

4. Facility Requirements

4.1 Facility Requirements

The Facility Requirements chapter provides analysis that quantifies the needed facilities over the 20-year planning period. In general, facilities are classified according to their function.

Runways, taxiways, navigational equipment, lighting, etc. are classified as airside facilities. Hangars, aprons, smaller taxilanes, vehicle parking, and access roadways are classified as landside facilities. Other necessary facilities include utilities, stormwater drainage, aircraft fueling systems, airport-owned equipment, and the like are classified as support facilities.

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

The result of these analyses is a determination as to what facilities will be needed and in what quantities. The location and/or orientation of each of these required facility types will be the subject of the [Alternatives Chapter 5](#).

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 design aircraft designated for planning and design purposes was a twin-engine turboprop King Air B100. However, based on input from airport stakeholders, including users and ODA, there are few turbine or turboprop aircraft in regular use at Independence State Airport. Therefore, the design 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’ 10”, an approach speed of 95 kts, and a gross weight of 5,400 lbs (**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



Figure 4A: Existing Critical Aircraft

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 System 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. 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

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'?**

Scenario Planning Matrix



Figure 4B: Scenario Planning Matrix

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 and Zoning
- Utilities & Storm Drainage
- Airport Fencing & Access
- Hangar Access
- Vehicle Parking
- Hangars
- RTTF Community
- GA 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 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

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 developed 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	Where opportunities present themselves, efforts should be made to have UGB limits and the associated development complement the airport-related safe-
Airport Overlay Zone	Places additional conditions on affected land; underlying zone remains unchanged	Easy to implement, reduces hazards and incompatible land use	If land use 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

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 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

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 Requirement

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

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 Requirement

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 6' 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 Requirement

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 Requirement

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 Requirement

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 Requirement

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 Requirement

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 Requirement

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 GA 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 Requirement

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 Requirement

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.

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

The runway should be long enough to support takeoffs, and landings of the design aircraft, a Beechcraft Baron 58. According to runway distance curves published in [FAA Advisory Circular 150/5325-4C](#), Runway Length Recommendations for Airport Design, runway lengths of 3,100 feet and 3,650 feet will accommodate 95% and 100%, respectively, of the airport’s anticipated fleet. 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.

The manufacturer’s published accelerate-stop distance for a Beechcraft Baron 58 at maximum gross takeoff weight of 5,400 lbs with given field conditions reporting 84° F at 180 feet MSL is 3,350 feet. The normal takeoff ground-roll distance at gross weight with the same field conditions for a Beechcraft Baron 58 is 1,336 feet

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/>

with the distance needed to clear a 50 foot obstacle at 2,100 feet.

Previous planning efforts have identified a recommended runway length of 3,610’ as required to accommodate the previous design aircraft the King Air B100. This ultimate runway length is currently depicted on the signed and approved ALP, but it does not necessarily apply in this case considering the change in design aircraft.

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.

Facility Requirement

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 nonprecision approach in the future.

Facility Requirement

Runway Pavement markings at the Airport are adequate for the current configuration and should be maintained in concert with scheduled pavement maintenance. Markings 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 design 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. The current taxiway widths are adequate and should be maintained through the planning period.

Another important consideration is the runway centerline to parallel taxiway centerline separation distance. According to the Runway Design Standards Matrix, the minimum distance from runway centerline to parallel taxiway for minimums lower than $\frac{3}{4}$ mile is 150'. The current separation distance is 150 feet which satisfies FAA standards for minimums of not lower than $\frac{3}{4}$ mile 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

It is recommended that Taxiways A2 and A4 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

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. 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. 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.

Facility Requirement

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 no based aircraft will be stored at tiedowns throughout the planning period. Transient aircraft typically use tiedowns during the short time they visit an airport.

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

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 Requirement

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 System Plan](#) recommends upgrading the existing taxiway reflectors to either low intensity taxiway lighting (LITL) or medium intensity taxiway lighting (MITL).

Facility Goal

It is recommended that the two taxiway lighting systems (MITL/LITL) are evaluated for

installation 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 System 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.”

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 recommended that ODA evaluate further, the need for and feasibility of an AWOS at Independence during the Development Alternatives phase of this master plan.

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 triggered 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 Requirement

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 Requirement

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

It is recommended that ODA 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

It is recommended the ODA 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. While the Airport is utilized by a relatively small number of community members, 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 through 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 to 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 has classified several species of plants and animals as threatened and endangered through legislation such as Endangered Species Act, Migratory Bird Act, and the Lacey Act, among others. Under these acts, 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.

