

## **Chapter Four**

# **DEVELOPMENT ALTERNATIVES**

*Airport Layout Plan Update*  
*Illinois Valley Airport*

The preceding chapter identified deficiencies of the Illinois Valley Airport with respect to existing and anticipated aeronautical demand, which are consistent with current Federal Aviation Administration (FAA) design standards and State of Oregon development guidelines. This chapter presents several development alternatives that focus on meeting the Airport's facility needs for the long-term future (2029 and beyond).

While the development alternatives focus on meeting aeronautical demand projected for 2029, it is prudent to consider the ultimate potential of airport property. By doing so, the planning documents remain flexible and functional, considering the possibility that unforeseen events or increases in user demand occur. Consequently, the alternatives highlight possible airfield and landside uses that could meet facility needs projected to occur after 2029.

### **SUMMARY OF FACILITY REQUIREMENTS**

The preceding chapter, *Facility Requirements*, identified development needs to accommodate forecasted aeronautical activity. These are summarized below.

#### **Airfield Requirements**

- Most of the land within the Runway Protection Zone (RPZ) is not controlled by the County in either fee simple or easement to ensure land use compatibility.
- The Airport should have a full-length parallel taxiway, located with at least 150 feet between runway and taxiway centerlines, with connectors to aircraft parking and storage.

- The runway markings should be upgraded if an instrument approach is implemented.
- Relocate the visual approach slope indicators (VASIs) or install Precision Approach Path Indicators (PAPIs) to meet FAA siting criteria.
- Upgrade the runway lighting system to medium intensity runway lighting (MIRL) system.
- Runway End Identifier Lights (REILs) should be installed at both runway ends.
- If an instrument approach is implemented, an approach lighting system may be required by the FAA, depending upon the type of approach.
- It is recommended the Super-Automated Weather Observation System (AWOS) be upgraded to transmit data to the FAA.

### **Landside Requirements**

- To meet 2029 demand, five additional T-hangars will be needed.
- Two conventional hangars are required to meet 2029 demand.
- While the current area of parking apron is large enough to meet forecasted demand, the location of the current parking apron may not be the most desirable. Alternative locations for the parking apron have been identified, for both paved and grass tiedowns.
- At least one acre should be reserved for a Fixed-Based Operator (FBO) facility.
- Install a self-service card-lock fueling system.

### **DEVELOPMENT ALTERNATIVES**

Three alternatives for the long-term future development of the Airport are presented in this chapter:

- No-Build Alternative, which assumes maintenance of existing facilities and no expansion of airfield or landside facilities.
- Alternative 1 concentrates development on the eastern portion of the Airport, with access via an east parallel taxiway.
- Alternative 2 concentrates development on the western portion of the Airport, with access via a west parallel taxiway.

The two development alternatives depict additional hangar expansion, aviation-related business reserves, airport compatible commercial/industrial reserves, a new place for helicopter parking,

and the acquisition or easement of land within the building restriction lines and RPZs. Each alternative also depicts land reserved for a future FBO.

## **No-Build Alternative**

**Exhibit 4A** illustrates the No-Build alternative. By showing the consequences of not developing the Airport, the County has a method for assessing advantages and disadvantages of development alternatives.

As shown in Chapter 2, *Aeronautical Activity Forecast*, the Airport is expected to experience increased demand. If no development were to occur, the Airport would not be able to support forecasted aeronautical uses and demands. The No-Build alternative would not optimize the Airport's potential. Safety deficiencies would remain, namely the need to back taxi due to the lack of a full parallel taxiway. The Airport would not meet the FAA's requirement for control of the RPZs and would continue to lack an instrument approach and fuel sales, which would constrain the future use and revenue generation of the Airport. Without improved access and vehicle parking for the Smokejumper Base, its growth as a tourist attraction would be hampered. The opportunity for unsafe vehicle, pedestrian, and aircraft interaction around the Smokejumper Base would not be mitigated.

While the No-Build alternative is essentially a do-nothing option, it does not mean that there would be no financial impact to the Airport. Most prominently, there would still be a cost associated with maintaining the current pavements and facilities. Without additional sources of revenue, the Airport would continue to need financial subsidy, since income from leases and other sources falls short of covering operating expenses.

## **Development Alternative 1**

Development Alternative 1, illustrated by **Exhibit 4B**, concentrates development on the eastern portion of the Airport. Alternative 1 encompasses the facility requirements previously outlined. As with both build alternatives, Alternative 1 incorporates development well beyond the projected 20-year need. A main component of Alternative 1 is the closure of the existing access road and the construction of a new access road along the Airport perimeter that leads to a new vehicle parking area. By re-arranging access, the Airport can remain secure for airport users, while making the Smokejumper Base easily accessible to the public. Pedestrian trails to the botanical wayside are also provided to enhance the Airport's attractiveness to tourism.

**Airfield.** Airfield developments for Alternative 1 are outlined below.

- Full parallel taxiway east of the runway.
- The helicopter operations area remains in its current location.
- Control and protection of runway protection zone by acquisition or easement.

**Landside.** The landside development features proposed in Alternative 1 include:

- New access from Highway 199.

- Increased vehicle parking for airport users and tourists.
- Grass tiedown area.
- Reserves for FBO, T-hangars, conventional hangars, and aviation-related businesses.
- Self-service card-lock fueling system.
- Reserves on the western portion of the Airport for future airport and commercial/industrial development.

## **Development Alternative 2**

Development Alternative 2's main distinguishing feature is a full parallel taxiway west of the runway system (see **Exhibit 4C**). Consistent with the taxiway's location, the majority of future development is shown on the western portion of the Airport.

**Airfield.** Airfield development elements in Alternative 2 include:

- Full parallel taxiway west of the runway.
- The helicopter operations is located to the northeastern portion of the airport property.
- Control and protection of runway protection zone by acquisition or easement.

**Landside.** Alternative 2 consists of the following landside developments:

- Increased vehicle parking for airport users and tourists on the east side.
- Grass tiedown area and pedestrian path on the east side.
- Reserves for FBO, T-hangars, conventional hangars, and aviation-related businesses.
- Self-service card-lock fueling system, with a temporary location shown east of the runway and a permanent location on the west side.

Alternative 2 meets the facility requirements outlined in Chapter Three. As with Alternative 1, this alternative has land available for development in the event demand exceeds the aeronautical activity forecast.

## **COMPARISON OF ALTERNATIVES**

Detailed costs estimates were not prepared for each alternative, rather the alternatives are compared in order of magnitude. Alternative 2 would likely have the highest total capital cost, with Alternative 1 costing slightly less, since Alternative 2 has more areas shown for potential development. However, the cost of the two development alternatives to the County might not be appreciably different if the cost of constructing tenant facilities is borne by the tenants. The taxiway on the west side (Alternative 2) would likely cost more than the taxiway on the east side (Alternative 1) due to more variable terrain, but a parallel taxiway would probably not be built until an AIP grant for up to 95% of the construction cost could be obtained, which would limit the County's cost. In addition, Alternative 1 includes the cost of a new access road that is not included in Alternative 2. The No-Build Alternative has the lowest capital cost of all the alternatives, as it would only maintain the existing pavements and facilities.

If aviation activity grows to justify the development shown, Alternative 2 would provide greater revenue potential than Alternative 1. The No-Build Alternative would provide no new revenue potential.

With both Alternatives 1 and 2, some aircraft would need to cross the runway to use the parallel taxiway. Alternative 1 would limit those crossings to the north runway end, for aircraft based in the T-hangars on the west side. According to FAA guidance, runway crossings are safer if located at runway ends than at other points along the runway. Alternative 2 would place the taxiway on the side opposite from some based aircraft.

## **ENVIRONMENTAL SCREENING OF ALTERNATIVES**

Each alternative was analyzed to assess its relative environmental impact, as well as identify any environmental constraints that may prohibit development. The results of this analysis is presented in **Table 4A**.

Each alternative presents an array of environmental opportunities and constraints. The following discussion summarizes the potential environmental concerns associated with each alternative.

### **No-Build Alternative**

The No-Build Alternative does not propose any new use designations on the airport. It includes only maintenance for the next 20 years. The No-Build Alternative does not present land use compatibility concerns, noise concerns or direct threats to plant and animal communities. In terms of overall impact, **this alternative has the least impact to the existing natural and built environments.**

### **Development Alternative 1**

This alternative designates new reserve and development areas in the area currently used for developed airport activities. It includes a helicopter operations area at the northern end of the developed area. The industrial park area in the northwest corner of the airport remains for future industrial development.

This alternative includes obtaining easements or ownership of the Runway Protection Zone (RPZ) on both runway ends. The southeast end is in Oregon State Parks and US Bureau of Land Management ownership, which could require additional consultation under Section 4(f). There is no feasible and prudent alternative for the location of the RPZ and the need for the airport to control the RPZ.

Ultimate development of the reserve land could increase impervious surface significantly. Because the soil is very pervious, and the area is relatively dry, stormwater issues may not be significant.

**Table 4A. Development Alternatives - Environmental Constraints and Impacts<sup>1</sup>**

Impact Categories <sup>2</sup>	No-Build Alternative		Alternative 1		Alternative 2	
	<i>Comment</i>	<i>Score</i>	<i>Comment</i>	<i>Score</i>	<i>Comment</i>	<i>Score</i>
<b>Air Quality</b>	No apparent issues.	2	No apparent issues.	2	No apparent issues.	2
<b>Biotic Resources</b>	No apparent issues.	1	No apparent issues.	1	Potential for unique plant species in T-Hangar Reserve.	2
<b>Land Use Impacts</b>	No apparent issues.	2	No apparent issues.	2	No apparent issues.	2
<b>Construction Impacts</b>	No apparent issues.	2	No apparent issues.	2	No apparent issues.	2
<b>Section 4(f) Resources</b>	No apparent issues.	1	Potential for constructive use issue with avigation easement on SE end.	2	Potential for constructive use issues with avigation easement.	2
<b>Threatened and Endangered Species</b>	No apparent issues.	1	No apparent issues.	1	Potential for unique plant species in T-Hangar Reserve Area.	2
<b>Energy Supplies, Natural Resources and Sustainability</b>	No apparent issues.	2	No apparent issues.	2	No apparent issues.	2
<b>Environmental Justice</b>	No apparent issues.	2	No apparent issues.	2	No apparent issues.	2
<b>Farmlands</b>	No apparent issues.	2	No apparent issues.	2	No apparent issues.	2
<b>Hazardous Materials</b>	No apparent issues.	1	Low potential for unidentified material on old smokejumper base.	2	Low potential for unidentified material on old smokejumper base.	2

<sup>1</sup> The small italic number in each cell represents the qualitative rank of each alternative for the specific category. Where all alternatives are approximately equal, a score of 2 was assigned. A score of 1 represents the least impacting alternative; a score of 4 represents the greatest impact. The scores are totaled at the bottom of this table, which in turn provides a subjective ranking of the four alternatives.

<sup>2</sup> The analysis covers 21 impact categories examined according to FAA Order 1050.1E and guidance from the Council on Environmental Quality.

**Table 4A. Development Alternatives - Environmental Constraints and Impacts, Continued**

Impact Categories	No-Build Alternative		Alternative 1		Alternative 2	
	<i>Comment</i>	<i>Score</i>	<i>Comment</i>	<i>Score</i>	<i>Comment</i>	<i>Score</i>
<b>Historical, Archaeological and Cultural Resources</b>	No apparent issues.	1	Tree removal and development may need historical clearances.	2	Tree removal and development may need historical clearances.	2
<b>Induced Socioeconomic Impacts</b>	No apparent issues.	2	No apparent issues.	2	No apparent issues.	2
<b>Light Emissions and Visual Effects</b>	No apparent issues.	1	No apparent issues.	1	No apparent issues.	1
<b>Energy Supply &amp; Natural Resources</b>	No apparent issues.	2	No apparent issues.	2	No apparent issues.	2
<b>Noise</b>	No apparent issues.	1	No apparent issues.	1	No apparent issues.	1
<b>Social Impacts</b>	No apparent issues.	2	No apparent issues.	2	No apparent issues.	2
<b>Solid Waste</b>	No apparent issues.	2	No apparent issues.	2	No apparent issues.	2
<b>Water Quality</b>	No apparent issues.	2	No apparent issues.	2	No apparent issues.	2
<b>Wetlands</b>	No apparent issues.	2	No apparent issues.	2	No apparent issues.	2
<b>Cumulative Impact</b>	No apparent issues.	2	No apparent issues.	2	No apparent issues.	2
<b>Controversy</b>	No apparent issues.	1	No apparent issues.	2	No apparent issues.	2
<b><i>Total ranking</i></b>		<i>34</i>		<i>38</i>		<i>40</i>

In general, this alternative appears to have few impacts, primarily associated with tree removal and new development near the Smokejumper Base (listed on the National Register of Historic Places). The alternative would not significantly change the existing noise footprint. It would allow the County to continue to market the industrial park area for non-airport uses, as well as those desiring an airport location. **This alternative has the least environmental impact of the two build alternatives.**

## **Development Alternative 2**

This alternative places the helicopter area at the mid-north end of the airport. T-hangar and conventional hangar reserves, and future FBO space are located near the County's industrial park area. Future conventional hangar reserve and airport-related business areas are on both sides of the runway, at the northern end of the airport.

This alternative also includes obtaining easements or ownership of the Runway Protection Zone (RPZ) on both runway ends. The southeast end is in Oregon State Parks and US Bureau of Land Management ownership, which could require additional consultation under Section 4(f). There is no feasible and prudent alternative for the location of the RPZ and the need for the airport to control the RPZ.

This alternative has more area designated for reserve use than in Alternative 1. Ultimate development of the reserve lands could increase impervious surface significantly, and therefore increase stormwater runoff and risk for water quality issues.

This alternative would likely have less impact on the Smokejumper Base Historic District, as only tree removal would occur.

**This build alternative is slightly greater in terms of overall environmental impact of the two alternatives.**

## **MASTER PLAN CONCEPT (PREFERRED ALTERNATIVE)**

The two development alternatives and No-Build were presented to the County, Planning Advisory Committee (PAC), and members of the public on January 25, 2010. Based on comments made at that meeting, the County selected a Preferred Alternative (see **Exhibit 4D**). The Preferred Alternative, or Master Plan Concept, is based on various components of each of the alternatives presented in this chapter, as well as a few additional components not previously depicted. The Preferred Alternative is the basis for the Airport Layout Plan in Chapter 5. The proposed Preferred Alternative is summarized below.

### **Airfield.**

- Phased development of a western full-parallel taxiway (Phases I and II) and a partial-parallel taxiway stub east of the runway (Phase III).
- The helicopter operations area remains in its current location.
- Control and protection of runway protection zone by acquisition or easement.

## **Landside.**

- Current access from Highway 199.
- Increased vehicle parking for airport users and tourists, with access to the airport.
- Grass tiedown area south of the aircraft parking apron.
- FBO location on the west side of the Airport for development.
- Reserves for T-hangars, conventional hangars, and aviation-related businesses.
- Self-service card-lock fueling system, with interim and ultimate locations identified.
- Reserves on the western portion of the Airport for future airport and commercial/industrial development.
- Pedestrian path on the east side for people to access the Botanical Wayside.

The above-described Preferred Alternative mirrors the PAC's unanimous recommendations. The intent of the layout is to allow phases of development to occur, as demand dictates. Initial growth would be on the west side of the Airport. Development east of the runway would occur in the long-term, with the taxiways phased in appropriately.