

Inventory of Existing Conditions

Introduction

Snohomish County Airport/Paine Field is the major general aviation/industrial aviation airport serving Snohomish County and several communities located in the northern portion of the Seattle Metropolitan Area (see Figure A1). The airport has been a catalyst that has brought The Boeing Company, Goodrich Inc., and other major aerospace companies to the County, providing a quite notable and prestigious employment base.

The area surrounding the airport, with many high quality homes and environmental amenities, has experienced significant residential development with the resulting homeowner concerns about the effect that the Airport may have on their lifestyle. Thus, the airport influences the social, economic, and physical environments of the area in which it operates. All of these effects must be carefully evaluated in considering airport development options.

Previous Paine Field planning studies include a Master Plan, which was completed in 1981, and an FAR Part 150 Noise Exposure and Land Use Compatibility Study, which was completed in 1986. These studies were updated by the existing Airport Master Plan for Paine Field completed in 1995. Local, regional, and national aviation issues have evolved significantly during the years that followed the completion of the last master planning effort. This evolution indicates that long-term planning considerations identified previously should be re-evaluated, and that an updated set of planning assumptions should be formulated. These assumptions will serve as a basis for airport development recommendations.

The purpose of this Airport Master Plan Update is to determine airport development needs, examine viable and reasonable alternatives, recommend a realistic plan, and identify potential environmental effects. The requirement for future facilities will be evaluated from an aviation utilization standpoint, along with consideration of the relationship of airport facilities to the surrounding community. The focus of the Master Plan Update is on the physical development of airport property to meet

aviation demands; however, consideration will also be given to the identification of potential non-aviation development areas on airport property. The overall planning goal is the development of an aviation facility that can accommodate future demand, is not significantly constrained by its environs, and minimizes its adverse effects on its surroundings.

Airport History and Regional Aviation Environment

Paine Field began in 1936 as one of five WPA projects designed to employ people and construct new airports in the United States. In 1941, the partially completed facility was taken over by the Army Air Corps and developed as an interceptor base during World War II. In 1946, the Air Corps deactivated Paine Field and the property and buildings were deeded to Snohomish County. The Airport was operated as a county airport until 1951, when the Air Force acquired the Airport's south complex and developed these facilities as a tactical air defense base. In 1968, the federal government again decided to deactivate Paine Field and conveyed the majority of military property and facilities to Snohomish County.

The Boeing Company negotiated an agreement with Snohomish County for the use of Paine Field in 1966 and constructed the Everett 747 plant. Boeing's facilities expanded in 1978 with the decision to add the 767 to their family of jets and again in 1992 when additional plant and office space was needed to meet the demand of increased sales of existing aircraft and the new 777 jetliner.

In 1970, with the acquisition of the former Air Force buildings from the federal government, Paine Field implemented an aggressive promotion and leasing program to find viable tenants for former military facilities. By offering reasonable rental rates, the Airport leased all of these buildings to new and growing businesses. With the regional recession of the early 1970s (due in part to a soft aerospace market), the Airport provided a bright area of economic benefits that consisted of over ninety companies employing over 2,000 people.

Since World War II, Paine Field has been Snohomish County's largest general aviation airport. The previous Airport Master Plan, which began in 1976 and was completed in 1981, evaluated the activities that the Airport might accommodate and Paine Field's future role. The county adopted a role for Paine Field in 1978, which was modified in 1979 when the county adopted the recommendations agreed to by a mediated role panel of interested parties (a copy of the 1978 Role Determination and 1979 panel recommendation, along with a brief summary are included in the Appendix). This "Mediated Role Determination encouraged general aviation activity, repair of large aircraft, corporate and business aviation activity, and Boeing Company operations. Airline crew training and military operations were to be held to 1979 levels, and air freight activity was to be discouraged. The 1979 Mediated Role Determination provided for air taxi and commuter operations at Paine Field. San Juan Airlines established service between Paine Field and Portland in 1987.

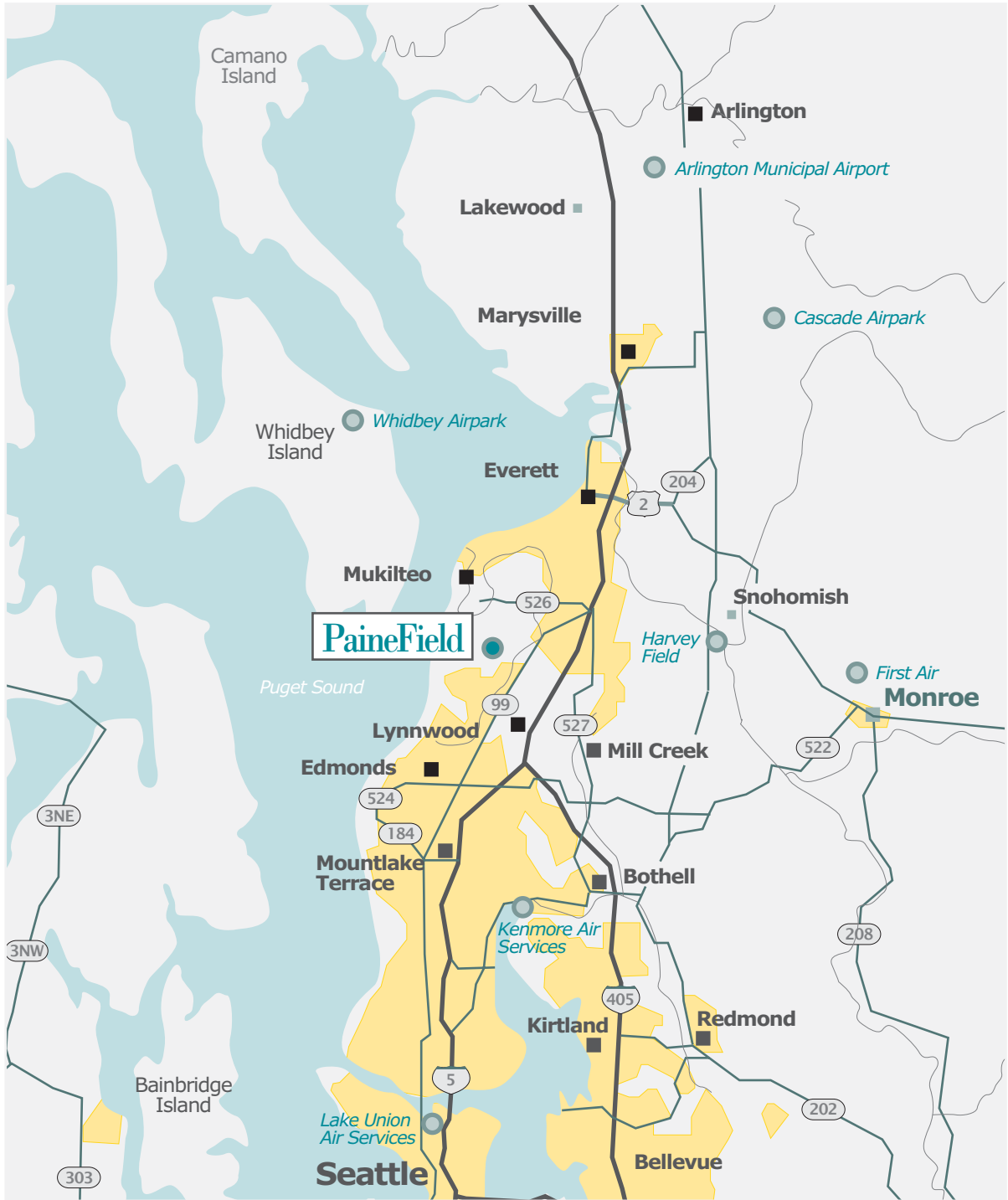


Figure A1 Airport Location Map

Not To Scale



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PaineField
Snohomish County Airport

Source: Microsoft Automap Streets Plus, 1997 Edition.

This commuter airline experienced financial problems in 1988 and terminated all operations.

Regional Aviation Plans

Regional level airport system planning guidance is contained in the Regional Airport System Plan (RASP), a document prepared by the Puget Sound Regional Council. The current RASP for the central Puget Sound region was adopted by the Regional Council in 1988. That plan contained recommendations for capacity improvements at the region's general aviation airports, and began the lengthy process for decisions related to the region's commercial air passenger demand. An early step in the analysis and decision process was "Flight Plan", a study co-sponsored by the Puget Sound Regional Council and the Port of Seattle. Commenced in 1989, "Flight Plan" evaluated a wide range of regional alternatives for meeting demand, including enhancements at Sea-Tac, a two-airport multiple airport system, a three-airport multiple airport system, a new replacement airport (coupled with the closure of Sea-Tac), and no action. The Flight Plan recommendations included a three airport system with the following elements: (1) a third runway at Sea-Tac, (2) introduction of air carrier service in the northern portion of the region; and, (3) future air carrier service in the southern part of the region.

In 1993, and based on the results of the "Flight Plan" process, the Regional Council adopted Resolution A-93-03, a two-airport system as the region's preferred plan. The plan involved improvements at Sea-Tac Airport combined with a new supplemental airport. The 1993 decision launched a "Major Supplemental Airport Study", which sought to locate a new airport site in the central Puget Sound region. The study was co-sponsored by the Regional Council, the Port of Seattle, the Washington DOT, and the FAA. Resolution A-93-03 also eliminated small supplemental airports, including Paine Field, as preferred alternatives. In 1994, after an exhaustive study of potential sites, the Regional Council stopped any further study of new airport sites and affirmed its approval of the third runway at Sea-Tac, subject to the independent evaluation of noise and demand management conditions (expert panel" process) established in 1993. In 1996, after those independent evaluations had been completed, the Regional Council adopted Resolution A-96-02, which formally added planning for Sea-Tac's third runway to the Metropolitan Transportation plan, subject to additional noise reduction steps to reduce the airport's impacts on adjacent communities.

In 1998, the Puget Sound Regional Council began an update of its 1988 "Regional Airport System Plan (RASP)" focused on the region's general aviation airports. The RASP, scheduled to be completed in May 2001, provides direction for investments in the region's airport system for the next 20 years. The plan's primary directions are to preserve and maintain the existing airport infrastructure, provide for safety and standards improvements, enhance the system to meet growing and changing user

needs, and to provide additional aircraft storage capacity (primary hangars) at selected airports that have both the ability and willingness to accommodate growth. At Paine Field, the RASP supports investment in the facility as a major reliever airport, and includes most of the improvements identified in the 1995 Airport Master Plan. These include runway safety area improvements, obstruction program, NAVAIDS, new air traffic control tower, and additional aircraft hangars, as well as numerous identified off airport roadway improvement projects.

Recent Airport Development

In the past twenty years, over \$50 million of new airfield construction has been completed at Paine Field. Over \$30 million of these projects involved aeronautical improvements that were funded by the FAA under the Airport Improvement Program (AIP), which derives its money from aviation user fees. A new parallel general aviation runway and a new taxiway for the Airport's primary runway utilized over \$12 million of this AIP funding, along with \$15.8 million for Runway 16R/34L safety area improvements and the construction of Taxiway A-1 and Taxiway A-9.

In addition to the new aeronautical and industrial facilities constructed at the Airport, several major land leases were negotiated and tenants constructed large leasehold improvements on this property. Goodrich, the largest third party commercial aircraft repair and maintenance company in America, completed a 265,000 square foot hangar, office, and shop facility costing \$16 million on sixteen acres of lease property in 1989. This growing aerospace company has also constructed a new 635,000 square foot office, hangar, shop, and warehouse facility, which was completed in 1993 at a cost of \$81 million.

In 1988, Snohomish County sold The Boeing Company 68 acres of airport property for the expansion of the company's flight line. This property was essential for Boeing's increased production schedule for 747/767 aircraft and the new family of 777 jets. This has resulted in an on-going expansion of office and plant facilities totaling 5.6 million square feet at an estimated cost of some \$1.6 billion.

General Airport Description and Existing Airport Facilities

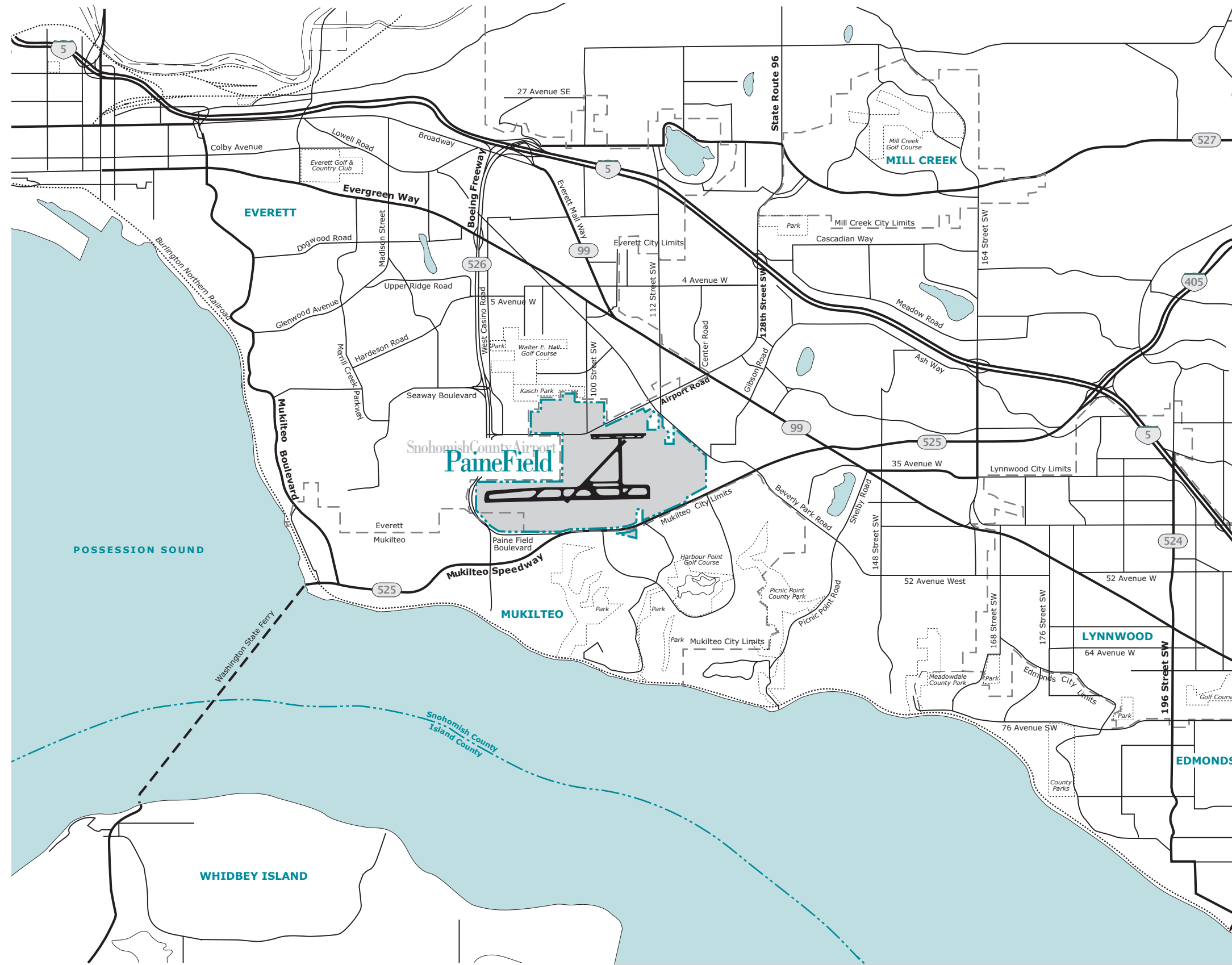
Paine Field Airport is owned and operated by Snohomish County, Washington. Under the direction of the County Executive and the County Council, the Airport Director and Staff supervise the day-to-day operation of the Airport. Paine Field is an enterprise department of Snohomish County and is mandated to generate all revenue necessary to operate and maintain the Airport. In the Federal Aviation Administration's (FAA's) *National Plan of Integrated Airport Systems* (NPIAS), it is designated as a general aviation reliever airport for Seattle-Tacoma International Airport. A Reliever Airport is a general aviation airport that is located in a metropolitan area and is intended to reduce congestion at a large commercial

service airport by providing general aviation pilots with alternative landing areas. In addition, Paine Field is a designated alternate landing site to Seattle-Tacoma International Airport for commercial service operators during fog or when weather conditions dictate.

The following figure, entitled *AIRPORT VICINITY MAP*, provides a graphic description of Paine Field's location in relation to surrounding communities and roadways in Snohomish County. Paine Field Airport is located approximately six miles southwest of the Everett Central Business District (CBD) and approximately twenty miles north of downtown Seattle.

The Airport Reference Point (ARP) is located at Latitude 47° 54' 25.388"N, Longitude 122° 16' 53.816"W. The airport elevation is 609.65 feet above mean sea level (AMSL) and has property consisting of approximately 1,284.3 acres. Paine Field has three runways, an extensive system of taxiways, aircraft parking aprons, hangars, a terminal building, and various other airport facilities. The following text and illustration, entitled *EXISTING AIRPORT LAYOUT*, provide verbal and graphic descriptions of the existing airport facilities.

Figure A2
Airport Vicinity Map



1" = 6,000'



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PaineField
Snohomish County Airport

Source: Snohomish County Planning Department Mapping, Aerial Photography, and United States Geological Survey (USGS) Quadrangle Sheets.

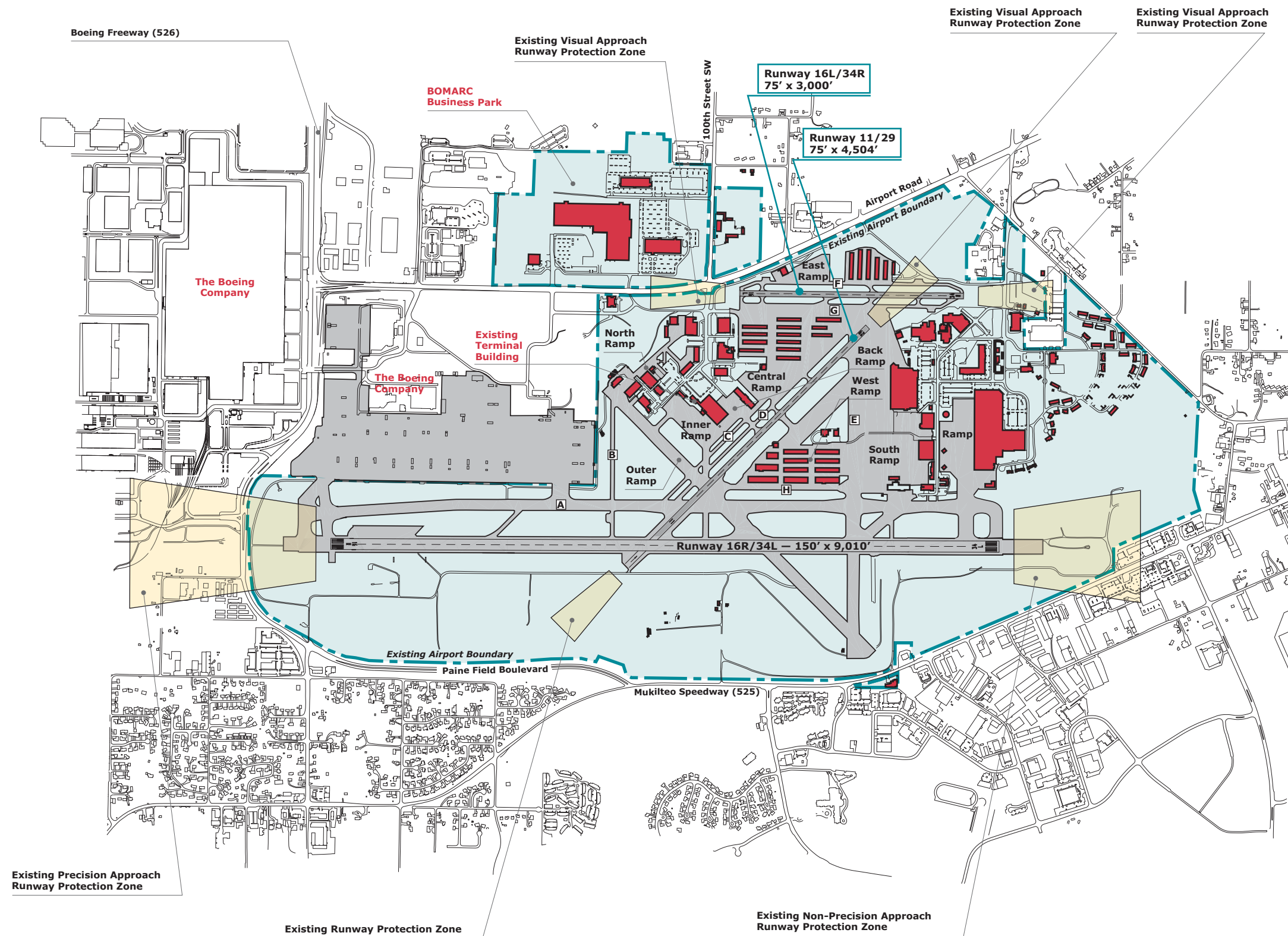



Figure A3
Existing
Airport Layout Plan

Existing Precision Approach
Runway Protection Zone

Existing Runway Protection Zone

Existing Non-Precision Approach
Runway Protection Zone

Not to Scale 

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PaineField
Snohomish County Airport

Source: Previously Prepared Airport Layout Plan, Barnard Dunkelberg & Company, October 2000.

Federal Grants Summary

In addition to the original construction by the Federal Works Program Administration, and improvements made by the Army Air Corps and the U.S. Air Force, Snohomish County has received forty-two Federal grants for Paine Field improvements since 1949. Specific projects include:

- Project 9-45-018-901 (1949). Grade, drain and ballast light plane apron; install high intensity lights on N/S runway. Federal participation - \$24,094.
- Project 9-45-018-902 (1949). Install additional drainage system on existing N/S runway and landing strip. Federal participation - \$30,154.
- Project 9-45-018-103 (1951). Grade, drain, and pave parking and service apron and stub taxiway. Federal participation - \$9,452.
- Project 9-45-018-6104 (1960). Construct secondary taxiway including two stub taxiways. Federal participation - \$22,000.
- Project 9-45-018-7005 (1969). Reconstruct, strengthen, and mark Runway 16/34, including drainage; modify ALS threshold and HIR lights. Federal participation - \$269,412.
- Project 7-53-0028-01 (1973). Relocation of building No. 1103 to provide line-of-site for ATCT; relocate HIRL, taxiway, and ALS controls to the new ATCT. Federal participation - \$61,486.
- Project 7-53-0028-02 (1974). Install wind cone; install VASI Runway 34; improve Runway 16/34 safety area; extend Taxiway F; install lighting taxiways C, D, F, and H; install taxiway guidance signs; install threshold lights and lenses for MIRL Runway 11/29. Federal participation - \$89,157.
- Project 7-53-0028-03 (1974). Acquire quick response fire/crash rescue (CFR) vehicle. Federal participation - \$19,047.
- Project PGPA-53-0028-01, 02, 03, 04 (1977, 1978, 1979, 1980). Preparation of conceptual development and environmental study portions of an Airport Master Plan. Federal participation - \$354,195.
- Project 5-53-0028-04 (1976). Convert structural fire tanker to CFR vehicle. Federal participation - \$38,800.
- Project 5-53-0028-05 (1977). Construct, mark, and light Taxiway F. Federal participation - \$72,372.
- Project 5-53-0028-06 (1978). Mark Runway 16/34. Federal participation - \$23,949.
- Project 5-53-0028-07 (1979). Construct, mark, and light taxiway G; acquire CFR proximity suits. Federal participation - \$106,760.
- Project 5-53-0028-08 (1980). Construct aircraft parking apron; install safety fencing, fabricate crash, fire, rescue vehicle. Federal participation - \$423,500.
- Project 7-53-0028-09 (1981). Rehabilitate and mark Runway 16/34; grade safety area Runways 16/34 and 11/29; install VASI-2 on Runway 11 and 29; pave aircraft parking area including tiedowns and marking; construct run-up apron Taxiway D; rehabilitate portion of Taxiway A. Federal participation - \$2,152,461.
- Project 3-53-0028-01 (1983). Construct, mark, and light Phase I Taxiway A. Federal participation - \$944,472.
- Project 3-53-0028-02 (1983). Site preparation for new Runway 16L/34R. Federal participation - \$439,239.

Project 3-53-0028-03 (1983). Prepare FAR Part 150 Noise Compatibility Plan (Phase I). Federal participation - \$49,438.

Project 3-53-0028-04 (1984). Complete FAR Part 150 Noise Compatibility Plan (Phase II). Federal participation - \$75,202.

Project 3-53-0028-05 (1984). Construct, light, and mark Phase II Taxiway A. Federal participation - \$1,536,809.

Project 3-53-0028-06 (1985). Acquire land; prepare site and remove obstructions for new Runway 16L/34R; construct apron; construct fencing. Federal participation - \$2,702,079.

Project 3-53-0028-07 (1986). Complete Runway 16L/34R fill; construct access way; clear and grade clear zone Runway 16L; construct and light apron east of Runway 16L/34R and construct connecting taxiway. Federal participation - \$1,386,111.

Project 3-53-0028-08 (1986). Acquire land for development; complete construction of Runway 16L/34R; complete construction of runway and taxiway lighting; complete fencing; construct T-hangar taxiway; relocate East Army Way. Federal participation - \$708,768.

Project 3-53-0028-09 (1986). Design Phase III Taxiway A. Federal participation - \$72,832.

Project 3-53-0028-10 (1987). Construct Phase III Taxiway A. Federal participation - \$1,563,659.

Project 3-53-0028-11 (1988). Purchase noise monitoring equipment; improve north and south safety areas; construct taxiways A-2 and D-1. Federal participation - \$1,094,862.

Project 3-53-0028-12 (1989). Construct access road, construct Taxiway G-3, strengthen Taxiways A-5, A-6 and E. Federal participation - \$755,588.

Project 3-53-0028-13 (1989). Strengthen Taxiways A-3, A-4, C, and D. Strengthen main terminal aprons and east apron. Federal participation - \$863,120.

Project 3-53-0028-14 (1990). Signage Phase I, security gates, lighting controls. Federal participation - \$320,785.

Project 3-53-0028-15 (1991). Taxiway F south construction, Phase II signage. Federal participation - \$241,182.

Project 3-53-0028-16 (1992). Signage, Phase III; rehabilitate HIRL Runway 16R/34L. Federal participation - \$971,816.

Project 3-53-0028-17 (1992). Master Plan and Environmental Assessment. Federal participation - \$200,000.

Project 3-53-0028-18 (1993). Runway 16R/34L and Taxiway Alpha shoulders. Federal participation - \$2,732,270.

Project 3-53-0028-19 (1994). Runway 16R/34L resurfacing. Federal participation - \$2,300,000.

Project 3-53-0028-22 (1996). Reconstruct Runway 34L. Federal participation - \$1,434,147.

Project 3-53-0028-23 (1996). Reconstruct Taxiway A7. Federal participation - \$233,853.

Project 3-53-0028-25 (1998). Runway 16R/34L Safety Area Improvements. Federal participation - \$4,642,452.

Project 3-53-0028-26 (1998). Runway 16R/34L Safety Area Improvements. Federal participation - \$1,495,000.

Project 3-53-0028-27 (1999). Runway 16R/34L Safety Area Improvements. Federal participation - \$3,450,000.

- Project 3-53-0028-28 (1999). Runway 16R/34L Safety Area Improvements. Federal participation - \$3,881,139.
- Project 3-53-0028-29 (1999). Runway 16R/34L Safety Area Improvements. Federal participation - \$471,976.
- Project 3-53-0028-30 (1999). Runway 16R/34L Safety Area Improvements. Federal participation - \$3,000,000.
- Project 3-53-0028-31 (2000). Master Plan Update. Federal participation - \$233,492.
- Project 3-53-0028-32 (2001). Rehabilitate Runway 16R/34L Centerline. Federal participation - \$360,000.
- Project 3-53-0028-33 (2001). Construct Runway 16R/34L Safety Area. Federal participation - \$730,076.
- Project 3-53-0028-34 (2002). West Ramp Hangar Development. Federal participation - \$2,000,000.

Airside Facilities

Runways. The main runway at Paine Field is Runway 16R/34L. It is 9,010 feet in length, 150 feet in width, constructed of grooved asphalt, and has a gross weight bearing capacity of 100,000 pounds for single-wheel, 200,000 pounds for dual-wheel, 350,000 pounds for dual tandem-wheel, 722,000 pounds for dual tridem, and 830,000 pounds for double dual tandem-wheel main landing gear configuration aircraft. The runway is equipped with High Intensity Runway Edge Lights (HIRL) and in-pavement centerline lights. Runway 16R has Precision Approach Path Indicator (PAPI) lights and an Instrument Landing System (ILS) [consisting of Glide Slope, Localizer, and Medium Intensity Approach Lighting with Runway Alignment Indicator Lights (MALSR)]. In addition, Precision Approach Path Indicator (PAPI) lights and a Medium Intensity Approach Lighting with Sequential Flashers (MALSF) are provided for Runway 34L. Safety area improvement projects currently underway will allow Runway 16R/34L to be maintained at a length of 9,010 feet in the future.

The secondary parallel runway is Runway 16L/34R. It is 3,000 feet in length, 75 feet in width, constructed of asphalt, and has a gross weight bearing capacity of 12,500 pounds for single-wheel main landing gear configuration aircraft. This runway has Medium Intensity Runway Lights (MIRL) and PAPI lights, along with Runway End Indicator Lights (REILS) serving both ends.

The crosswind runway is Runway 11/29. It is 4,504 feet in length, 75 feet in width, constructed of asphalt, and has a gross weight bearing capacity of 40,000-50,000 pounds for single-wheel and 55,000-75,000 pounds for dual-wheel main landing gear configuration aircraft. This runway has MIRL and VASI lights serving both runway ends. The northwest threshold of Runway 11/29 is displaced by 799 feet.

Taxiways. Additional airside facilities at Paine Field include the taxiway system that provides access between the runway and the various landside areas. Additional taxiways consist of:

- Taxiway A and connectors: the full-parallel taxiway system on the east side of Runway 16R/34L.
- Taxiway B: a connecting taxiway, providing access from Taxiway A to the north ramp and outer terminal ramp.
- Taxiway C: partial parallel taxiway on the northeast side of Runway 11/29.
- Taxiway D: full parallel taxiway northeast of Runway 11/29 and southwest of Taxiway C.
- Taxilane E: the east/west access taxilane connecting the parallel runways, along with providing access to the south, central, and west ramps.
- Taxiways F and G: full parallel taxiway serving Runway 16L/34R, with Taxiway F being on the east side of the runway and Taxiway G on the west side.
- Taxilane H: a north/south taxilane providing access between Runway 11/29 and Taxilane E.

In addition, Taxiways K-5 and K-6 are connecting taxiways on the west side of Runway 16R/34L, providing access to the west side aviation use areas.

Landside Facilities

Landside facilities vary from one airport to another and can be categorized differently depending on the purpose of the documentation. For the purpose of this report, landside facilities will include aircraft parking aprons, aircraft storage hangars, maintenance hangars, terminal facilities, air traffic control tower facilities, fuel storage facilities, automobile access/parking, etc. Each of these components is discussed in the following narrative, and is illustrated in the preceding figure, entitled *EXISTING AIRPORT LAYOUT*.

Aprons. Paine Field has several apron areas for aircraft parking and storage. The largest is the Boeing Ramp, which is located north of the terminal area and east of the approach end of Runway 16R (the Boeing Ramp is not actually on airport property but is provided with access to Taxiway A). Other aprons include:

- The Terminal Ramp is divided into three components - the Outer Terminal Ramp, on the northwest; the Inner Terminal Ramp, located directly adjacent to the terminal building; and the Back Terminal Ramp, on the south.

- The Central Ramp is located southeast of the terminal, and contains several sets of T-hangars.
- The Goodrich ramp is situated at Goodrich Hangar 3, on the south end of airport property, east of Runway 16R/34L.
- The South Ramp, north and west of Goodrich Hangar 1, is located between Runways 16L/34R and 11/29.
- The West Ramp is located on the southwest side of Runway 11/29 and also contains T-hangar type structures.
- The East Ramp is located on the east side of Runway 16L/34R.
- The North Ramp is located northeast of the terminal.

Aircraft Storage and Aviation Use Facilities. A majority of the airport’s aircraft storage facilities is concentrated in the central portion of airport property between the parallel runways. Facilities located adjacent to the various ramp areas include:

- The North Ramp - facilities associated with Everett Community College, University of Washington, and the Museum of Flight, as well as private hangar structures.
- The West Ramp - facilities consist primarily of T-hangar structures and larger twin-engine aircraft condo-hangars.
- The Central Ramp - accommodates mostly T-hangar structures.
- The East Ramp - contains one commercial hangar structure and six T-hangar structures.

Terminal Building. The terminal building, which contains airport management offices, along with aviation related business offices, is located adjacent to the Inner Terminal Ramp, between the parallel runways, north of Runway 11/29. Automobile parking is located on the east side of the terminal building.

Aircraft Rescue and Fire Fighting. The Aircraft Rescue and Fire Fighting (ARFF) facility is located in the southwest corner of the south ramp, adjacent to Taxiway A. The airport is classified as an Index A airport, and satisfies the associated criteria and requirements with its ARFF equipment and staff. An index A airport can accommodate five or more daily departures by air carrier aircraft, which are less than ninety feet in length.

Air Traffic Control Tower. The Air Traffic Control Tower (ATCT) is located southeast of the terminal building adjacent to the Inner and Back Terminal Ramps. The FAA operates the ATCT facility at Paine Field seven days a week, between the hours of

7:00 a.m. and 9:00 p.m. A new ATCT is currently under construction northwest of the Inner Terminal Ramp.

Other Landside Facilities. Other airport facilities include:

- The Boeing Company Plant. Although these facilities are off airport property, they are located adjacent to airport property, east of Runway 16R/34L, north of the North Ramp.
- Goodrich Facilities. Goodrich utilizes three large hangar facilities on airport property. The first of these is located on the B.F. Goodrich Ramp, adjacent to the south end of Runway 16R/34L. The second is on the east side of the South Ramp, and the third is adjacent to the Inner Terminal Ramp. In addition, B.F. Goodrich operates ancillary facilities in several other buildings on the airport.
- Bomarc Industrial/Business Park. This development area is located on the eastern portion of airport property, north of 100th Street S.W. and east of Airport Road. Occupants include The Boeing Company and Goodrich.

Fuel Storage Facilities. There are numerous fuel storage facilities located on the airport. The following table, entitled *FUEL STORAGE FACILITIES*, provides a description of the fuel facilities at Paine Field.

Table A1
FUEL STORAGE FACILITIES
Paine Field Master Plan Update

Location	Number of Storage Tanks	Aboveground/Underground	Total Capacity (Gallons)	Type
North Ramp	6	Aboveground	360,000	Jet-A
North Ramp	1	Aboveground	20,000	AvGas
Inner Terminal Ramp	1	Underground	2,000	Auto Gas
Inner Terminal Ramp	1	Underground	2,000	Deisel
Inner Terminal Ramp	3	Underground	30,000	AvGas
Central Ramp	1	Underground	15,000	AvGas
Outer Terminal Ramp	1	Underground	15,000	Jet-A
Boeing Ramp	1	Aboveground	1,029,000	Jet-A
Boeing Ramp	4	Aboveground	240,000	Jet-A

Source: Paine Field Personnel.

Ground Access

As an employment center and to facilitate air travelers, ground access is an important element in the overall ability of an airport to function properly. The ground access system serving the Paine Field area is shown on the following illustration, entitled *ARTERIAL CIRCULATION MAP*, and described in the following text.

Interstate Highways. Interstate Highway 5 (I-5), which runs north/south, is a limited access highway approximately four miles east of the airport, thereby, providing good access to the nation's Interstate Highway System.

State Routes/Major Streets. Three State Routes (SR) and one principal arterial provide access between I-5 and the airport area. SR 526 (Boeing Freeway) is an east/west controlled access roadway that is adjacent to the north side of airport property, providing the primary access to Boeing facilities. Providing direct access to the west side of the airport, Paine Field Boulevard and SR 525 (Mukilteo Speedway) tie in with I-5 and I-405 approximately five miles southeast of the airport and with SR 526 at the northwest corner of the airport. In addition, SR 99, a southeast/northwest travel corridor, is located east of the airport and connects SR 525 and SR 526. Major upgrades to these roads, including SR 526/I-5 interchange, SR 525/SR 99 interchange, and new Paine Field Boulevard, have recently been completed. Additionally, widening of SR 525 is planned for 2001/2002.

The Airport Road/128th Street SW corridor provides the most direct access to the terminal entrance and passes through the east side of airport property. Airport Road connects with I-5 approximately three miles southeast of the airport and with Boeing Freeway (SR 526). The number of travel lanes currently provided by Airport Road/128th Street SW varies between I-5 and SR 526; however, because of the high traffic volume related to Boeing shift changes, reserved carpool lanes have been established for this entire segment of Airport Road/128th Street SW. East of I-5, 128th Street SW is designated SR 96.

City Streets/Airport Access. Direct landside access to airport property is provided by a series of streets. Access to the terminal area is provided by 100th Street SW. Access to the east ramp area is provided by 106th Street SW and Minuteman Lane. Access to the South Industrial Complex/B.F. Goodrich area is provided by 112th Street SW, along with Minuteman Lane.



Figure A4
Arterial
Circulation Map

- Airport Property
- Freeway
- Principal
- Major Collector
- Minor Collector

1" = 6,000'



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PaineField
Snohomish County Airport

Source: Snohomish County Planning Department Mapping, Aerial Photography, and United States Geological Survey (USGS) Quadrangle Sheets. Arterial Circulation Map: Snohomish County West 1/3 Arterial Circulation Map.

Airport Environs

Paine Field is located in an unincorporated area of Snohomish County. The northern and eastern portion of airport property abuts the City of Everett, while the western portion of airport property abuts the City of Mukilteo. The corporate boundaries of the cities of Lynnwood and Edmonds are approximately three miles to the south of airport property. The relationship of Paine Field to the surrounding cities is illustrated in the following figure, entitled *AIRPORT ENVIRONS MAP*.

The following narrative provides a general description of the existing land uses, land use zoning, and future land uses in the area surrounding Paine Field. A proper inventory of existing zoning patterns within the environs of an airport, along with existing land use, and future land use is important in an airport planning effort so as to ensure land use compatibility with future airport development.

Existing Zoning

Generalized existing zoning within the vicinity of Paine Field is illustrated in the following figure, entitled *GENERALIZED EXISTING ZONING*, reflecting the zoning designations of the cities of Everett and Mukilteo, along with those for the unincorporated areas of Snohomish County. For purposes here, zoning is categorized into the following types: residential, commercial (including office), industrial, and open/parks. The airport itself is zoned light industrial.

In the area north of the airport, there is a large manufacturing/industrial and office zoning tract associated with the Boeing facilities. The area north of the airport and adjacent to Possession Sound is primarily zoned residential. Some commercial zoning does exist north of the airport associated with the ferry landing and at the intersection of Mukilteo Speedway and Mukilteo Boulevard.

The area east of the airport is characterized by residential zoning with strips of commercial zoning along the major roadways; i.e., SR 99 and Airport Road. In addition, Kasch Park and Walter E. Hall Golf Course are located directly east of airport property, south of Casino Road.

The area directly southeast of the airport is dominated by business park and residential zoning, while southwest of the airport, zoning uses along the Mukilteo Speedway are characterized by a combination of general commercial, community business, industrial, and manufacturing. General commercial and community business zoning extend laterally along SR 99. The area south of the airport is dominated by various residential uses, with dispersed areas of commercial and industrial zoning.

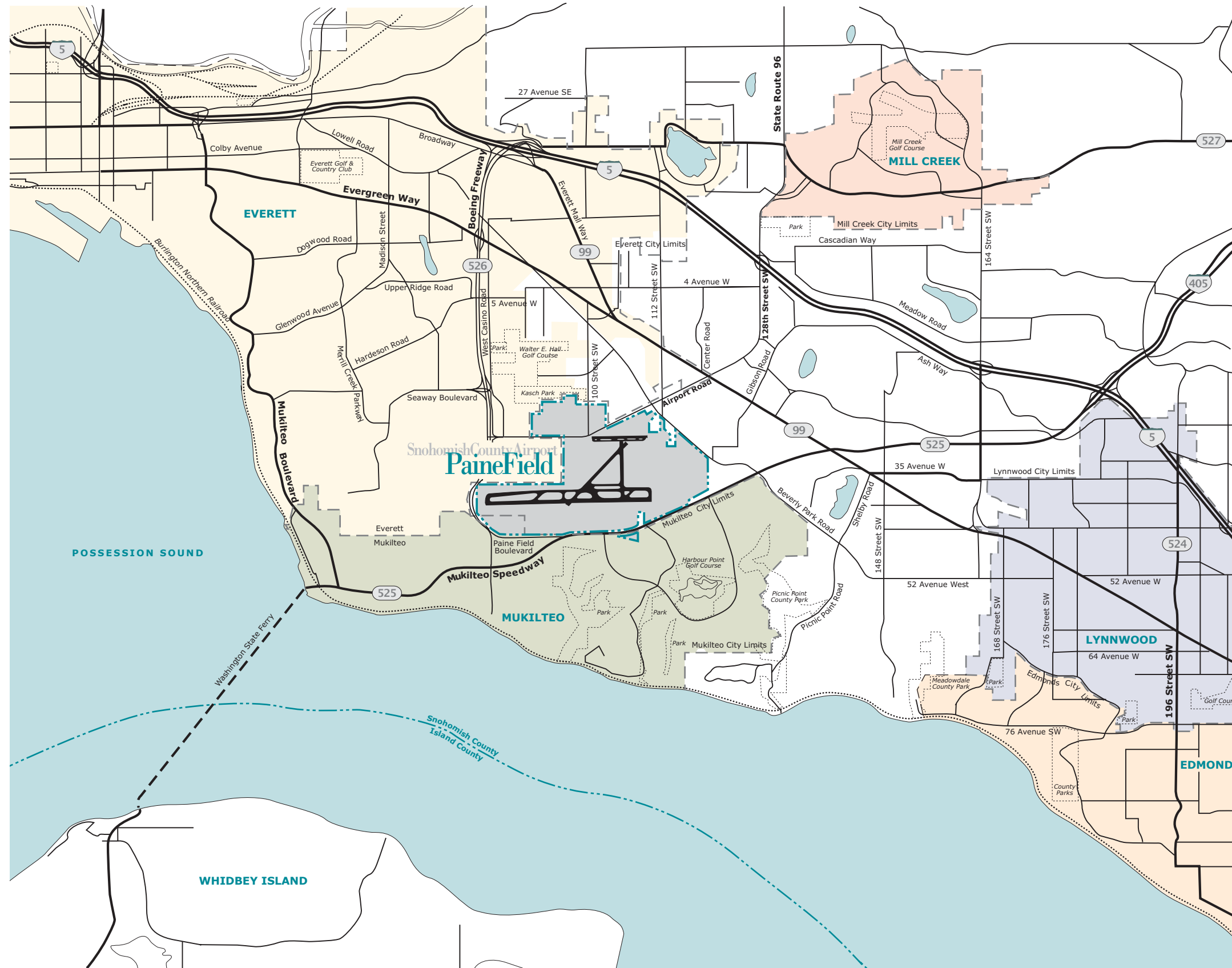


Figure A5
Airport Environs Map

- Edmonds
- Everett
- Lynnwood
- Mill Creek
- Mukilteo

1" = 6,000'



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PaineField
Snohomish County Airport

Source: Snohomish County Planning Department Mapping, Aerial Photography, and United States Geological Survey (USGS) Quadrangle Sheets.

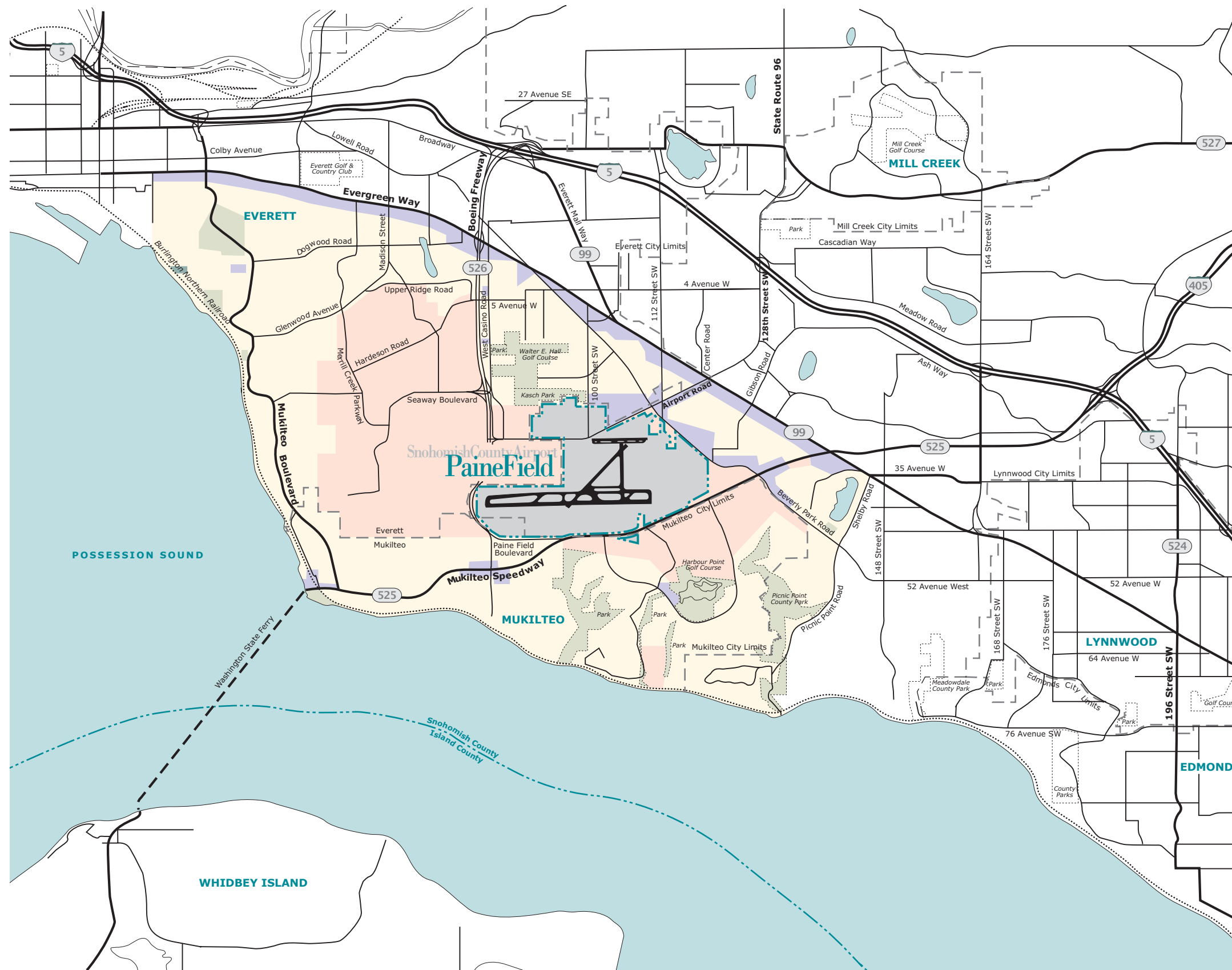


Figure 6
Generalized
Existing Zoning

- Airport Property
- Residential
- Commercial
- Industrial/Office Park
- Parks/Open Space
- Outside of Study Area

1" = 6,000'



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PaineField
Snohomish County Airport

Source: Snohomish County Planning Department Mapping, Aerial Photography, and United States Geological Survey (USGS) Quadrangle Sheets. Zoning: Snohomish County Zoning Map.

Within Mukilteo, west of the airport, lies the Harbour Pointe Community zoned primarily for residential uses, with several areas of park/open space and community business. In the northwest portion of Mukilteo, zoning consists of waterfront mixed use and downtown business district.

Existing Land Use

As illustrated in the following figure, entitled *GENERALIZED EXISTING LAND USE*, land use basically reflects existing zoning. In the area directly adjacent to the airport, industrial and commercial uses prevail; one notable exception is the residential area west of Paine Field Boulevard. Commercial uses are found along major arterials and at the intersections of these arterials. Densities of residential use vary in the area, but generally reflect single-family, suburban development with areas of open space. Additionally, significant clusters of multi-family development exist laterally along Casino Road, between Airport Road and SR 99; along 112th St. SW, between SR 99 and I-5; and along 128th St. SW, between SR 99 and I-5. The waters of Possession Sound are located approximately one and one-half miles west of the airport property and approximately two miles north of the airport. In addition, it should be noted that there is a substantial amount of land that is undeveloped or dedicated to parks/open space in the vicinity of the airport.

Several large tracts of undeveloped land exist within the environs on the airport. Some of these are associated with parks, or areas with limited development potential because of steep slopes or drainage features. There are two large open spaces near the airport; the west side of airport property and the area directly north and west of The Boeing Company plant.

Future Land Use

Generalized future land use within the vicinity of Paine Field is illustrated in the following figure, entitled *GENERALIZED FUTURE LAND USE*. Information supplied by Snohomish County shows that Paine Field has been designated as urban industrial. Urban Commercial is adjacent to SR 99, on both the east and west portions, extending from 112th St. SW to 164th St. SW. Situated between SR 99 and Beverly Park Road, urban medium density residential is the dominant classification, with a small pocket of urban high density residential. South and east of SR 99, various densities of residential use make up future land uses. Several “Centers Designations” have been established at various locations in and around Paine Field. These centers represent the focal point of commercial and employment activity and include: Paine Field Airport, the intersection of Airport Road and SR 99, the converging point of Mukilteo Speedway, SR 99, and SR 525, the intersection of 128th St. SW and Interstate 5 (I-5), and the intersection of Interstate 5 (I-5) and 164th St. SW.

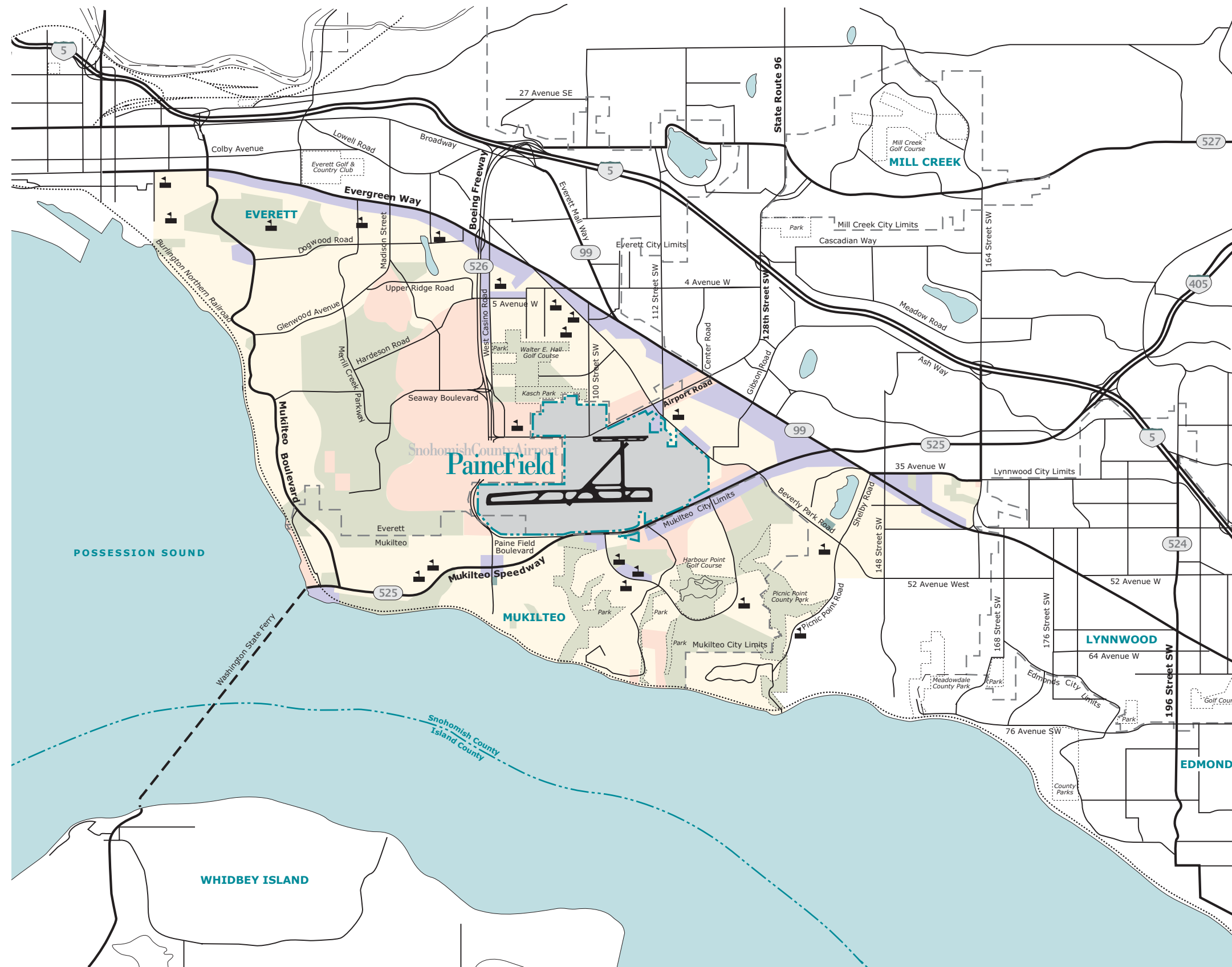


Figure 7
Generalized
Existing Land Use

- Airport Property
- Residential
- Commercial
- Industrial/Office Park
- Undeveloped/Parks/Open Space
- Schools
- Outside of Study Area

1" = 6,000'



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PaineField
Snohomish County Airport

Source: Snohomish County Planning Department Mapping, Aerial Photography, and United States Geological Survey (USGS) Quadrangle Sheets. Existing Land Use: Field Surveys.

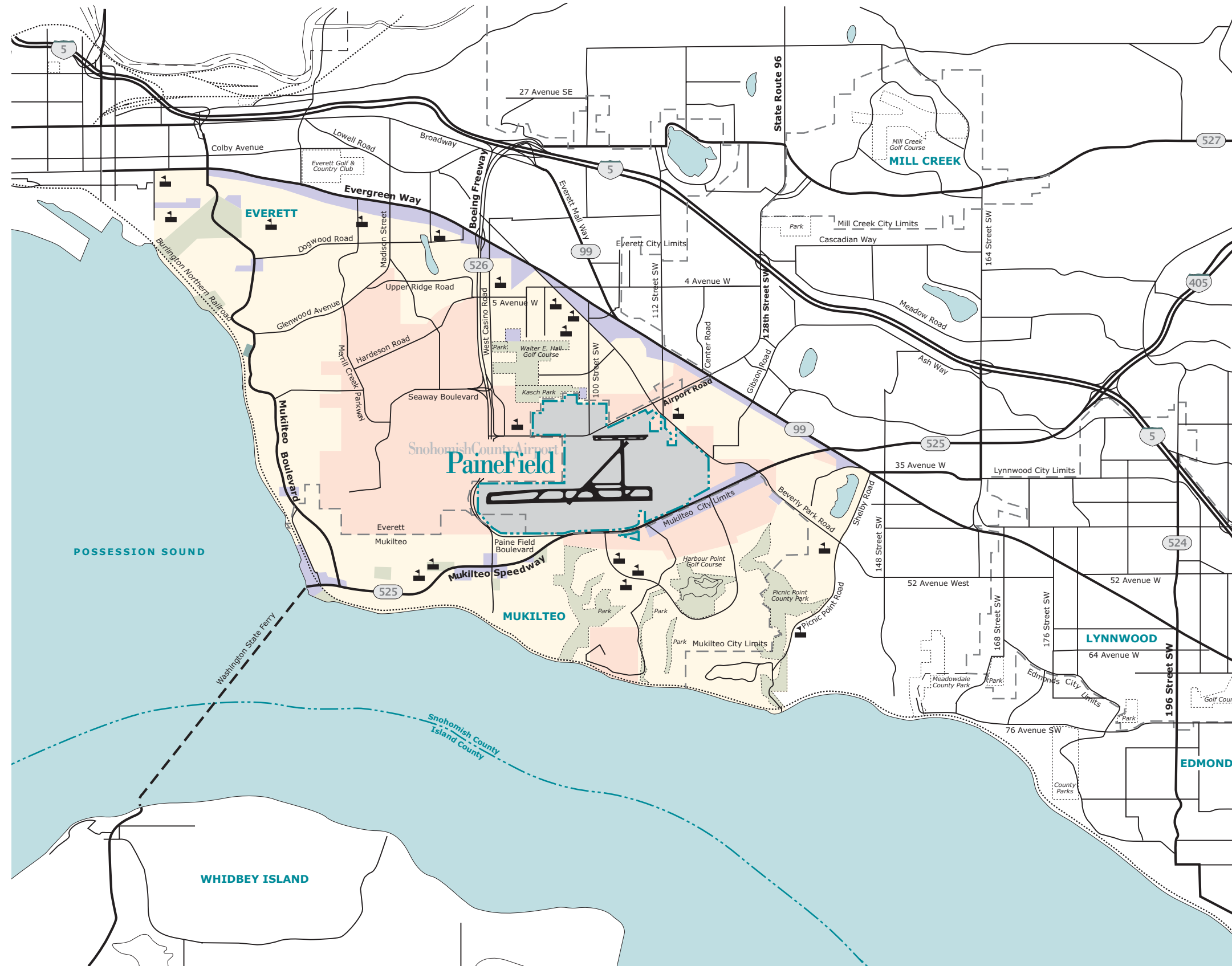


Figure 8
Generalized
Future Land Use

- Airport Property
- Residential
- Commercial
- Industrial/Office Park
- Parks/Open Space
- Outside of Study Area

1" = 6,000'



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PaineField
Snohomish County Airport

Source: Snohomish County Planning Department Mapping, Aerial Photography, and United States Geological Survey (USGS) Quadrangle Sheets. Future Land Use: City and County Comprehensive Plans.

Southwest/west of Paine Field, an approximate 1/3 to 1/2 mile band of commercial and light industrial tracts parallel the Mukilteo Speedway. Further west, extending down to Puget Sound are the Harbour Pointe Golf Club, multi-family, and single family residential land uses. West and northwest of Paine Field, land uses consist mostly of single family residential with small pockets of commercial and parks/open space.

Other Site Characteristics

In addition to airside and landside facilities, several other physical characteristics of the airport, which may impact the formulation of planning recommendations, have been inventoried. These include soil characteristics, utilities, and pavement analysis.

Soils

Soil types occurring at Paine Field are listed in the following table, entitled *Paine Field Soils*.

Table A2
PAINE FIELD SOILS
Paine Field Master Plan Update

Type Number	Description	Limitations
1	Alderwood Gravelly Loam 2 to 8% Slope	Perched seasonal water table, erosion.
5	Alderwood Urban Land Complex 2 to 8% Slope	Perched seasonal water table, runoff slow, erosion.
6	Alderwood Urban Land Complex 8 to 15% Slope	Perched seasonal water table, moderately rapid runoff, erosion.
32	McKenna Gravelly Silt Loam 0 to 8% Slope	Poorly drained, seasonal ponding, limit construction to drier part of the year.
34	Mukilteo Muck	Very deep, very poorly drained, organic, not suited to urban development.
69	Terric Medisaprists, nearly level	Very deep, very poorly drained, organic, season high water table.
78	Urban Land Complex	This map unit consists of nearly level ground to gently sloping areas. Due to its generally developed nature, no specific classifications can be identified. Base soil types range from Alderwood and Everett to Tokul soils. Major portions of airport property classified under this unit are imported or constructed.

Source: U.S. Department of Agriculture Soils Conservation Service Survey of Snohomish County, 1983.

Of the soils listed, only Mukilteo Muck and Terric Medisaprists soils present insurmountable limitations to uses in development. This is primarily due to soil type and proximity to water. These soils are generally associated with wetlands and are used for wildlife habitat. These soil types are limited to relatively small areas on the south and east portions of airport property. The majority of airport property is Urban Land Complex, which was not evaluated in the survey, and therefore requires site specific evaluation to determine limitations for development.

Utilities

Airport utility systems, which were inventoried, included sanitary sewer, storm drainage, and water mains. Following is a brief description of each of these systems as they relate to Paine Field.

Sanitary Sewer. Paine Field was originally constructed as an Army Air Force Base and approximately five miles of the World War II era sanitary sewer collection system remains intact. Sewers range from 6 to 12 inches in diameter. The WWII era pipe is predominantly concrete with mortar joints, and relatively high levels of groundwater infiltration have been observed, typical for such pipe. Sewers constructed to serve new facilities are PVC with rubber ring joints and minimal infiltration. Hydraulic capacity of existing sewers is adequate. The airport has agreements with the Olympus Terrace Sewer District and the Mukilteo Water District for wholesale sewer service. Runway 16L/34R is the divide, with the Olympus Terrace Sewer District, receiving flow from the portion of the airport west of Runway 16L/34R and the Mukilteo Water District receiving flow from the Bomarc Business Park and other airport property east of Airport Road. Airport sewage connections to the Mukilteo Water District sewer are on 100th St. S.W. and 106th St. S.W. The City of Everett in turn provides sewage treatment for the Mukilteo Water District. Sewage is discharged to the Olympus Terrace Sewer District system at Manhole 9-3 on the west side of the airport.

Maintenance of the sewage collection system on airport property upstream of the sewage meter (located at Manhole 9-3) is currently the responsibility of Snohomish County. The airport has recently replaced a series of force mains in a multi-year program of deep gravity line sewer upgrade projects.

Storm Drainage. A Paine Field Storm and Sanitary Sewer Study identified airport stormwater runoff as tributary to four major drainage basins: the Japanese Gulch on the north, Big Gulch to the west, Swamp Creek to the south, and Lake Stickney to the east. A recent study on the Runway Safety Area (RSA) project also identified 22 acres within the Smuggles Gulch drainage basin.

The existing storm drainage system on Paine Field was developed in stages beginning in the 1940s when the field was first constructed. The 1981 Study indicated that “approximately 60,000 lineal feet of concrete and corrugated metal pipe, ranging in size from 6 to 24

inches” have been installed over the years, much of which were 30 to 40 years old in 1981. Since 1981, numerous modifications and additions have been made to improve the storm drainage system. The regional detention system for Japanese Gulch, Lake Stickney, and portions of the Big Gulch detention systems, has been constructed to reduce current and anticipated future impacts of airport development. The north/south trunk storm main to the Japanese Gulch regional detention system and the north/south trunk storm main to the Wetland #25 regional detention facilities both have been constructed increasing internal system capacity. Major improvements to the Big Gulch and Smuggles Gulch Basin Stormwater detention systems were recently constructed as part of the Runway 16R/34L safety area improvement project, including new wetland creation, bioswales, ponds, and control valves. As new tenant development has occurred, older undersized lines have been eliminated and newer system modifications have been added to include oil/water separation at tenant sites and system flow controls as necessary, to mitigate downstream capacity inadequacies.

Water Main System. Paine Field is served by the Mukilteo Water District. Master meters at the 100th and 112th St. entrances to the airport control the water supply. A 4.5 million gallon reservoir is located on the southern portion of airport property (between Goodrich Hangar 1 and Goodrich hangar 3). The normal operating level in the reservoir ranges between 109 feet and 90 feet, creating an average static system pressure of 39 pounds. The Water District Comprehensive Plan indicates the available fire flow at 4,000 gallons per minute. Goodrich Hangars 1 and 3 utilize the reservoir with the assistance of the company’s fire pumps to provide the required 18,000 gallons per minute for the deluge system.

The manager of the water district describes the condition of the water as good. There are some pockets of old AC (asbestos cement) mains still in service, but they will be replaced in time. These old mains are primarily located on the southern end of airport property. New mains range in size to accommodate specific needs of airport tenant improvements.

Pavement Analysis

Utilizing available information, the strength of various aircraft operating surfaces at Paine Field have been estimated and are listed in the following table, entitled *AIRPORT PAVEMENT STRENGTHS*. Please refer to the previous illustration, entitled *EXISTING AIRPORT LAYOUT PLAN*, for a graphic depiction of the location of the various pavement areas.

Table A3
AIRPORT PAVEMENT STRENGTHS
Paine Field Master Plan Update

Pavement Feature	Wheel Configuration	Estimated Design Weight	Aircraft Type
Runway 16R/34L, ¹	Double Dual Tandem	830,000 lbs.	B-747
Taxiway A,	Dual Tridem	722,000 lbs.	B-777
and Runway 11, west of	Dual Tandem	345,000 lbs.	B-767
Taxiway A ²	Dual	172,000 lbs.	B-737, B-727
Taxiway A-A	Double Dual Tandem	650,000 lbs.	B-747
	Dual Tandem	300,000 lbs.	B-767
	Dual	175,000 lbs.	B-737, B-727
Taxiway A-1 ⁴	Double Dual Tandem	1,000,040 lbs.	B-747
	Dual Tridem	902,500 lbs.	B-777
	Dual Tandem	345,000 lbs.	B-767
	Dual	250,000 lbs.	B-737, B-727, B-757
Taxiway A-2 ³	Single	30,000 lbs.	
Taxiway A-3 ²	Dual	150,000 lbs.	B-727
Taxiway A-4 ²	Dual	150,000 lbs.	B-727
Taxiway A-5 ²	Dual	150,000 lbs.	B-727, B-737
Taxiway A-6 ²	Double Dual Tandem	550,000 lbs.	B-747
	Dual Tandem	250,000 lbs.	B-767
	Dual	150,000 lbs.	B-737, B-727
Taxiway A-7 ³	Double Dual Tandem	750,000 lbs.	B-747
	Dual Tridem	722,000 lbs.	B-777
	Dual Tandem	325,000 lbs.	B-767
	Dual	172,000 lbs.	B-737, B-727, B-757
Taxiway A-8 ³	Double Dual Tandem	650,000 lbs.	B-747
	Dual Tandem	300,000 lbs.	B-767
	Dual	175,000 lbs.	B-737, B-727, B-757
Taxiway A-9 ³	Double Dual Tandem	830,000 lbs.	B-747
	Dual Tridem	722,000 lbs.	B-777
	Dual Tandem	345,000 lbs.	B-767
	Dual	172,000 lbs.	B-727, B-737, B-757
Taxiway B ⁴	Single	25,000 lbs.	
	Dual	35,000 lbs.	
Taxiway C to D-2 ²	Dual	150,000 lbs.	B-727, B-737, B-757
Taxiway C Southeast of D-2 ⁴	Single	12,500 lbs.	
Taxiway D to D-2 ²	Single	12,500 lbs.	

Table A3 (continued)
AIRPORT PAVEMENT STRENGTHS
Paine Field Master Plan Update

Pavement Feature	Wheel Configuration	Estimated Design Weight	Aircraft Type
Taxiway D Southeast of D-2 ⁴	Single	12,500 lbs.	
Taxiway D-1 ²	Dual	150,000 lbs.	B-727, B-737, B-757
Taxiway D-2, D-3, and D-4 ⁴	Single	12,500 lbs.	
Runway 11/29, east of Taxiway A ⁴	Single	40,000 to 50,000 lbs.	
	Dual	55,000 to 75,000 lbs.	
Taxiway W-1	Single	12,500 lbs.	
Taxiway E ²	Double Dual Tandem	550,000 lbs.	B-747
	Dual Tandem	250,000 lbs.	B-767
	Dual	150,000 lbs.	B-737, B-727
Runway 16L/34R ³	Single	12,500 lbs.	
Taxiways F & G ³	Single	12,500 lbs.	
Taxiway H ⁴	Dual	150,000 lbs.	
Taxiways K-5 & K-6 ⁴	Single	20,000 lbs.	
	Dual	35,000 lbs.	
Back Terminal Ramp Overlay ²	Dual	150,000 lbs.	
Back Terminal Ramp Reconstruction ³	Dual	150,000 lbs.	B-727, B-737, B-757
Inner Terminal Ramp Overlay ²	Dual	150,000 lbs.	
Inner Terminal Ramp Reconstruction ³	Dual	150,000 lbs.	B-727, B-737, B-757
Central Ramp and Jet Deck ⁴	Single	12,500 lbs.	
Outer Terminal Ramp ⁴	Single	20,000 lbs.	
	Dual	35,000 lbs.	
Forest Service Ramp ⁴	Single	20,000 lbs.	
	Dual	35,000 lbs.	
West Ramp ⁴	Single	12,500 lbs.	
East Ramp ³	Single	12,500 lbs.	

1 Except the southernmost 1,300 feet of concrete, which has a B-747 capacity of 512,000 lbs.

2 Pavement strength estimate based on deflection testing and overlay design.

3 Pavement strength estimate based on pavement design.

4 Pavement strength estimate based on pavement cross section as indicated in available documentation and estimated average subgrade conditions.

Note: Pavement areas, which are available for use by large aircraft, are illustrated on operational chart, which is available from airport management.

Airspace, Navigation, and Communication Aids

Paine Field, as with all airports, functions within the local, regional, and national system of airports and airspace. The following illustration, entitled *AIRSPACE/NAV/AIDS SUMMARY*, and narrative provide a brief description of Paine Field's role as an element within these systems.

Air Traffic Service Areas and Aviation Communications

FAA air traffic controllers, stationed in Air Route Traffic Control Centers (ARTCC), provide positive air traffic control within defined geographic jurisdictions. There are some twenty-four geographic ARTCC jurisdictions established within the continental United States. Paine Field is contained within the Seattle ARTCC jurisdiction. The Seattle ARTCC includes the airspace in all of Washington State and portions of Oregon, California, Nevada, Idaho, and Montana.

Aviation communication facilities associated with the airport include the FAA Air Traffic Control Tower at Paine Field (frequency 132.95 on the west side of the airport; 120.2 on the east side of the airport) and an Aeronautical Advisory Station (UNICOM) on frequency 122.95. In addition, the airport has an Automatic Terminal Information Service (ATIS), frequency 128.65, and is served by the Flight Service Station (FSS), frequency 122.55, located in Seattle.

Airspace

Local airspace surrounding Paine Field is designated as Class D airspace. The configuration of each Class D airspace is tailored to the individual airport. Generally, Class D airspace consists of the immediate airspace within a horizontal radius of five statute miles from the geographic center of airports with control towers and extends from the surface up to, but not including, an altitude of 2,500 feet above ground level (AGL). The ceiling of the Class D airspace at Paine Field extends up to, but not including, 3,100 feet MSL. Class D airspace is in effect whenever the ATCT is operational, which at Paine Field is between 7:00 a.m. and 9:00 p.m. In order to operate on the airport or within Class D airspace, pilots must establish two-way radio communications with air traffic control personnel.



Approximate Scale 1"=7 Nautical Miles



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Figure A9 Airspace/NAVAIDS Summary

PaineField

Snohomish County Airport

Source: Seattle Sectional Aeronautical Chart, 57th Edition, June 1999.

The primary airspace influence in the vicinity of Paine Field is the Seattle Class B Airspace, which is irregularly shaped and extends in concentric circles around Seattle-Tacoma International Airport. The Seattle Class B Airspace consists of controlled airspace extending upward from various floor elevations to a ceiling of 10,000 feet AMSL, within which all aircraft are subject to specific operating rules (an ATC clearance must be obtained to enter the airspace), specified requirements on pilot qualification (a pilot must have a private pilot certificate or better), and aircraft equipment (a transponder with automatic altitude reporting and a two-way radio). Paine Field is located just within the 30-mile Class B airspace ring surrounding Seattle-Tacoma International Airport, in an area that has a floor elevation of 6,000' MSL.

International boundaries, military airports, military operations areas, and restricted areas can also impact airspace use in the vicinity of a civil airport. There is one military airport and two military operations/restricted areas located within a 30-nautical mile (NM) radius of Paine Field. Whidbey Island Naval Air Station (NAS) is located approximately 30 nautical miles (NM) northwest of Paine Field. There are two Military Operations Areas (MOA), Chinook A MOA and Chinook B MOA, one Restricted Area (RA), R-6701, and an Alert Area (A-680), associated with Whidbey NAS, which are located within the vicinity of Paine Field.

The Chinook A MOA is located 13 nautical miles (NM) west of the airport and the Chinook B MOA is located 24 nautical miles (NM) northwest of the airport. Both MOA's have an altitude of use between 300 and 5,000 feet MSL. Restricted area (R-6701) is located 15 NM northwest of the airport and has intermittent uses of altitude up to 5,000 feet MSL. Alert Area (A-680) is located 19 NM northwest of the airport, has an altitude use up to 3,000 feet MSL, and is used Monday through Friday, 1000 to 0130 hours April through October, and 1000 to 2359 hours November through March. Additionally, the boundary between the United States and Canada is located approximately 75 miles north of the airport; however, neither situation presents a significant airspace influence for aircraft operating into and out of Paine Field.

Navigational Aids

A variety of navigational facilities are currently available to pilots around Paine Field, whether located at the airport or at other locations in the region. Many of these navigational aids are available to enroute air traffic as well. In addition, there is a compliment of navigational aids (NAVAIDS) that allows a variety of instrument approaches to the airport.

Airport and regional navigational and landing aids available for Paine Field include an Instrument Landing System (ILS), with a Localizer (LOC) and Glide Slope (GS), Non-Directional Radio Beacon (NDB), and VHF Omnidirectional Range/Distance

Measuring Equipment (VOR/DME). In addition, Runway 16R/34L has a Global Positioning System (GPS), and as previously discussed, an ILS facility located on airport property that provides a straight-in instrument approach to Runway 16R.

The Paine (PAE) VOR/DME is located just northeast of the field on the adjacent Boeing Ramp and has a frequency of 110.60. Additional navigational aids within the vicinity of Paine Field include a VHF Omnidirectional Range (VOR) located at Seattle-Tacoma International Airport (frequency 116.80) and four NDBs. The NDBs include: Renton (353 RNT) located 26 nautical miles (NM) south, Kitsap (206 PWT) located 31.4 nautical miles (NM) southwest, Skagit/Bay View (240 BVS) located 34.1 nautical miles (NM) north, and Carney (274 CAN) located 37.4 nautical miles (NM) southwest of Paine Field.

Presently, there are four published instrument approach procedures at Paine Field. These are listed in the following table, entitled *INSTRUMENT APPROACH PROCEDURES*.

Table A4
INSTRUMENT APPROACH PROCEDURES
Paine Field Master Plan Update

Approach	Designated Runway(s)	Ceiling Minimum (AGL)	Visibility Minimums ¹
ILS	Runway 16R	200 Feet	½ Mile
NBD	Runway 16R	595 Feet	¾ Mile
GPS	Runway 16R	400 Feet	½ Mile
GPS	Runway 34L	421 Feet	¾ Mile
VOR or GPS-B	Circle to Land	454 Feet	1 Mile

Source: U.S. Terminal Procedures, Northwest (NW), Vol. 1 of 1, 15 June 2000.

¹ Depending on category of aircraft.

Seattle-Tacoma General Aviation Reliever Airports

As set forth in the Aviation Investment and Reform Act for the 21st Century (AIR 21), Paine Field is the only airport in the state of Washington designated as a general aviation “super reliever” airport. In addition to Paine Field, there are presently four other general aviation reliever airports designated for Seattle-Tacoma International Airport. These include: Auburn Municipal Airport, Auburn, Washington; Renton Municipal Airport, Renton, Washington; Harvey Field, Snohomish, Washington; and Boeing Field/King County International Airport, Seattle, Washington. Table A5, entitled *SEATTLE-*

TACOMA INTERNATIONAL AIRPORT AND GENERAL AVIATION RELIEVER AIRPORTS SUMMARY, provides a listing of selected information about the relationship of Paine Field to Seattle-Tacoma International Airport and the other general aviation reliever airports.

Table A5
**SEATTLE-TACOMA INTERNATIONAL AIRPORT AND
 GENERAL AVIATION RELIEVER AIRPORTS SUMMARY**
Paine Field Master Plan Update

Airport	Distance and Direction from Paine Field (NM)	Distance and Direction from Sea-Tac (NM)	Longest Runway Length (feet)	Elevation (AMSL)	Approaches
Paine Field	---	28 N	9,010	606	CAT I ILS, NDB, VOR-B, GPS
Seattle-Tacoma International	28 S	---	11,900	429	CAT I ILS, CAT II ILS, CAT III ILS, VOR, NDB, GPS
Auburn Municipal	35 S	7 SE	3,400	57	---
Renton Municipal	26 S	4 NE	5,379	29	NDB, GPS
Harvey Field	7 E	28 NE	2,600	16	---
Boeing Field	23 S	5 N	10,001	18	CAT I ILS, LOC/DME

Financial Inventory

The primary goal of this task is to gather materials that summarize the financial management of the airport. In addition, it is important to develop an understanding of the financial structure, constraints, requirements, and opportunities for airport activities as related to the development of a capital improvement program. The documents that have been gathered and reviewed for this financial inventory will be used to formulate a reasonable and financially sound Capital Improvement Program with which to fund projects identified in the master planning process.

With this goal in mind, the airport's financial statements have been gathered for fiscal years 1996 through 2000. In addition, Federal and State capital improvement grant information has been compiled, including current funding policies and a historical review of previous grants received. The airport's current five-year Capital Improvement Program has also been received and reviewed.

The review of the financial documentation for Paine Field indicates that the airport is operationally self-supporting. The airport is operated as an enterprise department, with its income and expenses held separately from other Snohomish County funds. As identified in the 2000 income and expenses report, major sources of revenue for the airport include: airport fees, commercial leases, hangars and tie-downs, utility fees, and fuel fees. Major expenditures include: salaries and wages, personnel benefits, professional services, utilities, supplies, and repair and maintenance.

Some of the improvements indicated in the current five-year Capital Improvement Program (CIP) for the airport include: building purchases and repairs, airfield repair, general aviation ramp repairs, crash and rescue truck replacement, ARFF facility replacement, equipment, hangars, new building construction, north complex road access, obstruction removal, outer ramp addition, safety area project, perimeter fencing, main runway sweeper, and terminal remodel.

Table A6
REVENUE AND EXPENSE SUMMARY, 1996-2000
Paine Field Master Plan Update

Year	Revenues	Expenses	Net Income (Loss) ¹
1996	\$5,545,000.00	\$4,347,000.00	\$1,198,000.00
1997	\$6,025,000.00	\$4,921,000.00	\$1,104,000.00
1998	\$6,435,000.00	\$5,230,000.00	\$1,205,000.00
1999	\$6,671,000.00	\$5,291,000.00	\$1,380,000.00
2000	\$7,314,572.00	\$6,493,106.00	\$821,466.00

Source: Paine Field Financial Reports

¹ Actual. Not including depreciation of capital assets.

Community Involvement

As a vital component of this Paine Field Master Plan Update, a public information/ involvement program has been initiated. The goals of this public involvement program include:

- Create public awareness of the Paine Field Master Plan Update.
- To involve the public in the identification of the changes to be made to the Master Plan Update and to seek public input on the direction for Paine Field.
- To gain public understanding, acceptance, and support for the Master Plan Update.

An Advisory Committee of 25 interested parties to review the development of the Paine Field Master Plan Update was established. Membership of the Paine Field Master Plan Update Study Advisory Committee (Advisory Committee) reflects the broad spectrum of people, interests, and distinct communities in the Paine Field area. The purpose of the Advisory Committee is to provide a broad and balanced range of perspectives on the update of the planning documents, which will guide future development at the airport. The Advisory Committee provides a forum for open dialogue in which to express the broad range of interests and points of view; challenge the study assumptions; evaluate alternatives; help identify impacts and trade-offs of choices; and provide a base for reality testing of proposed solutions.

The Advisory Committee will meet to review and discuss issues and material prior to the key planning and/or decision points. It will assist the County and Consultant Team by providing review and comment on study elements including the purpose of the plan, the development of alternatives, the identification of issues, impact and trade-offs of choices, and the evaluation of alternatives and plan recommendations as they emerge.

Issues Inventory

Identification of the current and future development issues, which may impact the use of a public facility, is an important step in any planning process. This is particularly true of an airport where the infrastructure investment is great, where the issues are complex, and where the entire airport facility, along with its environs, should be planned in unison to avoid incompatibility between the airport and its surroundings. The following narrative identifies present and future development issues that will be confronted at Paine Field. Some of these issues have been gleaned from interviews in the 1992-1995 Master Plan and Noise Study Update, some from specific information gathered during the inventory process, while others relate to general airport planning principles. The intent of this update is to evaluate these and perhaps other issues, and incorporate these concerns into the formulation of the plan and program needed for Paine Field.

Opening Paine Field to Commercial Service

Historically, Paine Field's role has been to only accommodate general aviation and military activity on a regular basis (although San Juan Airlines did provide commercial passenger service at the airport in 1987 and 1988, and Horizon airlines considered starting service to Portland in 1998). The broad issue of Paine Field's role is a key concern of all groups interested in planning for the future of the airport. It is a question that has important regional and local implications. Some concerns about the role of Paine Field are listed below:

- The FAA would like to be assured that Paine Field fulfills the role required to meet regional and national aviation demands and that funds furnished to Paine Field, both in the past and in the future, are wisely spent.
- User groups are interested in having necessary aviation facilities to meet their needs in the context of the demands being placed on the airport.
- Community groups are interested in the impact of the airport on quality of life issues, along with commerce and economic considerations.

Environs Land Use/Aircraft Generated Noise

The operation and development of an airport affects more than just airport property. Airport planning cannot stop at the boundary of the airport but must consider off-airport effects with any airport development proposal. The FAA approved an FAR Part 150 Noise Compatibility Plan for Paine Field in 1995. The current study will produce existing and twenty-year future noise contours, but will not update the Part 150 Noise Compatibility Plan. The major off-airport issue is noise relating to the landing and takeoff of aircraft along with aircraft ground operations. Some specific concerns include:

- West side noise, noise buffer, trees, and terrain.
- Noise impacts and residential development.
- Noise impacts and noise sensitive land uses such as schools, health care facilities, etc.
- Noise mitigation for future commercial/industrial expansion.

Surface Transportation

Probably no other segment of Snohomish County's transportation system has been studied as thoroughly in recent years as the area around Paine Field. The Draft and Final EIS for the expansion of the Boeing Everett facility included extensive and thorough analysis of both existing conditions and future system requirements for the roadway system in the vicinity of Paine Field. With many improvements recently underway and completed, the

major requirements for additional transportation planning analysis as a component of the Paine Field Master Plan Update will be closely tied to the types of future development envisioned. In addition, the continued integration of the surface transportation system with airport facilities is an important planning function. Specific concerns include:

- Coordination with the Regional Transit Plan.
- Impact on other transportation systems; e.g., the school bus transportation system.
- The surface transportation network and how it will affect the surrounding areas.
- Impact on the ability of Boeing and B.F. Goodrich employees to travel to and from place of employment.
- Traffic mitigation on future industrial expansion.

Safety

This issue has two components; the first relates to the protection of a safe aviation operating environment on and around Paine Field; the second relates to the safety of surrounding land uses in relation to aircraft operations at the airport.

- Identification and resolution of any existing or potential obstruction or safety encroachments.
- Safety for schools and other surrounding land uses.

Environmental Issues and Impacts

It is important that the master plan update adequately address the environmental impact of any proposed development. Specific concerns, which have been mentioned in relation to Paine Field, include:

- Wetlands and drainage issues.
- Water quality issues.
- Impacts on fish and wildlife habitat.
- Air quality issues.

Economic Impacts and Growth Management

An airport is an important element of the regional transportation infrastructure, just like highways, rail, and even communication networks. Because of this, an airport can be important in influencing the nature of growth in the region. The development of the airport must be evaluated in light of its own potential to influence activity, its potential to achieve a broader set of public objectives, and perhaps its ability to forestall undesirable effects. Specific concerns at Paine Field include:

- Economic impact: Look at both effects of doing and not doing something.
- Economic development should be self supporting.
- Continued economic viability of existing businesses at Paine Field such as Boeing.
- Paine Field's continued contribution to the economic vitality of Snohomish County.
- Community objections to air carrier use of Paine Field.
- Impact on property values.
- Airport is a community resource and positive contributor to employment in community.

Airport Development

From the standpoint of traditional planning roles, the identification of how the airport should physically develop is a very important issue for the Paine Field Master Plan Update. An airport facility must be developed with the capacity to accommodate expected demand related to aviation activity, industrial growth, ground access, etc. Specific issues at Paine field include:

- The development potential of the west side of the airport.
- Topographic and wetland considerations related to the west side development.
- The additional aviation development area, which would be realized if Runway 11/29 were closed. The effect of closing Runway 11/29 on the operational characteristics of the airport.
- The efficient and effective use of existing developable areas.
- The proposal to establish a Museum of Flight/Aircraft Restoration Facility on Paine Field.
- The proposal to develop a multi-use site at the NW corner of the airport to potentially house the museum of flight, an aviation tour center, a restaurant, and a hotel with meeting facilities.

The above mentioned development issues are certainly not all of those which will impact the future of Paine Field. However, these are the principal issues which the airport will face in the near future and which also will shape the content of this planning study.

Summary

The goal of this chapter is to provide general background information pertaining to the airport, its aviation operating environment, its physical surroundings, and its financial situation. The *Inventory* chapter is vital from the standpoint that it will be used as a reference in the analysis and design process that is required to prepare the Airport's future development plan.

The next step in the planning process is to formulate forecasts for the quantity and type of future aviation activity expected to occur at the airport during the forthcoming twenty years.