise Abatement Act of 1979 (P.L. 96-143).

Airport Layout Plan (ALP) - A scaled drawing of existing and proposed airside and landside facilities necessary for the operation and development of the airport. The ALP shows (1) boundaries and proposed additions to areas owned or controlled by the sponsor, (2) the location and nature of existing and proposed airport facilities and structures and (3) the location on the airport of existing and proposed non-aviation areas and improvements. The ALP may also depict those properties adjacent to the airport ownership that may have legal access to the airport.

Airport Layout Plan Set – This document typically contains a set of drawings which illustrate the existing and future development of the airport. An ALP set may often contain the following: (1) Airport Layout Drawing (Plan), (2) Airport Airspace Drawing, (3) Inner Portion of the Approach Surface Drawing, (4) Terminal Area Drawing, (5) Land Use Drawing and (6) Airport Property Map. The drawings depict existing and proposed airport facilities, land uses, approach zones and other defined areas of airspace, and environmental features that may influence airport usage and expansion capabilities.

airport manager - The person authorized by the airport sponsor to exercise administrative control of the airport.

airport master plan - Long-term development plan for the airport adopted by the airport proprietor and local jurisdictions.

Airport Noise Abatement Program - A program designed to reduce noise around an airport through changes in the manner in which aircraft are flown, or changes in the operation or layout of the airport. (Compatible land use planning).

Airport Noise and Capacity Act of 1990 - This act required the establishment of a National Noise Policy and a requirement to eliminate Stage 2 aircraft weighing 75,000 pounds or greater operating in the contiguous United States by the year 2000.

airport noise and impact boundary - Areas located within 1,500 feet of an airport runway or within established noise contour boundaries exceeding 55Ldn [day-night average sound level].

airport obstruction zoning ordinance - A local height restriction ordinance which follows FAR Part 77, implements a local community's comprehensive plan and provides specific height standards for the area beneath the airport Imaginary Surface.

airport overlay zone - A zone intended to place additional land use conditions on land impacted by the airport while retaining the existing underlying zone.

airport owner - Any person or authority having the operational control of an airport as defined in the ASNA Act. (See OAR 660-113)

Airport Reference Code (ARC) - The ARC is a FAA coding system used to relate airport design criteria to the operational and physical characteristics of the airplanes intended to operate at the airport.

Airport Reference Point - The latitude and longitude of the approximate center of the airport, based upon the runway facilities.

airport sponsor – 1) The airport owner or tax-supported organization such as an airport authority, that is authorized to own and operate, to obtain property interests, to obtain funds, and to legally, financially and otherwise able to meet all applicable requirements of current laws and regulations related to the operation of an airport. (See OAR 660-13) 2) The owner, manager, person or entity designated to represent the interests of an airport.

airside - That portion of the airport facility where aircraft movements take place, airline operations areas, and areas that directly serve the aircraft, such as taxiway, runway, maintenance and fueling areas.

airspace - Space above the ground in which aircraft travel. Often airspace is divided into corridors, routes and restricted zones.

ambient noise - All-encompassing noise associated with a given environment, being usually a composite of sounds from many sources near and far.

Approach and Runway Protection Zone Map - The approach and Runway Protection Zone Map is compiled from the criteria in FAR Part 77, Objects Affecting Navigable Airspace. It shows the area affected by the Airport Obstructions Zoning Ordinance, and includes layout of runways, airport boundary, elevations and area topography. Applicable height limitation areas are shown in detail.

approach slopes - The rations of horizontal to vertical distance indicating the degree of inclination of the Approach Surface. The various rations include:

approach surface – 1) A surface defined by FAR Part 77 "Objects Affecting Navigable Airspace, "that is longitudinally centered on the runway centerline and extends outward and upward from each end of the primary surface. An approach surface is applied to each end of each runway based on the type of approach available or planned for that runway end. 2) A surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the primary surface.

ASNA Act - The Aviation Safety and Noise Abatement Act of 1979, as amended (49 U.S.C. 2101 et seq.).

attainment area - An area in which the federal or state standards for ambient air quality are being achieved.

attenuation - The lessening of the magnitude.

average day-night sound level (DNL) - Average day-night sound level (DNL) is the FAA standard metric for determining the cumulative exposure of individuals to noise. DNL is the equivalent of noise levels produced by aircraft operations during a 24-hour period, with a ten-decibel penalty applied to the level measured during nighttime hours (10:00 pm to 7:00 am).

average sound level - The level in decibels, of the mean square, A-weighted sound pressure during a specified period, with reference to the square of the standard reference sound pressure of 20 micropascals [µPa].

avigation easement - A grant of a property interest in land over which a right of unobstructed flight in the airspace is established and which prohibits any structures, growth or other obstructions from penetrating the approach surface and provides a right of entry to remove, mark or light any structure or any such obstruction.

A-weighted sound level (also referred to as dBA) - The sound pressure level which has been filtered or weighted to reduce the influence of the low and high frequency noise; designed to approximate the manner in which the human ear responds to sounds.

based aircraft - An aircraft permanently stationed at an airport by agreement between the aircraft owner and the airport management.

building codes - Codes, either local or state, that control the functional and structural aspects of buildings and/or structures. Local ordinances typically require proposed buildings to comply with zoning requirements before building permits can be issued under the building codes.

commercial service airport - A public airport that has at least 2,500 passenger boardings each year and is receiving scheduled passenger aircraft service.

compatibility - The degree to which land uses or types of development can coexist or integrate.

compatible land use - As defined in FAR 150: The use of land (e.g. commercial, industrial, agricultural) that is normally compatible with aircraft and airport operations, or sound insulated land uses (e.g. sound insulated homes, schools, nursing homes, hospitals, libraries) that would otherwise be considered incompatible with aircraft and airports operations.

Comprehensive Plan - Similar to a Master Plan, the comprehensive plan is a governmental entity's official statement of its plans and policies for long-term development. The plan includes maps, graphics and written proposals, which indicate the general location for streets, parks, schools, public buildings, airports and other physical development of the jurisdiction.

conditional zoning - The imposition or exaction of conditions or promises upon the grant of zoning by the zoning authority.

conformity (Air Quality) - No department, agency or instrumentality of the federal government shall engage in, support in any way or provide financial assistance for, license, or permit, or approve, any activity which does not conform to a State Implementation Plan (SIP). There are two types of Air Quality Conformity: General Conformity and Transportation Conformity:

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

decibel (dB) - A unit for describing the intensity or level of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to a standard reference pressure.

Department of Aviation - The Oregon Department of Aviation (ODA), formerly the Aeronautics Division of the Oregon Department of Transportation.

easement - A grant of one or more of the property rights by the property owner to and/or for the use by the public, a corporation or another person or entity.

enplanement - A passenger boarding of a commercial flight.

Environmental Assessment (EA) - A concise document that assesses the environmental impacts of a proposed federal action. The EA discusses the need for and environmental impacts of the proposed action and alternative actions. An EA should provide sufficient evidence and analysis for a federal determination whether to prepare an Environmental Impact Statement or a Finding of No Significant Impact.

Environmental Impact Statement (EIS) - A document that provides full and fair discussion of the significant environmental impacts that would occur as a result of a

proposed project and informs decision makers and the public of the reasonable alternatives that would avoid or minimize adverse impacts.

Euclidean Zoning - A traditional legislative method or device for controlling land use by establishing districts with boundaries and providing for specific uniform regulations as to type of permitted land use, height, bulk and lot coverage of structure, setback and similar building restrictions. (Reference from 1929 U.S. Supreme Court landmark decision upholding zoning as a means of land use control in "City of Euclid, Ohio v. Ambler Realty:)

FAA's Technical Representative - A used in this ordinance, the federal agency providing the FAA with expertise on wildlife and bird strike hazards as they relate to airports. This may include, but is not limited to, the United States Department of Agriculture - Animal and Plant Health Inspection Service - Wildlife Service (USDA-APHIS-WS).

Federal Aviation Administration (FAA) - A federal agency charged with regulating air commerce to promote its safety and development, encouraging and developing civil aviation, air traffic control and air navigation and promoting the development of a national system of airports.

Federal Aviation Regulations (FAR) - Regulations established and administered by the FAA that govern civil aviation and aviation-related activities.

Federal Aviation Regulations Part 77 - Objects Affecting Navigable Airspace" - Part 77 (a) establishes standards for determining obstructions in navigable airspace; (b) defines the requirements for notice to the FAA Administrator of certain proposed construction or alteration; (c) provides for aeronautical studies of obstructions to air navigation to determine their effect on the safe and efficient use of airspace; (d) provides for public hearings on the hazardous effect of proposed construction or alteration on air navigation; and (e) provides for establishing antenna farm areas.

Federal Grant Assurance - The terms and conditions of accepting Airport Improvement Program (AIP) grants from the Federal Aviation Administration for carrying out the provisions of Title 49 United State Code. The terms and conditions become applicable when the airport sponsor accepts a grant offer from the FAA.

general aviation (GA) - Refers to all civil aircraft and operations that are not classified as air carrier, commuter or regional. The types of aircraft used in general aviation activities cover a wide spectrum from corporate multi-engine jet aircraft piloted by professional crews to amateur-built single engine piston acrobatic planes, balloons and dirigibles.

general conformity - All federal actions (except those involving highways and transit projects) within non-attainment and maintenance areas that result in a net increase in emissions above specified levels.

hazard to air navigation - An obstruction determined to have a substantial adverse effect on the safe and efficient utilization of the navigable airspace.

height - The highest point of a structure or tree, plant or other object of natural growth, measured from mean sea level.

Hold Harmless Agreement - An agreement which holds airport sponsors or jurisdictions harmless for alleged damages resulting from airport operations. Such agreements are recorded in deeds or permits as a condition of approval of a regulatory land use decision.

horizontal surface - A horizontal plane 150 feet above the established airport elevation, the perimeter of which is constructed by swinging arcs of specified radii from the center of each end of the primary surface of each runway of each airport and connecting the adjacent arcs by lines tangent to those arcs. The radius of each arc is:

(A) 5,000 feet for all runways designated as utility.

(B) 10,000 feet for all other runways.

(C) The radius of the arc specified for each end of a runway will have the same arithmetical value. That value will be the highest determined for either end of the runway. When a 5,000-foot arc is encompassed by tangents connecting two adjacent 10,000-foot arcs, the 5,000-foot arc shall be disregarded on the construction of the perimeter of the horizontal surface.

housing codes - The codes that usually apply to both existing and future living units. The codes include minimum standards of occupancy, and usually govern spatial, ventilation, wiring, plumbing, structural and heating requirements.

hubbing - A method of airline scheduling that times the arrival and departure of several aircraft in a close time period to allow the transfer of passengers between different flights of the same airline. Several airlines may conduct hubbing operations at an airport.

imaginary surfaces - Those areas established in relation to the airport and to each runway consistent with FAR Part 77 in which any object extending above these imaginary surfaces, by definition, is an obstruction.

incompatible land use - The use of land, which is defined in Appendix A, Table 1 of FAR Part 150, which is normally incompatible with the aircraft and airport operations (such as homes, schools, nursing homes, hospitals and libraries).

infrastructure - A community's built elements that establish the community's foundation for maintaining existing populations, activities, future growth and development. Infrastructure elements include airports, roads and highways, bridges, water and sewer systems, waste disposal facilities, utilities and telecommunications systems, schools, and governmental and community facilities.

instrument approach - A series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing or to a point from which a landing may be made visually.

Instrument Flight Rules (IFR) - Rules by which aircraft are operated without visual reference to the ground; in effect when cloud ceilings are equal to or less than 1,000 feet, or visibility is less than 3 miles.

Instrument Landing System (ILS) - The instrument landing system is designed to provide electronic instrument guidance to the pilot to permit exact alignment and angle of descent of a properly equipped aircraft on final approach for landing.

Integrated Noise Model (INM) - FAA' s computer model used by the civilian aviation community for evaluating aircraft noise impacts near airports. The INM uses a standard database of aircraft characteristics and applies them to an airport's average operational day to produce noise contours.

itinerant operation - Any aircraft arrival and/or departure other than a local operation.

land banking - The purchase of property by the government to be held for future use and development either by the government or for resale for the development of compatible uses.

land use compatibility - The coexistence of land uses surrounding the airport with airport-related activities.

land use controls - Measures established by state or local government that are designed to carry out land use planning. The controls include among other measures: zoning, subdivision regulations, planned acquisition, easements, covenants or conditions in building codes and capital improvement programs, such as establishment of sewer, water, utilities or their service facilities.

land use management measures - Land use management techniques that consist of both remedial and preventive measures. Remedial, or corrective, measures typically include sound insulation or land acquisition. Preventive measures typically involve land use controls that emend or update the local zoning ordinance, comprehensive plan, subdivision regulations and building code.

landside - That part of an airport uses for activities other than the movement of aircraft, such as vehicular access roads and parking.

lighting and marking of hazards to air navigation - Installation of appropriate lighting fixtures, painted markings or other devices to such objects or structures that constitute hazards to air navigation.

Limited Avigation Easement - An easement which provides right of flight above approach slope surfaces, prohibits any obstruction penetrating the approach slope surface, and provides right of entry to remove any structure or growth penetrating the approach slope surface.

local operation - Any operation performed by an aircraft that (a) operations in the local traffic pattern or within sight of the tower or airport, or (b) is known to be departing for, or arriving from, flight in local practice areas located within a 20- mile radius of the control tower or airport, or (c) executes a simulated instrument approach or low pass at the airport.

maintenance area - a geographical area which was once designated as nonattainment, but the pollution levels have met the National Ambient Air Quality standards for two consecutive y ears and has an approved maintenance plan which outlines how the geographical area will continue to meet these standards.

mediation - The use of a mediator or co-mediators to facilitate open discussion between disputants and assist them to negotiate a mutually agreeable resolution. Mediation is a method of alternative dispute resolution

that provides an initial forum to informally settle disputes prior to regulatory intervention on the part of the FAA.

mitigation - The avoidance, minimization, reduction, elimination or compensation for adverse environmental effects of a proposed action.

mitigation measure - An action taken to alleviate adverse impacts.

National Environmental Policy Act of 1969 (NEPA) - The original legislation establishing the environmental review process.

National Plan of Integrated Airport Systems (NPIAS) - A primary purpose of the NPIAS is to identify the airports that are important to national transportation and, therefore, eligible to receive grants under the Airport Improvement Program (AIP). The NPIAS is composed of all commercial service airports, all reliever airports, and selected general aviation airports.

Nautical Mile - A measure of distance equal to one minute of arc on the earth's surface, which is approximately 6,080 feet.

NAVAIDS - Navigation Aids.

Navigation Aids (NAVAIDS) - Any facility used by an aircraft for guiding or controlling flight in the air or the landing or take-off of an aircraft.

noise - Defined subjectively as unwanted sound, the measurement of noise evaluates three characteristics of sound: intensity, frequency and duration.

noise abatement procedures - Changes in runway usage, flight approach and departure routes and procedures, and vehicle movement, such as ground maneuvers or other air traffic procedures that shift aviation impacts away from noise sensitive areas.

Noise Compatibility Plan (NCP) - The NCP consists of an optimum combination of preferred noise abatement and land use management measures, and a plan for implementation of the measures. For planning purposes, the implementation plan also includes the estimated cost for each of the recommended measures to the airport sponsor, the FAA, airport users, and the local units of government.

Noise Compatibility Program - See "Part 150 Study"

noise exposure contours - Lines drawn about a noise source indicating constant energy levels of noise exposure. DNL is the measure used to describe community exposure to noise.

Noise Exposure Map (NEM) - The NEM is a scaled map of the airport, its noise contours and surrounding land uses. The NEM depicts the levels of noise exposure around the airport, both for the existing conditions and forecasts for the five-year planning period. The area of noise exposure is designated using the DNL (Day-Night Average Sound Level) noise metric.

noise impact - A condition that exists when the noise levels that occur in an area exceed a level identified as appropriate for the activities in that area.

Noise Level Reduction (NLR) - The amount of noise level reduction in decibels achieved through incorporation of noise attenuation (between outdoor and indoor levels) in the design and construction of a structure.

Noise-Sensitive Area - Areas where aircraft noise may interfere with existing or planned use of the land. Whether noise interferes with a particular use depends upon the level of noise exposure and the types of activities that are involved. Residential neighborhoods, educational, health, and religious structures and sites, outdoor recreational, cultural and historic sites may be noise sensitive areas.

non-attainment - Areas that exceeded the national ambient air quality standards for any of six pollutants (ozone, or smog; carbon monoxide; lead; particulate matter; or PM-10; or nitrogen dioxide).

non-conforming use - Any pre-existing structure, tree, or use of land that is inconsistent with the provisions of the local land use or airport master plans.

non-precision instrument runway – 1) A runway having an existing instrument approach procedure utilizing air navigation facilities with only horizontal guidance, or area type navigation equipment, for which a straight-in non-precision instrument approach has been approved, or planned, and for which no precision approach facilities are planned or indicated on an FAA-approved airport layout plan or other FAA planning document. A runway having an existing or planned instrument approach that is essentially aligned with the runway centerline and has horizontal information for guidance of the aircraft on course and relays altimeter and intermediate fixes for descent to the touchdown point on the runway.

obstruction - Any structure, growth, or other object of natural growth that penetrates an imaginary surface.

off-airport property - Property that is beyond the boundary of land owned by the airport sponsor.

Official Map - A legally adopted map that conclusively shows the locations and width of proposed streets, public facilities, public areas and drainage rights-of- way.

on-airport property - Property that is within the boundary of land owned by the airport sponsor.

Other than Utility Runway - A runway that is constructed for and intended to be used by turbine driven aircraft or by propeller-driven aircraft exceeding 12,500 pounds gross weight.

overlay zone - A mapped zone that imposes a set of requirements in addition to those of the underlying zoning district.

Part 150 Study - Part 150 is the abbreviated name for the airport noise compatibility planning process outlined in Part 150 of the Federal Aviation Regulation (FAR) that allows airport owners to voluntarily submit noise exposure maps and noise compatibility programs to the FAA for review and approval. See "Noise Compatibility Plan."

Passenger Facility Charge (PFC) Program - The PFC Program, first authorized by the Aviation Safety and Capacity Expansion Act of 1990 and now codified under Section 40117 of Title 49 U.S.C., provides a source of additional capital to improve, expand and repair the nation's airport infrastructure. The legislation allows public agencies controlling commercial service airports to charge enplaning passengers using the airport a facility charge. The FAA must approve any facility charges imposed on enplaning passengers.

performance standards - Minimum acceptable levels of performance, imposed by zoning that must be met by each land use.

precision instrument runway – 1) A runway having an existing instrument approach procedure utilizing air navigation facilities that provide both horizontal and vertical guidance, such as an Instrument Landing System (ILS) or Precision Approach Radar (PAR). It also means a runway for which a precision approach system is planned and is so indicated by an FAA-approved airport layout plan or other FAA planning document. 2) A runway having an existing or planned instrument approach that is essential aligned with the runway centerline and has horizontal information for guidance of the descent of the aircraft to the touchdown point of the runway.

primary runway - The runway used for the majority of airport operations. Large, high-activity airports may operate two or more parallel primary runways.

primary surface - 1) A primary surface is longitudinally centered on a runway. When the runway has a specially prepared hard surface, the primary surface extends 200 feet beyond each end of that runway. When the runway has no specially prepared hard surface, or planned hard surface, the primary surface terminates at 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 system. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline. 2) Primary Surface - A surface longitudinally centered on a runway. When a runway has a specially prepared hard surface, the primary surface extends 200 feet beyond each end of that runway. When a runway has not specially prepared hard surface, or planned hard surface, the primary surface ends at each end of that runway. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline. The width of the primary surface is:

(A) 500 feet for utility runways having non-precision instrument approaches,

(B) 500 feet for other than utility runways having non-precision instrument approaches with visibility minimums greater than three-fourths statute mile, and

(C) 1,000 feet for non-precision instrument runways with visibility minimums at or below three-fourths statute mile, and for precision instrument runways.

proponent - Any person who proposes to erect or construct any object or structure that exceeds certain minimum altitudes that may be a potential hazard to air navigation and who may be responsible for lighting and marking such object or structure.

public assembly facility - A permanent or temporary structure or facility, place or activity where concentrations of people gather in reasonably close quarters for purposes such as deliberation, education, worship, shopping, employment, entertainment, recreation, sporting events, or similar activities. Public assembly facilities include, but are not limited to, schools, churches, conference or convention facilities, employment and shopping centers, arenas, athletic fields, stadiums, clubhouses, museums, and similar facilities and places, but do not include parks, golf

courses or similar facilities unless used in a manner where people are concentrated in reasonably close quarters. Public assembly facilities also do not include air shows, structures or uses approved by the FAA in an adopted airport master plan, or places where people congregate for short periods of time such as parking lots or bus stops.

public use airport - A publicly or privately-owned airport that offers the use of its facilities to the public without prior notice or special invitation or clearance.

reliever airport - An airport that meets certain FAA criteria and relieves the aeronautical demand on a busier air carrier airport.

runway - A defined area on the airport prepared for landing and takeoff of aircraft along its length.

runway protection zone - An area off the runway end used to enhance the protection of people and property on the ground. The RPZ is trapezoidal in shape and centered about the extended runway centerline. The inner width of the RPZ is the same as the width of the primary surface. The outer width of the RPZ is a function of the type of aircraft and specified approach visibility minimum associated with the runway end. The RPZ extends from each end of the primary surface for a horizontal distance of:

(A) 1,000 feet for utility runways.

(B) 1,700 feet for other than utility runways having non-precision instrument approaches.

(C) 2,500 feet for precision instrument runways.

Runway Protection Zone (RPZ) - A trapezoidal-shaped area centered about the extended runway centerline that is used to enhance the protection of people and property on the ground. It begins 200 feet beyond the end of the runway or area usable for takeoff or landing. The RPZ dimensions are functions of the design aircraft, type of operation and visibility minimums.

significant - As it relates to bird strike hazards, "significant" means a level of increased flight activity by birds across an approach surface or runway that is more than incidental or occasional, considering the existing ambient level of flight activity by birds in the vicinity.

sound attenuation - Acoustical phenomenon whereby a reduction of sound energy is experienced between the noise source and the receiver. This energy loss can be attributed to atmospheric conditions, terrain, vegetation, constructed features (e.g., sound insulation) and natural features.

Sound Exposure Level (SEL) - A measure of the physical energy of the noise event that takes into account both intensity and duration. By definition SEL values are referenced to a duration of one second. SEL is higher than the average and the maximum noise levels as long as the event is longer than one second. Sound exposure level is expressed in decibels (dB). People do not hear SEL.

Sound Transmission Class (STC) - A number rating of the sound that indicates the amount of noise attenuation in tested acoustical materials.

special exceptions - Land uses that are not specifically permitted as a matter of right, but can be permitted in accordance with performance standards and other local criteria. Also known as "conditional uses."

Stage 2 Aircraft - Aircraft that meet the noise levels prescribed by FAR Part 36 and are less stringent than noise levels established for the quieter designation State 3 aircraft. The Airport Noise and Capacity Act requires the phase-out of all State 2 aircraft by December 31, 1999, with case-by-case exceptions through the year 2003.

Stage 3 Aircraft - Aircraft that meet the most stringent noise levels set forth in FAR Part 36.

State Implementation Plan (SIP) - A detailed description of the programs a state will use to carry out its responsibilities under the Clean Air Act. State Implementation Plans are collections of the regulations used by a state to reduce air pollution.

statute mile - A measure of distance equal to 5,280 feet.

structure - Any constructed or erected object which requires location on the ground or is attached to something located on the ground. Structures include but are not limited to buildings, decks, fences, signs, towers, cranes, flagpoles, antennas, smokestacks, earth formations and overhead transmission lines. Structures do not include paved areas.

supplemental type certificate (STC) - A supplemental type certificate (STC) is a type certificate (TC) issued when an applicant has received FAA approval to modify an aeronautical product from its original design.

terminal area - A general term used to describe airspace in which airport traffic control or approach control service is provided.

Transfer of Development Rights (TDR) - The removal of the right to develop or build, expressed in dwelling units per acre, from land in one location to land in another location where such transfer is permitted.

Transitional Surface - 1) An element of the Imaginary Surfaces extending outward and upward at right angles to the runway centerline and runway centerline extended at a slope of 7:1 from the sides of the primary and approach surfaces to where they intersect the horizontal and conical surfaces. 2) Those surfaces that extend upward and outward at 90-degree angles to the runway centerline and the runway centerline extended at a slope of seven (7) feet horizontally for each foot vertically from the sides of the primary and approach surfaces. Transitional surfaces for those portions of the precision approach surfaces which project through and beyond the limits of the conical surface, extend a distance of 5,000 feet measured horizontally from the edge of the approach surface and at a 90-degree angle to the extended runway centerline.

transportation conformity - Federally funded or approved highway or transit projects; (and regionally significant non-federal highway and transit projects) within non-attainment and maintenance areas.

turbojet aircraft - Aircraft operated by jet engines incorporating a turbine-driven air compressor to take in and compress the air for the combustion of fuel, the gases of combustion (or the heated air) being used both to rotate the turbine and to create a thrust-producing jet.

turboprop aircraft - Aircraft in which the main propulsive force is supplied by a gas turbine driven conventional propeller. Additional propulsive force may be supplied from the discharged turbine exhaust gas.

urbanized land - Lands within the urban growth boundary which are: (a) determined to be necessary and suitable for future urban areas; (b) served by urban services and facilities; and (c) needed for the expansion of an urban area.

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

variance - An authorization for the construction or maintenance of a building or structure, or for the establishment or maintenance of a use of land that is prohibited by a zoning ordinance. A lawful exception from specific zoning ordinance standards and regulations predicated on the practical difficulties and/or unnecessary hardships on the petitioner being required to comply with those regulations and standards from which an exemption or exception is sought.

visual approach - An approach to an airport conducted with visual reference to the terrain.

visual approach runway - A runway intended for visual approaches only, with no straight-in instrument approach procedure either existing or planned for that runway.

visual flight rules (VFR) - FAA rules that govern procedures for flight under visual conditions.

visual runway - A runway intended solely for the operation of aircraft using visual approach procedures, where no straight-in instrument approach procedures or instrument designations have been approved or planned, or area indicated on an FAA-approved airport layout plan or any other FAA planning document.

water impoundment - Incudes wastewater treatment settling ponds, surface mining ponds, detention and retention ponds, artificial lakes and ponds, and similar water features. A new water impoundment includes an expansion of an existing water impoundment except where such expansion was previously authorized by land use action approved prior to the effective date of this ordinance.

wetland mitigation banking - involves consolidating fragmented wetland mitigation projects into one large contiguous site. Unites of restored, created enhanced or preserved wetlands are expressed as "credits" which may be withdrawn to offset "debits" incurred at a project development site.

yearly day-night average sound level (YDNL) - The 365-day average, in decibels, day-night average sound level. The symbol for YDNL is also Ldn.

zoning - The partitioning of land parcels in a community by ordinance into zones and the establishment of regulations in the ordinance to govern the land use and the location, height, use and land coverages of buildings within each zone. The zoning ordinance usually consists of text and zoning map.

zoning ordinance - Primarily a legal document that allows a local government effective and legal regulation of uses of property while protecting and promoting the public interest.

ACRONYMS

A&P	Airframe & Powerplant Mechanic
AC	Advisory Circular
AD	Airport Design
AGIS	Airports Geographic Information Systems
AGL	above ground level
AGLA	Alternative Grass Landing Area
AIP	Airport Improvement Program
ALP	Airport Layout Plan
ALS	Airport Lighting System
ALSF	Approach Lighting System with Sequenced Flashing Light
ARC	Airport Reference Code
ARFF	Air Rescue and Firefighting
ATC	Air Traffic Control
ATCT	Air Traffic Control Tower
AvGas	Aviation Gasoline
AWOS	Automated Weather Observing System
CFR	Code of Federal Regulation
DME	Distance Measuring Equipment
DNL	Day-Night Noise Level
EAA	Experimental Aircraft Association
EL	Elevation
F	Fahrenheit
FAA	Federal Aviation Administration
FBO	Fixed Base Operator
FOD	Foreign Object Debris
FPPA	Farmland Protection Policy Act
GA	General Aviation
GPS	Global Positioning System
HIRL	High Intensity Runway Lighting
HOA	Home Owners Association
IAHA	Independence Airpark Homeowners Association
IAP	Instrument Approach Procedure
IFR	Instrument Flight Rules
ILS	Instrument Landing System
LITL	Low Intensity Taxiway Lighting
LOC	Localizer
LSA	Light-Sport Aircraft
MALS	Medium Intensity Approach Lighting
MALSF	Medium Intensity Approach Lighting with Sequenced Flashers
MALSR	Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights
MIRL	Medium Intensity Runway Lighting
MITL	Medium Intensity Taxiway Lighting
MSL	Mean Sea Level
MoGas	Motor gasoline (light aircraft fuel)
NAAQS	National Ambient Air Quality Standards
NAVAID	Navigational Aid
NPA	Non-Precision Approach
NHPA	National Historic Preservation Act
NPIAS	National Plan of Integrated Airport Systems
NWI	National Wetlands Inventory
OAP	Oregon Aviation Plan
OAR	Oregon Administrative Rule
ODA	Oregon Department of Aviation
ODAL	Omnidirectional Approach Lighting Operation - Takeoff or Landing
OFA	Object Free Area
OFZ	Obstacle Free Zone
ORS	Oregon Revised Statutes
P	Precision (Markings)
PA	Precision Approach
PAC	Planning Advisory Committee
PAPI	Precision Approach Path Indicator
PCI	Pavement Condition Index
RDC	Runway Design Code
REIL	Runway End Identifier Lights
RNAV	Area Navigation
ROFA	Runway Object Free Area
ROM	Rough Order of Magnitude
RPZ	Runway Protection Zone
RSA	Runway Safety Area
RTTF	Residential Through the Fence
RW	Runway
STC	Supplemental Type Certificate
SWG	Single Wheel Gear
SWY	Stopway
T1—3	Oregon Resilience Plan Tiers 1 through 3
TERPS	Terminal Instrument Procedures
TH	Threshold
TL	Taxilane
TODA	Takeoff Distance Available
TORA	Takeoff Run Available
TSA	Taxiway Safety Area
TW	Taxiway
UGB	Urban Growth Boundary
USDOT	U.S. Department of Transportation
USGS	United States Geological Survey
V	Visual (Markings)
VASI	Visual Approach Slope Indicator
VFR	Visual Flight Rules
VOR	Very High Frequency Omnidirectional Range Station

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

Northwest Mountain Region
Seattle Airports District Office
2200 S. 216th Street
Des Moines, WA 98198

July 2, 2018

Mr. Matthew Maass
States Airport Manager
Oregon Department of Aviation
3040 25th Street SE
Salem, OR 97302

Dear Mr. Maass:

Forecast Approval
Cottage Grove State Airport, Cottage Grove, OR
AIP 3-41-0015-009

I have reviewed the Forecasts of the Master Plan Update submitted by WHPacific for Cottage Grove State Airport. The forecasts of based aircraft and aircraft operations, respectively, are hereby approved and accepted for Federal Aviation Administration (FAA) purposes. Please call me at (206) 231-4139 if I can be of further assistance.

Sincerely,

Valerie R. Thorsen
Airport Planner, Oregon

cc:
Jeff Caines, Oregon Department of Aviation
Dave Nafie, WHPacific

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

Northwest Mountain Region
Seattle Airports District Office
2200 S. 216th Street
Des Moines, WA 98198

March 17, 2020

Ms. Betty Stansbury
Oregon Dept. of Aviation
3040 25th St SE
Salem, OR 97302-1125

Dear Ms. Stansbury:

The Cottage Grove State Airport Layout Plan (ALP), prepared by WHPacific, and bearing your signature, is approved, and the master plan is accepted. A signed copy of the approved ALP is enclosed.

An aeronautical study (no. 2019-ANM-3314-NRA) was conducted on the proposed development. This determination does not constitute FAA approval or disapproval of the physical development involved in the proposal. It is a determination with respect to the safe and efficient use of navigable airspace by aircraft and with respect to the safety of persons and property on the ground.

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

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

This ALP approval is conditioned on acknowledgement that any development on airport property requiring Federal environmental approval must receive such written approval from FAA prior to commencement of the subject development. This ALP approval is also conditioned on acceptance of the plan under local land use laws. We encourage appropriate agencies to adopt land use and height restrictive zoning based on the plan.

Approval of the plan does not indicate that the United States will participate in the cost of any development proposed. AIP funding requires evidence of eligibility and justification at the time a funding request is ripe for consideration. When construction of any proposed structure or development indicated on the plan is undertaken, such construction requires normal 45-day advance notification to FAA for review in accordance with applicable Federal Aviation

Regulations (i.e., Parts 77, 157, 152, etc.). More notice is generally beneficial to ensure that all statutory, regulatory, technical and operational issues can be addressed in a timely manner.

Please attach this letter to the Airport Layout Plan, and retain it in the airport. We wish you great success in your plans for the development of the airport.

Sincerely,

Joelle Briggs, Manager
FAA Seattle Airports District Office

Enclosure

Cottage Grove State Airport Master Plan Update
Planning Advisory Committee Meeting #1
Issues & Opportunities, Existing Conditions, and Aviation Forecasts

January 24, 2018
City of Cottage Grove
10:00 a.m. to 12:30 p.m.

-Meeting Summary-

Attendees:

Oregon Department of Aviation: Matthew Maass, Jeff Caines, John Wilson, and David Astorga

WHPacific, Inc: Mike Dane, Dave Nafie and Holly Williams

Planning Advisory Committee Members: See sign in sheet

Public Attendees: See sign in sheet

Welcome and Introductions

Meeting opened at 10:00 a.m., with a brief introduction from Matthew Maass. Matthew briefly explained the status of the previous master plan and the State's goal of asking the community to participate in the development of this Master Plan Update. After the PAC was asked to introduce themselves, a brief discussion on the lines of communication, planning ground rules, and the meeting format of being focused on the PAC. The purpose of a master plan, as well as the elements of a master plan were presented in addition to the planning process and schedule.

Area Information

Airport History: An overview of the Airport's history was presented with a focus on the grant funding over the last 30 years.

Airport Role: The information on the Airport's National, State, and local role was presented. The local role of the Airport was discussed with the PAC. It was confirmed that the Airport is a secondary site for emergency medical evacuations. It was determined that nearly all medevac flights were Life Flight helicopters, operating near the Oregon Aviation History Center. Tourism was also discussed as a key part of the Airport's local role. There is a monthly pancake breakfast at the Oregon Aviation History Center as well as several other events throughout the year that bring tourists to the Airport. Tourism was determined to be a growing part of the local role of the Airport.

Community Data: A brief presentation on local socio-economic data and trends for Oregon, Lane County, and Cottage Grove. Lane County employment in recent years has grown on trend with the State of Oregon, income in Lane County, although increasing at a similar rate to the State, has been significantly lower than the State of Oregon. PAC Member and City Planner Amanda Ferguson echoed the information on the slides showing growth in the community and pointed out that building permits have increased in the last two years and the community is currently 98 percent occupied. The PAC and public felt that

growth in neighboring communities (Eugene) will create growth in Cottage Grove as well. The City is currently doing a land study to consider a UGB expansion.

Relevant Studies: Discussion and presentation of the relevant studies that have been and will be utilized, reviewed, and incorporated in to the Master Plan as well as a brief discussion of the annexation of the Airport into the City of Cottage Grove and Urban Growth Boundary.

Environmental Data depicted was focused on local climate data and some environmental conditions and the relationship to the National Environmental Policy Act (NEPA). The most notable issue identified by environmental experts and addressed during the meeting was the floodplain. A discussion on the floodplain and bank stabilization was presented by the Planning team. The Planning team pointed out past stabilization projects done in 2008 and what the riverbank looks like today, 10 years after the project.

Landside

Land-Use: A discussion on zoning and land use compatibility in the area adjacent to the Airport began with a discussion of the annexation of the Airport. A brief discussion on the existing land use zoning overlay zones in place with the City and County identified that there may be some deficiencies in the zoning code that need to be resolved at the local level in order to achieve best planning practices.

Utilities: Existing utilities such as water and sewer in the vicinity of the Airport were presented. It was confirmed by a member of the PAC that the sewer line had been extended to the welcome center during the recent construction.

Drainage: No drainage issues have been reported at the Airport. Members of the PAC and public had no comments on this issue.

Fencing/Security: The Airport is not entirely enclosed with fencing, and security has been determined as an important issue. Planning Team was corrected by City Planner Amanda Ferguson about the City code as it relates to fencing in the floodway. It was established that while chain-link fencing is not permitted in the floodway, it may be permitted in the floodplain. This could allow for approximately 1,500 feet more fencing along the east side of the Airport. PAC members noted that there have been issues with vagrancy in the past, especially along the east and south east side of the Airport.

Access/Parking: Access to the Airport is provided from East Palmer Ave. Existing parking areas at the welcome center and Oregon Aviation History Center were presented.

Terminal Area/Hangars: An overview of the existing facilities was provided. A PAC member confirmed that there are currently two 10,000 gallon underground fuel tanks, but only one is in operation. Matthew Mass informed the PAC and Planning Team that the State has approved the replacement of existing tank. A new, above ground 10,000 gallon tank for AvGas is expected to be installed summer of 2018.

The information about a new fuel tank lead to a discussion by the PAC and public about the possible options for the tank. It was suggested that the tank sell MoGas (motor gas) in addition to AvGas. Some members of the PAC and public felt that selling MoGas at a competitive price would be a draw for both

pilots and local citizens. The feasibility of this was discussed among PAC, public, and Sate representatives. It was determined that the Planning Team will develop a question, or series of questions, to be added to the existing Airport survey. The question(s) will help determine the desire for MoGas and the distance the local community is willing to travel for a lower price.

Airside

Airside Facilities: Existing airside facilities including signage, lighting, taxiways, apron area, tie-downs, runway pavement and marking, and visual approach aids such as PAPI and windsocks were presented. No AWOS. After the presentation of existing facilities, the discussion was focused on pavement condition and ODA Pavement Management Program (PMP).

FAA Design Standards: The FAA Design Standards section began with a brief presentation on how standards are determined based on critical aircraft and existing runway approach procedures. The Airport currently meets FAA Design Standards.

Airspace: The airspace involved a presentation on instrument approach procedures, FAA Part 77 Airspace, and airspace obstructions. It was pointed out that there are terrain obstructions in the airspace at Cottage Grove, and more information will be available after the AGIS survey in spring 2018.

Administration and Financials: The planning team presented existing data on airport administration and maintenance services provided by ODA as well as the state and federal compliance laws directed at Airports. Additionally, 5 years of historic financial data as well as the next 5 years of forecast data were presented.

Aviation Forecasts

The forecast discussion began with a brief overview of the purpose, the phasing (5-year, 10-year, 20-year forecasts), the types of forecasts (based aircraft, operations, and critical aircraft), and the methodology that will be used in developing the forecasts.

Statewide fuel sales, obtained from ODA, was presented and trends were discussed. It was shown that over the past 10 years AvGas has been trending down while JetA has been trending up statewide. Local data for AvGas sales in Cottage Grove was in line with statewide trends. Reasons for the incline and decline of fuel sales across the last 10 years was discussed. Matthew Mass suggested that the steep decline in 2013 could be due to the closure of the runway for construction.

A summary of the national trends in aviation was presented as well as a recap of the existing critical aircraft.

The conversation then transitioned to based aircraft forecasts and the starting point of 30 aircraft based on recent updated counts provided by ODA. The consultants recommended a growth rate in between the national experimental aircraft growth rate of 1% and the state system plan of 1.26%. There were no objections from PAC members.

A conversation about operations per based aircraft was focused around the average OPBA of nearby airports. It was shown that the Cottage Grove OPBA count of approximately 350 was similar to Creswell, Corvallis, and Roseburg.

The conversation then transitioned to operations forecasts and the starting point of 10,500 operations was explained. The consultants recommended a growth rate in between the TAF growth rate of 1.2% and the national experimental aircraft growth rate of 2%. There were no objections from PAC members.

Next Steps

The next steps of the planning process were presented including the schedule, the release of a draft narrative report, and the PAC Meeting #2 tentative date.

Public Comments

It was noted that as Cottage Grove continues to grow, residents of California might consider living in Cottage Grove while using the Airport to fly back to California to operate or own a business there.

Cottage Grove State Airport Master Plan Update
Planning Advisory Committee Meeting #2
Aviation Forecast Review, Facility Requirements, Alternative Exercise

April 11, 2018
City of Cottage Grove
11:00 a.m. to 1:00 p.m.

-Meeting Summary-

Attendees:

Oregon Department of Aviation: Matthew Maass, Jeff Caines, and John Wilson

WHPacific, Inc: Dave Nafie and Mark Steele

Planning Advisory Committee Members: See sign in sheet

Public Attendees: See sign in sheet

Welcome and Introductions

Meeting opened at 11:00 a.m., with a brief introduction from Dave Nafie. A brief discussion on the lines of communication, planning ground rules, and the meeting format of being focused on the PAC. The purpose of a master plan, as well as the elements of a master plan were presented in addition to the planning process and schedule.

Forecast Review

Generally there were no comments on the forecasts aside from the Kelleys who though that 10,500 annual operations (40 /day) was higher than they see at the welcome center. Dave elaborated on the process of estimating the base numbers and explained that 40 ops/day was an average value accounting for high and low traffic days.

Facility Requirements Summary

Dave introduced the analysis of Facility Requirements, which are determined by either the need to accommodate a forecasted activity level, to meet FAA standards, or to meet unique local needs. Dave walked through the following table, which summarizes the analysis for Cottage Grove State Airport.

After the table, a discussion of key elements is provided. This captures the high points of the discussions that occurred during the presentation and also an interactive exercise that followed.

Summary of Key Facility Requirements		
Facility	**Existing vs Need**	**New Requirement**
Runway Length	3,188 Feet Long	None – Meets 95% of Fleet at Current Length
Taxiway	Full Parallel	None – Full Parallel Exists
Edge Lighting	Medium Intensity on Runway Reflectors on Taxiway	**Medium Intensity on Taxiway (Verify with System Plan)**
Visual Aids	PAPI on Both Ends	None – Already provided
Navigational Aids	Visual Only	None Recommended
Instrument Approaches	Visual Only	None Recommended
Aprons – Main Ramp	30 Parking Positions	None – Only 25 Required
Hangar Lots	Space for at Least 8 Hangars	None – Sufficient Hangar Lots Exist
Weather Reporting	None	**Recommend AWOS**
Land Acquisition	Land underneath RPZ not owned	**Consider acquisition**
Fencing and Security	Portions of the Perimeter Unfenced	**Enhance Security With Acceptable Fencing**
Environment	Meet State and Federal Regulations	Project by Project
Fuel Availability	100LL AVGAS Only	Consider MOGAS (?)

Fencing:
Matt Maass stated that ODA was working on a fencing plan for the Airport that will add additional fence along the west side of the airport. It is currently going through the preliminary environmental process. Updates to follow. The news of new fence was generally well received with the exception of one member of the public, Doug Williams, who owns a lot on the west side and does not want to see a fence put along his property line. He feels that wildlife encroachment is a bigger concern than human encroachment and a fence on the west would trap wild life on the airport (coming from the riparian area to the east) rather than keeping them out. He suggests vegetation removal or fencing on the east instead. Mr. Williams wants to retain direct access to the airport. He is an Airport user, but does not currently have a TTF agreement with ODA. He has plans to build a hangar and at least one house on the property. Currently there are no structures on the property, but hangar trusses have been stored on his property for many years.

Instrument Approach:
Jada Swanson from Life Flight commented that the med center to the west of the property would like to see an instrument approach/departure procedure published for the airport. Their medical helicopter is instrument rated and they are often stuck on the ground during weather conditions that limit VFR activities. They would like to see any type of procedure that will allow them to depart from their pad or from the airport in such cases. She was asked to gather operations information from their mission to show how often they are grounded and an instrument procedure would allow them to depart.

Fuel System:
Matt Maass stated that ODA is considering a new fueling system. An AvGas/MoGas split tank is being looked at. A new up-to-date pedestal with CC reader will be installed.

RW 33 RPZ:
A community member commented that the Roads Department (either state or county) was using the back of their property (beyond the RPZ) to dispose of road kill carcasses. The site was attracting buzzards into RW34 approach. Matt Maass stated that they have spoken with the department and they will stop using the site for disposal.

Additional concept ideas discussed:
Property acquisition/donation at RW 33 end
"Pilot Camping area" on east side of runway near the river.
Public Viewing Area southwest of RW 33
Additional fencing along west side of RW15 end next to golf course.

Next Steps

The next steps of the planning process were presented including the schedule, the release of a draft narrative report containing Facility Requirements, and the PAC Meeting #3 tentative date.

Public Comments

Mr. Williams commented that "The airport is dying". It was much better "before that guy who had the business on the ramp left". Other members of the public disagreed adamantly.

There was concern about a neighbor's three foot chain-link fence next to the Airport's security fence on the west side of the Museum Apron. The lower fence allows people to climb over the security fence. Visual inspection confirms there is already a three strand barbed-wire topper on the security fence.

The meeting was adjourned at 1:00 pm.

Cottage Grove State Airport Master Plan Update
Planning Advisory Committee Meeting #3
Presentation of Development Alternatives

June 27, 2018
City of Cottage Grove City Hall: Cottage Grove, Oregon
6:00 to 8:00 p.m.

-Meeting Summary-

Attendees:

Oregon Department of Aviation: Matt Maass, Jeff Caines, and John Wilson

WHPacific, Inc: Dave Nafie and Mark Steele

Planning Advisory Committee Members: See sign in sheet

Public Attendees: See sign in sheet

Welcome and Recap

Meeting opened at 3:00 pm, with a brief discussion of the agenda for the evening, a recap of the PAC roles and responsibilities, the master plan elements, and a project schedule update.

Summary of Aviation Forecasts

The discussion of forecasts began with a recap of the national trends data presented at PAC Meeting #1 and how that information, along with state and local data, was utilized to develop several ranges of potential growth that could occur at the Cottage Grove State Airport in the next 20 years.

An updated summary of the aviation forecasts was presented and discussed, followed by a summary of the scenario planning exercise from the prior meeting. This was necessary due to changes in the current operations and based aircraft estimates since the previous meetings. The revised estimates resulted in approximately 50% less activity at the Airport than was previously thought. However, the forecasts continue to show low to moderate growth over the planning period.

Introduction of Three Alternative Concepts

The two concepts presented had these characteristics:

Alternative 1

• Construct helipad and hangars off west apron • Install AWOS east of runway • Construct additional ramp and hangar space south of terminal ramp • widen hangar row taxiway to 25 ft • Establish helipad GPS approach/departure procedures • Acquire property for RPZ, Approach, & AWOS protection • Acquire property for helipad facilities and non-aviation development • Clear trees for AWOS

Alternative 2

• Construct new hangars and taxiway off west auxiliary ramp • Install AWOS east of runway • Reserve property for future aviation use south of terminal ramp • widen hangar row taxiway to 25 ft • Acquire property for RPZ, Approach, & AWOS protection • Acquire property for hangar facilities and non-aviation development • Clear trees for AWOS

Dave Nafie from WHPacific described each concept and gathered initial feedback through Q&A.

The Development Alternatives are described in more detail in the PowerPoint presentation linked below:

Cottage Grove State Airport Development Alternatives Presentation

Response to Alternatives:

Both alternative concepts featured many similar features, including widening the taxiway to 25 ft, constructing additional hangars along hangar row, and extending existing security fence around the property. The primary differences between the two are related to the intended use of the development areas off the west ramp, and south of the terminal ramp. Most commenters, PAC and public, did not have a strong preference for either the helipad or the new hangar area. However, they were strongly in favor of purchasing the property to the south of the west ramp for event parking and boundary protection. Alternative 1 was preferred by most, as the helipad development would likely serve a greater need for the community, including the neighboring hospital.

Comments:

The City (Amanda Ferguson) had several comments to note:

- The "Zombie House" property located on the property south of the terminal ramp has recently been purchased. This lot was identified for acquisition by the Airport for approach and RPZ protection.
- The City Master plan identifies a proposed route for the Row River National Recreation Trail segment goes through the property identified for helipad development. Rerouting the trail alignment is possible if the Airport moves ahead with purchasing the property.
- The three lots identified for helipad/hangar/non-aviation development are currently for sale.

Next Steps

The State will take these comments under advisement and choose a preferred development alternative. The preferred alternative will likely draw elements from each of the presented concepts, however it may not match a particular concept as a whole. Over the coming month the preferred development will be further analyzed to identify projects for inclusion in the Airport's Capital Improvement Plan and the Airport Layout Plan. These documents will be presented to the PAC at the next meeting.

Next meeting date in October will be determined soon and sent to PAC members well in advance. The meeting was adjourned at 4:30 p.m.

Cottage Grove State Airport Master Plan Update
Planning Advisory Committee Meeting #4
Presentation of Preferred Development Alternative

October 24, 2018
City of Cottage Grove City Hall: Cottage Grove, Oregon
1:00 to 2:30 p.m.

-Meeting Summary-

Attendees:

Oregon Department of Aviation: Matt Maass, Jeff Caines, and John Wilson

WHPacific, Inc: Dave Nafie and Mark Steele

Planning Advisory Committee Members: See sign in sheet

Public Attendees: See sign in sheet

Welcome and Recap

Meeting opened at 1:00 pm, with a brief discussion of the agenda for the afternoon, a recap of the PAC roles and responsibilities, the master plan elements, forecast results, facility requirements, and preliminary development alternatives. The updated project schedule was also presented.

Presentation of the Preferred Alternative and Phasing Plan:

Dave Nafie presented the preferred alternative projects broken down into short term, mid-term, and long-term phases. Short term projects are currently scheduled in the Airport's 5-year CIP. Mid- and long-term projects are listed in the order that they are anticipated to be implemented. However, all projects, mid and long-term projects especially, are subject to operational need and funding availability.

Mr. Nafie went on to explain that although the Airport anticipates only modest growth over the planning period, the projects presented in the mid and long-term phases will likely exceed the anticipated need but are included in the purpose of long term planning.

SHORT TERM PROJECTS (2019-2023)	
2019	Install West Fence: Phase II - Construction
2019	Environmental Assessment
2020	PMP
2020	Rehabilitate Apron: Phase I - Design
2021	Rehabilitate Apron: Phase II - Construction
2022	Carry Over
2023	PMP

MID TERM PROJECTS (2024-2028)
Install Taxiway A Lighting
Install AWOS; Tree Clearing
Install East Fence
Hangar Row Taxilane Widening Design & Construction
Welcome area improvements/Relocate Fuel Tanks; PMP
Purchase Row River Road Properties

LONG TERM PROJECTS (2029-2038)
Expand West Apron
Construct West Apron Hangar Vehicle Parking/Access
Construct helipad and facilities
Master Plan Update
Taxiway A Rehab: Phase - Design/Construction
Purchase property for boundary, approach, RPZ protection
Expand Terminal Apron: Phase I - Design & Construction
Expand Terminal Apron: Phase II - Design & Construction

The Preferred Alternative and Phasing Plan are illustrated in the PowerPoint presentation linked below:

Cottage Grove PAC Meeting #4 Presentation

Response to Preferred Alternative

Matt Maass commented that although the fuel tank project is shown to begin in the mid-term phase, it will likely be completed next year and will be funded by fuel sales revenue. Dave Nafie responded that the current phasing plan assumes FAA grant funding and is ordered in a way that is likely to be funded by FAA. By using Airport money (fuel revenue) the project could be completed at any time.

A commenter expressed interest in moving the Row River Road property acquisition up in the time line so that the property could be used for event parking. Mr. Nafie responded that FAA assistance for land acquisition would not be likely in the near term as there is not yet a demonstrated need for aviation use in that area. However, the State has the option to purchase the property without FAA funds if they wish to develop parts of the property for non-aviation use and generate additional revenue.

Some commenters voiced concern over the clearing of trees in the AWOS “Critical Area” regarding potential soil erosion and disturbance of wetlands and riparian zones in the area. The consultant team clarified that the trees would not be fully removed. They will be topped to an appropriate height and the soil will not be disturbed. Appropriate short vegetation will be installed as needed to ensure that the soils remain stable. These were the recommendations of environmental and wetland scientists consulted during the planning effort.

A final commenter expressed their support of the helipad facilities and suggested continued coordination with the neighboring hospital medivac flight staff as the approaches of both pads are in close proximity to each other.

All comments were generally favorable to the presented concepts and no one voiced an opposition to the adoption of the Preferred Alternative.

Next Steps

With the Preferred Alternative adopted, the next steps are to complete the drafting of the Master Plan report, and assemble the Airport Layout Plan for submission to the FAA

This was the last scheduled PAC meeting for this Master Plan, but PAC members and members of the public are encouraged to contact the consultant team with further questions or comments.