

new access from the parallel taxiway to the aircraft storage area.

- Maintain access to the Airport Café and EAA building.
- Relocate access taxiway to Runway 32 threshold.
- Install REILs, instrument approach lighting system, and taxilane edge lights.
- Relocate helicopter landing area.
- Install an Automated Weather Observation System (AWOS).

Landside

- Addition of 31 T-hangars.
- Create six-acre reserve for conventional hangars.
- Expand apron by 12,500 sq yds.
- Create aviation reserve area.
- Create additional vehicular parking areas.
- Reserve fixed-Based Operator facility area.
- Upgrade security and wildlife fencing.
- Install a self-service card-lock fueling system.
- Build new access road.
- Install new electrical vault.
- Build new maintenance building.

Implementation

The Airport's implementation plan is encapsulated in two documents, the ALP and the phased Capital Improvement Plan. To be eligible for funds from the Airport Improvement Program, a project must be depicted on an FAA-approved ALP.

The plan for the 20-year improvements is broken down into three phases: Phase I, present-2012; Phase II, 2013-2017; and Phase III, 2018-2027. Cost estimates are provided for information purposes. Please note: eligibility for FAA Airport Improvement Program grants or the ODA Pavement Maintenance Program funding mechanisms does not ensure funds will be available or granted for the project. All cost estimates are in 2006 dollars. Costs for avigation easements and obstruction removal are based on the Mulino Obstruction Removal Report (2005) and adjusted to 2006 dollars using the Bureau of Labor Statistic's Consumer Price Index Calculator. Total costs include construction, temporary flagging and signing, construction staking, testing, engineering, administration, and contingency, as applicable.

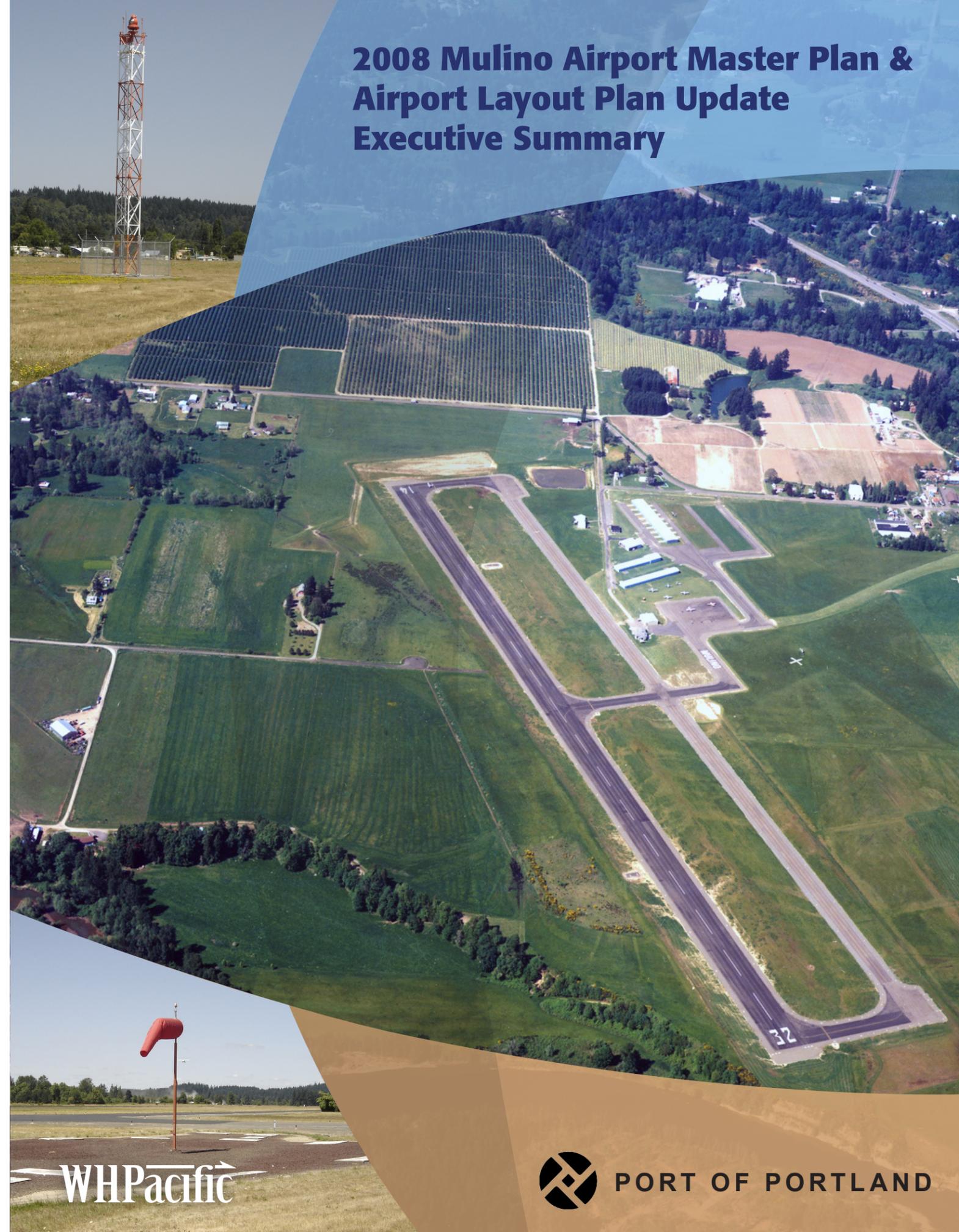
Phase I (Present – 2012) Projects			Funding Source			
	Project Description	Total Cost	Airport Owner (5%)	FAA* (95%)	ODA** (95%)	Private
2007	1 Fuel Facility Upgrade	86,000	86,000	-	-	-
	2 T-hangar Development	1,200,000	1,200,000	-	-	-
	3 Drainage Improvements	61,000	61,000	-	-	-
2008	1 Pavement Maintenance (crack and fog seal)	72,000	3,600	-	68,400	-
	2 Obstruction Removal (on Port property)	60,000	3,000	57,000	-	-
2009	1 Helicopter Landing Facility Relocation	169,000	8,450	160,550	-	-
	2 T-hangar Development (one row)	900,000	45,000	855,000	-	-
	3 Taxilane Extensions to Service New T-hangars (50' x 275'; 30' x 300'; 30' x 250')	483,000	24,150	458,850	-	-
2010	1 Easement Acquisition and Obstruction Removal (Part 77 Approach Surfaces)	447,000	22,350	424,650	-	-
2011	1 AWOS Installation	223,000	11,150	211,850	-	-
	2 Pavement Maintenance (crack and fog seal)	72,000	3,600	-	68,400	-
2012	1 T-hangar Development (one row)	900,000	45,000	855,000	-	-
	2 Taxilane Extensions to Service New T-hangars (50' x 140'; 30' x 200')	208,000	10,400	197,600	-	-
	3 Easement Acquisition and Obstruction Removal (Part 77 Transitional Surfaces)	63,000	3,150	59,850	-	-
Subtotal Phase I		\$ 4,944,000	\$ 1,526,850	\$ 3,280,350	\$ 136,800	-

Phase II (2013 – 2017) Projects			Funding Source			
	Project Description	Total Cost	Airport Owner (5%)	FAA* (95%)	ODA** (95%)	Private
1	Install REILs and Instrument Approach Lights	627,000	31,350	595,650	-	-
2	New Maintenance Building	275,000	13,750	261,250	-	-
3	Taxilane Access from Parallel Taxiway to Aircraft Storage Area (35' x 400')	198,000	9,900	188,100	-	-
4	Relocate Access Taxiway at Runway 32 Threshold (50' x 400')	692,000	34,600	657,400	-	-
5	Apron Expansion (12,500 SY)	318,000	15,900	302,100	-	-
6	Fencing Upgrade	879,000	43,950	835,050	-	-
7	Access Road (2,700')	1,206,000	60,300	1,145,700	-	-
8	Taxilane Edge Lights and Electrical Vault	421,000	21,050	399,950	-	-
9	Master Plan Update	150,000	7,500	142,500	-	-
10	Pavement Maintenance - crack and fog seal (2014 and 2017)	230,000	11,500	-	218,500	-
Subtotal Phase II		\$ 4,996,000	\$ 249,800	\$ 4,527,700	\$ 218,500	-

Phase III (2018 – 2027) Projects			Funding Source			
	Project Description	Total Cost	Airport Owner (5%)	FAA* (95%)	ODA** (95%)	Private
1	Vehicle Parking (40' x 120' approximately 15 spaces)	60,000	3,000	57,000	-	-
2	Pavement Maintenance - crack, fog, slurry seal, and overlay (2020, 2023, and 2026)	2,189,000	109,450	-	2,079,550	-
3	Conventional Hangar Development	7,290,000	-	-	-	7,290,000
Subtotal Phase III		\$ 9,539,000	\$ 112,450	\$ 57,000	\$ 2,079,550	\$ 7,290,000

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2008 Mulino Airport Master Plan & Airport Layout Plan Update Executive Summary





Executive Summary

The Mulino Airport (Airport), owned by the Port of Portland (Port) and managed by the Oregon Department of Aviation (ODA), provides facilities for general aviation activity and is located in Clackamas County.

The airport accommodates both fixed wing aircraft and helicopter operations. Activities at the Airport range from small general aviation to pilot training.

The Port and the Federal Aviation Administration (FAA) initiated a Master Plan Update project in 2006. An Airport Master Plan is a 20-year guide that outlines how the physical development of an airport can satisfy aviation demand in a safe, efficient, fiscally responsible way, while remaining compatible with the environment, community development, other modes of transportation, and other airports. The last Airport Master Plan for the Mulino Airport was completed in 1993 and will be updated every five to ten years. A FAA Airport Improvement Program funded 95 percent of the cost for this update and the Port funded the remainder.

A Project Advisory Committee (PAC) and the general public was involved throughout the planning process. Six PAC meetings, which were open to the public, along with two public open houses were held.

Major components of the Airport Master Plan include an aeronautical activity forecast, facility requirements, alternatives evaluation, and implementation plans for the preferred alternative.

Strategic Analysis

Strategic analysis determines the appropriate future role for the Airport. Through the analysis, the Airport's role within the national, state, and Portland metro area is defined. The Airport's role, activity levels, facilities, services, and development potential were compared to other airports in

the area. A survey was also distributed to airport users providing information on the Airport's future needs.

In the Strategic Analysis, the following recommendations were made:

- The Airport should continue to serve the type of aircraft it has historically served – small (maximum gross takeoff weight of 12,500 pounds), mostly single engine piston aircraft.
- The Airport should consider installing a non-precision global positioning system (GPS) instrument approach to Runway 32.
- To realize improved utilization, more landside services are needed at the Airport.

Aeronautical Activity Forecast

Forecasts serve as a basis for determining the type, size, and timing of airport improvements by providing reasonable scenarios of future aviation activity. Forecasts are, by definition, uncertain. The Airport sponsor should carefully monitor Airport growth and weigh any capital improvement decisions against multiple factors, including current demand.

Forecasts are presented as annual totals at 5-, 10-, and 20-year intervals. The forecasts were derived from reviews of historical trends, market analysis, relevant industry techniques, and other forecasts prepared for the Airport. The different components of aviation demand are projected to grow over the 20-year planning period at an annual growth rate of 0.6% for aircraft operations and 3.1% (40 to 74) for based aircraft.

Facility Requirements

Facility requirements analysis identifies facilities needed to meet projected demand, fulfill the community's vision for the Airport, and provide a safe operating environment.

Airport facility improvements can be justified for several reasons: satisfying existing or forecast demand, satisfying FAA design standards and guidelines, ensuring a well-maintained facility, enhancing

operational efficiency, promoting economic development, and enhancing security.

Major improvements needed at the Mulino Airport include the following:

Airfield

- Install Runway End Identifier Lights (REILs).
- Install of taxilane edge lights.
- Install GPS-assisted instrument approach to Runway 32 and instrument approach lighting system.
- Relocate helicopter landing area.
- Install an Automated Weather Observation System (AWOS).
- Grade and remove berm located within the runway object free area.
- Maintain access to the Airport Café and Experiment Aircraft Association (EAA) building.

Landside

- Addition of 31 additional T-hangars.
- Addition of five conventional hangars.
- Expand the tiedown apron and reconfigure to include three to four tiedowns sized for larger transient aircraft.
- Create additional vehicular parking areas.
- Fixed-Based Operator (FBO) facility reserve area.
- Upgrade security and wildlife fencing.
- Install a self-service card-lock fueling system.
- Improve access road.

Alternatives

In addition to the No-Build scenario, three alternative concepts for future Airport development were evaluated. Both airfield and landside facilities were addressed, resulting in the following:

- No-Build Alternative- Assumes maintenance of existing facilities and no expansion of airfield or landside facilities (except for facilities the Port has committed to building in 2007 as part of the management agreement with ODA).
- Alternative 1- Reflects many of the improvements in the current Airport Layout Plan (ALP) and the 1993 Master Plan (including a runway extension).

- Alternative 2- Fulfills minimum facilities projected to be needed by 2027.
- Alternative 3- Shows an off-airport airpark and plans for roads, taxiways, and hangars to accommodate growth forecasted for 2027.

Each alternative was presented with a detailed preliminary cost estimate for implementation.

An environmental overview identified possible environmental consequences of the alternatives, including the No-build option. The FAA's environmental checklist incorporates the Council on Environmental Quality's regulations for implementing the National Environmental Policy Act, as well as US Department of Transportation environmental regulations and many other Federal statutes and regulations. The review found that Alternative 3 was the most impactful, due to inconsistencies with land use zoning, farmland impact, water quality impact, and solid waste impact. Alternatives 1 and 2 had a lesser impact and were ranked 2nd and 3rd in terms of impacts, respectively. The No-Build Alternative was least impactful.

Master Plan Concept (Preferred Alternative)

Three development alternatives and No-Build were presented to the Port, ODA, PAC, and members of the public. Based on comments made at that meeting and during a six-week review period, a preferred alternative was selected. The preferred alternative, or Master Plan Concept, is based on various components of each of the alternatives presented, as well as a few additional components not previously depicted. The Master Plan Concept is the basis for the ALP, with the following components:

Airfield

- Install GPS-assisted instrument approach to Runway 32 and instrument approach lighting system.
- Taxilane extensions to serve hangar development areas, with

Summary of Preferred Mulino Airport Aeronautical Activity Forecasts

Forecast Element	2006	2012	2017	2027
Based Aircraft				
Single Engine Piston	40	50	56	71
Multi-engine Piston	0	1	2	3
Total	40	51	58	74
Aircraft Operations				
Air Taxi	100	121	141	194
GA Itinerant	22,304	17,308	19,682	25,103
GA Local	14,870	11,539	13,121	16,735
Total	37,274	28,968	32,944	42,032
Operations Fleet Mix				
Single Engine Piston	32,274	24,912	28,332	35,937
Multi-engine Piston*	400	435	329	420
Turboprop	100	145	329	420
Turbojet	0	0	0	210
Helicopters	4,500	3,476	3,953	5,044
Total	37,274	28,968	32,944	42,032
Peak Demand (Operations)				
Peak Month	4,473	3,476	3,953	5,044
Average Day/ Peak Month	144	112	128	163
Peak Hour	29	22	26	33

*Multi-engine Piston operations decline from 2012 to 2017 because their share of the operations mix declines from 1.5% to 1.0%. Their share of the operations mix stays at 1.0% between 2017 and 2027 and so the number of multi-engine operations grows from 2017 to 2027 because total operations are projected to grow.

