

Chapter Two: INVENTORY

Airport Master Plan Update

Aurora State Airport

An initial step in the preparation of this Master Plan (Plan) is to collect data pertaining to the Aurora State Airport (Airport) and the area it serves. An inventory of the Airport was accomplished through physical observation of existing facilities, interviews with Airport users and business owners, Oregon Department of Aviation (ODA) staff, and a review of previous Airport studies and records.

This chapter summarizes the Airport's background, existing airfield and landside facilities, airspace, land use and zoning, environmental issues, and historical aviation activity and financial data. The information gathered as part of this initial step is the foundation for various analyses completed in the subsequent chapters of this Plan. An accurate inventory helps produce an aviation demand forecast that is reasonable and aids in identifying future facility development needs.

BACKGROUND DATA

Airport Location and Access

The Airport is situated in the heart of the Willamette Valley in Marion County, Oregon and is adjacent to Clackamas County to the north. It is located on the southern extents of the Portland metropolitan area, but resides within the Salem Metropolitan Statistical Area – as it is mid-way between Portland and Salem. The city of Aurora is located approximately one-quarter mile southeast of the Airport. **Exhibit 2A** shows a map of the region and Airport vicinity.

The majority of the County is rural and has abundant agricultural lands, making it the largest producer of agricultural products in the state of Oregon. The County's economy is also heavily dependent on government, as the state's capital is located within its boundaries.

The Airport is conveniently located adjacent to Interstate 5, which is an essential commerce link for the western United States. Access to the Airport is also provided by Highway 551 (Canby-Hubbard Highway) from the north and south, Arndt Road from the east and west, and Airport Road from Aurora. Keil Road is located south of the Airport and provides additional airport business access from Highway 551 and Airport Road.

Other transportation modes are available near the Airport. Canby Area Transit offers public transportation, with a bus stop on Main Street in Aurora. Taxi service is also available in Aurora. Amtrak train and Greyhound bus services are available in Portland.

Area Topography

A mostly rural county, Marion encompasses agricultural and recreational lands (*i.e.*, Ankeny National Wildlife Refuge, Mount Hood National Forest and Willamette National Forest). Marion County is in the central area of the Willamette River Basin, which is surrounded by the Cascade Range to the east, the Coast Range to the west, the Calapooya Mountains to the south and the Columbia River to the north. Generally speaking, the area is level with rolling hills. The Airport's elevation is 200 feet above mean sea level (MSL).

Climate

The Aurora area has mild, wet winters, and warm, dry summers. Winter temperatures generally range from 45 to 55 degrees Fahrenheit, and summer temperatures generally range from 70 to 80 degrees Fahrenheit. Annual rainfall averages 40.7 inches, with the majority of it occurring from November through March. Annual snowfall averages two inches per year. The mean maximum temperature in the hottest month (August) is 84 degrees.

Community and Airport History

Dr. William Keil founded the Aurora Colony in 1856. The colony disbanded in 1883, but the community persisted due to the people's craftsmanship, and because of the stage and rail stop bringing visitors to the town's hotel. Today Aurora is recognized as a national historic district and is known for its numerous antique dealers. According to Census records, the population of Aurora in 2009 was 1,020.

The Airport was established in 1943 and was managed by the United States Bureau of Public Roads until 1953. The State of Oregon has operated the Airport since 1953, although ownership of the land was not actually transferred from the Highways Division to the Aeronautics Division (ODA's predecessor) until 1973.

The first Airport Master Plan was prepared in 1976, followed by major improvements in 1977-78, which included construction of a parallel taxiway, installation of a rotating beacon, runway reconstruction and narrowing (to 100 feet), drainage improvements, runway lighting, and tiedown apron construction. The 1976 Plan identified the need for an air traffic control tower. In 1979, a 22-acre parcel near midfield was purchased with Federal Aviation Administration (FAA) funds, which has since been leased to private parties who constructed aircraft hangars and other facilities on the property. In 1986, another 10 acres with a small tiedown apron was purchased near midfield. A second Airport Master Plan for the Airport was completed in 1988. In 1995, the runway was lengthened from 4,104 feet to 5,004 feet and a non-precision Localizer Landing System instrument approach was added to Runway 17. In 2004, the runway was reconstructed and in 2009, the parallel taxiway was relocated to meet FAA's design standard for runway-taxiway centerline separation.

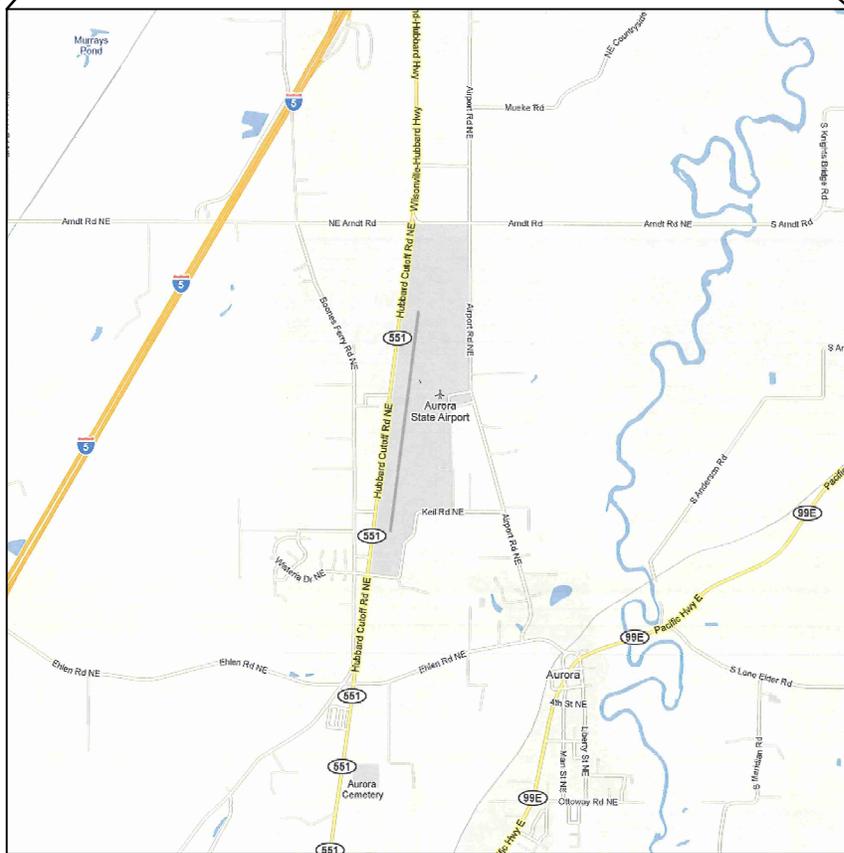
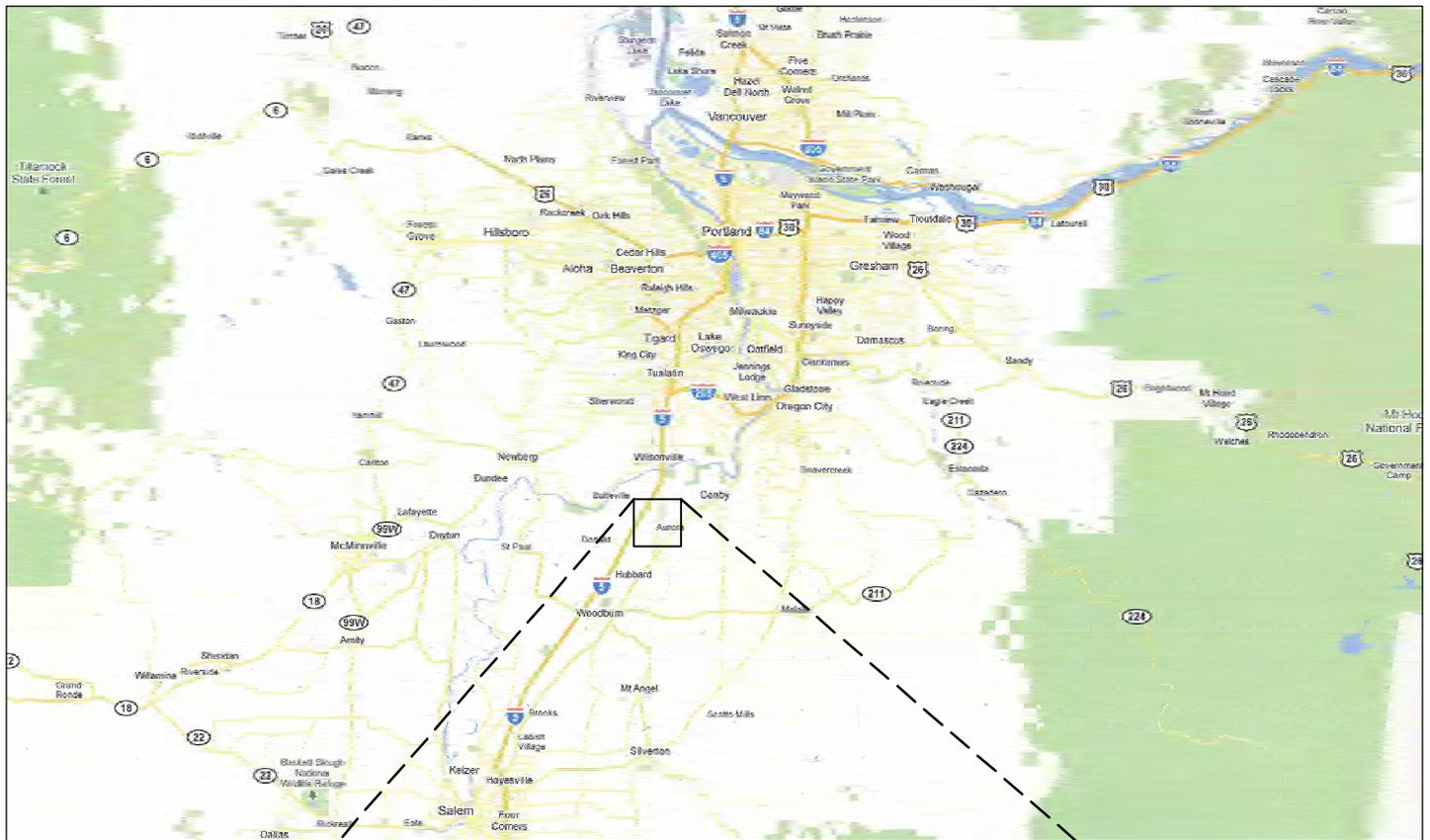


Exhibit 2A ~ Location & Vicinity Map

Aurora State Airport
Aurora, OR

August 20, 2010

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A unique public-private partnership has developed over the years at the Airport. The State's property is almost exclusively dedicated to airfield facilities (runway, taxiway, tiedown aprons, etc.), while the majority of tenants are located on adjacent private lands and access the Airport via through-the-fence agreements. This Plan will reference both "Airport Property" and "Airport Environs". Airport Property refers to the State's property owned in fee. Airport Environs encompasses the property used for airport-related activities, and includes public and privately owned property. The actual Airport fence encompasses the Airport Environs for safety and security purposes. The term through-the-fence is an FAA term used to describe aircraft accessing a public airfield from private land, and does not involve actual fences.

EXISTING FACILITIES

Existing facilities at the Airport are divided into three categories: airfield, landside, and support facilities. Airfield facilities include areas such as runways, taxiways, and aprons. Landside facilities include areas such as hangars, airport buildings, and auto parking. Support facilities include emergency services, utilities, and miscellaneous facilities that do not logically fall into either airfield or landside facilities. **Exhibit 2B** shows the existing facilities at the Airport.

Airfield Facilities

Airfield facilities include pavements used for the movement of aircraft (*i.e.*, runways, taxiways, taxilanes, aprons). In April 2008, as part of a three-year rotation, the Airport's Pavement Condition Index (PCI) was updated for those pavements located on Airport Property. The condition of the airport pavements were rated on a scale of 0-100 with 0 being an unusable paved surface and 100 reflecting a just-constructed paved surface. Generally, ratings with a PCI above 70 require only preventative maintenance in the short term, while ratings between 40 and 70 require major rehabilitation and ratings less than 40 typically require reconstruction. **Exhibit 2C** depicts the pavement condition map for the Airport. The exhibit does not show the recent Taxiway A relocation since the pavement survey was done before the taxiway project. At the time the PCI was updated, pavement sections were documented. Pavement sections describe how individual sections of pavement were constructed. In general, most pavements at the Airport consist of four inches of asphalt on top of 6-13 inches of a crushed aggregate base. **Exhibit 2D** provides a detailed graphic of the existing pavement sections at the Airport.

Runway. The Airport has one paved runway, 17/35, with the dimensions of 5,004 feet by 100 feet. The runway pavement surface is asphalt and in April 2008 was given a PCI rating of excellent. The pavement strength of the runway is rated as 30,000 pounds for Single Wheel Gear (SWG)¹ aircraft and

¹ Single Wheel Gear is the term used to describe aircraft with one wheel per strut, while Dual Wheel Gear is for aircraft with more than one wheel per strut. An aircraft's landing gear configuration and gross weight are critical components in airfield pavement design and are used to characterize pavement strength.

45,000 pounds for Dual Wheel Gear (DWG). A 150-foot blast pad is located at the Runway 35 end. The runway supports general aviation, which include private and business operators but does not include commercial (airline) operators.

Taxiways and Taxilanes. Taxiways are constructed primarily to facilitate aircraft movements to and from the runway. Some taxiways are necessary simply to provide access between aprons and the runway, and other taxiways are necessary to provide safe and efficient use of the airfield.

Runway 17/35 has a full-length parallel taxiway (Taxiway A) that is 35 feet wide. Five taxiways connect Taxiway A to Runway 17-35; Taxiway A1 is located at the Runway 17 end, and A5 is located at the Runway 35 end.

From Taxiway A, ten taxilanes lead to aircraft parking, hangars, and airport businesses. Additional taxilanes are located between hangar buildings. Taxiways and taxilanes are constructed of asphalt and have PCI ratings between 70 and 100, which is representative of pavements in very good to excellent condition. Pavement condition was not rated for taxilanes on private property)

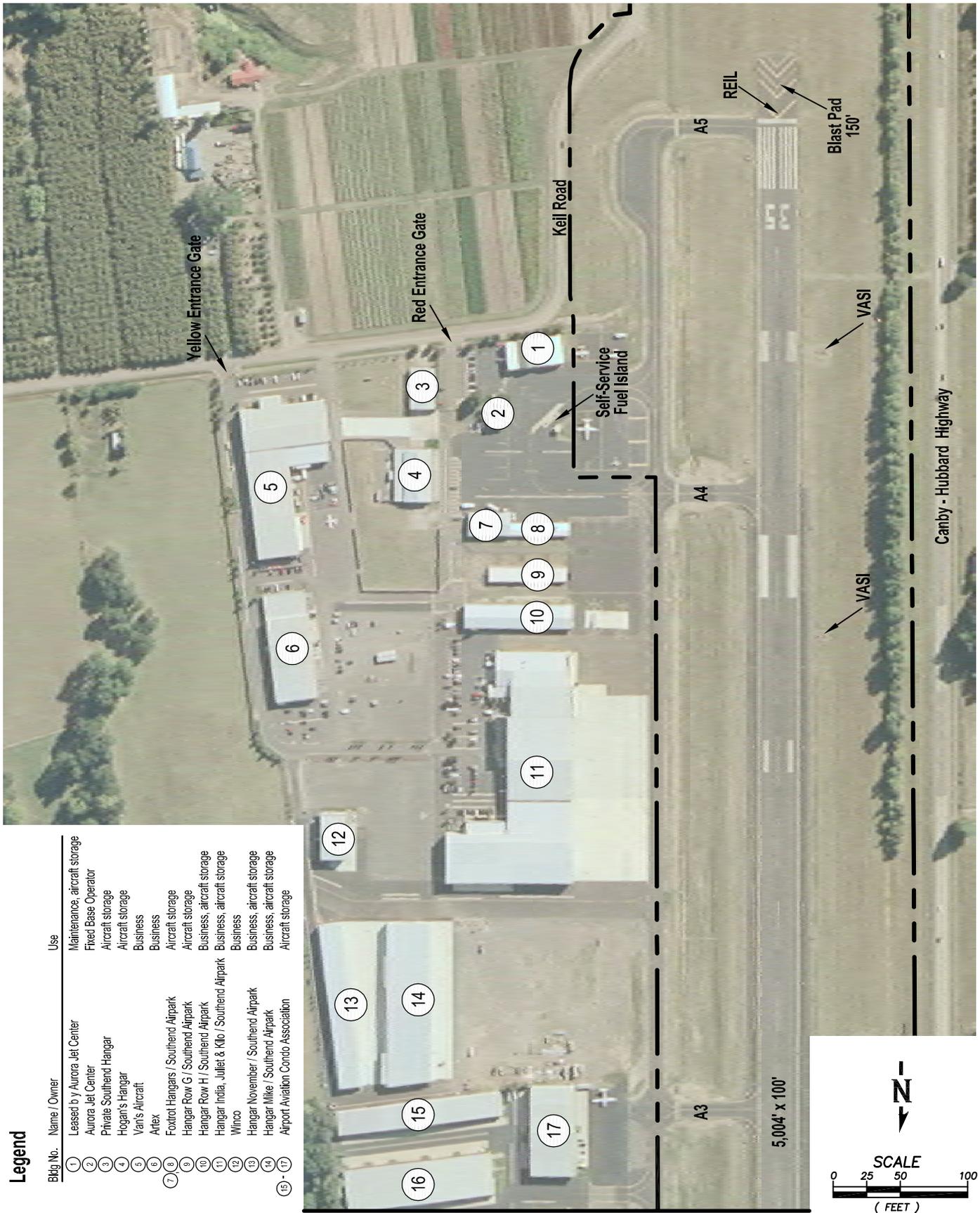
Aprons and Aircraft Parking. On state-owned property, there are 46 designated tiedown positions. On privately owned property, there are 37 designated tiedown positions with additional aprons for large aircraft parking. The 2000 Master Plan reported 180 tiedown positions; many of these were removed because of hangar construction and the taxiway relocation project. Additionally, there are two helipads on private property and a commercial helicopter operation area for Columbia Helicopters at the northeast end of the Airport.

Airfield Lighting. Airfield edge lighting systems are categorized as low, medium, or high intensity. The color of the lights is also important as it indicates to pilots where they are in the airport environment. For example, runway edge lights are white and taxiway edge lights are blue.

At the Airport, the lighting system is a medium intensity system, which is pilot controlled by keying the microphone inside of the aircraft. Edge lighting is located on the runway and parallel taxiways, while the apron and hangar taxilanes are lined with edge reflectors.

Airport Navigational Aids. Airport Navigational Aids, or NAVAIDS, provide navigational assistance to aircraft for approaches to an airport. NAVAIDS are classified as visual approach aids or instrument approach aids; the former providing a visual navigational tool and the latter being an instrument-based navigational tool. The types of approaches available at an airport are based on the NAVAIDS provided. The following sections describe existing NAVAIDS at the Airport.

Visual Approach Aids. The Airport has three forms of visual approach aids. A two-box Visual Approach Slope Indicator (VASI) is located at each runway end. VASIs give glide slope information to pilots on final approach by displaying sequences of different colored lights to maintain a safe glide slope for landing. Runway 17 has both an Omnidirectional Approach Lighting System (ODAL) and Runway End Identification Lights (REILs). The ODAL lighting system – typically associated with runways with instrument approach procedures – consists of a series of strobe lights that extends outward from the



Legend

Bldg No.	Name / Owner	Use
1	Leased by Aurora Jet Center	Maintenance, aircraft storage
2	Aurora Jet Center	Fixed Base Operator
3	Private Southend Hangar	Aircraft storage
4	Hogan's Hangar	Aircraft storage
5	Van's Aircraft	Business
6	Artex	Business
7	Foxrott Hangars / Southend Airpark	Aircraft storage
8	Hangar Row G / Southend Airpark	Aircraft storage
9	Hangar Row H / Southend Airpark	Business, aircraft storage
10	Hangar India, Juliet & Kilo / Southend Airpark	Business, aircraft storage
11	Winco	Business
12	Hangar November / Southend Airpark	Business, aircraft storage
13	Hangar Mike / Southend Airpark	Business, aircraft storage
14	Airport Aviation Condo Association	Aircraft storage
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17		

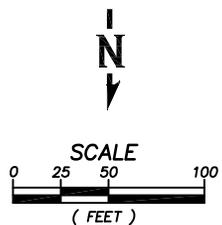


Exhibit 2B ~ Existing Airport Facilities

Aurora State Airport

Aurora, OR

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Legend

Bldg No.	Name / Owner	Use	Bldg No.	Name / Owner	Use
18	Airport Aviation Condo Association	Aircraft storage	37	Pitts Hangar	Aircraft storage
19	Aurora Aviation	Maintenance	38 - 42	Oregon Dept. of Aviation	Aircraft storage
20	Airport Aviation Condo Association	Aircraft storage	43	Wyee Condo Association	Aircraft storage
21	Airport Aviation Condo Association	Clubhouse	44	Civil Air Patrol Building	Aircraft storage
22	Meridian Condos	Business	45	Sunset Helicopters	Business
23	Pacific Coast Aviation	Business	46	Aerometal	Business
24	Oregon Dept. of Aviation	Aircraft storage	47	Willamette Aviation Fuel Facility	Aircraft storage
25	Oregon Dept. of Aviation	Aircraft storage	48	Willamette Aviation	Fixed Base Operator
26	Columbia Helicopters	Maintenance	49	Willamette Aviation T-Hangars	Aircraft storage
27	Aurora Aviation	Fixed Base Operator	50	Fire Suppression Tanks	Fire Suppression
28			51		
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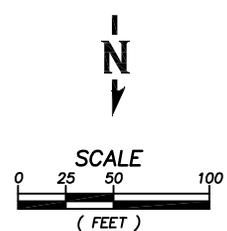
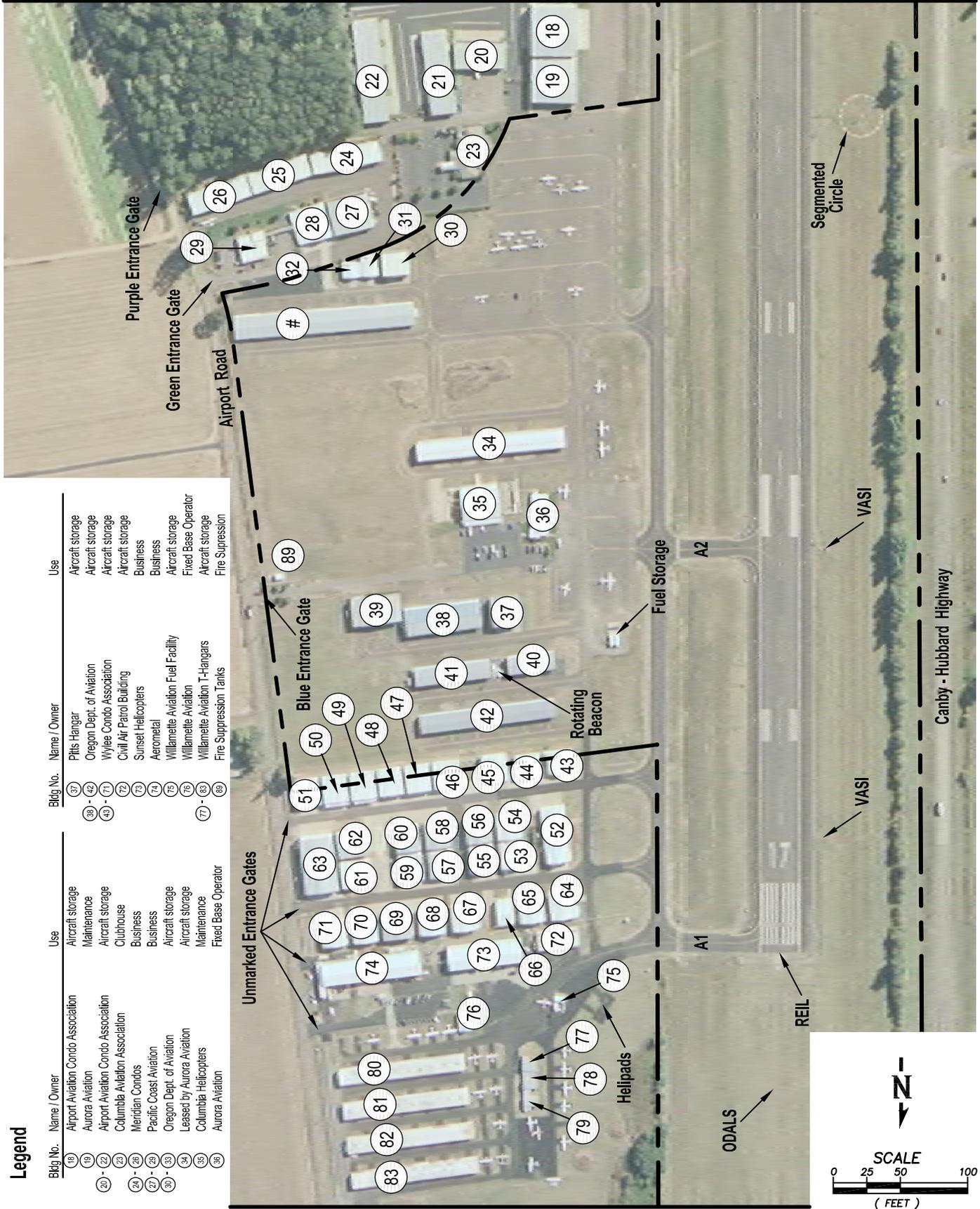


Exhibit 2B ~ Existing Airport Facilities
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Matchline



Legend

Bldg No.	Name / Owner	Use
84	Marlow Treit	Aircraft Storage
85	Columbia Helicopters	Business
86	Fire Suppression Tanks	Fire Suppression

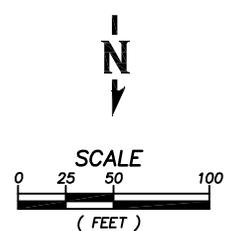
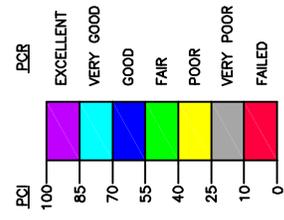
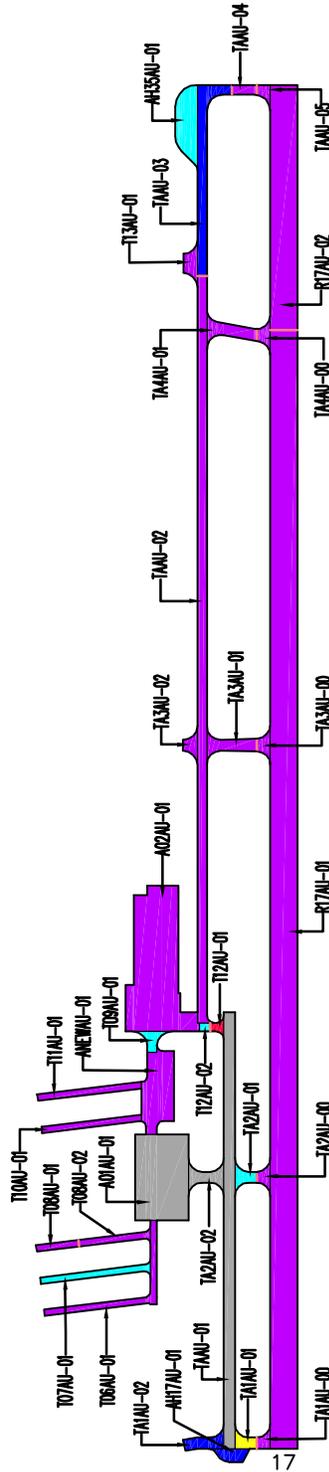


Exhibit 2B ~ Existing Airport Facilities
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Figure AU-3. Pavement Condition in April 2008.
Aurora State Airport



 PAVEMENT CONSULTANTS INC.

Drawing Date: April 2008

Exhibit 2C ~ Pavement Condition Map

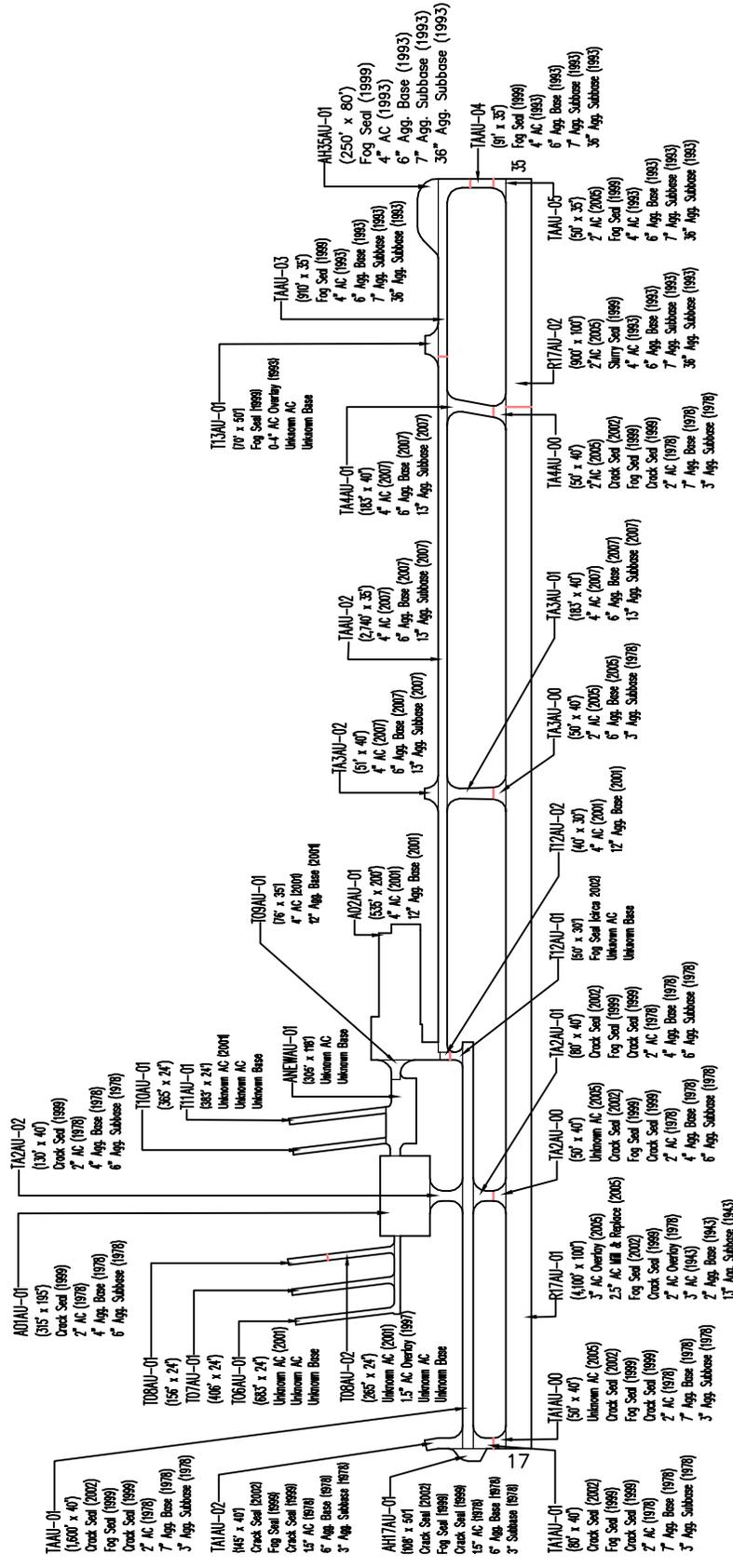
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Figure AU-1. Airport Layout, Dimensions and Pavement Cross-Sections.
Aurora State Airport



runway end and allows pilots to visually identify the runway environment. REILs are located at the Runway 17 threshold to provide rapid and positive identification of the runway end.

Instrument Approach Aids. Both Runway 17 and 35 have instrument approach procedures, which can be used when the visibility and cloud ceiling are below minimums for Visual Flight Rules (VFR) conditions. **Table 2A** details the approaches available at the Airport.

Additionally, the HELNS FOUR Standard Terminal Arrival (STAR) is available for pilots arriving at the Airport. A STAR is a published procedure followed by aircraft on an Instrument Flight Rules (IFR) flight plan just before reaching the Airport. Special departure procedures apply for aircraft departing the Airport during instrument conditions, as well.

Table 2A. Instrument Approaches and Approach Minima

Approach Name ²	Runway End Serviced	Approach Minimums	
		Ceiling (feet)	Visibility (statute miles)
RNAV (GPS)	17	400	1 ¼
	35	500	1
RNAV (GPS)-B	17 and 35	500	1
LOC	17	400	1
VOR/DME-A	17 and 35	500	1

Other NAVAIDS. There is a lighted wind cone and segmented circle located west of the runway at the midfield point. A rotating beacon is located east of the runway between buildings 40 and 41, as shown on Exhibit 2B. An Automated Surface Observing System (ASOS) provides real-time weather information.

Landside Facilities

Hangars and Other Buildings. On the Airport Environs there are 89 buildings. On public property there are 14 buildings: five T-hangar buildings, seven conventional / multiple-aircraft hangars, and two other buildings (fixed base operator and fire suppression facility). On private property there are 75 buildings: six T-hangar buildings, 51 conventional / multiple-aircraft hangars, and twenty other buildings (businesses, office space, etc.). Below **Table 2B** lists those buildings, their ownership, and usage.

Aviation Services. A fixed based operator (FBO) is an individual or a business that offers aviation-related services such as flight instruction, aircraft rental, aircraft maintenance, hangar/tiedown storage,

² RNAV (Area Navigation) is a method of navigation that allows aircraft to choose any course within a network of navigation beacons, rather than navigating directly to and from the beacons. GPS (Global Positioning System) is a space-based global navigation satellite system. LOC (Localizer) is an approach type that provides runway centerline guidance to aircraft. VOR/DME (very high frequency omnidirectional radio range / distance measuring equipment) is a type of radio navigation system.

and aircraft fueling to Airport users. There are currently three FBOs at the Airport: Aurora Aviation, Aurora Jet Center, and Willamette Aviation Service.

Table 2B. Building Ownership and Use

Land Ownership	T-Hangar Buildings ³	Conventional / Multiple-Aircraft	Other (business, office, etc)	Total
Public (ODA)	5	7	2	14
Private	6	51	18	75
Total	11	58	20	89

Airport Access and Vehicle Parking. There are multiple access points to the Airport. Exhibit 2B depicts these locations. A colored gate system has been employed by private businesses at the Airport to assist in emergency response and advertisement. These gates are also depicted on the exhibit. Businesses must offer adequate parking for employees and customers. Individual tenants park adjacent to or in their hangars while flying; some parking lots are available for their use, as well.

Airport Support Facilities

Emergency Services. The Aurora Rural Fire Protection District provides fire protection. A 500,000-gallon fire suppression system was recently installed to assist the District in protecting the Airport. The Marion County Sherriff Department and Oregon State Police provide emergency services.

Airport Maintenance. Airport maintenance is provided by ODA. Mowers, trucks, and other maintenance equipment are stored at their office/maintenance building in Salem. ODA has recently begun to utilize the services of the Oregon Department of Transportation (ODOT) for a majority of the mowing that occurs at the Airport. ODA provides snow removal services.

Airport Fencing. Fencing surrounds the perimeter of the Airport Environs. All access points are gated, although not all are automated. The non-automated gates sometimes remain open during normal business hours.

Utilities. Utilities and public services provided at the Airport include:

- Water – Individual well system
- Sanitary Sewer – Individual drain field / septic tank systems
- Telephone – Local franchise companies
- Electricity – Portland General Electric

³ Multiple aircraft are stored in each T-Hangar building.

Surrounding communities have expressed concerns that additional growth at the Airport and the potential for Airport expansion will have negative impacts upon their water supplies and/or water quality. Advanced planning and feasibility assessments regarding the Airport's ability to meet water, sewer, and fire protection needs for development and expansion are of concern. While not required as part of the Airport Master Plan Update and not included in this document, the ODA recognized the importance of completion of this work in the future. ODA is supportive of pursuing funding options for such studies and supports surrounding communities in their support of funding such studies.

Airport Signage. Guidance signs to the Airport are located on Interstate 5, Highway 551, Arndt Road, Airport Road, and Keil Road and are maintained by ODOT. The colored gate system also provides signage to individual businesses.

Other Support Facilities. There are no restaurants on Airport; however, food service trucks are regularly located at the Airport. Additionally, Langdon Farms and the Cities of Aurora and Wilsonville offer restaurant options. Aurora offers public transportation, lodging, and tourism activities within walking distance of the Airport.

AIRSPACE

The FAA is responsible for the control and use of navigable airspace within the United States. Aircraft in flight, whether approaching or departing an airport, are subject to varying degrees of FAA control depending on location and meteorological conditions. These levels of control are called airspace classes. The alphabet characters A through G distinguish classes. Each class has its own unique shape and rules that govern such things as visibility minimums and cloud clearances.

The Airport is located in Class G airspace. Class G airspace is considered uncontrolled airspace in that pilots are not required to communicate with air traffic controllers; however regulations regarding visibility minimums and cloud clearances still apply. The Airport's airspace is depicted on the Seattle sectional chart (see **Exhibit 2E**). The Airport is located south of Portland International Airport (PDX) and northeast of Salem McNary Field. Several private airports are also in the surrounding area. The Airport's location is such that it lies underneath two Victor Airways (V165 and V500), which are "highways in the sky." A Victor Airway is a corridor of protected airspace defined by radio navigational aids. In the case of the Airport, the Victor Airways (depicted with semi-transparent blue lines on Exhibit 2E) lead to PDX, making over flying traffic a common occurrence.

Traffic flows at the Airport are standard, left-hand patterns. Pilots are to fly the patterns at 1,000 feet above ground level (1,200 feet mean sea level). In 2002, ODA commissioned an airport noise mitigation study that recommended Runway 35 be designated the calm wind runway, to avoid frequent operations over noise-sensitive residential properties. ODA reports that complaints from neighboring Aurora have dropped since this designation was enacted, although complaint levels from the north have remained at a consistent level. There have been complaints by users that this scenario creates unnecessary conflicts

between VFR traffic (landing northbound) and IFR traffic flying approaches to Runway 17 (landing southbound) during visual meteorological conditions.

LAND USE PLANNING AND ZONING

The following land use and zoning discussion focuses on four areas:

- Airport Environs zoning and land use.
- Surrounding area zoning and land uses.
- Protection of airport airspace to prevent hazards and land uses that may interfere with the safety of aircraft operations.
- Ownership/control of Airport runway protection zones to enhance the safety of people and property on the ground.

Federal, State, Regional, County, and City land use regulations need consideration when reviewing existing land uses for airport compatibility and when planning for future development at and around an airport.

Federal regulations are also concerned with airspace protection (14 CFR Part 77) and noise levels, particularly for areas that fall within the 65-decibel (dBA) noise contour line. 14 CFR Part 77, *Objects Affecting Navigable Airspace*, establishes obstruction standards used to identify potential adverse effects to air navigation and notice standards for proposed construction. Imaginary surfaces are the basis for protecting the airspace around runways. There are five imaginary surfaces: primary, approach, transitional, horizontal, and conical. Definitions of each imaginary surface will be discussed in a later chapter. These surfaces should be kept clear of all obstructions.

FAA guidelines state that before FAA grants can be received the Airport Sponsor must provide assurances that appropriate actions have been (or will be) taken, to the extent reasonable, to restrict the use of land adjacent to or in the immediate vicinity of the Airport to those that are compatible with normal airport operations.

Existing Airport Environs Zoning and Land Use

The entire Airport Environs is zoned as “Public” in the Marion County Zoning Code (see **Exhibit 2F**). Marion County is the planning and building permit authority for the Airport. The Airport’s existing zoning classification partially complies with Oregon Revised Statutes (ORS) 836.600 through 836.630, Local Government Airport Regulation. The county has adopted airport overlay imaginary surface protection which mirrors Part 77 imaginary surfaces. However, Marion County has not adopted the standards of ORS 836.616 which authorizes certain airport uses and activities to occur at the Airport.

Clackamas County and Aurora have both enacted Airport Overlay Zones as required by ORS 836.600 through 836.630.



Exhibit 2E ~ Airspace

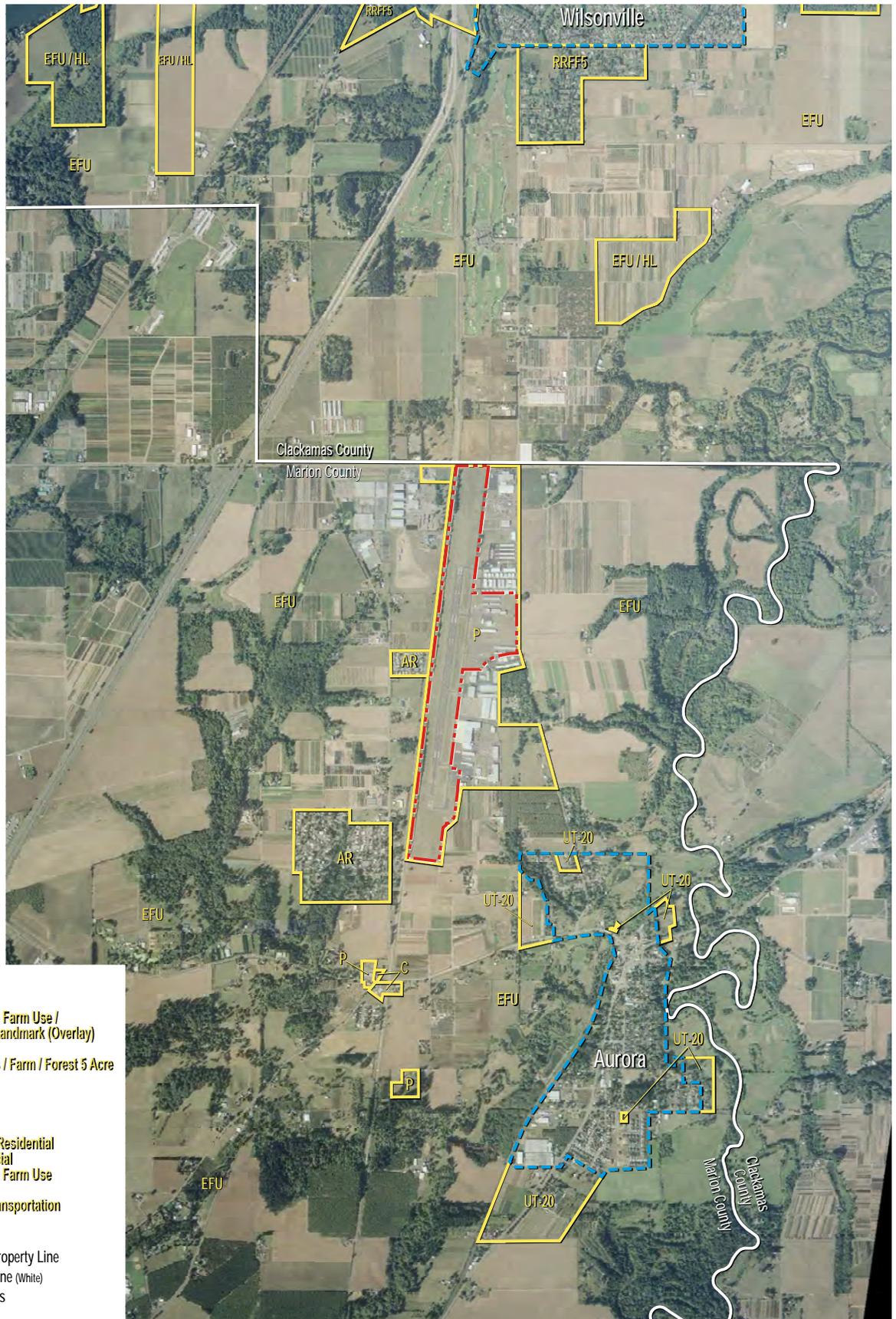
Aurora State Airport

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Clackamas Co Zoning

- EFU / HL Exclusive Farm Use / Historic Landmark (Overlay)
- RRFF5 Rural Res / Farm / Forest 5 Acre

Marion Co Zoning

- AR Acreage Residential
- C Commercial
- EFU Exclusive Farm Use
- P Public
- UT-20 Urban Transportation

- Airport Property Line
- County Line (White)
- City Limits

Exhibit 2F ~ Zoning Map

Aurora State Airport

Aurora, OR

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Surrounding Area Zoning and Land Use

The Airport is surrounded primarily by agricultural and rural residential land uses. Land to the east, south and west is within Marion County, while land to the north resides in Clackamas County. The zoning is predominantly Exclusive Farm Use, with two residential areas zoned Acreage Residential west of the Airport and a golf course and rural residential (5-acre) north of the Airport.

A section of the Airport and the surrounding lands are reference in the Urban Growth Boundary Coordination Agreement with Marion County, as an Area of Mutual Concern for the City of Aurora. Additionally, the ODA, Marion County, and City of Aurora have an Intergovernmental Agreement supporting communication between the involved parties relating to the Aurora State Airport. Within the City of Aurora Comprehensive Plan, the Airport is referenced in Goals 9, 11, and 14.

The Airport Master Plan is incorporated by reference in the 2005 Transportation System Plan (TSP) for Marion County, which is currently being updated. The TSP identified an Access Management Plan for the Wilsonville-Hubbard Highway (Highway 551) and Arndt Road intersection and indicated that the intersection would be operating at a level of service (LOS) 'F' (maximum volume/capacity) by 2015. The TSP identified improvements at this intersection as a 0-5 year priority to resolve congestion and safety problems. The TSP also indicated the intersection of Arndt Road and Airport Road would be operating at LOS 'F' in 2015. The TSP identifies this improvement as a 5-10 year priority to resolve congestion issues. Clackamas County TSP (2002) also identified improvements in the Arndt Road corridor from Airport Road to Ore 99E in its 20-year Capital Needs list (although this project was shelved in the County's 2006-08 Capital Improvement Plan). The Clackamas County TSP states the goals of minimizing conflicts between airports and other uses, and coordination with Marion County to implement regulations on development near the Airport.

Protection of Airport Airspace

The FAA requires that airport sponsors – to the extent of their ability – restrict zoning on adjacent lands and lands within an airport's immediate vicinity to compatible land uses. Marion County has established an Airport Overlay Zone to protect the Airport and its airspace from hazards to air navigation, such as tall structures and other non-compatible land uses. An overlay zone may restrict the height of buildings and other structures or trees. Airport overlay zones also may restrict any land use that would create such hazards as electrical interference with airport radio communications, cause glare or impair visibility near the airport or would attract wildlife.

Ownership/Control of Runway Protection Zones

Runway Protection Zones (RPZs) are designated areas off runway approaches that enhance the protection of people and property on the ground. RPZs are trapezoidal in shape and have dimensions determined by the aircraft type and runway approach visibility minimums. The FAA strongly encourages Airport Sponsors to either own or exercise land use control within the RPZs. If an airport does not own the RPZs in fee, control of obstructions to airspace can be achieved through aviation easements. ODA owns all property within the Airport's two RPZs, except for a small portion that overruns onto Columbia Helicopters' property.

ENVIRONMENTAL INVENTORY

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

Environmental constraints for airports typically fall into two general categories: human environment and natural environment. Human factors that can constrain airports include existing settlements and incompatible land use, noise, social or socioeconomic conditions, light and glare, and the general controversial nature of airports. Natural environmental elements include various aspects of air quality, water resources, fish and wildlife, hazardous materials, energy and other resource issues.

Human Factors

Noise. The Airport currently supports about 87,345 annual operations (2008 FAA Terminal Area Forecast), mostly single engine aircraft. The typical threshold of concern is when the 65 DNL contour extends over noise sensitive land uses. Because the majority of the adjacent land is in agricultural use, the number of noise sensitive uses is minimal. Another threshold of significance is 90,000 annual adjusted propeller operations. The current usage of the Airport is approaching this level. Noise modeling will be prepared as part of this Master Plan, and the 65 DNL contour will be identified for the future anticipated airport use. Per Oregon Department of Environmental Quality guidelines, the 55 DNL will also be shown, even though Oregon has suspended its noise program.

Noise associated with the Airport is an existing issue for the communities of Aurora and neighboring Charbonneau and Deer Creek. In 2002, ODA commissioned a noise mitigation study. Recommendations of that study were to adopt a noise abatement procedure and implementation program, and change the calm wind Runway designation to Runway 35. Both of these recommendations have since been implemented. Additionally, a noise committee has been formed in association with Positive Aurora Airport Management (PAAM) to monitor noise issues.

Land Use. The Marion County zoning map designation for the Airport Environs is Public. Airports and airport-related commercial and industrial uses are conditional uses in the Public zone. The airport is surrounded primarily by land zoned for Exclusive Farm Use. Further to the north of the Airport are rural residential-farm forest (5-acre) zoned lands and a golf course, along Airport Road. To the west, along the Wilsonville-Hubbard Highway and Boones Ferry Road, there are two residential areas zoned Acreage Residential. Marion County also has an Airport Overlay Zone for Aurora State Airport.

The Airport Master Plan is incorporated by reference in the 2005 Transportation System Plan for Marion County. This plan is currently being updated.

Social Impact and Induced Socioeconomic Issues. Social impacts are typically related to relocation of businesses, residences or the alteration of established patterns of life (e.g. roadway changes, new facilities that divide a community, et cetera.) per the National Environmental Policy Act. In the event the State acquires additional land for airport expansion, existing homes or businesses may be required to relocate.

Socioeconomic issues include the potential for the Airport to provide an economic attraction to the community, including on-airport jobs, off-airport jobs that are supported by the Airport, or some attraction that provides incentive to use the Airport. The Airport provides some positive economic benefit to the community—flight lessons, aircraft repair, and other services. The Airport also has land and buildings that provide rental income to the State. According to Airport Management, there have been two or three businesses considering locations in Clackamas or Marion counties, and the location of the Airport and the ability to base a corporate aircraft there have factored into these considerations.

Environmental Justice is a specific aspect of socioeconomic impact that addresses whether a facility places a disproportionate burden on a population that is otherwise subject to perceived discrimination or other burden, for example a low-income or ethnic minority community. There do not appear to be populations meeting the definition within the immediate airport vicinity.

Historic Properties, Cultural Resources (Section 106 Resources). The site has been an airport since 1943. The subject site has been disturbed during the construction of the initial airport, construction of private hangars and other structures, the extension of the runway and taxiway extension in 1990, and for more recent runway reconstruction and taxiway relocation projects at the Airport. During excavation for these activities, no artifacts were found.

Historically, the land fell into the range of the Ahantchuyuk tribe of the Kalapuya Indians, now one of the Confederated tribes of the Grand Ronde. Cultural resource studies and tribal consultation were performed for the 2005 taxiway relocation project. No resources were identified and the tribe concurred that the property is not of interest.

Recreational Lands (Section 4(f)) Resources. There do not appear to be any public recreation areas in the immediate vicinity of the Airport.

Wild and Scenic Rivers. There do not appear to be any designated or candidate Wild and Scenic Rivers in the immediate vicinity of the Airport.

Farmland Preservation. Certain types of soils are considered prime farmland because of their drainage, mineral, and other characteristics. These soils, when in urbanized or developed areas, are not considered prime due to the compaction and other activities that degrade the potential for farm use. The Natural Resources Conservation Service on-line soil database map (OR643 Soil Survey of Marion County, Oregon) found nine soil types in the Airport area. All but one of these soil types has the potential to be either prime farmland or farmland of statewide significance, under the NRCS classifications. Soils can meet these classifications with either irrigation or drainage, depending on the soil type. In addition, much of the area around the Airport is designated Exclusive Farm Use (EFU), a state-defined zoning category for land considered prime farmland. Furthermore, some of the farmland near the Airport has been classified by the Oregon Department of Agriculture as Foundation Farmland.

FAA Guidelines state that the Farmland Protection Policy Act (FPPA) is not applicable and no formal coordination with the Natural Resource Conservation Service (NRCS) is required if any of the following conditions apply:

- The land was purchased prior to August 6, 1984, for purposes of being converted.
- Acquisition does not directly or indirectly convert farmland (e.g., land acquired for clear zones or noise compatibility). Indirect conversion includes any use of land or operation of the facility, which would prohibit the land from being farmed.
- The land is not prime farmland as defined in the FPPA.
- The land is not unique farmland.
- The soils are not considered prime farmland.
- The land has not been determined by a state or local government agency, with concurrence of the Secretary of Agriculture, to be of statewide or local importance.

Development of any land acquired outside of the existing Airport would be subject to NRCS coordination. The NRCS coordination is conducted by FAA per NEPA requirements, once a project is identified and if the project includes a taking of farmland. Through consultation, the NRCS would need to be shown there is no feasible and prudent alternative to taking farmland for the use.

Light and Glare. On-airport lighting is focused for visibility to aviators, without creating a disturbance or distraction. Any additional facilities will need to consider the impact of light or glare, including the use of windows or roofing material, on aviation. Similarly, residences and other sensitive receptors are located some distance from the Airport. Any additional lighting or structures will need to be focused such that light or glare is not projected into the community.

Natural Factors

Air Quality. The Airport is just outside of the Portland Air Quality Maintenance Area, in a “non-classified” area. Any construction impacts will need to consider the impact of particulate material on the local environment, including water quality and other resources. There are no “air quality hot spots” for surface transportation facilities in the airport vicinity. General aviation airports typically do not generate significant amounts of surface traffic. However, to provide information for the Master Plan, the ODA is investigating the possibility of sampling traffic at Airport access drives, to quantify the Airport’s contribution to traffic on surrounding roads.

Water Quality. The Airport site lies on the boundary between the Pudding River basin and Middle Willamette River subbasin. Creeks include Deer (Pudding basin), Senecal and Mill Creeks (both Middle Willamette). The Pudding River has been listed by the DEQ for exceeding standards for temperature, fecal coliform and DDT. Mill Creek has been listed for temperature.

Projects on the Airport to modify the taxiway included improvements to the stormwater collection system and a modification to the Airport’s NPDES permit. Any additions to impervious surfaces or changes in drainage plans for the Airport must be evaluated in the context of the permit conditions.

Plants and Animals, Including Endangered and Threatened Species and Essential Fish Habitat (MSA resources). The Airport is located within the Willamette Valley Ecoregion, located between the Coast Range and the Western Cascades in northwestern Oregon. The abundant rainfall and fertile soils make the valley Oregon's most important agricultural region. As a result, the Willamette Valley comprises Oregon's most altered ecoregion.

The Willamette Valley's location on the Pacific Flyway makes it an important area for migrating and wintering waterfowl. Geese and shorebirds benefit from flooded agricultural lands, and the Willamette River and its many tributaries support salmon and steelhead runs, mostly of hatchery origin due to the large number of dams in the system. The valley's few remaining fragments of native prairie support many special plant species and endemic invertebrates, while the remaining wetlands provide habitat to the Oregon chub, the western pond turtle and many other sensitive animal species.

The Airport does not currently have any issues with wildlife or bird strikes.

The Airport Environs includes site conditions typical of an airport facility in regards to the maintenance of the grounds and vegetation. Existing vegetation includes a mixture of invasive and native species, predominantly made up of grasses and forbs. An extensive mowing schedule maintains all vegetation for airport safety and visibility as required by FAA regulations. A row of trees along the west side of the Airport will be removed in fall 2010, because many of the trees are obstructions that penetrate the imaginary transitional surface.

The nearest waterways are the Pudding River and Deer Creek. Each system is approximately the same distance from the Airport, with the nearest tributary drainage located approximately 3,300 feet from the Airport. The Pudding River has a documented population of both Upper Willamette River Steelhead and Chinook salmon, both listed as Threatened under the Federal Endangered Species Act (ESA).

Previous environmental reviews for projects at the Airport have identified the potential for the following listed species, as well as their critical habitat (where defined) in the airport vicinity: Upper Willamette River Steelhead (*Oncorhynchus mykiss*), Upper Willamette River Chinook Salmon (*Oncorhynchus tshawytscha*), Fender's blue butterfly (*Icaricia icarioides fenderi*), Golden Indian Paintbrush (*Castilleja levisecta*), Willamette Daisy (*Erigeron decumbens* var. *decumbens*), Howellia (*Howellia aquatilis*), Bradshaw's lomatium (*Lomatium bradshawii*), Kincaid's lupine (*Lupinus sulphureus* var. *kincaidii*), and Nelson's checker-mallow (*Sidalcea nelsoniana*). Several candidate species potentially may occur in the Airport area: Yellow-billed cuckoo (*Coccyzus americanus*), Streaked horned lark (*Eremophila alpestris strigata*), Oregon spotted frog (*Rana pretiosa*), and Taylor's checkerspot (*Euphydryas editha taylori*). The agencies found no proposed species within and/or adjacent to the area.

Any activity on the Airport would need to consider impacts to these species under the Endangered Species Act as well as habitat impacts under the Magnuson-Stevens Act.

Wetlands and Floodplains. Because of previous projects on the Airport, on-airport wetlands have been significantly reduced. A brief review of the Airport shows that some of the on-airport drainage ways are developing wetland-like characteristics, as has the septic drain field area. Because these are

man-made wetlands in upland areas, they will likely not be considered jurisdictional. At the time of any development action affecting the infield area or drainage ways, a formal delineation will be prepared.

The Airport is outside of any known floodplain.

Energy Supply and Natural Resources. This category focuses on the impact of airport actions on energy and natural resources used in construction materials. In general, construction materials are not in short supply. Fuel for construction equipment is available nearby. The site has adequate electrical supply to provide power to navigation aids and security lighting on the Airport.

Solid Waste. Typically, general aviation airports do not generate significant amounts of solid waste. Often materials include food and beverage containers or packaging for aircraft maintenance products. Food containers may create a bird and rodent attractant.

During construction, pavement materials are often recycled into the new pavement, reducing the need for disposal.

Plans for future activity at the Airport should consider the manner in which waste is collected and removed.

Hazardous Materials. The Airport has four commercial fueling sites (Columbia Aviation, Aurora Jet Center, Aurora Aviation, and Willamette Aviation Service), and two private fuel sites.

There is potential for additional contamination anywhere maintenance or fueling takes place because of accidental spills. No exploration of this has occurred on the Airport. Any such areas where construction is proposed would need to undergo some level of due diligence such as a “Phase One Environmental Site Assessment” to identify any history of possible contamination.

Construction Impacts. Construction impacts typically include temporary noise, dust or traffic impacts, as well as the potential for erosion and water quality impacts associated with construction material spills. Once construction activities are identified, construction timing, phasing and mitigation measures need to be considered.

Controversy. Controversy is typically associated with off-airport impacts. In the case of Aurora, controversy appears to revolve around use of the Airport by jets and the associated noise. According to ODA, there are some members of the community who are against airport growth and desire closure of the Airport and release of the land to other uses. However, there are opinions that the Airport should exist but growth should have some constraints to insure livability in the community.

Other Issues. There do not appear to be any other environmental-related issues on or around the Airport.

Conclusion

The FAA considers public controversy to be an environmental issue. Beyond controversy over noise and airport expansion, there do not appear to be any significant environmental issues on the Airport or in

the airport vicinity – with the exception of concerns over vehicular traffic/safety. Additional study regarding noise, threatened and endangered species, cultural resources, and possibly hazardous materials should be conducted once a project is defined.

AVIATION ACTIVITY DATA

There are two primary measures of aviation activity at a general aviation airport: based aircraft and aircraft operations. Each activity type is discussed below.

Based Aircraft

Based aircraft are the number of aircraft that are stored at an airport in a hangar or tied down on either a paved apron surface or a grassy area designated for such a use. ODA’s records indicate that there are currently 432 aircraft based at the Airport. Of the aircraft based at the Airport, they can be further broken down into the following categories:

Table 2C. Based Aircraft

Aircraft Category	Number Based at Aurora State Airport
Single Engine	312
Jet	21
Multi-engine	59
Helicopter	35
Glider	1
Unknown Category	4
Total	432

Aircraft Operations

Annual operations are the total number of aircraft takeoffs and landings occurring at the Airport in a year. A touch-and-go, which occurs during pilot training, counts as two operations. Touch-and-go operations are categorized as local, along with other operations that remain within 20 miles of the Airport. Operations not categorized as local are categorized as itinerant. The latest estimated data from the FAA’s December 2009 Terminal Area Forecast is for 2008, and is shown in **Table 2D**.

Table 2D. Operations Records

	FAA Terminal Area Forecast (2008)
Air Taxi	9,656
General Aviation Local	36,030
General Aviation Itinerant	41,409
Military	250
Total	87,345

AIRPORT FINANCIAL DATA

The following subsections provide a brief summary of historical financial information for the Airport.

Airport Operating Revenues and Expenses

Table 2E shows the Airport's revenues and expenses for the past five years.

Federal grants from the Airport Improvement Program (AIP) are the major source of funding for airport capital expenditures. **Table 2F** depicts the AIP funding the Airport has received for airport improvement projects between the years 2004 and 2009.

RATES AND CHARGES

ODA leases hangar space to users at a rate of \$0.25 per square foot. The lease rate is determined by market rent surveys; the last survey was completed in 2008. By administrative rule⁴, ODA must review lease rates at a minimum of every five years and can adjust lease rates at intervals not to exceed every two years.

⁴ Oregon Administrative Rule (OAR) 738-010-0035, *Fair Market Value Cost of Construction – Adjustments of Unimproved Land, Improved Land and Facility Rents.*

Table 2E. Revenues and Expenses

	2006 Actual	2007 Actual	2008 Actual	2009 Actual	2010 Actual
Operating Revenues					
Land Lease / Tie Downs	43,749.44	42,305.83	53,110.54	45,855.59	46,823.02
Ingress/Egress & Hangar Fees	37,017.09	40,610.85	52,052.17	59,500.39	47,366.48
Fuel Flowage Fees	13,488.88	66,289.12	67,177.75	62,075.82	55,395.68
Federal Funds Revenue	117,339.12	84,469.00	2,599,549.00	1,809,250.04	294,010.79
Miscellaneous Fees	12,289.13	14,418.03	4,641.53	11,649.62	12,208.94
Total Operating Revenues	\$223,883.66	\$248,092.83	\$2,776,530.99	\$1,988,331.46	\$455,804.91
Operating Expenses					
Personal Services	11,816.47	19,288.20	21,268.89	20,792.93	14,336.84
Agency Program Related SVCS & Supplies	2,101.26	2,629.91	14,074.00	813.63	845.36
Attorney General Legal Fees	-	13,023.00	21,478.36	16,455.14	29,369.77
Dues and subscriptions	-	-	-	-	75.00
Expendable Property \$250-\$5000	-	398.90	-	-	-
Facility Maintenance	8,414.91	10,276.43	6,270.62	3,290.91	4,610.89
Facilities Rent and Taxes	3,903.60	21,629.21	28,771.31	23,630.02	21,189.81
Fuels and Utilities	6,222.62	7,300.40	7,713.21	7,901.13	6,752.24
Instate Travel	294.28	39.00	36.31	-	-
Office Expenses	167.92	38.50	46.14	-	14.25
Other Services and Supplies	17.94	-	250.00	-	-
Professional Services	13,705.25	252,602.55	2,036,983.28	1,545,742.74	360,560.21
Publicity and Publications	-	-	-	15.08	-
Telecomm/Tech SVC and Supplies	2,282.19	1,950.75	2,018.26	404.80	-
Total Operating Expenses	\$48,926.44	\$329,176.85	\$2,138,910.38	\$1,619,046.38	\$437,754.37

Source: Oregon Department of Aviation (2010, August). State Fiscal Year July 1 to June 30.

Table 2F. Recent Federal Grant Projects

Year	Project	AIP Funding Received
2004	Rehabilitate Runway 17/35, including runway lighting system (Phase 1)	\$1,445,140.00
2005	Rehabilitate Runway 17/35, including runway lighting system and revising the ALP (Phase 2); Rehabilitate taxiway	\$ 957,144.00
2007	Construct taxiway, including land acquisition and design (phase 2); Install medium intensity taxiway lighting (MITL); Replace beacon and tower	\$1,959,856.00
2007	Construct taxiway (Phase 3), including revising the ALP; Install MITL; Replace beacon and tower (Phase 2)	\$2,405,233.00
2009	Remove obstructions (Phase 1)	\$ 100,000.00
2009	Master Plan Update/Control Tower Siting Study	\$ 534,431.00
Total Federal Dollars		\$7,401,804.00

Source: Federal Aviation Administration (2010, August)