Chapter One: INTRODUCTION

Airport Master Plan Update

Aurora State Airport

This update to the 2000 Airport Master Plan was undertaken to assess the role of the Aurora State Airport (Airport), evaluate the Airport's capabilities, forecast future aeronautical activity for the next 20 years, and plan for the timely development of any new or expanded Airport facilities needed to accommodate future aviation activity.

The owner and operator of the Airport, the Oregon Department of Aviation (ODA), obtained and matched a grant from the Federal Aviation Administration (FAA) to fund this study. ODA has organized a Planning Advisory Committee (PAC), representing Airport users and neighbors, to participate in the planning process. In addition to six PAC meetings, public involvement in the master plan update includes a website to disseminate information and gather comments and questions, and five open houses for the general public.

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

- to summarize major issues that the Plan should address
- to identify goals for the planning process and for the future development of the Airport
- to determine the Airport's current and future role within the system of airports

GOALS

Goals for the master plan update were a subject of the first PAC meeting held on July 22, 2010. The common themes of PAC members' statements have been synthesized and are presented below.

The goals are divided between two categories – goals for the planning process and goals for the master plan itself.

Planning Process Goals

The goals for the planning process should guide the conduct of the ODA, ODA's consultants, and the PAC throughout the development of the master plan update. Planning process goals are:

- Be open-minded and proceed in good faith.

- Keep the focus more on the long-term future than the short-term future.
- Don't mix unrelated issues and don't be sidetracked by issues that don't relate to the master plan.
- Obtain high quality information for analysis and cite sources.
- Seek consensus for solutions that are acceptable, helpful, and clear.
- By the end of the planning process, establish a clear vision statement that defines what the Airport will be like in the foreseeable future (30 to 50 years) and that is overwhelmingly embraced by all stakeholders. The vision statement should encompass safety, noise, and development scale and flavor.

Master Plan Goals

The master plan goals should guide the future development of the Airport. When it is time to evaluate alternative layouts for airport development, the goals should be the evaluation criteria.

Goal 1: Enhance safety.

Safety as a goal has broad support from PAC members, airport users, ODA, and the FAA. While aviation safety is the primary concern, the Plan should enhance other aspects of safety at the Airport, including vehicular and pedestrian safety. The primary way to enhance aviation safety is to comply with FAA airport design standards and other FAA guidance. The FAA and State have standards for land use compatibility that address the protection of people around airports from aviation accidents and aircraft noise, as well as the protection of aviators. Security is another component of aviation safety, so the master plan should comply with Transportation Security Administration recommendations for general aviation (GA) airports.

Goal 2: Meet the current and projected needs of airport users, as feasible.

Some PAC members who are airport users fear that community concerns will unduly constrain the growth of the Airport to meet their needs and the needs of businesses in the Airport's service area. They note that the Airport is a significant component of the national airspace system and should fulfill its role within the system. The areas of feasibility that could restrict the Airport from growing to meet users' needs include financial feasibility, environmental feasibility, and political feasibility. The financial feasibility of airfield expansion depends primarily on obtaining FAA grant funding; airfield improvements that do not meet FAA's standards for justifying need probably will not be built. The financial feasibility of landside development (hangars, etc.) depends primarily on market demand and the availability of private financing. In normal economic times, private financing is available if the demand for the facilities truly exists. Environmental feasibility depends upon the ability to mitigate negative impacts of airport development on the natural and manmade environment. Political feasibility depends upon the adoption of the Master Plan by Marion County and on support for the Master Plan by surrounding jurisdictions.

Goal 3: Consider all the off-airport impacts of Airport development; minimize negative impacts and maximize positive impacts.

The PAC expressed several objectives that relate to this goal:

- Involve all communities and jurisdictions in the Airport's influence area.

- Protect farming and farmland.
- Protect the livability of surrounding communities.
- Evaluate and minimize the impacts of airport growth on off-airport infrastructure, including ground and air transportation, fire protection, water, and sewer systems.
- Evaluate and maximize economic benefit.
- Balance the costs and benefits of airport development.

ISSUES

Issues that the master plan update should address were a subject of the first PAC meeting held on July 22, 2010. Other sources for issue identification were ODA and an Airport user survey that was conducted in the fall of 2009. (See the appendices for a summary of the Airport user survey.) The major issues are outlined below.

Runway Extension

Some Airport users report there are times that they must lessen their airplane's weight in order to depart from the Airport. Reducing weight means fewer passengers, less cargo, or, most often, less fuel—requiring them to make more refueling stops than the range of their aircraft requires. On hot days, some operators may reschedule a flight to a cooler time of day, due to the effect temperature has on the aircraft's takeoff performance. Some Airport users and businesses favor a runway extension of up to 1,500 feet, as expressed in a public meeting. The revenue of some businesses would increase if more fuel could be sold for the constrained aircraft and if more aircraft types could use the Airport. Airport neighbors are concerned that a runway extension would unduly disrupt the area and their quality of life, and encourage more and louder aircraft.

Air Traffic Control Tower

The FAA has performed a cost-benefit analysis that justified an air traffic control tower at the Airport. ODA has been seeking funding for building and operating the tower. Some PAC members and others have expressed concern that a control tower will increase traffic and noise at the Airport. They feel that the tower needs to be vetted by the current master planning process. Many Airport users feel strongly that a control tower is needed for safety. However, some Airport users do not want a control tower at the Airport because it would change the classification of airspace around the Airport and increase the requirements for pilot communication. At this time, the FAA and ODA have slowed down a control tower siting study to make better planning decisions when considering tower location and design.

Impact of Airport Expansion on Surrounding Areas

Concerns about Airport expansion include the effects on the capacity of surrounding infrastructure and environmental impacts.

Neighboring jurisdictions fear that off-Airport roads and utility systems cannot handle increased usage from Airport growth. The Aurora Fire District is concerned about having enough equipment and people to protect expanded Airport facilities. On the other hand, Airport businesses want to be able to grow, and Airport users want utility improvements, particularly sewer service, for existing and future facilities.

For example, the lack of sewer service is a major constraint for having a restaurant at the Airport. While ODA recognizes the complexities of Oregon's land use system and potential need for upgrades to City of Aurora utilities prior to annexation, ODA is generally supportive of annexation of the Airport by the City of Aurora due to the economic growth potential for the Airport if it were connected to City services.

Airport neighbors are also concerned about noise and other possible Airport impacts that could degrade the rural character, quality of life, and natural environment of the area.

Calm Wind Runway Change

When winds are calm, pilots are advised to use Runway 35 (northerly traffic flow) to reduce noise impact on surrounding areas. However, the favored instrument approach is to Runway 17 (southerly traffic flow), which results in conflicting traffic patterns and safety concerns. Several Airport users support designating Runway 17 as the calm wind runway, as it once was. Noise impact would move with the traffic, a concern for Airport neighbors. Residents from the Charbonneau area report the calm wind runway has never lessened their noise exposure, so reverting the calm wind runway is not a major concern.

Precision Instrument Approach

Business aviators especially would like to see the Airport's instrument approach capability upgraded from nonprecision to precision. A precision approach would allow them to land in lower visibility conditions. A precision approach could change the size of some FAA-required safety clearances, particularly at runway ends, which might affect Airport neighbors.

Helicopter Operations

Aurora State Airport has a large number of based and transient helicopter operations. Helicopters operating close to small fixed wing aircraft can be a concern, because of the potential damage to the fixed wing airplanes from rotorwash. Currently, most helicopters takeoff and land on tenant or private property. An area available to the public for the takeoff, landing, and parking of helicopters on ODA land may be needed. Airport users and businesses are likely not to agree on a location or need for a new public helicopter area.

Other Airport Improvements

Suggestions for Airport improvements have been made through the Airport user survey and interviews. These suggestions include internal road improvements, a run-up area for Runway 17, improved runway lighting, a restaurant, and radar/approach control coverage in the area. These improvements are not contentious, and will be analyzed later in the planning process, along with improvements resulting from the analysis of Airport capacity vs. demand, FAA design standards, TSA guidance, and industry standards. The PAC, Airport users, and others will have the opportunity to review the full range of Airport improvements that ODA considers in this Master Plan Update.

AIRPORT ROLE ANALYSIS

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

Aurora State Airport's Role within the National System

The Airport is identified by the Federal Aviation Administration (FAA) as one of 2,564 General Aviation (GA) facilities nationwide 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 minutes drive time) from another NPIAS airport. Aurora State Airport meets the based aircraft criteria; however, the Airport is within 13 miles (approximately 19 minutes drive time) of another NPIAS airport (Mulino State). This closer than 20-mile spacing of NPIAS airports is not unusual in urban areas where it is justified by the need for additional airport capacity.

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 95% of GA airport eligible costs. Eligible costs include planning, development and noise compatibility projects. As part of receiving AIP grants, the ODA must accept all conditions and obligations under the FAA grant assurances. In general, such assurances require ODA 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.

Aurora State Airport's Role within the State of Oregon's System

The Oregon Aviation Plan 2007 (OAP 2007) classifies the Airport as a Category II, Urban General Aviation Airport. A Category II airport supports all general aviation aircraft and accommodates corporate aviation activity, including business jets and helicopters, and other general aviation activity. The primary users of these airports are personal and business related, and the airports serve a large geographic region. Key performance criteria associated with these airports are a FAA Airport Reference Code of C-II[1], minimum runway size of 5,000 feet by 100 feet, a precision instrument approach, and full service fixed base operations (FBOs).[2]

[1] Generally, this means the airport is designed to handle medium-sized business jets.
[2] A full-service FBO is a business that provides a wide range of services, such as fuel sales, aircraft repair and maintenance, hangar and tiedown rentals, aircraft charters and rentals, flight training, and amenities for pilots and passengers.

Aurora State Airport's Regional Role

The Airport is an important GA airport serving the Portland metropolitan area and the northern Willamette Valley. It has a convenient location with direct access to Interstate 5. Virtually all types of GA activity occur at the Airport, which is home to multiple businesses offering an array of aviation services. The Airport provides significant economic benefit to the region. The OAP 2007 reported 781 jobs at the Airport, and the total number of jobs attributed to the Airport is 2,469 when direct off-airport and "spin-off" (multiplier) effects are included. Annual wages for these jobs amount to $59,326,000. Annual business sales, aviation and non-aviation related, total $147,862,000.

Efforts to understand more about how the Airport is used and by whom included reviewing the Airport user survey responses, interviewing FBOs in the region, analyzing the geographic location of airport users, and evaluating airports with service areas that overlap the Airport's.

Airport Use According to User Survey and FBO Interviews

The recent Airport user survey shows the Airport is used mostly for business[3]. Over 55% of survey participants reported using the airport for business purposes. Other uses were recreational (41%), training (18%), emergency (4%), and other (14%). The other uses cited included personal transportation and inspection work for a telephone/broadband utility.

Forty-nine of 61 respondents indicated that they own or fly an aircraft and the other 12 respondents do not. About two-thirds of the aircraft used by respondents were small, single engine piston aircraft, such as the Cessna 172. The remainder included helicopters, multi-engine piston and turboprop aircraft, and business jets.

About one-fourth of survey respondents do not base their aircraft at Aurora State Airport. Their aircraft are based at airports within and outside of the region: Corvallis, Hubbard (Lenhardt Airpark), Troutdale, Medford, La Grande, Newburg (Sportsman Airpark), Sunset Airpark, Hillsboro (Stark's Twin Oak), Scappoose, San Jose (CA), Eugene, and Salem. Those who do not keep an aircraft at the Aurora State Airport indicated why they do not. Most cited inconvenient location (67%). Other reasons were the cost of a hangar (25%), lack of a suitable hangar (17%), and inadequate runway length (8%).

FBOs at surrounding airports were contacted to ask how they use the Aurora State Airport. Four FBOs responded, from Hillsboro Airport, McMinnville Municipal, Scappoose Industrial Airpark, and Troutdale Airport. Their use of the Aurora State Airport is limited to picking up or dropping off charter clients. The aircraft used for these operations range from Twin Commanders to a Gulfstream IV. They do not see the Airport as a reliever to Portland International now. The Airport might become a reliever if certain improvements were undertaken--runway lengthening and strengthening, increased hangar availability, auto parking, and improved instrumentation for poor weather operations. The possibility of reliever status will be discussed later in this chapter. When asked about the potential air traffic control tower,

[3] The Airport User Survey was not intended to be a statistical representation of airport users. Surveys were distributed through the project website, project meetings, and at local FBOs (Aurora State, Mulino State, Troutdale, McMinnville, Hillsboro and Scappose).

all reported the tower would be a good safety enhancement, but that their use of the Airport would likely remain unchanged. One FBO operator indicated their operations might decrease if there were a tower, since operations into and out of Aurora State Airport are efficient now, and having air traffic controllers sequencing aircraft would reduce this efficiency.

Analysis of Airport Service Area and Other Airports in the Service Area

To determine better who uses the Airport, the mailing addresses of aircraft owners who have used the airport for Instrument Flight Rules (IFR) arrivals and departures were analyzed. While more Visual Flight Rules (VFR) operations than IFR operations occur at the Airport, records of the aircraft performing VFR operations are not available. However, IFR data alone suffice to determine how far the Airport's service area extends. This is because IFR flight occurs more often in larger, higher performance aircraft than VFR flight.[4] Pilots who typically fly by VFR in small aircraft can choose among multiple airports with facilities and services adequate for their needs, and will often base their airplanes at the airport that is closest to home. Owners of higher performance turboprop and jet aircraft have fewer airports to choose from, since they need a longer/stronger runway, instrument approach, jet fuel, larger hangar, more security, and/or other features not every GA airport has.

For a two-year period, between October 2007 and October 2009, the Airport hosted 14,186 IFR operations, a combination of arrivals and departures (FlightAware). Aircraft based at Aurora and transient aircraft based at other airports performed these operations. The aircraft owners' addresses were unknown for 9% of the total operations. For the 12,848 operations with known aircraft owner addresses, the zip codes were analyzed.[5]

Of the owners of aircraft conducting IFR operations, 77% have addresses in Oregon, 8% in Washington, 4% in California, and 11% in 42 other states. Of the Oregon addresses, about one-third were outside the Portland-Salem region (Aurora State Airport was the trip destination). About two-thirds of the Oregon addresses were within a 30-mile radius of the Airport (Aurora State Airport was the trip origin). The addresses within 30 miles of the Airport were distributed as follows:

- 20% within 10 miles of Aurora:
  - 10% Aurora[6]
  - 5% Canby
  - 2% Tualatin
  - 3% Hubbard, Wilsonville, Woodburn, and Sherwood
- 39% between 10 and 20 miles from Aurora:
  - 17% Portland (south part)
  - 16% Lake Oswego
  - 2% West Linn

[4] Air taxi and corporate aircraft pilots usually fly IFR, due to regulatory requirements or company policy. In addition, the additional equipment and training expense for IFR flight is more often associated with more expensive, higher performance aircraft.

[5] Distances between zip codes were determined using xionetic.com.

[6] 2% of these aircraft are owned by Columbia Helicopters, which operates from facilities at Aurora State Airport, but their office in downtown Portland is listed as the aircraft owner's address.

    - 4% Beaverton, Molalla, Oregon City, Dayton, Dundee, Hillsboro (south part), Lafayette, Newberg, Milwaukie, Tigard, and Silverton
- 6% between 20 and 30 miles from Aurora:
    - 4% Portland (north part)
    - 2% Boring, Brightwood, Eagle Creek, Estacada, Fairview, Gresham, Sandy, Troutdale, Happy Valley, Hillsboro (north part), McMinnville, Salem

From this analysis, it appears that the Airport's core service area is within 20 miles (about 30 minutes driving time), but the service area extends up to 30 miles (about 45 minutes driving time). **Exhibit 1A** shows the area within 45 minutes driving time from the Airport, which represents the maximum extent of Aurora State Airport users. The airports within 45 minutes driving time from Aurora State Airport have service areas that overlap the Airport's service area. To help understand the regional role of Aurora State Airport, the characteristics of these "competing" airports were examined and compared to the Airport. The Airport's maximum service area covers portions of Clackamas, Marion, Multnomah, Washington, and Yamhill Counties, as well as Clark County in Washington and contains 46 airports.

Table 1A presents information about the 46 airports in order of vehicular drive time from the Airport. The information includes drive time and distance from the Airport, ownership and use, FAA and State status, numbers of based aircraft and aircraft operations, runway size, approach data, and the availability of fuel. Information sources were FAA Form 5010 Airport Master Records[7] and the OAP 2007.

[7] Found at: http://www.gcr1.com/5010Web/


Victoria
Seattle
WASHINGTON
Portland
OREGON
Boise City
Miles
0 200 400
N
W E
S
Battle Ground
Clark County
Mount Vista
Salmon Creek
Orchards
Vancouver
Pearson Field
Camas
Washougal
Portland International
Troutdale
Forest Park
Sunset Air Strip
Olinger Airpark
Hillsboro
Washington County
Forest Grove
Portland
Multnomah County
Gresham
Harvey's Acres
Aloha
Beaverton
Happy Valley
Krueger
Boring
Flying K Ranch
Bar J Ranch
Stark's Twin Oaks Airpark
Tigard
Lake Oswego
Bruce's
Meyer Riverside Airpark
Ribbon Ridge
Sherwood
Oregon City
Eagle Nest Ranch
Fairways
Nielson
Chahalem Airpark
Stan Jost
Aeroacres
Parson Landing
Warner's
Beaver Oaks
Wilsonville
Newberg
Dundee
Sportsman Airpark
Skyhill
Yamhill County
Canby
Dietz Airpark
Clackamas Co
Lafayette Airstrip
Aurora State Airport
McGee
Compton
Mulino State
McMinnville
Workman Airpark
McMinnville
Lenhardt Airpark
Marion County
Woodburn
Skydive Oregon
Molalla
Sheridan
Yamhill County
Harchenko Industrial
Mount Angel
Hollin
Smith Private
Keizer
Silverton
Lusardi Field
Hayesville
Fly 'N' W
Blue Skies Farm
Salem
Iron Crown
Four Corners
Dallas
Salem McNary
Polk County
Monmouth
Wagoner
Flying E
Stayton
Exhibit 1A
Maximum Service Area Map
Service Area
(45-minute drivetime zone)
Miles
0 5 10 15 20
Map Compiled by:
WHPacific, Inc.
August 2010
WHPacific
Notes: Service area determined using Microsoft Streets and Trips "create drivetime zone" tool, saving a jpeg, georeferencing the jpeg using ESRI "Streets" layer, and digitizing the polygon.
Background Map Source: ESRI, "Streets," August 17, 2010, Copyright: 2009 ESRI, AND, TANA, UNEP_WCMC, http://www.arcgis.com/home/group.html?q=tags:ArcMap93_Base&t=group&owner=esri&title=ESRI%20Maps%20and%20Data&sortField=title&sortOrder=asc&content=all.
C:\Documents and Settings\phansen\Desktop\Oregon\GIS\MXD

Table 1A. Information about Airports in the Region

AIRPORT NAME	ID	Drive Time	Distance & Direction	Ownership/ Use	NPIAS?	Oregon Cat.	Based Aircraft	Annual Ops	ARC	Rwy Type[8]	Rwy Length/Width	Rwy Alignment	Approach[9]	Fuel
Aurora State	UAO	0	0	State/Pub	Y	II	432	87,345	B-II	A	5004 x 100	17/35	Nonprec	Y
Compton	44OR	8	2.4 nm SE	Pvt/Pvt	N	-	3	0	-	T	2000 x 60	09/27	Visual	N
McGee	67OR	9	3.7 nm W	Pvt/Pvt	N	-	2	0	-	T	1960 x 90	16/34	Visual	N
Workman Airpark	OR41	10	4.9 nm SE	Pvt/Pvt	N	-	27	0	-	T	2240 x 100	07/25	Visual	N
Dietz Airpark	OR40	14	5.1 nm E	Pvt/Pvt	N	-	49	0	-	T	2640 x 60	16/34	Visual	N
Lenhardt Airpark	7S9	15	4.2 nm S	Pvt/Pub	N	IV	109	6,000	-	A	2956 x 45	02/20	Visual	Y
Meyer Riverside Airpark	OG34	18	9.5 nm N	Pvt/Pvt	N	-	4	0	-	T	1585 x 100	16/34	Visual	N
Mulino State	4S9	19	7.8 nm E	State/Pub	Y	IV	43	21,300	B-II	A	3425 x 100	14/32	Visual	Y
Flying K Ranch	OR00	20	12.2 nm N	Pvt/Pvt	N	-	4	0	-	T	1700 x 20	07/25	Visual	N
Sportsman Airpark	2S6	23	8.3 nm W	Pvt/Pub	Y	IV	51	11,650	-	A	2755 x 50	17/35	Visual	Y
Aeroacres	OG30	24	8.1 nm NE	Pvt/Pvt	N	-	3	0	-	T	1800 x 250	04/22	Visual	N
Harchenko Industrial	OR38	25	12.2 nm SW	Pvt/Pvt	N	-	6	0	-	A	2290 x 75	07/25	Visual	N
Fairways	OG20	27	10.2 nm NE	Pvt/Pvt	N	-	31	0	-	T	2900 x 160[10]	16/34	Visual	N
Nielson	2OR0	28	12.1 nm NE	Pvt/Pvt	N	-	4	0	-	T	1150 x 50	09/27	Visual	N
Harvey's Acres	OR28	28	12.8 nm NW	Pvt/Pvt	N	-	1	0	-	T	2100 x 100	E/W	Visual	N
Hollin	7OR7	30	13.0 nm SW	Pvt/Pvt	N	-	1	0	-	T	1750 x 80	16/34	Visual	N
Bruce's	07OR	31	12.2 nm NE	Pvt/Pvt	N	-	1	0	-	T	1200 x 100	17/35	Visual	N
Parson Landing	7OR9	31	13.4 nm E	Pvt/Pvt	N	-	1	0	-	T	1300 x 50	06/24	Visual	N
Skydive Oregon	OL05	31	8.8 nm SE	Pvt/Pvt	N	-	16	0	-	A	2900 x 32	18/36	Visual	N
Stark's Twin Oaks Airpark	7S3	31	13.1 nm NW	Pvt/Pub	N	V	108	22195	-	A	2465 x 48	02/20	Visual	Y
Stan Jost	74OR	31	11.5 nm NW	Pvt/Pvt	N	-	1	0	-	T	1300 x 80	15/33	Visual	N
Smith Private	29OR	32	15.2 nm SW	Pvt/Pvt	N	-	1	0	-	T	2500 x 70	16/34	Visual	N
Happy Valley	OL03	34	16.6 nm NE	Pvt/Pvt	N	-	2	0	-	A	2264 x 25	16/34	Visual	N
Lusardi Field	4OR7	34	17.4 nm SW	Pvt/Pvt	N	-	8	0	-	T	2200 x 60	17/35	Visual	N
Salem McNary	SLE	34	22.5 nm SW	Pub/Pub	Y	I	185	52,976	C-II	A	5811 x 150	13/31	Prec	Y
Chehalem Airpark	17S	34	12.8 nm W	Pvt/Pub	Y	IV	22	12,500	-	A	2285 x 40	07/25	Visual	N
Blue Skies Farm	OR87	35	18.1 nm S	Pvt/Pvt	N	-	1	0	-	T	1345 x 45	01/19	Visual	N
Skyhill	1OR7	37	13.5 nm E	Pvt/Pvt	N	-	1	0	-	T	2500 x 66	07/25	Visual	N
Fly 'N' W	4OR5	37	18.3 nm SW	Pvt/Pvt	N	-	2	0	-	T	1500 x 30	N/S	Visual	N
Hillsboro	HIO	37	19.2 nm NW	Pub/Pub	Y	II	213	253,847	C-III	A	6600 x 150[8]	12/30	Prec	Y
Krueger	OR72	38	22.2 nm NE	Pvt/Pvt	N	-	0	0	-	T	1300 x 150	16/34	Visual	N
Wagoner	4OR8	38	26.5 nm SW	Pvt/Pvt	N	-	1	0	-	T	1050 x 75	E/W	Visual	N
Ribbon Ridge	73OR	38	14.5 nm NW	Pvt/Pvt	N	-	1	0	-	T	1200 x 50	16/34	Visual	N
Pearson Field	VUO	40	22.9 nm N	Pub/Pub	Y	-	175	53,500	B-I	A	3275 x 60	08/26	Nonprec	Y
Lafayette Airstrip	OR90	40	15.2 nm W	Pvt/Pvt	N	-	3	0	-	T	2700 x 70	03/21	Visual	N
Portland International	PDX	41	21.7 nm N	Pub/Pub	Y	I	84	230,253	D-V	A	11000 x 150	10/28	Prec	Y
Sunset Air Strip	1OR3	41	23.0 nm NW	Pvt/Pvt	N	-	13	0	-	T	3050 x 200	06/24	Visual	N
Flying E	OR25	43	24.8 nm S	Pvt/Pvt	N	-	0	0	-	T	2300 x 45	09/27	Visual	N
Iron Crown	22OR	43	18.3 nm S	Pvt/Pvt	N	-	1	0	-	T	2000 x 50	16/34	Visual	N
Flying K Bar J Ranch	OR35	44	22.3 nm NE	Pvt/Pvt	N	-	1	0	-	T	1450 x 100	17/35	Visual	N
Warner's	20OR	44	15.3 nm E	Pvt/Pvt	N	-	2	0	-	T	2640 x 150	17/35	Visual	N
Eagle Nest Ranch	OR65	45	19.0 nm E	Pvt/Pvt	N	-	19	0	-	T	2500 x 80	12/30	Visual	N
Olinger Airpark	OR81	45	21.5 nm NW	Pvt/Pvt	N	-	13	0	-	T	2000 x 80	07/25	Visual	N
McMinnville	MMV	45	15.8 nm W	Pub/Pub	Y	II	104	63,500	D-II	A	5420 x 150	04/22	Prec	Y
Beaver Oaks	OR66	46	17.6 nm E	Pvt/Pvt	N	-	9	0	-	T	1700 x 75	15/33	Visual	N
Troutdale	TTD	47	23.9 nm NE	Pub/Pub	Y	II	145	105,020	B-II	A	5399 x 150	07/25	Nonprec	Y

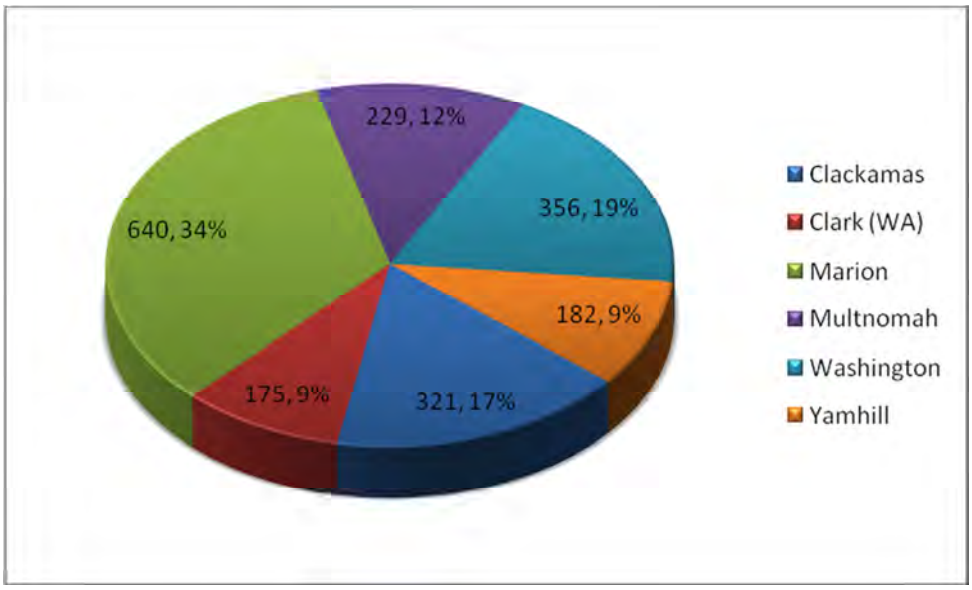
[8] A= Asphalt, T= Turf

[9] Visual = Visual approach only, Nonprec = Nonprecision instrument approach, Prec = Precision instrument approach

[10] For airports with multiple runways, largest runway data shown.

The majority of the airports in the region are privately owned and limited to private use. The 46 studied airports host 1,903 based aircraft; 73% of the aircraft are at publicly owned, public-use airports, 15% are at privately owned, public-use airports, and the remaining 12% are at privately owned, private-use airports. Only 19 airports have at least ten based aircraft. **Figure 1A** highlights each county's share of the 1,903 aircraft based at the 46 airports.

Figure 1A. Distribution of Regional Based Aircraft by County



Runway lengths at the 46 airports vary between 1,050 feet and 11,000 feet. Only 32% of the runways are paved, and only 21% of the airports have aircraft fueling capability.

OAP 2007 assigned categories to 11 of the 46 airports. Aurora State Airport and three other airports (Troutdale, Hillsboro, and McMinnville) are Category II, Urban General Aviation. Both Salem McNary and Portland International Airports are Category I, Commercial Service, airports that offer scheduled commercial airline service. Lenhardt Airpark, Mulino State, Chehalem Airpark, and Sportsman Airpark are Category IV, Local General Aviation. Category IV airports primarily support single engine GA aircraft, but are capable of accommodating smaller multi-engine GA aircraft. Stark's Twin Oaks is the only Category V airport; its primary role is to support single engine GA aircraft and provide access to remote areas or emergency service.

Few of the airports have a designated Airport Reference Code (ARC). An ARC represents an FAA-defined class of aircraft. The FAA uses ARCs to customize airport design standards for the most demanding aircraft that can use an airport. An ARC consists of a letter and a Roman numeral. The letter is the Aircraft Approach Category, determined by aircraft approach speed. The Roman numeral is the Airplane Design Group, determined by wingspan or tail height, whichever is more demanding. Below is a table that further explains the ARC components.

Aircraft Approach Category (Approach Speed)		Airplane Design Group (Wingspan / Tail Height)	
A	< 91 knots	I	< 49' / < 20'
B	91-121 knots	II	49'-79' / 20'-30'
C	121-141 knots	III	79'-118' / 30'-45'
D	141-166 knots	IV	118'-171' / 45'-60'
E	> 166 knots	V	171'-214' / 60'-66'

According to the 2000 Master Plan, the ARC for Aurora State Airport is B-II. Other B-II airports are Mulino State and Troutdale. Pearson Field's ARC is B-I. The ARCs for Salem McNary and Hillsboro are C-II and C-III, respectively. Portland International's ARC is D-V, and McMinnville Municipal's is D-II. The ARCs for the other 38 airports are not designated, but a review of the based aircraft fleet mix and runway dimensions indicates they would likely not accommodate or meet FAA standards for aircraft larger or faster than ARC B-I. Most single and twin-engine piston Beechcraft, Cessna and Piper aircraft are in ARC A-I or ARC B-I.

Seven of the airports have instrument approaches. At the other 39 airports, aircraft can only land when the weather is clear. Global Positioning System (GPS)-aided instrument approach procedures have been available for about 15 years. Since GPS approaches do not require costly ground-based equipment, such as required by traditional instrument approaches, the number of GA airports changing from visual to GPS-aided instrument runways has been growing nationwide. GPS navigation is becoming standard in GA aircraft, although most GA pilots still fly by VFR in visual meteorological conditions. Most business and corporate operators fly under IFR regardless of weather conditions, so they typically base their operations at airports with instrument approaches.

Only ten, or 22%, of the airports are eligible for federal funding due to their inclusion in the NPIAS. The other airports must rely solely on private funding. While there are many airports within the region, few have stable funding for planning and capital development. Facilities like Aurora State Airport play an important function within the region because they have viable, renewable sources of funding.

Supplemental information was gathered for the 19 largest airports--those with at least ten based aircraft. A description of these airports follows; each description provides, where possible, the following:

- The county in which the airport is located
- Total acres
- Accessibility by automobile
- Fuel services
- Instrument approaches
- Expansion potential

- Future development plans
- Hangar availability, rates, and fees
- Any other requirements

Accessibility was rated "good" if the airport is a short distance from an interstate or major highway. This information was acquired from available data on the ODA website, FAA Form 5010, and airport owner/manager interviews.

Aurora State Airport. Aurora State is located in Marion County and encompasses 144 acres (state-owned land only). It is easily accessible from Interstate 5, which runs north-south through the Willamette Valley. Aircraft maintenance, fuel services (Avgas and Jet Fuel) and flight training are among the many services offered at the Airport's three FBOs. Weather information is available from an Automated Surface Observing System (ASOS) and the Airport has GPS, instrument landing system localizer (ILS-LOC), and very high frequency omnidirectional range (VOR) approaches. The 2000 Master Plan states the ARC is B-II, indicating the most demanding aircraft with at least 500 annual itinerant operations is a Cessna Citation II or similar aircraft. Currently, there are 432 based aircraft at Aurora State. (More information on existing facilities follows in Chapter 2, *Inventory*.)

Workman Airpark Airport. Workman is a residential airpark located in Clackamas County, with 27 based aircraft. No services are available to the public. There are no plans to expand the airport or the number of hangars/homes located there. The FAA Form 5010 did not report acreage.

Dietz Airpark Airport. Dietz is a residential airpark located in Clackamas County, with good access to the Portland metro area. There are 49 aircraft based at the airport; in 2007, it was reported to have only 32 based aircraft. The FAA Form 5010 did not report acreage. There are no services available to the public.

Lenhardt Airpark Airport. Lenhardt Airpark is situated on approximately 30 acres within Clackamas County. Avgas is available for its 109 based aircraft and transient users. There is reportedly room to build additional hangars if needed.

Mulino State Airport. Mulino State is located in Clackamas County near Highway 213, and is owned and operated by ODA. Until recently, it was owned and operated by the Port of Portland. Access to the Portland metro area and Interstate 205 is good; however, direct access to Interstate 5 is poor. The airport is approximately 275 acres, with 43 based aircraft. New hangars have been constructed recently, and land is available for more hangar development. Self-service fuel is available. Mulino does not have an instrument approach.

Sportsman Airpark Airport. Sportsman Airpark is located in Yamhill County on approximately 60 acres, with good access to the Portland metro area. There are 51 based aircraft. Both Avgas and Jet Fuel are available. Land is available for hangar development and aviation-related businesses on the eastern portion of the airport.

Fairways Airport. Situated on approximately 40 acres within Clackamas County, Fairways supports 31 based aircraft. Reports have indicated this airport may be at risk of closure; however, the airport owner was not available to ask about future plans.

Skydive Oregon Airport. Skydive Oregon is located near Molalla in Clackamas County, with good access to the Portland metro area. The airport occupies approximately 42 acres. Available records show there are no services offered for the 16 based aircraft. Future plans for the airport are unknown. Aerial photography indicates there may be room for additional hangars.

Stark's Twin Oaks Airpark Airport. Stark's Twin Oaks Airpark is situated on approximately 65 acres in Washington County and has 108 based aircraft. There is good access to the Portland metro area. Avgas and maintenance services are available at this airport.

Salem McNary Field. McNary Field offers commercial airline service and is located in Marion County on 751 acres. It has 185 based aircraft, most of which are single engine. There is some development potential on the airport's south end. Records show the majority of operations are local and itinerant GA. Military aircraft accounted for nearly 4,000 operations in 2009. Access to Interstate 5 is excellent. The airport provides fuel and a variety of services. It also has precision and nonprecision instrument approaches.

Chehalem Airpark. Located in Yamhill County, Chehalem Airpark encompasses 28 acres. There are 22 based aircraft at the airport. It offers a wide range of aviation-related services such as Avgas, maintenance, aircraft rental, and charter services. It is privately-owned, but open to the public. Aerial photography indicates land is available for development.

Hillsboro Airport. The Port of Portland owns and operates the 900-acre Hillsboro Airport. The airport provides many services, such as fuel (Avgas and Jet Fuel), aircraft maintenance, flight instruction, and aircraft rental. It currently has 213 based aircraft. The airport is a designated reliever for Portland International and is experiencing a growing volume of corporate air traffic. The Airport Master Plan (2005, June) shows the Hillsboro Airport's ARC is C-III, meaning the most demanding aircraft using the airport would be a Gulfstream jet or similar. Both precision and nonprecision approaches (ILS, LOC, VOR/distance measuring equipment (DME), and NDB) are available to pilots, as well as an air traffic control tower. Access to the Portland metro area is very good along Highway 26.

Pearson Field. Pearson is the only airport within Aurora State Airport's maximum service area located outside of Oregon. It is located in Clark County, Washington, on approximately 104 acres, 73 of which are owned by the National Park Service and within the Vancouver National Historic Reserve. The airport is rich in aviation history and offers a variety of services. It has 150 GA hangars and a waiting list for those who want to hangar their airplane there. Records indicate 175 based aircraft.

Portland International Airport. Portland International Airport (PDX) is located in Multnomah County with excellent access to Interstate 5, Interstate 84, and Interstate 205. Owned and operated by the Port of Portland, it is the largest commercial service airport in Oregon. It occupies approximately

3,200 acres and in its immediate surroundings accommodates a variety of industrial and commercial uses. It hosts some GA activity and has 84 based aircraft, but focuses on airline service. The Port of Portland owns two reliever airports (Hillsboro and Troutdale) to "relieve" PDX of GA aircraft operations and maximize PDX's capacity for airline operations.

Sunset Air Strip. Sunset Air Strip is located on 14 acres in Washington County, just off Highway 26. It has 13 based aircraft. No services are available. It is a residential airpark, mostly surrounded by agricultural lands.

Eagle Nest Ranch. Eagle Nest Ranch is located in Clackamas County. Its acreage is unknown. It is a residential airstrip that appears to have recently expanded. In 2007, FAA records indicate it had 2 based aircraft; however, more recent data shows 19. Aerial photography indicates land is available for development.

Olinger Airpark. Olinger Airpark is a residential airstrip in Washington County with 13 based aircraft. There are no services available at this privately owned, private-use airport. Area for expansion is limited, based on aerial photography.

McMinnville Municipal. Located in Yamhill County, McMinnville has 104 based aircraft on 650 acres. Full services are available at this GA airport. It has both precision and nonprecision instrument approaches. Land is available for developing additional hangars. It is the home of Evergreen Aviation, which is the likely explanation for the ARC of D-II.

Troutdale Airport. Troutdale Airport encompasses 284 acres and is located in Multnomah County. It is owned and operated by the Port of Portland and is home to 145 based aircraft. It is a reliever for Portland International and attracts business and recreational GA traffic. Various services are offered for pilots, including fuel (Avgas and Jet Fuel), maintenance, aircraft rental, and flight instruction. The airport has an air traffic control tower and GPS and non-directional radio beacon (NDB) instrument approaches. The airport's Master Plan Update (2004, October) reports the ARC is B-II. The airport is located 10 miles east of PDX and has excellent access to Interstate 84.

Airport Role Conclusions and Recommendations

Aurora State Airport fits well the OAP 2007 description of an Urban General Aviation Airport. It is one of five GA airports in the region with facilities and services appropriate for business jets. The five airports are Aurora State, Hillsboro, McMinnville, McNary Field in Salem, and Troutdale. These airports are appropriately spaced to provide good accessibility to the population and businesses in the region without substantial service area overlap that might undermine the long-term viability of any of the airports.

Alternatives to continuing Aurora State Airport's Urban General Aviation role are undesirable:

- Downsizing the Airport's capability—attempting to limit it to smaller piston-powered, airplanes and recreational use--is an impractical future for the Airport. ODA would be violating grant

assurances made to the FAA, the regional airport system would have a hole that would be costly and difficult to fill, and residents and businesses in the region would suffer economically.

- Commercial service is also not an appropriate future role for Aurora State Airport. Portland International Airport has the capacity to handle commercial passenger and cargo airline activity in the region for many years to come. If commercial service grows elsewhere in the region, it will likely be at Salem, which is more suitable for commuter airline service.

The Airport has grown at a faster rate than past planning efforts expected. It has become popular for both personal and business GA use. The growth in business use is likely due to the Airport's location with access to Interstate 5, along with aggressive private development adjacent to the state-owned airport property. Considering prior investment in the Airport, its large and growing number of based aircraft, its eligibility for FAA funding, and its proven record for attracting private funding for landside facilities, it appears likely that Aurora State will remain a viable GA airport long into the future. Business aviation will probably grow more than personal and recreational aviation, but the Airport's role in the future should not change from its current role—a busy airport handling a full range of GA, including helicopters and business jets.

As business aviation and higher performance aircraft traffic grows, some owners of smaller, personal use and recreational aircraft may want to relocate to a less busy airport where the other aircraft are smaller and slower. ODA now owns Mulino State Airport, which is a short distance from Aurora State Airport. Mulino is well suited to single engine and small multi-engine piston aircraft and VFR flying. It has hangars available and sufficient land for building many more hangars should minor infrastructure constraints be addressed. If Aurora State Airport becomes overutilized and Mulino State Airport remains underutilized, ODA may be able to structure its rates and charges to achieve maximize utilization of both airports' capacities.

Aurora State Airport is not an FAA-designated reliever airport for Portland International, although it is often referred to as one. The Airport could be officially designated a reliever in the short-term future, if ODA decides to pursue the designation and the FAA agrees. However, the advantages the reliever designation once held--more AIP entitlement funding and higher priority for discretionary AIP funding--have disappeared in recent years.

FAA Order 5090.3C, *Field Formulation of the National Plan of Integrated Airports Systems (NPIAS),* explains the requirements for reliever designation. An existing public-use airport may be included in the NPIAS as a reliever airport if it substantially relieves airport congestion at a commercial service airport and provides GA access to the surrounding area. Although reliever airports are designated by thorough case-by-case reviews, general requirements are:

- A current activity level of at least 100 based aircraft or 25,000 annual itinerant operations
- An airport must have a forecasted activity level of at least 100 based aircraft or 25,000 annual itinerant operations for the period in which it is being designated as a reliever.
- The relieved airport (in this case, Portland International (PDX)):

- is a commercial service airport that serves a metropolitan area (MA) with a population of at least 250,000 persons or at least 250,000 annual enplaned passengers, and
- operates at 60% of its capacity, or would be operated at such a level before being relieved by one or more reliever airports, or is subject to restrictions that limit activity that would otherwise reach 60% of capacity.

Aurora State Airport meets the first two criteria on current activity levels. The relieved airport (PDX) also meets the first of two criteria. The 2010 Master Plan for PDX reports the FAA has set the airport's capacity upper limit at 500,000 annual operations. By 2035, PDX is forecasted to have 377,820 operations. This means that by 2035, PDX will be operating at 76% of its capacity.

PDX would be operating at 60% of its capacity now if Aurora State Airport did not exist and the operations that now occur at Aurora State were added to PDX operations. Using averages for the years 1998 through 2008 from the FAA's Terminal Area Forecast, PDX has 284,580 annual operations and Aurora State Airport has 79,953 operations.[11] Adding Aurora's operations to PDX's operations results in a total of 364,533 operations, or 73% of PDX capacity. These figures meet the last criteria needed for a proposed reliever airport.

However, the PDX Airport Layout Plan includes the addition of a third runway that would greatly increase PDX's capacity, thereby decreasing the demand/capacity utilization to less than 60%.

It is recommended that Aurora State Airport continue to fulfill its role as an Urban General Aviation Airport. The advantages and disadvantages of becoming a reliever airport should be discussed with the ODA, Port of Portland, and FAA.

[11] Eleven-year averages are used to reduce the effect of annual fluctuations. These annual numbers do not match any one specific year because they are averages.