Independence State Airport

Master Plan Update

March 2020

OREGON DEPARTMENT OF AVIATION

WHPacific

AN NV5 COMPANY

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1. Introduction

The Airport Master Plan Update serves as an opportunity for airport sponsors, airport users, and other stakeholders to discuss the existing challenges and uncertain futures surrounding the airport and adjacent community or communities by participating in a concerted effort to investigate the existing conditions, develop solutions to satisfy future demand, and coordinate implementation strategies to realize the future of the airport. This first chapter of the

Independence State Airport Master Plan will summarize the planning and public involvement process, briefly summarize the known major issues and opportunities that the Airport Master Plan should address throughout the planning process, and summarize the Airport's current and future role within the State and National system of airports.

1.1 Purpose of the Master Plan

The purpose of this Master Plan Update is to provide a 20-year road map that identifies the necessary airport improvements to serve current and projected aviation demand, comply with Federal Aviation Administration (FAA) design standards, and address airport issues identified by the Oregon Department of Aviation (ODA), airport users, and other stakeholders.

This Airport Master Plan Update will identify and reflect on the numerous changes that have occurred in aviation and at the Airport since the previous Airport Layout Plan Report completed in 1997. ODA obtained and matched a grant from the FAA to fund this study.

The Airport Master Plan presents both short-term and long-term development for the airport and graphically displays data upon which the proposed development is based. The goals of this Airport Master Plan, like many others, is to provide the framework necessary to guide future planning and airport development that will cost-effectively satisfy aviation demand.

The specific goals and objectives for the Airport Master Plan, based on FAA guidance 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. As this is a technical-style study, 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 12-16-month study time frame. A copy of this schedule, the Scope of Work, as well as other FAA correspondence is included in Appendix B and described in summary below.

Within this study, the following chapters will be prepared to present the issues, opportunities, and solutions derived from the planning process:

1. Introduction
2. Inventory of Existing Conditions
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 Implementation Plan

These chapters will be published in draft for review and comment throughout the planning process in the form of three working papers and a draft final report as depicted in the schedule. Once review comments are incorporated into all draft chapters, a comprehensive final report will be published for ODA and FAA's review and approval. Additionally, per the requirements Oregon Administrative Rule OAR 660-013 Airport Planning Rule, the document will recognize the interdependence between the Airport and the community it serves. Therefore, the document will also be coordinated with the local municipalities so it may be adopted in to the local comprehensive plan.

1.2.1 Public Involvement

A successful master planning process includes an active public involvement process and the early identification of 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 are 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.

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 work together to develop a comprehensive understanding of the information obtained, generate solutions to the issues and opportunities identified, and build consensus on the implementation strategies.

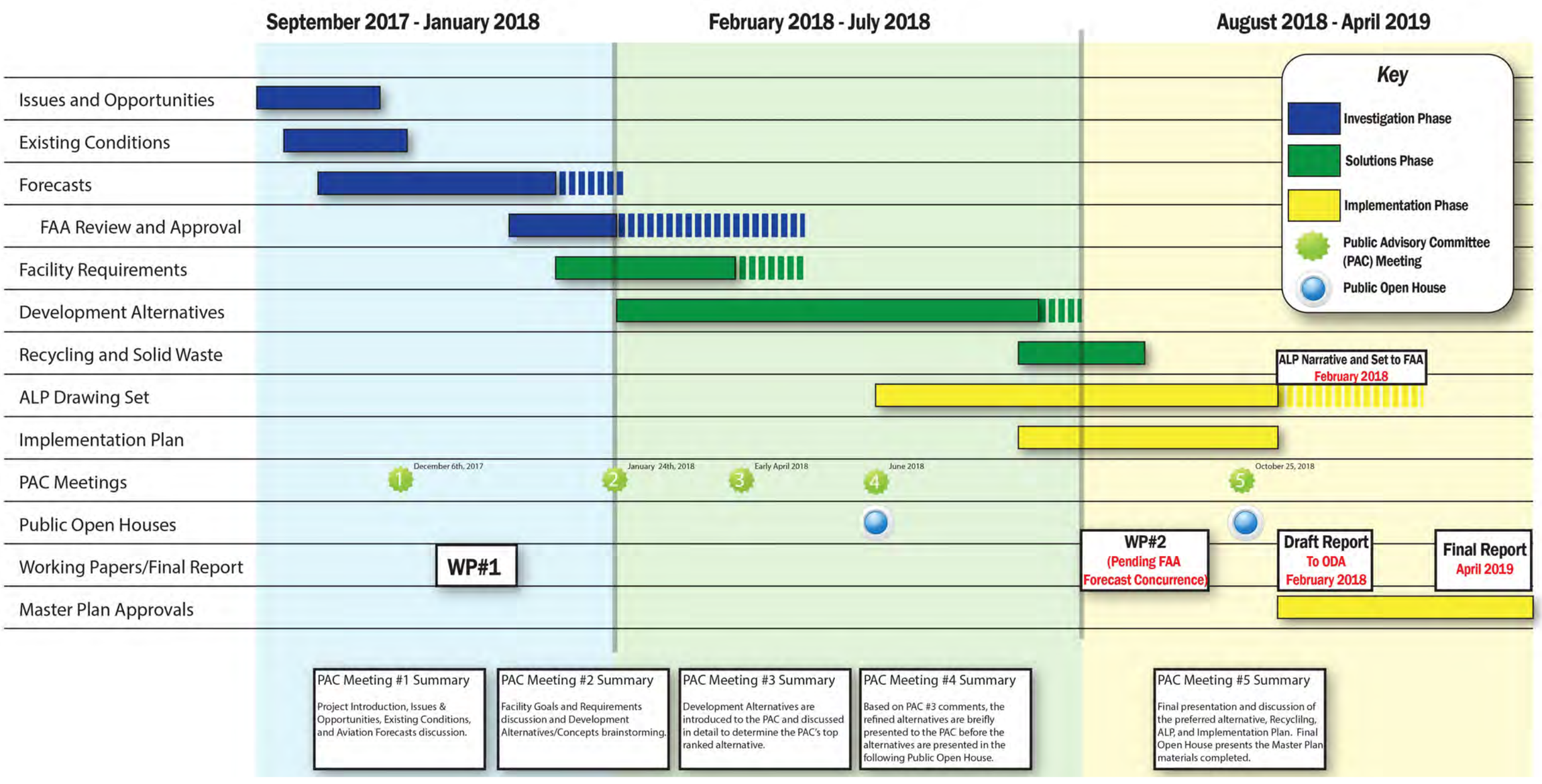
In addition to the PAC meetings, two public open houses were planned to inform the general public and other interested stakeholders of the work accomplished by the planning team and PAC as well as to receive citizen input on plan development and products.

The first open house introduces the project and informs the public of the services and benefits the airport offers, identify the goals and objectives of the Master Plan, and seeks comment on the Airport Issues and Opportunities, Existing Conditions Inventory, Aviation Forecasts, Facility Goals and Requirements, and proposed Development Alternatives. The public open house provides an opportunity for interested stakeholders and community members to provide input into the solutions phase of planning process and ultimately the PAC's selection of the preferred development alternative.

The final public open house includes a review of the planning process completed up to the Open House, and a deeper dive in to the Recycling and Solid Waste Management Plan, ALP Drawing Set, and Implementation Plan. The final open house will provide interested stakeholders and

Figure 1A: Master Plan Schedule

Dates are Approximate and Subject to Change



community members additional opportunity to provide input into the implementation phase of planning process.

In addition to the six PAC meetings, and two public open houses, 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 Independence State Airport Master Plan Update project website. The project website was developed to disseminate information and receive comments and questions. Furthermore, an online user survey was also published on the Master Plan website for PAC members, Airport users, and citizens of Independence 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

Early identification and understanding of the issues and opportunities facing the airport and local community sets the stage for the planning process to come. Developing and discovering a complete understanding of known and unknown issues and opportunities was the topic of discussion during the first PAC meeting held in December 2017, which has been reflected throughout this document.

The issues and opportunities identified below resulted from multiple scoping meetings held between the consultant planning team and ODA in late 2016 and early 2017.

1.3.1 Issues

Airport Drainage

Drainage, both on and off the Airport and the neighboring Airpark, has been an ongoing issue for the airport neighborhood. There have been several instances of temporary flooding on both properties that occurred due to the existing drainage networks inability to meet demand. This issue will be investigated further to identify where the system deficiencies exist and what steps will need to be taken to improve the drainage system on the Airport.

Based Aircraft Census

The FAA's National Based Aircraft Inventory Program requires National Plan of Integrated Airport Systems (NPIAS) airports like Independence State Airport to enter the aircraft that are based at the Airport into the FAA's program website so the counts of based aircraft can be validated and submitted with the national airport inspection data.

Accurate based aircraft information is of particular importance when it comes to future funding availability and programming. However, it can be difficult to accurately collect based aircraft data at GA airports like Independence State Airport due to privacy concerns, multiple aircraft in a single hangar, and double counting seasonally based aircraft that spend part of the year at the Airport and the rest of the year elsewhere.

Other Potential Issues

Throughout the master planning process, other unknown issues may come to light. The planning process is designed to provide multiple feedback loops so stakeholders concerns, ideas, and solutions can be included and addressed accordingly in the Master Plan.

1.3.2 Opportunities

Westside Development Area

The area immediately west of the Airport has been identified for future development in previous planning studies dating back to 1997. In 2009 the City of Independence adopted an urban growth boundary expansion west of the Airport to include 41.1 acres rezoned for Airport Development District expansion and another 43.5 acres for airport compatible industrial type land uses.

Residential-Through-The-Fence (RTTF)

Maintaining the RTTF Airpark at the Airport is a commitment on the part of ODA and an undeniable foundation to this master planning process.

Opportunities for future RTTF agreements include a potential source of income for the

Airport and its continued self-sufficiency that will be investigated.

Alternate Grass Landing Area (AGLA)

The topic of a grass landing area at the Airport was considered in the previous master planning effort in 1997 and has come up again several times over the years due to increased glider operations and sport pilot requests that prefer a grass landing area for operations.

Understanding the feasibility of developing a grass landing area and how a grass landing area may be integrated in to the existing and future operations will be considered in the facility requirements and development alternatives elements of the Master Plan.

Instrument Approach Procedure (IAP)

The addition of an IAP at Independence State Airport was first introduced in the 1997 planning project when GPS technology was in its infancy in the civilian market. As time has gone on the number of GPS approaches within the national airspace system has continued to increase.

Other Potential Opportunities

Additional future opportunities on the Airport are likely to be introduced over the course of the planning process. In addition to the issues identified during the planning process, the opportunities identified by stakeholders will also be included and addressed accordingly throughout the Master Plan.

1.4 Airport Role Analysis

This section identifies the current role of the Independence State Airport within the National, State, and regional system of airports. A consideration of whether or not that role should change in the future is also investigated.

1.4.1 National System Role

The 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. There are several criteria allowing an airport to be included in the NPIAS; however, the general criteria are that the airport has at least 10 based aircraft and is located at least 20 miles (30 minute drive time) from another NPIAS airport. With 199 based aircraft, the Airport meets the based aircraft threshold. The closest airport is McNary Field Airport , which is approximately 15 road miles northeast with a drive time of approximately 30 minutes. Both of the NPIAS criteria are met for the Independence State Airport.

Since it is in the NPIAS, the Airport is eligible to receive Federal grants 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. A condition of receiving AIP grants, ODA must accept all conditions and obligations under the 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 (OAP) classifies Independence State Airport as a Category IV, Local General Aviation Airport. (**Figure 1B**). A Category IV airport supports primarily single-engine general aviation aircraft but are capable of accommodating smaller twin-engine general aviation aircraft. Category IV airports 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, minimum runway size of 3,000 feet by 60 feet, a rotating beacon, and a visual approach system. The Independence State Airport meets and/or exceeds these minimum standards to qualify as a Local General Aviation Airport.

In 2013, the Oregon Resilience Plan—that reviewed policy options, summarized relevant reports and studies by state agencies, and made recommendations on policy direction to protect lives and keep commerce flowing during and

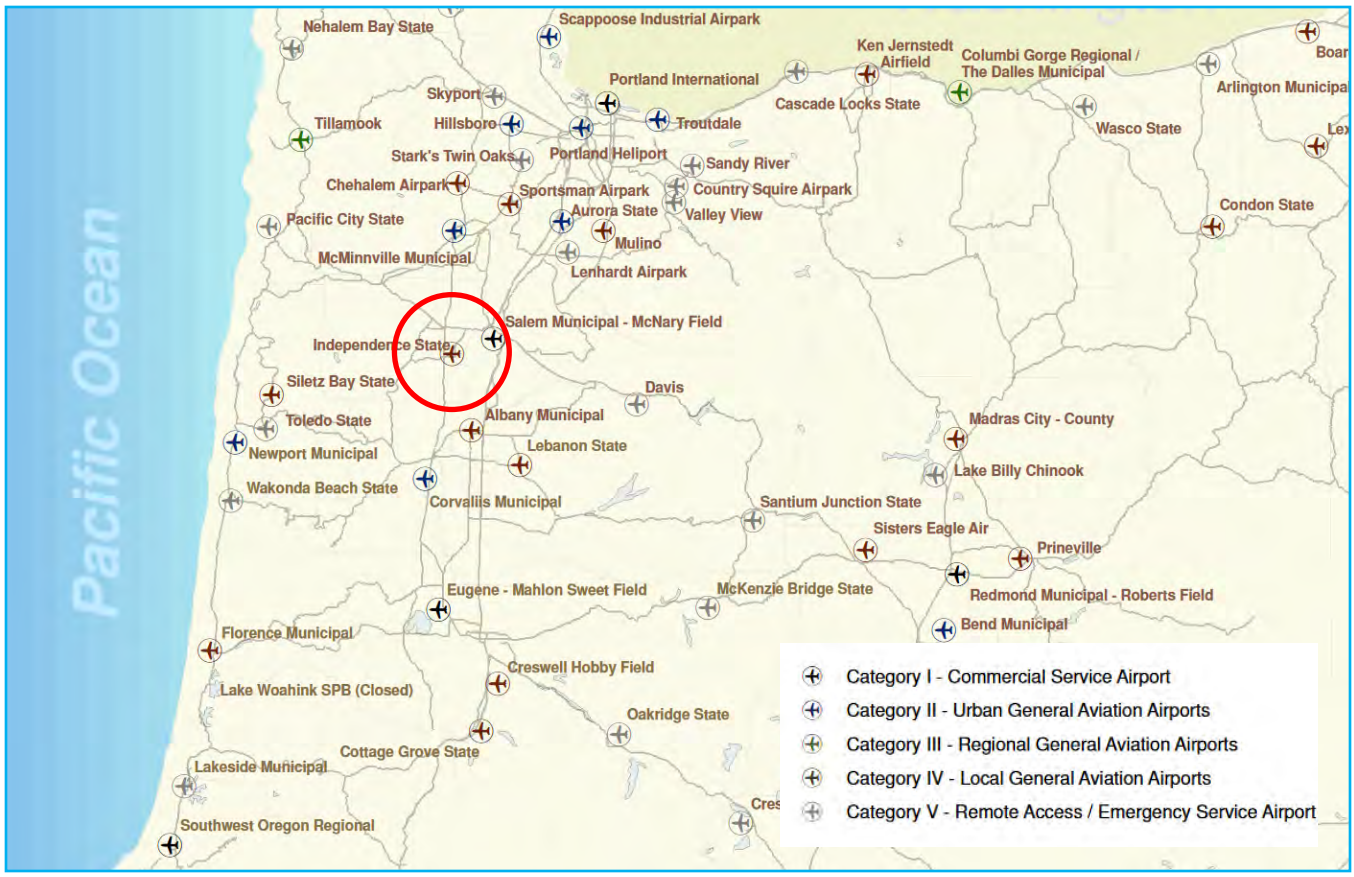


Figure 1B: Oregon Aviation Plan Airport Categories

after a Cascadia earthquake and tsunami—identified three tiers of airports within the state system of airports that have the potential to maintain or quickly restore operational functions after a major earthquake. The three tiers are:

- Tier 1 (T1) is comprised of the essential airports that will allow access to major population centers and areas considered vital for both rescue operations and economic restoration.
- Tier 2 (T2) is a larger network of airports that provide access to most rural areas and will be needed to restore major commercial operations.
- Tier 3 (T3) airports will provide economic and commercial restoration to the entire region after a Cascadia subduction zone event.

As pointed out by Committee in the first PAC meeting, Independence State Airport was identified as a Tier 3 airport in the 2013 Oregon Resilience Plan. It is expected that any future planning decisions and efforts for the Independence State Airport should ensure the continuation of this Tier 3 status.

1.4.3 Local Role

The Airport serves a role in the Mid-Willamette Valley and locally in the City of Independence by accommodating 197 based aircraft comprised of predominately single-engine piston aircraft. It estimated there are 37,000-44,000 annual operations based on current figures and federal estimates. **Table 1A** provides a cursory comparison of the facilities and services at the Independence State Airport to other area airports within approximately 45 nautical miles from the Airport based on publicly available data on the FAA 5010 website.

In the first PAC meeting, it was presented that the Independence State Airport occasionally serves as an airport for emergency medical evacuation services. Moreover, the PAC seemed to be in agreement that a primary role of the airport

locally is to provide aviation facilities for local business aviation operations such as fixed base operations (FBOs) serving itinerant aviation traffic, flight training, glider lessons, scenic flights, and as a staging area for agricultural aerial application operations.

Perhaps the most notable role of the Airport discussed by the PAC was the obvious nature of the Airport as a place for recreational aviation to flourish. Combined with the adjacent RTTF area, the Independence State Airport is an identified neighborhood within the Independence and greater Polk County communities that provides a place for aviation enthusiasts to taxi right out of your house on to a state-owned airport.

1.4.4 Airport Role Conclusions and Recommendations

At the first PAC meeting, the discussion of the local role of the Airport was a recurring topic interwoven throughout the presentation of issues and opportunities, existing conditions, and aviation forecasts. While historically the Airport has primarily accommodated single-engine piston recreation and small general aviation aircraft with the occasional multi-engine piston aircraft, the discussion of including an Instrument Approach Procedure and the potential of a Fixed Base Operator (FBO) selling JetA fuel on the airport raised concerns of a potential change in the character of the Airport.

This potential change in the character of the Airport due to expanded facilities requires additional analysis and consideration by the users of the Airport, stakeholders, and ODA.

Table 1A. Area Airports Within 30 Nautical Miles

Airport / Location	Oregon Aviation Plan Role (Category)	Distance from 7S5	Paved Runways	Lighting, Navaids	Services	FAA 5010 Based Aircraft and Operations Data
Independence State Airport / Independence, OR	Local GA Category (IV)	-	Rwy 16-34 (3,142' x 60')	PAPI, REIL	AvGas, Restaurant, Aircraft Rental, Flight Training	197 aircraft 33,700 ops
McNary Field Airport / Salem, OR	Urban General Aviation Airports Category (I)	9 nm E	Rwy 13-31 (5,811' x 150') Rwy 16-34 (5,145' x 100')	HIRL, REIL, PAPI, VASI, MALSR, ODALS	AvGas, Jet A, Air charter, Restaurant, Flight Training	136 aircraft 34,700 ops
Albany Municipal / Albany, OR	Local GA Category (IV)	15 nm SE	Rwy 16-34 (3,004' x 75')	VASI, MIRL, REIL	AvGas, Restaurant, Aircraft Rental, Flight Training	92 aircraft 23,000 ops
McMinnville Municipal Airport / McMinnville, OR	Urban General Aviation Airports Category (II)	20 nm N	Rwy 4-22 (5,420' x 150') Rwy 17-35 (4,340' x 75')	HIRL, REIL, PAPI, MALSR	AvGas, Jet A, Aircraft Rental, Restaurant, Flight Training	109 aircraft 63,500 ops
Corvallis Municipal Airport / Corvallis, OR	Urban General Aviation Airports Category (II)	23 nm S	Rwy 17-35 (5,900' x 150') Rwy 9-27 (3,545' x 75')	MIRL, REIL, PAPI, VASI, MALSR	AvGas, Jet A, Aircraft Rental, Flight Training	134 aircraft 52,200 ops
Aurora State Airport / Aurora, OR	Urban General Aviation Airports Category (II)	29 nm NE	Rwy 17-35 (5,004' x 100')	MIRL, VASI, ODALS	AvGas, Jet A, Aircraft Rental, Flight Training	350 aircraft 95,000 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 Operation - Takeoff or Landing
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
Source: WHPacific, ODA, FAA

2. Inventory

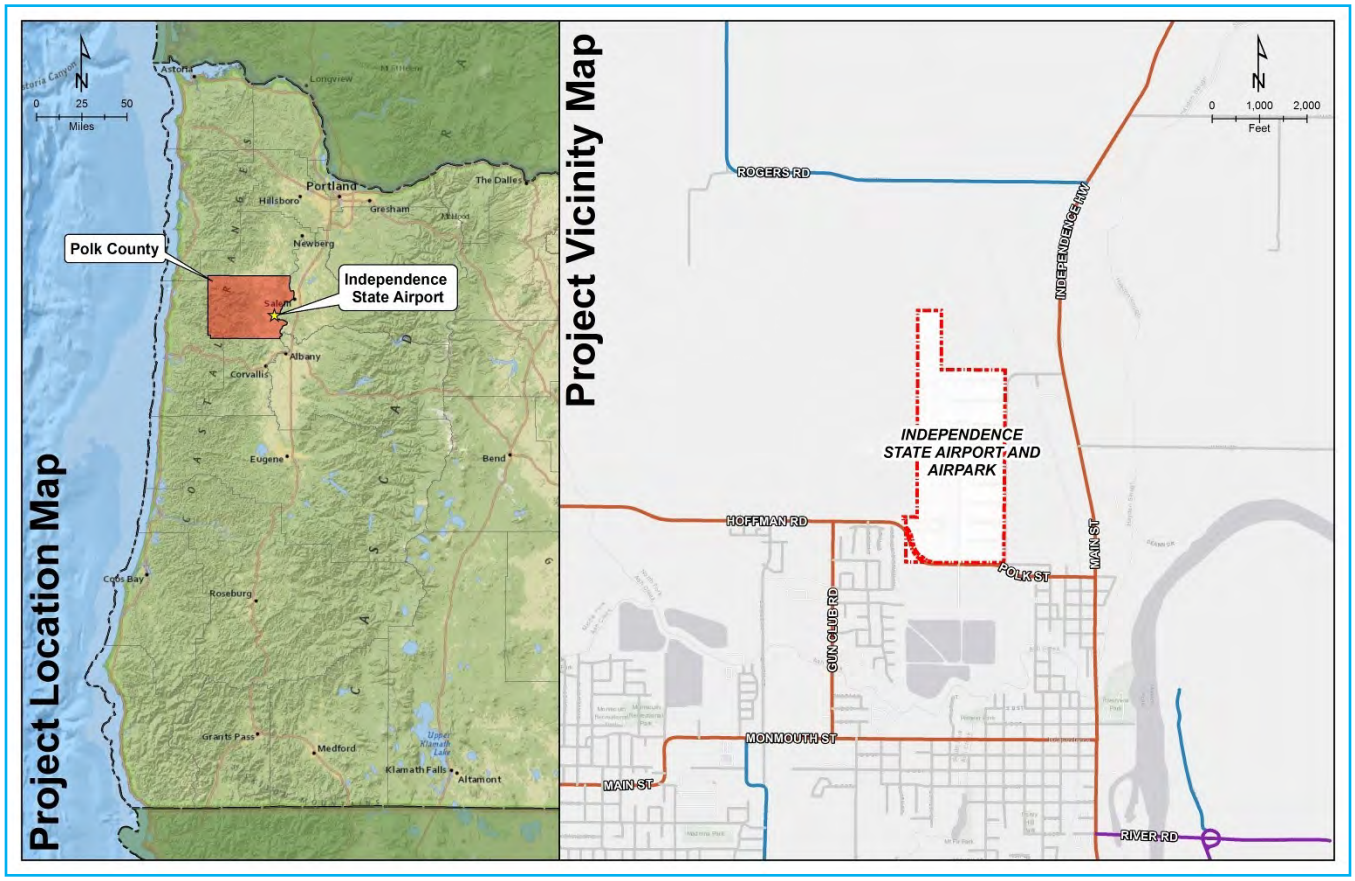


Figure 2A: Project Location and Vicinity Maps

2.1 Background Data

The City of Independence, is located approximately 10 miles south west of Salem and about 10 miles east of the foothills of the Coast Range. Independence State Airport is located in Oregon's central Willamette Valley, to the east of Oregon Coastal Range, with peaks averaging 2,000-3,000 feet mean sea level (MSL). The Airport sits on the valley floor with a recorded elevation of 180 feet MSL. The City is located in

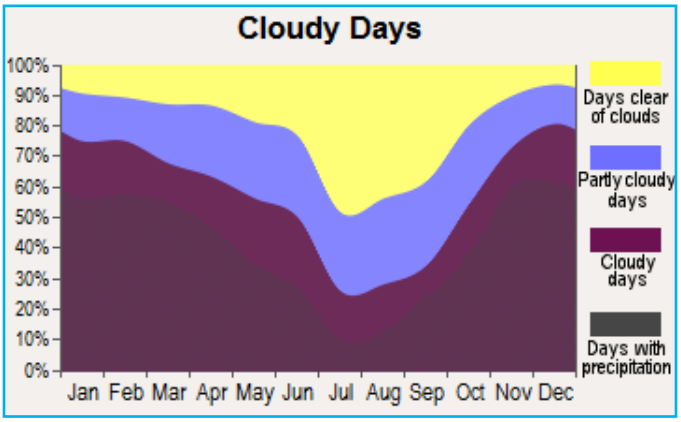


Figure 2B: Cloudy Days

Polk County and sits just west of the Willamette River. Access to the Airport is provided by two of the State's primary transportation routes: Interstate 5 and Highway 99W. Exhibit 2A provides a location and vicinity map of Polk County and Independence State Airport.

2.1.1 Climate and Weather

Independence experiences mild, wet winters and moderate, dry summers (**Figures 2B** and **2C**). The average annual participation is 45 inches, with less than 5 inches of snow. November through February is when majority of the precipitation falls. The number of days with any measurable precipitation is 91. The mean maximum temperature of 84 degrees F is in August (**Figure 2D**). Prevailing winds are typically out of the south or north (**Figure 2E**).

2.1.2 Airport History

The history of Independence State Airport can be traced back to 1959 and the preparation for the Centennial anniversary of the statehood of Oregon. Due to the large volume of people expected to descend on the state, and specifically the City of Independence, the temporary landing strip for small planes was laid out in a grass seed field of a local farmer.

The beginnings of the Airport, as we know it today, began in 1961 with initial discussions with local, state, and federal officials. The current site was selected in 1962, land was purchased in 1963, and construction began in 1964 and ended in 1965. The Airport began as a turf aggregate runway used mainly by local pilots and agricultural applicators.

Improvements continued through the next several decades and included the Airport's first Fixed Base Operator in the late 1960's, construction of a paved runway in 1975, and development of the Independence Airpark in 1974 with 2 additional airpark annexes in 1992 and 1994. Since 1994, the Airport and Airpark have grown steadily at the rate 1-2 hangars per year on the Airport and 5-6 hangar homes per year on the Airpark (**Figure 2F**).

Recent improvements have been primarily focused on landside facilities including the

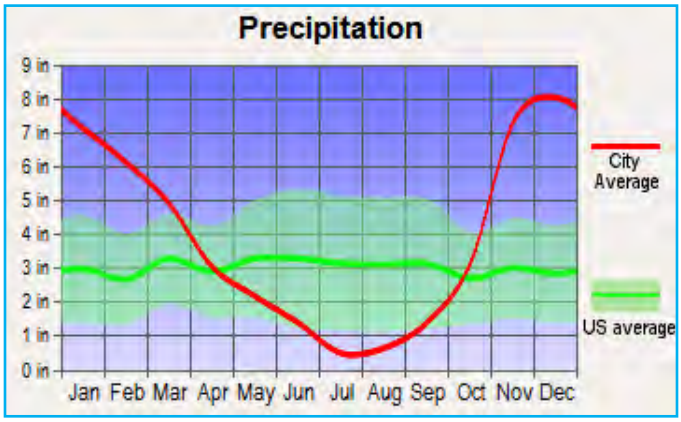


Figure 2C: Precipitation

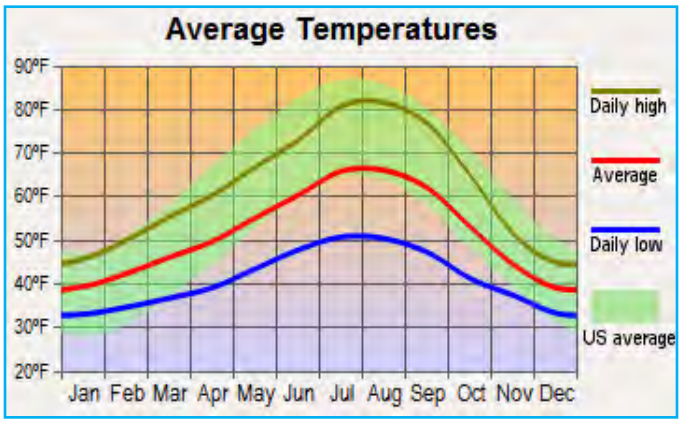


Figure 2D: Average High and Low Temperature

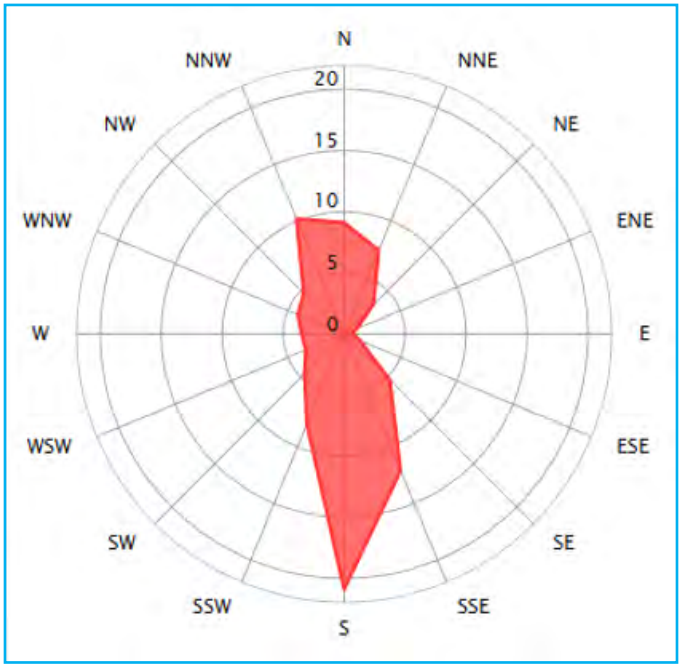


Figure 2E: Annual Wind Direction % Distribution

Figure 2F: Independence State Airport and Airpark Development
An historical depiction of development from 1994 to 2016. Red buildings depict new structures erected since

addition of a second FBO, extension of the Experimental Aircraft Association (EAA) building, and additional hangar development and renovation.

2.1.3 Community Data

The following section provides a brief overview of the community's existing conditions by providing a summary of select socio- economic data and a cursory review of relevant local planning studies and other relevant reports and documents. While there are numerous studies relevant to Polk County, The City of Independence, Independence State Airport, and the additional information presented throughout this master plan, a few select studies and documents providing pertinent information to the Independence State Airport and this master plan are summarized here.

Relevant Studies

Polk County Comprehensive Plan

The Polk County Comprehensive Plan generally addresses airports within the County within Section 4 - Land Use Plan Designations. The Commercial land use designation within the comprehensive plan is used mostly to accommodate existing commercial uses in rural areas and to provide for commercial development in districts that have access to major arterials, airports, and railroad. The Industrial Plan designation indicates the sites of existing industrial developments in rural areas and provides for future industrial uses in districts which are close to cities, major arterials, railroad or airports.

The City of Independence Comprehensive Plan

The City of Independence Comprehensive Plan addresses the Independence State Airport primarily in the Transportation and Land Use

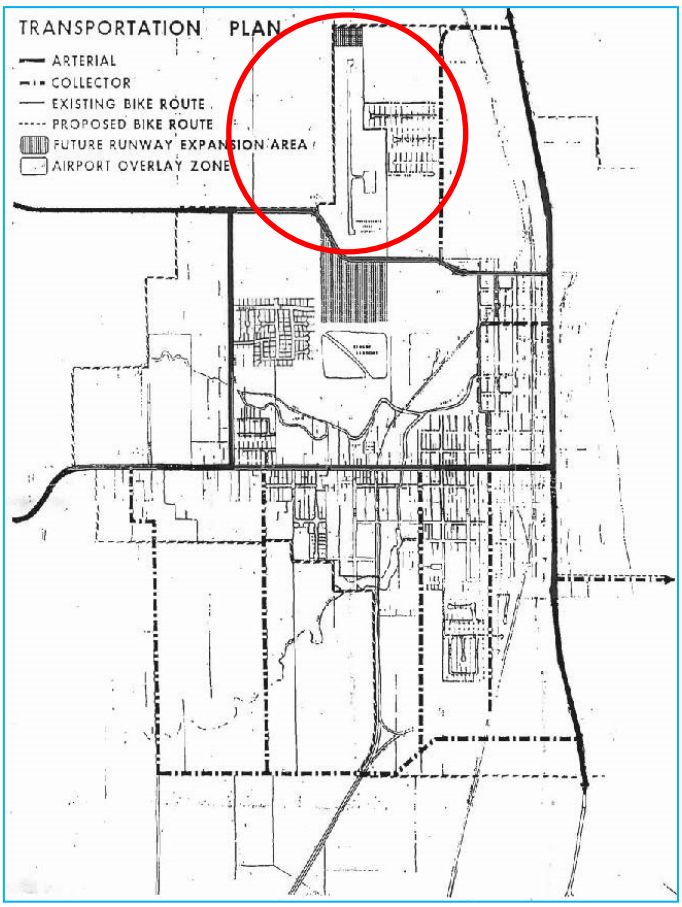


Figure 2G: City of Independence Comprehensive Plan—

elements of the plan (**Figure 2G**). The document references the 1985 Airport Master Plan with special emphasis on airport development that is consistent with ODA plans and financial capabilities as well as local community desires. The 1985 Airport Master Plan is incorporated into the City's plan in the Background Report. The Transportation Plan graphic provided in the Comprehensive Plan, depicts planned runway expansion areas and airport overlay zones within the City's Comprehensive Plan. (**Figure 2G**)

Following this Airport Master Plan projects conclusion, the Comprehensive Plans for both Polk County and the City of Independence will be updated with the information developed over the course of this 2018 Airport Master Plan per the OAR 660-013 Airport Planning Rule.

Independence Vision 2020

Independence Vision 2020 Community Strategy #6 is to "Support the Airport and utilize it as an Economic Development Tool." The six specific actions identified to support this strategy include:

1. Promote Fly-Ins
2. Investigate Opportunities to provide transportation from airport to downtown such as through flex cars or bicycles.
3. Develop opportunities for airport industries such as
4. light sport aircraft, flight school, etc.
5. Create paths and/or connections between the airport and City destinations.
6. Continue to support RTTF access.
7. Develop visitor information center at airport cafe.

1997 Airport Layout Plan Report

The 1997 ALP has served the Airport and ODA well since it's completion over 20 years ago. Many of the issues and solutions identified in that plan were either resolved or are still relevant today.

2009 Airport Layout Plan Update

The 2009 Airport Layout Plan (ALP) Update shown as **Figure 2H**, was developed to provide an updated depiction of existing and planned improvements that had occurred on the airport since the 1997 ALP. The updated ALP was developed as an "as-built" ALP of improvements that include runway, taxiway, and apron improvements in 1999-2000; taxilane and apron improvements in 2001; taxilane, apron, and fence improvements in 2004; updated hangar and water line construction in 2006; and updated hangar and buildings in 2008. The ALP Update also depicts a potential development pattern for the west-side of the airport identified as "Airport Development Reserve" in the 1997 ALP Report.

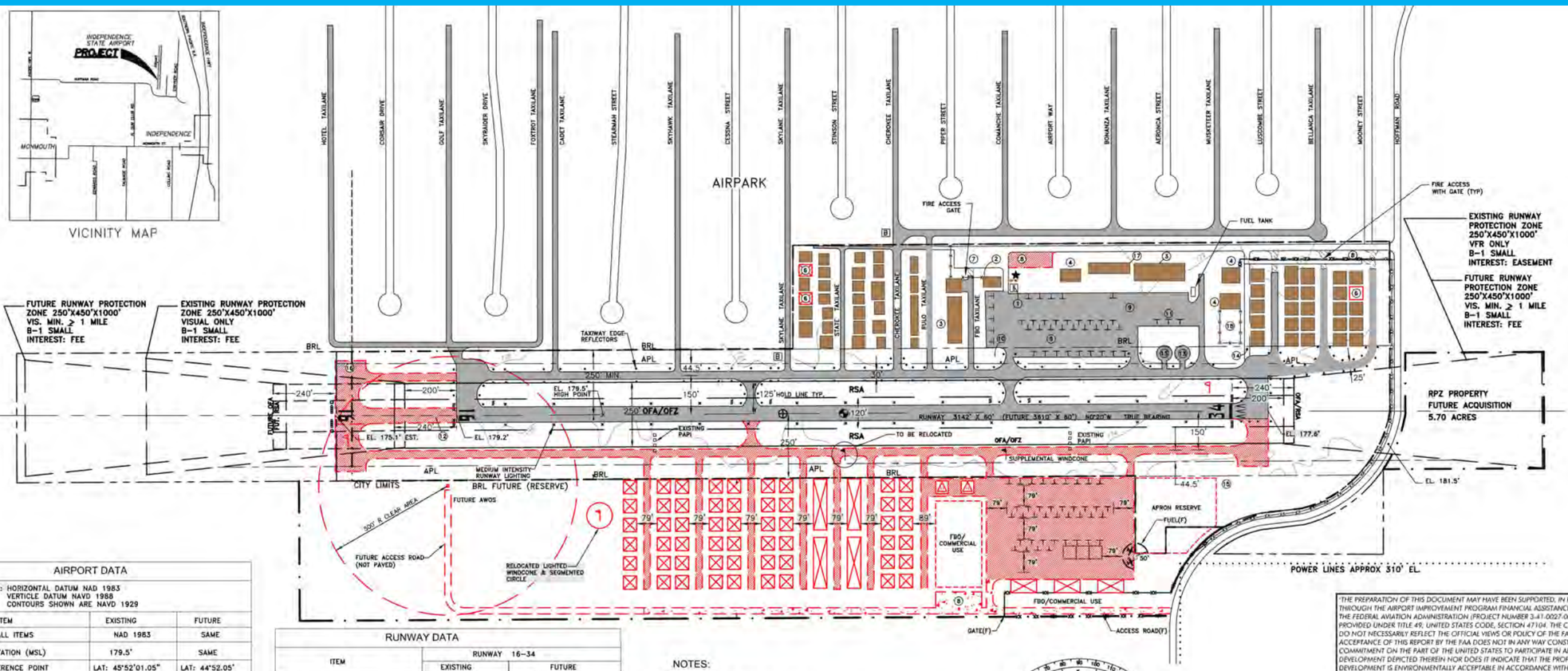
The 2009 ALP is the current active plan on file with the FAA that is used to make determinations regarding eligibility of Airport Improvement Program (AIP) funding for proposed development. FAA requires an airport with an ALP to update plans when they no longer provide for future needs, do not conform with current airport design standards, no longer accurately reflect existing features, or do not reflect critical land use changes which may affect the navigable airspace or the ability of the airport to expand.

Oregon Aviation Plan

The Oregon Aviation Plan (OAP) is a comprehensive evaluation of Oregon's aviation system that serves as a guide for future aviation development. The plan looks beyond the traditional state aviation system planning elements by combining three planning studies that assess the condition of the existing aviation infrastructure, the economic benefit of the aviation industry, and the national importance and state significance of each airport.

As previously described in State System Role, section 1.4.2, in Chapter 1 of this Master Plan, the Independence State Airport is classified as a Category IV Local GA Airport within OAP. As a Category IV airport, OAP outlines a minimum set of criteria as well as a desired set of criteria for Category IV airports like Independence State Airport. The OAP provides an individual report card for each airport within the state system that clearly depicts any deficiencies that may exist against the State's identified minimum and

Figure 2H: Airport Layout Plan



McNARY FIELD,SALEM, OREGON
ALL WEATHER WIND ROSE
PERIOD 1948 - 1978
100,013 OBSERVATIONS
SOURCE: US DEPT. OF COMMERCE (NOAA)
WIND COVERAGE
@12 MPH 97.3%
@15 MPH 99.2%

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)	179.5'	SAME
AIRPORT REFERENCE POINT	LAT: 45°52'01.05" LONG: 123°11'53.89"	LAT: 44°52.05' LONG: 123°11.90'
MEAN MAXIMUM DAILY TEMPERATURE	83.2°	SAME
AIRPORT REFERENCE CODE	B-I (SMALL)	SAME
NPIAS ROLE	GENERAL AVIATION	SAME
LAND OWNED IN FEE (ACRES)	SEE EXHIBIT A 88.10	PROPOSED 136.17
AIRPORT CODE	7S5	SAME

BUILDINGS AND FACILITIES

1.	FUELING AREA AND UST'S	10.	OVERFLOW PARKING
2.	FBO OFFICE	11.	TIEDOWN APRON (RESERVE)
3.	FBO HANGAR	12.	RUNWAY EXTENSION (FUTURE)
4	FBO/AIRCRAFT MAINTENANCE HANGAR	13.	HELICOPTER PARKING
5	PRIVATE HANGARS	14.	EMERGENCY FIRE ACCESS
6.	HANGARS (FUTURE)	15.	AG LOADING AREA (FUTURE)
6T.	NOT USED	16.	RUN UP AREA (FUTURE)
7.	AUTO PARKING	17.	EAA HANGER
8.	AUTO PARKING (FUTURE)	18.	SALVAGE YARD
9.	TIEDOWN APRON		

RUNWAY DATA

ITEM			RUNWAY 16-34 EXISTING	RUNWAY 16-34 FUTURE
LENGTH AND WIDTH			3142' X 60'	3470' X 60'
EFFECTIVE GRADIENT			0.037%	SAME
PAVEMENT STRENGTH (WHEEL-POUNDS)			SINGLE - 12,500	SINGLE - 12,500
PAVEMENT SURFACE			ASPHALT	SAME
RUNWAY SAFETY AREA			3622' X 120'	3950' X 120'
OBJECT FREE AREA			3622' X 250'	3950 X 250'
OBJECT FREE ZONE			NO OFZ OBJECT PENETRATIONS	
CRITICAL AIRCRAFT			BE100 (TYP.)	SAME
APPROACH TYPE [A]		16	VISUAL	NONPRECISION CIRCLING GPS
		34	VISUAL	NONPRECISION CIRCLING GPS
APPROACH SLOPE: REQUIRED/CLEAR		16	20:1/20:1	SAME
		34	20:1/20:1	SAME
APPROACH AND LANDING AIDS		16	PAPI-4	GPS, REIL
		34	PAPI-4	GPS, REIL
RUNWAY END COORDINATES	16	Latitude	44°52'16.56" STET	44°52.35'
		Longitude	123°11'53.73"	123°11'53.72"
	34	Latitude	44°51'46.94"	44°51.78'
		Longitude	123°11'54.66"	123°11'53.65"
RUNWAY LIGHTING			MEDIUM INTENSITY	MEDIUM INTENSITY
TAXIWAY LIGHTING			REFLECTORS MITL	REFLECTORS MITL
RUNWAY MARKING [A]			VISUAL	SAME
WIND COVERAGE (%) - 12/15 MPH			97.3/99.2	SAME

DECLARED DISTANCES

	EXISTING 16	EXISTING 34	FUTURE 16	FUTURE 34
TAKEOFF RUN AVAILABLE (TORA)	3142'	3000'	3610'	3470'
TAKEOFF DISTANCE AVAILABLE (TODA)	3142'	3000'	3610'	3470'
ACCELERATE - STOP DISTANCE AVAILABLE (ASDA)	3142'	3000'	3610'	3470'
LANDING DISTANCE AVAILABLE (LDA)	3142'	3000'	3610'	3470'

NOTES:

[A] GPS INSTRUMENT APPROACH WITH VISIBILITY MINIMUMS ≥ 1 MILE IS PLANNED FOR AIRPORT. BASED ON VISIBILITY REQUIREMENTS, FINAL APPROACH SEGMENT WILL BE VISUAL.

[B] INGRESS/EGRESS AGREEMENT AND EASEMENT.

LEGEND

ITEM	EXISTING	FUTURE
AIRFIELD PAVEMENT		
ACCESS ROAD/VEHICLE PARKING	N/A	
PERIMETER FENCE	-XX-	-XX-
AIRPORT PROPERTY LINE		
BUILDING RESTRICTION LINE	BRL	SAME
AIRCRAFT PARKING LIMIT	APL	SAME
BUILDINGS		
TOPOGRAPHIC CONTOURS (2 FT)		SAME
WIND CONE		
AIRPORT REFERENCE POINT		
THRESHOLD LIGHTS (FUTURE W/ REIL)		
ROTATING BEACON W/ METAL TOWER		SAME
GRAVEL ACCESS FOR FIRE FIGHTING EQUIPMENT		
CITY LIMITS		

"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."

OREGON DEPARTMENT OF AVIATION

APPROVALS

OREGON DEPARTMENT OF AVIATION DATE

FEDERAL AVIATION ADMINISTRATION DATE

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING. 0" 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	BY	APPR	REVISIONS
1.	5/1/01	GRH	REA	AIP NO. 3-41-0027-03 R/W, T/W, & APRON IMPR. (1999-2000)
2.	11/22/02	REA	REA	AIP NO. 3-41-0027-04 TAXILANE & APRON IMPR. (2001)
3.	9/24/04	WHB	JNR	NON-PRI. GA 410018, TAXILANE, APRON, AND FENCE IMPR.(2004)
4.	3/9/06	JJB	JNR	UPDATED FOR HANGAR & WATERLINE CONST (2006)
5.	5/1/08	JLS	JNR	UPDATE EXISTING BLDGS
6.	11/3/09	JLS	JNR	UPDATED

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INDEPENDENCE STATE AIRPORT
AIRPORT LAYOUT PLAN UPDATE

AIRPORT LAYOUT PLAN

DRAWING 1

desired criteria for Category IV airports. The Independence State Airport - Individual Airport Report is provided as appendix to this master plan as **Appendix E**.

For the minimum criteria identified for Category IV airports, and the Independence State Airport, the only facility improvement lacking according to the OAP is a taxiway lighting system. It should be noted that the installation of a taxiway lighting system has been depicted on all previous planning studies.

For the desired criteria of Category IV airports, the OAP identified several significant airport facility improvements that will require additional consideration and planning before they could be realized. Specifically, the desired criteria for the Independence State Airport, as identified in the OAP, to have a non-precision/visual instrument approach procedure, to sell Jet A fuel on the Airport, and to meet B-II airport reference code design standards. As previously discussed within the Airport Role Conclusions in section 1.4.4 of this report, these desired criteria, and others, identified in OAP will be recurring themes and the focus of discussions to come throughout the development of this master planning process.

Socio-Economic Data

The socio-economic are summarized in **Figures 2I - 2M** and general consensus derived from members of the PAC at the first PAC meeting favors a positive economic outlook for Polk County and Independence. All indicators analyzed depict a growing or improving trend for industry, homes, jobs, income and population.

"We are a growing community, things are happening, downtown is growing, industrial base is growing, we don't want to stagnate and the community is actively trying not to. Polk County as a region has a lot of opportunity due to geographic location, proximity to other population centers and employment bases... there is a lot to work with in the community. " - Shawn Irvine, City of Independence Economic Development Director during the first PAC meeting.

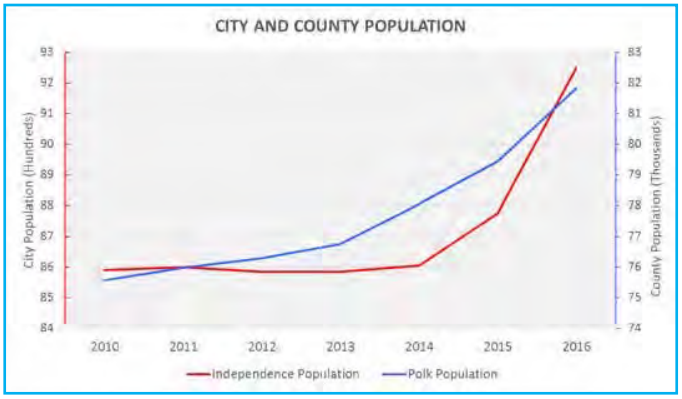


Figure 2I: City and County Population

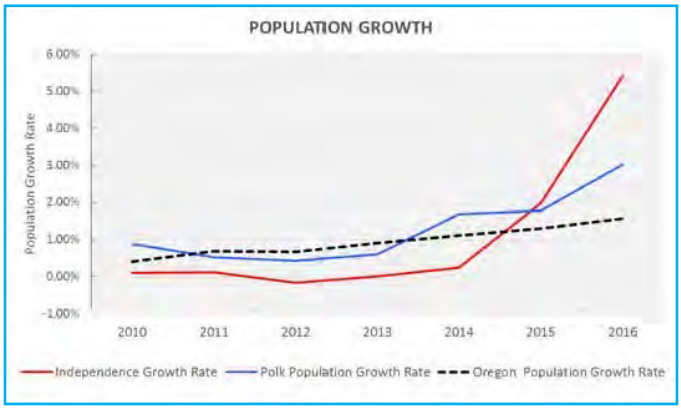


Figure 2J: Population Growth

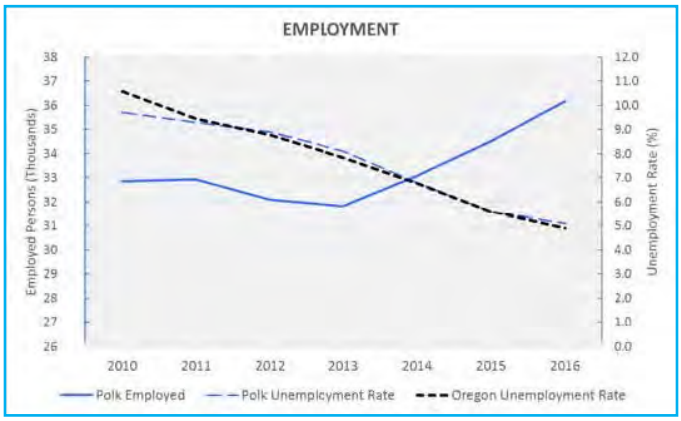


Figure 2K: Employment

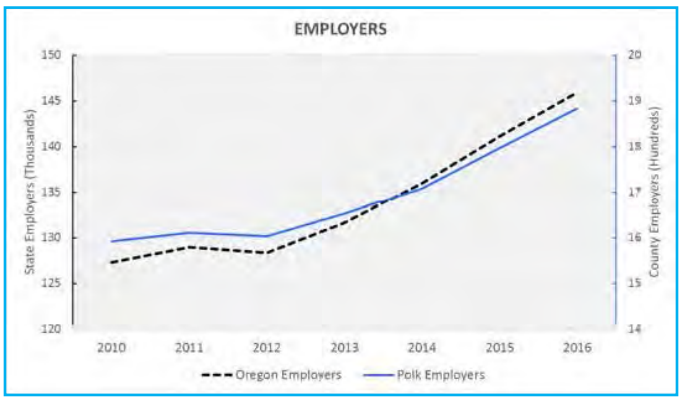


Figure 2L: Employers

Population in the City of Independence had historically grown faster than Polk County and the State of Oregon, but after the 2008 recession growth slowed significantly to a rate below that of the County and State. In 2015, however, data estimates provided from the PSU, Population Research Center suggest the trends have reversed and the City of Independence began growing at a significantly rate higher than both Polk County and the State of Oregon (**Figure 2J**).

Employment data within Polk County has improved significantly in the last 5 years. The unemployment rate has declined in concert with the State unemployment rate and is currently averaging between 4-5% according to the latest figures provided in 2017.

The number of employers within Polk County has also shown regular growth since 2012 at a rate nearly consistent with State of Oregon data.

The average annual Polk County income, while significantly below statewide averages, has also increased in Polk County since 2010.

Real estate data for the City of Independence appears to be consistent with State and National data showing growth since the recovery from the recession. According to data found on CLRsearch, in 2012 there were approximately 2,000 owner occupied homes in the City of Independence, the median value for a home was $203,851. The largest percentage of homes (21%) were valued at $150,000-$174,999. According to data from Zillow, the average estimated home price for a house in the Airpark is nearly double the median value. Data suggests that the average price for the 184 hangar homes is approximately $386,000, which is well above the average home price in the City of Independence.

As depicted here within, discussed at the first PAC meeting, and provided in the forecast data from numerous outside sources, the City of Independence, greater Mid- Willamette Valley, and the State of Oregon is expected to experience significant growth over the next 20 years in almost all socio-economic categories. This data and general community outlook will serve as supplemental information and guidance for generating the Airport's aviation activity forecasts presented in Chapter 3 of this report.

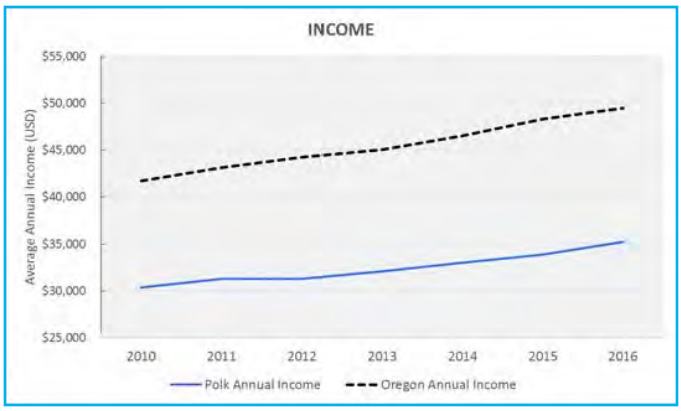


Figure 2M: Income

2.2 Existing Facilities

The primary focus of this Airport Master Plan is the Airport property, or more specifically, the facilities and land owned by the State of Oregon. However, consideration of the connection to the adjacent Airpark neighborhood is essential to the completion of a successful Master Plan as these two entities are clearly not mutually exclusive. The symbiotic relationship between the Airport and Airpark ranging from the physical infrastructure to the social/governmental interfaces was considered throughout the course of the planning process.

The format for presentation and understanding of the existing facilities and management of the Airport, while also giving consideration to the airport-urban interface, will consist of three sections:

- Landside
- Airside
- Administration

Landside facilities include areas such as utilities/storm drains, security fencing, hangars, GA terminal area, Airpark and residential-through -the-fence (RTTF), and Airport access/auto parking. Airside facilities generally include areas such as runways, taxiways, and aprons; as well as FAA design standards and airspace.

The Administration section covers miscellaneous administration and maintenance of airport facilities.

2.3 Landside

The landside area of the Airport generally encompasses the land areas within an 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 is expanded to include an analysis of those land areas and facilities immediately outside of the airport boundary.

2.3.1 Land Use and Zoning

The majority of the Independence State Airport land is located entirely within the City of Independence's Urban Growth Boundary (UGB) and city limits. There is a small portion of Airport property that extends beyond city limits and the Urban Growth Boundary (UGB) on the north side of the Airport. The portion of airport property extending beyond city limits is subject to Polk County zoning (**Figure 2N**).

For the portion of the Airport and Airpark within city limits, the base zoning map designations assigned to the airport and airpark in Subchapters 76 and 48 of the Independence Development Code are Airport Development District (AD) and Residential Single Family Airport (RSA) respectively.

Additionally, Subchapters 77 and 78 of the Independence Development Code include the Airport Zone Height Limitations and Airport Safety and Compatibility Overlay Zone. The overlay zones apply primarily to properties that lie within the runway approaches and runway protection zones. The overlay zones are intended to prevent airspace obstructions through height restrictions on structures and vegetation. Additionally, the overlay zones serve as a guide to ensuring land use compatibility between airport operations and the other base zones in the community that may fall under the overlay zones.

Compliance with FAA and ODA regulations is required within the overlay zones and subject to FAR Part 77 airspace regulations discussed further in section 2.4.9 Airspace of this Master Plan. A schematic of FAR Part 77 imaginary surfaces are displayed on Figure 2N.

Polk County zoning of airports is regulated in Chapter 180 - Airport Development District and Chapter 181 - Airport Zone Height Limitations. The zoning code language available in the County's development code appears to be outdated due the use of terminology no longer used in airport planning and design. While the terminology is outdated, the intent of the zones is generally compliant with State and Federal requirements.

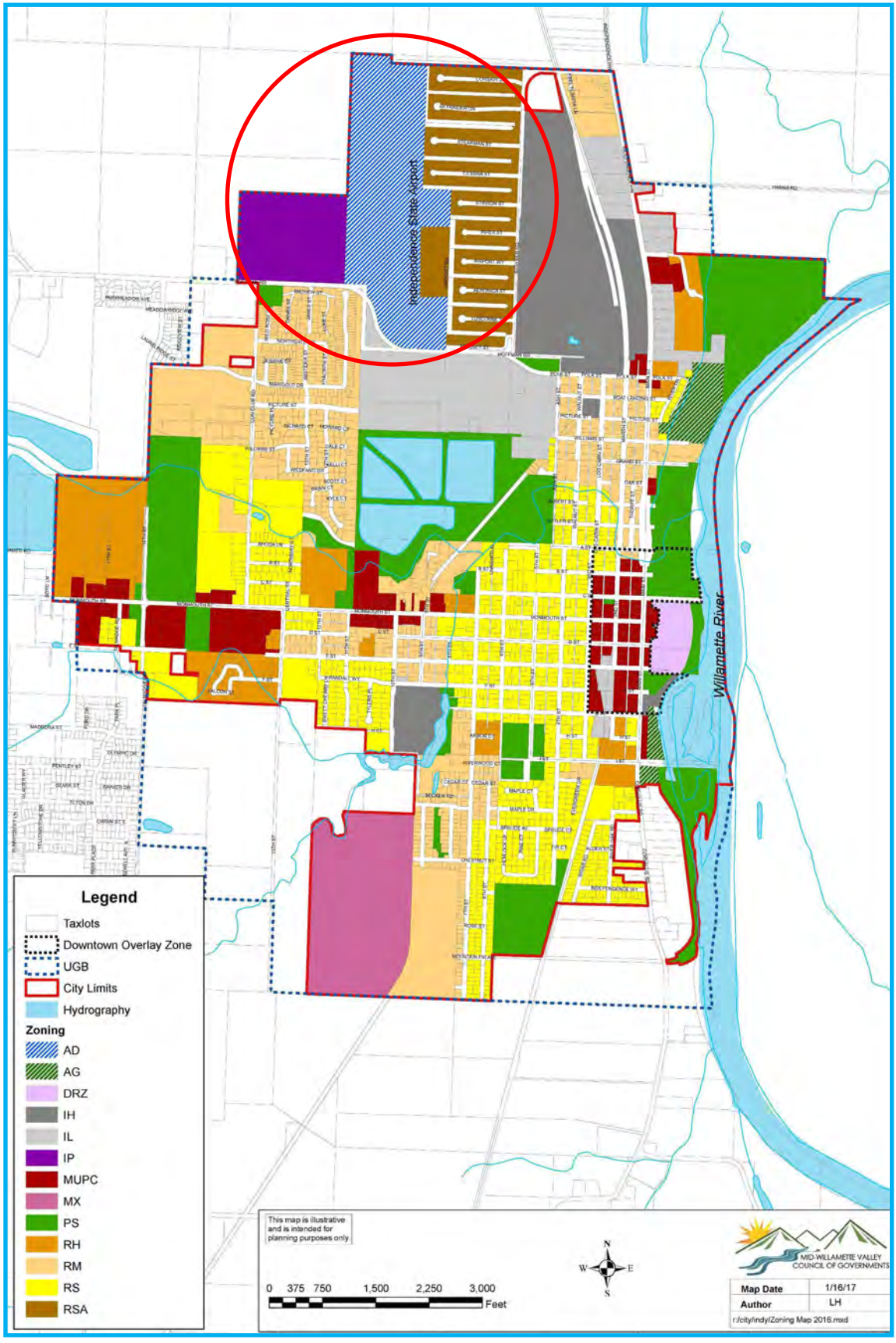


Figure 2N: City of Independence Zoning Map, 2017

2.3.2 Utilities/Storm Drainage

Utilities and public services provided at the Airport include City of Independence Water; City of Independence Sanitary Sewer; communications is provided by CenturyLink, Charter, or MINET; and power is provided by Pacific Power.

The existing infrastructure serving the Airport is generally considered to be adequate and in working order. However, any future expansion west of the Airport, as depicted in previous planning efforts, will require extension of both sewer and water lines in a manner consistent with local planning and development policy and regulations. Storm Drainage has been an ongoing concern at the Airport due to recurring issues with standing water on both the Airport and Airpark. In a 2013 Independence Airport Drainage Analysis completed by 3J Consulting, numerous system deficiencies and recommendations were identified. Since that analysis, many improvements have occurred and the issue with standing water on the Airport and Airpark appears to have improved. The City of Independence, ODA and Airpark HOA have all taken steps to improve the conditions of drainage and, based on feedback from individual meetings and the first PAC meeting, are committed to the continued improvement of storm drainage infrastructure on and around the Airport.

The following areas on and in the vicinity of the Airport/RTTF Community identified in the Drainage Analysis Map shown in Figure 2O will continue to be considered throughout the completion of this Master Plan:

1. The 12" standpipe in this area was identified as too high and small to convey the flow. However, increasing the capacity of the inlet would exacerbate problems downstream. It was recommended the grate be maintained to reduce clogging potential.
2. The drainage ditch running parallel to Skylane Taxilane has the same inlet and outlet elevations. It was recommended the ditch and culvert entrance/exits be kept clean of debris and blockage
3. Areas 3 and 4 were identified as having flat or negative slopes. It was recommended entrance and exits be cleaned and maintained. Additionally, a survey was recommended on upstream ditches to determine if surcharging is causing issues.
4. See area #3.
5. The area around Golf Taxilane was not identified as an issue in the 2013 drainage analysis. However, it was recently identified as an area with system capacity issues and additional study is required.
6. The areas north and south of the curve of Hoffman Road has been the focus of several recent improvements by the City of Independence including the installation of a

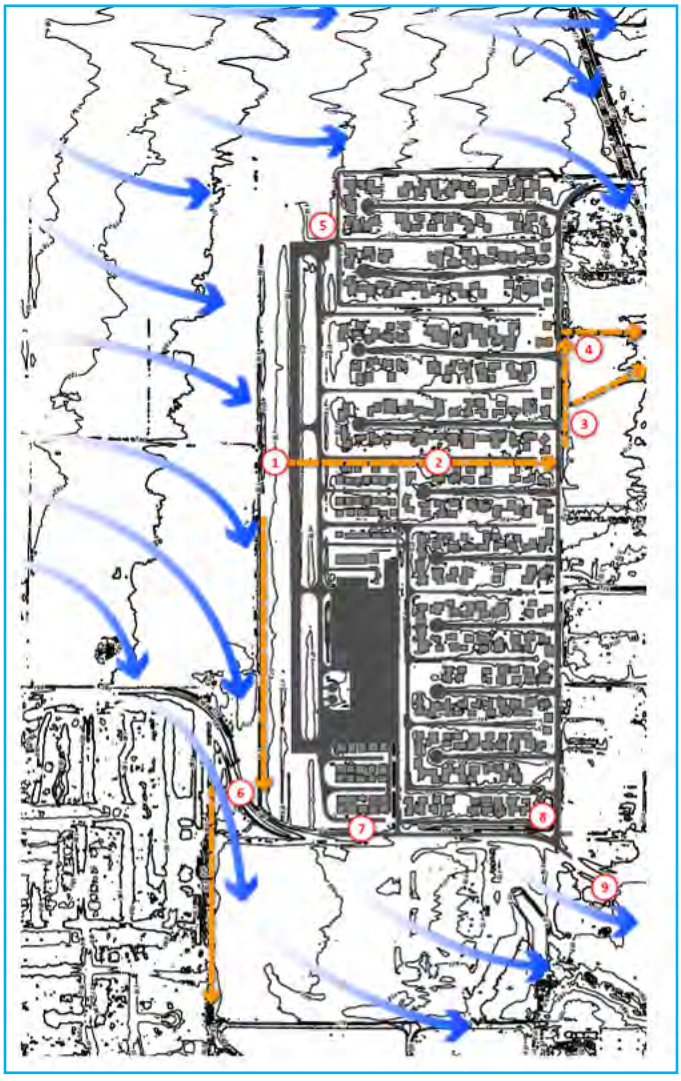


Figure 2O: Airport/Airpark Drainage Analysis Map

3rd culvert crossing, cleaning/mowing detention areas, and redigging swales to improve flow towards Ash Creek. ODA has indicated cleaning/mowing the ditch running directly north of this area is a priority.

7. Improvements around the south hangar area were completed in summer 2017 to improve issues with standing water.
8. In response to the 2013 drainage analysis, the detention pond at Mooney Street was dug out and lowered by one foot. Additionally, regular maintenance and mowing has occurred in this area.
9. The areas southeast of the Airport and Airpark as they drain in to City infrastructure and subsequently Ash Creek appear to be adequate as flooding does not occur.

Drainage in and around the Airport/Airpark will require additional study and improvements as development occurs and additional issues are identified. As discussed in the first PAC meeting, it may be beneficial for the City of Independence, the Airport, and the Airpark, in cooperation with any future development west of the Airport, conduct an Airport Area Stormwater Detention/ Drainage Master Plan to address drainage issues and concerns.

2.3.3 Airport Fencing

The Airport is not fully fenced. An approximately 1500' stretch of fencing runs along Hoffman Road at the south end of the Airport. The security style fence is 6' tall chain link with barbwire strands at the top. Recently, several gates were installed at two key points along Airport Road. The lack of fencing at the Airport does not appear to be a problem according to PAC members and Airport users. Due to the proximity of the Airpark and it's residents there are many full time residents that are able to watch for suspicious activity.

Based on discussions with PAC members and the public at the first PAC meeting, the location of existing and future vehicle access gates and any additional security fencing will require additional coordination and discussion between all stakeholders.

2.3.4 Hangar Access

Airport hangar access is provided from Hoffman Road on to Airport Road. Airport Road is the primary access road to hangars on Airport property, as well as both FBOs and the Starduster Cafe. Access for the RTTF hangar/ homes is generally provided via Stryker Road and the small neighborhood streets stemming off of Stryker Road.

2.3.5 Vehicle Parking

Vehicle parking on the Airport is generally served by the paved parking lot located on the east side of the Starduster Cafe, which provides approximately 32 parking spaces. There is also an overflow gravel parking area directly north of Independence Aviation.

Nutsch Aviation, EAA, and Independence Aviation all have parking directly in front of the building, which provides an additional 20-30 combined parking spaces. Additionally, it is customary for airport users to park personal vehicles either in or adjacent to their personal hangar in the hangar areas on the north and south of the Airport when they are using their aircraft.

2.3.6 Hangars

There are 62 individual buildings/structures total on Airport property. Of these 62 structures, there are 58 total hangar buildings (approximately 160,000 SF) dedicated solely to aircraft storage. Specifically, there are 56 conventional box hangars, one 5-unit T-hangar, and one 7-unit T-hangar. There are few remaining sites available for development of hangars as the majority of vacant space has already been planned for future development.

2.3.7 Airpark

The Independence State Airport and the Independence Airpark have a symbiotic relationship in that one could not achieve it's potential without the other's existence. The privately owned hangar-homes on the Airpark are clearly dependent on the State-owned aviation facilities and it is easily argued that the Independence State Airport would not be as active as it is without the existence of the Airpark.

On the Airpark there are 184 private hangar/ homes constructed to date and approximately 23 more developable sites that allow owners immediate access to the Airport through the latest Independence State Airport Ingress/Egress Agreement effective January 1, 2009.

The "residential-through-the-fence" (RTTF) concept has proven very successful at Independence State Airport and other Airports throughout the country for many years. However, 10 years ago the FAA began to reevaluate RTTF agreement, which caught the attention of many in the general aviation community and Airparks like Independence Airpark. When the FAA Modernization and Reform Act of 2012 was signed into law on February 14, 2012 the FAA eventually allowed general aviation airports to enter into RTTF agreements with property owners or, as the case in Independence, association representing property owners. However, to be successful in the FAA purview, RTTF agreements must comply with specific terms and conditions contained in the law and reflected in the ingress/egress agreements.

The potential issues with any RTTF agreement could include safety and liability risks associated with direct access to taxiways and the runway as well as potential compliance issues with federal grant assurances. To be in compliance with federal assurances related to RTTF the State must ensure:

1. The residential through-the-fence user pays airport access charges that are comparable to tenants and operators on-airport making similar use of the airport.
2. Residential through-the-fence users bear the cost of building and maintaining the infrastructure the airport sponsor determines is necessary to provide aircraft located on the adjacent property to or near the airport access to the airfield of the airport.
3. The residential through-the-fence user is prohibited from using their property, or permitting any third party from using their property, for any commercial aeronautical purpose for the duration of the access agreement.

Figure 2P: Airpark

4. Access to the airport from unauthorized users, through the property of the residential through-the- fence access agreement holder, is prohibited.

5. The residential through-the-fence user is prohibited from selling aviation fuel on their property.

Based on this guidance from the FAA and through ongoing collaboration and the continued commitment from both the Airpark HOA and ODA, the RTTF concept can continue in to perpetuity. However, the Airpark and Airport are not immune to the challenges facing general aviation, airports, or any other regular neighborhood in the State of Oregon.

For the purpose of this Master Plan, the seven physical RTTF access points identified in Figure 2P will be the primary consideration for the planning of future infrastructure. These access points serve as both the physical and social connection between the Airport and Airpark and are critical to forming better and more comprehensive understanding of future development needs, goals, and actions, both on and off the Airport.

2.3.8 GA Terminal Area

The General Aviation (GA) Terminal Area is the central area for the Airport. The terminal area at Independence State Airport consists of two fixed base operators (FBO), a restaurant, and the Experimental Aircraft Association (EAA) Chapter 292 clubhouse.

An 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 are two FBOs at Independence State Airport. Independence Aviation LLC which provides flight training, glider instruction, and 100 LL fuel through 2 x 10,000 gallon tanks. The second FBO, Nutsch Aviation provides 100 LL fuel in a single 12,000 gallon above ground tank, aircraft hangar space, instruction & airplane rental, pilot supplies, and a courtesy vehicle.

The restaurant located on the airfield "The Starduster Cafe" operates between 6:00 am and 3:00 pm daily and has become a regular staple at the Airport and in the community bringing in pilots throughout the State for breakfast and brunch.

The EAA 292 is a community of passionate aviation enthusiasts that promote and support recreations flying with the mission to grow participation in aviation by promoting the "Spirit of Aviation."

2.4 Airside

The airside area of the airport consists of physical infrastructure and facilities used for the movement of aircraft (i.e., runways, taxiways, taxilanes, and aprons). In addition to these ground facilities, the airspace and imaginary surfaces surrounding the Airport and facilities is also included the airside discussion; this includes runway and taxiway safety areas, runway protection zones, and the FAR Part 77 Surfaces discussed in the land use section.

2.4.1 Pavement Condition Index

The single most valuable asset on the Airport is the pavement. In 2018 the Airport's Pavement Condition Index (PCI) was updated for those pavements located on Airport Property as part of the Pavement Management Program (PMP). The PMP is completed every three

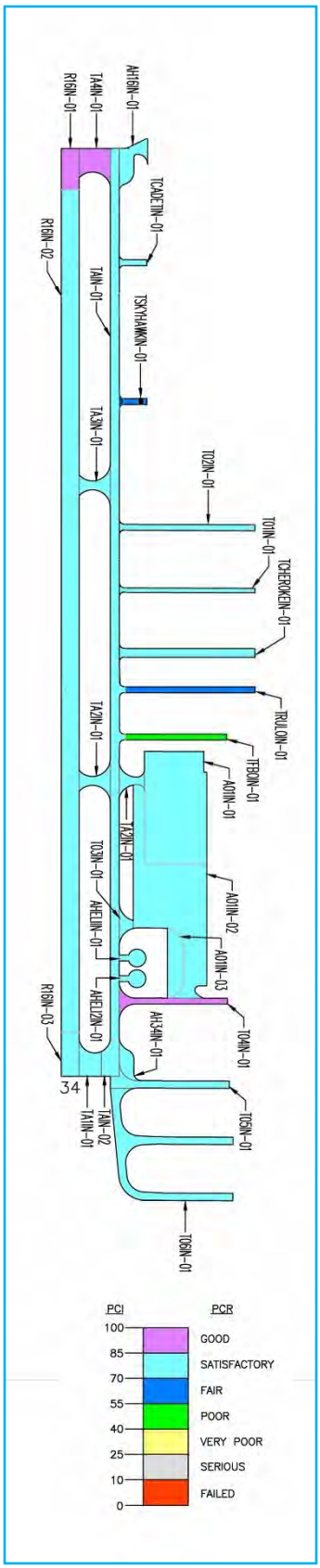


Figure 2Q: 2015 Airport

years. The next iteration of the program is scheduled for 2021. The PMP rates the condition of the Airport's pavements on a scale of 0-100, with zero being an unusable paved surface and 100 reflecting a newly-constructed paved surface. Using each pavement section's PCI, a Pavement Condition Rating (PCR) is assigned. Generally, ratings with a PCR of "Good" (PCI of 85 – 100) and "Satisfactory" (PCI of 70 – 84) require only preventative maintenance in the short term, while ratings of "Fair" (PCI of 55 – 69) and "Poor" (PCI of 40 – 54) require major rehabilitation and ratings of "Very Poor" (PCI of 25 – 39), "Serious" (PCI of 10 – 24), and "Failed" (PCI of 0 – 9) typically require reconstruction.

Figure 2Q depicts the pavement condition map for the Airport produced for the State by Pavement Consultants, Inc based on a visual condition survey completed in May 2018. At that time the section PCIs at Independence State Airport range from a low of 47 (a PCR of "Poor") to a high of 100 (PCR of "Good"). The area-weighted average PCI for all airport pavements is 78, corresponding to an overall PCR of "Good."

2.4.2 Runway 16-34

The single runway at Independence State Airport (Runway 16-34) is 3,142 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). Runway 34 has a documented 140 foot displaced threshold, however during a pavement marking project the displaced threshold was painted yellow therein creating a segment of the taxiway that is aligned with the runway and effectively reducing the length of the runway to 3,002 feet. This aligned taxiway or displaced threshold issue will need to be corrected to meet FAA Design Standards.

2.4.3 Taxiways and Taxilanes

There is one existing full-length parallel taxiway (Taxiway A) on the east side of Runway 16-34. This taxiway is 30 feet wide and has four runway connector taxiways. Taxiway connector A2 is considered nonstandard by FAA design criteria as it is providing direct access from the apron to the taxiway and will need to be relocated. The parallel taxiway is also directly connected to multiple taxilanes that serve the apron area, airport hangars, as well as the RTTF hangar homes through seven access points through Airport property.

2.4.4 Aprons and Aircraft Parking

Total aircraft apron area at the Airport is estimated at 18,600 square yards, or an estimated 3.8 acres. 38 tiedowns are provided on the apron serving both based and transient aircraft. There are two designated helipads on the airfield, located near the apron. During the first PAC meeting, several areas on the south side of the apron were identified as potential problem areas and required additional consideration during the solutions phase of the planning process.

2.4.5 Airfield Lighting and Signage

Airfield edge lighting systems are categorized as low, medium, or high intensity. Runway 16-34 is equipped with medium intensity runway edge lighting (MIRL). Taxiway A is currently unlit and marked with blue reflectors. There is lighted signage identifying the connector taxiways at the respective hold positions. Additionally there are unlighted signs for taxilanes providing access to RTTF hangar homes.

2.4.6 Airport Navigational Aids (NAVAIDS)

NAVAIDS provide navigational assistance to aircraft for 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. The following sections describe existing NAVAIDS at the Airport.

Visual Approach Aids

Runway 16-34 is established as a visual approach runway. There is a segmented circle containing a lighted wind indicator to the West of Runway 16-34 at mid-field. A rotating beacon is located on the east side of Runway 16- 34 on top of a tower adjacent to the airport restaurant.

Figure 2R: Existing Conditions

1 Auto Parking
2 Commercial / Industrial Development
3 Displaced Runway Threshold Marking
4 Fixed Base Operator Office
5 Fixed Base Operator Hangar
6 Fuel Tank
7 Hangars
8 Helicopter Parking
9 Lighted Wind Cone and Segmented Circle
10 Precision Approach Path Indicator
11 Residential Development
12 Runway Designator
13 Runway Protection Zone
14 Tiedown Apron

Existing Conditions

WHPacific

Both ends of Runway 16-34 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 an airport's instrument approach. The Airport does not have any instrument approach aids or approach procedures at this time.

2.4.7 Weather Observation System

The Airport currently does not have a weather observation system in place. The preferred modern system for an airport like Independence State Airport would be an Automated Weather Observing System (AWOS), which reports significant weather changes as they occur up to the minute. The system reports cloud ceiling, visibility, temperature, dew point, wind direction, wind speed, altimeter setting, and density altitude (airfield elevation corrected for temperature). Having an AWOS or similar automated airport weather station at all state airports is an ODA goal.

2.4.8 FAA Airfield Design Standards

FAA Advisory Circular 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.

They are listed below and shown graphically on the Existing Conditions Map (Figure 2R).

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

The Runway Safety Area (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.

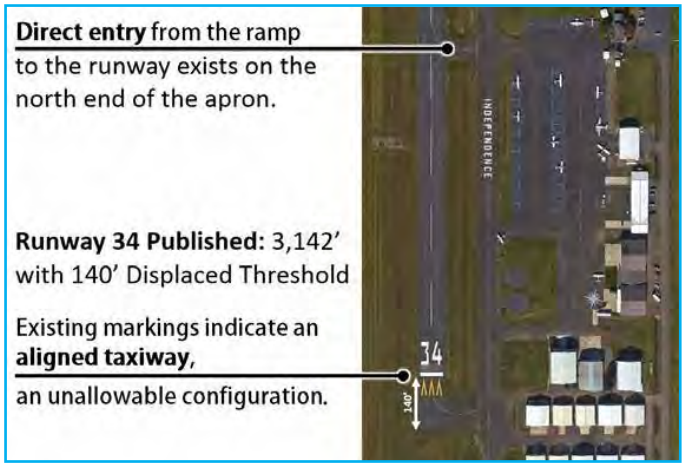


Figure 2S: FAA Design Standards/Issues

The Object Free Area (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 Obstacle Free Zone (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 Runway Protection Zone (RPZ) is defined as 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 speaking, all of the design standards mentioned above meet the requisite standards. However, there is a potential issue with the Runway 34 RPZ that may need to be addressed as the plan progresses. The incompatible land use of Hoffman Road within the RPZ, which serves as a major community thoroughfare, may need to be mitigated to meet FAA standards outlined in the memorandum "Interim Guidance on Land Uses Within a Runway Protection Zone" (2012). This guidance prohibits public

roads from transiting through the RPZ. However, according to the State of Oregon Airport Land Use Compatibility Guidebook (2003), roads are permitted in the RPZ only upon demonstration that there are not practicable alternatives.

There are two other notable issues related to FAA standards that will need to be addressed as the plan progresses. The first is the indirect entry from the apron to the runway that exists at Connector Taxiway A2 (**Figure 2S**). The FAA recommends designers to not design taxiways to lead directly from an apron to a runway without requiring a turn as such configurations can lead to confusion when a pilot typically expects to encounter a parallel taxiway but instead accidentally enters a runway.

The second issue to be addressed is the published Runway 34 displaced threshold that has been marked as an aligned taxiway (**Figure 2S**). The aligned taxiway is not allowed by FAA standards.

These issues described above as well as the potential solutions will be discussed in greater detail in subsequent chapters of this plan.

2.4.9 Airspace

Federal Aviation Regulation 14 CFR 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 and/or their sponsors are responsible for identifying FAR Part 77 imaginary surfaces and protecting them

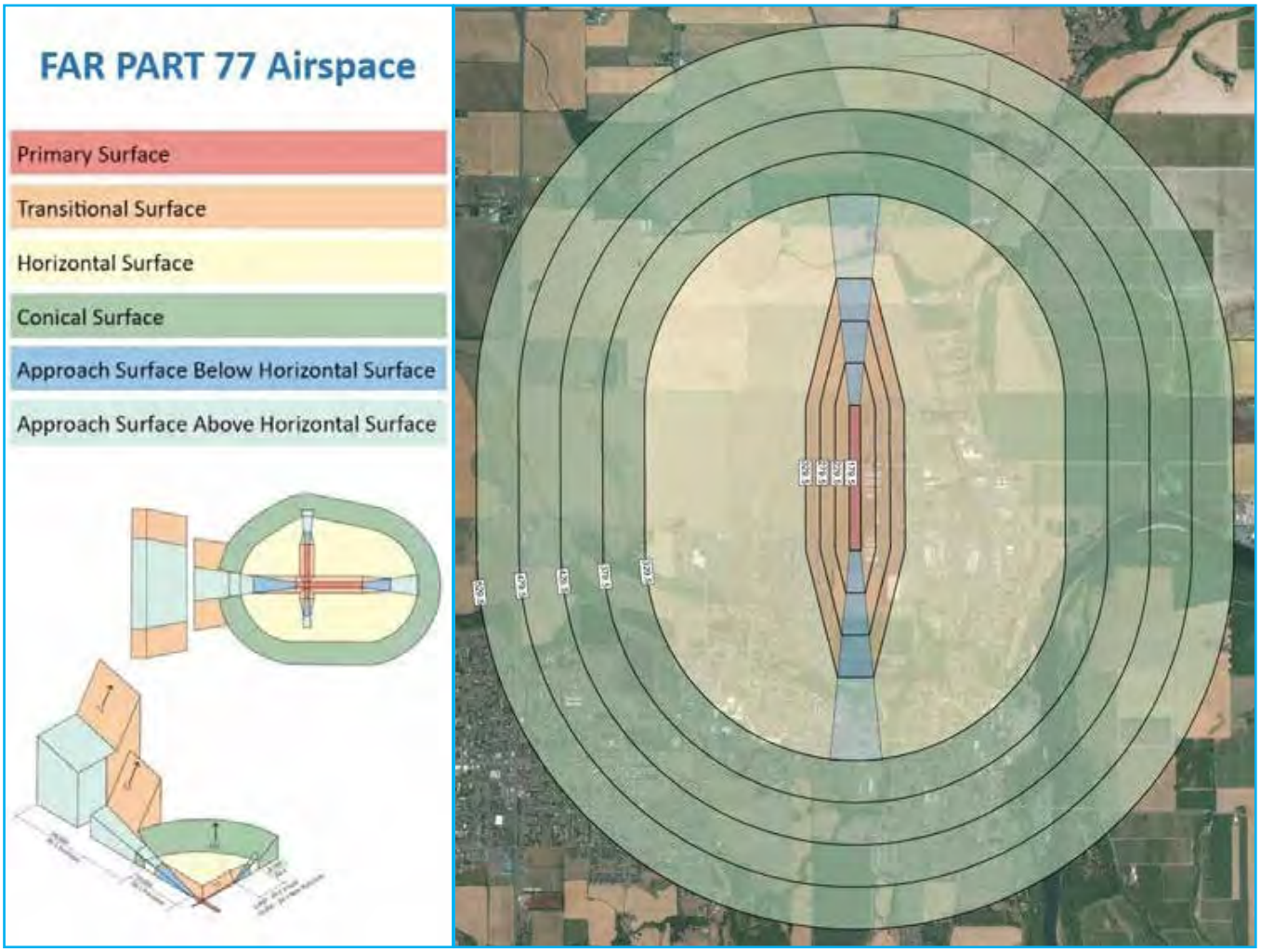


Figure 2T: FAR Part 77 Airspace

through land ownership or other means of land use controls (such as zoning, easements, etc.).

Prior to any construction on the airport and in the area immediately around an airport, the responsible party must file a Form 7460 with the FAA and ODA, which describes the project and its proximity to the airport. Both agencies will then conduct an airspace evaluation to determine the possible impact on airspace for the airport.

The FAA will evaluate the impact of the construction on a set of civil airport imaginary surfaces (**Figure 2T**). There is no specific authorization in any statute that permits the FAA to limit structure heights or determine which structures should be lighted or marked. In fact, in every aeronautical study determination, the FAA acknowledges that state or local authorities have control over the appropriate use of property beneath an airport's airspace. However, ODA works closely with the FAA to leverage its regulatory power to protect the Airport's airspace and works with local jurisdictions to protect the airspace through compatible use zoning.

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, permanent or temporary construction equipment, or temporary man-made structures.

The five surfaces are depicted in the Figure 2T 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 Independence 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

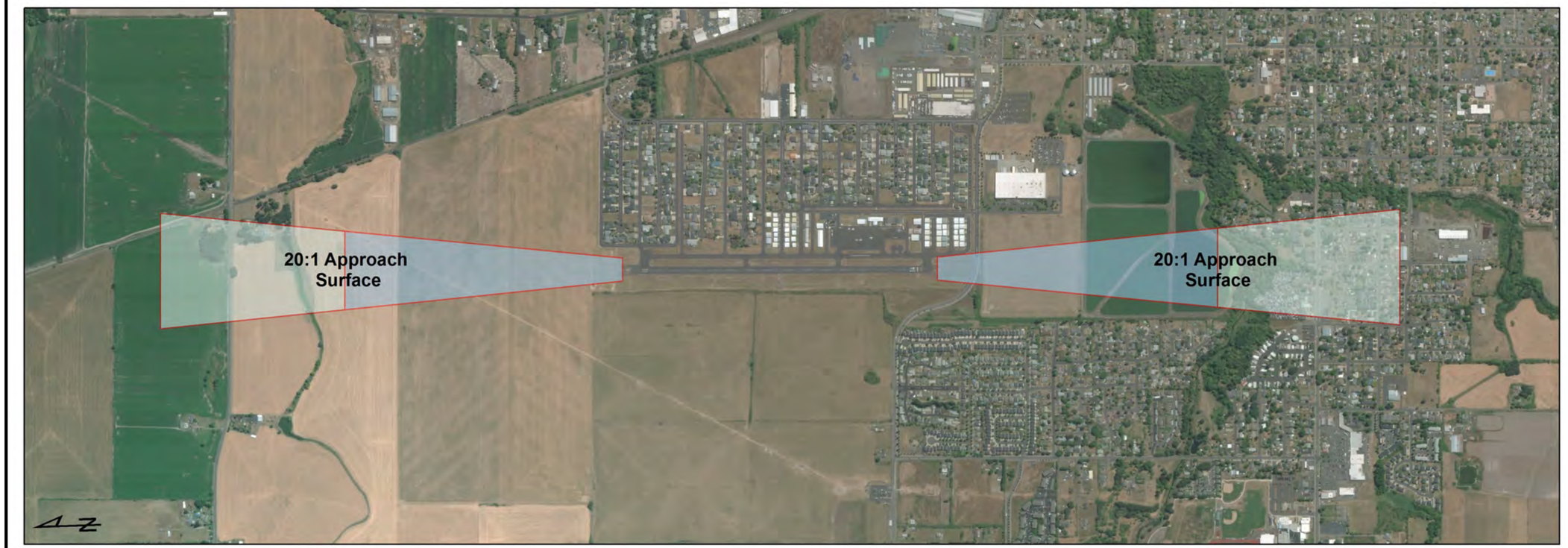
Transitional surfaces extend outward and upward at right angles to the runway centerline, with the runway centerline extended at a slope of seven feet horizontally for each foot vertically (7:1) from the sides of the primary and approach surfaces. The transitional surfaces extend to where they intercept the horizontal surface at a height of 150 feet above the runway elevation.

Approach Surface

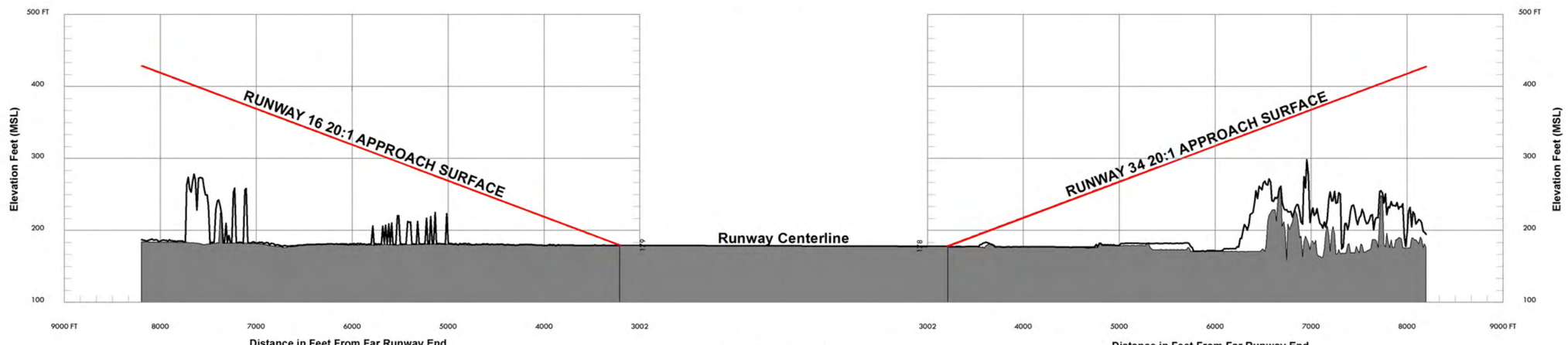
Longitudinally centered on the extended runway centerline, the approach surface extends outward and upward from the end of the primary surface. An approach surface is applied to each end of each runway based on the type of approach. FAA approach surfaces are 20:1 for visual and approaches and circling instrument procedures, 34:1 for non-precision approaches, and 50:1 for precision approaches. Independence has visual approaches at each runway end and therefore maintains 20:1 approach surfaces (Figure 2U).

In summary, the existing Part 77 airspace around the Independence State Airport is largely clear 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.

Figure 2U: Approach Surfaces



PLAN VIEW
NO SCALE



PROFILE VIEW
NO SCALE

The DOGAMI data when compared to the modeled FAR Part 77 surfaces for the Airport identified several obstructions within the Transitional Surface only. Most importantly, the Approach Surfaces are clear of obstructions.

As a part of the master planning process, an Airport Geographic Information Survey (AGIS) was 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 future FAR Part 77 surfaces will be illustrated as part of the Airport Layout Plan (ALP) drawing set once it is available. Future FAR Part 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.

2.5 Administration

The management of the Independence State Airport is administered by ODA. The ODA's 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 Independence State Airport, ODA is responsible for the operational management and maintenance 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,

Table 2A. Independence State Airport Financial Data

	Fiscal Year						Forecast Year					
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Revenues	**$ 101,068**	**$ 106,304**	**$ 105,881**	**$ 114,921**	**$ 114,560**	**$ 115,785**	**$ 513,291**	**$ 611,096**	**$ 363,065**	**$ 113,563**	**$ 132,522**	**$ 361,869**
10% Admin Late Fees	$ 72	$ 126			$ 934	$ 503	$ 312	$ 349	$ 419	$ 503	$ 417	$ 400
Federal revenue		$ 3,369	$ 4,298	$ 106	$ 27		$ 402,890	$ 500,000	$ 250,000		$ 20,000	$ 250,000
Fuels flowage fees	$ 7,302	$ 3,563	$ 3,967	$ 4,762	$ 3,779	$ 6,113	$ 4,437	$ 4,612	$ 4,741	$ 4,736	$ 4,928	$ 4,691
Hangar Fees	$ 5,720	$ 8,267	$ 7,143	$ 6,469	$ 6,874	$ 6,586	$ 7,068	$ 6,828	$ 6,765	$ 6,891	$ 6,828	$ 6,876
Ingress/Egress Fees	$ 39,796	$ 40,305	$ 40,305	$ 40,116	$ 40,683	$ 40,363	$ 40,354	$ 40,346	$ 40,373	$ 40,424	$ 40,372	$ 40,374
Land Lease Fees	$ 44,278	$ 48,008	$ 46,971	$ 52,751	$ 50,983	$ 52,778	$ 50,298	$ 50,756	$ 51,513	$ 51,266	$ 51,322	$ 51,031
Misc. receipts				$ 7,005	$ 8,048	$ 7,405	$ 4,492	$ 5,390	$ 6,468	$ 6,361	$ 6,023	$ 5,747
Operations 5010 inspections	$ 650			$ 650			$ 650			$ 650		
Property taxes reimbursement	$ 3,149	$ 2,361	$ 2,315	$ 2,480	$ 2,620	$ 1,469	$ 2,249	$ 2,227	$ 2,209	$ 2,155	$ 2,062	$ 2,180
Sale of Utilities	$ 101	$ 96	$ 183	$ 197	$ 155	$ 147	$ 155	$ 167	$ 164	$ 158	$ 158	$ 160
Special use fees			$ 240									
Tie Down Fees		$ 210	$ 459	$ 385	$ 455	$ 420	$ 386	$ 421	$ 413	$ 419	$ 412	$ 410
Expenditures	**$ 19,340**	**$ 20,074**	**$ 49,269**	**$ 28,369**	**$ 32,083**	**$ 96,101**	**$ 510,624**	**$ 588,078**	**$ 304,783**	**$ 27,167**	**$ 59,356**	**$ 304,168**
Personal Services												
Airport Maintenance	$ 2,835	$ 1,258	$ 1,765	$ 1,077	$ 2,535	$ 2,893	$ 3,141	$ 3,329	$ 3,529	$ 3,740	$ 3,963	$ 4,201
Airport Services	$ 2,948	$ 1,939	$ 962	$ 682	$ 503	$ 1,422	$ 1,135	$ 969	$ 970	$ 1,030	$ 1,073	$ 1,067
Fuel Tax Increase - State Owned Airports						$ 4,195						
Inspections				$ 202			$ 187			$ 194		
Service & Supplies												
Airport Maintenance	$ 6,498	$ 1,035	$ 1,483	$ 3,996	$ 2,002	$ 1,384	$ 1,980	$ 2,169	$ 2,306	$ 1,968	$ 1,961	$ 2,077
Airport Services	$ 5,882	$ 7,233	$ 13,317	$ 20,025	$ 21,179	$ 23,658	$ 17,083	$ 19,053	$ 20,200	$ 20,235	$ 20,046	$ 19,323
Building Maintenance				$ 1,051								
Fuel Tax Increase - State Owned Airports						$ 61,185	$ 37,000					
GA Entitlement (Capital Projects)		$ 3,547					$ 449,811	$ 555,755	$ 277,778			$ 277,500
PMP GA Entitlement	$ 33		$ 4,775	$ 148							$ 22,200	
State Owned PMP	$ 282		$ 26,966	$ 1,188							$ 2,222	
Statewide Services	$ 861					$ 1,364	$ 288					
System Plan		$ 5,063			$ 5,864			$ 6,802			$ 7,890	
Profit/(Loss)	**$ 81,728**	**$ 86,230**	**$ 56,612**	**$ 86,552**	**$ 82,476**	**$ 19,684**	**$ 2,666**	**$ 23,018**	**$ 58,282**	**$ 86,396**	**$ 73,166**	**$ 57,701**

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 ODA's Rule (OAR 738), 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.

2.5.2 Airport Financials

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 for the Airport was collected. The data collected is summarized and presented below, and will be used later in the Master Plan as inputs to the Capital Improvement/Financial Plan. Overall, a cursory review of the historic and forecast financial data suggests that Independence State Airport is in good shape financially.

On average, from 2012-2017 the average annual revenue for the Airport was $109,750 per year. It is worth noting that 92.31% of the average annual revenue is generated through fuel flowage fees (4.48%), hangar fees (6.24%), ingress/egress (36.68%), and land lease fees (44.91%). The remaining revenue (7.69%) comes from a combination of Federal revenue; property tax reimbursement; utility sales; miscellaneous receipts; and various fees charged by the Airport. Historic and forecasted revenues are summarized in **Table 2A** below.

Expenditures on average during the same period averaged approximately $40,875. The majority of annual expenditures (89.72%) pay for airport services and supplies. The remaining expenditures (10.28%) finance personnel services at the Airport.

The Independence State Airport realizes an average annual profit of approximately $68,880, which is expected to continue in to the forecast period.

2.6 Environmental Inventory

The purpose of this section is to summarize the environmental setting of the Airport and identify any potential environmental constraints that may exist.

The Airport property is located between residential areas, to the south and east, and agricultural fields, to the north and west. The Airport is connected to a RTTF community through a network of taxiways to the east of the main runway. The RTTF community is planned around integrated aviation and residential use and contains homes which are custom built to include private hangars and direct taxiway access. Residential areas to the south of the airport are single-family residential homes with no connection to the airport for aviation use.

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 Factors

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 644 aircraft operations per week (https://www.airnav.com/airport/7S5), which are mostly (70%) transient general aviation aircraft. Aircraft based at the airport include 189 single- engine aircraft, 7 multi-engine aircraft, and 1 helicopter according to the most recent 5010 data.

The federal threshold of concern for noise is when the 65 DNL contour extends over noise-sensitive land uses. The State 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.

Current operational data of the airport is approximately 37,500 annual operations (AirNav.com), which consists of primarily propeller driven aircraft. The 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 Independence and estimates for the 65 or 55 DNL threshold are not provided.

Most of the adjacent uses are residential and agricultural areas, though some industrial facilities are located 0.25 miles south and east of the runway, on the opposite side of residential areas. The nearest school is located

0.75 miles southwest of the runway. The school campus includes a middle school and a high school. The agricultural fields to the north and west of the runway contain no homes or structures within a half mile except one home and barn located along Hoffman Road approximately 0.30 miles to the west of the runway.

Aircraft landing and approach is over agricultural fields or a water treatment facility from both directions for a minimum of 0.75 miles. The nearest homes are located to the east and west of the runway approaches. Homes which are part of the RTTF community are as close at 250 feet west of the runway. However, these homes are not likely to be sensitive to airport noise due to their direct use of the airport and connection with aviation. The nearest homes to the runway which are not part of the RTTF community are 650 feet east of the southern approach. These homes are the most likely to be sensitive to airport-related noise. Maintenance staff reported that there have been no noise-related complaints registered in the last year.

Social Impact/Induced Socioeconomic Issues

Proposed airport development actions must be evaluated to determine whether they would cause social impacts, including consequences to health, safety, and socioeconomic impacts. Socioeconomic impacts are typically related to the 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 Hoffman Road to Airport Road through a two-way stop intersection. Additional access through the integrated aviation community is available directly from Highway 51 and Stryker Road from the northeast.

The Airport contains the largest RTTF community in Oregon with approximately 200 homes connected to the runway via a network of taxiways. All community members pay a runway access fee and most own private aircraft housed in hangars connected to residences. The Airport also contains private hangars not associated with the residential community. The Airport includes private aviation companies (Nutsch Aviation and Independence Aviation) which provide aircraft rental, flight instruction, fueling, aviation supplies, and aviation consultation. A restaurant café is located at the Airport and is open to the public.

Children's environmental health and safety risks are attributed to products or substances that the child is likely to touch or ingest. Children are

likely to be present in residential areas near the runway, but the nearest park, school, or similar public space to the airport is Pfaff Park, located 0.4 miles west of the runway. A high school and middle school campus is located 0.75 miles southwest of the runway. All of the areas discussed are offset from approach path centerlines for both runway directions and are not located in either approach surface.

Socioeconomic issues include the potential for the airport to continue providing economic attraction to the community, including integrated aviation and residential use, on-airport jobs, off-airport jobs that are supported by the airport, or some attraction that provides incentive to use the airport. The airport provides some positive economic benefit to the community through the provision of aircraft flights, aircraft repair, and the largest integrated aviation residential community in the state. According to the ODA Oregon Aviation Plan, Independence State Airport provides 90 jobs, and contributes $3,213,000 in wages and $11,282,000 in business sales to the state economy annually.

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 4136150-203.03. Based on 2010 data, 38.3% 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 through a formal process under the National Environmental Policy Act to determine what, if any potential impacts to residents, socioeconomic issues, or environmental justice concerns are present at that time.

Historic Properties and Cultural Resources (Section 106 Resources)

The Airport was developed in 1964. The subject site has been disturbed during the construction of the initial Airport, which was constructed on previously tilled agricultural land, as well as construction of private hangars and other structures.

A formal review for Section 106 resources has not been prepared for the site. At the time of any development action 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 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. Recreational usage in the area is limited. Multiple small municipal parks are present in the City of Independence within a mile of the Airport. None are connected to or adjacent to the airport.

The Willamette River, 0.75 miles east of the airport, is the nearest body of water with possible recreational use. Minto-Brown Island Park, located 7 miles northeast of the Airport along the Willamette River, is the nearest large recreational area. The Airport operations currently do not affect usage of any of these areas and are unlikely to do so in the future.

Wild and Scenic Rivers

The federally designated wild and scenic reaches of the Willamette River are over 80 miles from the Airport. The Willamette River, when it passes through the area, is not a wild and scenic river. No other wild and scenic rivers are located near the Airport and thus is not expected to impact any designated wild and scenic rivers.

The Willamette River has been identified by the Oregon Department Land Conservation and Development as a greenway (OAR 660-015-0005, Goal 15). The Airport operations currently do not affect development of the Willamette River as a greenway, as outlined in the Goal 15 guidelines, and are unlikely to do so in the future.

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 Polk County, Oregon) found three soil types in the Airport area. They are Amity, Concord, and Dayton silt loam.

Two of the soils mapped within the airport property are designated Prime Farmland if drained, per the USDA Prime Farmland List for Oregon dated March 2015. These two soils, Amity and Dayton, make up about 75% of the total study area. One of the soils, Concord, is designated Farmland of Statewide Importance. Concord soil makes up about 25% of the overall study area. Moreover, within the Airport property, compaction and alteration of the land for airport construction and operation may have altered the makeup and properties of the soil.

Stormwater drainage is present in the Airport but below ground drainage tiles needed to convert Amity and Dayton soils to prime farmland are not installed.

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 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

Independence 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 hangar/apron area and other landside areas.

On-Airport lighting is focused for visibility to aviators, without creating a disturbance or distraction to neighboring businesses and communities. 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 Factors

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 Independence 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 above the Willamette River. Runoff from impervious runway and taxiway surfaces is collected into two drainage basins. The main drainage system includes a network of surface ditches and subsurface pipes. This system drains the northern parts of the runway and taxiway east through the hangar area and into the RTTF community. The drainage system collects additional storm water from this residential area and empties to the southeast under Hoffman Road near the intersection with Stryker Road. A storm water pond is located at the northwest corner of this intersection and is designed to hold storm water before it empties under Hoffman Road. This drainage system has experienced flooding in the past and portions have been upgraded recently to improve water conveyance. Discussions with Airport staff indicate that flooding remains common within the residential area and along the transition area with the Airport. Flooding is not common on the runway, taxiway, or adjacent agricultural fields.

The second drainage system is a ditch which runs along the west side of the runway and drains south under Hoffman Road. This drainage area includes parts of the southern runway and adjacent agricultural fields to the west. Airport staff did not indicate that flooding occurs along this drainage but noted that the culvert under Hoffman Road is relatively small.

Figure V: Streaked Horned Lark

Figure W: Nelson's checker-mallow

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. A search by the Oregon Biodiversity Information Center (ORBIC) identified all species with in a 2-mile radius of Independence State Airport. ORBIC is a state organization which maintains and distributes information about rare and protected species across Oregon. The ORBIC database incorporates data collected by private parties, and State/ Federal agencies such as the U.S. Fish and Wildlife Service (USFWS). Two of the species identified have potential habitat on the site and are included on federal or state endangered or threatened species listings. Any development plans would require an updated review and site visit for presence and effect on these species.

Streaked Horned Lark (Eremophila alpestris strigata): Ground-nesting bird about 6-8 inches in length which prefers open prairies with no trees and few or no shrubs. Habitat for species is

present around runway and taxiway areas. Species was present at the Airport in the most recent survey conducted 2013.

Nelson's Checker-mallow (Sidalcea nelsoniana): Erect perennial plant (40-100 cm) with pink/ lavender flowers in tall spike. Found in open prairie remnants and fallow fields in a range of soils and generally low elevation. Possible habitat present on airport.

The Independence State Airport property includes site conditions typical of an airport facility, in regards to the maintenance of the grounds and vegetation. The Airport is located on a flat plain surrounded by residential and agricultural land uses. Surface water drainage channels through the Airport are not considered fish bearing streams and have been modified so that they no longer resemble natural features. 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. This area provides habitat for Streaked Horned Lark, which have been found in recent surveys on the Airport. An extensive mowing schedule
maintains all vegetation for Airport safety and visibility as required by FAA regulations.

There are no areas of ponding or regular inundation within the airport which might attract migratory waterfowl or other wildlife hazards to aviation. The FAA wildlife strike database does not have any entries for Independence Airport. There does not appear to be any issue with wildlife or bird strikes.

Any activity on the Airport would need to consider impacts to these species under the Endangered Species Act and Migratory Bird Treaty Act. Additional surveys to confirm ongoing presence of Streak Horned Lark at the Airport should be conducted.

Wetlands and Floodplains

Based on the national and local wetland inventories, the airport does not appear to have any wetlands documented on-site. Site observations indicate that areas meeting wetland criteria are likely to be present in drainages around the runway and taxiways and in adjacent agricultural fields. Airport staff noted that occasional flooding occurs mostly east of the taxiway in drainages running into the residential areas. No flooding of the runway or taxiway was reported. 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.

The entirety of the Airport is shown on FIRM Map 41053C0402F (2006) as being within Flood Zone X (Area of Minimal Flood Hazard).

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 and two FBOs that sell fuel and maintain fuel facilities. There is potential for additional contamination anywhere maintenance or fueling takes place, as a result of accidental spills.

In addition to fueling, aircraft maintenance activities may also have contributed to spills. No detailed exploration of spill or contamination history has occurred on the Airport. Any such areas where construction is proposed would need to undergo some level of due diligence, such as a Phase 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. 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 Independence 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.

2.4.3 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. Possible hazardous material issues may also occur in areas where fuel spills have occurred in the past, and the regulatory status of stormwater facilities and Flood Zone X areas may be subject to change in the future.

3. Aviation Forecasts

Critical Design Aircraft: Beechcraft Baron 58 / Airport Reference Code B-1

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 Independence 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 and aviation, 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 Independence State Airport is typically measured by the number of based aircraft and by the number of annual aircraft operations (takeoffs and landings, including touch-and-go operations performed during flight training). 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 (e.g., an aircraft landing then taking off counts as two operations). Aircraft operation forecast data helps in analyzing runway capacity and determining runway, taxiway, and navigational aid requirements by providing input for computer modeling used to estimate future aircraft noise exposure.
- **Critical Aircraft and Airport Reference Code**: The critical aircraft, with its airport reference code, determines many 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 to include them in its Terminal Area Forecasts (TAFs) and the National Plan of Integrated Airport Systems (NPIAS).

3.2 Methodology

The objective of this forecasting effort is to develop 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

The number of Sport Aircraft is expected to grow at 4.2% over the next 20 years while the average annual hours flown for these aircraft is projected

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

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%.

methodology, based on FAA guidance, was utilized to ultimately provide adequate justification for future airport planning and development proposals discussed later in this planning study.

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 generally selected based on the level and type of aviation activity expected at the airport. For Independence State Airport, the forecasting effort will be focused on based aircraft and aircraft operations.

Projecting aircraft operations is generally the most important activity forecast for airfield planning at general aviation airports. Understanding the existing aircraft operations will define the level and type of aviation demand generated at Independence State Airport (as measured by aircraft operations). It is this demand that defines the runway and taxiway requirements.

Based aircraft, which are defined as operational and airworthy aircraft that spend a majority of the year at the Independence State Airport, is also an important measure that will directly influence facilities at the 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

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.

Analyze Data

This step of the forecasting process expands on the previous two steps to insure that all relevant and pertinent data are 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 information 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 Independence State Airport, the best sources for historical aviation forecasts are historical aviation data relevant to the Airport (operations and based aircraft), FAA Aviation Forecasts like the TAF, other FAA and aviation industry forecasts, and socioeconomic data.

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 medium to evaluate the reasonableness of forecast results is to graph the results and 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 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 Data Sources

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

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.

The FAA does not prepare forecasts for non-towered airports. In the case of Independence State Airport, a forecast was prepared as part of a previous planning study and was submitted by the Region to the Aviation Policy and Plans Office (APO) in 2007. The forecast growth rate from that study is currently used by the FAA in the TAF

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 guidance provides methodologies used across the country to estimate operations at airports without an air traffic control tower, such as Independence State Airport.

ACRP Report: Airport Aviation Activity Forecasting

This document, also prepared by the ACRP, 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 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 2017-2037 report was released in March 2017.

General Aviation Statistical Databook and 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 Polk 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 ODA's Oregon Aviation Plan (OAP), Polk County Comprehensive Plans and economic development information for the county and region, were obtained and researched to understand local economic issues. County and City Planning Agencies were represented on the PAC and provided valuable input throughout the planning process regarding local planning issues beyond those shown in the Comprehensive Plan. 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. These questionnaires are included in the appendices section of this report.

3.4 Aviation Trends

Research has shown that trends in national, state and local aviation activity can be correlated to the aviation activity at any particular General Aviation airport. This section will assess these current trends and their possible influence at the Airport.

3.4.1 National Trends and Forecasts

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

GA 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,

Table 3A: National General Aviation Fleet Forecasts			
Aircraft Type	**2016 (Estimated)**	**2010-2016 Historical**	**2017-2037 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%**

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, safety, and security issues associated with airline travel.

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 activity trends. Aircraft type is categorized by either body, fixed wing or rotorcraft, or engine type and number, piston or turbine. 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.

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

Table 3B: National Average Hours Flown Forecasts			
Aircraft Type	**2016 (Estimated)**	**2010-2016 Historical**	**2017-2037 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%
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%**

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. This is an important distinction that could influence future activity at Independence State Airport.

The FAA cautions its forecasts depend on many unknown factors. Some of these factors include the national and world economies, national unemployment, price of oil, and national fiscal issues.

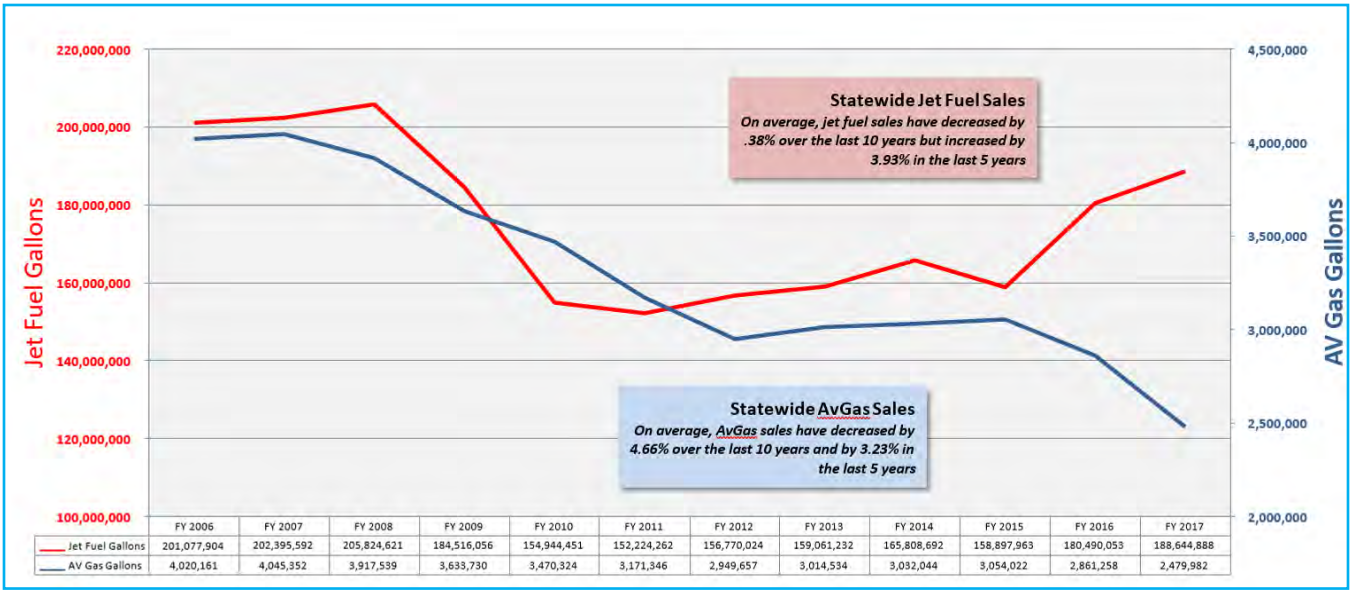
National General Aviation Hours Flown

As the active aircraft fleet grows, the number of GA hours flow 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 of 4.6% for light sport aircraft.

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 primarily for business rather than recreational flying. Growth in both the number of aircraft and hours of operation of sport aircraft has continued since its introduction in 2005.

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. It was anticipated by many that the new law removing the third class medical requirement for private pilots would generate a boost in recreational flying



	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Jet Fuel Gallons	201,077,904	202,395,592	205,824,621	184,516,056	154,944,451	152,224,262	156,770,024	159,061,232	165,808,692	158,897,963	180,490,053	188,644,888
AV Gas Gallons	4,020,161	4,045,352	3,917,539	3,633,730	3,470,324	3,171,346	2,949,657	3,014,534	3,032,044	3,054,022	2,861,258	2,479,982

Figure 3A: State of Oregon Annual Jet Fuel and AvGas Gallons Sold, FY 2006-2017 (Source: ODA Records)

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.

Third-class medical reform could have a significant and positive impact on operations at the Independence State Airport due to the recreational nature of the Airport, Airpark, and regular users of the facilities. Since the new medical standards were launched in 2016, in the first 100 days more than 15,000 pilots nationwide have used the new rule to keep flying. This trend is expected to continue as the BasicMed procedure is more widely adopted.

3.4.2 State Aviation Trends and Forecasts

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 aviation trends is regional aviation activity information and data in the Oregon Aviation Plan (OAP) completed in 2007, and statewide historic fuel sales.

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; 96 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 1.23% by 2030. For the same time-frame, GA operations were projected to grow at an estimated 1.58% . These growth rates

were prepared prior to the economic downturn of 2008.

Statewide fuel sales data available on an annual basis since FY 2006 may suggest a somewhat different picture of what has occurred in the State of Oregon since completion of the OAP in 2007. Aviation gasoline (AvGas) fuel sales, which can be an indicator of aircraft operations, throughout the State have experienced a steady decline (48%) since the recession. Consistent with national trends, GA AvGas sales are largely expected to continue to decline. Jet fuel sales statewide, however, only experienced a 20% decline due to the recession and has since rebounded and grown steadily since 2010 to pre-recession levels. Based on statewide fuel sales data it appears as though there has been a decline of piston driven aircraft operations and turbine aircraft operations experienced a dip but have rebounded or grown since the recession.

3.4.3 Local Aviation Activity and Trends

At many GA airports, it is difficult to obtain accurate operational data. The FAA's Terminal Area Forecast (TAF) serves as the primary source of information and contains estimates of historical and forecast data for airport operations, and based aircraft. The TAF applies a previously established growth trend to an airport's self-reported 5010 data and generally reflects national trends shown in correlation with regional factors. It is prepared annually and generally reflects national trends shown in correlation with regional factors. In addition to the FAA TAF data, annual updates of the inventory data reported to the FAA, and annual fuel sales data will serve as the primary source of aviation activity and trend information.

Based Aircraft

Based aircraft are the number of aircraft that are stored at the Airport in a hangar, Airpark hangar home, or tied down on either a paved apron surface or a grassy area designated for such a use. Historical based aircraft numbers from 1990 through 2015, as reported in FAA's 2017 Terminal Area Forecast (TAF) show an overall increase in total based aircraft. The number of based aircraft has grown 3.8% on average over the past 25 years and 1.8% in the last decade. (**Figure 3B**)

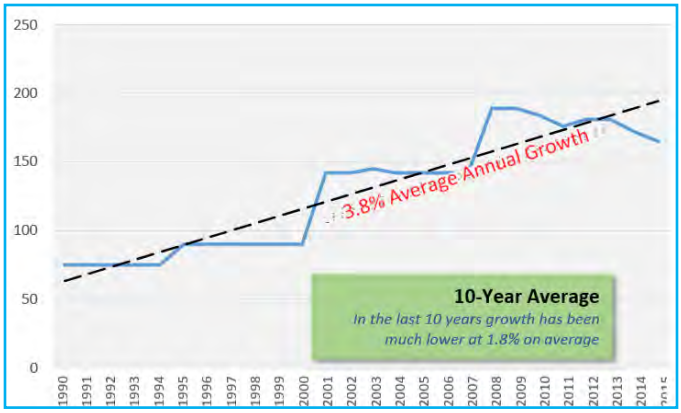


Figure 3B: FAA TAF Historic Based Aircraft

Table 3C: Based Aircraft at Independence State Airport

Aircraft Category	Number Based
Single-Engine Piston	191
Multi-Engine Piston	7
Jet/Turboprop	0
Helicopter	1
Total	**199**

Table 3D: Based Aircraft Hangar Location

Hangar Location	Count
On-Airport Hangar	77
Airpark Hangar Home	122
Total Based Aircraft	**199**

As mentioned, past data are typically not reliable at small GA airports like Independence State Airport and reflect estimates that were often updated infrequently. Regardless, the TAF is still a valuable source for historical based aircraft numbers from which to discern trends. 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, ODA reports 199 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 the based aircraft reported, 191 are single-engine piston aircraft, seven are multi-engine piston, and 1 aircraft is a helicopter. There are no turbine or turboprop aircraft based at the Airport. This baseline information will be used as the starting point for aviation activity forecasts projected to occur at the Independence State Airport over the planning period. (**Table 3C**)

As Independence State Airport features an adjacent residential through-the-fence (RTTF) airpark, some of the based aircraft reported for the Airport are stored in privately-owned hangar homes located in the airpark. These aircraft are granted access to the airfield via an RTTF agreement between the Airport and the Airpark Home Owners Association (HOA). Through the RTTF agreement, the owners of these aircraft pay comparable fees to those fees charged to on-airport tenants and operators and bear the cost of the infrastructure that provides access. At this time, of the 199 aircraft based at the Airport, 77 are stored in hangars located on the Airport and 122 are stored in airpark hangar homes. A breakdown of the based aircraft and their hangar locations is shown in **Table 3D**. For the purpose of this study, the total based aircraft reported and forecasted will encompass both airpark and Airport aircraft together without distinction.

At the first Planning Advisory Committee (PAC) meeting it was pointed out that there has been an increase in the number of gliders based and operating at the Airport. Gliders, ultra-lights, and other non-5010 type aircraft are not included in the based aircraft count. However, it is worth mentioning that the inventory updated by ODA indicated at least six additional aircraft at the

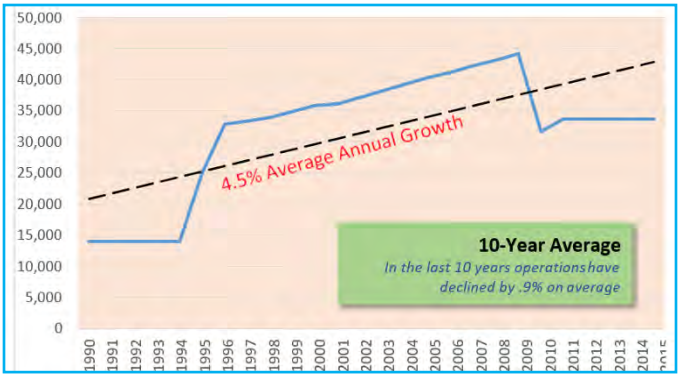


Figure 3C: FAA TAF Historic Aircraft Operations

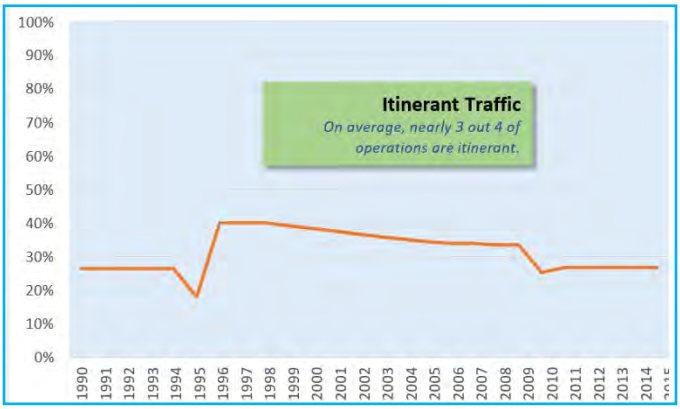


Figure 3D: FAA TAF Percentage of Local Traffic

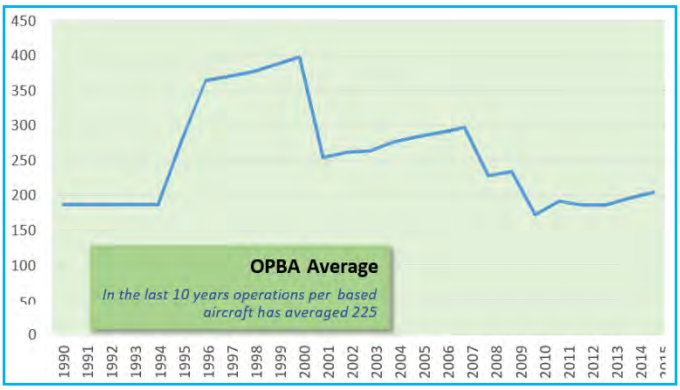


Figure 3E: FAA TAF Average Operation per Based

Airport that consist primarily of gliders. Discussions with local operators indicated operations and the number of aircraft based in this category of aircraft are expected to grow as operations are moved from McMinnville to Independence State Airport permanently over the coming years.

Historic Aircraft Operations

Annual aircraft 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. Itinerant activity refers to all other operations that depart to or arrive from another airport.

Aviation operations estimates, as reported by the Airport as 5010 data and presented in the TAF, depict significant growth over the historical trend of operations at the Airport. In the last 25 years operations estimates have increased 4.5% on average. However, since the recession, growth at the Airport has slowed significantly to .9% on average (**Figure 3C**).

According the FAA TAF, nearly 3 out of 4 operations at the Independence State Airport are itinerant (**Figure 3D**). This sentiment was shared by the Committee at the first PAC meeting as many in attendance at the meeting confirmed the Airport is a destination airport, and many people fly in just to get breakfast at the Starduster Cafe and fuel because it is consistently cheaper than other airports throughout the State.

Another method used to count and estimate operations at GA airports is Operations Per Based Aircraft (OPBA). Historically, the FAA TAF has placed the OPBA count on average between 255 and 225. Over the past 10 years, the OPBA has averaged 225 (**Figure 3E**).

As a means to validate this relationship, OPBA at the Airport was discussed at the first PAC meeting to ensure an acceptable level of operational data was established before finalizing aviation activity data and forecasts. Due to the increase of actual based aircraft identified in the FAA TAF, the OPBA data needed to updated to help establish an updated operations count at the Airport.

OPBA data at area airports (**Figure 3F**) was compared and presented for a discussion by the PAC and stakeholders. Ultimately, it was determined by the State that 204 OPBA (as the forecast average OPBA established by the FAA in the TAF) is an acceptable level to help establish

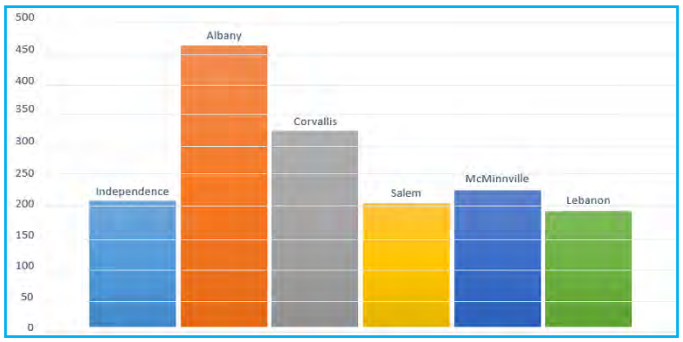


Figure 3F: FAA TAF Operation per Based Aircraft

Table 3E: Airport Operations Estimates last 12 Months

	Operations
Air Taxi	215
General Aviation Itinerant	29,350
General Aviation Local	10,935
Military	0
Total	**40,500**

the latest operational data estimates to be used as the baseline starting point in the activity forecasts.

Historic Fuel Sales

There is 30,000 gallons of AvGas fuel capacity in three different tanks on the Independence State Airport. As previously mentioned, there is no Jet fuel sold on the Airport. Available fuel sales data can be one of the best indicators of aviation activity at a GA airport. Accurate sales data are maintained by operators and the State in an effort to collect a fuel sales tax, which is used to fund airport improvements throughout the system.

The historic fuel sales data at Independence State Airport presented in **Figure 3G** shows fuel sold at the airport from Fiscal Year (FY) 2008 through FY 2017 has been increasing on average. Overall, fuel sales receipts depict an average annual growth rate of 2.4% through FY 2017. However, there have been fluctuations over the past 10 years due largely to the

recession and occasional temporary factors that can lead to variations in sales.

The average annual growth in fuel sales over the last decade indicates that Airport operations have continued to increase despite national and state trends that show a decrease in AvGas and piston-engine aircraft as a whole. At the first PAC meeting, PAC members airport users indicated this was not a surprise because Independence State Airport has the cheapest fuel price per gallon in the State. This trend is a strong indication for continued growth at Independence State Airport.

Estimated Aircraft Operations

With the updated based aircraft count of 199 total aircraft and the selection of 204 OPBA, the planning team has estimated the total operations at Independence State Airport to be approximately 40,500 annual operations.

When distributed by operations type, as shown in **Table 3E**, these relationships are consistent with the data in the FAA TAF. However, based on conversations with Airport users, FBO operators, ODA, and the PAC, it is the general consensus that Jets are not coming to the Airport and the number of Air Taxi operations at the Airport is considered to be significantly less than what is depicted in the TAF. Therefore, the number of Air Taxi operations has been reduced by an estimated 1,000 operations and is reflected in the General Aviation Itinerant category.

3.5 Aviation Forecasts (2018-2037)

The following forecasts provide insight into how aviation activity at Independence State Airport may change over the next 20 years, 2018-2037.

3.5.1 Based Aircraft Forecast

The number of aircraft based at the Airport is an important consideration when planning facilities. There are currently 198 aircraft based on the field. 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 determining and analyzing historical numbers of based aircraft. Then various forecast models prepared for the Airport are analyzed and presented through the forecast planning period.

There is a discrepancy between the National Based Aircraft Inventory and the Airport based aircraft report due to different approaches in

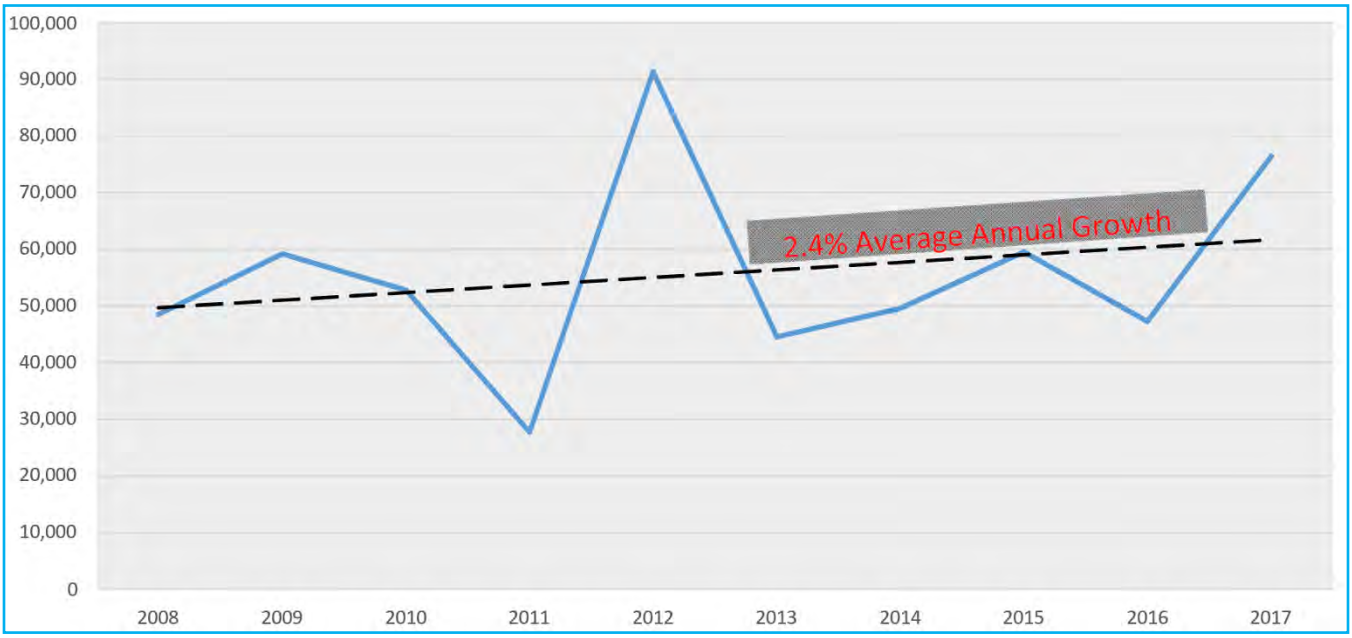


Figure 3G: Historic AvGas Gallons Sold—Independence State Airport (Source: ODA Records)

identifying through-the-fence (TTF) Airpark aircraft. The Oregon Department of Aviation is not aware of any Advisory Circular compliance order or regulation that would not support the Airport data and methodology used in this report.

Eight different forecasting models were analyzed to provide a range of possibilities for based aircraft. The average annual growth rates for these models range from -0.8% to 4.1%. After the analysis, six models that depicted different potential scenarios—but generally covered the full range of the models analyzed—were selected for consideration.

National Sport Aircraft Growth Rate Model (4.1%)

As General Aviation needs change to meet the needs of users, the growth of light sport aircraft is expected to experience a substantial increase over the course of the planning period. These type of aircraft are consistent with the type of aircraft currently based at Independence State Airport. Furthermore, based on historic trends, it is expected this trend will continue well in to the future at the Airport. If applied to the existing based aircraft count independently, the Sport Aircraft growth rate would increase the total based aircraft by 243 for a total of 440 by 2037.

Independence Fuel Trends (2.4%)

Historic AvGas fuel sales at the Airport indicate regular growth in operations at the Airport over the past decade. While fuel sales may not precisely correlate with an increase in based aircraft, applying the 2.4% growth rate to all based aircraft at the Airport would result in an increase of 120 additional based aircraft to a total of 317 by 2037.

Historic Trend (1.8%)

Using TAF based aircraft data trends from 2005 through 2015, the historic trend model projects a continuation of the based aircraft trends identified in the FAA TAF into the future. This model assumes the historical data are defensible and reasonable. As previously mentioned, there can be discrepancies with historic based aircraft counts as many aircraft nationwide were being double-counted at airports prior to online verification. Regardless, forecasting this historic growth rate trend out from the updated based aircraft count results in an additional 84 based aircraft that would base at the Airport for a total of 281 aircraft by 2037.

Terminal Area Forecast (1.4%)

The FAA's TAF for the Airport, prepared in 2017, projects an average annual growth rate of 1.4% out to 2037. As discussed previously, the TAF growth rate was established in a previous planning effort from 2007 and is applied to annually updated aircraft and operations counts. This growth rate is equal to the National Turboprop average as well as the OAP growth rate identified for Independence State Airport. When this growth rate is applied to the updated based aircraft count of 199, the model projects an increase of 63 new aircraft over the 20-year planning period for a total of 260 aircraft.

National Experimental Aircraft (1.0%)

The National Experimental Aircraft model was selected for analysis due to the number of experimental aircraft currently based at the Airport. While this rate is significantly less than the Sport Aircraft growth rate mode, the correlation between these two models cannot be ignored. If the National Experimental Aircraft growth rate were applied to the updated based aircraft count of 199 independently, without consideration of any other model, the result would project a modest increase in based aircraft to a total 240 by 2037.

National Piston Growth Rate Model (-0.8%)

It is assumed that all of the 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 and new experimental aircraft into the Airport, as the national trends would indicate. This forecast model—which is unrealistic—would decrease the total based aircraft to 168 by 2037.

3.5.3 Preferred Based Aircraft Forecast

The National Sport, Independence Fuel Trends, National Experimental Aircraft, and National Piston forecasts were selected to represent three potential ranges (high, mid, and low) to depict future growth in based aircraft at the Airport. 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.

While the Based Aircraft Forecasts 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 Range Forecast

The High Range Forecast is the most aggressive of the forecasts and accounts for growth in the recreational aviation market generated primarily from the growing light sport aircraft market. The high range scenario could result in a based aircraft count of predominately light sport aircraft with a few small multi-engine turbine business aircraft. At the end of the 20-year planning period it is estimated the based aircraft count would fall between 317-440 based aircraft.

Mid Range Forecast

The less aggressive Mid Range Forecast falls in between the Independence Fuel Trends and the National Experimental Aircraft Forecasts. The mid range scenario presents low to moderate growth over the 20-year planning period from slow growth in both the light sport and other small business class aircraft. By the end of the 20-year planning period it is estimated the based aircraft count would range between 240-317 based aircraft.

Low Range Forecast

The least aggressive Low Range Forecast falls below the National Experimental Aircraft model but above the declining trend identified in the National Piston Forecasts. The low range scenario projects a largely declining trend in aviation at the Airport. By the end of the 20-year planning period it is estimated the based aircraft count would fall between 240 and 168 aircraft.

Table 3F: Forecast Fleet Mix

Aircraft Category	2019	2037
Single-Engine	191	252
Multi-Engine Piston	6	8
Jet/Turboprop	0	1
Helicopter	1	2
Total	**198**	**263**

Preferred Based Aircraft Forecast

Each of the seven forecast models examined for Independence are summarized in **Figure 3I**. After discussion with ODA and the Planning Advisory Committee, the consensus preferred forecast range is the mid-range forecast. Three of the forecasts in the mid-range are closely aligned at 1.4% average annual growth – The Oregon State System Plan, the National Turboprop Forecast, and the FAA Terminal Area Forecast. For the purpose of establishing a reasonable forecast of based aircraft for Independence, planners selected the Oregon State System Plan forecast growth rate of 1.4% for the Preferred Based Aircraft Forecast. The preferred model, when forecasted out 20 years, could result in 66 additional based aircraft for a total of 263 aircraft.

Forecast Based Aircraft Fleet Mix

The fleet mix of aircraft based at the Airport summarized in **Table 3F** may slightly change over the forecast period based on national trends and other changing conditions or unknown variables. However, it is expected that single-engine piston -powered type aircraft will remain the predominant aircraft.

3.5.4 Aircraft Operations Forecast

Aircraft operation forecast data helps in analyzing runway capacity and determining runway, taxiway, and navigational aid requirements. Currently the Airport has and average of 92 operations per day (based on the 12-month period ending July 18, 2017). Similar to the based aircraft forecast, various forecast models were 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).

The FAA Aerospace Forecast indicates that GA aircraft usage will increase. While the nationwide fleet is projected to grow 0.1% per year, hours flown are projected to grow 0.9% per year. For the piston fleet, however, the hours flown are expected to decrease by -0.8% annually – alternatively, the turbine fleet is expected to increase usage by 2.5% 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. Therefore, logic dictates that aircraft operations at any given airport will grow at a faster rate than based aircraft.

Six 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 -0.8% to 4.6%.

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 Independence State Airport, an applied rate would more than double annual operations to nearly 100,000 from the current estimate of 40,500, which would likely overstate operations at the Airport.

Independence Fuel Trends (2.4%)

As discussed in the based aircraft forecast, historic AvGas fuel sales at the Airport indicate regular growth in operations at the Airport over the past decade. Applying the 2.4% growth rate to the existing operations estimate of 40,500 would result in an estimated 65,100 annual operations at the end of the 20-year planning period, which is not an unrealistic scenario.

National Experimental Aircraft (2.0%)

The National Experimental Aircraft growth rate of 2% is consistent with the Oregon Aviation Plan (OAP) forecast growth rate for Independence State Airport. 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 an estimated 60,200 operations at the end of the planning period.

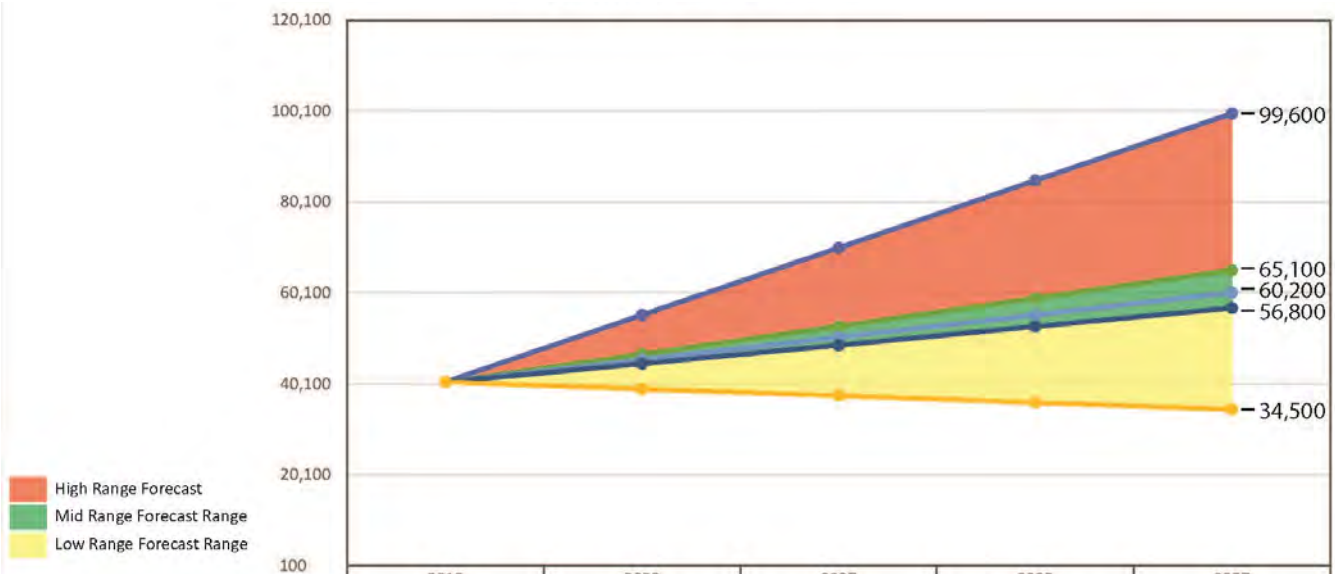
Terminal Area Forecast (1.7%)

The FAA's TAF projects an average annual growth of 1.7% through 2037, which is an increase to 56,700 annual operations from the current estimate of 40,500. As discussed previously, the TAF growth rate was established in a previous planning effort from 2007 and is applied to annually updated aircraft and operations counts.

National Piston Growth Rate Model (-0.80%)
Applying the piston-only growth rate would show a decrease in annual operations over the forecast period, which would not be consistent with local trends at the Independence State Airport.

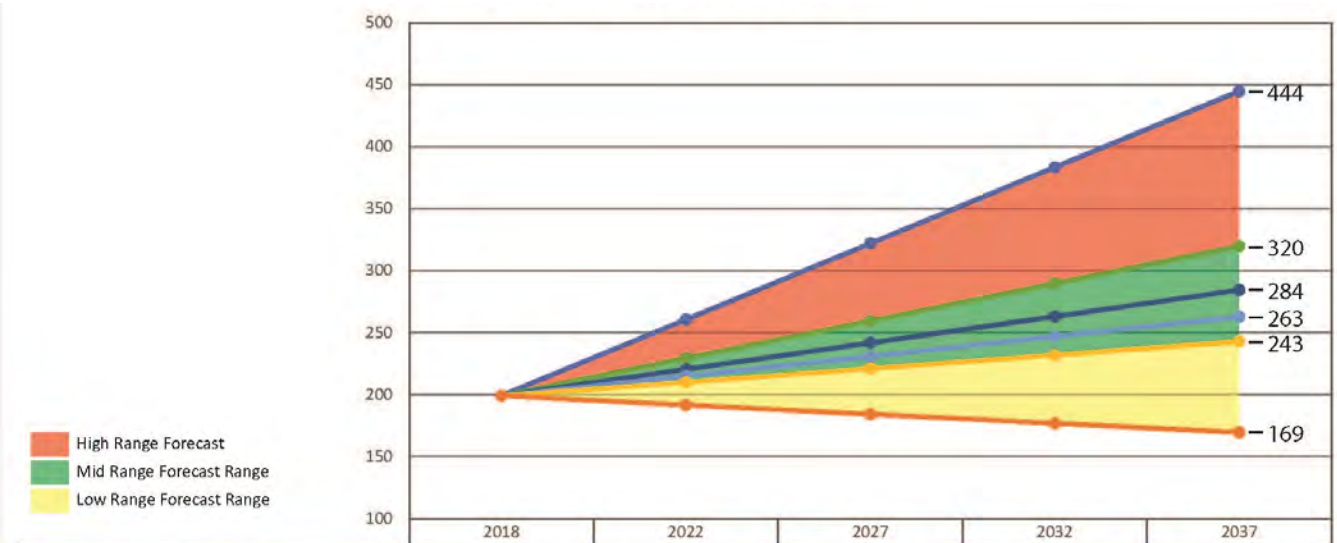
3.5.5 Preferred Aircraft Operations Forecast

The National Sport, Independence Fuel Trends, TAF, and National Piston forecasts were selected to present three potential ranges (high, mid, and low) to depict future growth in aircraft operations at the Airport. As previously mentioned, 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."



	2018	2022	2027	2032	2037
National Sport Aircraft (4.6%)	40,500	55,275	70,050	84,825	99,600
Independence Fuel Trends (2.4%)	40,500	46,650	52,800	58,950	65,100
National Experimental Aircraft (2.0%) State System Plan Growth Rate (2.0%)	40,500	45,425	50,350	55,275	60,200
Independence TAF Growth Rate (1.7%)	40,500	44,575	48,650	52,725	56,800
National Piston (-0.8%)	40,500	39,000	37,500	36,000	34,500

Figure 3I: Operations Forecasts



	2018	2022	2027	2032	2037
National Sport Aircraft (4.1%)	199	260	322	383	444
Independence Fuel Trends (2.4%)	199	229	259	290	320
Independence Historic Based Aircraft (1.8%)	199	220	242	263	284
Independence TAF Growth Rate (1.4%) National Turboprop (1.4%) Oregon State System Plan Growth Rate (1.4%)	199	215	231	247	263
National Experimental Aircraft (1.0%)	199	210	221	232	243
National Piston (-0.8%)	199	192	184	177	169

Figure 3H: Based Aircraft Forecasts

While the exhibit below 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 Range Forecast

The High Range Forecast is the most optimistic range of the scenarios presented and accounts for growth in the recreational aviation market generated primarily from the growing light sport aircraft market. The high range scenario would likely result in a mix of aircraft that consists primarily of light sport recreation aircraft with a moderate growth in small multi-engine piston and turbine business aircraft. At the end of the 20-year planning period it is estimated there would be a range of 65,100 to 99,600 operations per year.

Mid Range Forecast

The Mid Range Forecast presented falls in between the Independence Fuel Sales trend and FAA TAF. The mid range scenario presents moderate growth over the 20-year planning period primarily from steady growth in the light sport and experimental recreation markets along with a small 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 56,700 to 65,100 operations per year.

Low Range Forecast

The Low Range Forecast is the scenario that depicts the least optimistic forecast for the planning period. The low range scenario presented is below the TAF but above the declining trend identified in the National Piston Forecasts. In this scenario, at the end of the 20-year planning period it is estimated there would be a range of 34,500 to 56,700 operations per year.

Preferred Aircraft Operations Forecast

Each of the forecast models examined for Independence are summarized in **Figure 3J.** ODA selected the mid- range forecast as the preferred forecast growth scenario. A growth rate of 1.75% over the 20-year planning period, was chosen to represent the preferred aircraft operations forecast. This average annual growth rate is slightly higher than the FAA TAF but falls slightly below the Oregon Aviation Plan and National Experimental Aircraft operations growth rates. The selected growth rate result in 207 OPBA at Independence State Airport in 2037,which is consistent with the FAA TAF and within tolerances for ultimate FAA approval.

Table 3G: Forecast Local and Itinerant Operations

	2017	2037
Air Taxi	215	755
GA Itinerant	29,350	43,190
GA Local	10,935	16,255
Military	0	0
Total	40,500	60,200

Table 3H: Forecast Operations Fleet Mix

	2017	2037
Single-Engine Piston	39,210	57,925
Single-Engine Turbine	50	300
Multi-Engine Piston	1,215	1800
Turboprop & Turbojet	25	175
Helicopter	200	290
Total	**40,500**	**60,200**

Table 3I: Forecast Peak Operations

	2017	2037
Annual Operations	40,500	60,200
Peak Month (20% of Annual)	8,100	12,040
Design Day (31 days)	261	388
Design Hour (15% of Peak Day)	39	58

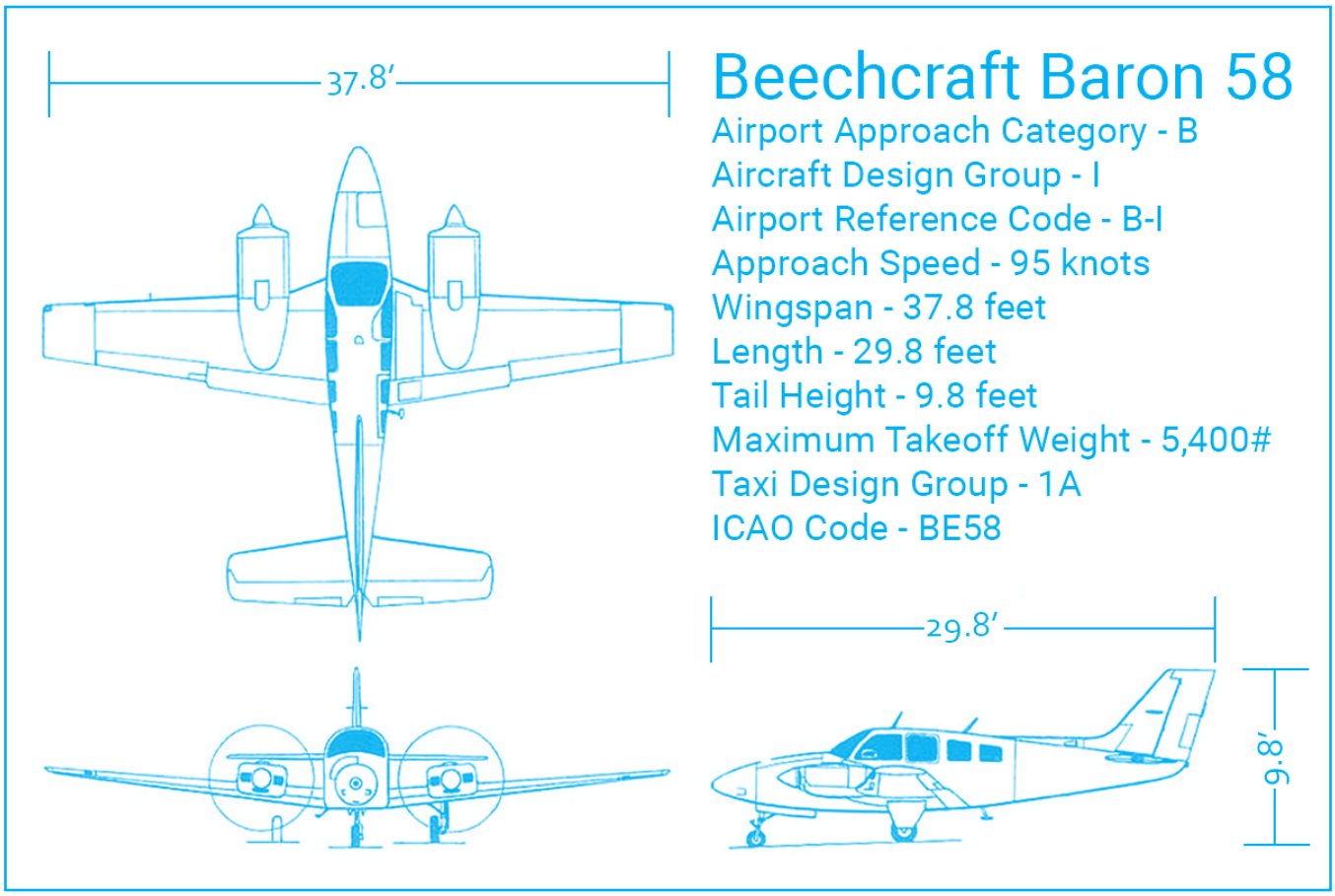


Figure 3I: Beechcraft Baron 58 Critical Aircraft

Local and Itinerant Operations

The local and itinerant share of the preferred forecast for aircraft operations is consistent with the selected average annual growth rates, updated operational estimates presented for 2017, and historic levels of itinerant traffic at the Airport (**Table 3G**). Independence State Airport experiences a significant amount of itinerant activity and that trend is expected to continue throughout the 20-year planning period.

Operations Fleet Mix

The projected fleet mix breakdown of the preferred forecast by single-engine piston, multi-engine piston, turboprop, turbojet, and helicopter in 2037 (**Table 3H**) reflects past trends and existing ratios on the Airport where the mix is predominately single-engine recreational type aircraft.

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. Without clear airport operations data at the Airport it is difficult to determine exact ratios of peak daily or hourly demand. However, in conversations with Airport users, PAC members, and ODA, it is clear that the Airport is much busier in the summer months when weather is more suitable to VFR flying, and on the weekends when people are able to recreate and fly in for breakfast at the Starduster Café. Furthermore, the Airport is much busier in the mornings than in the afternoon during peak days.

During the development of the aviation forecast for the Independence State Airport, the values for average day peak month and for the peak hour were calculated using the standard 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. The resulting forecasted peak operations data are summarized in **Table 3I**.

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". The FAA defines regular use as at least 500 annual local or itinerant operations, excluding touch-and-go operations. The Runway Design Code (RDC) can vary for individual runways by providing standards to serve different critical 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 defined by Roman numerals I, II, III, IV, V, and VI.

The current ARC and RDC for Runway 16-34 is B-I (small) and this designation is projected to remain throughout the planning period. This category accommodates aircraft that have an approach speed lower than 121 knots, and a wingspan less than 49 feet. The "small" designation refers to aircraft with a maximum certificated takeoff weight of 12,500 lbs (5670 kg) or less. (AC 150/5300-13) Historically the critical aircraft selected to designate the "typical" aircraft using the Airport on a regular basis has been the twin-engine turboprop King Air B100. Based on the aviation activity analysis at Independence State Airport, discussions with airport users and ODA, there are very few actual turbine or turboprop aircraft that use the Airport. Therefore, it is more fitting that the critical aircraft reflect the actual "typical" aircraft seen at the airport on a regular basis. As such, the twin-engine piston driven Beechcraft Baron 58, which is also a B-I (small) will be selected as the critical aircraft throughout the 20-year planning period.

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 important to note 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 Airport can proactively accommodate potential growth.

Table 3J: Summary of Preferred Aeronautical Activity Forecast				
Forecast Element	**2017**	**2022**	**2027**	**2037**
Based Aircraft				
Single Engine Piston	191	207	221	252
Multi-Engine Piston	7	7	8	8
Jets/Turboprop	0	0	0	1
Helicopter	1	1	2	2
Total	**199**	**215**	**231**	**263**
Aircraft Operations				
Air Taxi - Itinerant	215	345	485	755
GA - Itinerant	29,350	32,815	36,275	43,190
GA - Local	10,935	12,265	13,590	16,255
Military	0	0	0	0
Total	**40,500**	**45,425**	**50,350**	**60,200**
Operations Fleet Mix				
Single Engine Piston	39,210	43,940	48,540	57,925
Single Engine Turbine	50	75	200	300
Multi Engine Piston	1,215	1,360	1,510	1,800
Turboprop & Turbojet	25	50	100	175
Helicopter	0	0	0	0
Total	**40,500**	**45,425**	**50,350**	**60,200**
Peak Demand (Operations)				
Peak Month - (20%)	8100	9085	10070	12040
Design Day	261	293	325	388
Peak Design Hour (15%)	39	44	49	58
Preferred Based Aircraft Forecast vs TAF (Preferred/TAF)				
Preferred	199	215	231	263
TAF	172	188	204	234
Percent Difference	**15.7%**	**14.4%**	**13.2%**	**12.4%**
Preferred Operations Forecast vs TAF (Preferred/TAF)				
Preferred	**40,500**	**45,425**	**50,350**	**60,200**
TAF	34,313	37,586	40,894	48,355
Percent Difference	**18.0%**	**20.9%**	**23.1%**	**24.5%**

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 such as 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. Facility Requirements and Recommendations are included for development, and the location and/or orientation of each of the required facility types are the subject of the Alternatives Chapter 5. Where applicable, Planning Goals are also included.

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 as well as recommendations from the public 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) over the 20-year planning period. As discussed in Chapter 3, historically the critical aircraft designated for planning and design purposes was a twin-engine turboprop King Air B100. However, based on

Figure 4A: Existing Critical Aircraft

input from airport stakeholders, including users and ODA, there are few turbine or turboprop aircraft in regular use at Independence State Airport. Therefore, the critical aircraft was reevaluated based on the actual "typical" aircraft seen on the airport. As such, the twin-engine piston driven Beechcraft Baron 58, also a B-I (small) will be used as the critical aircraft throughout the 20-year planning period. The Baron has a wing span of 37 feet, 10 inches, an approach speed of 95 knots, and a gross weight of 5,400 pounds (**Figure 4A**).

4.1.2 Oregon Aviation Plan (OAP)

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.

Independence 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.

Based on the Category IV designation, the Oregon Aviation Plan provided a summary of recommended facility improvements for the Independence State Airport that included:

- Install medium intensity taxiway lighting (MITL)
- Install Non-Precision approach
- Install Automated Weather Observing System (AWOS)
- Provide Jet A fueling services
- Provide meeting space, and 24-hour pilot lounge and restrooms in terminal building

In addition to defining the categories listed above, the State of Oregon Resilience Plan 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 three tier system to indicate priorities for future investment.

1. **Where do you put 70 new hangars and 20,000 SY of new apron space?**
2. **Are there future RTTF access points? If so, Where?**
3. **Where does future security fencing begin and end?**
4. **Is there an Instrument Approach? If so, is it lower than 1 mile visibility?**
5. **Is there a grass landing area? Where?**
6. **How do we address the RPZ, displaced threshold, and get a runway length of 3,600'?**

Figure 4B: Scenario Planning Matrix

Independence State Airport is designated as Tier 3 and it is expected the Airport will provide economic and commercial restoration to the entire region in the event of a major disaster such as a Cascadia subduction zone earthquake. Additional study and consideration will be required to fully understand the vulnerability of the Independence State Airport and its ability to maintain operational readiness in the event of a major earthquake.

4.1.3 Public Involvement at the Second PAC Meeting

The second Planning Advisory Committee (PAC) meeting held at the City of Independence Civic Center focused on a small group scenario planning exercise intended to facilitate discussion among PAC members and the public in a format that would generate ideas and discuss potential facility improvements that may or may not satisfy existing and future demand.

The small groups of 4-6 stakeholders and PAC members discussed their views on potential scenarios that might depict how they see the airport developing or evolving over time. Planners at each table then guided the discussion through a number of questions that captured the key ideas of their preferred facility improvements.

While each table identified a unique list of potential facility improvements, common desired facilities included a grass landing strip, an AWOS, MoGas, improved or additional FBO buildings, and improvements that would reduce the industrial feel of the Airport and "clean up the image" as was presented by one of the groups.

The facility improvements information provided by the PAC during the scenario planning exercise is crucial to the development of alternatives, which will reflect this input. The facility goals identified by the PAC and the facility requirements that the Airport and ODA are obligated to satisfy may not always be aligned. Any input that may not be feasible, allowable by FAA, or desired by the State will be acknowledged in the study where appropriate but not necessarily be carried forward in plan development.

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:

- Land Use & Zoning
- Utilities & Storm Drainage
- Airport Fencing & Access
- Hangar Access
- Vehicle Parking
- Hangars
- Residential Through-the-Fence Community
- General Aviation Terminal Area
- Aviation Fueling Facilities

4.2.1 Land Use and Zoning

Responsible land use planning around airports is essential to establish and maintain adjacent compatible uses in the vicinity of the airport. FAA explicitly requires airport sponsors to protect the airport from encroachment by incompatible uses such as dwellings, schools, hospitals, churches, and tall structures that could be hazards to air navigation. Typical methods that are employed by airport sponsors to control land use beyond its boundaries include implementing compatible land use zones, overlay zones, and comprehensive planning.

Once the preferred development plan is established by this master plan, more detailed recommendations for land use will be included. These recommendations will address adjustments to existing land use regulations in order to be consistent with the airport master plan and any associated adjustments to the airport's boundaries for development and airspace protection.

Oregon Airport Land Use Compatibility Guidebook

The Oregon Airport Land Use Compatibility Guidebook provides a comprehensive source of

Table 4A: Preventive Techniques for Establishing Compatible Land Uses

Preventive Measures				
Technique	**Description**	**Advantage**	**Disadvantage**	**When to use**
Comprehensive Planning	Mandated by Oregon Law; describes all future land use for the community	Low cost and minimal controversy if airport is not in a developed area	Not effective when existing incompatible development has encroached on the airport; only effective when supported by zoning	Each time a comprehensive plan is development or updated, steps should be taken to ensure land use compatibility
Coordination Agreements	Agreement between two or more jurisdictions that are impacted by an airport	Most applicable when airport and area of influence are located outside the physical boundaries of the public sponsor	Ineffective unless all parties share similar land use planning goals and objectives for areas in the airport environs	When comprehensive plans are updated and/or urban growth boundaries (UGBs) are amended
Urban Growth Boundaries	Mandated by Oregon Law; limits the developable area within a community	Controls the growth boundaries for a community	Many airports are located within UGBs. This can place the development pressures on property near the airports where adjoining development may be incompatible	Where opportunities present themselves, efforts should be made to have UGB limits and the associated development complement the airport-related safety areas
Airport Overlay Zone	Places additional conditions on affected land; underlying zone remains unchanged	Easy to implement, reduces hazards and incompatible land use	If land us is incompatible in underlying zone, this incompatibility will continue	Required by Airport Planning Rule
Airport Development Zone	Creates separate zoning districts for airports	Creates a more distinct area of influence for the airport; gives the airport better opportunity to expand for airport-related dependent and compatible uses; avoids possible unintended uses that often accompany an overlay zone	Does not include areas beyond airport property; adjacent land uses can still be incompatible	Most applicable to airport property and identified expansion areas
Height Restrictions	Safety mandated by Oregon Administrative Rule Chapter 738, Division 70—Physical Hazards to Air Navigation within the airport object-free zone	Prevents the location of objects which pose violations to FAR Part 77 surface	Only effective in preventing new height obstructions; may not be effective when terrain or trees are obstructions	Should be adopted as part of zoning to support land use identified in Comprehensive Plan. Required by Airport Planning Rule

Source: ODA Airport Land Use Compatibility Guidebook, Table 6-1

information that can be used as a guide to preserve aviation facilities, and to provide for the safety of individuals near these airports through the use of compatible land uses. Preventative techniques for establishing compatible land uses are presented in **Table 4A**.

Zoning is an effective tool used to reduce incompatible land uses in and around airports. It is most effective if implemented early in the development of an airport and its surrounding environs.

- Airport Overlay Zoning—An Airport Overlay Zone is a zone that promotes compatible land uses for specific distances around airports. An Airport Overlay Zone applies additional conditions or restrictions to a specified area while retaining the existing base zoning classification. This zone can be highly effective in addressing a number of potential incompatibilities with airports and airport operations.
- Airport Development Zoning—This type of zoning is applied to areas around an airport identified for airport-related and dependent uses. It often replaces industrial, public facility or other designations currently given to the airport site and immediate vicinity. The Airport Development Zone is a base zoning district that identifies outright and conditionally permitted uses on airport property. The zone should include areas used or needed for airport operations, areas needed for anticipated facility growth, airport -related industry and commercial operations and airport-related industrial, commercial or recreational activities. According to Oregon Administrative Rule (OAR) 660-013-0160, local governments must update their zoning and land use regulations to conform to this division at periodic review.

Polk County and Independence City Zoning Code

The majority of Independence State Airport land is located within the City of Independence's Urban Growth Boundary (UGB) and city limits. A small portion of the property on the north side that extends beyond the city limits and UGB and is subject to Polk County zoning.

Polk County currently zones the airport property that falls under its jurisdiction as "Exclusive Farm Use."

However, Polk County does have an Airport Development District (Chapter 180) within the zoning ordinance that should be applied to the area of the Airport that falls under County jurisdiction. Additionally, the County's Airport Zone Height Limitations (Chapter 181) ordinance, which regulates airspace around the Airport, should be reviewed for consistency with ODA model ordinance recommendations for overlay zones.

The City of Independence Development Code regulates aviation land use compatibility in Subchapters 48, 76, 77, and 78 of the Independence Development Code:

- Residential Single Family Airpark Overlay (RSA) Zone Subchapter 48
- Airport Development District Subchapter 76
- Airport Zone Height Limitations Subchapter 77
- Airport Safety and Compatibility Overlay Zone Subchapter 78

Subchapters 77 and 78 regulate the overlay zones and should be reviewed for consistency with ODA model ordinance recommendations for overlay zones.

Facility Requirement & Recommendation

The Department [ODA] shall provide a draft of the proposed facility plan to planning representatives of all affected cities, counties and metropolitan planning organization and shall request that they identify any specific plan requirements which apply, any general plan requirements which apply and whether the draft facility plan is compatible with the acknowledged comprehensive plan. (OAR 738-130-0055)

It is recommended that ODA work with the City of Independence and Polk County to update their development codes to include current language for airports and aviation land use compatibility to ensure the Airport is protected from encroachment and incompatible land uses.

Runway Protection Zones (RPZ) Land Use

The area south of runway 34, immediately south of Hoffman road falls within the runway 34 RPZ. This property is not owned by the airport and is zoned as "Light Industrial." There are, as discussed previously, certain land use controls in place that protect the Airport from incompatible development within the RPZ. It is preferred that airports own all land within their RPZ in order to fully control land use.

Facility Recommendation

It is recommended that ODA pursue land acquisition of all property within the existing and future RPZs to protect the approach from incompatible land uses, or continue to work with local jurisdictions to ensure RPZs remain clear where practical.

4.2.2 Utilities & Storm Drainage

Independence State airport has access to domestic water and sanitary sewer service, provided by the City of Independence; electrical service, provided by Pacific Power; and communications service, provided by CenturyLink, Charter, or MINET. Generally, these utilities provide adequate service to the airport. However, as discussed in previous planning efforts in the City, any future development west or north of the Airport will require extension of water and sanitary sewer lines in a manner consistent with local planning and development policy and regulations.

Facility Requirement & Recommendation

As previously noted, ODA requires "Coordination Procedures for Adopting Final Master Plans." (OAR 738-130-0055)

It is recommended that any future development associated with Airport expansion be coordinated closely with the appropriate agencies and managing utility.

Facility Goal

In addition to the existing domestic water system, a dedicated fire suppression water supply line should be considered for all future development and a retrofit for existing facilities be investigated if future fire codes require.

Storm drainage issues due to standing water on both the airport and airpark property have been identified as an ongoing problem in PAC meetings and in previous planning efforts. A 2013 drainage study completed by 3J Consulting identified several system deficiencies. These issues are discussed in detail in Chapter 2. The drainage system and its deficiencies are complex and there is the potential for enhancements done on airport property to have adverse effects downstream, off property.

Facility Recommendation

It is recommended that ODA, landowners of developable land near the Airport, the Independence Airpark Homeowners Association (HOA), and the City of Independence, collectively conduct a comprehensive Storm Water Detention/Drainage Master Plan to comprehensively address any existing deficiencies in coordination with any impacts future development may have on existing infrastructure and environmental resources.

4.2.3 Airport Fencing

The airport is not completely fenced. The south end of the airport along Hoffman road is fenced with approximately 1,500' of six-foot tall chain link with barbwire strands at the top. Two vehicle access gates, which were recently installed, are located along Airport Road at the terminus in the main parking lot and on the north end of the south hangars. There are also several cable-type break away gates located in the south hangar development area.

Generally speaking, the lack of perimeter fencing and security gates does not appear to be a major concern according to the PAC. However, the PAC did identify the need for additional wildlife fencing that should be considered along the west and north sides of the property to prevent wildlife encroachment (e.g. elk).

Facility Recommendation

It is recommended that wildlife fencing be constructed on the west and north sides of the airport to prevent any potential non-avian wildlife hazards to aircraft.

Additional discussions during the alternatives process were considered to determine if a security/safety fence or barrier was needed to control airfield access in the GA Terminal Area and Airport from the adjacent RTTF neighborhood while still preserving the physical and social connection that exists between the two facilities. The type, style, and height of any fencing to be installed in the GA Terminal Area could be critical to determining the location of any future fencing on the Airport.

Facility Recommendation

It is recommended ODA continue to work with the PAC, airport users, and Airpark HOA members in the future to identify the proper location, style, and height of any future fencing.

4.2.4 Hangar Access

Access to hangars on the Airport is provided from Airport Road by way of Hoffman Road. Airport Road also provides access to the FBOs and the Starduster Café. Access for the RTTF hangar homes in the Airpark is generally provided by Stryker Road and neighborhood streets stemming from Stryker Road. Generally, current access to existing hangars is sufficient and should be maintained or improved with better surfaces throughout the planning period. However, some existing hangar access roads are unpaved gravel surfaces. Such surface types are not preferred in the airfield environment as the rocks/gravel can be tracked on to taxiways, aprons, and runways creating foreign object debris (FOD) hazards capable of damaging aircraft.

Facility Recommendation

It is recommended that ODA pave existing gravel hangar access roads and plan for the additional access roads that may be required for future hangar development areas.

4.2.5 Vehicle Parking

Surface parking on the airport is available in the paved lot adjacent to the Starduster Café (approximately 32 spaces), and in front of the FBOs and EAA buildings (approximately 20–30 spaces). Additional overflow parking can be accessed in the gravel lot north of Independence Aviation. Generally, airport users tend to park their vehicles either next to or inside their hangar space while they are using their aircraft. The current parking configuration is sufficient and should be maintained through the planning period. However, paving of existing gravel and dirt parking areas should be considered.

Facility Recommendation

It is recommended that ODA develop additional parking areas necessary to accommodate future development of hangars and GA facilities as those facilities are constructed.

4.2.6 Hangars

The airport has approximately 160,000 SF of hangar space composed of 56 conventional box hangars, one 5-unit T-hangar, and one 7-unit T-hangar. At this time, all of the hangars located on the airport are occupied. The Preferred Aeronautical Activity Forecast for Independence State Airport, as detailed in Chapter 3, estimates an increase of 64 based aircraft (61 single-engine, 1 multi-engine, 1 jet and 1 helicopter) over the 20-year planning period. Using the planning standards of 1,200 SF per single-engine aircraft; 3,000 SF per multi-engine, jet or helicopter; and an additional 15% of total space for maintenance and service space, it can be determined that approximately 94,540 SF of additional hangar space will be needed over the course of the planning period. Currently, there is very little property on the airport available for expansion. Therefore, additional land will be required to satisfy future hangar requirements.

Facility Recommendation

It is recommended ODA acquire the land necessary to satisfy future airport property development to the west and/or north of the Airport to satisfy future demands for hangar space.

4.2.7 Residential Through-the-Fence Community

A unique aspect of this airport is the relationship that it shares with the adjacent airpark community under a residential through-the-

fence (RTTF) agreement. These facilities have a symbiotic relationship where each benefits through the existence of the other. The privately owned hangar-homes within the community are dependent on the state-owned aviation facilities and in turn, the resident pilots are responsible for a significant portion of the operations on the airfield each year.

The RTTF concept has proven very successful at this facility. However, increased FAA scrutiny of RTTF agreements has required that ODA must ensure that both entities comply with certain use, financial and safety regulations in order to maintain the relationship. The RTTF agreement is discussed in greater detail in Chapter 2. Continued close coordination between the airport, airpark HOA and ODA is necessary to maintain this mutually beneficial agreement.

Facility Recommendation

It is recommended that ODA continue to work with the FAA, RTTF residents, and the HOA to improve and preserve the unique character of the Independence Airpark as well as to enhance the security and safety of the existing RTTF access points and any future access points that may be considered.

4.2.8 General Aviation Terminal Area

As discussed in Chapter 2, the GA Terminal Area is the hub of activity on the airport. It houses two FBOs, a restaurant, and the EAA Chapter 292 clubhouse. The two FBOs provide flight training, glider instruction, aircraft rental, fuel services, pilot supplies, a courtesy vehicle, and restroom services. Currently, the GA Terminal Area development sites are completely built-out or planned for future development. Any further expansion of FBO operations will require additional building space in a new location. Since there are no sites available for further development in the present GA Terminal Area, expansion of the current airport property is required to accommodate any additional GA building space.

Facility Recommendation

It is recommended ODA acquire the land necessary to satisfy future airport property development to the west and/or north of the Airport, which is necessary to accommodate additional GA Terminal Area and appurtenant facilities.

Facility Goal

It is recommended ODA pursue additional facility improvements (landscaping, fencing, ornamental features, etc.) within the existing GA Terminal Area that would improve the appearance of the Airport and enhance the image of the Airport.

4.2.9 Aviation Fueling Facilities

AvGas is available for sale from the two FBOs at the airport. Independence Aviation provides 100 LL fuel in two 10,000 gallon tanks and Nutsch Aviation provides 100 LL fuel in a single 12,000-gallon above ground tank.

During PAC meetings, the introduction of two types of fuel at the Independence State Airport was discussed among stakeholders and PAC members. The pros and cons of both MoGas and Jet A were discussed at the second PAC meeting. The general consensus was that offering MoGas for sale on the Airport would be beneficial to existing Airport users that may have a Supplemental Type Certificate (STC) for their airplane that allows them to use MoGas as opposed to the more traditional 100LL that is currently available at the Airport. For many members of the public present at the meetings, the discussion around Jet A was focused on prohibiting the introduction of Jet A to the Independence State Airport. It was pointed out that the State cannot prohibit someone from selling Jet A as long as they meet the requirements.

Facility Goal

It is recommended that ODA pursue the introduction of MoGas on the Airport due to the increased use of light sport aircraft utilizing this fuel.

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 subjects:

- Airfield Pavement Condition
- Runway Orientation, Length, Width, and Strength
- Taxiways/Taxilanes
- Aprons and Aircraft Parking
- Airfield Lighting and Signage
- Airport Navigational Aids (NAVAIDS)
- Weather Observation System
- Remote Communications Outlet (RCO)
- Airfield Design Standards
- Airspace

4.3.1 Airfield Pavement Condition

In 2018, the Airport's PCI was updated for all 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 2018 study presented in Section 2.4.1 of this Master Plan, the overall condition of the Airport's paved surfaces is classified as "Good," with an area-weighted average PCI value of 89.

Facility Recommendation

It is recommended that ODA make the necessary improvements to pavement with PCI values less than 70. Standard practice suggests pavement rehabilitation for any pavements with PCI values between 70 and 41. Pavements with a rating less than 40 should be considered for reconstruction. All remaining pavement should continue to receive preventative maintenance in accordance with the Airport's pavement management plan.

4.3.2 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.

Table 4B: 10.5 Knot Crosswind Component Wind Data Table

All-Weather Wind Data	
Runway 16	69.52%
Runway 34	56.45%
Runway 16/34 Combined	98.57%
IFR Wind Data	
Runway 16	75.09%
Runway 34	68.28%
Runway 16/34 Combined	99.62%
VFR Wind Data	
Runway 16	67.86%
Runway 34	52.99%
Runway 16/34 Combined	98.35%

Note: Salem McNary Field wind data for period of 2008 - 2017 obtained from FAA at: https://airports-gis.faa.gov/windRose/

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 Airport Design Group (ADG) I.

Table 4B summarizes the findings of the wind analysis run for Runway 16-34 under IFR, VFR and all-weather conditions. The analysis shows wind coverage of 99.62%, 98.35% and 98.57%, respectively. These results indicate that the current runway orientation provides adequate wind coverage and should be maintained through the planning period.

4.3.3 Runway Length & Width

Length

The current published length of Runway 16/34 is 3,142 feet with a 140 foot displaced threshold on the Runway 34 end. However, as discussed

previously, the pavement is actually an aligned taxiway. This condition is not accurately depicted on the Airport Master Record and the discrepancy effectively reduces the runway length to 3,002 feet.

The runway should be long enough to support takeoffs and landings of the critical aircraft, a Beechcraft Baron 58. According to runway distance curves published in FAA Advisory Circular 150/5325-4C, *Runway Length Recommendations for Airport Design*, a runway length of 3,100 feet will accommodate 95% of the airport's anticipated fleet. The 95% of fleet category applies to airports that are primarily intended to serve medium size population communities with a diversity of usage and a greater potential for increased aviation activities. Also included in this category are those airports that are primarily intended to serve low-activity locations, small population communities, and remote recreational areas. Their inclusion recognized that these airports in many cases develop into airports with higher levels of aviation activities. (AC 150/5325-4B)

Basic and local airports fall within the 95% of fleet category. Local airports supplement communities by providing access to primarily intrastate and some interstate markets. Basic airports link the community with the national airport system and support general aviation activities (e.g., emergency services, charter or critical passenger service, cargo operations, flight training and personal flying. (FAA Airport Categories)

It is also stated in 4C that 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. In the case of Independence State Airport, the runway is 180 feet MSL and the average maximum temperature of the hottest month is 84° Fahrenheit. In those conditions, it is assumed that the distance curves published in the AC are accurate, and they will be used to determine the appropriate runway length.

Previous planning efforts have identified a recommended runway length of 3,610' as required to accommodate the previous critical aircraft the Beechcraft King Air B100. This ultimate runway length is currently depicted on the signed and approved ALP. The new critical aircraft, the Beechcraft Baron 58, has the same aircraft approach category B with slower approach speed and same airplane design group I with narrower wingspan. The current runway design accommodates the new critical aircraft.

Width

The Beechcraft Baron critical aircraft is in Airplane Design Group I with a runway design standard width of 60 feet. The existing 60-foot wide runway accommodates the critical aircraft and 95% of the airport's anticipated fleet. Basic and local airports fall within the 95% of fleet category. (FAA Advisory Circular 150/5300-13)

Facility Requirement & Recommendation

It is recommended that Runway 16/34 be extended to a minimum of 3,100 feet (excluding the 140 foot aligned taxiway) or 3,650 feet in total length to meet the recommended runway length for 95% or 100% of the anticipated fleet respectively as shown in FAA Advisory Circular 150/5325-4C. Additionally, it is recommended that the 60-foot runway width be maintained throughout the planning period.

4.3.4 Runway Pavement Strength

It is imperative that the runway pavement be capable of withstanding repeated operations by the heaviest aircraft anticipated to use airport. According to the most recent ALP, the pavement strength rating of Runway 16/34 is 12,500 pounds single wheel gear (SWG). The current strength rating will be adequate through the planning period.

4.3.5 Runway Markings

Runway markings are designed according to the type of approach available on the runway. FAA Advisory Circular 150/5340-1L, Standards for Airport Markings, provides the guidance for

airport markings. Basic (visual) markings are currently in place on Runway 16-34. Runway markings will need to be updated if the Airport implements a non-precision approach in the future. The magnetic variation change for Independence State Airport requires renumbering the runway designators from 16/34 to 17/35. This is reflected in the ODA Oregon Runway Magnetic Variation Changes table.

Facility Requirement & Recommendation

Runway Pavement markings at the Airport are adequate for the current configuration and should be maintained in concert with scheduled pavement maintenance. Markings—including new runway designators—should be updated appropriately for any future runway upgrades.

4.3.6 Alternate Grass Landing Area

At the second PAC meeting, a desire for an alternate grass landing area (AGLA) was identified to better serve the broad range of operations on the Airport. These grass strips are often used by small aircraft such as gliders, ultralights, and taildraggers. The subsequent development alternatives will examine the feasibility of such a strip and identify possible locations.

Facility Goal

It is recommended that ODA evaluate the feasibility, cost, and practicality of adding an AGLA at Independence State Airport as part of this Master Plan.

4.3.7 Taxiways and Taxilanes

Runway 16/34 currently has a full-length parallel taxiway which provides safe, efficient traffic flow and eliminates the need for aircraft to back taxi before takeoff or after landing. 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.

Taxiway width is determined based on the Taxiway Design Group (TDG) of the critical aircraft. The Beechcraft Baron 58 is classified as TDG 1A which requires a taxiway width of 25 feet. The existing taxiways at the airport are 30 feet wide, which exceeds the design standard.

Another important consideration is the runway centerline to parallel taxiway centerline separation distance. The Airport Layout Plan provides runway and taxiway data relevant to separation distance. The current separation distance is 150 feet which satisfies FAA standards and should be maintained through the planning period.

Connector Taxiways A2 and A4 each provide direct access to the runway via the apron exit and RTTF Taxiway Golf, respectively. FAA Engineering Brief No. 75 recommends that taxiway configurations that allow direct access to the runway should be avoided. Taxiway geometry should force pilots to consciously make a turn prior to entering the runway in order to promote situational awareness and to decrease the risk of runway incursions.

Facility Requirement

Taxiways A2 and A4 will be relocated to positions that do not allow direct runway access.

Currently there is an aligned taxiway at Runway 34. FAA Advisory Circular 150/5300-13A explicitly states that aligned taxiways are not allowed and should be removed preferably through abandonment of pavement or, at a minimum, through the placement of appropriate markings. While this aligned taxiway or displaced threshold issue needs to be resolved, even at the published length of 3,142 feet the runway does not satisfy standards for FAA recommended runway length.

Facility Requirement

ODA will address the aligned taxiway issue through abandonment/realignment of the connector taxiway pavement and appropriate pavement markings on the taxiway and/or runway. This may be part of a future runway and taxiway rehabilitation, airport improvement program (AIP), or pavement maintenance program (PMP).

As discussed in previous sections of this master plan, the projected increase in airfield operations over the planning period will require expansion of

the airfield to accommodate additional apron, hanger, and GA terminal areas.

Facility Recommendation

The likely location for such expansion is the property to the west of Runway 16/34. A parallel taxiway will be needed to provide access to west -side apron and hangar facilities. Therefore, it is recommended that ODA pursue development of a west side parallel taxiway and appurtenant connector taxiways to provide aircraft access to/ from future west-side development.

4.3.8 Aprons and Aircraft Parking

Currently, there are approximately 38 tiedown positions at the Airport. No based aircraft are presently stored in tiedowns. As it is the preference of aircraft owners to store their aircraft in hangars, it is assumed that few 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:

1. Peak Day Operations (from Chapter Three)
2. Divide by 2 (half of operations are departures)
3. Multiply by 50% (assumes 50% of the transient airplanes will be on the apron during the peak day)

$$388 \div 2 \times .5 = 97$$

Using this methodology, it can be determined that the airport will require the addition of 59 tiedown spaces over the planning period.

At this time the Airport has an estimated 18,600 square yards (3.8 acres) of apron area. Assuming an average parking space area of 400 square yards per aircraft, the airport currently has space to accommodate an additional 6 spaces on the existing apron for a total of 46. However in order to accommodate the remaining 51 tiedown spaces needed over the planning period, an additional 20,400 square yards (4.2 acres) of apron will need to be constructed.

Facility Recommendation

It is recommended that ODA pursue development of an additional 20,400 square yards of apron space to satisfy future demand requirements for itinerant aircraft tiedown spaces.

4.3.9 Airfield Lighting and Signage

There is lighted signage adjacent to Taxiway A identifying the connector taxiways at the respective hold positions. There are also unlit signs marking taxilanes that provide access to through-the-fence hangar homes. Any future taxiway development will also require additional signage.

Facility Goal

It is recommended that signs be maintained throughout the planning period and all signs built with future development be lit.

Runway 16/34 is equipped with medium intensity runway edge lighting (MIRL). Taxiway A is unlit and marked with blue reflectors. The Oregon Aviation Plan recommends installing low intensity taxiway lighting / reflectors as an "Improvement Needed to Meet Objective" for taxiway lighting. The taxiway lighting objective is to provide identification of the taxiways at night and during periods of reduced visibility.

Facility Goal

It is recommended that the low intensity taxiway lighting (LITL) be installed on Taxiway A as well as any future taxiways constructed over the planning period.

4.3.10 Airport NAVAIDS

Airport Navigational Aids (NAVAIDS) provide navigational assistance to aircraft for approaches to an airport. NAVAIDS are classified as visual approach aids or instrument approach aids and discussed further below.

Visual Approach Aids

Runway 16/34 is an established visual approach runway. There is a segmented circle containing a

lighted wind indicator west of the runway at midfield and a rotating beacon is located on the east side of the runway atop a tower located next to the airport restaurant. Both runway ends have a four-light Precision Approach Path Indicator (PAPI) which provide glideslope information to pilots on final approach. These visual approach aids should be maintained through the planning period.

Instrument Approach Aids

Currently the airport does not have an instrument approach procedure (IAP). The Oregon Aviation Plan indicates that a non-precision IAP is a "Desired Criteria" for Independence State Airport. However, the planning process has identified mixed feelings by the PAC about developing an IAP at Independence State Airport. Many people involved in the planning process that have shared their opinions strongly feel that the Airport should not pursue an IAP due to the impacts on the airspace which would lower the Class G ceiling from 1200' AGL to 700' AGL over much of the area surrounding the Airport and negatively impact their flight training operations.

However, other people have also voiced their opinion in favor of pursuing an instrument approach procedure. Typical comments in favor of an IAP include:

"There are many instrument rated pilots and owners (or builders) of highly capable IFR-equipped aircraft, and we want to be able to use them to their fullest capability. When the weather is marginal, I don't want to have to fly into a neighboring airport and scud-run over here. I'd rather do it the right way, with a real instrument approach, which is also the safe way."

Per the Oregon Aviation Plan, instrument approach aids are not an objective for Category IV airports such as Independence State Airport.

Facility Goal

It is recommended that ODA plan airfield facilities in a manner that will allow for the future implementation of an instrument approach procedure with minimum visibilities of "not lower than 1-mile." If deemed appropriate that an instrument approach is necessary for future Airport operations, it is recommended ODA work with FAA flight procedures to request a GPS instrument approach procedure for Runway 16/34.

4.3.11 Weather Observation System

An Automatic Weather Observation System (AWOS) is the preferred system for an airport like Independence State. 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. Currently the Airport does not have a weather observation system installed, however there is a system installed at McNary Field Airport (SLE) located 9 miles to the east.

While on-site weather observation data are valuable, the convenience comes at a tradeoff. First the AWOS sensors often require large critical areas to remain free of obstructions in order to record accurate data. Most notably, the wind sensor requires a critical area of 500 ft in all directions. This equates to nearly 18 acres of land that would need to be owned by ODA. However, it could not be developed for aeronautical or commercial uses. Second, an AWOS requires annual calibration, maintenance, and testing. These expenses are not eligible for FAA grant assistance and would be the responsibility of the sponsor.

Facility Goal

It is an ODA goal to install AWOS or similar automated airport weather station at all state airports, and options to install a towered facility or ground facility will be evaluated in future plans that consider new technologies in weather reporting capabilities.

4.3.12 Remote Communications Outlet

A Remote Communications Outlet (RCO) is an FAA-owned and maintained unmanned communications facility remotely controlled by air traffic personnel. The systems were established for the purpose of providing ground-to-ground communications between air traffic control specialists and pilots located at a

satellite airport for delivering en route clearances, issuing departure authorizations, and acknowledging instrument flight rules cancellations or departure/landing times. As a secondary function, they may be used for advisory purposes whenever the aircraft is below the coverage of the primary air/ground frequency

In 2017 the FAA began decommissioning RCOs nationwide in an effort to create a more cost-effective and efficient system. The goal is to eliminate redundant and under-utilized facilities while maintaining at least 90% of the current coverage at 1,000 feet AGL. Some existing facilities will be relocated or improved, but there are no plans to build new RCO facilities at this time.

Currently there is not an RCO on the Airport. There are no other telecommunications facilities on-site to co-locate an RCO, nor are there any currently-identified, suitable, municipal properties on which to install the equipment. There is an RCO located at McNary Field (SLE), 9.5 miles northeast in Salem. However, that system is not accessible at Independence State Airport due to topographic obstructions between the two facilities. Establishing a dedicated RCO for Independence State Airport likely is not feasible based on existing constraints and FAA policies to create more efficient and streamlined services through reduction in the number of RCOs. A more feasible option could be to relocate the SLE RCO to a position capable of also serving Independence State Airport. However, even to assess the feasibility of relocating the RCO would require an in-depth coverage analysis to determine what affects moving the equipment would have on the FAA's RCO network as a whole. Such an analysis is outside of the scope of this master plan.

4.3.13 Airfield Design Standards

FAA Advisory Circular 150/5300-13A, 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 as described in the existing conditions chapter, include the Runway Safety Area (RSA), Object Free Area (OFA), Obstacle Free Zone (OFZ), and Runway Protection Zone (RPZ).

The RSA, OFA, and OFZ for Independence State Airport currently meet standards and no corrections are required. However, as previously discussed, there are two issues concerning the land use of the property within the Runway 34 RPZ. The first is the presence of Hoffman Road within the RPZ. FAA standards prohibit public roads from transiting through an RPZ. Hoffman Road predates the establishment of the RPZ design standard and is considered an existing nonconforming use. As such, it is allowed until a new review of the RPZ land use is trigged by a change to the runway end or approach classification. However, in discussions with FAA it was suggested that the nonconforming land use should be addressed over the term of a 20-year planning period.

Facility Recommendation

It is recommended that ODA and the City collaborate to develop an acceptable strategy to mitigate the incompatible land use of Hoffman Road within the RPZ.

4.3.14 Airspace

An in depth explanation of FAR Part 77 imaginary surfaces is provided in Chapter 2 of this report.

In summary, the primary surface is longitudinally centered on the runway and extends 200 feet beyond each end of the runway. 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 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. The 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). The transitional surfaces extend to where they intercept the horizontal surface at a height of 150 feet above the runway elevation. The approach surfaces are longitudinally centered on the extended runway centerline, the

approach surface extends outward and upward from the end of the primary surface. An approach surface is applied to each end of each runway based on the type of approach.

The FAR Part 77 surfaces will be illustrated as part of the Airport Layout Plan (ALP) drawing set. As noted in Chapter 2, a cursory airspace evaluation has been completed based on publicly available LiDAR data. This preliminary evaluation identified no significant potential obstacles.

Facility Recommendation

It is recommended that ODA, as part of this master plan, conduct a comprehensive analysis of the obstructions identified in the AGIS survey and present an obstacle disposition plan with appropriate recommendations for removal and/or lighting of any obstacles identified.

4.4 Airport Administration Requirements

Independence State Airport is managed by the Oregon Department of Aviation (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 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 Airports eligibility to receive grant funding.

Facility Requirement

ODA will continue to work with FAA officials to assure that all federal grant assurances and regulatory standards are met.

4.4.2 Records

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

ODA will continue to keep financial records and logs of activity at the Airport.

4.4.3 Ties to community

The Airport plays an important role in the City of Independence. It is important that the general population understand the critical role the Airport plays. Through Fly-Ins, the nationally known RTTF community, and tourism, the Airport connects the City to other parts of the region and State. These connections help generate revenue and promote business development.

Facility Goal

It is recommended that ties to the local community be maintained and enhanced though local outreach and public events held at the Airport.

4.4.4 Emergency Services

There are no Aircraft Rescue and Firefighting (ARFF) facilities available at the Airport, nor does FAA require them. The Independence Police Department and Polk County Fire District provide first responder and emergency services. These emergency services are adequate for the planning period.

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 Factors

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 be a concern.

Noise

Airports can often be sources of noise in the community. Noise levels are assessed through noise studies that determine Day-Night Noise Level (DNL). The 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. Independence State Airport (B-I small) is forecasted to accommodate 57,300 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 for airport development projects may 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 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 that Federal agencies 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 Independence 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 within the city of Independence, the Willamette River to the east of the airport, and Minto- Brown Island Park located 7 miles northeast of the airport. 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 designated wild and scenic reaches of the Willamette River are over 80 miles from the Airport. The portion of the Willamette that passes near the airport is not designated as a wild and scenic river. Furthermore, no other area rivers or streams are designated as wild and scenic. As such, neither the current airport, 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. While two "prime farmland" soil types (Amity and Dayton) 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 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.

Air Quality

The EPA has developed the National Ambient Air Quality Standards (NAAQS) for seven major pollutants, including two sizes of particulate matter. Currently Independence 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 to be the case 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

Independence State Airport is located on an upland plain above the Willamette River. Impervious surface runoff is collected and routed off property via two drainage ditches and subsurface pipes. Flooding of the airport drainage areas and the neighboring residential area has been an ongoing issue despite recent system enhancements the improve water conveyance. As discussed in the Utilities and Storm Drainage Requirements section, the drainage system and its deficiencies are complex and include areas beyond the airport property. The airport should work with the City of Independence to conduct a Storm Water Detention/Drainage Master Plan to study the issue, identify possible solutions, and determine their effects on the system as a whole.

Endangered and Threatened Species

The Federal and State Governments have 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, the species and their habitats are provided special protections. A detailed breakdown of species classified as threatened and endangered that are potentially present in the area of the Airport can be found in Section 2.6.2.

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 Wetlands Inventory (NWI) and local wetland inventories, the airport does not have any NWI mapped wetlands on site. However, drainage areas that are not identified in NWI mapping may be considered jurisdictional waters under review of the US Army Corps of

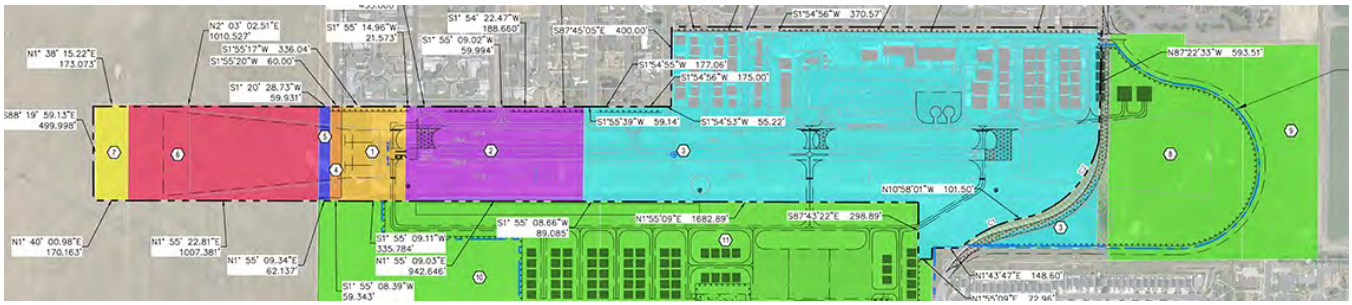
Engineers. Observations during a preliminary site survey indicate that areas meeting wetland criteria may be present in drainage areas around the runway and taxiways.

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.

At this time, the entirety of the airport property is located in FEMA FIRM Flood Zone X (Area of minimal Flood Hazard). The areas flagged for future development to the west of the current property are also zoned as Flood Zone X. The airport staff have noted that occasional flooding occurs in the drainage areas east of the taxiway due to capacity issues with the current drainage system. There has been no reported flooding of runway or taxiways.

5. Airport Development Alternatives



5.1 Introduction

The objective of Chapter 5, 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. Several realistic airport layouts that incorporate the facility needs and recommendations identified in Chapter 4, Facility Requirements, are presented and reviewed in the following chapter.

It should be noted that although the master plan update is limited to a 20-year planning period, the ODA's vision for the development of Independence State Airport extends well beyond this planning period. In order to account and protect for 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 examine 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 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.

Three build alternatives and a 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

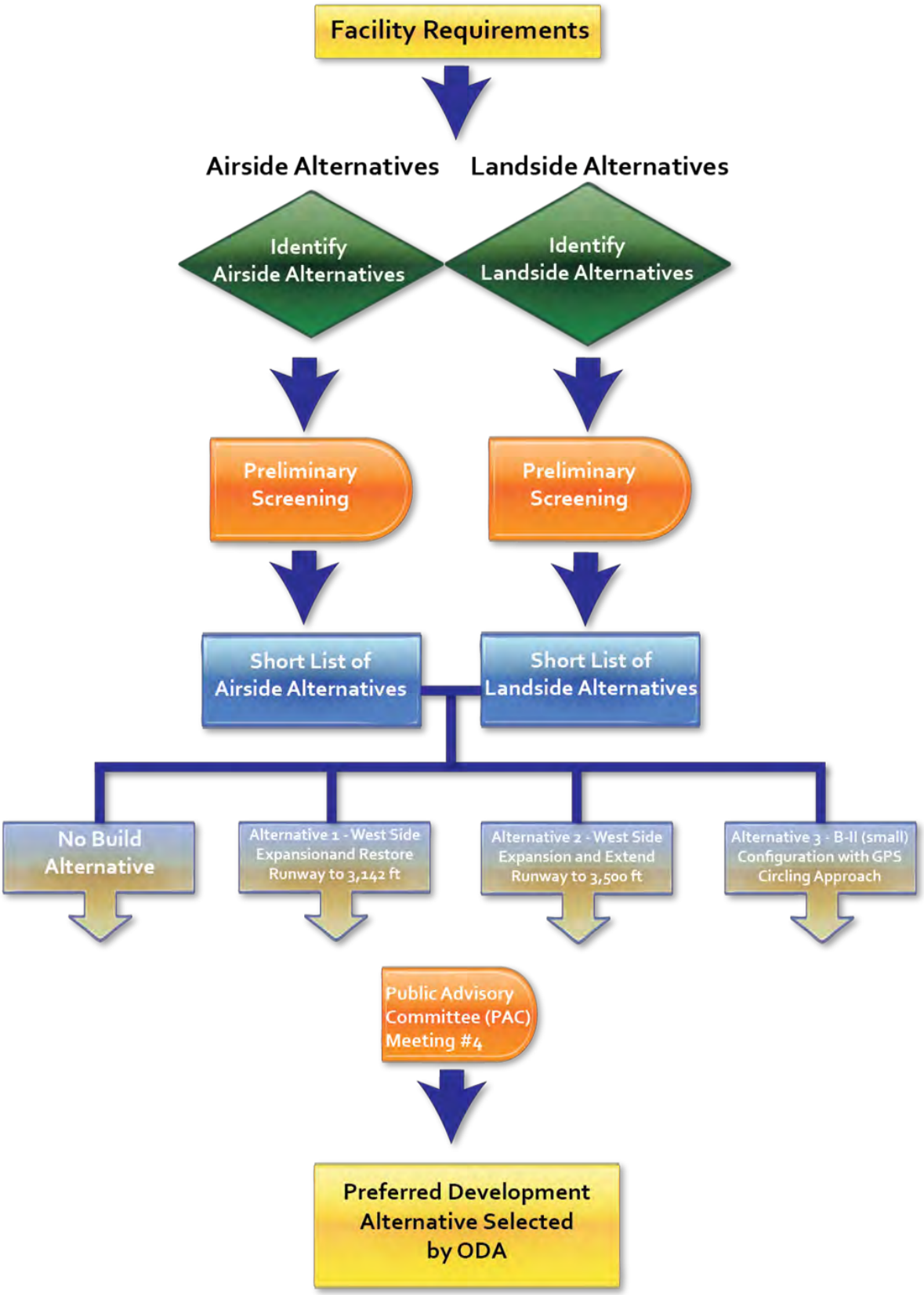


Figure 5A: Development Alternatives Process Flow Chart

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 aviation activity. The requirements identified below are requisite to accommodate forecast aviation 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:

Land Use and Zoning

Zoning Code - It is recommended that ODA work with the City of Independence and Polk County to update their development codes to include current language for airports and aviation land use compatibility to ensure the Airport is protected from encroachment and incompatible land uses.

Runway Protection Zone (RPZ) Land Use - It is recommended that ODA pursue land acquisition of all property within the existing and future RPZs to protect the approach from incompatible land uses, or continue to work with local jurisdictions to ensure RPZs remain clear where practical.

Utilities

Storm Drainage - It is recommended that any future development associated with Airport expansion be coordinated closely with the appropriate agencies and managing utility.

It is recommended that ODA, landowners of developable land near the Airport, the Airpark HOA, and the City of Independence, collectively conduct a comprehensive Storm Water Detention/Drainage Master Plan to comprehensively address any existing deficiencies in coordination with any impacts future development may have on existing infrastructure and environmental resources.

Water System - In addition to the existing domestic water system, a dedicated fire suppression water supply line should be considered for all future development and a retrofit for existing facilities be investigated if future fire codes require.

Airport Fencing

Currently there are areas along the perimeter of the airport that are not fenced or with fencing that may not prevent wildlife from entering the runway environment. It is recommended that a wildlife hazard assessment be conducted to establish the justification for wildlife fending.

RTTF Fencing - It is recommended ODA continue to work with the RTTF community to identify the proper location, style, and height of any future fencing.

Hangar Access

East Side Hangars - It is recommended that ODA pave existing gravel hangar access roads and plan for the additional access roads that may be required for future hangar development areas.

Vehicle Parking

Parking Areas - It is recommended that ODA develop additional parking areas necessary to accommodate future development of hangars and GA facilities as those facilities are constructed.

Hangars

West Side Hangars - It is recommended ODA acquire the land necessary to satisfy future airport property development to the west and/or north of the Airport, which is necessary to accommodate additional hangar space development to satisfy future demands for hangar space.

Residential Through-the-Fence Community

Airpark - It is recommended that ODA continue to work with the FAA, residential through-the-fence (RTTF) residents and the Independence Airpark Homeowners Association (IAHA), to improve and preserve the unique character of the Independence Airpark as well as to enhance the security and safety of the existing RTTF access points and any future access points that may be considered.

GA Terminal Area

West Side Development - It is recommended ODA acquire the land necessary to satisfy future airport property development to the west and/or north of the Airport, which is necessary to accommodate additional GA Terminal Area and appurtenant facilities.

General Facility Improvements - It is recommended ODA pursue additional facility improvements (landscaping, fencing, decorative features, etc.) within the existing GA Terminal Area that would enhance the image of the Airport.

Aviation Fueling Facilities

MoGas - It is recommended that ODA pursue the introduction of MoGas on the Airport due to the increased use of light sport aircraft utilizing the fuel.

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:

Airfield Pavement

Pavement Condition Index (PCI) - It is recommended that ODA make any necessary improvements to pavement indicated by the 2018 report. Standard practice suggests pavement rehabilitation for any pavements with PCI values between 70 and 41. Pavements with a rating less than 40 should be considered for reconstruction. All remaining pavement should continue to receive preventative maintenance in accordance with the Airport's pavement management plan. The area-weighted average PCI for all airport pavements is 78, corresponding to an overall pavement condition rating of "Good."

Runway Length & Width

Runway length analysis concludes that in order to accommodate 95% of the GA fleet, the recommended runway length should be approximately 3,100 feet. The existing paved area is currently 3,142 feet, however the first 140 feet is marked as taxiway and in order to meet the recommended length, alternatives will examine replacing the 140 feet on the north end so as to not lose any existing published runway length. As noted, this analysis will also examine whether concepts could accommodate additional runway length, width, and separation that may be needed beyond this forecast horizon. The airport is eligible for AIP funding for 3,100 feet, and the additional 42 feet would require other sponsor funding.

Runway Markings

Runway 16/34 - Runway Pavement markings at the Airport are adequate for the current configuration and should be maintained in concert with scheduled pavement maintenance.

Alternate Grass Landing Area (AGLA)

Grass Strip - It is recommended that ODA evaluate the feasibility, cost, and practicality of adding an AGLA at Independence State Airport as part of this Master Plan.

Taxiways and Taxilanes

Taxiway A2 and A4 - It is recommended that Taxiways A2 and A4 be relocated to positions that do not allow direct runway access.

Aligned Taxiway - It is recommended that ODA address the aligned taxiway issue either through abandonment of the connector taxiway pavement or through appropriate pavement markings on the taxiway and/or runway.

Westside Parallel Taxiway - It is recommended that ODA pursue development of a west side parallel taxiway and appurtenant connector taxiways to provide aircraft access to/from future west side development.

Aprons and Aircraft Parking

Westside Apron - It is recommended that ODA pursue development of an additional 20,400 square yards of apron space to satisfy future demand requirements for itinerant aircraft tiedown spaces.

Airfield Lighting and Signage

There is some interest that has been expressed for taxiway lighting. Although federal funding is not anticipated to be available for this type of project, local pilot groups interested in the project may identify other funding.

Airport NAVAIDS

Instrument Approach Procedure - It is recommended that ODA plan airfield facilities in a manner that will allow for the future implementation of a instrument approach procedure with minimum visibilities of “not lower than 1-mile." If deemed appropriate that an instrument approach is necessary for future Airport operations, it is recommended ODA work with FAA flight procedures to request a GPS instrument approach procedure for Runway 16/34.

Weather Observation System

AWOS - It is recommended that ODA pursue the installation of an AWOS or similar automated airport weather station for the Independence State Airport.

Airfield Design Standards

Hoffman Road - It is recommended that ODA and the City collaborate to develop an acceptable strategy to mitigate the incompatible land use of Hoffman Road within the Runway 34 RPZ.

Airspace

AGIS & FAR Part 77 - It is recommended that ODA, as part of this master plan, conduct a comprehensive analysis of the obstructions identified in the AGIS survey and present an obstacle disposition plan with appropriate recommendations for removal and/or lighting of any obstacles identified.

5.2.3 Airport Administration Requirements

Maintenance

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

Records

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

5.2.4 Environmental Requirements

Human Factors

Noise – Noise impacts should be considered for any future development on the airport.

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

Historic Properties and Cultural Resources (Section 106 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.

Farmland Preservation - 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.

Air Quality - 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.

Endangered and Threatened Species - Any activity on the airport, including future development, will need to consider impacts to endangered and threatened 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.

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

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 Southwest Independence Concept Plan, the Independence 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.

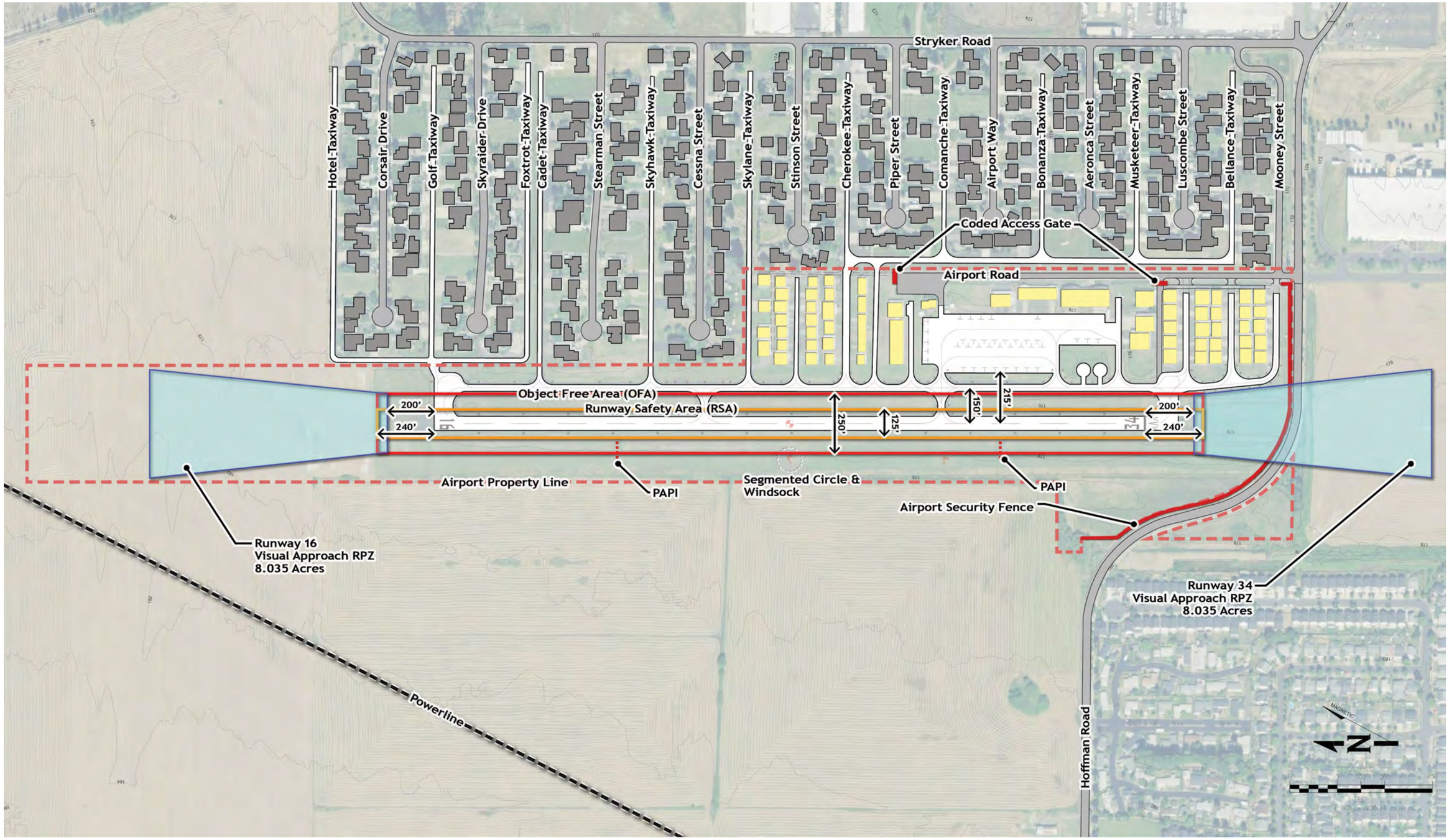
5.3.3 Environmental Considerations

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

Figure 5B: No Build Alternative



conditions. The No-Build Alternative is shown on **Figure 5B**.

The forecasts presented in Chapter 3 show a 37.5% increase in operations and 41.5% increase in based aircraft over the 20-year planning period. If no development were to take place, the Airport will quickly reach capacity and will not be able to support the forecasted activity and aeronautical uses.

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 aligned taxiway at Runway 34, direct runway access via connector taxiways A2 and A4, and the presence of Hoffman Road in the Runway 34 RPZ.

Operational Considerations

The forecast demands of the Airport will significantly increase over the planning period. The No-Build Alternative does not address this anticipated growth. This alternative is not feasible nor recommended as it would lead to the inability of accommodating the forecast demand within the planning period. As previously mentioned, additional hangars and apron space are needed to meet the forecast demand.

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

Of particular interest in the airside options is the potential effect on the Runway 34 RPZ as the result of improvements that may occur within or beyond the horizon of this master plan. These include the potential upgrade of the runway to accommodate a more demanding aircraft or implementing an instrument approach. The plan aims to avoid implementing projects that could preclude the eventual ability to make further upgrades in the future when warranted. In a September 2012 Memorandum, the FAA published "Interim Guidance on Land Uses within a Runway Protection Zone." Generally, the guidance requires that FAA Regional Office (RO) and Airports District Office (ADO) staff coordinate with the National Airport Planning and Environmental Division regarding certain land uses, including public roadways, within the limits of the RPZ as a result of specific actions. The FAA identifies these actions to include:

- An airfield project (e.g., runway extension, runway shift)
- A change in the critical aircraft that increases the RPZ dimensions
- A new or revised instrument approach procedure that increases the RPZ dimensions
- A local development proposal in the RPZ (either new or reconfigured)

The aviation demand forecast supports a runway extension on the Runway 16 end. Alternatives examine the ability of the concept to accommodate B-II (small) separation standards in case warranted in the future. This is beyond the planning period and would be an ultimate condition. Either of these scenarios would trigger

an FAA review of the associated RPZs for incompatible land uses.

The potential FAA coordination effort is intended to focus on finding a solution that addresses the newly created incompatible uses within the RPZ as well as the impacts from a change in the RPZ. At Independence State Airport, the presence of Hoffman Road in the Runway 34 RPZ is considered an existing incompatible land use. If the runway is moved from its current location, as depicted in one of the build alternatives, the FAA's involvement in a more detailed analysis that is outside the scope of this master plan would follow. Consequently, the concept allows for the eventual upgrade to B-II (small) standards without significant reconfiguration of airside facilities, should this be warranted in the future.

Currently the most demanding aircraft to regularly use the Airport belongs to the B-I (small) category and over the planning period, the most demanding aircraft at the airport is expected to remain in this category. However, the forecasted activity, and input from the PAC and local community suggest that the presence of B-II (small) aircraft is a possibility in the long-term. With the anticipated expansion of the Airport to the west side of the runway, it is necessary to consider an eventual conversion to a B-II (small) configuration as part of the west side development planning. Failure to do so could result in restricting the long-term growth potential of the airport. Therefore, design concepts presented in this chapter, while primarily designed for B-I (small) aircraft, are also configured in a way to accommodate the eventual construction of B-II (small) runway and taxiways which is not currently expected but could be warranted in the future. This is beyond the planning period and would be an ultimate condition.

The published runway length accommodates 95% of fleet critical aircraft. The length described includes the additional aligned taxiway at Runway 34 and is incorrect—the actual runway length is 3,002 ft without the aligned taxiway. The recommended length established in FAA Advisory Circular 150/5325-4B is to meet the length requirements for 95% of the GA fleet. This category applies to airports that are primarily intended to serve medium size population communities with a diversity of usage and a greater potential for increased aviation activities. Also included in this category are those airports that are primarily intended to serve low activity.

A summary of the three build alternatives discussed in this chapter include:

Alternative 1

Alternative 1 introduces an expansion of the airport to the west of the existing runway featuring a new parallel taxiway, terminal apron, commercial and private hangars, and public parking facilities. The aligned taxiway portion of the runway is removed, and replaced at the north end. The airport is eligible for AIP funding for 3,100 feet, and the additional 42 feet would require other sponsor funding. Runway 16 PAPI is relocated to match the new runway end. The property south of Hoffman Road is also purchased for protection of the Runway 34 RPZ. Finally, a 1,500 ft Alternate Grass Landing Area (AGLA) is constructed at the north end of the airport between Runway 16/34 and west-side parallel taxiway.

Alternative 2

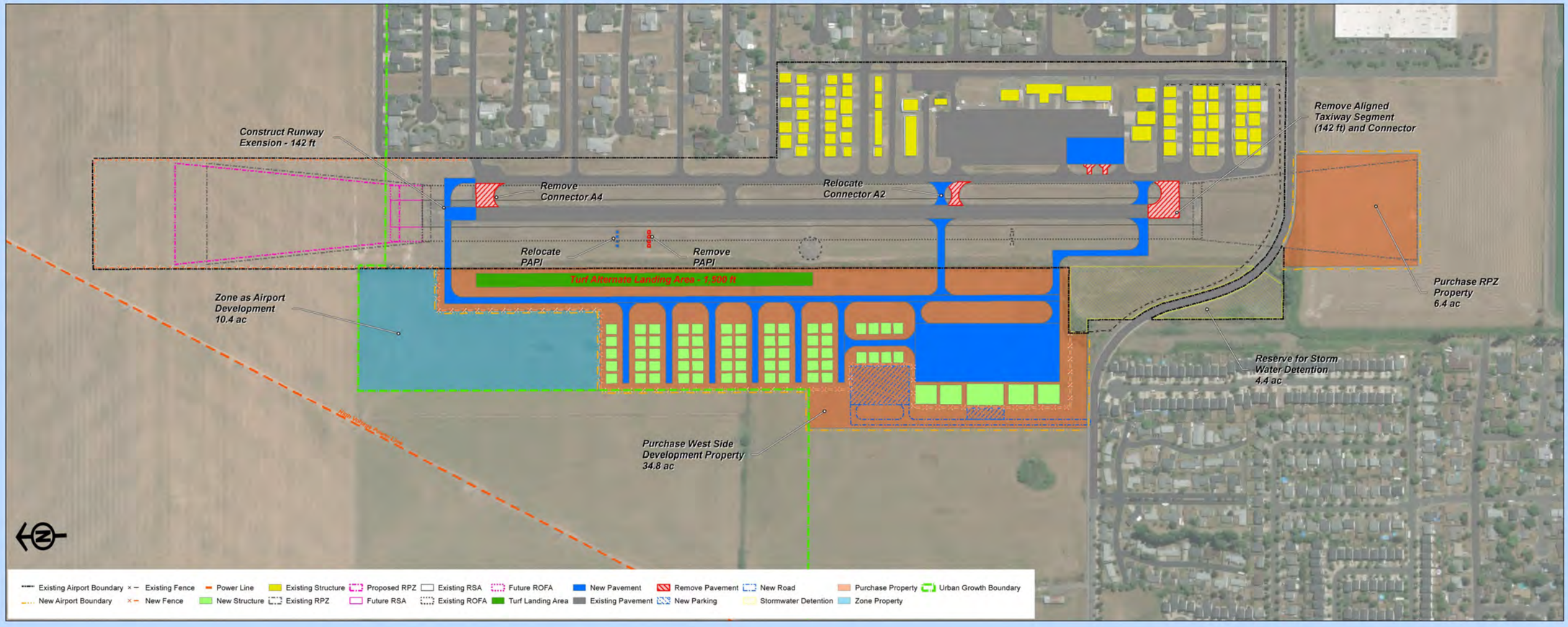
Alternative 2 also proposes an expansion of the airport to the west of the existing runway and features a new parallel taxiway, terminal apron, commercial and private hangars, and public parking facilities. The aligned and direct access taxiways are removed, and the runway extended to the maximum length available within current northern property extents. This is in response to the PAC request that the study examine a lengthened runway scenario. Runway 16 PAPIs are relocated to match the new runway end. The property south of Hoffman Road is also purchased for protection of the Runway 34 RPZ.

Alternative 3

Alternative 3 examines the arrangement of B-I (small) facilities such that an upgrade to B-II, once warranted, would require little reconfiguration. Alternative 3 also introduces an AWOS and the establishment of GPS Circling

Figure 5C: Development Alternative 1

Development Alternative 1: West Side Expansion and Restore Runway to 3,142 ft



Property/Land Use

- *Purchase property to protect RPZ land use*
- *Purchase property for west side airport expansion*
- *Zone property north of west side hangars as Aviation Development*
- *Reserve 4.4 acres for storm water detention*

Operational Features

- *Accommodates future B-II (small) airport configuration*
- *Corrects aligned taxiway and direct runway access issues*
- *Runway restored to 3,142 feet*
- *1,500 ft Turf Alternate Landing Area*
- *Increased capacity via west side development*

Environmental Considerations

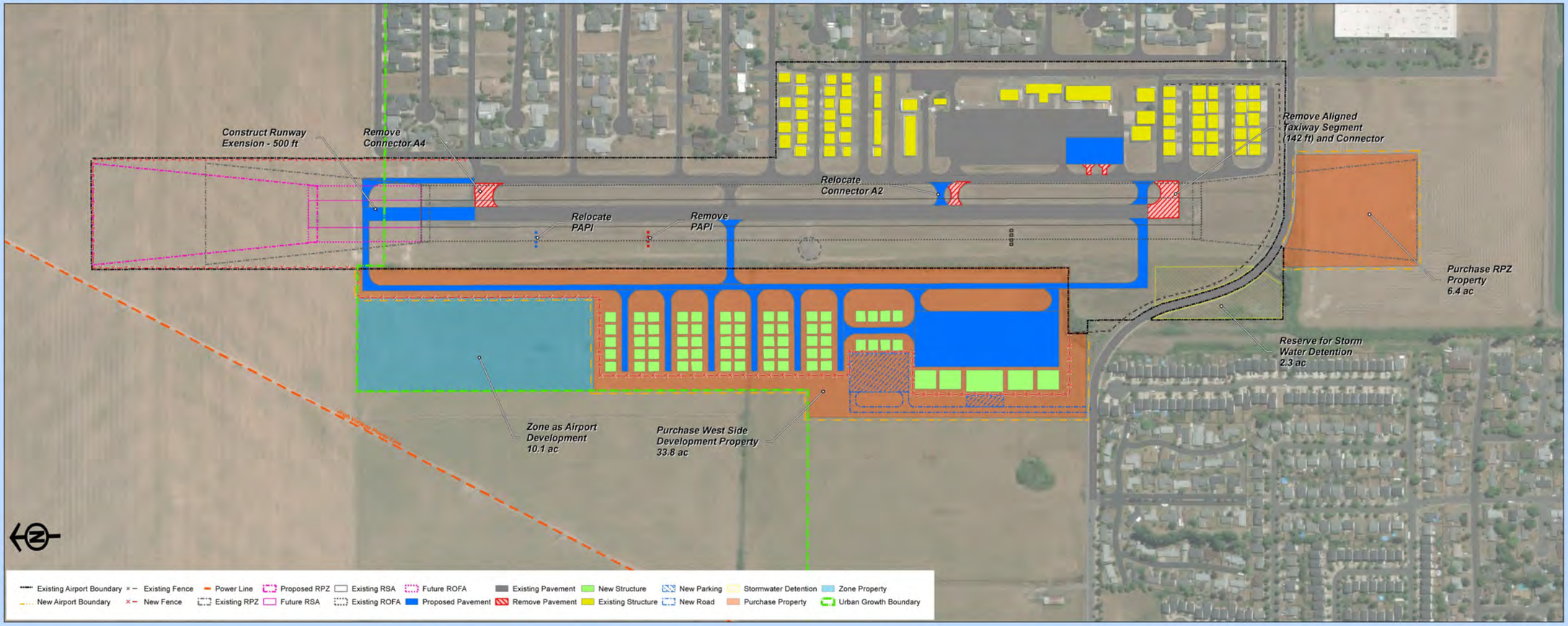
- *Exceeds B-II standards to avoid wetland impacts on west side*
- *Storm water detention area could attract wildlife*

Fiscal Factors

Land acquisition:	*$1,800,000*
Runway construction	*$122,000*
Taxiway construction/removal:	*$3,488,000*
Ramp construction:	*$2,960,000*
Turf alternate landing area:	*$480,000*
Relocate NAVAIDS:	*$42,000*
Fence construction	*$309,000*
Drive/parking construction	*$848,000*
TOTAL PROJECT COST:	***$10,049,000***

Figure 5D: Development Alternative 2

Development Alternative 2: West Side Expansion and Extend Runway to 3,500 ft



Property/Land Use

- *Purchase property to protect RPZ land use*
- *Purchase property for west-side airport expansion*
- *Reserve 2.3 acres for storm water detention*
- *May require UGB expansion*

Operational Features

- *Accommodates future B-II (small) airport configuration*
- *Corrects aligned taxiway and direct runway access issues*
- *Runway extended to 3,500 feet*
- *Increased capacity via west side development*

Environmental Considerations

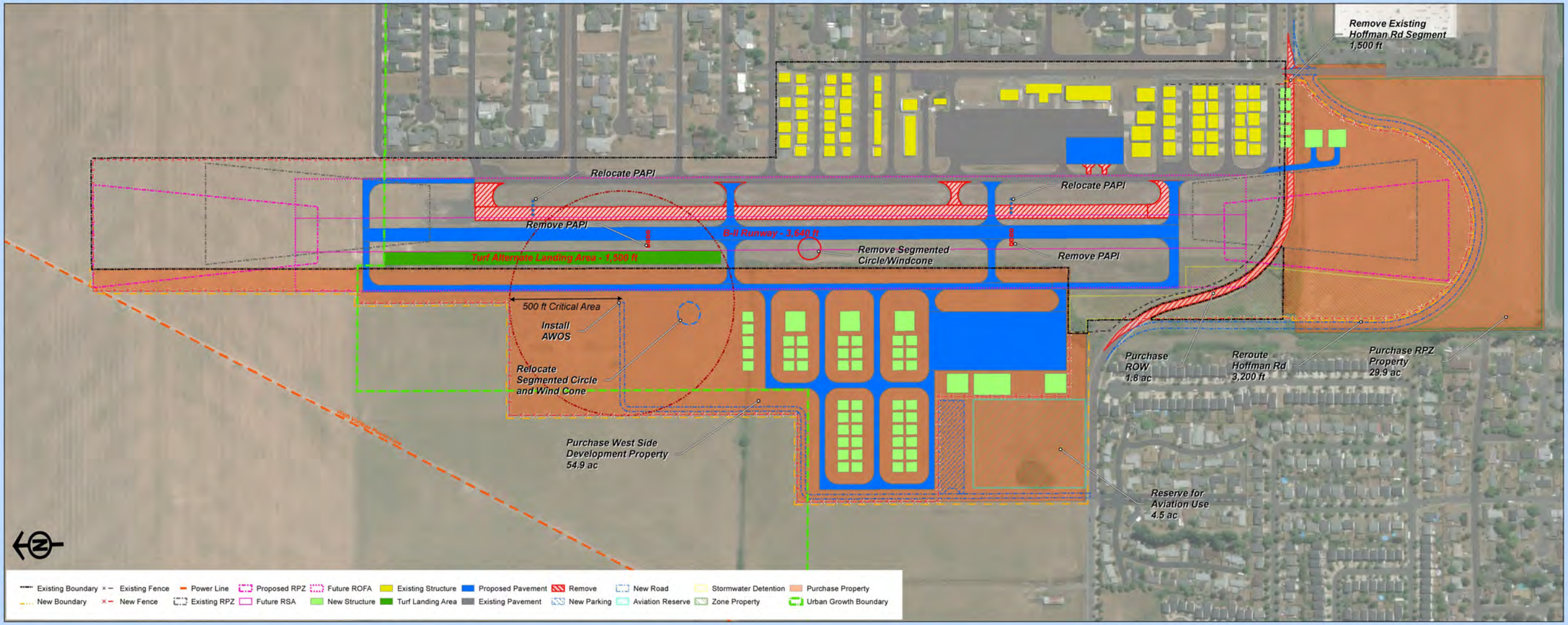
- *Apparent wetland areas in/near west side drainage ditch could be impacted by west side development*
- *Storm water detention area could attract wildlife*

Fiscal Factors

Land acquisition:	*$1,700,000*
Runway Construction:	*$440,000*
Taxiway Construction/Removal:	*$3,488,000*
Ramp Construction:	*$2,822,000*
Relocate NAVAIDs	*$42,000*
Fence construction	*$304,000*
Drive/parking construction	*$848,000*
TOTAL PROJECT COST:	***$9,644,000***

Figure 5E: Development Alternative 3

Development Alternative 3: B-II Small Configuration with GPS Circling Approach



Property/Land Use

- Purchase property to protect RPZ land use
- Reroute Hoffman Road to correct RPZ land use
- Purchase property for west side airport expansion and AWOS protection
- Reserve 4.5 acres on west side for long-term aviation use
- May require UGB expansion

Operational Features

- Upgrade to B-II (small) configuration
- Runway lengthened to 3,640 feet
- 1,500 ft Turf Alternate Landing Area
- GPS circling approach
- On-airport weather reporting (AWOS)

Environmental Considerations

- Apparent wetland areas in/near west side drainage ditch could be impacted by west side development
- Storm water detention area could attract wildlife

Fiscal Factors

Land acquisition:	$3,500,000
Runway Construction/Removal:	$4,000,000
Taxiway Construction/Removal:	$4,912,000
Ramp Construction:	$2,848,000
Construct turf alternate landing area:	$480,000
Relocate Hoffman Road:	$5,600,000
Relocate NAVAIDS:	$99,000
Install AWOS:	$80,000
TOTAL PROJECT COST:	**$21,519,000**

Approach/Departure Procedures. Runway 16/34 is shifted to the west to allow required parallel taxiway separation on the east, new connector taxiways are constructed and NAVAIDs are relocated. Due to the relocation of the Runway 16/34, the RPZ land use will be evaluated by FAA for each runway end. As such, Alternative 3 reroutes Hoffman Road around the Runway 34 RPZ to the south. Finally, a 1,500 ft AGLA is constructed at the north end of the airport between Runway 16/34 and westside parallel taxiway. The airport is eligible for AIP funding for 3,100 feet, and additional runway length would require other sponsor funding.

5.5.1 Alternative 1 West Side Expansion and Restore Runway to 3,142 Feet

In Alternative 1 (**Figure 5C**), both runway ends continue to be classified as visual approaches and the associated RPZs will retain their current size and shape. Due to the proposed runway extension, Runway 16 RPZ will be moved 140 feet north of its current position. The extension will restore the runway to the published 3,142 feet which meets the length requirement for 95% of the anticipated fleet. The airport is eligible and justified for 3,100 feet, and the additional 42 feet would require other sponsor funding. Since the runway end will be relocated, this change will trigger a mandatory consultation with the FAA regarding that RPZ. However, the new RPZ will remain inside the property boundary of the Airport on land that is currently zoned as "Airport Development District." The land that will hold the new RPZ is currently being used for agricultural purposes and it is anticipated that the land use will remain in this category through the planning period. According to the FAA's "Interim Guidance on Land Uses within a Runway Protections Zone", agriculture is an allowable land use for RPZs. There are no roadways or rail lines present in either RPZ. The Runway 34 end and RPZ are not altered in Alternative 1 and a review of RPZ land use by the FAA will not be triggered.

This alternative recommends the purchase of 6.4 acres of land in and around the Runway 34 RPZ to allow the Airport to fully control the land use of that property and protect the RPZ. Even with the purchase of that property, one issue remains. Hoffman Road currently crosses the RPZ and is considered an existing incompatible land use. While Hoffman Road is considered a "grandfathered" feature and does not trigger a mandatory consultation with the FAA, best planning practices would consider mitigating all incompatible land use issues within the RPZ to the greatest extent possible. Options to address the alignment of Hoffman Road through the Runway 34 RPZ are discussed later in this chapter as part of the Alternative 3 analysis.

Alternative 1 proposes a 140 ft runway extension that will restore Runway 16/34 to the previously published length of 3,142 ft. The airport is eligible and justified for AIP funding for 3,100 feet, and the additional 42 feet would require other sponsor funding. With the extension of the runway, the Runway 16 PAPIs will be moved 140 feet to the north to coincide with the new runway end location. Connector Taxiways A1, A2, and A4 are each relocated for this concept. Connector A1 will be removed with the aligned taxiway and replaced at the Runway 34 end, A2 is moved 65 feet north to address the direct runway access issue at that location from the apron, and A4 will be moved 140 feet north to the new Runway 16 end when the runway is extended. Alternative 1 also introduces a 1,500 ft AGLA to the west of Runway 16 to provide a soft surface landing area to light-sport (LSA) and "tail-dragger" aircraft that frequently use the Airport.

As discussed in Chapters 3 and 4, Independence State Airport is anticipated to see significant growth over the 20-year planning period. The current facilities on the east side of the airport do not have the capacity to accommodate this growth and there isn't adequate space available in that area in which the Airport can expand. So, a new location needs to be identified to handle future demand. The primary new development areas depicted in this alternative are located west of Runway 16/34 on 34.8 acres that would be purchased by ODA. An additional 10.4 acres to the north of that property acquisition is currently zoned as "Airport Development District" and would remain under that zoning code and reserved for future aviation development.

Expansion of the existing Urban Growth Boundary (UGB) is not needed to accommodate the development proposed in this alternative.

The west side development introduces a new parallel taxiway built 385 feet west of the runway centerline. This separation distance exceeds the distance needed for the future conversion to a B-II (small) runway. This extra separation distance was necessary to accommodate the siting of the AGLA between the runway and west side parallel taxiway while also minimizing impacts on possible wetlands and drainage features. A new terminal apron with commercial hangar space is located on the south, and sites for up to 63 private box hangars are present to the north. Vehicle access is provided via a new drive from Hoffman Road to the south.

5.5.2 Alternative 1 Criteria Analysis

Planning Principles

Alternative 1 addresses land use issues in Runway 34 RPZ by having ODA acquire the property in the RPZ. The issue of Hoffman Road in the RPZ is not addressed and would remain as an existing incompatible land use under this concept. The non-allowed aligned taxiway at Runway 34 is mitigated through removal of that pavement to the runway end. Connector Taxiway A1 is relocated to the Runway 34 end during the aligned taxiway removal project. As neither the Runway 16 end nor the associated RPZ are altered by the removal project, a formal review by the FAA of the RPZ will not be triggered. Direct runway access points at Connector Taxiways A1, A2, and A4 are mitigated through reconstruction of those taxiways, either independently or as necessitated by other projects. A1 is relocated to the Runway 34 end during the aligned taxiway removal project, A2 is moved 65 feet to the north and A4 is moved 140 feet north to the new Runway 16 end as part of the runway extension.

Operational Considerations

Alternative 1 meets the anticipated airfield capacity and capability requirements of the Airport. The aviation forecasts discussed in Chapter 3 call for a 40% increase in operations and the addition of 74 based aircraft at the Airport. This concept meets those needs through the addition of 21,700 square yards of apron, 63 private box hangars, and five large commercial hangars, each capable of housing several aircraft. The addition of a new terminal apron area and commercial hangar space would also accommodate either the expansion of an existing FBO or the addition of a new FBO on the airport to handle the anticipated 40% increase in itinerant operations.

Fiscal Factors

The primary costs associated with implementing Alternative 1 are associated with land acquisitions and the construction of the apron, taxiways, access/parking facilities for the west side development. Construction of the west side parallel taxiway and AGLA would likely impact existing storm drainage and wetland areas significantly impacting project costs as well.

Environmental Considerations

Construction of the west side development area will involve adding pavement to a previously unpaved plot of farm land. Paving operations may include building embankments to prevent erosion, potential rerouting of the existing drainage ditch, and remediation of impacted wetlands along the ditch. Construction of the AGLA may also involve impacts to storm drainage routes and existing wetlands. The introduction of aircraft operations to the west side apron and hangar areas has the potential to generate increased social and environmental impacts, most notably noise issues, to the neighboring residential development south of Hoffman Road.

Air and water quality could be affected temporarily by construction activities. Other temporary construction impacts could include noise, dust or traffic impacts, as well as the potential for erosion and environmental impacts associated with material spills due to construction. Removal of solid waste from construction would also need to be considered.

5.5.3 Alternative 1 PAC Discussion Summary

Alternative 1 was generally well received by the PAC. Most of those in attendance felt that a turf

landing area [AGLA] is desirable. Opinions were split on how much, if at all, the runway should be extended. Several commenters do not see a problem with the aligned taxiway at RW 34. They would rather spend resources other places on the airport. It was explained that aligned taxiways are a non-allowable condition by the FAA and are required to be addressed in order for the Airport to receive Federal funding for other projects. Most commenters thought that expansion to the west side was desirable and would be needed during the planning period. Some recommended that the west side apron be shifted to the north and a row of hangars be built to the south to serve as a noise buffer between the apron and the neighborhood across Hoffman. This comment was taken under advisement and may be incorporated into a preferred analysis.

5.5.4 Alternative 2 West Side Expansion and Extend Runway to 3,502 Feet

Again in Alternative 2 (**Figure 5D**), both runway ends are classified as visual approaches and the associated RPZs will retain their current size and shape. This concept proposes a 500 feet extension to Runway 16 which will trigger a mandatory consultation with the FAA regarding the land use in that RPZ. However, as was also the case in Alternative 1, the new RPZ will remain inside the property boundary of the Airport on land that is zoned as "Airport Development District" and used for agriculture. It is anticipated that that land use will remain through the planning period. According to the FAA's "Interim Guidance on Land Uses within a Runway Protections Zone", agriculture is an allowable land use for RPZs. There are no roadways or rail lines present in either RPZ. The Runway 34 end and RPZ are not affected by this alternative, and a review of that RPZ will not be triggered. However, as stated previously, Hoffman Road currently crosses the RPZ, and is considered an existing incompatible land use.

Alternative 2 proposes a 500 feet runway extension that will lengthen Runway 16/34 to a maximum length 3,502 ft. This is beyond the planning period and would be an ultimate condition. With the extension of the runway, the Runway 16 PAPIs will be moved 500 feet to the north to coincide with the new runway end location. As was also the case in Alternative 1, Connector Taxiways A1, A2, and A4 will each be relocated for this concept. Connector A1 will be removed with the aligned taxiway and replaced at the Runway 34 end, A2 is moved 65 feet north to address the direct runway access issue at that location from the apron, and A4 will be moved 500 feet north to the new Runway 16 end as part of the runway extension.

To accommodate the operational demand forecasted in Chapter 3, Alternative 2 proposes a new development area located west of Runway 16/34 on 33.8 acres of adjacent property to be purchased by ODA. An additional 10.1 acres to the north of that property acquisition is currently zoned as "Airport Development District" and would remain under that zoning code and reserved for future aviation development.

The west side development proposes a new parallel taxiway built 330 feet west of the runway centerline. This separation distance accommodates a future conversion to a B-II (small) runway which requires 240 feet of separation between the runway and parallel taxiway centerlines. A new terminal apron with commercial hangar space is located on the south, and sites for up to 63 private box hangars are present to the north. Vehicle access is provided via a new drive from Hoffman Road to the south.

5.5.5 Alternative 2 Criteria Analysis

Planning Principles

Alternative 2 addresses land use issues in Runway 34 RPZ through the purchase of the property in the RPZ. The issue of Hoffman Road in the RPZ is not addressed and would remain as an existing incompatible land use under this concept. The non-allowed aligned taxiway at Runway 34 is mitigated through removal of all pavement south of the Runway 34 end. As neither the Runway 16 end nor the associated RPZ are altered by the removal project, a formal review by the FAA of the RPZ will not be triggered

by this project. Direct runway access points at Connector Taxiways A1, A2, and A4 are mitigated through reconstruction of those taxiways, either independently or as necessitated by other projects. A1 is relocated to the Runway 34 end during the aligned taxiway removal project, A2 is moved 65 feet to the north and A4 is moved 500 feet north to the new Runway 16 end as part of the runway extension.

Operational Considerations

Alternative 2 meets the anticipated airfield capacity and capability requirements of the Airport. This concept meets those needs through the addition of 21,750 square yards of apron, 63 private box hangars, and five large commercial hangars, each capable of housing several aircraft. The addition of a new terminal apron area and commercial hangar space would also accommodate either the expansion of an existing FBO or the addition of a new FBO on the airport to handle the anticipated 40% increase in itinerant operations. The proposed 3,502 feet ultimate runway length meets the 95% of fleet requirement and will expand the operational capabilities of the airport to include larger and faster aircraft common in air taxi service.

Fiscal Factors

The primary costs associated with implementing Alternative 2 are associated with land acquisitions and the construction of the runway extension, as well as the apron, taxiways, access/parking facilities construction associated with the west side development. Construction of the west side parallel taxiway and AGLA would likely impact existing storm drainage and wetland areas significantly impacting project costs as well.

Environmental Considerations

Construction of the west side development area will involve adding pavement to a previously unpaved plot of farm land. Paving operations may include building embankments to prevent erosion, potential rerouting of the existing drainage ditch, and remediation of impacted wetlands along the ditch. Construction of the west side parallel and connector taxiways may also involve impacts to storm drainage routes and existing wetlands. The introduction of aircraft operations to the west side apron and hangar areas has the potential to generate increased social and environmental impacts, most notably noise issues, to the neighboring residential development south of Hoffman Road.

Air and water quality could be affected temporarily by construction activities. Other temporary construction impacts could include noise, dust or traffic impacts, as well as the potential for erosion and environmental impacts associated with material spills due to construction. Removal of solid waste from construction would also need to be considered.

5.5.6 Alternative 2 PAC Discussion Summary

Overall, Alternative 2 was thought to be a good option, though many members of the PAC and the public expressed a desire to see an AGLA included. It was explained that including the AGLA with the runway/taxiway configuration presented would require the removal of the PAPIs and relocation of the segmented circle/ wind cones, neither of which would be eligible for FAA funding. While many in attendance liked the extra runway length, most felt that a 3,500' runway was not necessary. Representatives from the City of Independence voiced concern that the longer runway would invite larger aircraft and increased noise to the area.

5.5.7 Alternative 3 B-II (Small) Configuration with GPS Circling Approach

Alternative 3 (**Figure 5E**) presents development options for the most optimistic long-term planning scenario. It proposes a transition to a B -II (small) configuration which involves a complete removal, and subsequent reconstruction of a new 75 feet wide, 3,642 feet long runway, 90 ft to the west of its current alignment. With the runway shift, the appurtenant taxiways, PAPIs, and the segmented circle with wind indicator will be relocated in accordance with previously discussed design standards.

To accommodate the operational demand forecasted, a new development area will be built on the west side of the existing airport on 54.9 acres of adjacent property to be purchased by ODA. The property acquisition will provide space for the runway extension, associated taxiways, and provide RPZ protection for each runway end. The west side development proposes a new parallel taxiway built 240 feet west of the runway centerline. A new 21,000 square yard terminal apron with commercial hangar space is located on the south, and sites for up to 47 private box hangars are present to the north. Vehicle access is provided via a new drive from Hoffman Road to the south. The proposed runway extension connector taxiways at Runway 16 cross the existing UGB. It is not clear whether airfield pavement construction requires an expansion of the UGB. In the case that a UGB expansion is required, that process will need to be coordinated with ODA, Polk County, the City of Independence, and the Oregon Department of Land Conservation and Development.

To supplement the longer, wider runway and the larger aircraft capable of using it, an AWOS, and a GPS circling instrument approach with the appurtenant departure procedure are also incorporated in this concept. A GPS circling approach allows for a minimum descent altitude (MDA) of approximately 1000 feet or lower with greater than one-mile visibility. The visibility minimums will remain visual and not lower than one mile.

While the RPZ size and shape are not affected, by lengthening and shifting the Runway to a new location, both RPZs will be relocated to coincide with the new runway ends. As discussed previously, an airfield project that alters a runway end location (e.g. runway extension, runway shift) will trigger a mandatory consultation with the FAA regarding land use in the RPZ. As the entire runway is shifted in this concept, both RPZs will be reviewed. Much like in the previous two alternatives, the proposed Runway 16 RPZ will be located on agricultural land owned by the Airport. As there are no incompatible land uses in the proposed location, that RPZ will meet standards. However, Hoffman Road intersects the proposed Runway 34 RPZ approximately 160 feet from the inner edge. Public roadways are classified as incompatible land use and as such, are not allowable. Analysis of options to address the portions of Hoffman Road that intersect the RPZ are discussed below.

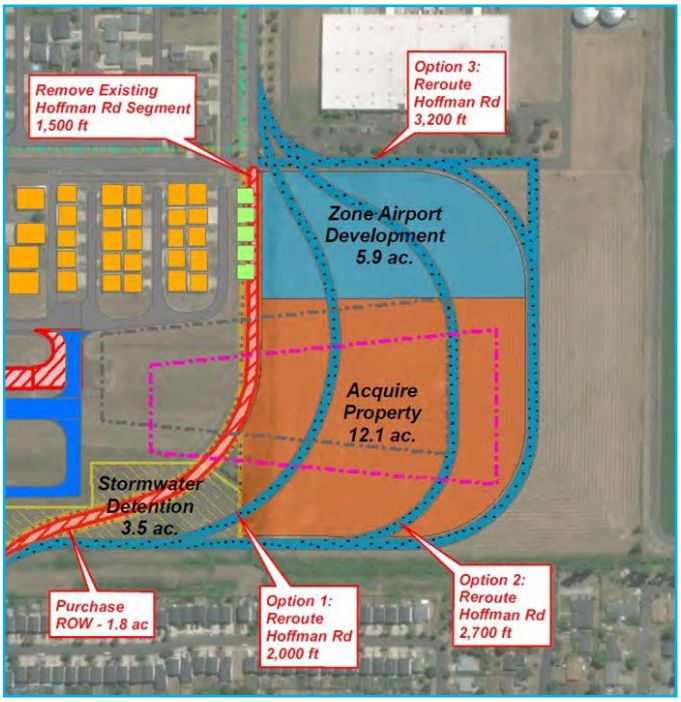


Figure 5F: Hoffman Road Analysis

Hoffman Road Realignment

As discussed above, the reconstruction of Runway 16/34 to B-II (small) configuration will trigger a mandatory audit of the land use within the RPZs. At that time, Hoffman Road will cease to be classified as a pre-existing incompatible land use which will need to be addressed at that time. Three options to realign Hoffman Road and address the incompatible land use were analyzed during the development of the Alternative 3 concept.

Option 1 aims to simply improve the position of Hoffman Road rather than solve the problem entirely. In this scenario, the road is relocated approximately 250 feet to the south of its current position. The realignment would require the reconstruction of about 2,000 feet of roadway, sidewalk, and utilities. After realignment, roughly 1,000 feet of road will remain in the RPZ. Speed limits on Hoffman Road likely would not be impacted in this scenario.

Moving the road farther to the south improves the safety of the runway end by increasing the distance from the of the road to the runway end and increases the clearance between the road and approach/departure surfaces. While the situation is improved, Hoffman Road would still be classified as an incompatible RPZ land use and it will not be allowed by FAA. This is the lowest cost option, but it is unlikely to fix the current land use issues.

Option 2 aims to solve the land use compatibility issue for the present condition by relocating the road approximately 500 feet to the south, routing the road immediately to the south of the Runway 34 RPZ. The realignment would require the reconstruction of nearly 2,700 feet of roadway, sidewalk, and utilities. Speed limits on Hoffman Road would likely be lowered to account for the decreased curve radiuses of the new road.

This alignment removes the incompatible land use from the current RPZ. However, the realigned road would still intersect the RPZ of the ultimate Runway 34 end. In the event that the Alternative 3 is selected as preferred and the runway is extended to its ultimate length, approximately 1,500 feet of Hoffman road would again be classified as an incompatible land use within that RPZ.

Option 3 routes Hoffman Road 800 feet south to an alignment that is the south of both the present and future Runway 34 RPZs. The scenario requires the reconstruction of about 3,200 feet of roadway, sidewalk and utilities. Much like in the previous scenario, speed limits would be impacted along the new section of road.

This alignment corrects the current incompatible land use and allows for future extension of the runway to the south. This is the most expensive option, but the cost is justifiable due to the flexibility it gives the Airport for future expansion without having to revisit the issue at a later time.

After analyzing the three proposed concepts to realign Hoffman Road, the third scenario was selected as the most appropriate for the Airport. While it is more expensive than the other concepts it solves the problem for the current runway location and allows the Airport to expand at a later date without recreating the problem. (**Figure 5F**)

5.5.8 Alternative 3 Criteria Analysis

Planning Principles

Alternative 3 proposes an upgrade of the airport from B-I (small) to B-II (small). At this time there is no evidence that the Airport will see the operational increases necessary to require such an upgrade. However, the concept was investigated and considered as a long-term planning exercise.

The alternative addresses land use issues in Runway 34 RPZ through the purchase of the property in and around the RPZ. The issue of Hoffman Road in the RPZ is addressed through the realignment of the roadway approximately 700 feet to the south, routing it around the RPZ. The proposed realignment would allow areas of property outside of the airport, south of Hoffman Road to be zoned as commercial and developed by the ODA as a method to generate additional revenue.

Much like in the other alternatives, the non-allowed aligned taxiway at Runway 34 is removed and direct runway access points at Connector Taxiways A1, A2, and A4 are relocated to positions that do not provide direct access to the runway from apron areas. All of these connectors would be moved during the runway reconstruction.

Operational Considerations

Alternative 3 exceeds the anticipated airfield capacity and capability requirements of the Airport through the addition of 21,750 square yards of apron, 52 small private box hangars, 5 large format private box hangars and 3 large commercial hangars, each capable of housing several aircraft. The addition of a new terminal apron area and commercial hangar space would also accommodate either the expansion of an existing FBO or the addition of a new FBO on the airport to handle the anticipated 40% increase in itinerant operations. The runway length depicted in Alternative 3 exceeds the facility requirement within the planning horizon but was prepared in order to show how the airfield is able to meet the

recommended length for 100% of the small GA fleet. In order to employ best planning principles, phased development based on actual demonstrated demand levels would justify incremental build-out of this concept. This concept is also responsive to PAC contribution to the planning process in order to visualize what growth potential exists.

This, coupled with the addition of an AWOS and GPS circling approach would increase the operational capabilities of the airport to include larger and faster aircraft common in air taxi service.

Fiscal Factors

The most significant costs associated with Alternative 3 are primarily related to the complete removal and reconstruction of Runway 16/34 to B-II (small) standards. Significant construction would also be required to move and extend connector taxiways as well as to build new facilities on the west side. The west side development and the relocation of Hoffman Road would require significant land acquisitions. Construction of the west side parallel taxiway, AGLA and realignment of Hoffman Road would likely impact existing storm drainage and wetland areas significantly impacting project costs as well.

Environmental Considerations

As in the discussion of the previous alternatives, construction of the west side development will involve paving operations that may include building embankments to prevent erosion, potential rerouting of the existing drainage ditch, and the remediation of impacted wetlands along the ditch. The west side development and Hoffman Road construction areas would directly impact areas of previously unpaved farmland. Construction of the west side parallel and connector taxiways may also involve impacts to storm drainage routes and existing wetlands. The introduction of aircraft operations to the west side apron and hangar areas, along with the new alignment of Hoffman Road have the potential to generate increased social and environmental impacts, most notably noise issues, to the neighboring residential development south and west of Hoffman Road.

Air and water quality could be affected temporarily by construction activities. Other temporary construction impacts could include noise, dust or traffic impacts, as well as the potential for erosion and environmental impacts associated with material spills due to construction. Removal of solid waste from construction would also need to be considered.

5.5.9 Alternative 3 PAC Discussion Summary

Alternative 3 was the most ambitious of the presented concepts, with a full conversion to a B-II (small) configuration. Most of those in attendance felt that there isn't a need to move to move to B-II at this time and instead preferred the simplicity and flexibility of Alternatives 1 and 2. The City of Independence voiced concerns over rerouting Hoffman Road and increased noise that a larger airport configuration could bring. A few commenters did not see the benefit in installing an AWOS on site, due to feelings that AWOS is "old technology that will be replaced in the next several years."

5.5.10 Preferred Alternative

The development alternatives were presented to the members of the community at the fourth PAC meeting. While most members of the PAC and the public identified parts of each alternative that they liked and disliked, most agreed that Alternative 1 was their preference with some minor revisions. This concept corrects FAA design standards issues, offers the features that most users want to see right away, and gives the flexibility to expand the airport further if future growth requires it.

After further discussion and consideration of the PAC's comments, ODA selected a preferred development alternative that incorporates the key concepts of Alternative 1, while also including specific feedback from the FAA, ODA, the PAC, and the community. **Figure 5G** depicts the preferred alternative, a 140-foot runway extension to replace the length lost to the aligned taxiway; property acquisitions on the west side to

facilitate construction of additional apron and hangar space; and the realignment of Hoffman Road around the Runway 34 RPZ. The airport is eligible and justified for AIP funding for 3,100 feet, and the additional 42 feet would require other sponsor funding. The preferred alternative included an Alternate Grass Landing Area (AGLA), but after FAA review and additional studies, it was determined the site could not accommodate the proposed grass strip. Specifically, there is not enough object free spacing between runway and taxiways.

The Preferred Alternative extends Runway 16/34 to 3,142 ft. This replaces the length lost by removing aligned taxiway, and meets the 95% of fleet length requirement based on the critical aircraft (Beechcraft Baron 58). The airport is eligible and justified for AIP funding for 3,100 feet, and the additional 42 feet would require other sponsor funding.

The west side facilities development in the preferred alternative is identical to that of Alternative 1 with one exception. The apron area is relocated 185 feet north and two rows of hangars with a bisecting taxilane are moved between the apron and Hoffman Road. This was done in an attempt to insulate the residential neighborhood to the south from increased noise associated with aircraft operations on the west apron.

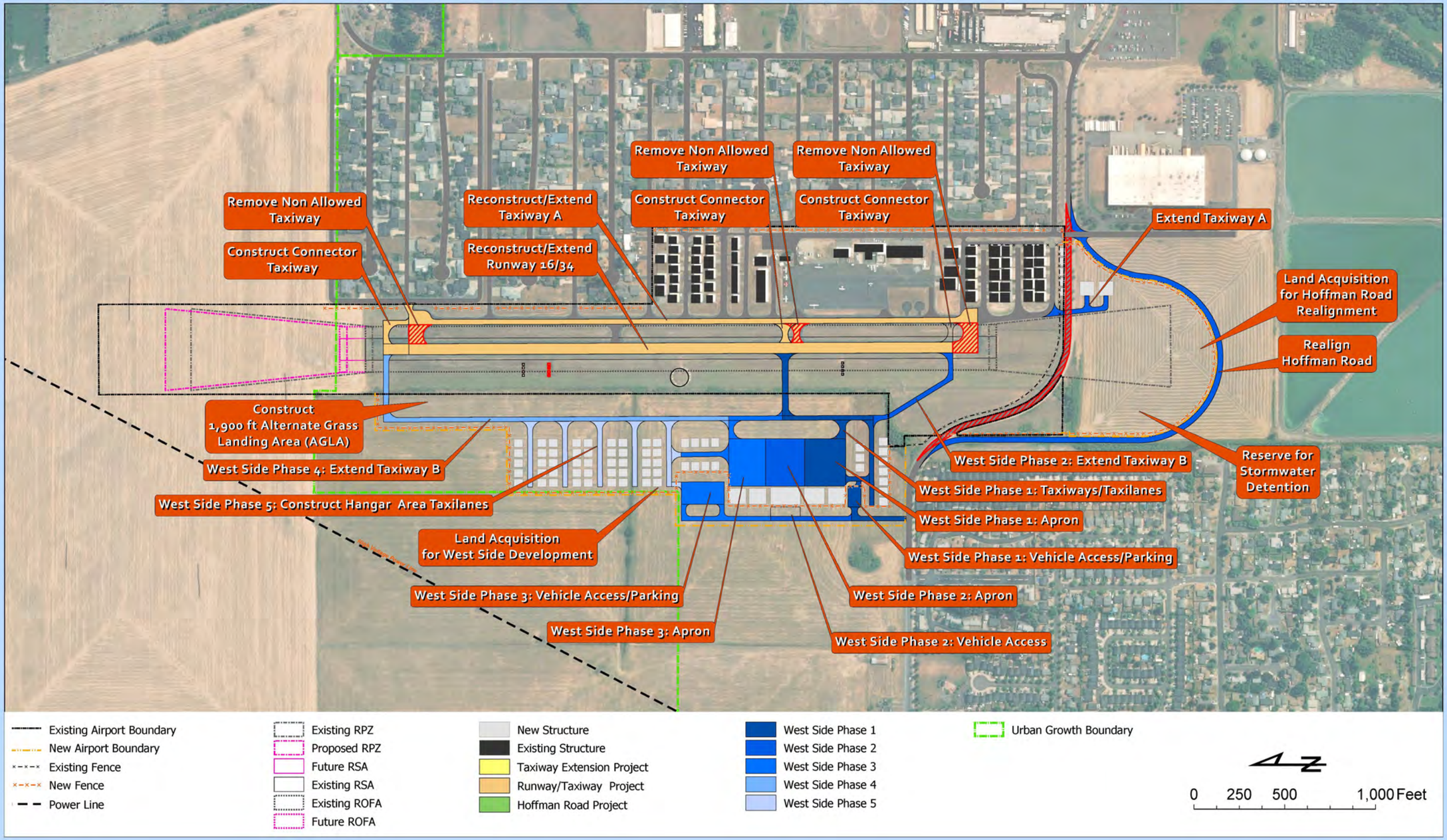
The preferred alternative also incorporates the realignment of Hoffman Road as presented in Alternative 3 above. The proposed realignment would route the road around the current RPZ, addressing the current incompatible land use issue. It is also routed in a way that would allow the eventual construction of a B-II (small) runway beyond the current 20-year planning period. The areas of property outside of the airport that are acquired to facilitate the realignment of Hoffman Road, to the south, could also be zoned commercial and developed by the ODA as a method to generate additional revenue.

The expansion to the west side of the property, the preferred alternative addresses the forecasted increase in based aircraft and aircraft operations over the 20-year planning period. The development is planned in a way to be driven by real-time growth and operational need. As such, the development will be constructed in phases to be triggered by operational and based aircraft milestones over the next twenty years. The preferred alternative depicts the west side facilities with a runway separation distance that exceeds B-I (small) standards to avoid constraining the airport and allowing an eventual conversion to a B-II (small) configuration. The runway separation also exceeds B-II (small) requirements to avoid existing drainage and wetland areas to the west of the runway that would be impacted by construction of a parallel taxiway at a B-II (small) separation distance. This is beyond the planning period and would be an ultimate condition.

As in the previously discussed development alternatives, the preferred alternative addresses FAA design standard requirements through the removal of the aligned taxiway at Runway 34, and the relocation of connector taxiways A1, A2, and A4 to locations where they do not provide direct runway access from apron areas.

Figure 5G: Preferred Development Alternative

Independence State Airport Preferred Development Alternative



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 September 2012, the FAA issued Program Guidance Letter 12-08, which addresses the implementation of the relevant sections FMRA until such time when these sections can be included within future revisions of FAA Order 5100-38C, Airport Improvement Handbook and FAA Advisory Circular (AC) 150/5070-6B, Airport Master Plans. The 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 Independence State Airport, these include:

- FAA Program Guidance Letter 12-08, Guidance on Airport Recycling, Reuse, and Waste Reduction Plans, FAA (September, 2014)
- Recycling of Airport Pavements, Samuel H. Carpenter, Luis Diaz and Damon Brandley (March, 2001)
- Recycling, Reuse and Waste Reduction at Airports, FAA (April, 2013)
- 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 Independence Waste Management Practices

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

City or County Ordinance

The City of Independence regulates the management of solid waste through Chapter 70 of the Polk County Code, Polk County Solid Waste Ordinance. The ordinance states: To protect the health, safety, and welfare of the people of Polk County and to provide a coordinated solid waste management program, it is declared to be the public policy of Polk County to regulate solid waste management to:

- Provide for safe and sanitary accumulation, storage, collection, transportation, and disposal of solid wastes.
- Prohibit accumulation of wastes on private or public property in such manner as to create a public nuisance, a hazard to health, or a condition of unsightliness and to provide for the abatement of such conditions where found.
- Provide for the coordinated Countywide solid waste management plan in cooperation with Federal, State, and local agencies responsible for the prevention, control, or abatement of air, water, and ground pollution and prevention of litter.
- Provide for and encourage research, studies, surveys, and demonstration projects on developing more sanitary, efficient, and economical solid waste management systems.
- Provide for the coordinated solid waste management plan with cities within Polk County and with other counties or cities where appropriate.
- Provide for cooperation and agreements between Polk County and other counties involving joint or regional franchising of solid waste collection and disposal.
- Utilize minimum standards for location and operation of disposal sites to protect adjacent or nearby residents.
- Encourage utilization of the capabilities and expertise of private industry in accomplishing the purposes of this Ordinance.

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 and a detailed breakdown of the types of

waste generated are included in **Appendix F**. In total, the survey collected responses from eight airport tenants.

Of the eight survey responses that 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. Two respondents indicated that they do not generate any waste in their spaces. Four of the tenants indicated that they do not have waste containers in their hangars, two stated that they have a single waste container in their respective hangars and remaining two claimed two waste containers. One respondent indicated that they have a single recycling container on site.

ODA is responsible for garbage disposal only at 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.

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 Independence.

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 Independence 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

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

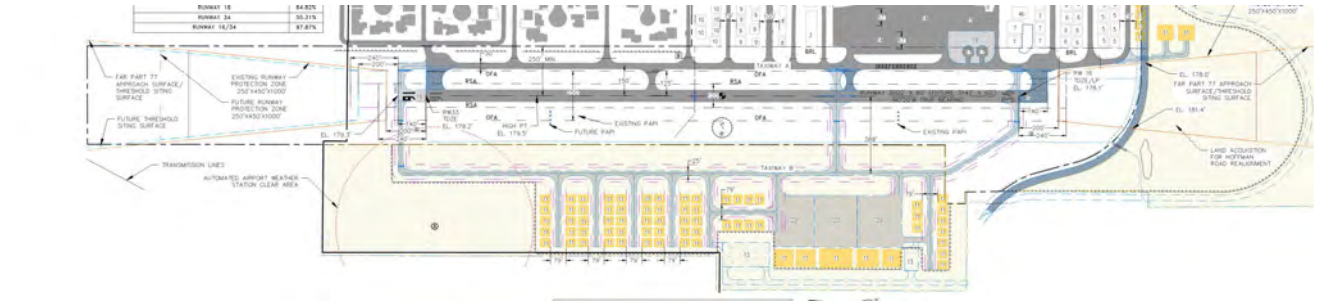
recycling programs may provide the greatest opportunity in the future.

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 employees and tenants.
- Implementing a recycling pick up service for all tenants at the Airport.

7. Airport Layout Plan



7.1 Introduction

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 (FAAs) 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) public stakeholders, the Oregon Department of Aviation, the City of Independence, and the Federal Aviation Administration. Alternative concepts were reviewed by the PAC and a preferred alternative selected. 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 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 design criteria at the Airport, along with existing and future conditions.
- Existing and future instrument approach components and lowest approach minimums for each runway.

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 upon when it is needed and can be funded.

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

- Expansion of apron
- Extension of Runway 16/34 and Taxiway A
- Extension of Taxiway A
- New Taxiway B
- Realignment of Hoffman Road and associated perimeter fencing
- Removal of Preferred Alternative AGLA due to FAA design standards conflicts
- Renumber Runway 16/34 to 17/35
- Replacement of Precision Approach Path Indicator (PAPI)

Terminal Area Plan

The Terminal Area Plan drawing provides a large-scale view of the terminal area depicted on the ALP, so that features such as aprons, buildings, hangars, and parking lots area easier to discern. For Independence State Airport, the terminal area plan shows expansion of the apron and related taxilane design improvements.

Airport Airspace Plan

This drawing shows the Part 77 Imaginary Surfaces for the 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 as follows:

Primary Surface: The primary surface is rectangular, is centered on the runway, extends 200 feet beyond each end of the runway, and has a width that varies according to airport-specific criteria. 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 16-34 is 250 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.

Runway Protection Zones (RPZs): RPZs are not Part 77 surfaces, but mirror 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 250 feet (inner width) by 1,000 feet (length) by 350 feet (outer width) to accommodate visual approaches.

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. The extent of the horizontal surface is determined by swinging arcs of 5,000 to 10,000-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. The Civil Airport Imaginary Surfaces are depicted in **Figure 7B**.

Runway 16 Approach Surface

This drawing presents the plan and profile view of the Runway 16 approach surfaces shown in the Airport Airspace Drawing. The highest composite terrain, along with known features, is shown in the profile view. These drawings are supplemental to the Part 77 Airspace Surface drawings.

Runway 34 Approach Surface

This drawing presents the plan and profile view of the Runway 34 approach surfaces shown in the Airport Airspace Drawing. The highest composite terrain, along with known features, is shown in the profile view. These drawings are supplemental to the Part 77 Airspace Surface drawings.

Inner Portion of Runway 16 Approach Surface Plan and Profile

This drawing is a close-in view of the inner approach area of Runway 16. This sheet provides a larger scale view of the inner Runway 16

approach surface and the objects/obstructions up to 100' above the runway end.

Inner Portion of Runway 34 Approach Surface Plan and Profile

This drawing is a close-in view of the inner area of Runway 34. This sheet provides a larger scale view of the Inner Runway 34 approach surface and objects/obstructions up to 100' feet above the runway end or to the extent of the runway protection zone (RPZ).

Runway 16-34 Departure Surface Plan and Profile

The Runway Departure Surface drawing depicts the plan and profile views of the Runway 16-34 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 width of 250 feet, extends outward 5,000 feet to an outer width of 1,250 feet, and slopes p at 20:1.

Land Use Plan

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.

Utilities Map

The airport utilities map shows the existing utility lines at the Airport. These include drainage, water, and power.

Exhibit "A" Property Map

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. Property information typically includes known and recorded information including ownership, date of acquisition, and federal involvement if applicable.

Airspace Obstruction Table

Runway 16 Obstruction Table

Runway 34 Obstruction Table

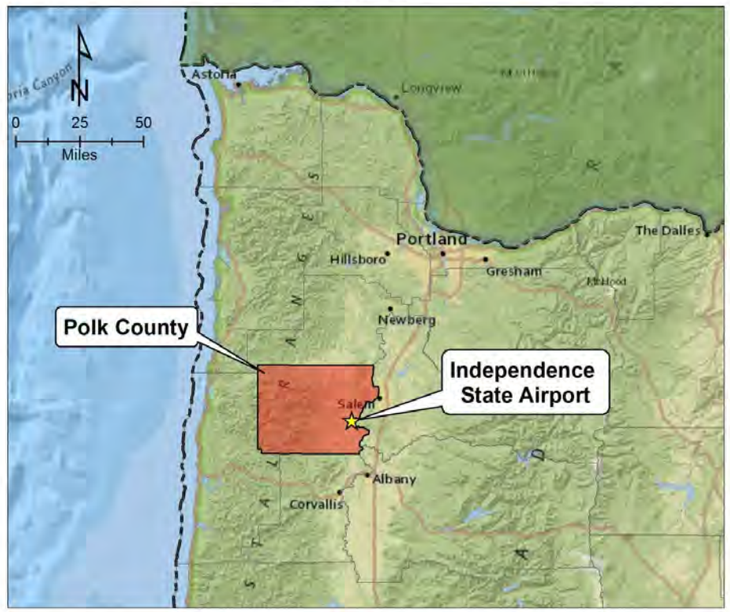
Runway 16-34 Departure Obstruction Table

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

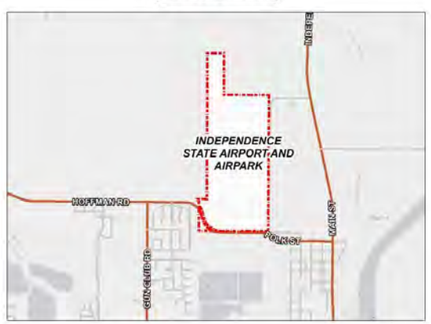
Figure 7A: Cover Sheet

INDEPENDENCE STATE AIRPORT
INDEPENDENCE, OREGON
AIRPORT LAYOUT PLAN
3-41-0027-005-2017
DRAWING SET
FEBRUARY 2020

LOCATION MAP



VICINITY MAP



SHEET NO.		TITLE	REVISION
1	C1	AIRPORT LAYOUT PLAN	02/01/2020
2	C2	ALP WITH AERIAL	02/01/2020
3	C3	TERMINAL PLAN EAST	02/01/2020
4	C4	TERMINAL PLAN WEST	02/01/2020
5	C5	AIRSPACE PLAN	02/01/2020
6	C6	RUNWAY 16-34 APPROACH SURFACE	02/01/2020
7	C7	RUNWAY 16 INNER APPROACH	02/01/2020
8	C8	RUNWAY 34 INNER APPROACH	02/01/2020
9	C9	OBSTRUCTION TABLES	02/01/2020
10	C10	ON AIRPORT LAND USE	02/01/2020
11	C11	OFF AIRPORT LAND USE	02/01/2020
12	C12	EXHIBIT A	02/01/2020
13	C13	UTILITY MAP	02/01/2020

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	2/4/2020
SUBMITTAL	

REVISIONS			
NO.	BY	DATE	REMARKS

COVER SHEET

OREGON DEPARTMENT OF AVIATION
INDEPENDENCE AIRPORT LAYOUT PLAN

PROJECT NUMBER	DRAWING FILE NAME	SCALE
P0019739W	IND-ALP-COVER	AS SHOWN

SHEET NUMBER: COVER

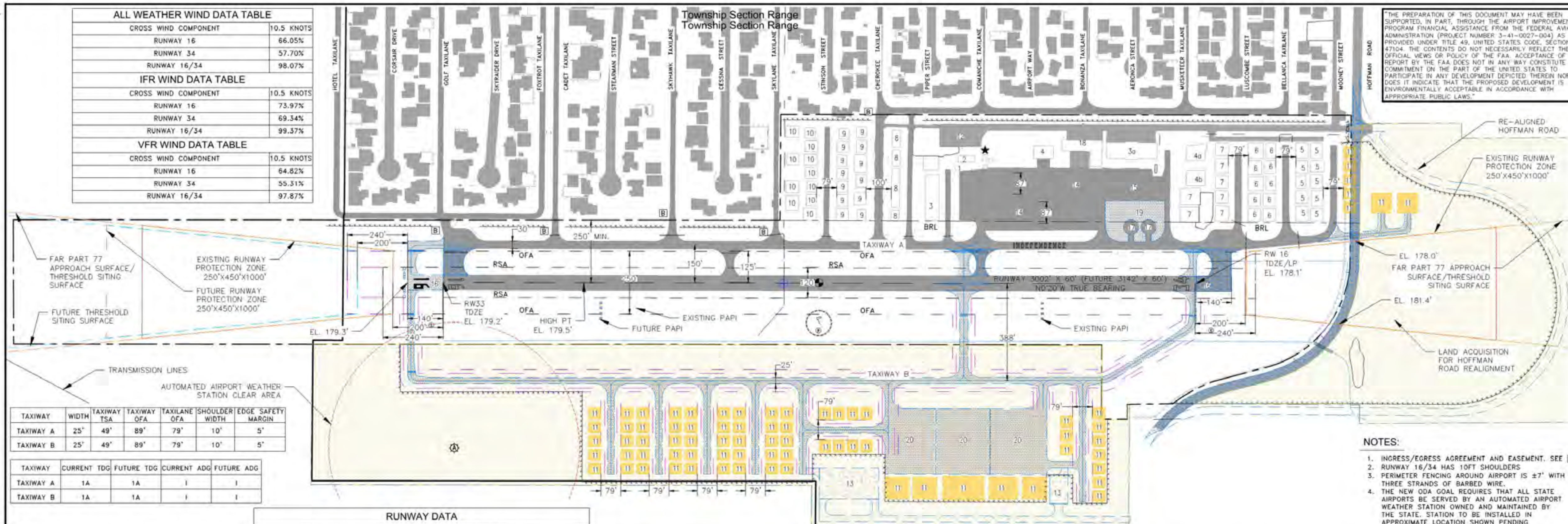
Figure 7B: Airport Layout Plan

ALL WEATHER WIND DATA TABLE	
CROSS WIND COMPONENT	10.5 KNOTS
RUNWAY 16	66.05%
RUNWAY 34	57.70%
RUNWAY 16/34	98.07%

IFR WIND DATA TABLE	
CROSS WIND COMPONENT	10.5 KNOTS
RUNWAY 16	73.97%
RUNWAY 34	69.34%
RUNWAY 16/34	99.37%

VFR WIND DATA TABLE	
CROSS WIND COMPONENT	10.5 KNOTS
RUNWAY 16	64.82%
RUNWAY 34	55.31%
RUNWAY 16/34	97.87%

"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."



TAXIWAY	WIDTH	TAXIWAY TSA	TAXIWAY OFA	TAXILANE OFA	SHOULDER WIDTH	EDGE SAFETY MARGIN
TAXIWAY A	25'	49'	89'	79'	10'	5'
TAXIWAY B	25'	49'	89'	79'	10'	5'

TAXIWAY	CURRENT TDG	FUTURE TDG	CURRENT ADG	FUTURE ADG
TAXIWAY A	1A	1A	I	I
TAXIWAY B	1A	1A	I	I

NOTES:

1. INGRESS/EGRESS AGREEMENT AND EASEMENT. SEE [B]
2. RUNWAY 16/34 HAS 10FT SHOULDERS
3. PERIMETER FENCING AROUND AIRPORT IS ±7' WITH THREE STRANDS OF BARBED WIRE.
4. THE NEW ODA GOAL REQUIRES THAT ALL STATE AIRPORTS BE SERVED BY AN AUTOMATED AIRPORT WEATHER STATION OWNED AND MAINTAINED BY THE STATE. STATION TO BE INSTALLED IN APPROXIMATE LOCATION SHOWN PENDING ACQUISITION OF PROPERTY.
5. SEE SHEETS C7 AND C8 FOR THRESHOLD SITING SURFACES

FACILITY IDENTIFICATION KEY		ELEV (MSL)
1.	FUELING AREA	ELEV = 186.3'
2.	FBO OFFICE	ELEV = 200.7'
3.	FBO HANGAR	ELEV = 199.5'
3a.	FBO HANGAR	ELEV = 205.0'
4.	FBO/AIRCRAFT MAINTENANCE HANGAR	ELEV = 206.9'
4a.	FBO/AIRCRAFT MAINTENANCE HANGAR	ELEV = 204.4'
4b.	FBO/AIRCRAFT MAINTENANCE HANGAR	ELEV = 201.7'
5.	EXISTING HANGAR GROUP*	ELEV = 205.2'
6.	EXISTING HANGAR GROUP*	ELEV = 200.8'
7.	EXISTING HANGAR GROUP*	ELEV = 205.2'
8.	EXISTING HANGAR GROUP*	ELEV = 195.0'
9.	EXISTING HANGAR GROUP*	ELEV = 200.9'
10.	EXISTING HANGAR GROUP*	ELEV = 201.0'
11.	FUTURE HANGAR	ELEV = TBD
12.	AUTO PARKING	ELEV = VARIES
13.	AUTO PARKING (FUTURE)	ELEV = TBD
14.	TIE DOWN APRON	ELEV = VARIES
15.	TIE DOWN APRON (RESERVE)	ELEV = VARIES
16.	RUNWAY SHIFT (FUTURE)	ELEV = VARIES
17.	HELICOPTER PARKING	ELEV = 177.0'
18.	EAA HANGAR	ELEV = 200.5'
19.	APRON AREA EXPANSION	ELEV = VARIES
20.	APRON AREA (FUTURE)	ELEV = TBD

*HANGAR GROUPS SHOW HIGHEST ELEVATION ABOVE MSL

RUNWAY DATA

ITEM			RUNWAY 16-34 EXISTING	FUTURE
RUNWAY TYPE			UTILITY	SAME
RUNWAY REFERENCE CODE (RRC)			B-I (SMALL)	SAME
RUNWAY DESIGN CODE (RDC)			B-I-VIS (SMALL)	SAME
PHYSICAL LENGTH AND WIDTH			3002' X 60'	3142' X 60'
EFFECTIVE GRADIENT			0.037%	SAME
PAVEMENT STRENGTH (WHEEL-POUNDS)			SINGLE - 12,500	SINGLE - 12,500
PAVEMENT SURFACE			ASPHALT	SAME
RUNWAY SAFETY AREA			3482' X 120'	SAME
OBJECT FREE AREA			3482' X 250'	SAME
OBJECT FREE ZONE			NO OFZ OBJECT PENETRATIONS	
RUNWAY PROTECTION ZONE (RPZ)			250' X 450' X 1000'	SAME
CRITICAL AIRCRAFT			BEECH BARON 58	SAME
AERONAUTICAL SURVEY REQUIRED			NVG	SAME
DEPARTURE SURFACE			N/A	SAME
THRESHOLD SITING SURFACE			VISUAL/20:1	SAME
APPROACH VISIBILITY MINIMUMS			VISUAL	SAME
P77 APPROACH TYPE		16	VISUAL	SAME
		34	VISUAL	SAME
P77 APPROACH SLOPE: REQUIRED/CLEAR		16	20:1/20:1	SAME
		34	20:1/20:1	SAME
APPROACH AND LANDING AIDS		16	PAPI-4	SAME
		34	PAPI-4	SAME
RUNWAY END COORDINATES	16	Latitude	44°52'16.56" STET	44°52'17.94"
		Longitude	123°11'53.73"	123°11'53.72"
	34	Latitude	44°51'46.92"	44°51'46.92"
		Longitude	123°11'53.71"	123°11'53.71"
TOUCH DOWN ZONE ELEVATIONS		16	178.1'	±178.1'
		34	179.2'	±179.2'
RUNWAY LIGHTING			MEDIUM INTENSITY	MEDIUM INTENSITY
TAXIWAY LIGHTING			REFLECTORS MITL	REFLECTORS MITL
RUNWAY MARKING			VISUAL	SAME
WIND COVERAGE (%) - 10 KNOTS			98.07%	SAME

AIRPORT DATA

DATUM NOTES: HORIZONTAL DATUM NAD 1983 / VERTICLE DATUM NAVD 1988

ITEM	EXISTING	FUTURE
DATUM FOR ALL ITEMS	NAD 1983	SAME
AIRPORT ELEVATION (MSL)	179.5'	SAME
AIRPORT REFERENCE POINT	LAT: 44°52'01.05" LONG: 123°11'53.89"	LAT: 44°52.05' LONG: 123°11.90'
MEAN MAX TEMP OF HOTTEST MONTH	83.2° (JULY)	SAME
AIRPORT REFERENCE CODE/ CRITICAL AIRCRAFT	B-I(SMALL)/ BEECH BARON 58	SAME
NPIAS ROLE	GENERAL AVIATION	SAME
STATE AIRPORT EQUIVALENT ROLE	LEVEL 3	SAME
LAND OWNED IN FEE (ACRES)	SEE EXHIBIT A 88.10	PROPOSED 136.17
AIRPORT CODE	7S5	SAME
TRANSIENT AIRCRAFT SPACES	40	80
AIRPORT NAVAIDS	BEACON	BEACON/ WEATHER STATION
MISC. FACILITIES	WIND SOCK	SAME

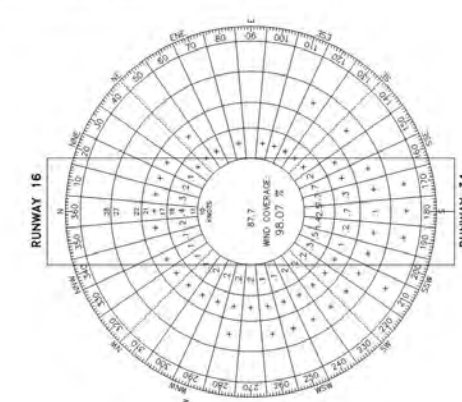
DECLARED DISTANCES

	EXISTING* 16	EXISTING* 34	FUTURE** 17	FUTURE** 35
TAKEOFF RUN AVAILABLE (TORA)	3002'	3002'	3142'	3142'
TAKEOFF DISTANCE AVAILABLE (TODA)	3002'	3002'	3142'	3142'
ACCELERATE - STOP DISTANCE AVAILABLE (ASDA)	3002'	3002'	3142'	3142'
LANDING DISTANCE AVAILABLE (LDA)	3002'	3002'	3142'	3142'

*EXISTING RUNWAY LENGTH DOES NOT INCLUDE ALIGNED TAXIWAY LENGTH AT RW34 (APPROXIMATELY 140')
**RUNWAY NUMBERS ARE DUE TO BE CHANGED TO ACCOUNT FOR MAGNETIC DECLINATION

ANNUAL RATE OF CHANGE: 0' 8' W PER YEAR
SOURCE: NCEI (NGDC) MAGNETIC DECLINATION FIELD CALCULATOR

SCALE
1 INCH = 200 FT



McNARY FIELD, SALEM, OREGON
ALL WEATHER WIND ROSE
PERIOD: 2009-2018
SOURCE: FAA AIRPORTS GIS WINDROSE FILE GENERATOR

LEGEND

ITEM	EXISTING	FUTURE
AIRFIELD PAVEMENT		
ACCESS ROAD/VEHICLE PARKING	N/A	
EXISTING PAVEMENT TO BE REMOVED		
PERIMETER FENCE		
RUNWAY/TAXIWAY SAFETY AREA		
RUNWAY/TAXIWAY OBJECT FREE AREA		
AIRPORT PROPERTY LINE		
TAXIWAY CENTERLINE		
PAPI UNITS		
BUILDING RESTRICTION LINE	BRL	SAME
PART 77 APPROACH SURFACE		
AIRPORT PROPERTY ACQUISITION		
BUILDINGS		
TOPOGRAPHIC CONTOURS (2 FT)		SAME
WIND CONE		SAME
AIRPORT REFERENCE POINT		
THRESHOLD LIGHTS (FUTURE W/ REIL)		
ROTATING BEACON W/ METAL TOWER	★	SAME
RUNWAY PROTECTION ZONE		
CITY LIMITS		
AIRPORT SURVEY MONUMENT (PACS/SACS)	PACS SACS	SAME
DRAINAGE DITCH LINE		SAME
AUTOMATED AIRPORT WEATHER STATION		

WHPacific

OREGON DEPARTMENT OF AVIATION

APPROVALS

OREGON DEPARTMENT OF AVIATION DATE

FEDERAL AVIATION ADMINISTRATION DATE

SHEET INFO	
DESIGNED	ALB
DRAWN	ALB
CHECKED	RS
APPROVED	—
LAST EDIT	3/16/2020
PLOT DATE	3/16/2020
SUBMITTAL	

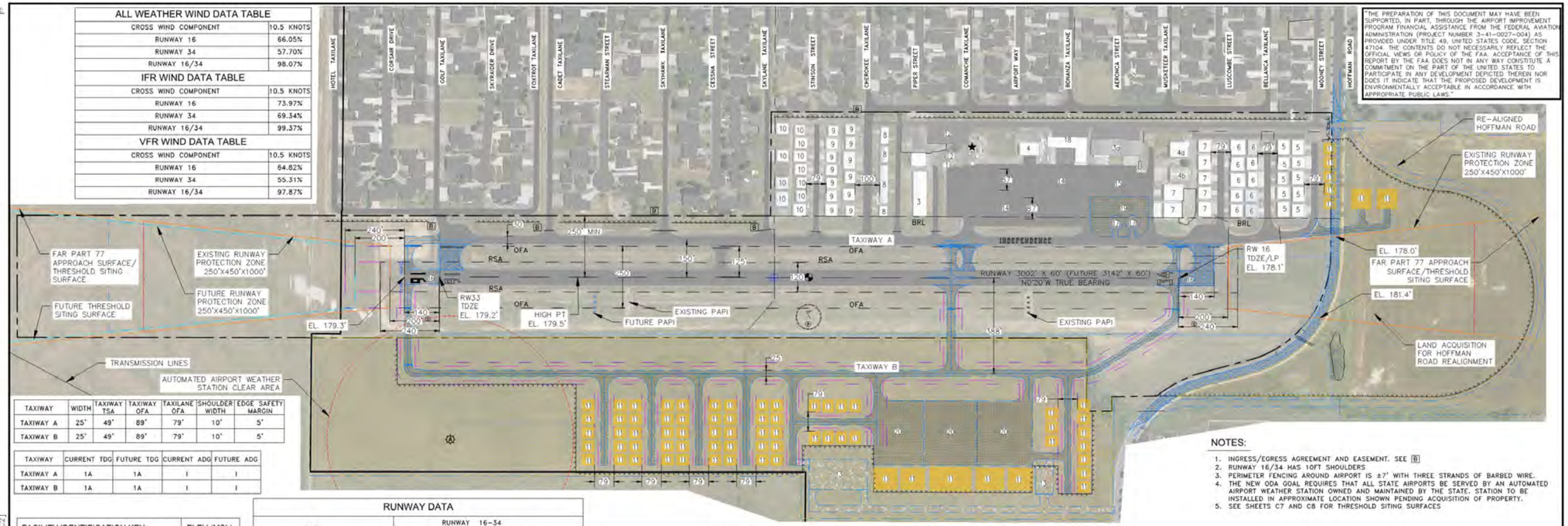
REVISIONS			
NO.	BY	DATE	REMARKS

AIRPORT LAYOUT PLAN

OREGON DEPARTMENT OF AVIATION
INDEPENDENCE AIRPORT LAYOUT PLAN

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

Figure 7C: ALP with Aerial Image



ALL WEATHER WIND DATA TABLE	
CROSS WIND COMPONENT	10.5 KNOTS
RUNWAY 16	66.05%
RUNWAY 34	57.70%
RUNWAY 16/34	98.07%
IFR WIND DATA TABLE	
CROSS WIND COMPONENT	10.5 KNOTS
RUNWAY 16	73.97%
RUNWAY 34	69.34%
RUNWAY 16/34	99.37%
VFR WIND DATA TABLE	
CROSS WIND COMPONENT	10.5 KNOTS
RUNWAY 16	64.82%
RUNWAY 34	55.31%
RUNWAY 16/34	97.87%

TAXIWAY	WIDTH	TAXIWAY TSA	TAXIWAY OFA	TAXILANE OFA	SHOULDER WIDTH	EDGE SAFETY MARGIN
TAXIWAY A	25'	49'	89'	79'	10'	5'
TAXIWAY B	25'	49'	89'	79'	10'	5'

TAXIWAY	CURRENT TDG	FUTURE TDG	CURRENT ADG	FUTURE ADG
TAXIWAY A	1A	1A	I	I
TAXIWAY B	1A	1A	I	I

FACILITY IDENTIFICATION KEY		ELEV (MSL)
1.	FUELING AREA	ELEV = 186.3'
2.	FBO OFFICE	ELEV = 200.7'
3.	FBO HANGAR	ELEV = 199.5'
3a.	FBO HANGAR	ELEV = 205.0'
4.	FBO/AIRCRAFT MAINTENANCE HANGAR	ELEV = 206.9'
4a.	FBO/AIRCRAFT MAINTENANCE HANGAR	ELEV = 204.4'
4b.	FBO/AIRCRAFT MAINTENANCE HANGAR	ELEV = 201.7'
5.	EXISTING HANGAR GROUP*	ELEV = 205.2'
6.	EXISTING HANGAR GROUP*	ELEV = 200.8'
7.	EXISTING HANGAR GROUP*	ELEV = 205.2'
8.	EXISTING HANGAR GROUP*	ELEV = 195.0'
9.	EXISTING HANGAR GROUP*	ELEV = 200.9'
10.	EXISTING HANGAR GROUP*	ELEV = 201.0'
11.	FUTURE HANGAR	ELEV = TBD
12.	AUTO PARKING	ELEV = VARIES
13.	AUTO PARKING (FUTURE)	ELEV = TBD
14.	TIE DOWN APRON	ELEV = VARIES
15.	TIE DOWN APRON (RESERVE)	ELEV = VARIES
16.	RUNWAY SHIFT (FUTURE)	ELEV = VARIES
17.	HELICOPTER PARKING	ELEV = 177.0'
18.	EAA HANGAR	ELEV = 200.5'
19.	APRON AREA EXPANSION	ELEV = VARIES
20.	APRON AREA (FUTURE)	ELEV = TBD

*HANGAR GROUPS SHOW HIGHEST ELEVATION ABOVE MSL

RUNWAY DATA			
ITEM		RUNWAY 16-34 EXISTING	RUNWAY 16-34 FUTURE
RUNWAY TYPE		UTILITY	SAME
RUNWAY REFERENCE CODE (RRC)		B-I (SMALL)	SAME
RUNWAY DESIGN CODE (RDC)		B-I-VIS (SMALL)	SAME
PHYSICAL LENGTH AND WIDTH		3002' X 60'	3142' X 60'
EFFECTIVE GRADIENT		0.037%	SAME
PAVEMENT STRENGTH (WHEEL-POUNDS)		SINGLE - 12,500	SINGLE - 12,500
PAVEMENT SURFACE		ASPHALT	SAME
RUNWAY SAFETY AREA		3482' X 120'	SAME
OBJECT FREE AREA		3482' X 250'	SAME
OBJECT FREE ZONE		NO OFZ OBJECT PENETRATIONS	
RUNWAY PROTECTION ZONE (RPZ)		250' X 450' X 1000'	SAME
CRITICAL AIRCRAFT		BEECH BARON 58	SAME
AERONAUTICAL SURVEY REQUIRED		NVG	SAME
DEPARTURE SURFACE		N/A	SAME
THRESHOLD SITING SURFACE		VISUAL/20:1	SAME
APPROACH VISIBILITY MINIMUMS		VISUAL	SAME
P77 APPROACH TYPE	16	VISUAL	SAME
	34	VISUAL	SAME
P77 APPROACH SLOPE: REQUIRED/CLEAR	16	20:1/20:1	SAME
	34	20:1/20:1	SAME
APPROACH AND LANDING AIDS	16	PAPI-4	SAME
	34	PAPI-4	SAME
RUNWAY END COORDINATES 16	Latitude	44°52'16.56" STET	44°52'17.94"
	Longitude	123°11'53.73"	123°11'53.72"
RUNWAY END COORDINATES 34	Latitude	44°51'46.92"	44°51'46.92"
	Longitude	123°11'53.71"	123°11'53.71"
TOUCH DOWN ZONE ELEVATIONS	16	178.1'	±178.1'
	34	179.2'	±179.2'
RUNWAY LIGHTING		MEDIUM INTENSITY	MEDIUM INTENSITY
TAXIWAY LIGHTING		REFLECTORS MITL	REFLECTORS MITL
RUNWAY MARKING		VISUAL	SAME
WIND COVERAGE (¾) - 10 KNOTS		98.07%	SAME

AIRPORT DATA		
DATUM NOTES: HORIZONTAL DATUM NAD 1983 / VERTICLE DATUM NAVD 1988		
ITEM	EXISTING	FUTURE
DATUM FOR ALL ITEMS	NAD 1983	SAME
AIRPORT ELEVATION (MSL)	179.5'	SAME
AIRPORT REFERENCE POINT	LAT: 44°52'01.05" LONG: 123°11'53.89"	LAT: 44°52.05' LONG: 123°11.90'
MEAN MAX TEMP OF HOTTEST MONTH	83.2° (JULY)	SAME
AIRPORT REFERENCE CODE/ CRITICAL AIRCRAFT	B-I(SMALL)/ BEECH BARON 58	SAME
NPIAS ROLE	GENERAL AVIATION	SAME
STATE AIRPORT EQUIVALENT ROLE	LEVEL 3	SAME
LAND OWNED IN FEE (ACRES)	SEE EXHIBIT A 88.10	PROPOSED 136.17
AIRPORT CODE	7S5	SAME
TRANSIENT AIRCRAFT SPACES	40	80
AIRPORT NAVAIDS	BEACON	BEACON/ WEATHER STATION
MISC. FACILITIES	WIND SOCK	SAME

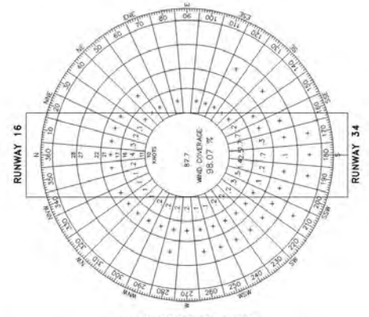
DECLARED DISTANCES	EXISTING*		FUTURE**	
	16	34	17	35
TAKEOFF RUN AVAILABLE (TORA)	3002'	3002'	3142'	3142'
TAKEOFF DISTANCE AVAILABLE (TODA)	3002'	3002'	3142'	3142'
ACCELERATE - STOP DISTANCE AVAILABLE (ASDA)	3002'	3002'	3142'	3142'
LANDING DISTANCE AVAILABLE (LDA)	3002'	3002'	3142'	3142'

*EXISTING RUNWAY LENGTH DOES NOT INCLUDE ALIGNED TAXIWAY LENGTH AT RW34 (APPROXIMATELY 140')
**RUNWAY NUMBERS ARE DUE TO BE CHANGED TO ACCOUNT FOR MAGNETIC DECLINATION

TRUE / MAGNETIC

ANNUAL RATE OF CHANGE: 0°6'W PER YEAR
SOURCE: NCEI (NGDC) MAGNETIC DECLINATION FIELD CALCULATOR

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



McNARY FIELD,SALEM, OREGON
ALL WEATHER WIND ROSE
PERIOD 2009-2018
SOURCE: FAA AIRPORTS GIS WINDROSE FILE GENERATOR

NOTES:
1. INGRESS/EGRESS AGREEMENT AND EASEMENT. SEE [B]
2. RUNWAY 16/34 HAS 10FT SHOULDERS
3. PERIMETER FENCING AROUND AIRPORT IS ±7' WITH THREE STRANDS OF BARBED WIRE.
4. THE NEW ODA GOAL REQUIRES THAT ALL STATE AIRPORTS BE SERVED BY AN AUTOMATED AIRPORT WEATHER STATION OWNED AND MAINTAINED BY THE STATE. STATION TO BE INSTALLED IN APPROXIMATE LOCATION SHOWN PENDING ACQUISITION OF PROPERTY.
5. SEE SHEETS C7 AND C8 FOR THRESHOLD SITING SURFACES

LEGEND		
ITEM	EXISTING	FUTURE
AIRFIELD PAVEMENT		
ACCESS ROAD/VEHICLE PARKING	N/A	
EXISTING PAVEMENT TO BE REMOVED		
PERIMETER FENCE		
RUNWAY SAFETY AREA		
RUNWAY OBJECT FREE AREA		
AIRPORT PROPERTY LINE		
TAXIWAY CENTERLINE		
PAPI UNITS		
BUILDING RESTRICTION LINE	BRL	SAME
PART 77 APPROACH SURFACE		
AIRPORT PROPERTY ACQUISITION		
BUILDINGS		
TOPOGRAPHIC CONTOURS (2 FT)		SAME
WIND CONE		SAME
AIRPORT REFERENCE POINT		
THRESHOLD LIGHTS (FUTURE W/ REIL)		
ROTATING BEACON W/ METAL TOWER		SAME
RUNWAY PROTECTION ZONE		
CITY LIMITS		
ALTERNATIVE GRASS LANDING AREA		
AIRPORT SURVEY MONUMENT (PACS/SACS)	PACS SACS	SAME
DRAINAGE DITCH LINE		SAME
AUTOMATED AIRPORT WEATHER STATION		

WHPacific

OREGON DEPARTMENT OF AVIATION

SHEET INFO	
DESIGNED	A. BIRD
DRAWN	A. BIRD
CHECKED	---
APPROVED	---
LAST EDIT	3/16/2020
PLOT DATE	3/16/2020
SUBMITTAL	

REVISIONS			
NO.	BY	DATE	REMARKS

ALP WITH AERIAL

OREGON DEPARTMENT OF AVIATION
INDEPENDENCE, OR

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

SHEET NUMBER C2

[DATE: 3/16/2020 6:48 AM] [AUTHOR: abird] [PLOTTER: ...DWG To PDF.pc3] [STYLE: WHP-Standard.ctb] [PATH: P:\Oregon Dept. of Aviation (ODA)\P0019739W Execution\Drawings\Planning\ALP\Sheets\IND-ALP-C1-C4.dwg] [LAYOUT: C2]

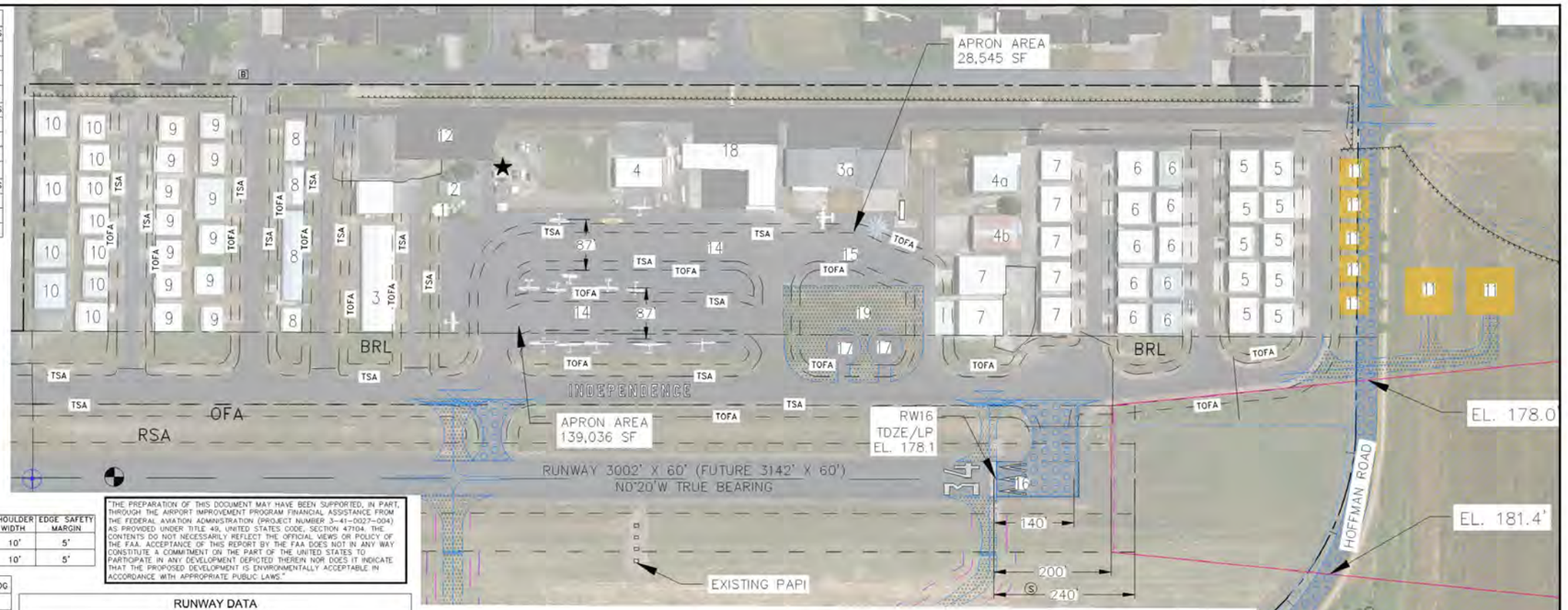
Figure 7D: Terminal Plan East

XREF INDEX:

ALL WEATHER WIND DATA TABLE	
CROSS WIND COMPONENT	10.5 KNOTS
RUNWAY 16	66.05%
RUNWAY 34	57.70%
RUNWAY 16/34	98.07%
IFR WIND DATA TABLE	
CROSS WIND COMPONENT	10.5 KNOTS
RUNWAY 16	73.97%
RUNWAY 34	69.34%
RUNWAY 16/34	99.37%
VFR WIND DATA TABLE	
CROSS WIND COMPONENT	10.5 KNOTS
RUNWAY 16	64.82%
RUNWAY 34	55.31%
RUNWAY 16/34	97.87%

NOTES:

1. INGRESS/EGRESS AGREEMENT AND EASEMENT. SEE [B]
2. RUNWAY 16/34 HAS 10FT SHOULDERS
3. PERIMETER FENCING AROUND AIRPORT IS ±7' WITH THREE STRANDS OF BARBED WIRE.
4. THE NEW ODA GOAL REQUIRES THAT ALL STATE AIRPORTS BE SERVED BY AN AUTOMATED AIRPORT WEATHER STATION OWNED AND MAINTAINED BY THE STATE. STATION TO BE INSTALLED IN APPROXIMATE LOCATION SHOWN PENDING ACQUISITION OF PROPERTY.
5. SEE SHEETS C7 AND C8 FOR THRESHOLD SITING SURFACES



TAXIWAY	WIDTH	TAXIWAY TSA	TAXIWAY OFA	TAXILANE OFA	SHOULDER WIDTH	EDGE SAFETY MARGIN
TAXIWAY A	25'	49'	89'	79'	10'	5'
TAXIWAY B	25'	49'	89'	79'	10'	5'

"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."

TAXIWAY	CURRENT TDG	FUTURE TDG	CURRENT ADG	FUTURE ADG
TAXIWAY A	1A	1A	I	I
TAXIWAY B	1A	1A	I	I

FACILITY IDENTIFICATION KEY		ELEV (MSL)
1.	FUELING AREA	ELEV = 186.3'
2.	FBO OFFICE	ELEV = 200.7'
3.	FBO HANGAR	ELEV = 199.5'
3a.	FBO HANGAR	ELEV = 205.0'
4.	FBO/AIRCRAFT MAINTENANCE HANGAR	ELEV = 206.9'
4a.	FBO/AIRCRAFT MAINTENANCE HANGAR	ELEV = 204.4'
4b.	FBO/AIRCRAFT MAINTENANCE HANGAR	ELEV = 201.7'
5.	EXISTING HANGAR GROUP*	ELEV = 205.2'
6.	EXISTING HANGAR GROUP*	ELEV = 200.8'
7.	EXISTING HANGAR GROUP*	ELEV = 205.2'
8.	EXISTING HANGAR GROUP*	ELEV = 195.0'
9.	EXISTING HANGAR GROUP*	ELEV = 200.9'
10.	EXISTING HANGAR GROUP*	ELEV = 201.0'
11.	FUTURE HANGAR	ELEV = TBD
12.	AUTO PARKING	ELEV = VARIES
13.	AUTO PARKING (FUTURE)	ELEV = TBD
14.	TIE DOWN APRON	ELEV = VARIES
15.	TIE DOWN APRON (RESERVE)	ELEV = VARIES
16.	RUNWAY SHIFT (FUTURE)	ELEV = VARIES
17.	HELICOPTER PARKING	ELEV = 177.0'
18.	EAA HANGAR	ELEV = 200.5'
19.	APRON AREA EXPANSION	ELEV = VARIES
20.	APRON AREA (FUTURE)	ELEV = TBD

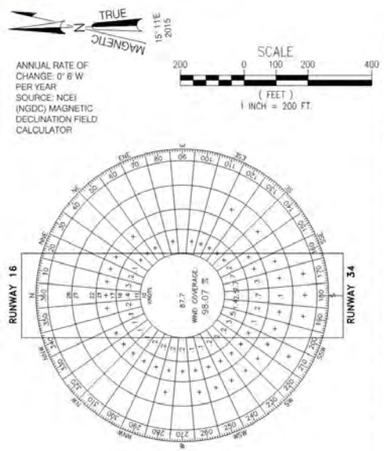
*HANGAR GROUPS SHOW HIGHEST ELEVATION ABOVE MSL

RUNWAY DATA				
ITEM			RUNWAY 16-34	
			EXISTING	FUTURE
RUNWAY TYPE			UTILITY	SAME
RUNWAY REFERENCE CODE (RRC)			B-I (SMALL)	SAME
RUNWAY DESIGN CODE (RDC)			B-I-VIS (SMALL)	SAME
PHYSICAL LENGTH AND WIDTH			3002' X 60'	3142' X 60'
EFFECTIVE GRADIENT			0.037%	SAME
PAVEMENT STRENGTH (WHEEL-POUNDS)			SINGLE - 12,500	SINGLE - 12,500
PAVEMENT SURFACE			ASPHALT	SAME
RUNWAY SAFETY AREA			3482' X 120'	SAME
OBJECT FREE AREA			3482' X 250'	SAME
OBJECT FREE ZONE			NO OFZ OBJECT PENETRATIONS	
RUNWAY PROTECTION ZONE (RPZ)			250' X 450' X 1000'	SAME
CRITICAL AIRCRAFT			BEECH BARON 58	SAME
AERONAUTICAL SURVEY REQUIRED			NVG	SAME
DEPARTURE SURFACE			N/A	SAME
THRESHOLD SITING SURFACE			VISUAL/20:1	SAME
APPROACH VISIBILITY MINIMUMS			VISUAL	SAME
P77 APPROACH TYPE		16	VISUAL	SAME
		34	VISUAL	SAME
P77 APPROACH SLOPE: REQUIRED/CLEAR		16	20:1/20:1	SAME
		34	20:1/20:1	SAME
APPROACH AND LANDING AIDS		16	PAPI-4	SAME
		34	PAPI-4	SAME
RUNWAY END COORDINATES	16	Latitude	44°52'16.56" STET	44°52'17.94"
		Longitude	123°11'53.73"	123°11'53.72"
	34	Latitude	44°51'46.92"	44°51'46.92"
		Longitude	123°11'53.71"	123°11'53.71"
TOUCH DOWN ZONE ELEVATIONS		16	178.1'	±178.1'
		34	179.2'	±179.2'
RUNWAY LIGHTING			MEDIUM INTENSITY	MEDIUM INTENSITY
TAXIWAY LIGHTING			REFLECTORS MITL	REFLECTORS MITL
RUNWAY MARKING			VISUAL	SAME
WIND COVERAGE (%) - 10 KNOTS			98.07%	SAME

AIRPORT DATA		
DATUM NOTES: HORIZONTAL DATUM NAD 1983 / VERTICLE DATUM NAVD 1988		
ITEM	EXISTING	FUTURE
DATUM FOR ALL ITEMS	NAD 1983	SAME
AIRPORT ELEVATION (MSL)	179.5'	SAME
AIRPORT REFERENCE POINT	LAT: 44°52'01.05" LONG: 123°11'53.89"	LAT: 44°52.05' LONG: 123°11.90'
MEAN MAX TEMP OF HOTTEST MONTH	83.2° (JULY)	SAME
AIRPORT REFERENCE CODE/ CRITICAL AIRCRAFT	B-I(SMALL)/ BEECH BARON 58	SAME
NPIAS ROLE	GENERAL AVIATION	SAME
STATE AIRPORT EQUIVALENT ROLE	LEVEL 3	SAME
LAND OWNED IN FEE (ACRES)	SEE EXHIBIT A 88.10	PROPOSED 136.17
AIRPORT CODE	7S5	SAME
TRANSIENT AIRCRAFT SPACES	40	80
AIRPORT NAVAIDS	BEACON	BEACON/ WEATHER STATION
MISC. FACILITIES	WIND SOCK	SAME

DECLARED DISTANCES				
	EXISTING*		FUTURE**	
	16	34	17	35
TAKEOFF RUN AVAILABLE (TORA)	3002'	3002'	3142'	3142'
TAKEOFF DISTANCE AVAILABLE (TODA)	3002'	3002'	3142'	3142'
ACCELERATE - STOP DISTANCE AVAILABLE (ASDA)	3002'	3002'	3142'	3142'
LANDING DISTANCE AVAILABLE (LDA)	3002'	3002'	3142'	3142'

*EXISTING RUNWAY LENGTH DOES NOT INCLUDE ALIGNED TAXIWAY LENGTH AT RW34 (APPROXIMATELY 140')
**RUNWAY NUMBERS ARE DUE TO BE CHANGED TO ACCOUNT FOR MAGNETIC DECLINATION



McNARY FIELD,SALEM, OREGON
ALL WEATHER WIND ROSE
PERIOD 2009-2018
SOURCE: FAA AIRPORTS GIS WINDROSE FILE GENERATOR

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	
RUNWAY / TAXIWAY OBJECT FREE AREA	OFA TOFA	
AIRPORT PROPERTY LINE		
TAXIWAY CENTERLINE		
PAPI UNITS		
BUILDING RESTRICTION LINE	BRL	SAME
AIRPORT PROPERTY ACQUISITION		
BUILDINGS		
TOPOGRAPHIC CONTOURS (2 FT)		SAME
WIND CONE		SAME
AIRPORT REFERENCE POINT		
THRESHOLD LIGHTS (FUTURE W/ REIL)		
ROTATING BEACON W/ METAL TOWER		SAME
RUNWAY PROTECTION ZONE		
CITY LIMITS		
ALTERNATIVE GRASS LANDING AREA		
AIRPORT SURVEY MONUMENT (PACS/SACS)	⊕ PACS ⊕ SACS	SAME
DRAINAGE DITCH LINE		SAME

WHPacific

OREGON DEPARTMENT OF AVIATION

SHEET INFO	
DESIGNED	ALB
DRAWN	ALB
CHECKED	RS
APPROVED	---
LAST EDIT	3/16/2020
PLOT DATE	3/16/2020
SUBMITTAL	

REVISIONS			
NO.	BY	DATE	REMARKS

TERMINAL PLAN EAST

OREGON DEPARTMENT OF AVIATION
INDEPENDENCE, OR

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

SHEET NUMBER C3

[DATE: 3/16/2020 6:48 AM] [AUTHOR: abird] [PLOTTER: ...DWG To PDF.pc3] [STYLE: WHP-Standard.ctb]
[Path: P:\Oregon Dept. of Aviation (ODA)\P0019739W Execution\Drawings (Planning)\ALP\Sheets\IND-ALP-C1-C4.dwg] [LAYOUT: C3]

Figure 7E: Terminal Plan West

XREF INDEX:

"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."

NOTES:

1. INGRESS/EGRESS AGREEMENT AND EASEMENT. SEE [B]
2. RUNWAY 16/34 HAS 10FT SHOULDERS
3. PERIMETER FENCING AROUND AIRPORT IS ±7' WITH THREE STRANDS OF BARBED WIRE.
4. THE NEW ODA GOAL REQUIRES THAT ALL STATE AIRPORTS BE SERVED BY AN AUTOMATED AIRPORT WEATHER STATION OWNED AND MAINTAINED BY THE STATE. STATION TO BE INSTALLED IN APPROXIMATE LOCATION SHOWN PENDING ACQUISITION OF PROPERTY.
5. SEE SHEETS C7 AND C8 FOR THRESHOLD SITING SURFACES

ALL WEATHER WIND DATA TABLE	
CROSS WIND COMPONENT	10.5 KNOTS
RUNWAY 16	66.05%
RUNWAY 34	57.70%
RUNWAY 16/34	98.07%
IFR WIND DATA TABLE	
CROSS WIND COMPONENT	10.5 KNOTS
RUNWAY 16	73.97%
RUNWAY 34	69.34%
RUNWAY 16/34	99.37%
VFR WIND DATA TABLE	
CROSS WIND COMPONENT	10.5 KNOTS
RUNWAY 16	64.82%
RUNWAY 34	55.31%
RUNWAY 16/34	97.87%

TAXIWAY	CURRENT TDG	FUTURE TDG	CURRENT ADG	FUTURE ADG
TAXIWAY A	1A	1A	I	I
TAXIWAY B	1A	1A	I	I

TAXIWAY	WIDTH	TAXIWAY TSA	TAXIWAY OFA	TAXILANE OFA	SHOULDER WIDTH	EDGE SAFETY MARGIN
TAXIWAY A	25'	49'	89'	79'	10'	5'
TAXIWAY B	25'	49'	89'	79'	10'	5'

FACILITY IDENTIFICATION KEY		ELEV (MSL)
1.	FUELING AREA	ELEV = 186.3'
2.	FBO OFFICE	ELEV = 200.7'
3.	FBO HANGAR	ELEV = 199.5'
3a.	FBO HANGAR	ELEV = 205.0'
4.	FBO/AIRCRAFT MAINTENANCE HANGAR	ELEV = 206.9'
4a.	FBO/AIRCRAFT MAINTENANCE HANGAR	ELEV = 204.4'
4b.	FBO/AIRCRAFT MAINTENANCE HANGAR	ELEV = 201.7'
5.	EXISTING HANGAR GROUP*	ELEV = 205.2'
6.	EXISTING HANGAR GROUP*	ELEV = 200.8'
7.	EXISTING HANGAR GROUP*	ELEV = 205.2'
8.	EXISTING HANGAR GROUP*	ELEV = 195.0'
9.	EXISTING HANGAR GROUP*	ELEV = 200.9'
10.	EXISTING HANGAR GROUP*	ELEV = 201.0'
11.	FUTURE HANGAR	ELEV = TBD
12.	AUTO PARKING	ELEV = VARIES
13.	AUTO PARKING (FUTURE)	ELEV = TBD
14.	TIE DOWN APRON	ELEV = VARIES
15.	TIE DOWN APRON (RESERVE)	ELEV = VARIES
16.	RUNWAY SHIFT (FUTURE)	ELEV = VARIES
17.	HELICOPTER PARKING	ELEV = 177.0'
18.	EAA HANGAR	ELEV = 200.5'
19.	APRON AREA EXPANSION	ELEV = VARIES
20.	APRON AREA (FUTURE)	ELEV = TBD

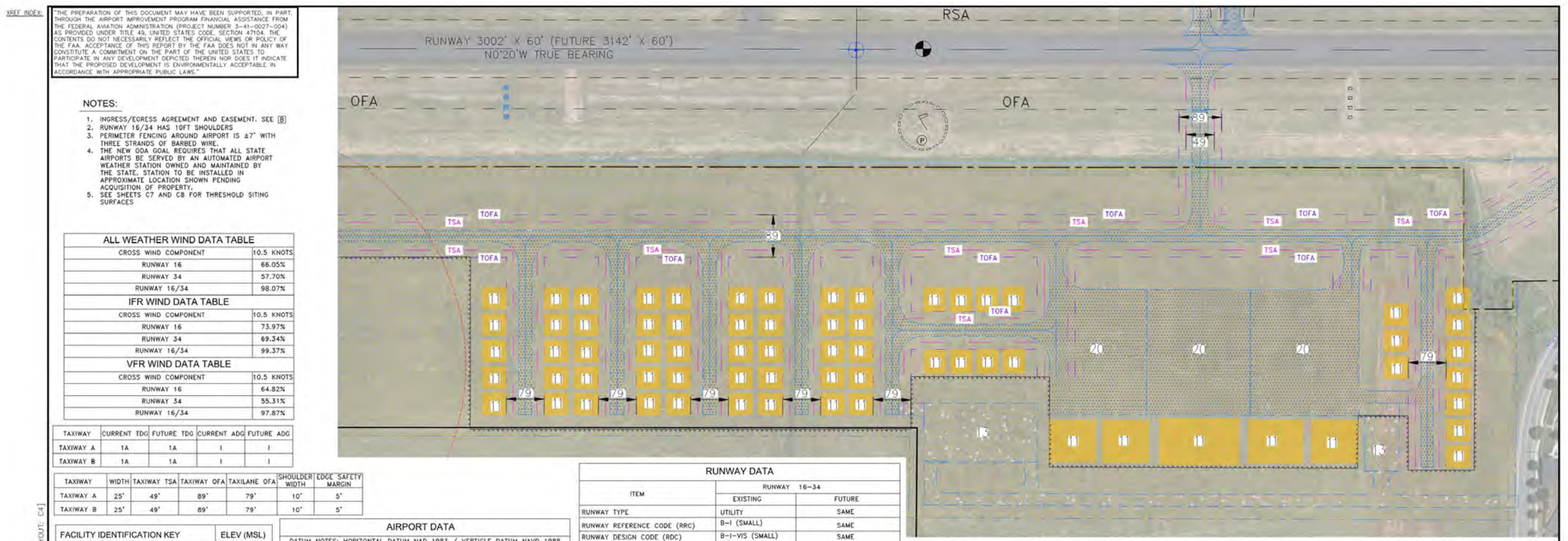
*HANGAR GROUPS SHOW HIGHEST ELEVATION ABOVE MSL

AIRPORT DATA		
DATUM NOTES: HORIZONTAL DATUM NAD 1983 / VERTICLE DATUM NAVD 1988		
ITEM	EXISTING	FUTURE
DATUM FOR ALL ITEMS	NAD 1983	SAME
AIRPORT ELEVATION (MSL)	179.5'	SAME
AIRPORT REFERENCE POINT	LAT: 44°52'01.05" LONG: 123°11'53.89"	LAT: 44°52.05' LONG: 123°11.90'
MEAN MAX TEMP OF HOTTEST MONTH	83.2° (JULY)	SAME
AIRPORT REFERENCE CODE/ CRITICAL AIRCRAFT	B-II(SMALL)/ BEECH BARON 58	SAME
NPIAS ROLE	GENERAL AVIATION	SAME
STATE AIRPORT EQUIVALENT ROLE	LEVEL 3	SAME
LAND OWNED IN FEE (ACRES)	SEE EXHIBIT A 88.10	PROPOSED 136.17
AIRPORT CODE	7S5	SAME
TRANSIENT AIRCRAFT SPACES	40	80
AIRPORT NAVAIDS	BEACON	BEACON/ WEATHER STATION
MISC. FACILITIES	WIND SOCK	SAME

DECLARED DISTANCES					
		EXISTING*		FUTURE**	
		16	34	17	35
TAKEOFF RUN AVAILABLE (TORA)		3002'	3002'	3142'	3142'
TAKEOFF DISTANCE AVAILABLE (TODA)		3002'	3002'	3142'	3142'
ACCELERATE – STOP DISTANCE AVAILABLE (ASDA)		3002'	3002'	3142'	3142'
LANDING DISTANCE AVAILABLE (LDA)		3002'	3002'	3142'	3142'
RUNWAY END COORDINATES	16 Latitude	44°52'16.56" STET		44°52'17.94"	
	16 Longitude	123°11'53.73"		123°11'53.72"	
	34 Latitude	44°51'46.92"		44°51'46.92"	
	34 Longitude	123°11'53.71"		123°11'53.71"	
TOUCH DOWN ZONE ELEVATIONS	16	178.1'		±178.1'	
	34	179.2'		±179.2'	

*EXISTING RUNWAY LENGTH DOES NOT INCLUDE ALIGNED TAXIWAY LENGTH AT RW34 (APPROXIMATELY 140')
**RUNWAY NUMBERS ARE DUE TO BE CHANGED TO ACCOUNT FOR MAGNETIC DECLINATION

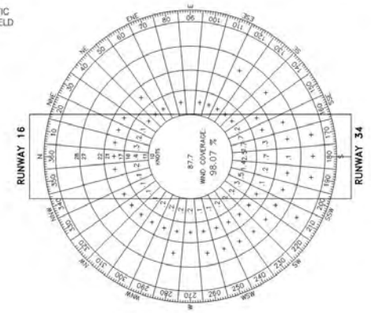
RUNWAY DATA			
ITEM		RUNWAY 16–34	
		EXISTING	FUTURE
RUNWAY TYPE		UTILITY	SAME
RUNWAY REFERENCE CODE (RRC)		B-I (SMALL)	SAME
RUNWAY DESIGN CODE (RDC)		B-I-VIS (SMALL)	SAME
PHYSICAL LENGTH AND WIDTH		3002' X 60'	3142' X 60'
EFFECTIVE GRADIENT		0.037%	SAME
PAVEMENT STRENGTH (WHEEL-POUNDS)		SINGLE – 12,500	SINGLE – 12,500
PAVEMENT SURFACE		ASPHALT	SAME
RUNWAY SAFETY AREA		382' X 120'	SAME
OBJECT FREE AREA		382' X 250'	SAME
OBJECT FREE ZONE		NO OFZ OBJECT PENETRATIONS	
RUNWAY PROTECTION ZONE (RPZ)		250' X 450' X 1000'	SAME
CRITICAL AIRCRAFT		BEECH BARON 58	SAME
AERONAUTICAL SURVEY REQUIRED		NVG	SAME
DEPARTURE SURFACE		N/A	SAME
THRESHOLD SITING SURFACE		VISUAL/20:1	SAME
APPROACH VISIBILITY MINIMUMS		VISUAL	SAME
P77 APPROACH TYPE	16	VISUAL	SAME
	34	VISUAL	SAME
P77 APPROACH SLOPE: REQUIRED/CLEAR	16	20:1/20:1	SAME
	34	20:1/20:1	SAME
APPROACH AND LANDING AIDS	16	PAPI-4	SAME
	34	PAPI-4	SAME
RUNWAY LIGHTING		MEDIUM INTENSITY	MEDIUM INTENSITY
TAXIWAY LIGHTING		REFLECTORS MITL	REFLECTORS MITL
RUNWAY MARKING		VISUAL	SAME
WIND COVERAGE (%) – 10 KNOTS		98.07%	SAME



TRUE / MAGNETIC 15° 11E 2015

ANNUAL RATE OF CHANGE: 0° 6' W PER YEAR
SOURCE: NCEI (NGDC) MAGNETIC DECLINATION FIELD CALCULATOR

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



McNARY FIELD,SALEM, OREGON
ALL WEATHER WIND ROSE
PERIOD 2009–2018
SOURCE: FAA AIRPORTS GIS WINDROSE FILE GENERATOR

LEGEND		
ITEM	EXISTING	FUTURE
AIRFIELD PAVEMENT		
ACCESS ROAD/VEHICLE PARKING	N/A	
EXISTING PAVEMENT TO BE REMOVED		
PERIMETER FENCE		
RUNWAY/TAXIWAY SAFETY AREA	TSA	TSA
RUNWAY/TAXIWAY OBJECT FREE AREA	TOFA	TOFA
AIRPORT PROPERTY LINE		
TAXIWAY CENTERLINE		
PAPI UNITS		
BUILDING RESTRICTION LINE	BRL	SAME
AIRPORT PROPERTY ACQUISITION		
BUILDINGS		
TOPOGRAPHIC CONTOURS (2 FT)		SAME
WIND CONE		SAME
AIRPORT REFERENCE POINT		
THRESHOLD LIGHTS (FUTURE W/ REIL)		
ROTATING BEACON W/ METAL TOWER		SAME
RUNWAY PROTECTION ZONE		
CITY LIMITS		
AIRPORT SURVEY MONUMENT (PACS/SACS)	⊕PACS ⊕SACS	SAME
DRAINAGE DITCH LINE		SAME

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SHEET INFO	
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TERMINAL PLAN WEST

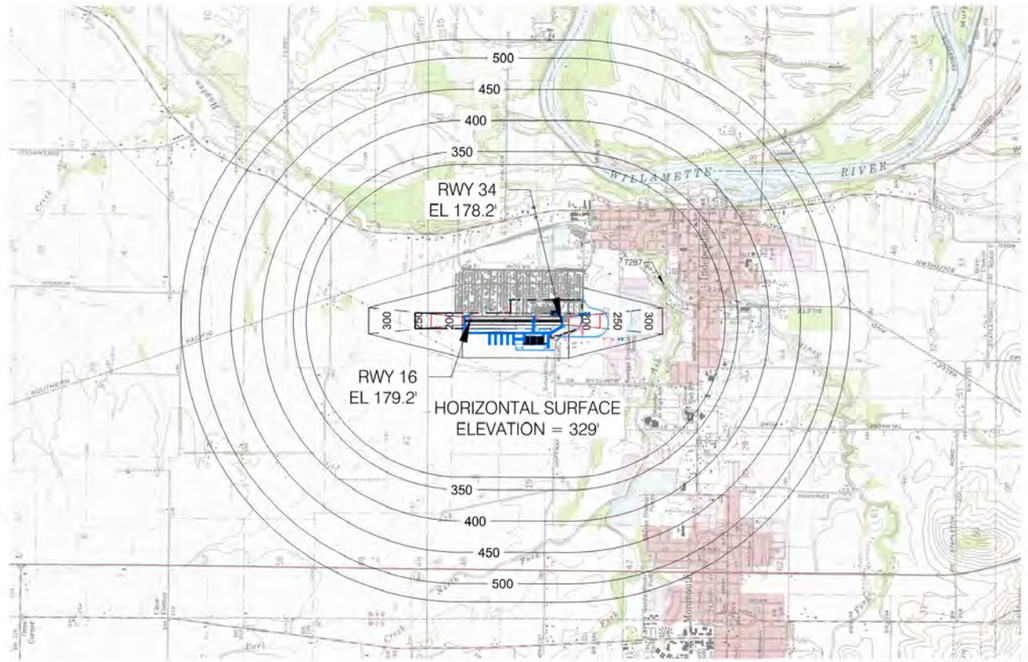
OREGON DEPARTMENT OF AVIATION
INDEPENDENCE, OR

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

SHEET NUMBER C4

[DATE: 3/16/2020 6:48 AM] [AUTHOR: obird] [PLOTTER: -DWG To PDF.pc3] [STYLE: WHP-Standard.ctb]
[File: P:\Oregon Dept. of Aviation (ODA)\P0019739W Execution Drawings\Planning\ALP\Sheets\IND-ALP-C1-C4.dwg] [LAYOUT: C4]

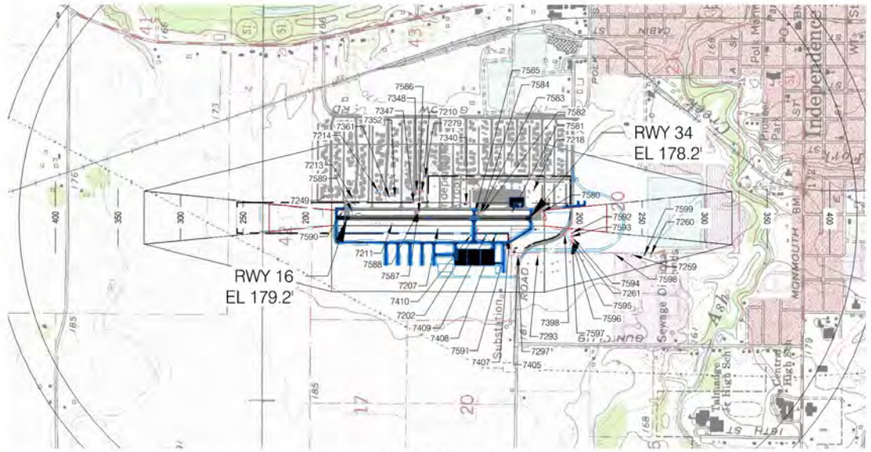
Figure 7F: Runway 16-34 Approach Surface



AIRPORT AIRSPACE

SCALE: 1" = 2000 HORZ

QUAD MAP DATE: 2017



AIRPORT AIRSPACE

SCALE: 1" = 1000' HORZ

TRUE
MAGNETIC
15° 11'E
2015

ANNUAL RATE OF CHANGE: 0° 6' W PER YEAR

SCALE

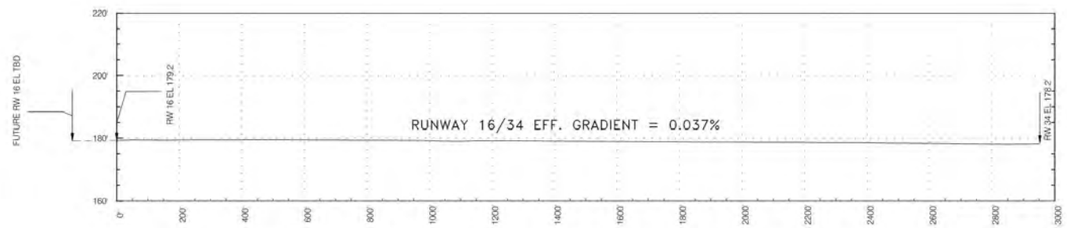
DRAWING LEGEND	
RUNWAY PROTECTION ZONE	
AIRPORT PROPERTY LINE	
FAR PART 77 SURFACE	
PENETRATING OBSTRUCTION	
NON PENETRATING OBSTRUCTION	
NON-PENETRATING TREES (<10' CLEARANCE)	

*SEE SHEET C8 FOR PRIMARY, TRANSITIONAL, CONICAL AND HORIZONTAL OBSTRUCTION TABLES FOR RUNWAY 16/34.

TRUE
MAGNETIC
15° 11'E
2015

ANNUAL RATE OF CHANGE: 0° 6' W PER YEAR

SCALE



AIRPORT ELEVATION: 179.5'

RW 16/34 PROFILE

SCALE: 1" = 500' HORZ
SCALE: 1" = 50' VERT

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NO.	BY	DATE	REMARKS

AIRSPACE PLAN

OREGON DEPARTMENT OF AVIATION
INDEPENDENCE AIRPORT LAYOUT PLAN

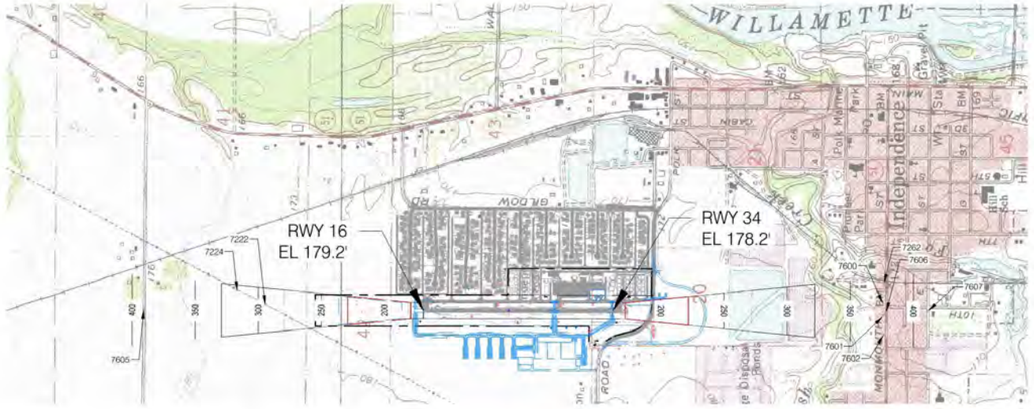
PROJECT NUMBER	DRAWING FILE NAME	SCALE
P0019739W	IND-ALP-C5	AS SHOWN

SHEET NUMBER: C5

Figure 7G: Runway 16-34 Approach Surface

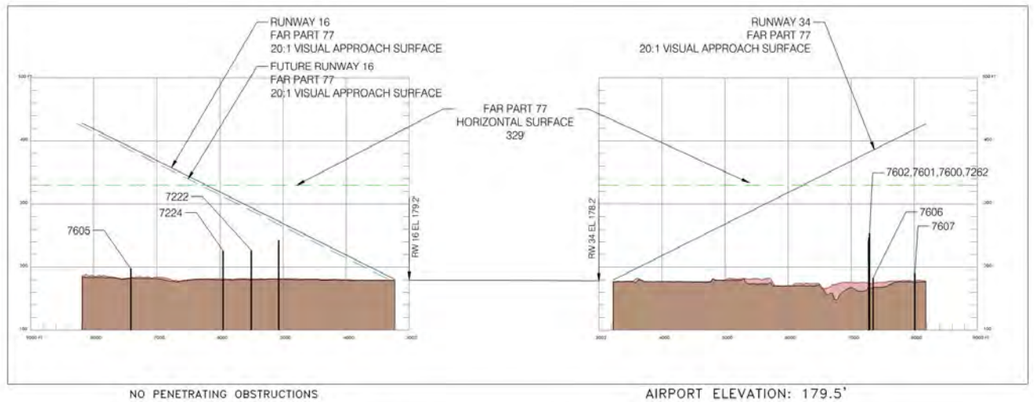
DRAWING LEGEND	
RUNWAY PROTECTION ZONE	
AIRPORT PROPERTY LINE	
FAR PART 77 SURFACE	
PENETRATING OBSTRUCTION	
NON PENETRATING OBSTRUCTION	
NON-PENETRATING TREES (<10' CLEARANCE)	
MAJOR GRIDLINE	
MINOR GRIDLINE	
COMPOSITE OF HIGHEST TERRAIN	
TERRAIN CENTERLINE ELEVATION	

*SEE SHEET C8 FOR APPROACH OBSTRUCTION TABLES FOR RUNWAY 16/34.



RW 16/34 APPROACH PLAN

SCALE: 1" = 1000' HORZ



RW 16/34 PROFILE

SCALE: 1" = 1000' HORZ
SCALE: 1" = 100' VERT

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OREGON DEPARTMENT OF AVIATION

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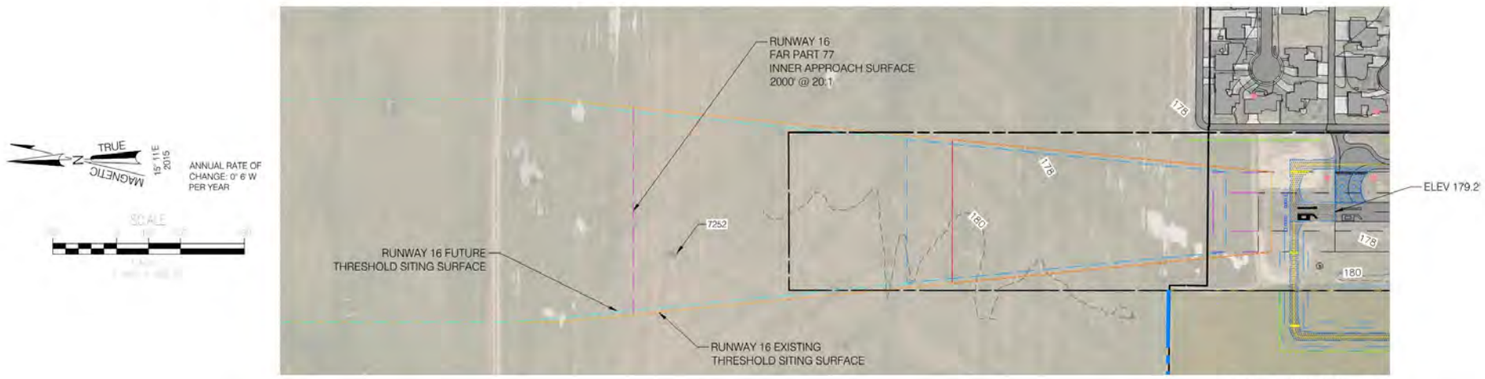
RUNWAY 16-34 APPROACH SURFACE

OREGON DEPARTMENT OF AVIATION
INDEPENDENCE AIRPORT LAYOUT PLAN

PROJECT NUMBER	DRAWING FILE NAME	SCALE
P0019739W	IND-ALP-C6	AS SHOWN

SHEET NUMBER: C6

Figure 7H: Runway 16 Inner Approach



AERIAL PHOTO DATE: 2017

TRUE
MAGNETIC
15° 11'E
2015

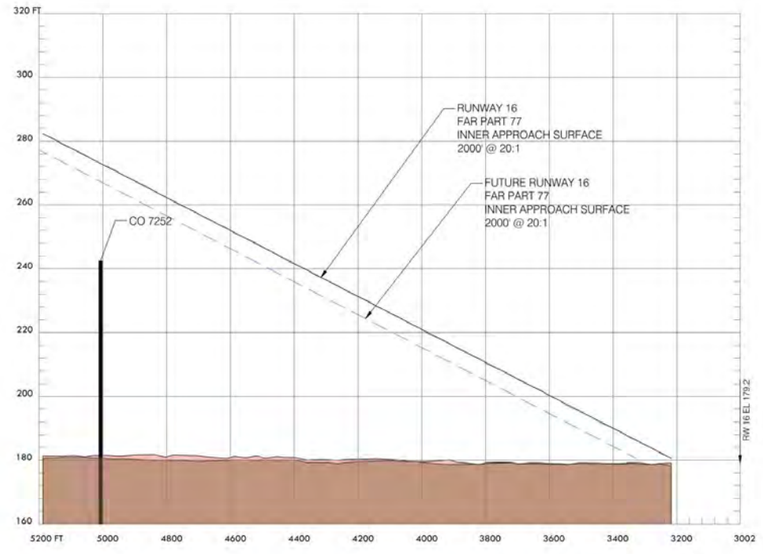
ANNUAL RATE OF CHANGE: 0° 6' W PER YEAR

SCALE

PLAN LEGEND		
ITEM	EXISTING	FUTURE
AIRFIELD PAVEMENT		
EXISTING PAVEMENT TO BE REMOVED		
PERIMETER FENCE		
RUNWAY SAFETY AREA		
RUNWAY OBJECT FREE AREA		
AIRPORT PROPERTY LINE		
RUNWAY PROTECTION ZONE		
PART 77 SURFACE		
THRESHOLD SITING SURFACE		
AIRPORT PROPERTY ACQUISITION		
BUILDINGS		
PENETRATING OBSTRUCTION		
NON PENETRATING OBSTRUCTION		
CONTROLLING OBJECT	CO XXXX	

*SEE SHEET C8 FOR APPROACH OBSTRUCTION TABLES FOR RUNWAY 16.

PROFILE LEGEND	
MAJOR GRIDLINE	
MINOR GRIDLINE	
COMPOSITE OF HIGHEST TERRAIN	
TERRAIN CENTERLINE ELEVATION	



NO PENETRATING OBSTRUCTIONS

AIRPORT ELEVATION: 179.5'

RUNWAY 16 APPROACH PROFILE
SCALE: 1" = 200' HORIZ.
1" = 20' VERT.

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RUNWAY 16 INNER APPROACH

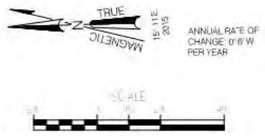
OREGON DEPARTMENT OF AVIATION
INDEPENDENCE AIRPORT LAYOUT PLAN

PROJECT NUMBER	DRAWING FILE NAME	SCALE
P0019739W	IND-ALP-C7	AS SHOWN

SHEET NUMBER
C7

Figure 7I: Runway 34 Inner Approach

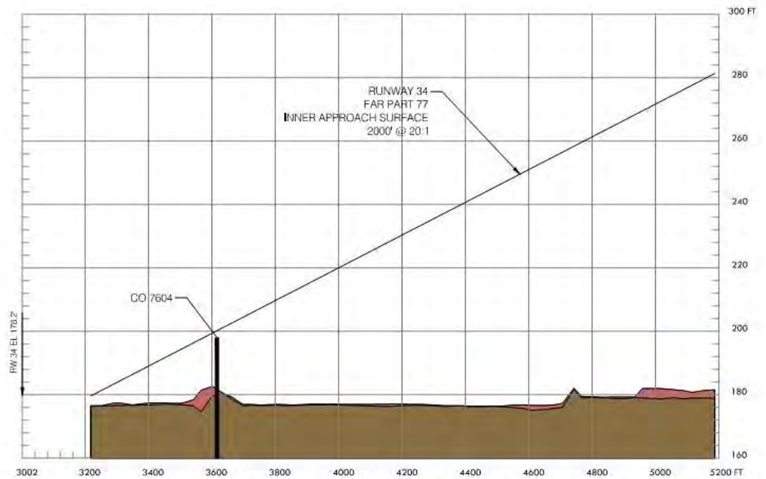
AERIAL PHOTO DATE: 2017



PLAN LEGEND		
ITEM	EXISTING	FUTURE
AIRFIELD PAVEMENT		
EXISTING PAVEMENT TO BE REMOVED		
PERIMETER FENCE		
RUNWAY SAFETY AREA		
RUNWAY OBJECT FREE AREA		
AIRPORT PROPERTY LINE		
RUNWAY PROTECTION ZONE		
PART 77 SURFACE		
AIRPORT PROPERTY ACQUISITION		
BUILDINGS		
PENETRATING OBSTRUCTION		
NON PENETRATING OBSTRUCTION		
DRAINAGE DITCH LINE		SAME
CONTROLLING OBJECT	CO XXXX	

*SEE SHEET C8 FOR APPROACH OBSTRUCTION TABLES FOR RUNWAY 16.

PROFILE LEGEND	
MAJOR GRIDLINE	
MINOR GRIDLINE	
COMPOSITE OF HIGHEST TERRAIN	
TERRAIN CENTERLINE ELEVATION	



NO PENETRATING OBSTRUCTIONS

RUNWAY 34 APPROACH PROFILE
SCALE: 1" = 200' HORIZ.
1" = 20' VERT.

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OREGON DEPARTMENT OF AVIATION

SHEET INFO	
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NO	BY	DATE	REMARKS

RUNWAY 34 INNER APPROACH

OREGON DEPARTMENT OF AVIATION
INDEPENDENCE AIRPORT LAYOUT PLAN

PROJECT NUMBER	DRAWING FILE NAME	SCALE
P0019739W	IND-ALP-C8	AS SHOWN

SHEET NUMBER: C8

Figure 7J: Obstruction Tables

SHEET C5 - Transverse Obstruction Table (1 of 2)

Object ID	Description	Observation Date	Object Elevation	Ground Elevation	Penetration	Disposition
7202	NAVAID	6/17/2018	197.8	178.5	13	To Remain
7203	VERTICAL STRUCTURE	6/17/2018	185.3	178.3	-34	No Obstruction - For Reference Only
7205	POLE	6/17/2018	206.8	176.9	+23	No Obstruction - For Reference Only
7207	NAVAID	6/17/2018	199.4	178.8	15	To Remain
7209	BUILDING	6/17/2018	209.4	177.1	-23	No Obstruction - For Reference Only
7210	TREE	6/17/2018	233.1	178.0	-8	To Be Removed/Relocated
7213	BUILDING	6/17/2018	209.8	179.0	0	To Remain
7214	TREE	6/17/2018	216.2	178.1	-10	No Obstruction (< 10' below restricting surface)
7215	VERTICAL STRUCTURE	6/17/2018	183.0	179.3	-8	No Obstruction - For Reference Only
7216	ANTENNA	6/17/2018	204.7	177.5	+11	No Obstruction - For Reference Only
7217	POLE	6/17/2018	204.9	179.8	-18	No Obstruction - For Reference Only
7218	TREE	6/17/2018	225.8	176.6	-0	To Be Removed/Relocated
7249	TREE	6/17/2018	219.7	177.9	-2	To Be Removed/Relocated
7253	POWER TRANSMISSION PYLON	6/17/2018	238.6	182.2	-29	No Obstruction - For Reference Only
7254	POWER TRANSMISSION PYLON	6/17/2018	233.8	182.0	-53	No Obstruction - For Reference Only
7257	POWER TRANSMISSION PYLON	6/17/2018	251.5	177.3	-56	No Obstruction - For Reference Only
7258	POWER TRANSMISSION PYLON	6/17/2018	248.5	178.8	-47	No Obstruction - For Reference Only
7259	TREE	6/17/2018	296.5	179.1	-4	To Be Removed/Relocated
7260	TREE	6/17/2018	292.2	177.3	-9	No Obstruction (< 10' below restricting surface)
7261	TREE	6/17/2018	255.6	177.0	-32	To Be Removed/Relocated
7265	BUILDING	6/17/2018	198.9	175.8	-18	No Obstruction - For Reference Only
7278	ANTENNA	6/17/2018	336.2	176.3	-68	No Obstruction - For Reference Only
7279	TREE	6/17/2018	254.4	176.5	-4	No Obstruction (< 10' below restricting surface)
7283	BUILDING	6/17/2018	205.3	176.0	-29	No Obstruction - For Reference Only
7293	POLE	6/17/2018	244.9	179.8	0	To Be Removed/Relocated
7297	POLE	6/17/2018	250.4	178.1	-6	To Be Removed/Relocated
7301	POLE	6/17/2018	238.2	182.9	-70	No Obstruction - For Reference Only
7302	BUILDING	6/17/2018	205.5	177.2	-4	No Obstruction - For Reference Only
7303	BUILDING	6/17/2018	198.4	176.7	-2	No Obstruction - For Reference Only
7304	BUILDING	6/17/2018	201.7	177.4	-41	No Obstruction - For Reference Only
7305	BUILDING	6/17/2018	205.7	176.4	-30	No Obstruction - For Reference Only
7306	BUILDING	6/17/2018	202.1	177.9	-15	No Obstruction - For Reference Only
7307	BUILDING	6/17/2018	199.9	175.7	-29	No Obstruction - For Reference Only
7308	BUILDING	6/17/2018	204.5	176.2	-27	No Obstruction - For Reference Only
7309	BUILDING	6/17/2018	202.0	176.8	-18	No Obstruction - For Reference Only
7310	BUILDING	6/17/2018	204.7	176.3	-27	No Obstruction - For Reference Only
7311	BUILDING	6/17/2018	204.5	176.3	-36	No Obstruction - For Reference Only
7312	BUILDING	6/17/2018	198.5	176.7	-28	No Obstruction - For Reference Only
7313	BUILDING	6/17/2018	201.8	176.5	-33	No Obstruction - For Reference Only
7314	ANTENNA	6/17/2018	307.4	177.5	-28	No Obstruction - For Reference Only
7315	BUILDING	6/17/2018	304.6	175.5	-63	No Obstruction - For Reference Only
7316	ANTENNA	6/17/2018	293.9	175.0	-99	No Obstruction - For Reference Only
7317	BUILDING	6/17/2018	204.4	174.9	-111	No Obstruction - For Reference Only
7318	BUILDING	6/17/2018	302.0	175.7	-74	No Obstruction - For Reference Only
7319	BUILDING	6/17/2018	303.5	175.2	-66	No Obstruction - For Reference Only
7320	BUILDING	6/17/2018	296.2	176.3	-65	No Obstruction - For Reference Only
7322	BUILDING	6/17/2018	201.9	174.2	-101	No Obstruction - For Reference Only
7323	BUILDING	6/17/2018	204.0	175.4	-101	No Obstruction - For Reference Only
7324	BUILDING	6/17/2018	206.0	176.7	-73	No Obstruction - For Reference Only
7325	ANTENNA	6/17/2018	201.3	176.3	-67	No Obstruction - For Reference Only
7326	BUILDING	6/17/2018	193.0	176.5	-76	No Obstruction - For Reference Only
7328	ANTENNA	6/17/2018	229.5	175.8	-52	No Obstruction - For Reference Only
7329	BUILDING	6/17/2018	211.1	175.5	-58	No Obstruction - For Reference Only
7330	BUILDING	6/17/2018	212.6	175.7	-60	No Obstruction - For Reference Only
7331	BUILDING	6/17/2018	206.3	175.8	-75	No Obstruction - For Reference Only
7332	BUILDING	6/17/2018	205.2	176.4	-71	No Obstruction - For Reference Only

SHEET C5 - Conical Obstruction Table

Object ID	Description	Observation Date	Object Elevation	Ground Elevation	Penetration	Disposition
7273	POWER TRANSMISSION PYLON	6/17/2018	248.0	174.8	-168	No Obstruction - For Reference Only
7286	WATER TOWER	6/17/2018	289.1	171.8	-62	No Obstruction - For Reference Only

SHEET C5 - Horizontal Obstruction Table

Object ID	Description	Observation Date	Object Elevation	Ground Elevation	Penetration	Disposition
7226	POWER TRANSMISSION PYLON	6/17/2018	230.5	176.5	-99	No Obstruction - For Reference Only
7228	POWER TRANSMISSION PYLON	6/17/2018	236.6	175.7	-93	No Obstruction - For Reference Only
7229	POWER TRANSMISSION PYLON	6/17/2018	235.9	174.7	-94	No Obstruction - For Reference Only
7230	POWER TRANSMISSION PYLON	6/17/2018	244.1	179.0	-65	No Obstruction - For Reference Only
7263	POWER TRANSMISSION PYLON	6/17/2018	254.9	169.7	-75	No Obstruction - For Reference Only
7277	POLE	6/17/2018	212.7	173.1	-117	No Obstruction - For Reference Only
7282	POLE	6/17/2018	212.6	169.0	-117	No Obstruction - For Reference Only
7287	TREE	6/17/2018	321.1	158.8	-8	No Obstruction (< 10' below restricting surface)
7290	POWER TRANSMISSION PYLON	6/17/2018	256.1	182.2	-73	No Obstruction - For Reference Only

SHEET C6 - Runway 34 Approach Obstruction Table

Object ID	Description	Observation Date	Object Elevation	Ground Elevation	Penetration	Disposition
7292	POWER TRANSMISSION PYLON	6/17/2018	253.1	173.7	-130	No Obstruction - For Reference Only
7600	POWER TRANSMISSION PYLON	6/17/2018	246.8	169.1	-136	No Obstruction - For Reference Only
7601	POWER TRANSMISSION PYLON	6/17/2018	240.6	165.4	-142	No Obstruction - For Reference Only
7602	POWER TRANSMISSION PYLON	6/17/2018	242.5	167.5	-140	No Obstruction - For Reference Only
7606	ROAD ELEVATION (+15')	6/17/2018	182.9	167.9	-201	No Obstruction - For Reference Only
7607	ROAD ELEVATION (+15')	6/17/2018	190.5	175.5	-227	No Obstruction - For Reference Only

SHEET C7 - Runway 16 Inner Approach Obstruction Table

Object ID	Description	Observation Date	Object Elevation	Ground Elevation	Penetration	Disposition
7252	POWER TRANSMISSION PYLON	6/17/2018	242.4	181.3	-30	No Obstruction - For Reference Only

SHEET C5 - Transverse Obstruction Table (2 of 2)

Object ID	Description	Observation Date	Object Elevation	Ground Elevation	Penetration	Disposition
7333	BUILDING	6/17/2018	208.5	176.1	-66	No Obstruction - For Reference Only
7338	BUILDING	6/17/2018	201.5	178.6	-19	No Obstruction - For Reference Only
7339	BUILDING	6/17/2018	201.0	178.7	-8	No Obstruction - For Reference Only
7340	BUILDING	6/17/2018	193.1	178.8	1	To Remain
7341	BUILDING	6/17/2018	201.1	178.7	+15	No Obstruction - For Reference Only
7342	BUILDING	6/17/2018	202.0	177.3	-34	No Obstruction - For Reference Only
7346	BUILDING	6/17/2018	200.8	178.2	-6	No Obstruction - For Reference Only
7347	TREE	6/17/2018	222.8	178.1	-24	To Be Removed/Relocated
7348	TREE	6/17/2018	231.2	176.0	4	To Be Removed/Relocated
7350	BUILDING	6/17/2018	212.6	175.0	+75	No Obstruction - For Reference Only
7352	TREE	6/17/2018	213.0	178.6	0	To Be Removed/Relocated
7353	BUILDING	6/17/2018	205.5	178.4	-17	No Obstruction - For Reference Only
7356	ANTENNA	6/17/2018	204.1	175.9	+110	No Obstruction - For Reference Only
7361	TREE	6/17/2018	203.9	177.9	-9	No Obstruction (< 10' below restricting surface)
7362	BUILDING	6/17/2018	203.1	178.4	-3	No Obstruction - For Reference Only
7363	BUILDING	6/17/2018	201.2	178.0	-58	No Obstruction - For Reference Only
7364	ANTENNA	6/17/2018	215.9	177.9	-67	No Obstruction - For Reference Only
7365	ANTENNA	6/17/2018	216.6	175.9	-96	No Obstruction - For Reference Only
7369	BUILDING	6/17/2018	207.3	179.2	-2	No Obstruction - For Reference Only
7374	BUILDING	6/17/2018	208.8	176.1	-101	No Obstruction - For Reference Only
7377	BUILDING	6/17/2018	202.7	179.0	+23	No Obstruction - For Reference Only
7379	BUILDING	6/17/2018	206.6	178.2	-66	No Obstruction - For Reference Only
7387	BUILDING	6/17/2018	209.8	181.4	-68	No Obstruction - For Reference Only
7388	BUILDING	6/17/2018	210.0	180.4	-64	No Obstruction - For Reference Only
7389	BUILDING	6/17/2018	210.4	181.4	-56	No Obstruction - For Reference Only
7390	BUILDING	6/17/2018	210.6	180.9	-57	No Obstruction - For Reference Only
7391	BUILDING	6/17/2018	211.2	181.4	-52	No Obstruction - For Reference Only
7392	BUILDING	6/17/2018	210.0	180.6	-53	No Obstruction - For Reference Only
7393	BUILDING	6/17/2018	211.4	182.1	-76	No Obstruction - For Reference Only
7394	BUILDING	6/17/2018	210.9	181.1	-76	No Obstruction - For Reference Only
7395	BUILDING	6/17/2018	211.2	182.2	-71	No Obstruction - For Reference Only
7396	BUILDING	6/17/2018	212.6	182.0	-74	No Obstruction - For Reference Only
7397	POLE	6/17/2018	240.0	180.0	+40	No Obstruction - For Reference Only
7398	POLE	6/17/2018	209.1	182.6	3	To Be Removed/Relocated
7399	POLE	6/17/2018	207.2	181.2	-11	No Obstruction - For Reference Only
7400	SIGN	6/17/2018	190.8	180.0	-23	No Obstruction - For Reference Only
7401	SIGN	6/17/2018	190.1	180.8	-29	No Obstruction - For Reference Only
7403	POLE	6/17/2018	204.9	179.3	-37	No Obstruction - For Reference Only
7404	POWER TRANSMISSION LINE	6/17/2018	228.8	178.8	-38	No Obstruction - For Reference Only
7405	POLE	6/17/2018	248.7	178.6	4	To Be Removed/Relocated
7407	TREE	6/17/2018	210.0	178.1	3	To Be Removed/Relocated
7408	VEGETATION	6/17/2018	188.9	179.5	-8	No Obstruction - For Reference Only
7409	TREE	6/17/2018	192.1	179.1	-6	No Obstruction (< 10' below restricting surface)
7410	TREE	6/17/2018	193.7	179.4	-4	No Obstruction (< 10' below restricting surface)
7574	FLAGPOLE	6/17/2018	215.3	178.9	-22	No Obstruction - For Reference Only
7575	POLE	6/17/2018	207.1	176.4	-23	No Obstruction - For Reference Only
7576	NAVAID	6/17/2018	196.7	176.0	-60	No Obstruction - For Reference Only
7577	FLAGPOLE	6/17/2018	210.2	176.7	-33	No Obstruction - For Reference Only
7578	POLE	6/17/2018	199.7	176.4	-38	No Obstruction - For Reference Only
7579	NAVAID	6/17/2018	220.8	185.7	-13	No Obstruction - For Reference Only
7591	TREE	6/17/2018	203.6	178.1	2	To Be Removed/Relocated
7592	TREE	6/17/2018	218.1	177.6	10	To Be Removed/Relocated
7593	TREE	6/17/2018	249.0	175.8	28	To Be Removed/Relocated
7594	TREE	6/17/2018	254.6	178.3	36	To Be Removed/Relocated
7595	TREE	6/17/2018	257.0	175.8	30	To Be Removed/Relocated
7596	TREE	6/17/2018	259.0	176.1	24	To Be Removed/Relocated
7597	TREE	6/17/2018	249.0	177.0	15	To Be Removed/Relocated
7598	TREE	6/17/2018	280.5	178.2	9	To Be Removed/Relocated
7599	TREE	6/17/2018	296.9	178.5	-3	No Obstruction (< 10' below restricting surface)

SHEET C5 - Primary Obstruction Table

Object ID	Description	Observation Date	Object Elevation	Ground Elevation	Penetration	Disposition
7211	NAVAID	6/17/2018	181.3	176.5	2	To Remain
7580	SIGN	6/17/2018	180.1	177.7	2	To Remain
7581	SIGN	6/17/2018	179.6	177.0	2	To Remain
7582	SIGN	6/17/2018	179.5	177.5	1	To Remain
7585	SIGN	6/17/2018	179.8	177.0	1	To Remain
7586	SIGN	6/17/2018	180.2	178.4	1	To Remain
7589	SIGN	6/17/2018	180.7	179.1	1	To Remain
7590	SIGN	6/17/2018	182.6	178.2	4	To Remain
7583	TREE	6/17/2018	179.6	177.1	1	To Be Removed/Relocated
7584	TREE	6/17/2018	179.4	177.1	1	To Be Removed/Relocated
7587	TREE	6/17/2018	180.2	177.6	1	To Be Removed/Relocated
7588	TREE	6/17/2018	180.0	177.6	1	To Be Removed/Relocated

SHEET C6 - Runway 16 Approach Obstruction Table

Object ID	Description	Observation Date	Object Elevation	Ground Elevation	Penetration	Disposition
7222	POWER TRANSMISSION PYLON	6/17/2018	226.7	179.3	-68	No Obstruction - For Reference Only
7224	POWER TRANSMISSION PYLON	6/17/2018	226	178.1	-91	No Obstruction - For Reference Only
7605	ROAD ELEVATION (+15')	6/17/2018	197.7	182.7	-193	No Obstruction - For Reference Only

SHEET C8 - Runway 34 Inner Approach Obstruction Table

Object ID	Description	Observation Date	Object Elevation	Ground Elevation	Penetration	Disposition
7604	ROAD ELEVATION (+15')	6/17/2018	194.7	179.7	-4	No Obstruction - For Reference Only

SHEET C7 - Runway 16 Threshold Siting Surface Obstruction Table

Object ID	Description	Observation Date	Object Elevation	Ground Elevation	Penetration	Disposition
7222	POWER TRANSMISSION PYLON	6/17/2018	226.7	179.3	-68	No Obstruction - For Reference Only
7224	POWER TRANSMISSION PYLON	6/17/2018	226	178.1	-91	No Obstruction - For Reference Only
7252	POWER TRANSMISSION PYLON	6/17/2018	242.4	181.3	-30	No Obstruction - For Reference Only
7605	ROAD ELEVATION (+15')	6/17/2018	197.7	182.7	-193	No Obstruction - For Reference Only

SHEET C8 - Runway 34 Threshold Siting Surface Obstruction Table

Object ID	Description	Observation Date	Object Elevation	Ground Elevation	Penetration	Disposition
7292	POWER TRANSMISSION PYLON	6/17/2018	253.1	173.7	-130	No Obstruction - For Reference Only
7600	POWER TRANSMISSION PYLON	6/17/2018	246.8	169.1	-136	No Obstruction - For Reference Only
7601	POWER TRANSMISSION PYLON	6/17/2018	240.6	165.4	-142	No Obstruction - For Reference Only
7602	POWER TRANSMISSION PYLON	6/17/2018	242.5	167.5	-140	No Obstruction - For Reference Only
7604	ROAD ELEVATION (+15')	6/17/2018	194.7	179.7	-4	No Obstruction - For Reference Only
7606	ROAD ELEVATION (+15')	6/17/2018	182.9	167.9	-201	No Obstruction - For Reference Only
7607	ROAD ELEVATION (+15')	6/17/2018	190.5	175.5	-227	No Obstruction - For Reference Only

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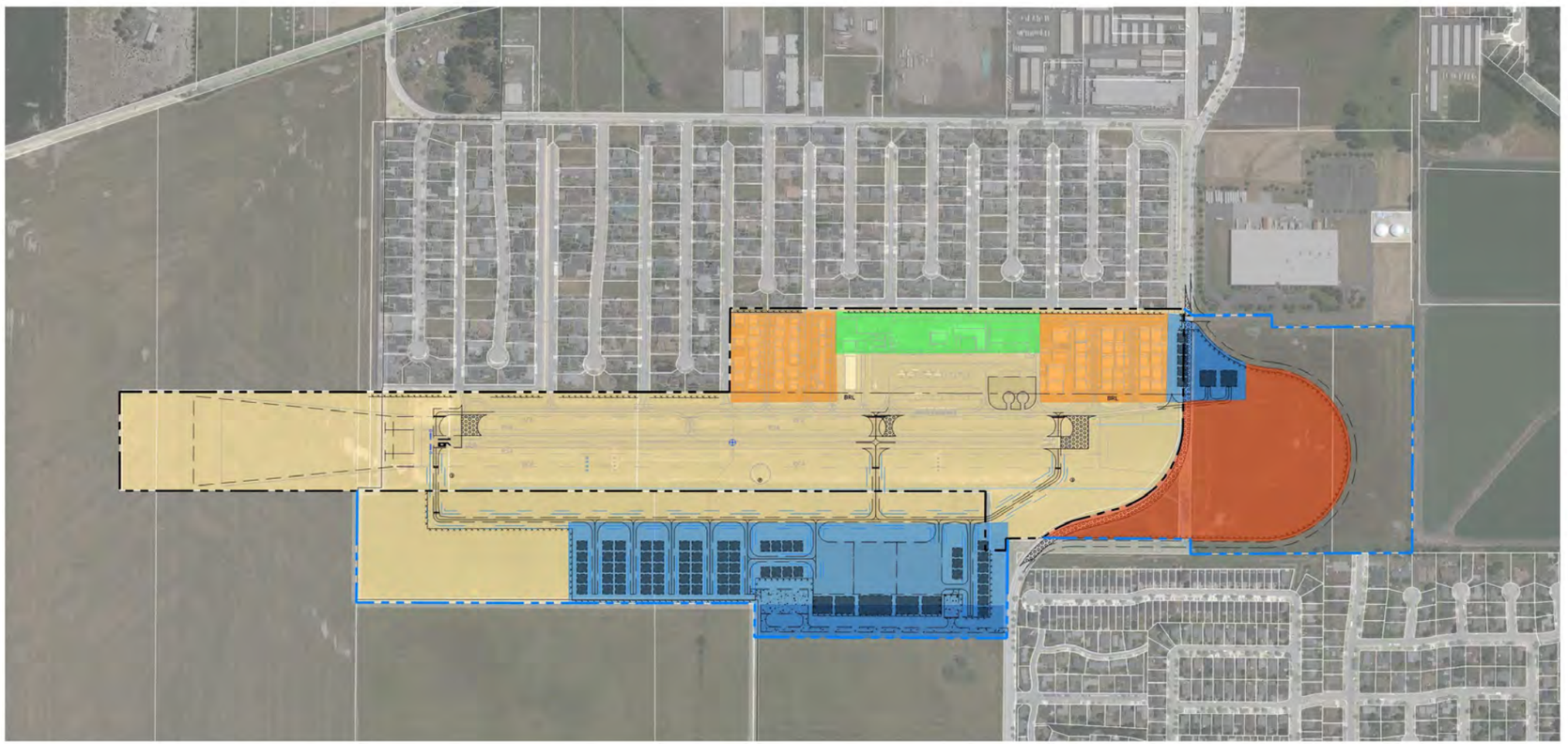
OBSTRUCTION TABLES

OREGON DEPARTMENT OF AVIATION
INDEPENDENCE AIRPORT LAYOUT PLAN

PROJECT NUMBER	DRAWING FILE NAME	SCALE
P0019739W	IND-ALP-C9	AS SHOWN

SHEET NUMBER: C9

Figure 7K: On-Airport Land Use



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

TRUE
MAGNETIC
15° 11' E
2015

ANNUAL RATE OF CHANGE: 0° 6' W PER YEAR

SCALE
300 0 150 300 600
1 INCH = 300 FT.

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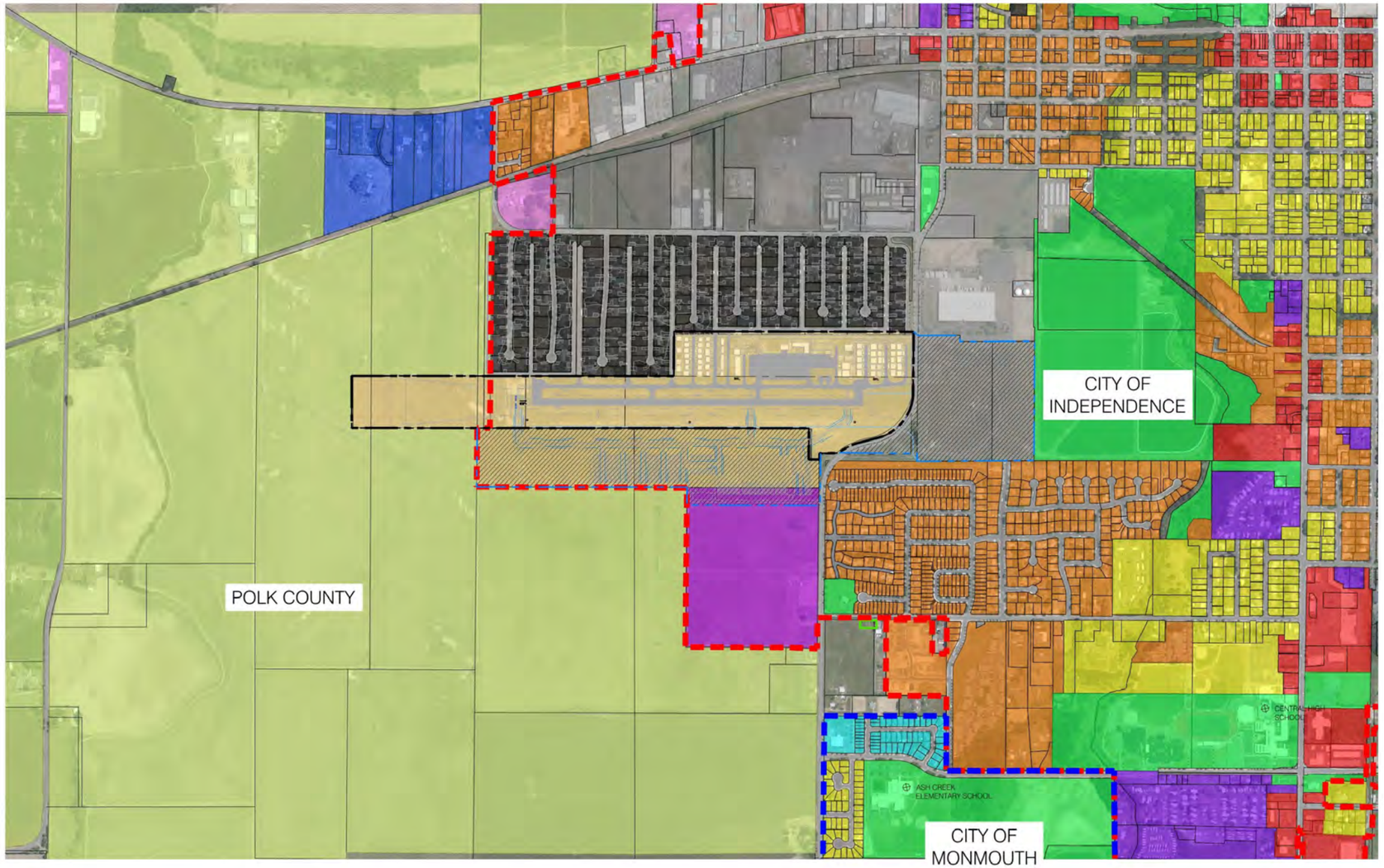
ON AIRPORT LAND USE

OREGON DEPARTMENT OF AVIATION
INDEPENDENCE AIRPORT LAYOUT PLAN

PROJECT NUMBER	DRAWING FILE NAME	SCALE
P0019739W	IND-ALP-C10	AS SHOWN

SHEET NUMBER
C10

Figure 7L: Off-Airport Land Use



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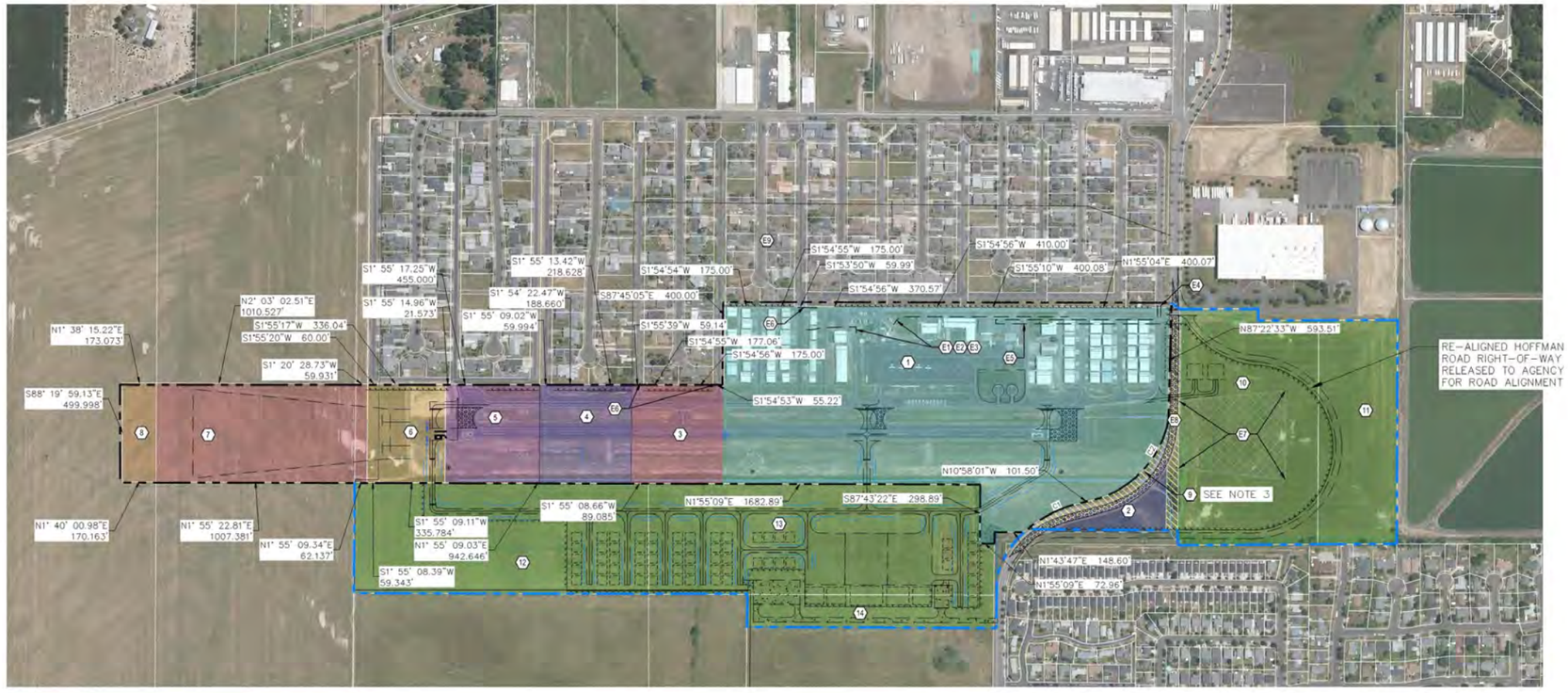
OFF AIRPORT LAND USE

OREGON DEPARTMENT OF AVIATION
INDEPENDENCE AIRPORT LAYOUT PLAN

PROJECT NUMBER	DRAWING FILE NAME	SCALE
P0019739W	IND-ALP-C11	AS SHOWN

SHEET NUMBER C11

Figure 7M: Airport Property Map / Exhibit A



OWNERSHIP DATA

PARCEL	LAND OWNER	ACRES	RECORDED DATE	RECORDED VOLUME, PAGE	INTEREST ACQU.	TAXLOT NUMBER	PREVIOUS OWNER	AIP NUMBER	PURPOSE OF AQUISITION
1	Oregon Department of Aviation	51.00±	1-9-64	188, 660	-	101	EDWIN AND WINFRED TOTTEN	9-35-065-C501	AIRPORT PROPERTY
2	Oregon Department of Aviation	2.35±	1-9-64	188, 660	-	101	EDWIN AND WINFRED TOTTEN	N/A	AIRPORT PROPERTY
3	Oregon Department of Aviation	5.36±	1-29-64	189, 423	-	101	DON AND EVA WEBB	9-35-065-C501	AIRPORT PROPERTY
4	Oregon Department of Aviation	5.36±	2-20-64	189, 304	-	801	JONES WARREN AND PATRNY	9-35-065-C501	AIRPORT PROPERTY
5	Oregon Department of Aviation	5.36±	1-24-64	189, INFO	-	801	LEVI AND OPAL MCKEE	9-35-065-C501	AIRPORT PROPERTY
6	Oregon Department of Aviation	4.67±	10-20-00	DOC #200011459, N/A	-	903,1003	E JULIAN LAFAYETTE	3-41-0027-05	AIRPORT PROPERTY
7	Oregon Department of Aviation	11.48±	12-5-00	DOC #200013145, N/A	-	1002,1102	E JULIAN LAFAYETTE	3-41-0027-06	AIRPORT PROPERTY
8	Oregon Department of Aviation	1.95±	10-24-02	DOC #200011623, N/A	-	1104	MAVIN J. MCKEE	3-41-0027-07	APPROACH PROTECTION
9	Oregon Department of Aviation	0.96±	5-11-02	200, 416	-	N/A	AERONAUTICS (TO POLK COUNTY)	N/A	APPROACH PROTECTION
10	OCF Properties IV LLC	18.96±	N/A	N/A	-	200	-	N/A	AIRPORT EXPANSION
11	FOX Joseph, R	10.41±	N/A	N/A	-	215	-	N/A	AIRPORT EXPANSION
12	Gentemann Living Trust	19.18±	N/A	143, 56.65	-	700	-	N/A	AIRPORT EXPANSION
13	Gentemann Living Trust	22.13±	N/A	143, 56.65	-	402	-	N/A	AIRPORT EXPANSION
14	Gentemann Living Trust	4.78±	N/A	143, 56.65	-	400	-	N/A	AIRPORT EXPANSION

ODA APPROVAL

GENERAL NOTES:
1. ALL BEARING AND DISTANCE VALUES ARE FROM POLK COUNTY GIS PROPERTY DATA.
2. CURVE DATA ESTIMATED BASED ON POLK COUNTY GIS PROPERTY DATA.
3. PORTION OF PARCELS 1 AND 2 BOOK 188, PAGE 660 IN RIGHT-OF-WAY FOR COUNTY ROAD NO. 846

TRUE / MAGNETIC 15°11'E 2015

ANNUAL RATE OF CHANGE: 0° 6' W PER YEAR

SCALE

0 (FEET)

DRAWING LEGEND

EXISTING AIRPORT PROPERTY LINE	
FUTURE AIRPORT PROPERTY LINE	
AIRPORT PROPERTY ACQUISITION	
ROAD ACQUISITION	
INGRESS/EGRESS EASEMENT	

EXISTING EASEMENTS

PARCEL	RECORDED DATE	RECORDED BOOK, PAGE	INTEREST ACQU.	EASEMENT TYPE/DESCRIPTION	GRANTOR/GRANTEE	PROJECT NUMBER
E1	6/23/1978	FILE# 115-1379	Easement	RIGHT-OF-WAY EASEMENT	ODA TO PACIFIC POWER AND LIGHT	N/A
E2	11/15/1976	FILE# 115-1180	Easement	RIGHT-OF-WAY EASEMENT	ODA TO PACIFIC POWER AND LIGHT	N/A
E3	6/25/1983	172, 827	Easement	RIGHT-OF-WAY EASEMENT	ODA TO PACIFIC POWER AND LIGHT	N/A
E4	9/25/1970	9, 135	Easement	WATER LINE EASEMENT	ODA TO AERONAUTICS	N/A
E5	10/18/2000	DOC# 2000011363	Easement	SANITARY SEWER EASEMENT	ODA TO CITY OF INDEPENDENCE	N/A
E6	6/13/1974	FILE# 115-1379	Easement	INGRESS AND EGRESS	ODA TO PREUIT AND COMBEST (AMENDED 4/12/1979)	N/A
E7	12/27/1963	190, 299	Easement	INGRESS AND EGRESS	EDWIN AND WINFRED TOTTEN TO ODA	9-35-065-C501
E8	12/16/1966	203, 369	Easement	INGRESS AND EGRESS	POLK COUNTY TO ODA	9-35-065-C501
E9	8/10/1974	58, 977	Easement	INGRESS AND EGRESS	JAMES PREUIT AND THOMAS COMBEST TO ODA	N/A

Curve Table

Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C1	318.82	676.03	27.02	N25° 57' 33"W	315.87
C2	554.34	531.23	59.79	N46° 17' 00"W	529.53

"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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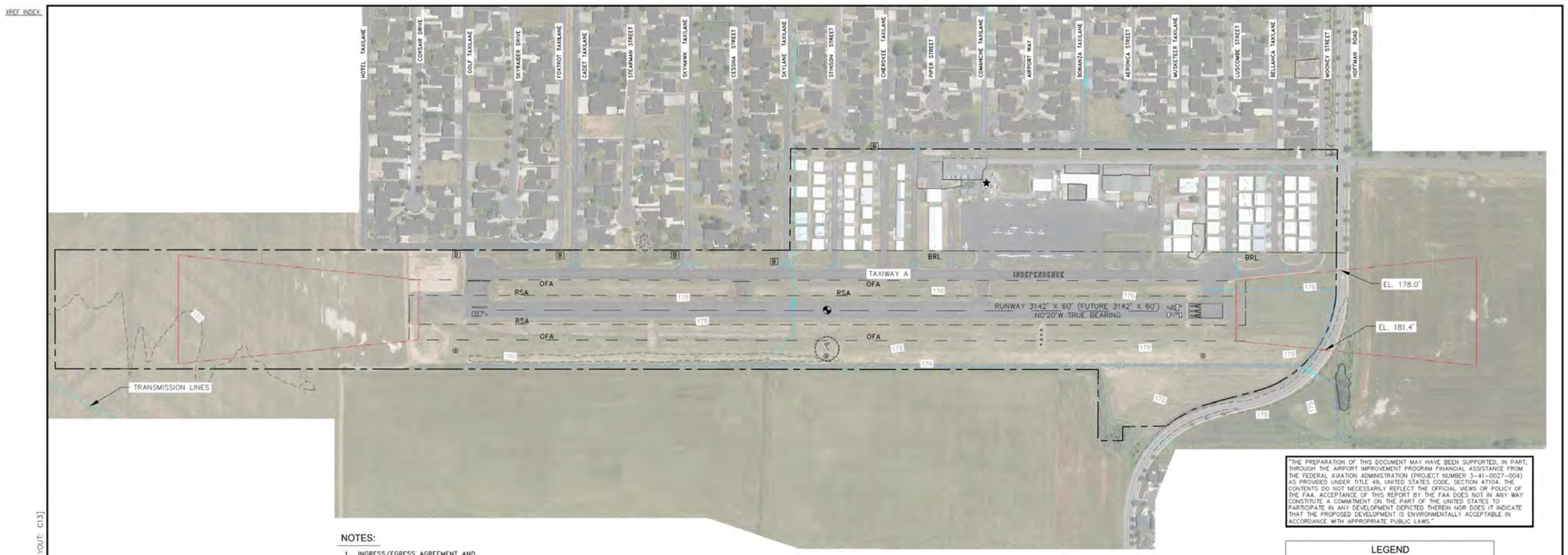
EXHIBIT A

OREGON DEPARTMENT OF AVIATION
INDEPENDENCE AIRPORT LAYOUT PLAN

PROJECT NUMBER	DRAWING FILE NAME	SCALE
P0019739W	IND-ALP-C12	AS SHOWN

SHEET NUMBER C12

Figure 7N: Utlity Map



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[PATH: P:\Oregon Dept of Aviation (ODA)\P0019739W\Execution Drawings\Planning ALP\Sheets\IND-ALP-C13.dwg] [LAYOUT: C13]

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UTILITY MAP

OREGON DEPARTMENT OF AVIATION
INDEPENDENCE, OR

PROJECT NUMBER	DRAWING FILE NAME	SCALE
P0019739W	IND-ALP-C13	AS SHOWN

SHEET NUMBER
C13

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.

8.2 Sources of Capital Funding

Capital funding is critical to airport development and essential for project success. There are several options available for Independence 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.

9.2.1 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 Independence State Airport), the grant covers a range of 90 percent of eligible costs.

The Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (AIR-21), enacted in April 2000, established the first-ever Non-Primary Airports Entitlement Program. AIR-21 sets aside grant funding for general aviation airports listed in the National Plan of Integrated Airport Systems (NPIAS) for pavement maintenance work. General aviation airports can each receive up to $150,000 per year based on the FAA's assessment of maintenance needs over a five-year period.

The funding set-aside is available for each federal fiscal year when Congress appropriates at least $3.2 billion for the FAA's Airport Improvement Program (AIP). For the convenience of the Airport Sponsor, if a project is anticipated to cost in excess of $150,000, participating airports can rollover the Non-Primary Entitlement funds for up to three years, at which time the accumulated total of rolled-over funds can be used for larger projects. For the purposes of this chapter, it is assumed that 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 Independence 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 and would be difficult to fund otherwise. The dollar amounts of individual grants vary and can be significant in comparison to entitlement funding. Discretionary grants are awarded at the FAA's sole prerogative. Discretionary grant applications are evaluated based on 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.

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

Aviation System Action Program (ASAP)

The Aviation System Action Program (ASAP) is funded through Jet Fuel and Aviation Gas taxes of two cents per gallon. Every dollar is being leveraged through matching grants, resiliency preparedness, economic opportunity, and infrastructure development across Oregon. 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 State Owned Airports Reserve Program (SOAR). The COAR distributes fifty percent of the amounts from the fuel tax increase while the ROAR and SOAR distribute 25 percent respectively.

SOAR Cycle 3 projects to be done in 2020-2021 are being identified, scoped and prioritized by the Airport Operations Manager and team. The needs assessment for the state airport system overall helps determine the next projects needed to keep the system safe and reliable.

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.

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.

8.2.3 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 on-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 Independence State Airport 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 ODA. Presented in **Table 8A** is a snapshot of existing and forecast revenues and expenses, which provides an assessment of Independence 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 the Independence State Airport 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 the Oregon Department of Aviation and businesses at the airport to operate and make decisions in a more certain business environment. Without this assumption, future investment by the 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 projects that appear in this document are estimated revenues and expenses based on data provided by the ODA, 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.

8.3.1 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 FY2018 budget amounts as a starting point for future estimates.

Assumptions used in developing the forecast are outlined below for each category. **Table 8A** lists the actual operating revenues and expenses by category for FY2012 through FY2018, and the forecast revenue and expenses by category for FY2019 through FY2023.

Expenses

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

- Fuel—The cost to keep fuel in the fuel tanks is the largest expense in the Airport budget and has been varied in recent years due to fluctuations in Airport activity. During a high fire season year, fuel sales typically increase significantly.
- Facility and Equipment Maintenance—Airport facility and equipment maintenance has been sporadic over the past 10 years and difficult to gauge. As reflected in the **Table 8A**, the primary cost of facility and equipment expenses typically include general airfield maintenance and services. Expenses are expected to increase annually and remain sporadic, which is reflected in an annual budget that is projected relatively high to account for spikes in the cost to maintain the Airport.
- Property Insurance—Property insurance is an expense that is expected to remain stable over the next several years.
- 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 expected to remain relatively consistent with previous years.
- Land Lease Fees—Forecast lease revenues were estimated based on lease agreements in effect for existing hangars and Airport properties. 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.
- Tie Down Fees—This revenue source was projected to remain steady for the first phase of the planning period to keep in line with inflation.

8.4 Implementation Plan

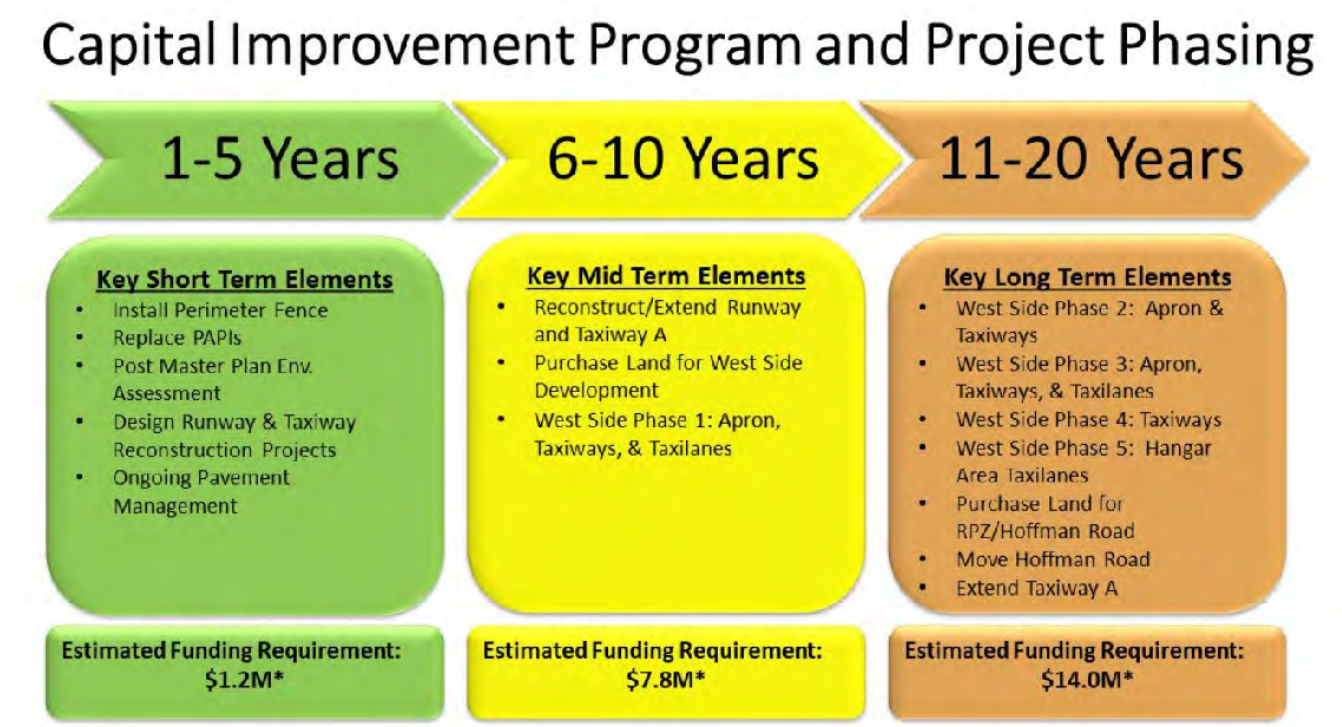
This section of the Airport's master plan report seeks to establish a tentative schedule for the various projects required to fulfill the future

Table 8A: Airport Financial Data

	Fiscal Year							Forecast Year				
	2012	2013	2014	2015	2016	2017	2018**	2019	2020	2021	2022	2023
Revenues	**$ 101,068**	**$ 106,304**	**$ 105,881**	**$ 114,921**	**$ 114,560**	**$ 115,785**	**$ 513,291**	**$ 611,096**	**$ 363,065**	**$ 113,563**	**$ 132,522**	**$ 361,869**
10% Administrative Late Fees	72	126			934	503	312	349	419	503	417	400
Federal revenue		3,369	4,298	106	27		402,890	500,000	250,000		20,000	250,000
Fuels flowage fees	7,302	3,563	3,967	4,762	3,779	6,113	4,437	4,612	4,741	4,736	4,928	4,691
Hangar Fees	5,720	8,267	7,143	6,469	6,874	6,586	7,068	6,828	6,765	6,891	6,828	6,876
Ingress/Egress Fees	39,796	40,305	40,305	40,116	40,683	40,363	40,354	40,346	40,373	40,424	40,372	40,374
Land Lease Fees	44,278	48,008	46,971	52,751	50,983	52,778	50,298	50,756	51,513	51,266	51,322	51,031
Miscellaneous receipts*				7,005	8,048	7,405	4,492	5,390	6,468	6,361	6,023	5,747
Operations 5010 inspections	650			650			650			650		
Property taxes reimbursement	3,149	2,361	2,315	2,480	2,620	1,469	2,249	2,227	2,209	2,155	2,062	2,180
Sale of Utilities	101	96	183	197	155	147	155	167	164	158	158	160
Special Use Fees			240									
Tie Down Fees		210	459	385	455	420	386	421	413	419	412	410
Expenditures	**$ 19,340**	**$ 20,074**	**$ 49,269**	**$ 28,369**	**$ 32,083**	**$ 96,101**	**$ 510,624**	**$ 588,078**	**$ 304,783**	**$ 27,167**	**$ 59,356**	**$ 304,168**
Personal Services												
Airport Maintenance	2,835	1,258	1,765	1,077	2,535	2,893	3,141	3,329	3,529	3,740	3,963	4,201
Airport Services	2,948	1,939	962	682	503	1,422	1,135	969	970	1,030	1,073	1,067
Fuel Tax Increase State Owned Airports						4,195						
Inspections				202			187			194		
Service & Supplies												
Airport Maintenance	6,498	1,035	1,483	3,996	2,002	1,384	1,980	2,169	2,306	1,968	1,961	2,077
Airport Services	5,882	7,233	13,317	20,025	21,179	23,658	17,083	19,053	20,200	20,235	20,046	19,323
Building Maintenance				1,051								
Fuel Tax Increase State Owned Airports						61,185	37,000					
GA Entitlement (Capital Projects)		3,547					449,811	555,755	277,778			277,500
PMP GA Entitlement	33		4,775	148							22,200	
State Owned PMP	282		26,966	1,188							2,222	
Statewide Services	861					1,364	288					
System Plan		5,063			5,864			6,802			7,890	
Profit/(Loss)	**$ 81,728**	**$ 86,230**	**$ 56,612**	**$ 86,552**	**$ 82,476**	**$ 19,684**	**$ 2,666**	**$ 23,018**	**$ 58,282**	**$ 86,396**	**$ 73,166**	**$ 57,701**

**Miscellaneous Receipts are mostly storm water fees and property taxes. ODA pays the city-assessed storm water and property taxes through Airport Services, then recaptures the fees from the airport tenants and records under misc. receipts.*

***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.*



development goals of the Independence 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 City. Projects appearing in the first phase are of the greatest immediate importance to the Airport and have the least tolerance for delay. Additionally, some projects included in an early phase may be a prerequisite for other planned improvements in a later phase. 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.

8.4.1 Cost Estimates

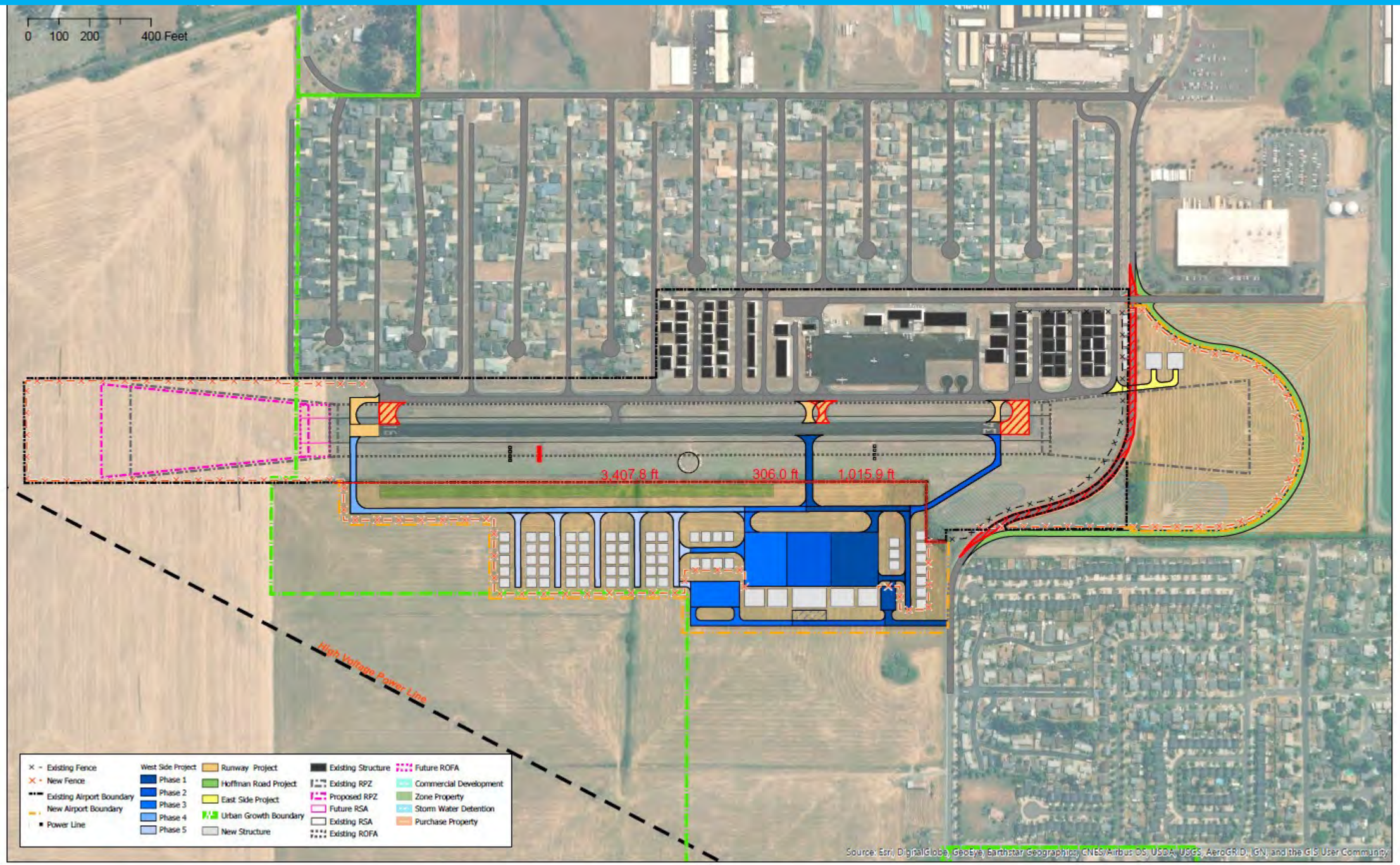
Cost estimates for individual projects, based on 2019 dollars, were prepared for improvements that have been identified for implementation during the 20-year planning period and beyond. These estimates have been categorized by the total cost for each project, that portion to be borne by the Oregon Department of Aviation as the Airport sponsor, and that part of the total cost anticipated to be paid by the FAA under the Airport Improvement Program (AIP) or similar programs. In addition to airport sponsor funds, the local share can include sources such as Oregon Department of Aviation (ODA) funding, State and/or local economic development funds, regional commissions and organizations, other units of local government, as well as funding from private individuals or businesses.

These estimates are intended to be used for planning purposes only and should not be construed as detailed construction cost estimates, which can only be compiled following

Table 8B. Capital Improvement Plan

Project	Total
Short Term Projects (2019 - 2023)	**$1,122,334.00**
Install Fence: Phase II - Construction	$266,667.00
Pavement Maintenance Program (PMP) Phase I	$20,000.00
Replace PAPI Design/Construct	$166,667.00
Environmental Assessment	$300,000.00
Carryover (to be determined annually)	$0.00
Pavement Maintenance Program (PMP) Phase II	$20,000.00
Reconstruct/Extend Runway 16/34 & Taxiway A, Remove Aligned Taxiway, Reconfigure Connectors, and lighting plan: Phase I Design (for AIP-justified length)	$349,000.00
Mid Term Projects (2024 - 2028)	**$7,225,000.00**
Reconstruct/Extend Runway 16/34 & Taxiway A, Remove Aligned Taxiway, Reconfigure Connectors, and upgrade runway lighting: Phase II Construction (for AIP-justified length)	$2,811,000.00
West Side Land Acquisition	$1,602,000.00
Pavement Maintenance Program (PMP)	$20,000.00
West Side Phase 1 - Construct Apron; South Hangar Area Taxilane; Taxiway	$344,000.00
West Side Phase 1 - Construct Apron; South Hangar Area Taxilane; Taxiway	$2,448,000.00
Long Term Projects (2029 - 2038)	**$14,039,000.00**
Master Plan Update	$300,000.00
West Side Phase 2 - Expand Apron; Extend Taxiway B to RW 34 End and Construct Taxiway B1	$1,507,000.00
West Side Phase 3 - Expand Apron; Extend Taxiway B from Taxiway B2 to	$2,151,000.00
West Side Phase 4 - Construct Taxiway B3 at Runway End 16; Extend Taxiway B from North Apron Entrance to Taxiway B3	$1,862,000.00
West Side Phase 5 - Construct Hangar Access Taxilanes	$1,095,000.00
RW 34 RPZ/Hoffman Road Land Acquisition	$1,806,000.00
Realign Hoffman Road; Extend Taxiway A	$5,618,000.00
* Projects will be implemented on a need-driven basis. The years listed are estimates for planning purposes and are subject to change.	

Figure 8B: Phasing Plan



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, described 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 Airport keeps a rolling 5-year list of CIP projects on file with the Oregon Department of Aviation and the FAA. The first phase of the projects list in this Master Plan has been organized in a format similar to that used by the FAA.

These are preliminary schedules; variance will occur, especially during the latter time periods. The first five years of projects contain the greatest level of detail. The timing and sequence should be adhered to the arranged schedule as much as possible. Demand for certain facilities, especially in the latter time frame, and the economic feasibility of their development, are the prime factors influencing the timing of individual project implementation. Care must be taken to provide for adequate lead-time for detailed planning, environmental review, detailed design, and construction of facilities in order to meet aviation demands. Prudent timing is also important to minimize disruptive scheduling, where a portion of the facility may become inoperative due to construction, and to prevent extra costs resulting from improper project scheduling.

The schedule shows the Airport's priorities intended to meet regulatory requirements, forecast increases in aeronautical activity, and economic development initiatives of the City of Independence.

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. The location and phasing of projects is shown on the Phasing Plan, **Figure 8B**.

Short-Term (2019-2023)

The projects in phases one and two 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.

Pavement Improvement Program (PMP)

Scheduled pavement maintenance as needed.

Runway Designators

Renumbering the runway designators from 16/34 to 17/35 will be scheduled with pavement maintenance and marking.

Precision Approach Path Indicator (PAPI)

Design, construct, and replace the precision approach path indicator (PAPI).

Environmental Assessment

Conduct an environmental assessment per Environmental Protection Agency requirements.

Carryover

Carry over placeholder of Non-Primary Entitlement funds from the FAA to provide adequate funding for projects in the following years.

Runway 16/34 & Taxiway A

Design the reconstruction / extension of runway 16/34, remove aligned taxiway, and reconfigure connectors.

Runway Lighting

Evaluate and plan for runway lighting upgrade to LED.

Mid-Term (2024-2028)

Similar to the Short-Term, the projects in the Mid -Term are of significant importance to the Airport. These projects may be directly linked to projects in phase one, such as the non-standard improvement which be designed 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.

Runway 16/34 & Taxiway A

Construct runway 16/34 extension & taxiway A, remove aligned taxiway, and reconfigure connectors. The airport is eligible for AIP funding for 3,100 feet, and additional runway length would require other sponsor funding.

Land Acquisition

Acquire west-side land for airport expansion.

Pavement Maintenance Program (PMP)

Scheduled pavement maintenance as needed.

Apron, South Hangar Area Taxilane, Taxiways

Design and construct apron, south hangar area taxilane, taxiway B2, taxiway B from B2 to south taxilane.

Runway Lighting

Upgrade runway lighting with LED system.

Long-Term (2029-2038)

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

Master Plan Update

Prepare a Master Plan Update per FAA standards and 10-year cycle.

Apron

Expand the apron to accommodate additional aircraft.

Taxiway B

Extend taxiway B to runway 34 end and from taxiway B2 to north apron entrance, and from north apron entrance to taxiway B3.

N/S Hangar Access Taxilane

Construct north/south hangar access taxiline.

Taxiway B3

Construct Taxiway B3 at runway end 16.

Hangar Access Taxilanes

Construct hangar access taxilanes.

Land Acquisition

Acquire property for runway end 34 runway protection zone (RPZ) and Hoffman Road.

Hoffman Road Realignment

Realign Hoffman Road.

Perimeter Fence

Install and construct new fence along the perimeter of the realigned Hoffman Road.

Taxiway A

Extend taxiway A to provide access to new hangar sites.

8.5 Summary of Financial Plan and CIP

As **Table 8B** shows, Independence State Airport plans on nearly $23 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, especially in outlying years. The CIP also depends upon financial support from the Oregon Department of Aviation.

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). Since the airport's operational budget is generally subsidized by the Oregon Department of Aviation, there typically are no excess revenues available, nor are any projected for the planning period, to fund debt service, so an airport revenue bond is not feasible. Prudent fiscal planning would recommend the ODA not take on debt to fund airport improvements with a general obligation bond unless the Airport can make a compelling case that such improvements benefit all taxpayers, and, therefore, should be paid for by all taxpayers. Unlike, for example, roads, which are used by nearly all taxpayers, the case for an airport tends to be more challenging.
- 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 from 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.

A. Abbreviations

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
APR	Airport Planning Rule
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
CIP	Capital Improvement Plan
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
PMP	Pavement Maintenance Program
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

B. Glossary

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/or 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.

automated airport weather station - An automated sensor suite which is designed to serve aviation and meteorological observing needs for safe and efficient aviation operations, weather forecasting and climatology.

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 orentity.

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).

FAR Part 150 - Regulation pertaining to Airport Noise Compatibility Planning.

FAR Part 161 - Regulation pertaining to notice and approval of airport noise and access restrictions.

FAR Part 36 - Regulation establishing noise standards for the civil aviation fleet.

FAR Part 91 - Regulation pertaining to Air Traffic and General Operating Rules, including operating noise limits.

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.

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 ofgovernment.

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 critical 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.

C. FAA Correspondence

U.S. Department
of Transportation
**Federal Aviation
Administration**

Northwest Mountain Region
Seattle Airports District Office
2200 S. 216th Street
Des Moines, WA 98198

June 28, 2019

Mr. Matthew Maass
States Airport Manager
Oregon Department of Aviation
3040 25th Street SE
Salem, OR 97302

Independence State Airport (7S5)
Aviation Forecast Approval

Dear Mr. Maass:

The Federal Aviation Administration (FAA), Seattle Airports District Office has reviewed the aviation forecast for the Independence State Airport (7S5) Master Plan Update, submitted May 31, 2019. The FAA approves these forecasts for airport planning purposes, including for Airport Layout Plan (ALP) development. The FAA approval is based on the following:

1. The forecast is based on reasonable planning assumptions, current data and appropriate forecasting methodologies.

Based on the approved forecast, the FAA also approves the Beechcraft Baron 58 (RDC B-I small) for the existing and future critical aircraft.

The approval of the forecast and critical aircraft does not automatically constitute a commitment on the part of the Unites States to participate in any development recommended in the master plan or shown on the ALP. All future development will need to be justified by current activity levels at the time of proposed implementation. Further, the approved forecasts may be subject to additional analysis or the FAA may request a sensitivity analysis if this data is to be used for environmental or Part 150 noise planning purposes.

The ADO will initiate the process to request that the FAA Office of Aviation Policy and Plans (APO) modify the TAF to reflect this current forecast. It may take some time before these changes are officially reflected in the TAF.

If you have any questions about this forecast approval, please call me at (206) 231-4110.

Sincerely,

Valerie R Thorsen

Valerie R. Thorsen
Lead Planner, FAA Northwest Mountain Airports Division

U.S. Department
of Transportation
**Federal Aviation
Administration**

Northwest Mountain Region
Seattle Airports District Office
2200 S. 216th Street
Des Moines, WA 98198

March 30, 2020

Ms. Betty Stansbury
Oregon Dept. of Aviation
3040 25th St SE
Salem, OR 97302-1125

Dear Ms. Stansbury:

The Independence 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. 2020-ANM-461-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

D. PAC Meeting Materials

Independence State Airport Master Plan Update
Planning Advisory Committee Meeting #1
Issues & Opportunities, Existing Conditions, and Aviation Forecasts

December 6, 2017
City of Independence Library: Independence, Oregon
6:00 to 8:30 p.m.

-Meeting Summary-

Attendees:

Oregon Department of Aviation: Mitch Swecker, Jeff Caines, and John Wilson

WHPacific, Inc: Mike Dane and Dave Nafie

Planning Advisory Committee Members: See sign in sheet

Public Attendees: See sign in sheet

Welcome and Introductions

Meeting opened at 6:05 pm, with a brief introduction from Mitch Swecker. Mitch 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, with opportunity for others in the public to speak later in the meeting, was discussed with the intent to keep things moving as there was a significant amount of information to cover. 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: The airport history through a sequence of slides that depicted the history of development that has occurred on the Airport and Airpark since its beginning, with a particular focus on development since 1994. In summary, it was presented that there are 65 Hangars on the Airport at approximately 160,000 SF, 2 FBOs and 1 EAA Hangar at approximately 36,000 SF, and 184 TTF homes in the Airpark. The slides depicted the growth of 5-6 Airpark homes per year since 1994 and 1-2 hangars on the Airport per year since 1994.

Airport Role: The information on the Airport's National, State, and local role was presented. The only additional information not covered, but provided by the PAC, was the potential role of the Airport during a Cascadia Quake or similar emergency situation. The Planning Team indicated it would go back and give additional consideration to the role of the airport during a state-wide emergency situation.

Community Data: A brief presentation on local socio-economic data and trends for Oregon, Polk County, and Independence. Independence and Polk County in recent years have grown faster than the State of Oregon while income in Polk County, and presumably Independence as well, has grown at approximately

the same rate as the State, but the Average Annual Income in Polk County is significantly lower than within the State of Oregon. PAC Member and Independence Economic Development Planner Shawn Irvine echoed the information on the slides showing growth in the community and confirmed that it is the community's goal to grow and not be stagnant. He mentioned the significant regional opportunities for Polk County due to the proximity to population centers.

Summarized comments from the PAC and public include:

> *We are a growing community, things are happening, downtown is growing, industrial base is growing, don't want to stagnate and the community is actively trying not to, Polk County as a region has a lot of opportunity due to geographic location, proximity to other population centers and employment bases... there is a lot to work with in the community. The goal of the community is not to become a bed-room community, but it is still a larger piece of the economical puzzle.*
>
> *The Airpark is a melting pot, a true neighborhood. Lots of retirees, but some kids. The dream is to build a plane in your hangar and fly it out on a state-owned runway.*
>
> *Airpark and airport has grown… There are many in the community that still work, and many that are retirees. The majority are probably retirees. One draw, is the mix of people on the Airpark. The Airpark has a strong network of people with a diverse background. The Airpark is a draw in and of itself to the community because this Airpark is a text book example of what an Airpark should be.*

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 incorporating the Airport Master Plan in to the City and County Comprehensive Plans.

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 Streaked Horn Lark and its presence at the airport. The birds have been seen here. Development will need to identify impacts to the population/habitat and be prepared to mitigate.

Landside

Land-Use: A discussion on zoning and land use compatibility in the area adjacent to the Airport included the base zones in the area such as heavy industrial to the east of Stryker and light industrial south of Hoffman as well as the airpark residential zone and the airport development district, which appear to be compatible with the Airport and Airpark. A brief discussion on the existing overlay zones in place with the City identified that there may be some minor deficiencies in the zoning code that need to be resolved at the local level.

Utilities: Existing utilities such as water and sewer in the vicinity of the Airport were presented. The focus on utilities was how the existing water and sewer facilities were adequate, but any future expansion West of the Airport would require extension of both sewer and water lines. Questions still remain on the best approach to extending these facilities to the areas yet to be developed.

Drainage: Drainage issues on the airport were discussed in greater detail due to flooding that has occurred on the airport in previous years. There have been a number of maintenance projects, ODA has spent $35,000 on maintenance and the City has also spent money on maintenance projects. Further study is needed to see what improvements may be needed in the Airpark, more than is scoped for this master plan. Public comment indicated some facilities are undersized for their function, especially under the RR tracks. Not enough rain has fallen this year to judge whether drainage works better. No other problems were identified.

Fencing/Security: The Airport is not enclosed with fencing, but does not appear to be a problem other than wildlife issues that have occurred. Some believe this is the most secure airport in the state because of the residents and community atmosphere. Unauthorized or lost vehicle/peds are spotted right away and challenged. Gates will be the biggest challenge to securing the airport as it may limit access by the airpark residents and to the businesses. On-Airport business owners indicated they were not consulted when the new existing gates went in and that they needed to be if any future plans call for fencing/gates. Many believe that adding fencing and gates is a solution to a problem that doesn't exist.

Access/Parking: Access to the Airport is provided from Hoffman Road on to Airport Rd. Existing parking areas were presented and PAC members indicated the aerial photo does not identify the additional 20 parking spots identified as overflow parking.

GA Terminal Area: Information related to the Star duster Café, fuel storage, FBOs, and the EAA were presented. Planning team was corrected on the actual size of underground fuel tanks operated by Independence Aviation as 2 x 10,000 gal tanks; owned by Marici and Robin Reid. Recently expanded EAA building has 11,500 SF including meeting space.

A PAC discussion on fuel at the Airport ensued. Mitch pointed out that a Cascadia event airport would want jet fuel. The discussion moved towards Mogas survey estimates provided by the State that indicate the number of gallons of fuel sold at auto gas stations that end up being used in airplanes. An 11-cent flowage fee is refunded to the state based on those estimates, over $200k per yr statewide.

Pilots can apply for a refund of highway taxes from Mogas receipts as well. May not cover the admin costs to recover.

Robin Reid Aviation indicated there were potential difficulties installing Mogas on the Airport due to insurance concerns about misfueling.

TTF, HOA, and Hangars: A discussion of the symbiotic relationship between the Airport and Airpark was addressed by focusing on the 7 through-the-fence (TTF) access points. These TTF access points will serve as the primary means to keep the Airpark in mind as an essential element of the Airport Master Plan. While the plan is focused on the Airport facilities, the physical and social connection to the Airpark cannot go unmentioned or forgotten. A discussion of the remaining sites available for development on the Airport and Airpark followed. The topic of fencing/gates and security at the Airport/Airpark was discussed again. It appears that many in the Airpark community are against gating the taxilanes while others prefer it.

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). The PAC indicated there were some cracks, grass in cracks, and birdbaths. FOD issue along south taxilanes occur due to the gravel access roads. A non-FAA solution will be examined by ODA. Maybe paving.

Helipads: The question was asked if existing helipads meet airspace requirements per FAA criteria. Planning team indicated they would go back and confirm and include in narrative.

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 direct entry from the north side of the apron to the runway was identified and discussed but the conversation was focused on the RPZ and relocated threshold/inline taxiway due to proximity of Hoffman Road. The current Runway 34 threshold is set so the 20:1 approach surface clears Hoffman Road and fencing. Grandfathering of existing condition of roads/RPZ is acceptable until changes are implemented. A changing departure RPZ or lower visibility instrument approach (if from south, which is unlikely) would be triggers to resolve this issue. The identified issue could result in shorter runway and a reconfiguration of the connectors. Potential solutions for these issues will be discussed in the facility requirements and development alternatives section of the Airport Master Plan.

The apron area Taxilane Object Free Areas (OFA) were presented and discussed. After the meeting and during individual discussions with airport operators, the southern portion of the apron area was identified as an area that may require additional investigation. The planning team indicated they will provide additional analysis and detail on the operating environment on the south portion of the apron area.

Airspace: The airspace discussion revolved around the introduction of an Instrument Approach Procedure (IAP) being introduced to the airport. Previous planning efforts identified the need for and IAP and during the scoping process it was anticipated that getting a GPS IAP in to the Airport would be an opportunity to pursue. However, during the PAC discussion it became apparent that some members of the PAC were not in favor while others have indicated they would like to see an IAP at the Airport.

A summary of the PAC discussion indicates:

> *Some instrument pilots like the G airspace so they can take off without visibility mins and pick up radar in the air.*
>
> *One commenter stated that powerlines would disqualify the airport from getting an approach. Others want the best IFR facilities available to make the best use of their equipment.*
>
> *Critics say that Jet A and instrument approach would change the small character of the airport and make it less desirable for new pilots.*
>
> *Flight schools would also be impacted because currently only 1M/clear of clouds is all that's required. Class G airspace offers that competitive advantage.*

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.

Local historic trends from on-airport/airpark hangar growth identified 5-6 new hangar homes and 1-2 airport hangars since 1994. Data from the FAA Terminal Area Forecast (TAF), which is the official FAA forecast of aviation activity at the Airport, was also presented to the PAC. The PAC confirmed TAF data (in as much as they were able to) that on average nearly 3 out of 4 operations are itinerant. The ongoing baseaircraft.com count being conducted by ODA was discussed. Currently the number of based aircraft was 198 with 190 single-engine aircraft.

AVGAS Fuel data, obtained from ODA, for the Independence State Airport was presented and the PAC indicated that the sharp increase in fuel sales for 2012 is due to the decline in the price of fuel. PAC members indicated that Independence offers the cheapest AVGAS in the State which may explain why the sales have continued to grow. The comparison between statewide fuel trends and Independence fuel trends was then discussed. The growth of fuel at Independence could be attributed to the cheaper cost of fuel as well as the destination of the Airport, Café, and Airpark environment.

A summary of the national trends in aviation was presented.

The existing critical aircraft was discussed with PAC. The PAC confirmed that there are currently not enough B-II (small) aircraft, or an increasing demand from B-II (small) aircraft that would dictate planning for B-II (small) at this time. However, that does not preclude the possibility that someone may decide to base a B-II aircraft at Independence at some point in the future.

The PAC commented that if the airport doesn't have an instrument approach, the B-II aircraft will not base here and also that B-II aircraft may not be coming in as often as they would due to the lack of services such as JetA, runway length, and an Instrument Approach Procedure. It was explained that the B-II traffic demand has to show up before you must react to it and expand facilities to accommodate B-II. This type of expansion is not a decision that can be made ahead of time, except to protect for future ability. PAC members discussed the option of a regional approach to airport planning indicating that the B-II airport is Salem and Independence should remain as B-I (small). However, it was also pointed out the FAA and State are not driving the direction with respect to design aircraft.

The conversation then transitioned to based aircraft forecasts and the starting point of 198 aircraft based on recent updated counts provided by ODA. The consultants recommended a growth rate in

between the historic based aircraft growth rate of 1.8% and the TAF of 1.4%. There were no objections from PAC members.

Due to the lack of hard data on operational count information, the planning team facilitated a discussion with the PAC to understand the number of operations that may be occurring at the airport.

When asked the question, "how often does an aircraft land at Independence Airport" the PAC discussion indicates that on summer weekends the airport is quite busy. It can be estimated that landings occur every 8-10 minutes. Operations are much busier in the morning, and once the restaurant closes operations drop off quite a bit at which time the glider traffic increases. It is expected that glider operations will continue to grow. In a conversation before the PAC meeting, Marici Reid indicated that her glider operation had to be relocated to Independence from McMinnville (MMV) due to the MMV runway closure this summer. The operation worked well at Independence and they expect the operation will permanently be based at Independence resulting in an increase in summer operations.

The operations discussion concluded with agreement that on average the annual operations are somewhere in between 37,000 and 44,000, which is consistent with the average forecast Operations Per Based Aircraft (OPBA) of 205 and within an acceptable range of the TAF operational growth rate of 1.7%. It is possible that, based on fuel sales data and the increase in glider operations that operations could grow faster than the TAF.

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

Any plans to improve the access roads on the north side? Past Gable's home? John W says they have graveled, but not involved as south side. May look for ways to cost effectively improve.

The lot in front of restaurant needs repair.

The developer paid for plenty of infrastructure, was used to match grants.

This airport should be for small aircraft, a haven, don't push them out with larger planes. Inst approach and Jet A will make that happen. Great place for students, getting into aviation.

Do we declare a B-II or whatever and then let them in?

Does this master plan project seek to increase the funding levels/profit and thereby will identify projects that drives growth and higher revenues?

The cost of the lots has gone up because of scarcity. Two lots on the state property go unused based on small lots, setbacks, etc.

Independence State Airport Master Plan Update
Planning Advisory Committee Meeting #2
Aviation Forecasts and Scenario Planning Exercise

January 24, 2018
City of Independence Civic Center: Independence, Oregon
6:00 to 8:30 p.m.

-Meeting Summary-

Attendees:

Oregon Department of Aviation: Matt Maass, Jeff Caines, and John Wilson

WHPacific, Inc: Mike Dane, Dave Nafie, Rainse Anderson, and Holly Williams

Planning Advisory Committee Members: See sign in sheet

Public Attendees: See sign in sheet

Welcome and Recap

Meeting opened at 6:00 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 Independence State Airport in the next 20 years. The high, medium, and low ranges for based aircraft and aircraft operations were presented and discussed along with the respective preferred growth rates of 1.6% and 1.75% that will be presented to the FAA for approval.

The existing critical aircraft was then discussed with the PAC. Historically the critical aircraft had been identified as the B-I (small) King Air B100, which is a turboprop aircraft. Throughout PAC Meeting #1, and the subsequent discussions with PAC members that followed, it became apparent to the planning team that there was not a significant amount of turbine or turboprop aircraft operating at the Independence State Airport on a regular basis. Therefore, a more representative piston aircraft was selected as the critical aircraft. The selected representative critical aircraft is the Cessna 402, which is still a B-I (small).

The summary of the aviation forecasts was presented and discussed. The PAC and public commented on the amount of turbine/turboprop operations forecasted throughout the planning period. Many felt that the turbine/turboprop estimates were still slightly high and may not be accurate even though the planning team reduced them significantly from what had been historically considered. It was explained

that without actual operational data it is difficult to argue that these numbers were accurate. Regardless, there are examples of turbine/turboprop aircraft and based on state and national data it is reasonable to project an increase in the number of the turbine/turboprop aircraft throughout the 20 year planning period.

Small Groups Scenario Planning Exercise

The exercise began with a short overview of internal and external factors that may affect the Airport's future. Internal factors assume that through implementation of the adopted plan the airport role can evolve over time or remain status quo. External factors assume that there are events or factors that cannot be directly controlled through plan implementation but that could affect outcomes.

The planning team explained how these sample forces can be plotted in a matrix with four quadrants and then presented the four resultant scenarios. It was also explained that these four scenarios are only a handful of the potential scenarios that could occur in the 20 year planning period and were developed solely to provide a framework for discussion among the PAC.

The PAC was assigned to small groups to discuss their views on which quadrant best describes how they see the airport developing or evolving over time. Planners at each table guided the discussion through a number of questions and list responses that captured the key discussion points and their preferred facility improvements.

The facility improvements information provided by the PAC during the scenario planning exercise is crucial to the development of alternatives, which will reflect this input. The State will then discuss all input received and the resulting conclusions will guide planners in developing the alternative concepts. Any input that may not be feasible or allowable by FAA may be acknowledged in the study but not carried forward in plan development.

Public Comments

During the scenario planning exercise, a member of the planning team was discussing the Airport and master plan with members of the public. Members of the public had, in general, views that were aligned with the PAC. There was a strong desire to keep the Airport and its culture unchanged. Suggested improvements to the Airport were focused on enhancing facilities that serve the current based aircraft, and not changes that would draw in larger turbo prop or jet aircraft. Most members of the public wished to see a grass runway and an improved/expanded FBO with public restrooms.

Independence State Airport Master Plan Update
Planning Advisory Committee Meeting #3
Facility Requirements and Alternative Review Exercise

April 11, 2018
City of Independence Civic Center: Independence, 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 6:00 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 Independence State Airport in the next 20 years.

The summary of the aviation forecasts was presented and discussed, followed by a summary of the scenario planning exercise from the prior meeting. Attendees concurred that general feeling of the PAC membership, although not unanimous, was that when external conditions such as the state of the economy and local demographics are positive, the airport should still be conservative and retain its small aircraft focus. Thus no significant changes to increase the runway capabilities or dimensions and no instrument approach.

Introduction of Three Alternative Concepts

The three concepts presented had these characteristics:

Alternative 1

• Shift runway north to maintain runway length of 3,142’ • Relocate connectors to meet criteria • Prepare alternate landing area • Relocate lighted windcone/segmented circle o Remove PAPI system • Acquire land to the west for future airport development (33 acres) • Acquire land to the south for RPZ and approach protection (6 acres) • Construct full length parallel taxiway on west side including taxiway lighting and drainage improvements • Construct apron and taxilanes for west side

hangar development • Construct access road north from Hoffman Road • Install fencing for security and wildlife control • Depict future airpark uses only to west within UGB, no development to north.

Alternative 2

• Shift runway north and extend to future runway length of 3,436' • Relocate connectors to meet criteria • Acquire land to the west for future airport development (34 acres) • Acquire land to the south for RPZ and approach protection (6 acres) • Construct full length parallel taxiway on west side including taxiway lighting and drainage improvements • Construct apron and taxilanes for west side hangar development • Construct access road north from Hoffman Road • Install fencing for security and wildlife control • Depict future airpark uses and UGB expansion only to north, airport development to west.

Alternative 3

• Relocate Runway 34 threshold for a future runway length of 3,001' • Relocate connectors to meet criteria • Acquire land to the west for future airport development (64 acres) • Acquire land to the south for RPZ and approach protection (6 acres) • Construct full length parallel taxiway on west side including taxiway lighting, drainage improvements, and environmental mitigation • Construct turf runway at a future length of 1,700' including environmental mitigation • Construct apron and taxilanes for west side hangar development • Construct access road north from Hoffman Road • Install fencing for security and wildlife control • Do not depict any future airpark development

Dave Nafie from WHPacific described each concept and gathered initial feedback through Q&A.

Breakout Exercise

Three tables were set up with large format maps of the concepts and markers. The entire PAC and audience together gathered around the tables and worked with ODA and WHPacific facilitators to gather discussion and feedback. The exercise lasted approximately 40 minutes after which people were invited to share what they discussed and heard. The following questions guided the discussion:

1. What are key advantages or drawbacks to each alternative?

2. Do you believe any facilities are missing or underrepresented?

3. Do you believe any facilities that FAA would not financially support would be worth local investment?

4. Which alternative best represents your vision for the airport?

Alternative 1:
Alternative 1 was generally well received. Most of those in attendance felt that a turf landing area is desirable and several were ok with relocating or eliminating the PAPIs in order to make room. Opinions were split on how much, if at all, the runway should be extended. Several commenters do not see a problem with the aligned taxiway at RW 34. They would rather spend resources other places on the airport. The west side configuration was generally well received. Several recommended shifting that development farther west to allow both turf landing area and PAPIs to exist in their current configuration.

Alternative 2:
Alternative 2 was also well received because of the added runway length. However, several attendees wanted to see a turf strip on the plan. Alternative 2 had many of the same comments as Alt 1: Leave 34 end alone and shift west development to the south to allow turf.

Alternative 3:
Alternative 3 was not well received and was dismissed outright by most participants. Most saw issues with the turf runway including visibility issues between the converging runways since hangars would block being able to see the other runway's departure end. Access to the turf runway is problematic and the overall cost of acquiring enough land to accommodate the turf runway made the cost of the alternative far exceed the benefits.

General Comments:

- Public Restrooms for the hangar areas are especially important for female pilots and should be included in the plan.
- Turf strip is desired by flight instructors – Soft surface landings is a required training element for student pilots.
- Is it possible to use the RPZ land to create a wetland drainage swale?
    - This was discussed briefly and dismissed due to wildlife (bird) concerns and RPZ land use issues.
- It was noted that a longer runway could attract larger and louder aircraft to the airport
- (FAA Airports Planner) Valerie Thorsen noted that any runway extension would only be grant eligible with a demonstrated need. "This isn't a build it and they will come" situation.
- Wayne Nutsch advocated for a longer runway, an instrument approach, automated weather observation system (AWOS), and a radio communications outlet (RCO) to bring in more business traffic. He noted that while most of the people voicing opinions in the room paid dues for airfield access, his investment is significantly larger. His business would benefit from enlarging facilities and inviting more aircraft that are used for the growing business GA segment.
- Several people want to see an AWOS installed on site.
    - Matt Maass stated that ODA can't put an AWOS on each state-owned airport – too expensive to maintain and calibrate ($4000/year per AWOS).
    - Others noted that Independence is one of three profitable airports in their system and at least those three should have an AWOS.

Public Comments

Members of the public had, in general, views that were aligned with the PAC. There was a strong desire to keep the Airport and its culture unchanged. Suggested improvements to the Airport were focused on enhancing facilities that serve the current based aircraft, and not changes that would draw in larger turbo prop or jet aircraft. Most members of the public wished to see a grass runway and an improved/expanded FBO with public restrooms.

Next meeting date in June will be determined soon and sent to PAC members well in advance. The meeting was adjourned at 8:00 p.m.

Independence State Airport Master Plan Update
Planning Advisory Committee Meeting #4
Presentation of Refined Development Alternatives

June 28, 2018
City of Independence Civic Center: Independence, Oregon
3:00 – 4:30 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 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 review of the previously presented forecasts and development alternatives.

Introduction of Three Refined Alternative Concepts

The three refined concepts presented had these characteristics:

Alternative 1

• Shift runway north to maintain runway length of 3,142' • Relocate connectors to meet criteria • Prepare turf alternate landing area • Relocate RW 16 PAPI to match new RW end • Acquire land to the west for future airport development (34.8 acres) • Acquire land to the south for RPZ and approach protection (6.4 acres) • Construct full length parallel taxiway on west side including taxiway lighting and drainage improvements • Construct apron and taxilanes for west side hangar development • Construct access road north from Hoffman Road • Install fencing for security and wildlife control

Alternative 2

• Shift runway north and extend to future runway length of 3,500' • Relocate connectors to meet criteria • Relocate RW 16 PAPI to match new RW end • Acquire land to the west for future airport development (33.4 acres) • Acquire land to the south for RPZ and approach protection (6.4 acres) • Construct full length parallel taxiway on west side including taxiway lighting and drainage improvements • Construct apron and taxilanes for west side hangar development • Construct access road north from Hoffman Road • Install fencing for security and wildlife control

Alternative 3

• Remove existing B-I (small) RW 16/34 • Construct new 3,642 ft B-II (small) runway with associated lighting and utilities west of the current position • Relocate PAPIs and segmented circle/Windcones • Establish GPS Circling approach • Install automated

weather reporting system (AWOS) • Construct full length parallel taxiway on west side including taxiway lighting and drainage improvements • Construct apron and taxilanes for west side hangar development • Construct access road north from Hoffman Road • Install fencing for security and wildlife control • Purchase entire property on which RW 34 RPZ is located • Reroute Hoffman Road around the RPZ • reserve property south of the realigned Hoffman Road as commercial space.

Dave Nafie from WHPacific described each concept and gathered feedback through Q&A.

The Development Alternatives are described in more detail in the PowerPoint presentation linked below:

Independence State Airport Development Alternatives Presentation

Discussion of Alternatives

Alternative 1:
Alternative 1 was generally well received. Most of those in attendance felt that a turf landing area is desirable. Opinions were split on how much, if at all, the runway should be extended. Several commenters do not see a problem with the aligned taxiway at RW 34. They would rather spend resources other places on the airport. Most thought that expansion to the west side was desirable and would be needed during the planning period. It was recommended that the new ramp should be moved to the north and a row of hangars be built to the south to serve as a noise buffer between the ramp and the neighborhood across Hoffman.

Alternative 2:
Overall Alternative 2 was thought to be a good option, though many members of the PAC and the public would like to see a turf alternate landing area included. It was explained that including the turf would require the removal of the PAPIs and relocation of the segmented circle/wind cones. While many in attendance liked the extra runway length, most felt that a 3,500' runway was not necessary. The city voiced concern that the longer runway would invite larger aircraft and increased noise to the area.

Alternative 3:
Alternative 3 was the most ambitious of the presented concepts, with a full conversion to a B-II (small) configuration. Most commenters felt that there isn't a need to move to move to B-II at this time and instead preferred the simplicity and flexibility of Alternatives 1 & 2. The City of Independence voiced concerns over rerouting Hoffman Road and increased noise at the larger airport. A few commenters did not see the benefit in installing an AWOS on site, due to feelings that AWOS is old technology that will be replaced in the next several years.

Summary:
While most members of the PAC and the public identified parts of each alternative that they liked and disliked, most agreed that Alternative 1 with some minor revisions was their preference. This concept corrects FAA design standards issues, offers the features that most users want to see right away (alternate landing area & restored runway length), and gives the flexibility to expand the airport further in the future if necessary.

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.

The next PAC meeting is tentatively scheduled for August. The need for the August meeting was discussed with the PAC with no decision reached on whether or not to hold it. WHPacific will discuss the issue further with ODA and follow up with the PAC when a decision is reached. A final PAC meeting is scheduled for October.

Independence State Airport Master Plan Update
Planning Advisory Committee Meeting #5
Presentation of Preferred Development Alternative

October 24, 2018
Independence City Hall: Independence, Oregon
4:00 to 5:30 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 4:00 pm, with a brief discussion of the agenda for the evening, 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.

SHORT TERM PROJECTS (1 - 5 YEARS)	
YEAR	**PROJECT**
2019	**Install Fence: Phase II - Construction**
2019	**PMP**
2020	**Replace PAPI Design/Construct**
2020	**Environmental Assessment**
2021	**Carryover**
2022	**PMP**
2023	**Reconstruct/Extend Runway 16/34 & Taxiway A, Remove Aligned Taxiway and Reconfigure Connectors: Phase I Design**

MID TERM PROJECTS (6 - 10 YEARS)	
	PROJECT
2024 - 2028	**Reconstruct/Extend Runway 16/34 & Taxiway A, Remove Aligned Taxiway and Reconfigure Connectors: Phase II Construction**
	West Side Land Acquisition
	PMP
	Construct AGLA
	West Side Phase 1 - Construct Apron; South Hangar Area Taxilane; Taxiway B2; Taxiway B from B2 to South Taxilane: Design
	West Side Phase 1 - Construct Apron; South Hangar Area Taxilane; Taxiway B2; Taxiway B from B2 to South Taxilane: Construction

LONG TERM PROJECTS (11 - 20 YEARS)	
	PROJECT
2029 - 2038	**Master Plan Update**
	West Side Phase 2 - Expand Apron; Extend Taxiway B to RW 34 End and Construct Taxiway B1
	West Side Phase 3 - Expand Apron; Extend Taxiway B from Taxiway B2 to North Apron Entrance; Construct N/S Hangar Access Taxilane
	West Side Phase 4 - Construct Taxiway B3 at Runway End 16; Extend Taxiway B from North Apron Entrance to Taxiway B3
	West Side Phase 5 - Construct Hangar Access Taxilanes
	RW 34 RPZ/Hoffman Road Land Acquisition
	Realign Hoffman Road; Extend Taxiway A

The Preferred Alternative and Phasing Plan are illustrated in the PowerPoint presentation linked below:

Independence PAC Meeting #5 Presentation

Response to Preferred Alternative

Several comments were offered by the PAC and members of the public. These primarily centered around the discussion of the fence project, property acquisitions, and land use/zoning.

Fencing:
There was a thorough discussion regarding the fencing project scheduled for 2019. Many members of the PAC and public felt that there is no need for fencing around the airport and building one would negatively affect the aesthetics of the Airport and the airpark. Matt Maass, commented that fencing is needed for airport security and wildlife encroachment protection. The State views it as a liability issue that needs to be addressed. Mr. Maass went on to explain that the project is currently in the pre-design stage and no plans are finalized on what type(s) of fence will be installed nor where it will be located. The intent is to install a decorative fence that will not make the Airport "look like a prison". As the design process progresses, there will be additional opportunity for public input.

Specific comments regarding the fence are below:

- A fence would not fence out the public, it would fence out the airpark residents.
- A fence should be built on the west side of the taxiway/lane rather than on the HOA side
- Plans should show construction of fences on both sides of Airport Road
- The intent of the fence project is to deter encroachment, not prevent/
- There will be adequate time for HOA and public comment during the design process

Property Acquisition:
Parcels to the south and west of the Airport boundary were identified as properties to be purchased in the preferred alternative. The owner of the southernmost property identified, commented that he is interested in developing the property and he had concerns that the property being shown on the master plan could discourage investors. He expressed discussing the property with the State. Mr. Nafie suggested that he speak with Mr. Maass.

Land Use and Zoning:
Craig Pope commented that he would like to see road access to the property north of the west side expansion accounted for to serve any eventual development of that property. He also mentioned that the N/S road serving the west side expansion could affect the City's Transportation Plan.

PAC member Gary Van Horn commented that he would like to see continued coordination between all agencies involved (City, County, ODA, and FAA) in regards to future zoning of the airport property. "We don't want to have another Santa Monica situation." He went on to request that the Airpark HOA be given the opportunity to comment on the land use/zoning portions of the master plan prior to adoption.

General Comments:
PAC member Wayne Nutsch requested that the Master Plan Report documents the fact that an IAP, RCO, and AWOS were suggested by some on the PAC but were not selected as part of the preferred alternative. Dave Nafie responded that that information would be included in the report.

PAC member John Horn commented that we should look at the airport as a "mature" airport. It does not need to grow any larger than it already is.

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 or ODA with further questions or comments.

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