

Chapter One

INVENTORY

Airport Layout Plan Report

Grove Field

The initial step in the preparation of the Airport Layout Plan Report for Grove Field is the collection of information pertaining to the Airport and the area it serves. The information collected in this chapter will be used in subsequent analyses in this study. The inventory portion of this chapter will summarize the Airport location, history and existing facilities. By establishing a thorough and accurate inventory, an appropriate forecast and recommendations for airfield and landside facilities can be developed.

The information was obtained from several sources, including on-site inspections, airport records, reviews of other planning studies, the Federal Aviation Administration (FAA), various government agencies, a number of on-line (Internet sites) which summarize statistical information and facts about the Airport, and interviews with airport staff, planning associations, and airport tenants. As with any airport planning study, an attempt has been made to utilize existing data, or information provided in existing planning documents, to the maximum extent possible.

AIRPORT LOCATION AND ACCESS

Grove Field is located in Clark County, Washington approximately three miles north of downtown Camas along State Highway 500. Clark County is in south western Washington, bordered by the Columbia River and the State of Oregon on the south and the Cascade foothills on the north and east. The City of Camas is situated in eastern Clark County and is served by State Highways 14 and 500. Public transportation in the City of Camas is provided by C-Tran

bus service. There are also Greyhound Bus and Amtrak stations in the City of Vancouver (14 miles west of Camas).

AREA TOPOGRAPHY

The Airport has an elevation of 429 feet (NAVD 88). The surrounding terrain is hilly to mountainous. Three large mountain peaks are located near the Camas area: Mt. St. Helen's to the north, Mt. Adams to the northeast, and Mt. Hood to the southeast. The area to the west of Camas consists of less rugged, gentler peaks that gradually decrease in elevation as they approach the coast of the Pacific Ocean.

CLIMATE

Camas has a mild climate. The average high temperatures during the winter months (December through March) generally range from 44 to 55 degrees Fahrenheit with the coolest temperatures typically occurring in December and January. Average high temperatures during the summer months (June through September) generally range from 72 to 80 degrees Fahrenheit with the warmest days occurring in the month of July. Annual rainfall averages about 50 inches, while annual snowfall averages about 8.9 inches.

COMMUNITY AND AIRPORT HISTORY

Approximately 6,000 years ago, Native Americans inhabited the land now known as Camas. The name Camas is derived from the Indian word "Camass" meaning "sweet fruit" and was named so because of the bulb of the pale blue camas lily which was often eaten by the Pacific Northwest Indians as a delicacy. Lewis and Clark were the first Americans to discover the Camas area in 1805. The City of Camas history began in 1846 when a sawmill was constructed on La Camas Creek. In 1883 business men from Portland came to the area to lay out a town site and began to build the first paper mill in the Washington Territory. This mill has since grown into one of the world's largest manufacturers of specialty papers and is now a division of the nationwide Georgia Pacific Corporation.

Grove Field was originally constructed in 1945 on 15 acres of land purchased by Ward Grove. At the time, the runway was 1,650 feet long. In 1946, Ward Grove purchased an additional 10 acres of land and extended the runway to its current length. An FBO hangar was also constructed at this time and is still used as an FBO today. In 1962, the Port of Camas/Washougal acquired the Airport and has owned and operated the Airport since that time. Over the years, several hangars have been constructed, taxiways and taxilanes were built and paved, the runway was paved, and a series of other Airport improvements have been made.

AIRCRAFT ACTIVITY DATA

There are two types of aircraft activity data: based aircraft and annual operations. Based aircraft are the number of aircraft that are stored at an airport (either in hangars or in tiedowns). Annual operations are a reflection of the yearly number of aircraft that perform a takeoff or a landing at

the Airport. There are currently 73 based aircraft at Grove Field. There are 72 single-engine aircraft and 1 multi-engine aircraft. Based on the FAA's Airport Master Records (form 5010) for Grove Field, current annual aircraft operations at the Airport are estimated to be 7,000. Of the 7,000 total annual operations, 5,000 are general aviation local operations and the remaining 2,000 are general aviation itinerant operations. Projected based aircraft and annual operations data will be presented in Chapter Two, *Forecasts*.

No significant airport service area studies have been conducted, but through discussions with the Airport, it is estimated that the primary service area for Grove Field includes the Cities of Camas, Washougal, and other communities in Eastern Clark County.

CRITICAL AIRCRAFT

An airport is designed based on the characteristics of the most demanding aircraft, in terms of approach speed and wingspan, which currently use an airport or that is projected to use an airport at some point in the future. The critical aircraft for an airport must have 500 or more annual itinerant operations at that airport. The critical aircraft at Grove Field is a Cessna 172. This aircraft has a wingspan of 36.1 feet and a maximum takeoff weight of 2,450 pounds.

EXISTING FACILITIES

The airport reference code (ARC) is a criterion that defines the critical airport dimensions based on an airport's critical aircraft. The ARC is defined specifically by the approach category and the design group of the critical aircraft. The approach category is determined by 1.3 times the stall speed of the aircraft in its landing configuration at its maximum landing weight. The approach category is represented by the letters A, B, C, D and E. The design group of the aircraft is based on the length of the wingspan and is defined by roman numerals I, II, III, IV, V and VI. **Exhibit 1A** summarizes representative aircraft by ARC.

Grove Field Airport has an existing ARC of A-I (small). Approach category A includes those aircraft that have an approach speed less than 91 knots. Design group I includes those aircraft that have a wingspan of up to but not including 49 feet. The Cessna 172, identified as the critical aircraft, falls into this ARC. The existing facilities at Grove Field are discussed in the following paragraphs and are identified on **Exhibit 1B**.

Table 1A presents the existing Airport design standards and the design standards that the Airport should have in order to meet the ARC of A-I (small).

Table 1A - Airport Design Standards

Design Feature	Existing (feet)	Standard A-I (small) (feet)
Runway Safety Area (RSA)		
-Width	80	120
-Runway 7 Length beyond runway end	0	240
-Runway 25 Length beyond runway end	110	240
Runway Object Free Area (OFA)		
-Width	120	250
-Runway 7 Length beyond runway end	500	240
-Runway 25 Length beyond runway end	110	240
Runway Protection Zones	250 x 1,000 x 450	250 x 1,000 x 450

Sources: Existing – W & H Pacific, Inc.

Standard – FAA AC 150/5300-13, Change 9

Note: The Airport does not own the existing RPZ.

As can be noted in Table 1A, a few of the existing critical area dimensions do not meet A-I (small) ARC standards. These variances will be discussed later in the report.

AIRFIELD FACILITIES

All existing pavement sections and pavement conditions were obtained from Pavement Consultants Inc.'s 1999 pavement survey (see **Exhibits 1C** and **1D**). The pavement condition index (PCI) survey is an inventory of the existing pavement sections and pavement conditions at all state-funded airports. The survey is compiled by a consultant hired by the State of Washington. The consultant uses a form of pavement testing to get a rating for each pavement surface. The rating, based on a numbered scale of 0-100, with 0 being the lowest and 100 being the highest, corresponds to a pavement condition ranging from poor to excellent. The State has hired another consultant to update this data in 2004/2005. Pavement conditions discussed below are reported based on visual observations by W&H Pacific through an Airport field visit conducted on September 24, 2004.

Runway

Grove Field has one paved runway (Runway 7-25) at a length of 2,620 feet and a width of 40 feet. The runway has displaced thresholds on both ends; 404 feet on the Runway 7 end and 416 feet on the Runway 25 end. The thresholds are displaced because of trees in the approach surface of both runway ends. It is important to note that, according to the WSDOT Aviation Division's Pilot's Guide, there is only 1,804 feet of runway length available for night operations due to the fact that the displaced thresholds are not lit.

The pavement section for Runway 7-25 consists of 15 inches of aggregate sub base, four inches of crushed aggregate base and two inches of asphalt. The runway was fog sealed in 1992 and 1999. The runway pavement is in good condition. According to the US Department of Transportation's Airport Facility Directory, the runway pavement at Grove Field is rated for

single wheel gear 4,000-pound aircraft. This pavement strength is adequate in supporting the operations of the critical aircraft.

Runway orientation is determined by the direction of the prevailing winds. The FAA recommends that a runway have 95% wind coverage based on specified crosswind components. Grove Field does not currently have a wind rose; therefore current wind coverages cannot be identified. As part of the facility requirements chapter, effort will be made to obtain wind data for the Airport.

All existing data (i.e., runway end elevation data, latitudes and longitudes) have been surveyed. Elevations are accurate to between 0.041 and 0.045 meters, latitudes are accurate to between 0.006 and 0.008 meters, longitudes are accurate to between 0.014 and 0.016 meters.

Taxiways and Taxilanes

Runway 7-25 has a parallel taxiway (Taxiway G) on its north side. Taxiway G is 2,660 feet long and 20 feet wide and is in good condition. The pavement section for Taxiway G consists of an unknown thickness of aggregate base course and two inches of asphalt. Taxiway G was fog sealed in 1999. This taxiway is located on private property, but is maintained by the Port through easement. Taxiway F is the midfield connector taxiway. It is 410 feet long by 20 feet wide and is in fair condition. The Taxiway F pavement section consists of four inches of crushed aggregate base course and two inches of asphalt. Taxiway F was fog sealed in 1992 and 1999. Taxilanes B, C, D, and E are all located on the south side of the runway. The taxilanes provide access to the aircraft hangar area. The dimensions and pavement sections of each taxilane vary (see **Exhibits 1A** and **1B**). Taxilane pavement conditions are poor.

Aprons and Aircraft Parking

Grove Field has three aircraft apron areas. One is a paved 115-foot by 140-foot area dedicated to aircraft fueling. This apron is located east of the hangar area. The apron pavement is in fair condition. The other is a grass 300-foot by 350-foot area used for aircraft parking, located south of the runway near the Airport wind cone. There are eight tie-down positions located on this apron. A third grass apron area was constructed in December of 2004. It is located on the east side of the fueling facility. It is estimated that there will be an additional six to ten tie-down positions on the new apron. The Port of Camas/Washougal charges an In-District tie-down rate of \$29.75 per month and an Out-of-District rate of \$34.75 per month. In-District refers to people that live or own property in the Port district and therefore pay taxes to the Port.

LANDSIDE FACILITIES

Hangars and Airport Buildings

There are a total of eight Port-built and owned T-hangar buildings on the Airport, all located south of the runway. There are a total of 79 hangar bays within the eight buildings. All hangars are leased by the Port on a month-to-month basis. Hangar lease rates vary in price based on location and In-District versus Out-of-District rates but generally range from \$134-\$255 per

month. There is also a restroom/shower building located at the Airport. The pilot's lounge has been closed due to its poor condition, however, the Port plans to remove the pilot's lounge and install a portable building in the near future. In addition to on-airport aviation-related buildings, there are six privately owned hangars located on residential property on the north side of the Airport. These hangars are considered through-the-fence operations. This practice is highly discouraged by the FAA and WSDOT Aviation Division.

Fixed Based Operators (FBOs)

A fixed based operator is an individual or a business that offers aviation-related services to Airport users, such as flight instruction, aircraft rental, aircraft maintenance, full-service aircraft fueling, etc. The Port has negotiated a lease with an individual interested in providing aircraft maintenance services at the FBO building.

Internal Circulation, Access and Vehicle Parking

The majority of the Airport is fenced. The south side of the Airport has seven-foot chain link fence, the east and west end has a four-foot fence and the north end of the field is open. Access to the field is controlled by a card operated security gate at the airport entrance. Vehicular access to the Airport is via State Highway 500. Automobile parking is located on the east end of the Airport off of 267th Street outside of the fenced in area. The lot is approximately 3,800 square yards and has space for about 85 vehicles.

AIRFIELD SUPPORT FACILITIES

Aircraft Rescue and Firefighting

There are no Aircraft Rescue and Firefighting (ARFF) facilities available at the Airport. Local Police & Fire Departments provide emergency services to the Airport. In order to aid in these efforts, a 120,000 gallon water storage tank has been installed. It is worth noting that the Clark County Fire District has purchased a portion of land adjacent to the Airport for construction of a new fire station. This is further discussed in the facility requirements chapter.

Fueling Facilities

The Port owns and operates the Airport's fueling system. There is one above-ground 12,000 gallon tank for 100LL aircraft fuel. The fueling tank is located to the east of the hangar area. The Airport has a 24-hour self-service credit card fueling system available to pilots.

Airport Maintenance

Airport maintenance is provided by the Port of Camas/Washougal.

Utilities

Water at the Airport is provided by the City of Camas. Telephone and power services are provided by the local utility companies. Sewer service is limited to the Airport's on-site septic system.

Common Traffic Advisory Frequency (CTAF)

The Federal Communications Commission (FCC) issued Grove Field a Common Traffic Advisory Frequency (CTAF) of 122.9 MHz. This frequency is used by pilots to communicate their intentions, via radio, to other pilots who may be in the vicinity of the Airport.

AIRPORT NAVIGATIONAL AIDS

Airport Navigational Aids, or NAVAIDS, provide electronic navigational assistance to aircraft for approaches to an airport. NAVAIDS are either 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 which are provided.

Instrument Approach Aids

There is no airport traffic control tower (ATCT) or any instrument approach aids at Grove Field.

Visual Approach Aids

All approaches to the Airport are made on a visual basis. Grove Field is equipped with a rotating beacon, a lighted wind sock, and a segmented circle. The Airport also has a 2-light Precision Approach Path Indicator (PAPI) on the left side of both runway ends. PAPIs contain multiple light units that are angled to provide the pilot with information as to whether they are approaching too low or too high.

Airport Lighting and Signing

The pavement between the thresholds (1,804') of Runway 7-25 is equipped with medium intensity runway lights (MIRL). The MIRL are pilot activated by using the CTAF frequency of 122.9 MHz. There is no lighting on the Airport taxiways; however Taxiways A and F are equipped with reflectors. The Airport has runway directional signs, distance remaining signs and noise abatement procedure signs.

LAND USE PLANNING AND ZONING

There are several land use requirements that need to be considered in planning for the future of an airport. These include Federal, State, County, and City regulations. A review of the regulations pertaining to Grove Field is included in the following sections.

Federal regulations cover airspace protection through the establishment of the CFR 14 Part 77 requirements and establish a threshold of noise concern for 65 dBA DNL as an area of potential effect. Federal Aviation Regulations (FAR) Part 77, *Objects Affecting Navigable Airspace*, Establishes obstruction standards used for identifying potential adverse effects to air navigation and establishes notice standards for proposed construction. Imaginary surfaces were created and our used as the basis for protecting the airspace around the airport. It is ideal to keep these areas clear of any obstructions. FAR Part 77 consists of five surfaces, each with specific controlling measures. The surfaces include: a primary surface, an approach surface, a transitional surface, a horizontal surface and a conical surface. There are existing obstructions to the runway approach surfaces at Grove Field. The controlling obstruction for Runway 7 is a group of trees located 1,125 feet from the runway end at a height of 111 feet above the runway end. The controlling obstruction for Runway 25 is a tree located 61 feet above the runway end, 405 feet from the runway end, and 5 feet to the left of the extended runway centerline. Any additional existing obstructions to this surface and obstructions to other Part 77 surfaces will be discussed in subsequent chapters.

Under FAA guidelines, 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 activities and purposes compatible with normal airport operations.

Washington State regulations are based on the Growth Management Act (GMA), Chapter 36.70A of the Revised Code of Washington (RCW), which requires most counties and cities to establish goals, evaluate community assets, and write comprehensive plans to discourage the siting of incompatible uses near airports that are operated for the benefit of the general public. Depending on airport characteristics, location and amount of usable open space adjacent to a general aviation airport, incompatible land uses may include public assembly/large concentrations of people, residential density, intensity of nonresidential development, structure height issues, hazardous or explosive material, wildlife hazards/wetlands, light/glare, air quality and electronic signals. The requirements to plan under GMA are based on the city or county's population or rate of population growth. Areas that do not meet specified growth rates may choose whether or not to plan under GMA requirements. Clark County is required to plan under the GMA.

From an airport protection standpoint, the principles established under the GMA are valuable for every public use airport, regardless of jurisdictional planning status. These four basic principles related to public use airports are as follows:

- Local comprehensive plans and development regulations must discourage development of incompatible land uses adjacent to public-use airports
- Formal consultation with airport owners, pilots and WSDOT Aviation prior to adoption
- WSDOT Aviation to provide technical assistance program to develop such protection
- Airport to be identified as an Essential Public Facility (EPF) in the Comprehensive Plan.

Grove Field is owned and operated by the Port of Camas/Washougal. The airport is within Clark County, outside of the Camas city limits, and is therefore subject to Clark County planning, land use controls, development regulations and zoning. Existing zoning and land uses are discussed below.

Existing Land Use

Existing land uses within a mile of Grove Field rural residential s and agricultural areas. Many of the homes on the north side of the property line are through-the-fence operations. To the east of the property line, across the highway is the mobile home park. The south and west sides of the property are bordered by homes and agricultural areas.

Existing Zoning

Grove Field is controlled by Clark County’s zoning ordinance. The Airport resides in the County’s “Airport” district. All lots within this district must have a minimum 100-foot depth. The County’s ordinance does not specify a minimum requirement for lot area or lot width. The County describes this district as an area “...intended to recognize and protect those areas devoted to public use aviation, and which are designated on the comprehensive plan. It is also intended to provide areas for those activities supporting or dependent upon aircraft or air transportation, when such activities benefit from a location within or immediately adjacent to primary flight operations and passenger or cargo service facilities.” Some of the County’s permitted uses include aerial mapping and surveying, aviation-related storage facilities, such as hangars, agricultural activities, and hazardous waste treatment and storage facilities. A detailed listing of allowed uses and discussion of the County’s Airport Zone is provided in Appendix B. The current zoning for the Airport and the areas surrounding the Airport is depicted in **Exhibit 1E**.

The Clark County zoning ordinance includes an Airport Environs Overlay District, which is based on Part 77 regulations to further mitigate the adverse impacts of new development on airport operations. This zoning district is in place to assist in protecting the Airport from airspace obstructions, hazards and other incompatible land uses.

Clark County Comprehensive Plan

Clark County adopted its Comprehensive Plan in 2004, with revisions in 2005. The Plan includes a Framework Plan and 12 chapters that provide long range plans for eleven elements including Land Use, Annexation, Transportation, Parks and Recreation, and Economic Development. A review of the Comprehensive Plan Chapters shows the following discussions, goals and policies applicable either to airports and aviation in general, or specific to Grove Field.

- The County Framework Plan makes no reference to aviation or airports, either in land use or transportation.
- The Comprehensive Plan, Land Use Element (Chapter 1) defines the “Airport” zone as a designation applied to airports that allow public use. It is implemented with an airport base zone.

- The Transportation Element (Chapter 5) references Grove Field in a discussion of facilities owned and operated by the Port of Camas-Washougal, but provides no specifics. In the discussion regarding Aviation, there is no direct reference to Grove Field, although there is general discussion of the importance of aviation facilities in the county and the need to preserve existing operations.
- The Capital Facilities and Utilities Element (Chapter 6) does not specifically reference Grove Field. Policies are provided regarding airports as public facilities.
- The Economic Development Element (Chapter 9) does not contain any language supporting Grove Field or airports in general

Goals/policies provided in the Transportation Chapter that affect Grove Field include:

GOAL: Develop a multi-modal transportation system.

Policy: Regional airport planning shall include all affected jurisdictions to provide compatibility with surrounding land uses and to support adequate ground transportation to move people and goods to and from airports.

Implementation Strategies: Participate in any new airport site selection process led by the Ports, Washington State Department of Transportation Aviation Division or other governmental entity.

Goals/policies provided in the Capital Facilities and Utilities Element that relates to Airports in general include:

- The Comprehensive Plan of the county and each municipality shall include a process for identifying and siting essential public facilities such as airports, state education facilities and state or regional transportation facilities, state and local correctional facilities, solid waste handling facilities, and regional parks.
- Develop a process for identifying and siting essential regional public facilities such as state or regional transportation facilities, state education facilities, airports, corrections facilities, solid waste handling facilities and regional parks.

LIST OF SOURCES USED TO CREATE CHAPTER ONE: INVENTORY

Washington State Airport System Plan Inventory, 2002-2003
 FAA Airport Master Record (Form 5010), Affective Date September 30, 2004
 Pavement Consultants Incorporated Survey, August 1999
 W&H Pacific Visual Field Observations, Richard Wilson, September 24, 2004
 Camas-Washougal Chamber of Commerce Business Directory and Resource Guide, 2003-2004
 Clark County Comprehensive Plan, 2005