

Chapter Two INVENTORY

Airport Master Plan Update
Mulino Airport

An initial step in the preparation of an airport master plan is to collect data pertaining to an airport and the area it serves. An inventory of the Mulino Airport was accomplished through a physical inspection of all existing facilities, interviews with Airport users, Port of Portland (Port) staff, residents that live near the Airport, and a review of previous Airport studies and records.

This chapter provides a summary of the Airport's background (*i.e.*, location, history), 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 aviation demand forecasts that are reasonable and aids in identifying future facility development needs.

BACKGROUND DATA

Airport Location & Access

The Mulino Airport is located in the hamlet of Mulino, within the Portland metropolitan area in northern Clackamas County, Oregon. The majority of the County is rural and has abundant recreational opportunities. Mulino is located 10 miles south of Oregon City and five miles north of Molalla on State Highway 213. Interstates 5 and 205 are approximately 20 miles from Mulino. The Airport is located approximately one-half mile west of Highway 213, off Mulino Road. **Exhibit 2A** shows a map of the region and Airport vicinity.

The South Clackamas Transportation District operates bus service between Molalla – a small town SE of Mulino and Canby - a small town NW of Mulino, which includes a stop in Mulino at the intersection of Mulino Road and Highway 213. Taxi service is available in Oregon City (10 miles north of the Airport) and Amtrak train and Greyhound bus services are located in Portland (20 miles north of the Airport).

Area Topography

The area is surrounded by the rolling terrain of the Cascade Range foothills and is abundant in both farmland and forested area. The majority of Clackamas County is rural, and includes Mount Hood, the Mount Hood National Forest and the Bull Run Watershed, as well as numerous other rivers and watersheds.

The Airport is situated in a small valley on the west side of Mulino. It is at 260 feet above Mean Sea Level (MSL). The Molalla River is adjacent to the Airport, located south and west of the runway.

Climate

The Mulino 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 47 inches, with the majority of it occurring from November through January. Annual snowfall averages seven inches per year. The mean maximum temperature in the hottest month (August) is 80 degrees.

Community and Airport History

The Mulino community was named after a flourmill built in 1851. "Mulino" is derived from the Spanish word *molino*, which means mill and was chosen when postal authorities objected that "Molino" was easily confused with nearby Molalla. The Mulino area has a strong agricultural background and in the 1850s, the local mill was one of the largest flour producing mills in the Willamette Valley. A post office was established in Mulino in 1888, and railroad arrived in the area in 1915. Today, the unincorporated community still has a strong rural and agricultural presence.

A private individual established the Airport in 1949. At the time, the facility consisted of two intersecting grass runways each 2,100 feet in length. The Port purchased the Airport in 1988 as a result of the Clackamas County Reliever Airport Study, a Port sponsored project completed in 1981.

The Port spent the next several years acquiring additional property and undergoing land use approval processes to construct a new airport. In 1990, a new runway on an orientation of 14-32 was constructed and is in place today.

EXISTING FACILITIES

Existing facilities at the Mulino 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 Mulino Airport.

Airfield Facilities

Airfield facilities include pavements used for the movement of aircraft (*i.e.*, runways, taxiways, taxilanes, aprons). In October of 2004, the Mulino Airport's Pavement Condition Index (PCI) was updated. 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 Mulino Airport. 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 Mulino Airport consist of a seal coat, on top of two inches of asphalt, on top of eight inches of a crushed aggregate base. **Exhibit 2D** provides a detailed graphic of the existing pavement sections at the Airport.

Runway. The Mulino Airport has one paved runway, 14-32. The total pavement length is 3,600 feet, however, in order to meet FAA safety standards the Runway 32 threshold was relocated 175 feet to the north in 2003, making the runway's usable length 3,425 feet. The runway is 100 feet wide. The runway pavement surface is asphalt and in October 2004 was given a PCI rating of 96, which is considered excellent. The pavement strength of the runway is rated for 12,500-pound Single Wheel Gear (SWG)¹ aircraft.

Taxiways and Taxilanes. Taxiways are constructed primarily to facilitate aircraft movements to and from the runway environment. Some taxiways are necessary simply to provide access between the aprons and the runways, whereas other taxiways become necessary to provide safe and efficient use of the airfield as airport activity increases.

Several taxiways support operations at the Mulino Airport. Runway 14-32 has a full-length parallel taxiway (Taxiway A) and three connector taxiways, Taxiway A1 on the north side, A2 at

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

midfield, and A3 on the south side. These connectors link the runway and parallel taxiway together. At midfield, there is an undesignated taxiway, which leads to the apron/tiedown area.

From the apron, there is a second undesignated taxiway, which leads to the hangar area. There are also several taxilanes located between hangar buildings. All paved taxiways at the Airport are 40 feet wide, with the exception of the Taxiways A1 and A3, which are 50 feet wide. All taxilanes are 20 feet wide. Taxiways and taxilanes are constructed of asphalt and have PCI ratings between 89 and 100, which is representative of pavements in excellent condition.

There are also two grass taxiways at the Airport. These taxiways are located just east of the aircraft apron – one taxiway leads to the Airport Café located along State Highway 213, while the other leads to the Experimental Aircraft Association (EAA) building. Both grass taxiways are 50 feet wide.

Aprons and Aircraft Parking. There is one asphalt aircraft apron located on the east side of the runway. It is 200 feet by 240 feet and has 16 tiedown positions. There are also four tiedown positions in the grassy area north of the apron; however, only two of the tiedowns are usable due to missing components that would allow an aircraft to be secure.

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 Mulino Airport, the lighting system is a medium intensity system, which can be pilot controlled. In other words, a pilot can turn the lights on or off or change their intensity by keying the microphone inside of the aircraft. Edge lighting is located on the runway and taxiways, while the apron and hangar taxilanes are lined with reflectors.

Airport Navigational Aids. Airport Navigational Aids, or NAVAIDS, provide navigational assistance to aircraft for approaches to an airport. NAVAIDS either are classified as visual approach aids or instrument approach aids and 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 subsequent sections describe existing NAVAIDS at the Mulino Airport.

Visual Approach Aids. Each runway end has a two-box Precision Approach Path Indicator (PAPI). A PAPI gives glide slope information to a pilot on final approach by displaying sequences of different colored lights. The glide slope provides a pilot with vertical guidance while approaching the runway. Based on the lights displayed, a pilot can then make the necessary altitude adjustments to ensure the correct glide slope is being followed for a safe landing.

Instrument Approach Aids. Neither Runway 14 nor Runway 32 has an instrument approach, which can be used when the visibility and cloud ceiling are below minimums for Visual Flight Rules (VFR) conditions.

Other NAVAIDS. There is a lighted wind cone and segmented circle located on the east side of Taxiway A at approximately the midfield point. Unlighted wind cones are also near each runway end. A rotating beacon is located east of the segmented circle. The closest source of real-time weather reporting for pilots is the Automated Surface Observing System (ASOS) at the Aurora State Airport, located approximately eight nautical miles to the west.

Landside Facilities

Hangars. There are five hangar buildings at the Mulino Airport – three T-hangars and two box hangars. Cougar Development, a private hangar developer, built a 17-unit T-hangar building on a ground lease from the Port. The Port owns and manages the other hangars, including a 7-unit T-hangar, a 9-unit T-hangar, a 60-foot-by-60-foot semi-enclosed box hangar, and a 50-foot by 60-foot enclosed box hangar. The semi-enclosed hangar contains four individual units within the building’s footprint. This hangar building does not have doors; however, each unit is secured with chain link fencing. Three of the four units house an aircraft, while the fourth is storage for the Port’s mower and pickup truck. The other box hangar stores one aircraft. The two Port-owned T-hangars, constructed of wood, are approximately 40 to 50 years old and are nearing the end of their useful life.

Other Buildings. Along the entrance road, just outside of the gated secured area is the Mulino Chapter of the Oregon Pilot’s Association (OPA) building. Due west, and across the road from the OPA building is a barn, which predates Port ownership of the Airport, used to store some of the Port’s maintenance equipment. There is also a pilot’s lounge building located adjacent to the aircraft apron. This building has a small classroom, an area for flight planning, a kitchen, and restrooms. Outside of this building is a portable latrine. The Mulino Chapter of the Experimental Aircraft Association (EAA) is also located at the Airport. Their building is located along Highway 213, is accessible via aircraft from the grass taxiway at the aircraft apron or by vehicle from Highway 213.

Aviation Services. A fixed based operator is an individual or a business that offers aviation-related services such as flight instruction, aircraft rental, aircraft maintenance, hangar/tiedown storage, and aircraft fueling to Airport users. There are currently no fixed based operators or other aviation services available at the Airport. The building that serves as a pilot lounge/flight planning area operated as an FBO in the past.

Airport Access and Vehicle Parking. Access to the Airport is via State Highway 213 to Mulino Road and then to Landing Way if accessing the Airport from the east or Airport Road if accessing the Airport from the west. Airport Road provides direct access to the entrance gate.

Near the pilots lounge are six marked automobile parking spaces. Hangar tenants typically park their vehicles in their hangars while flying. In addition, approximately 15 parking spaces are located north of the OPA building, outside of the Airport security fencing.

Airport Support Facilities

Emergency Services. There are no Aircraft Rescue and Firefighting (ARFF) facilities available at the Airport. Emergency services are provided by the City of Molalla Volunteer Fire Department and the Clackamas County Sheriff Department. The Port provides aircraft emergency training to the volunteer firefighters once per year.

Airport Maintenance. Airport maintenance is provided by the Port. Mowers, trucks, and other maintenance equipment are stored on-site in the barn near the front entrance or in one of the hangar units within the semi-enclosed box hangar. The Port does not provide snow removal services. In the event of snow, a Notice to Airmen (NOTAM) is issued stating that the Airport is closed. Once the snow has melted, the NOTAM is cancelled.

Airport Fencing. Three-foot tall, primitive wildlife fencing surrounds the perimeter of the Airport. There is one automated six-foot, chain link vehicle gate controlled by a punch type combination, and one open pedestrian access point located near the OPA building on Airport Road.

Utilities. Utilities available at the Airport include electricity provided by Portland General Electric, water provided by the Mulino Water District, and telephone provided by local franchise companies. A storm water detention pond is located on the north side of the airport property. There is no sanitary treatment facility in the community of Mulino. A map of the existing utilities and storm drainage is provided in **Appendix E**.

Airport Signage. Guidance signs to the Airport are located on Highway 213 and are maintained by the Oregon Department of Transportation (ODOT).

Other Support Facilities. The Airport Café is accessible via grass taxiway from the apron area, but is not located on airport property. A gas station and lodging facility are also 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. Classes are distinguished by the alphabet characters A through G. Each class has its own unique shape and rules that govern such things as visibility minimums and cloud clearances.

The Mulino 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 Mulino Airport 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 Mulino Airport's location is such that it lies

underneath a Victor Airway, or a “highway in the sky.” A Victor Airway is a corridor of protected airspace defined by radio navigational aids. In the case of the Mulino Airport, the Victor Airway above the Airport (labeled as V 448 and depicted with a semi-transparent blue line on Exhibit 2E) leads to PDX, making over flying traffic a common occurrence.

LAND USE PLANNING AND ZONING

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

- On-airport zoning and land use.
- Surrounding area 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 Chapter Six, *Airport Layout Plan*. 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 On-Airport Zoning and Land Use

The Mulino Airport is a public use airport and is designated as a special use Public Use Airport Zoning District through the Clackamas County Zoning and Development Ordinance Division 713 (see **Appendix F**). Clackamas County is the planning and building permit authority for the Airport. The Airport’s existing zoning classification complies with Oregon Revised Statutes 836.600 through 836.630, Local Government Airport Regulation, and includes airport overlay imaginary surface protection, which mirror Part 77 imaginary surfaces.

Uses permitted outright in the Public Use Airport zone include (Section 713.04 of Clackamas County Zoning and Development Ordinance):

- Airport operations and operational facilities (*i.e.* aircraft hangar, FBO, flight instruction, aircraft rental and sales, maintenance, etc.)
 - One single-family dwelling for use by airport manager, caretaker or similar.
 - Does not include residential, commercial, industrial, manufacturing, and other uses.
- Air passenger and air freight services, if consistent with Oregon Department of Aviation System Plan.
- Emergency services and facilities for medical flight services.
- Law enforcement, military and firefighting facilities to support activities of federal, state, or local law enforcement or firefighting.
- Search and rescue operations and related activities.
- Agricultural and forestry spray application activities and facilities.
- Aeronautical sporting and recreational activities and facilities (including skydiving with some restrictions).

Section 713.05 of the Ordinance gives allowances for a Hearings Officer, who is responsible for overseeing administrative hearings (*i.e.*, land use), to review applications for uses not permitted outright. In general, applicants must exhibit compliance with the following in order for their use to be permitted:

- The use must be supported by applicable statewide land use planning goals and development standards must comply with County ordinances.
- The use does not interfere with existing land use areas adjacent to airport boundary (additional restrictions are placed on underlying exclusive farm use zones).

The community of Mulino and the airport property are outside of the urban growth boundary for the Portland Metro Region. Zoning at the airport consists of exclusive farm use (EFU), rural residential farm/forest - 5 acres (RRFF-5) and residential/agricultural - 2 acres (RA-2). These zones are depicted on **Exhibit 2F**.

- EFU zoning designates land for the preservation of agricultural uses, in an effort to uphold agricultural economic values, and to maintain open space.
- RRFF-5 land allows for a mixed use of a single-family dwelling in coordination with farm or forestry uses on a (minimum?) five-acre plot of land.
- RA-2 zoning allows for one single-family dwelling with agricultural uses on a (minimum?) two-acre parcel of land.

Surrounding Area Land Use

The Mulino Airport is surrounded primarily by agricultural and rural residential land uses. The areas directly to the north and west of the Airport are zoned EFU. Rural residential properties border the northwest corner of the airport. On the south side of the Airport is the Molalla River, and across the River to the south is the Arrowhead Golf Course. Land east of the Airport is a combination of uses including residential, commercial, institutional and public facilities

Surrounding the Airport, the land is zoned: EFU, rural commercial (RC), RRFF-5, RA-2, residential/agricultural – 1 acre (RA-1) and rural industrial (RI).

EFU, RRFF-5, and RA-2 zoning designations were discussed in the previous section. RC, RA-1, and RI zoning are defined as follows:

- The purpose of RC zoning is to allow commercial operations within a rural area. Commercial operations include such uses as apparel shops, markets, banks, etc.
- Similar to RA-2, RA-1 allows for one single-family dwelling with agricultural uses on a one-acre (minimum) parcel of land.
- RI zoning allow for light industrial use within a rural area. Uses can range from processing, retail, wholesale, and storage among other light industrial uses.

Also related to land use and zoning around the Airport are Measure 37 claims. Ballot Measure 37 (2004) requires governments to pay landowners or forgo enforcement when certain land use regulations reduce their property values. As a result, airport sponsors should be aware of claims near airport boundaries². Potentially, land that is currently compatible with Airport operations may be developed in the future for uses that are non-compatible. There have been several claims near the Mulino Airport, but none appear to pose incompatibility problems for the Airport at this time. However, it is advisable for the airport sponsor to monitor future Measure 37 claims near the Airport.

Protection of Airport Airspace

Clackamas County has established an Airport Overlay Zone/District 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/district 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 and are trapezoidal in shape. RPZ dimensions are determined by the aircraft approach speed 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 avigation easements. As depicted in **Exhibit 2G**, the Port owns or controls, through existing avigation easements, all property within the airports two RPZs.

ENVIRONMENTAL INVENTORY

The purpose of this section is to summarize the environmental setting of the airport, and identify any potential environmental constraints. This discussion provides a baseline for future comparison of alternatives in terms of their potential environmental impact. The FAA's

² Information concerning Measure 37 Claims can be found at either the Oregon Department of State Lands website (<http://www.oregon.gov/LCD/MEASURE37/index.shtml>) or the Clackamas County website (<http://www.co.clackamas.or.us/dtd/zoning/37/index.html>)

environmental checklist will be used as a guide within this inventory. The checklist incorporates the Council on Environmental Quality's regulations for implementing the National Environmental Policy Act, as well as US Department of Transportation environmental regulations and many other federal statutes and regulations. The checklist will be used to review alternatives at a qualitative level, once they are developed.

Environmental constraints for airports typically fall into two general categories: human and natural environment. Human factors that can constrain airports include existing settlements and incompatible land use, noise, social or socioeconomic conditions, and light and glare, and the general controversial nature of airports. Natural environmental elements include air quality, water resources, fish, wildlife, hazardous materials, energy, and other resource issues. **Exhibit 2H** depicts the existing environmental designations at the Airport.

Human Factors

Noise. The Airport currently supports over 30,000 annual operations according to the FAA's Terminal Area Forecast, conducted primarily by single engine aircraft. Noise for airports is typically measured using a weighted average, where nighttime noise is given more weight. This measurement is referred to as Day/Night Level, or DNL. The typical threshold of concern is when the 65-decibel DNL contour extends over noise sensitive land uses such as housing, schools, or churches. Another threshold of significance is 90,000 annual adjusted propeller operations. The current usage of the Airport is well below this.

Land Use. Land use issues associated with airports typically relate to the compatibility of surrounding uses. This issue is discussed in detail above in the Land Use section.

Social Impact and Induced Socioeconomic Issues. Social impacts are typically related to relocation of businesses or residences or the alteration of established patterns of life (*e.g.*, roadway changes, new facilities that divide a community, etc.). The Airport includes a significant amount of land, creating separation between the Airport, non-airport businesses, and local residences. As such, the impact of the Airport on community activities is lower than if the Airport were closer to developed land uses.

The County's 20-year Transportation Improvement Plan (TIP) shows Mulino Road to be widened to include turning lane refuges at various locations. Any road improvements should be coordinated between the Oregon Department of Aviation and the appropriate state or local agency.

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 the direct result of airport activities, or some attraction that provides incentive to use the Airport. The Airport provides some positive economic benefit to the community today, such as when people fly in for meals at the Airport Café.

The Airport also has existing and proposed hangar space that could provide rental income to the Port. Land to the east of the existing hangar area could be developed into a range of aviation

related industrial, commercial or manufacturing uses. The Oregon Department of Aviation is currently preparing an analysis of the economic benefit of each airport in the State, which will provide more complete information about the benefits of the Mulino Airport.

Local population growth, as identified in the Clackamas County Comprehensive Plan, may cause demand for services at the Airport to increase. Typically, increased population brings an increase in the number of registered pilots and aircraft. This is discussed more thoroughly in Chapter Three, *Aeronautical Activity Forecasts*.

Environmental Justice. Environmental justice is a specific category of socioeconomic impact that analyzes the disproportionate burden a facility may place on a population that is subject to perceived discrimination or other burden. This may include areas where noise or vibration is perceived as an impact, such as residential concentrations off the ends of runways or in approach patterns. A review of local Census information, as well as a visit to the community suggests that there appear to be no populations meeting the definition within the immediate airport vicinity. There do not appear to be residential concentrations within the areas that would be considered “impacted.”

Historic Properties, Cultural Resources (Section 106 Resources). The Mulino Airport site has been in use as an airport since 1949. No cultural resource studies of this site have been identified.

There is a relic of a former railroad crossing of the Molalla River at the southern end of the runway. This resource may be considered historic if the railroad played a significant role in the settlement or history of the Mulino area of Clackamas County. More information may be needed on this element if any proposed airport activity is proposed near the relic crossing.

Recreational Lands (Section 4(f) Resources. The Molalla River is considered by the Oregon State Marine Board and other state agencies as a recreational river for water sports (rafting, kayaking) and fishing. A review of local and state parks’ mapping and narrative information shows that there do not appear to be any designated parks, refuges or other land resources protected under Section 4(f) near the Airport. Airport activity may currently have some level of noise impact on river users.

Farmland Preservation. The Airport is located in an agricultural area, where much of the land is in cultivation. Federal and state laws require the review of any airport action that would remove farmland, as defined by soil classification or actual use, from active or potential agricultural use. Any property acquisition that would result in a loss of farmland would need evaluation using the procedures outlined by the Natural Resource Conservation Service (the federal agency charged with farmland preservation). Such action would also need to be reviewed under Clackamas County’s land use ordinances for zoning and farmland protection.

Light and Glare. On-airport lighting is focused for visibility by aviators, without creating a disturbance or distraction. Any additional facilities will need to consider the impact of light and/or glare, including the use of windows or roofing material, on aviation. Similarly, residences and other uses that may be affected by on-airport light 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 residential areas.

Natural Factors

Air Quality. Air quality can be a concern in a regional context or in a local, or “hot spot” context. Regional air quality typically relates to six criteria pollutants, including ozone, particulates, carbon monoxide, sulfur dioxide, lead, and nitrogen oxide. Regions are considered “maintenance” if the area is marginal in meeting established criteria for each pollutant. Hot spots are typically locations where traffic congestion or an industrial source creates a concentration of criteria pollutants. According to the Oregon Department of Environmental Quality map (website <http://www.deq.state.or.us/aq/aqplanning/aqmamap.htm>), the Airport is outside of the Portland Area Air Quality Maintenance Area. The area inside the boundary is in Maintenance for Ozone and Carbon Monoxide. Any aviation capacity increases proposed by the Master Plan may need to undergo review for air quality impact. 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.

It should be noted that the fields to the north of the runway were observed to produce significant amounts of airborne material while being plowed during the dry summer months. The dust clouds created by this activity could present visibility or mechanical impacts to aircraft operating in this area.

Water Quality. The Port currently has a 1200Z permit for stormwater discharge. The permit expires in 2007. The Airport has a system for the collection, treatment, and discharge of stormwater that meets the requirements of the 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 Molalla River is a popular local recreational fishing river. The Oregon Department of Fish and Wildlife’s (ODFW) Fish Finder website shows winter steelhead, spring Chinook, cutthroat and rainbow trout, and smallmouth bass present in the river.

Any airport actions will need to consider impacts to listed endangered and threatened species protected under federal or state legislation. In addition, the Magnuson-Stevens Act protects critical habitat for commercial fish species. Chinook is a federally listed threatened species. Any activity on the airport will need to consider impacts to the Chinook under the Endangered Species Act as well as habitat impacts under the Magnuson-Stevens Act.

Much of the airport area is mowed grass. This continued disturbance limits the likelihood of any endangered plants being on the Airport. Areas around the Airport are overgrown with blackberry and teasel, which are invasive species that typically out-compete native species for survival.

There is an open detention pond near the northeast end of the runway. This pond is surrounded by wetland vegetation and has been observed to provide bird habitat. When the pond contains water, waterfowl have been observed in the pond. Songbirds and corvids (crows and jays) were observed in the vegetation during summer months. This habitat should be monitored to ensure that the bird population does not present a safety threat to aviation.

Wetlands and Floodplains. The Army Corps of Engineers and the Oregon Department of State Lands are the agencies charged with regulating wetlands. The detention pond at the northeast corner of the Airport may include areas considered jurisdictional wetlands. At the time of any development action affecting the pond, a formal delineation will need to be prepared. There are also three linear wetland areas to the east of the taxiway that are potentially jurisdictional (see Exhibit 2H), outside of the current area of airport activity (runways, taxiways, or structures that are in use). Any proposed activity in these areas will require formal delineation and review by the Department of State Lands and the U.S. Corps of Engineers.

The Airport is outside of the Molalla River 100-year floodplain. The Airport is located on a bench above the river, on the outside of a small bend. The river has exceeded flood stage in several recent years and there appears to be some undercutting of the riverbank below the Airport. The undercutting is not visible in Exhibit 2H; however, this is a constraint that will be further discussed in Chapter Five, *Airport Development Alternatives*.

Energy Supply and Natural Resources. This category focuses on the impact of airport actions on energy and natural resources not already discussed. Typically, the resources include those used in construction materials. In general, construction materials are not in short supply. Fuel for construction equipment is available nearby. At one time, the Airport had a fueling station and an area has been prepared for future installation of one. The site has adequate electrical supply to provide power to navigation aids and security lighting on the Airport. In general, the airport does not directly have an impact on energy supply and natural resources.

Solid Waste. General Aviation airports typically do not generate significant amounts of solid waste. Often the waste that is generated includes food and beverage containers, or packaging for aircraft maintenance products. Food containers may create a bird and rodent attractant.

Other solid waste materials may be generated during construction. These include pavement materials being removed. The current trend in construction is to recycle the old material 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 so that food or other waste materials do not attract scavenging wildlife to the Airport.

Hazardous Materials. The former fueling base was decommissioned in the 1990s. As part of the process, monitoring wells were established and sampled. In 1998, after four quarters of no detectable contamination in the samples, the Port requested a conditional notice of no further action from DEQ. The conditions include leaving the eight monitoring wells in place, disclosing

the site conditions and history to potential buyers, and in the event of demolishing the adjacent airplane hangar, excavating remaining petroleum-affected soil.

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. The old hangar that is currently used for storing mowing equipment appears to have potential for some soil contamination, based on a site visit where small patches of darkened soil with petroleum odor were observed.

Any areas where construction is proposed would need to undergo some level of research, such as a “Phase One Environmental Site Assessment (ESA)” to identify any history of possible contamination. A Phase One ESA is a prescribed process to review a site through a review of records and physical inspection, to identify the potential for contamination.

Construction Impacts. Construction impacts typically include temporary noise, dust or traffic, as well as the potential for erosion and water quality impacts from material spills associated with construction. Once construction activities are identified, construction timing, phasing, and mitigation measures need to be considered to reduce impacts such as erosion and dust, maintain water quality, comply with rules regarding in-water work for fish habitat, and reduce noise impacts on neighbors.

Controversy. Off-airport impacts can be controversial. During the history of the Airport, noise has been the only substantive off-airport issue. This prompted the Airport to develop and maintain a Noise Growth Management Plan (NGMP). The NGMP established a noise impact boundary, which is approximately the 55 DNL noise contour. The plan also includes a series of operations procedures and management policies to reduce noise impacts from the Airport, including a series of recommended actions for land use compatibility planning. Public outreach during the master plan provided an opportunity for controversial issues to be identified. See Appendix B for documentation of the master plan public outreach efforts.

Environmental Conclusion

In general, the Airport presents few environmental constraints. The environmental impact of the airport development alternatives, which will be developed in Chapter Five, will be further evaluated in that chapter.

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, either in a hangar or tied down on either a paved apron surface or a grassy area designated for such a use. The Port’s tenant records indicate that there are currently 40 aircraft based at the Mulino Airport. Of the 40

existing based aircraft, 37 are stored in hangars, while the remaining three are stored in tiedown positions on the apron.

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 an Airport. Operations not categorized as local are categorized as itinerant. Conflicting data exist for the estimated number of aircraft operations in 2004, the most recent year with published data:

	FAA Airport Master Record (Form 5010)	FAA Terminal Area Forecast
Air Taxi	-	100
General Aviation Local	13,000	14,385
General Aviation Itinerant	8,300	21,577
Total	21,300	36,062

Chapter Three discusses this conflict in operations data in more detail.

AIRPORT FINANCIAL DATA

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

Airport Operating Revenues & Expenses

Table 2A shows the Mulino Airport's revenues and expenses for the past five years. Operating costs have consistently exceeded revenues. Discussions with the Port have indicated that the Mulino Airport has never been financially self-sufficient.

Federal grants from the Airport Improvement Program (AIP) are the major source of funding for airport capital expenditures. Table 2B depicts the AIP funding the Mulino Airport has received for airport improvement projects between the years 2000 and 2005.

Table 2A. Airport Revenues and Expenses

	Actual 2000	Actual 2001	Actual 2002	Actual 2003	Actual 2004	Actual 2005	Actual 2006
Operating Revenues							
Land Lease	12,438	12,438	12,438	12,438	12,438	11,838	12,663
Rent Revenue	6,492	7,575	3,247	3,050	5,458	6,700	6,563
Concession Revenue	27,002	31,855	25,955	26,520	24,962	25,020	23,487
Operating Grant Revenue	0	0	0	0	0	10,841	171,659
Miscellaneous	890	736	680	0	0	0	0
Total Operating Revenues	46,821	52,604	42,320	42,008	42,858	54,399	214,372
Operating Expenses *							
Personal Services	5,150	7,791	1,952	2,797	13,428	3,850	3,500
Materials & Supplies	5,163	1,774	6,053	5,576	3,949	971	2,005
Equipment Rents, Repair, and Fuel	8	4	682	1,581	1,816	22,811	3,010
Utilities	11,580	10,370	14,400	11,176	13,278	13,781	16,171
Outside Services	30,545	25,198	32,443	51,668	40,956	52,124	218,450
Fixed Charges (insurance)	4,736	5,159	11,610	8,999	12,717	12,103	12,787
Allocated & Other Expenses	0	66	0	30	53	14	4
Management & Travel	483	113	73	84	252	372	134
Direct Transfers (maintenance)	18,244	10,733	29,219	23,545	22,550	26,059	36,613
Allocated Support Service	4,929	8,064	3,217	9,200	35,742	10,815	0
Total Operating Expenses before Depreciation	80,840	69,272	99,650	114,656	144,741	142,901	292,674
Operating Income before Depreciation	(34,018)	(16,668)	(57,330)	(72,647)	(101,883)	(88,502)	(78,302)

Source: Port of Portland, 2008, April.

Table 2B. Recent Federal Grant Projects

Year	Project	AIP Funding Received
2002	Installed rotating beacon, improved Runway 32 Safety Area, constructed hangar taxilanes, updated Exhibit "A" property map.	\$374,815
2003	Removed Runway 32 Obstructions	\$172,600

Source: FAA, 2006, August.

Rates & Charges

The Port charges hangar tenants a fee of \$125 per month. Tiedown rental rates are \$25 per month. Cougar Development currently pays \$0.19 per square foot for a ground lease with the Port, a recent increase from \$0.175 per square foot. Cougar Development charges its T-hangar tenants \$225 per month. The local EAA chapter also pays a \$176.25 monthly fee to the Port for the building they occupy.