Chapter 1
Introduction

Lewis County is preparing an Airport Master Plan (AMP) for Packwood Airport in cooperation with the Federal Aviation Administration (FAA) to address the Airport's needs for the next 20 years (2022-2042). This AMP will replace the Airport Layout Plan (ALP) Report, completed in December 2009. The AMP will provide guidance in making the improvements necessary to maintain a safe and efficient airport that is economically, environmentally, and socially sustainable.

Study Purpose

The purpose of the AMP is to define the current, short-term, and long-term needs of the Airport through a comprehensive evaluation of facilities, conditions, and FAA airport planning and design standards. The study will also address elements of local planning (land use, transportation, environmental, economic development, etc.) that have the potential of affecting the planning, development, and operation of the Airport.

Source: Century West Engineering (2009)

Project Need

The FAA requires airport sponsors (in this case, Lewis County) to periodically update their ALP drawings as conditions change in order to maintain current planning. As noted earlier, this project replaces the 2009 ALP Report and drawing set. Several projects have been completed since the last ALP update:

- 2017 Runway Rehabilitation Project
    - » Runway Widened (60 feet)
    - » Runway shifted southwest to achieve standard runway safety area (RSA) for Runway 19; original runway length (2,356 feet) maintained
    - » Covered Tailrace south of the runway; including the RSA
    - » New Runway Edge Lighting
    - » County-owned industrial property added to the Airport (south end)

The 2017 runway reconstruction project design drawings provide details about current runway conditions. The 2009 ALP was not updated following reconstruction and will be referenced as the current FAA-approved ALP for the airport. The 2009 ALP Report and these drawings will serve as primary sources for inventory data. More recent information provided by the County, published FAA data, and data obtained from on-site airfield inspections will also be reflected in the AMP.

Project Funding

Funding for the 2022-2042 Packwood Airport AMP is provided by the Federal Aviation Administration (FAA), the Washington Department of Transportation- Aviation Division (WSDOT) (5%), and Lewis County (5%). The total project cost of $354,900 includes County staff administration time to support the planning process. FAA funding is provided through the Airport Improvement Program (AIP), a dedicated fund administered by FAA with the specific purpose of maintaining and improving the nation's public use airports. The AIP is funded exclusively through fees paid by users of general and commercial aviation.

90%
FAA
AIP Grant
$319,410

5%
WSDOT
Grant
$17,745

5%
Local
Match
$17,745
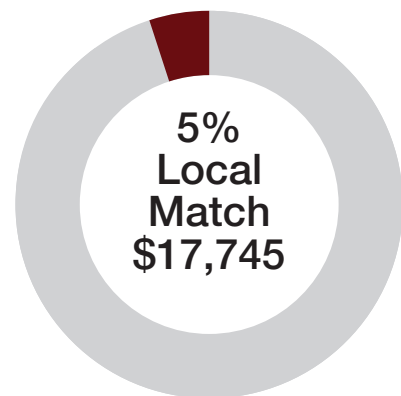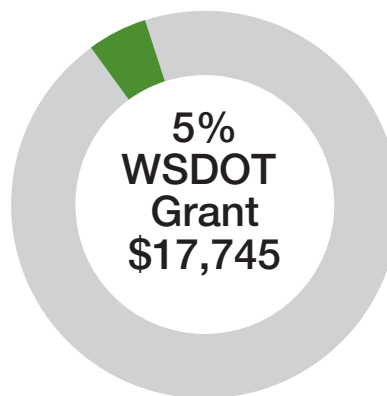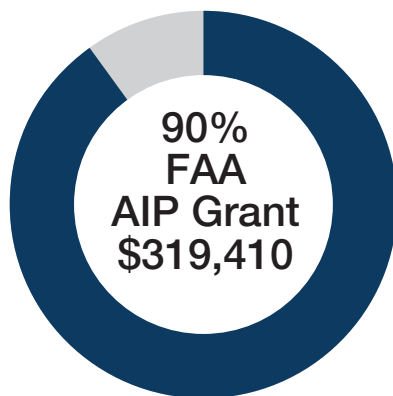
Goals of the Airport Layout Plan

The primary goal of the AMP is to provide the framework and vision needed to guide future improvements at Packwood Airport. The FAA sets goals and objectives that each airport should meet through its master planning, in order to ensure future development will cost-effectively satisfy aviation demand and also consider potential environmental and socioeconomic impacts. These general goals are summarized below, with specific items added for Packwood Airport.

Goal 1: Define the vision for the Airport to effectively serve the community, airport users, and the region. Assess known issues including approach obstructions, runway conditions, ability to accommodate airside and landside development, auto parking, and land use to develop a realistic, practical, and sustainable plan to improve the Airport.

Goal 2: Document existing activity, condition of airfield facilities, and policies that impact airport operations and development opportunities.

Goal 3: Forecast future activity based on accepted methodology.

Goal 4: Evaluate facilities and conformance with applicable local, state, and FAA standards.

Goal 5: Identify facility improvements to address conformance issues and accommodate demand.

Goal 6: Identify potential environmental and land use requirements that may impact development.

Goal 7: Explore alternatives to address facility needs. Work collaboratively with all stakeholders to develop workable solutions to address needs.

Goal 8: Develop an Airport Layout Plan (ALP) to graphically depict proposed improvements consistent with FAA standards as a road map to future development. Prepare a supporting Capital Improvement Plan (CIP) to summarize costs and priorities.

Goal 9: Provide recommendations to improve land use, zoning, and County oversight of the Airport to protect the long-term viability of the Airport.

Goal 10: Summarize the collective vision and plan for the Airport in the Airport Master Plan report and ALP.

THE FAA ROLE IN THE AIRPORT MASTER PLAN

FAA *Advisory Circular 150/5070-6B Airport Master Plans* defines the specific requirements and evaluation methods established by FAA for the study. The guidance in this AC covers planning requirements for all airports, regardless of size, complexity, or role. However, each planning study must focus on the specific needs of the airport for which a plan is being prepared.

The recommendations contained in an AMP represent the views, policies and development plans of the airport sponsor and do not necessarily represent the views of the FAA. Acceptance of the plan by the FAA does not constitute a commitment on the part of the United States to participate in any development depicted in the plan, nor does it indicate that the proposed development is environmentally acceptable in accordance with appropriate public law. The FAA reviews all elements of the plan to ensure that sound planning techniques have been applied. However, the FAA only approves the Aviation Activity Forecasts and Airport Layout Plan (ALP) drawings.

Planning Process

The three phase planning process is designed to provide multiple feedback loops intended to maintain the flow of information and ideas among the community and project stakeholders and ultimately maximize public involvement.

DEVELOP UNDERSTANDING

A comprehensive understanding of the issues and opportunities, existing conditions, and an identified level of future aviation activity that would require facility improvements to satisfy future demand.

Analysis
- Develop Scope of Work
- Public Involvement Strategy
- AGIS Survey
- Existing Conditions Analysis
- Aviation Activity Forecasts

Project Meetings
- Bi-Weekly Planning Team Meetings
- Project Kick-off Meeting
- Planning Advisory Committee (PAC) Meetings

Work Product
- Introduction
- Existing Conditions
- Aviation Activity Forecasts

EXPLORE SOLUTIONS

A collaborative exploration of local airport needs, goals, and facility requirements in sequence with the development of locally-generated ideas, solutions, and development alternatives.

Analysis
- Define Updated Airfield Design Standards
- Perform Demand/Capacity Analysis
- Define Facility Goals and Requirements
- Identify & Prepare Development Alternatives
- Evaluate Development Alternatives

Project Meetings
- Bi-Weekly Planning Team Meetings
- Planning Advisory Committee (PAC) Meetings
- Public Open House

Work Product
- Facility Goals & Requirements
- Airport Development Alternatives

IMPLEMENTATION

An implementation program with recommended strategies and actions for future land use, transportation, and environmental requirements; a realistic and workable CIP; and current ALP drawings that graphically depict existing conditions at the Airport as well as proposed development projects.
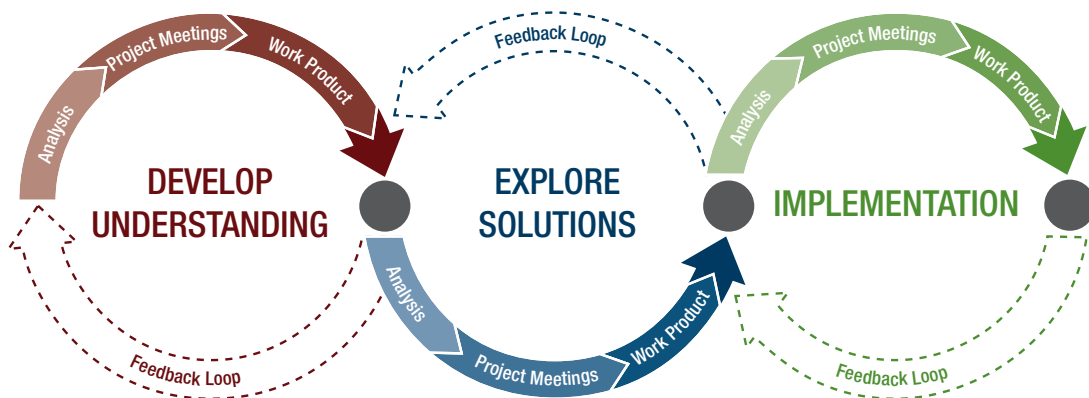
Analysis
- Develop Strategies & Actions
- Develop CIP/Phasing/Financial Plan
- Develop ALP Drawing Set

Project Meetings
- Bi-Weekly Planning Team Meetings
- Planning Advisory Committee (PAC) Meetings

Work Product
- Strategies & Actions
- Financial Plan (CIP/Phasing)
- ALP Drawing Set
- Draft Report
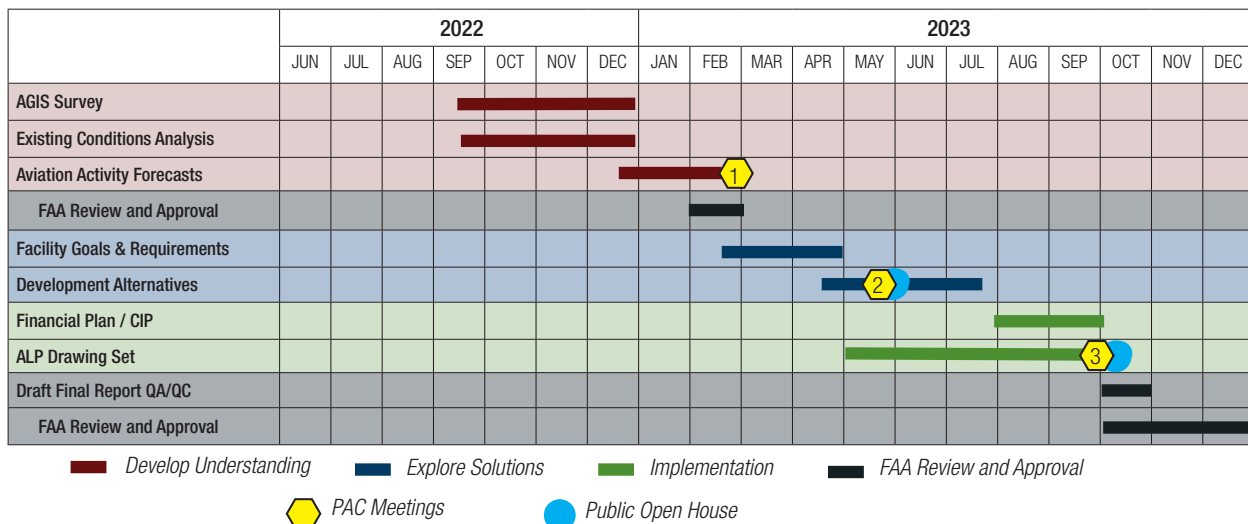- Final Report

Framework of the Airport Master Plan

The framework of the AMP provides a clear structure to inform and steer future planning decisions and serve as a tool to guide a process that allows the plan to take shape through flexibility, iteration, and adaptation. The framework is intended to analyze the local and regional setting of the Airport, the landside and airside elements of the Airport, as well as the management and administration functions associated with the Airport. The framework provides guidance, while being flexible enough to adapt to changing conditions to maximize opportunities to develop understanding, explore solutions, and implement a preferred development alternative for the Airport that is compatible with its surroundings.

	Regional Setting	Airside Elements	Landside Elements	Airport Administration
Develop Understanding **Explore Solutions** **Implementation**	Location & Vicinity Socio-Economic Data Airport Role Airport History Area Airports Context Airport Operations Relevant Studies Environmental Data Local Surface Transportation Land Use/Zoning	Area Airspace Instrument Flight Procedures Runway/Helipad Taxiways/Taxilanes Aprons/Tiedowns Pavement Condition Airside Support Facilities	Terminal Building Hangars Airport Fencing Airport Surface Roads Vehicle Parking Utilities	Airport Ownership & Management Airport Financials Airport Rates and Charges Local Rules & Regulations FAA Compliance Overview

Project Schedule

The Packwood Airport – AMP Report schedule is expected to occur over the course of 18-24 months. **Phase 1 – Develop Understanding** will take approximately 6-7 months, excluding the AGIS survey. The AGIS survey implementation occurs during Phase 1 and extends though the project on a parallel track to obtain full FAA acceptance of survey data. **Phase 2 – Explore Solutions** will take approximately 8-9 months. **Phase 3 – Implementation** will take approximately 8-9 months, including 3 months for formal FAA review and approvals at the end of the project. The final FAA review step commonly extends beyond the standard 90-day schedule, which may extend project closeout by 3 to 6 months, depending on staff workload.

Note: The AGIS Survey was delayed until Spring 2023 due to local fire conditions affecting visibility at the scheduled time of survey control and aerial photography (late summer 2022).

	2022							2023											
	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
AGIS Survey				■	■	■	■												
Existing Conditions Analysis				■	■	■	■												
Aviation Activity Forecasts							■	■	⬡1										
FAA Review and Approval								▬	▬										
Facility Goals & Requirements									■	■									
Development Alternatives										■	⬡2 ●	■							
Financial Plan / CIP														■	■				
ALP Drawing Set												■	■	■	■	⬡3 ●			
Draft Final Report QA/QC																	▬		
FAA Review and Approval																	▬	▬	▬

■ *Develop Understanding*   ■ *Explore Solutions*   ■ *Implementation*   ▬ *FAA Review and Approval*
⬡ *PAC Meetings*   ● *Public Open House*

Public Involvement Process

A comprehensive and engaging public involvement process is a key element to a successful AMP. Therefore, numerous opportunities for public input are built into the process. This will include up to three Planning Advisory Committee (PAC) meetings, one Public Open House, three FAA coordination meetings, a project website, and ongoing communication and coordination between County staff and the project planning team over the course of the project.

PLANNING ADVISORY COMMITTEE (PAC) MEETINGS

The PAC was assembled to provide input and allow for public dissemination of data. Airport tenants, pilots, local and regional economic development interests, neighbors of the Airport, and staff/representatives of the County were identified as members of the PAC. The FAA Seattle Airports District Office (ADO) project manager will interact with the project team throughout the project, and may attend one or more of the PAC meetings. The FAA has primary responsibility for technical review, comment, and project approval. A representative of the WSDOT – Aviation Division will also participate as an ex-officio member of the PAC.

The proposed PAC meeting schedule may be in-person, remote (video conferences), or a combination thereof depending on the current pandemic climate, and directions provided by state and local government.

PAC Meeting #1

The Consultant will summarize the goals and objectives of an AMP Report, and also present the existing conditions of the Airport, community, and aviation industry; as well as the preliminary aviation activity forecasts that will be reviewed and ultimately approved by FAA.

PAC Meeting #2 / Public Open House

PAC Meeting #2 is an interactive discussion with the PAC that focuses on the Airport's facility needs to meet FAA standards, future growth, as well as the goals of the County and its users. The Consultant will present a series of preliminary alternative concepts capable of satisfying future demand and any non-standard conditions and seek input from the PAC and public. A public open house will be aligned with the PAC meeting to provide an opportunity to engage the community, seek input, and answer questions about the planning project.

PAC Meeting #3

The input provided in PAC #2 and Public Open House is used to refine the concepts, and based on technical evaluations, public input and coordination with the County, a preferred alternative will be presented to the PAC. The Consultant will present an implementation program with recommended strategies and actions for future land use, transportation, and environmental requirements; a realistic and workable CIP; and draft ALP drawings that graphically depict existing conditions at the Airport.

Known Issues & Opportunities

At the outset of the AMP Report there were several known issues and opportunities identified by the FAA, County, and airport users/ tenants. These issues and opportunities identified below will serve as focus areas during the completion of the plan to ensure a comprehensive and thorough assessment that addresses and documents the proposed solutions and methods of implementation. **Figure 1-1** visually depicts some of the opportunities to be evaluated.

Figure 1-1:Known Issues & Opportunities
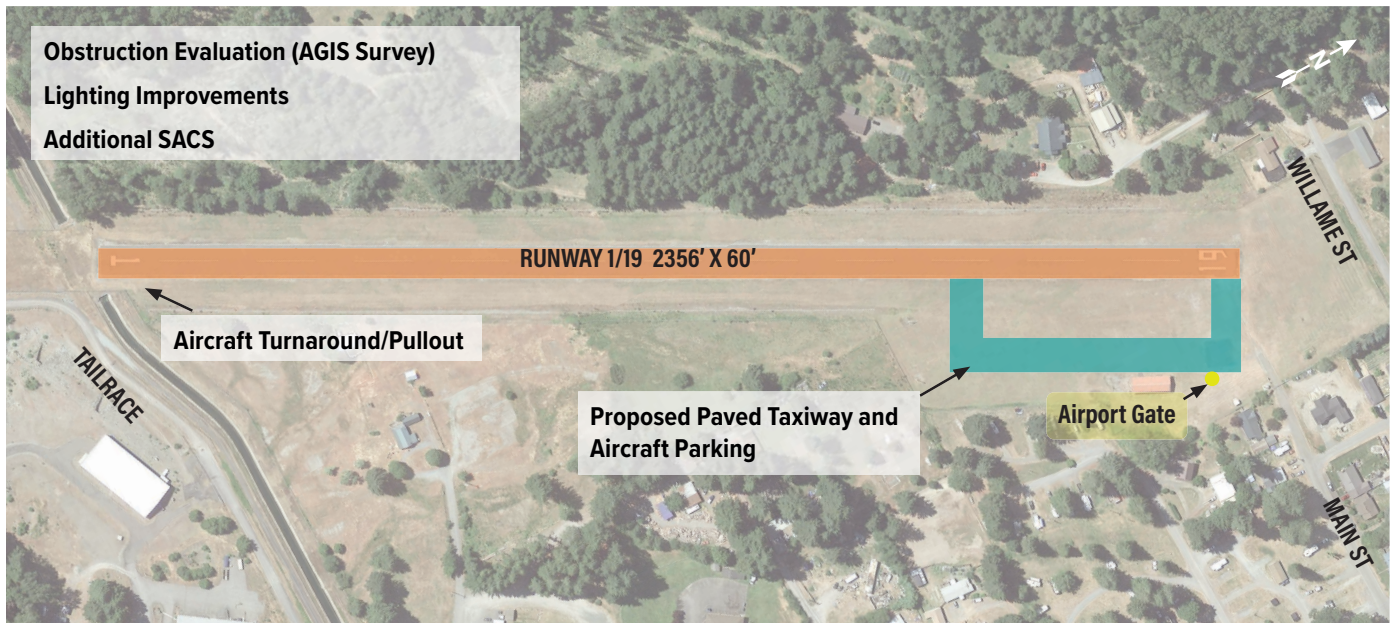
KNOWN ISSUE #1 – OBSTRUCTION EVALUATION (AGIS SURVEY)

An Airport Geographic Information Systems (AGIS) survey will be completed as part of the AMP Update. The AGIS survey will support current and future improvement projects, including obstruction mitigation adjacent to the runway, within runway approaches, and in Runway Protection Zones (RPZs). The AGIS survey will provide obstruction data and mapping that will be incorporated into the new ALP drawing set and support future obstruction mitigation.

OPPORTUNITY #1 – PAVED TAXIWAY AND AIRCRAFT PARKING

The addition of a paved taxiway and a paved aircraft parking area is a high priority and would improve the use of the Airport. The paved surfaces would reduce potential damage to aircraft propellers or landing gear caused by taxiing over rocky, sandy soils. The 2009 ALP depicts a future taxiway and apron which has not yet been constructed. Adding a paved aircraft apron at the north end of Runway 01/19 with two taxiway connections will facilitate aircraft movement and reduce back-taxiing on the runway.

The ground condition of the potential apron and taxiway area has potential for sinkhole issues which will need to be addressed prior to construction. The 2017 runway reconstruction project required significant subsurface excavation to remove partially-decomposed organic materials (stumps, etc.) dating from the original (1950s) airfield clearing construction. This condition is believed to occur throughout the cleared areas of the Airport.

OPPORTUNITY #2 – AIRCRAFT TURNAROUND/PULLOUT

The addition of an aircraft pullout/turnarounds on the runway may be considered to improve aircraft movement on the runway. A 180-degree turn on the 60-foot-wide runway may be challenging for some aircraft and may result in aircraft landing gear moving into the adjacent unpaved runway shoulders.

The 2009 ALP depicts an extension to each end of the runway to accommodate the need for aircraft turnaround/ pullout areas. The location configuration of aircraft pull outs will also be included in taxiway evaluations.

OPPORTUNITY #3 – LIGHTING IMPROVEMENTS

When the runway was reconstructed in 2017, new runway edge lighting was installed. The light system installed are Medium Intensity Runway Lights (MIRL). The 2009 ALP Report recommended Precision Approach Path Indicators (PAPI) on Runway 01 and Runway 19 which have not been installed. It is recommended that both runways be equipped with PAPI. The AGIS survey will determine the feasibility of installing PAPIs.

OPPORTUNITY #4 – RUNWAY IMPROVEMENTS

The most recent runway reconstruction project shifted the runway southward while maintaining the existing runway length. The runway shift increased FAA standard runway safety area (RSA) beyond both ends of the runway. The southern shift of the Runway 19 end improved obstacle clearance for the Runway 19 Part 77 approach surface. Additionally, the width of the runway was increased (to 60 feet) to meet FAA standards. The project shifted the south end of the RSA over the tailrace, which was consistent with the 2009 AMP goal of extending the runway's usable footprint to the south. The AGIS survey noted below will also provide important approach obstruction clearance information to support this evaluation.

The 2009 ALP depicted the runway extending to a length of 3,000 feet (from the existing 2,356 feet). This extension has not yet been completed.

OPPORTUNITY #5 – ADDITIONAL SACS

In 2019, one Primary Airport Control Station (PACS) and one Secondary Airport Control Station (SACS) were installed at the Airport. It may be beneficial to convert the existing Cooperative Base Network (CBN) control monument to a second SACS at Packwood Airport to support future survey needs.

OTHER OPPORTUNITIES

The AMP will provide an opportunity to review forecast demand, planning assumptions, and development priorities defined in the 2009 ALP Report. Our practical understanding of the Airport, its use, and the general community ensures that a realistic approach to planning the Airport will be maintained to support the goals and priorities of the Lewis County Airport System.

Chapter 2
Existing Conditions

The Existing Conditions Analysis documents existing airfield facilities and conditions that affect the operation and development of the Packwood Airport (55S) within the context of the regional setting, landside, airside, and administrative functions. The existing conditions analysis utilized the 2009 Airport Layout Plan Report[1] and other subsequent work products in addition to numerous meetings with tenants, stakeholders, and County staff to support the effort. The findings documented in the Existing Conditions Analysis chapter will be used to support subsequent studies and recommendations throughout the development of the master plan.

Regional Setting

The Regional Setting section is comprised primarily of those features that provide a better understanding of the social, economic, and environmental impacts airports can have in a region and county. This section of the existing conditions analysis includes a discussion of the location & vicinity of Packwood Airport, as well as socio-economic conditions, airport history, airport role, area airports, historic airport operations, relevant studies, environmental data, local surface transportation systems, and land use on and around the Airport.

LOCATION & VICINITY

Packwood Airport is located about 1/2 mile southwest of downtown Packwood, in unincorporated Lewis County. The Airport is owned and operated by Lewis County.

The Airport is located near the southwest edge of Packwood, between State Highway 12 and the Cowlitz River. Highway 12 extends east to U.S. Interstate 82 (I-82) at Yakima and west to U.S. Interstate 5 (I-5) near Napavine. Packwood Airport is located south of Mount Rainier National Park (**Figure 2-1**).

Surface access to the Airport is provided from State Highway 12 and Main Street West.

Lewis County is located in the southwest region of Washington. It is bordered by Skamania, Cowlitz, and Wahkiakum (south); Pacific (west); Grays Harbor, Thurston and Pierce (north); and Yakima (east) counties. The Airport sits in the upper reaches of the valley at an elevation of 1,057 feet above mean sea level (MSL). Mountainous terrain rises in all directions, with elevations above 3,000 feet located within 2 miles and several 5,000 to 6,000-foot peaks located within 5 to 8 miles.

---

1   Packwood Airport Layout Plan Report (Century West Engineering, December 2009)

Figure 2-1: Location & Vicinity Map

Source: Google Maps
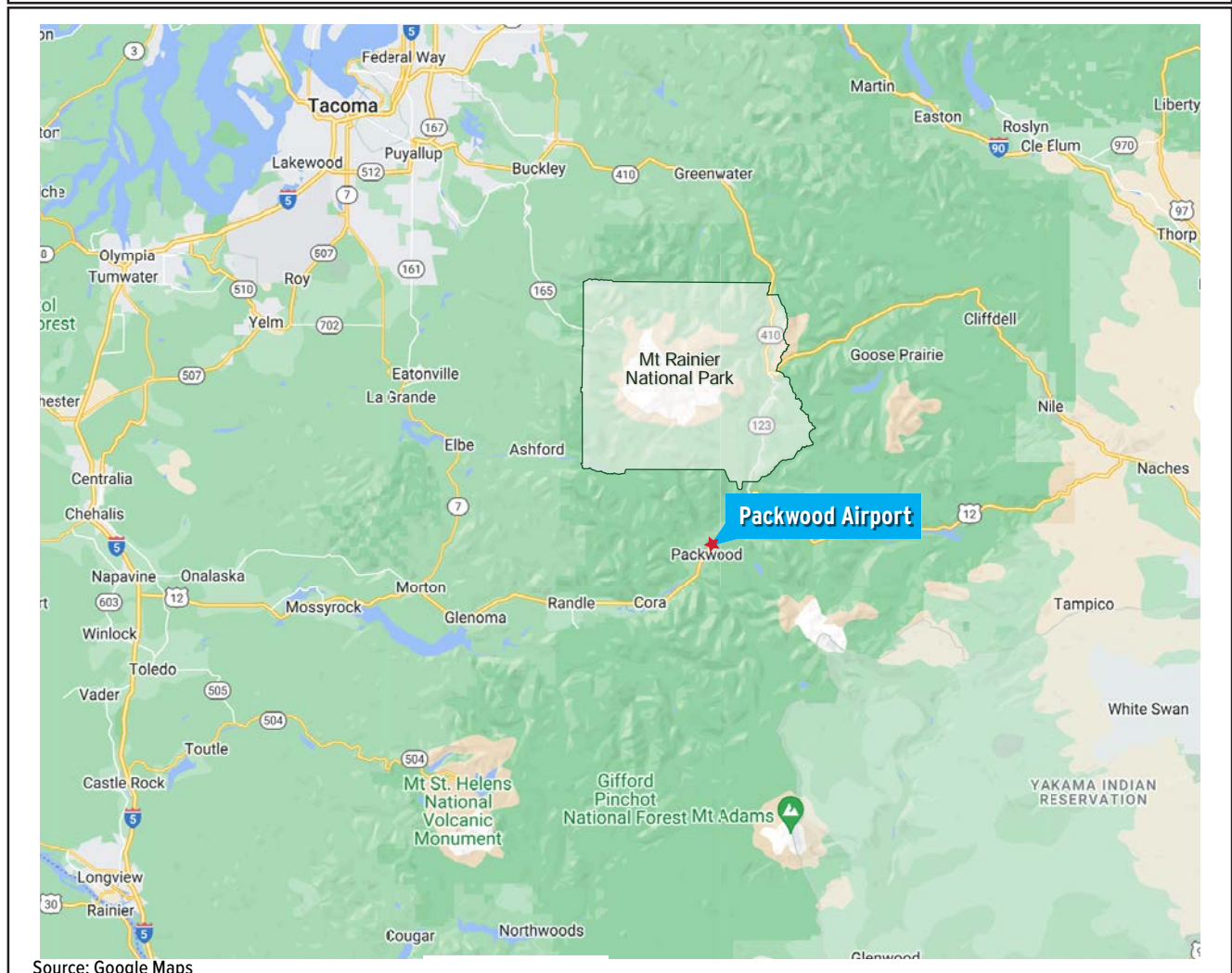
Local and Regional Socio-Economic Data

The information presented in **Tables 2-1 through 2-3** is intended to provide a summary of the local and regional economic conditions that may affect activity at Packwood Airport.

Population

Packwood, Washington is an unincorporated community in Lewis County and therefore does not have an allocated city population.

However, Packwood is within U.S. Census zip code tabulation area (ZCTA) 98361, which recorded a total population of 1,158 in 2010. The *Packwood Subarea Plan*[2] documents the 2020 ZCTA population as 1,073, indicating a slight decline over the recent 10-year period. The subarea plan assumes that there are no full-time residents in the national public lands, making this 98361 ZCTA data a reasonable representation of the Packwood area population.

A notable comparison of population and housing units can be made using 98361 ZCTA data. The 2010 Census reports that there was a total population of 1,158 people, and 1,525 housing units. A greater number of housing units than population may be result of the recreation opportunities surrounding Packwood with second properties used as vacation homes or rentals in the Packwood area.

Data obtained from the State of Washington Office of Financial Management (OFM) (**Table 2-1**) show that recent historical population in Lewis County has experienced moderate growth over the past decade but has lagged slightly behind the state average. The county's annual growth rates (AGR) during the period fluctuated from 0.78% to 0.90%, with a 10-year AGR of 0.82%. The net increase in county population during the period is 6,434 (+8.36%).

Population in unincorporated Lewis County for the 10-year period grew from an AGR of 0.71% to 1.06%, with a 10-year AGR of 0.92%. With steady year-over-year growth during the period, the population of unincorporated Lewis County increased by 4,255 (+9.26%).

It is noted that these population changes followed the protracted recovery from The Great Recession and the COVID-19 pandemic and its initial recovery period.

Table 2-1: Historical Population

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Washington	6,882,400	6,968,170	7,061,410	7,183,700	7,310,300	7,427,570	7,546,410	7,707,047	7,766,975	7,864,400
AGR	-	1.25%	1.29%	1.44%	1.52%	1.54%	1.55%	1.63%	1.52%	1.49%
										Average AGR 1.47%
Lewis County	76,966	77,563	78,006	78,556	79,477	80,250	81,151	82,149	82,700	83,400
AGR	-	0.78%	0.67%	0.68%	0.81%	0.84%	0.89%	0.94%	0.90%	0.90%
										Average AGR 0.82%
Unincorporated Lewis County	45,930	46,361	46,586	46,942	47,612	48,137	48,770	49,461	49,840	50,185
AGR	-	0.94%	0.71%	0.73%	0.90%	0.94%	1.00%	1.06%	1.03%	0.99%
										Average AGR 0.92%

Source: State of Washington Office of Financial Management Postcensal Estimates of Population (2012-2020);
April 1 Official Population Estimates - Revised August 2, 2022 (2020)

---

2   Lewis County – Draft Packwood Subarea Plan (December 2022)

Economic Indicators

Gross Regional Product (GRP) and Personal Income per capita (PI) can serve as indicators of economic growth or decline of a particular area. According to data provided by Woods & Poole Economics, summarized in **Tables 2-2 and 2-3**, the GRP and PI for Lewis County showed net growth overall, through the 10-year period.

Table 2-2: Historical Gross Regional Product (2012 Dollars)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Lewis County (millions)	$2,761.4	$2,973.5	$2,932.1	$2,859.9	$3,019.2	$3,203.7	$3,430.6	$3,251.5	$3,499.6	$3,555.2
AGR	-	7.68%	3.04%	1.18%	2.26%	3.02%	3.68%	2.36%	3.01%	2.85%
									Average Annual Growth Rate	3.28%

Source: Woods & Poole Economics, Inc. Washington, D.C. Copyright 2021. Woods & Poole does not guarantee the accuracy of this data. The use of this data and the conclusion drawn from it are solely the responsibility of Century West Engineering.

Table 2-3: Historical Per Capita Income (2012 Dollars)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Lewis County	$34,825	$36,905	$38,489	$39,097	$40,483	$42,696	$44,569	$48,339	$47,260	$49,102
AGR	-	5.97%	5.13%	3.93%	3.84%	4.16%	4.20%	4.80%	3.89%	3.89%
									Annual Growth Rate	4.49%

Source: Woods & Poole Economics, Inc. Washington, D.C. Copyright 2021. Woods & Poole does not guarantee the accuracy of this data. The use of this data and the conclusion drawn from it are solely the responsibility of Century West Engineering.

More detailed socio-economic data and analysis is presented in Chapter 3: Aviation Activity Forecasts to supplement the updated projections of future aviation activity.

AIRPORT ROLE (NATIONAL, STATE, AND LOCAL)

The role of an airport may vary slightly within the context of the national, state, or local perspective. Understanding the existing roles of Packwood Airport is key to establishing the long-term vision and development of the facility.

National Role

The FAA maintains an inventory of U.S. aviation facilities through the National Plan of Integrated Airport Systems (NPIAS). The NPIAS lists existing and proposed airports significant to the air transportation of the United States, and thus are eligible for federal funding though the Airport Improvement Program (AIP) which cover 90% of eligible costs of planning and development projects. According to the *2021 National Plan of Integrated Airport Systems (2021-2025)*, Report to Congress, Packwood Airport is classified as a **Basic General Aviation Airport** and as such, provide a means for general aviation flying and link the community to the national airport system. Basic airports support general aviation activities such as emergency response, air ambulance service, flight training, and personal flying.

State Role

The Washington State Department of Transportation (WSDOT) developed the Washington Aviation System Plan (WASP) in 2017. The 2017 WASP updated previous system plans to provide a current look at how the entire state aviation system performs and how individual airports interact to contribute to the system as a whole. The plan builds on prior plans including the 2009 Long-term Air Transportation Study (LATS).

The WASP establishes a new classification system of five categories for Washington airports to better capture system performance. Packwood Airport best fits into the WASP "**Local**" airport classification. Local airports support GA activities including personal transportation, recreational flying, pilot training, and agricultural activities. Airports classified as Local are located outside of metropolitan areas and regional centers; they have paved primary runways; and 15 or fewer based aircraft.

AIRPORT HISTORY

As noted in the 2009 ALP Report, the Airport site was initially developed as an unpaved emergency airstrip around 1949-1950. There are references to ownership by the WSDOT Aviation Division of the Packwood State Airport in state aviation system plan documents from the mid-1970s. Ownership of the Airport was transferred to Lewis County in 1982.

In 2009, the first FAA-funded planning (ALP Report) defined future improvements for Packwood Airport. Major runway reconstruction occurred in 2015 (sinkhole repair).

A summary of the Packwood Airport's recent AIP grant history is presented in **Table 2-4**, totaling in over $2.5 million of improvements and upgrades since 2009. Additional AIP funds were awarded in 2022 for the Airport Master Plan update.

Table 2-4: FAA AIP Grant History

Fiscal Year	Project Description	AIP Federal Funds	Local Match	WSDOT State Match
2009	Airport Improvement – Obstruction Removal – Runway 01/19 Rehabilitation & Runway Safety Area Improvements	$320,400	$0	$8,432
2013	Runway Improvements – Phase I – Runway Safety Area Alternatives and Phase 2 – Design and Environmental	$153,481	$0	$8,527
2015	Runway 01/19 Improvements	$1,959,231	$0	$108,846
2022	Airport Master Plan Update	$319,410	$17,745	$17,745

Source: FAA AIP Grant Look Up Tool (Accessed 12/10/2021)

AREA AIRPORTS CONTEXTUAL ANALYSIS

The contextual analysis of the airport service area refers to the geographic area surrounding an airport that is directly affected by the activities at that airport. Normally a 30 or 60-minute surface travel time is used to approximate the boundaries of a service area. Airports located beyond a 60-minute travel time have less impact on local airport activity due largely to the redundancy provided by closer facilities. With numerous airports in the vicinity, service areas often overlap, creating competition between airports. Having several airports located within a relatively short distance affects user demand for items such as hangar space, fuel and aviation services. These items are sensitive to cost, convenience, and the quality of facilities or services.

There are seven public use airports within a 60 nautical mile (NM) radius (air miles) of Packwood Airport. These airports are summarized in **Table 2-5** and depicted in **Figure 2-2**. It is noted that most of these airports are located outside the typical 30- or 60-minute drive times, and several of the airports are closed during winter months. When factors such as drive time, geographic features, and facility amenities (fuel, runway surface, etc.) are considered, it is reasonable to conclude that competition from these airports has a limited impact on activity at Packwood Airport. The nearest airports with services are Strom Field (Morton) and South Lewis County-Ed Carlson Memorial Field (Toledo). These airports are nearest to Packwood offering fuel (Toledo) and hangars (Strom, Toledo), although their impact on activity at Packwood Airport is not considered significant.
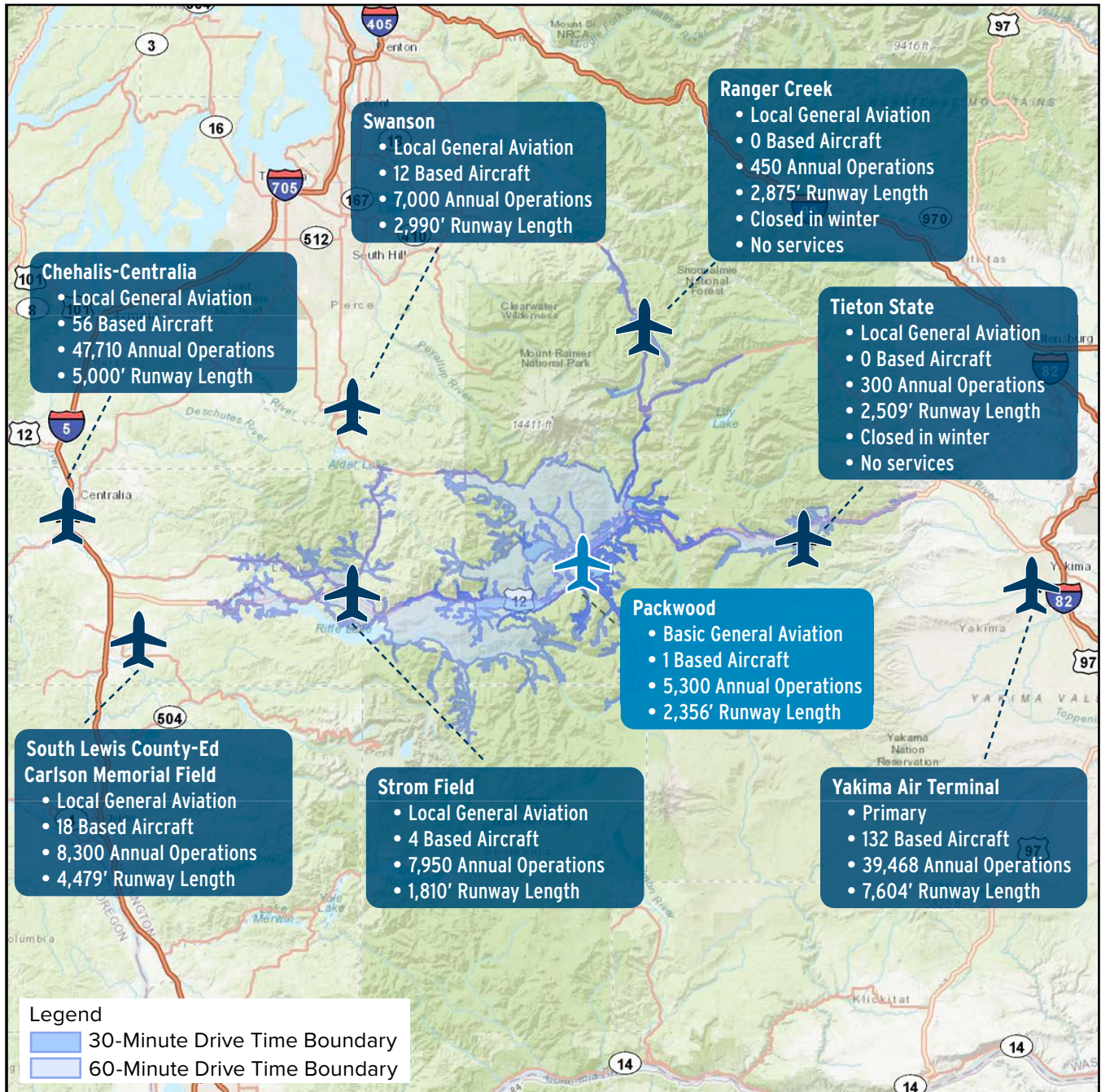
Table 2-5: Area Airports Comparison

Airport	Location	Runway Dimension (feet)	Surface	Lighted Runway	Published Procedures	Fuel Available
Packwood Airport		2,356' x 60'	Asphalt	Yes	None	None
Strom Field (Morton)	24.5 NM W	1,810' x 40'	Asphalt	Yes	None	None
Ed Carlson Memorial Fld. (Toledo-Winlock)	47.2 NM W	4,479' x 150'	Asphalt	Yes	Yes	Avgas
Chehalis-Centralia	53.9 NM W	5,000' x 140'	Concrete	Yes	Yes	Avgas, Jet-A
Swanson (Eatonville)	28.7 NM NW	2,990' x 36'	Asphalt	Yes	None	None
Ranger Creek (Greenwater)	25.2 NM N	2,875' x 30'	Asphalt	Yes	None	None
Tieton State (Rimrock)	22.9 NM E	2,509' x 100'	Turf	No	None	None
Yakima Air Terminal	46.8 NM E	7,604' x 150'	Asphalt	Yes	Yes	Avgas, Jet-A

Source: FAA 5010 Airport Master Record (Accessed 10/26/2022)

Figure 2-2: Area Airports

Swanson
- Local General Aviation
- 12 Based Aircraft
- 7,000 Annual Operations
- 2,990' Runway Length

Ranger Creek
- Local General Aviation
- 0 Based Aircraft
- 450 Annual Operations
- 2,875' Runway Length
- Closed in winter
- No services

Chehalis-Centralia
- Local General Aviation
- 56 Based Aircraft
- 47,710 Annual Operations
- 5,000' Runway Length

Tieton State
- Local General Aviation
- 0 Based Aircraft
- 300 Annual Operations
- 2,509' Runway Length
- Closed in winter
- No services

Packwood
- Basic General Aviation
- 1 Based Aircraft
- 5,300 Annual Operations
- 2,356' Runway Length

South Lewis County-Ed Carlson Memorial Field
- Local General Aviation
- 18 Based Aircraft
- 8,300 Annual Operations
- 4,479' Runway Length

Strom Field
- Local General Aviation
- 4 Based Aircraft
- 7,950 Annual Operations
- 1,810' Runway Length

Yakima Air Terminal
- Primary
- 132 Based Aircraft
- 39,468 Annual Operations
- 7,604' Runway Length

Legend
- 30-Minute Drive Time Boundary
- 60-Minute Drive Time Boundary

Source: AirportIQ 5010, Esri, USGS, NOAA

SUMMARY OF AIRPORT OPERATIONS DATA

Packwood Airport accommodates small single-engine aircraft and helicopters (including seasonal wildfire response). The 2009 ALP Report forecast base year (2007) listed 3 based aircraft and 1,000 (estimated) annual operations

The Airport's based aircraft count was updated by airport management in December 2022 (FAA Based Aircraft Inventory database[3] validated count: 1 single-engine aircraft). An updated estimate of annual aircraft operations will be developed in Chapter 3, as the baseline for the master plan's twenty-year aviation activity forecasts.

FAA 5010 Airport Master Record data for Packwood Airport and the other airports in the service area are summarized in **Table 2-6**. These data are unverified and are presented for reference only. It is noted that the 5010 annual aircraft operations (takeoffs and landings) for Packwood Airport (5,300) deviate significantly from the previous ALP twenty-year forecast (1,300 annual operations). An updated estimate of annual aircraft operations will be developed in Chapter 3, as the baseline for the master plan's updated twenty-year forecast.

It is important to note that aircraft takeoffs and landings (operations) at non-towered airports, including Packwood, are not routinely recorded. As such, flight activity is estimated through a variety of methods which will be discussed in Chapter 3.

Table 2-6: FAA 5010 Data

	Packwood Airport	Strom Field (Morton)	Ed Carlson Memorial Fld. (Toledo-Winlock)	Chehalis-Centralia	Swanson (Eatonville)	Ranger Creek (Greenwater)	Tieton State (Rimrock)	Yakima Air Terminal
Air Carrier	0	0	0	0	0	0	0	2,026
Air Taxi	0	0	0	4,500	0	0	0	4,034
GA Local	500	1,400	3,100	23,000	1,500	200	0	13,826
GA Itinerant	4,500	6,500	5,000	20,000	4,500	0	300	17,765
Military	300	50	200	210	1,000	250	0	1,817
TOTAL OPERATIONS	**5,300**	**7,950**	**8,300**	**47,710**	**7,000**	**450**	**300**	**39,468**
TOTAL BASED AIRCRAFT	**1**	**4**	**18**	**56**	**12**	**0**	**0**	**132**
Single Engine	1	4	17	49	12	0	0	15
Multi Engine	0	0	1	3	0	0	0	5
Jet	0	0	0	4	0	0	0	6
Helicopters	0	0	0	0	0	0	0	1
Glider*	0	0	0	0	0	0	0	0
Military*	0	2	0	0	0	0	0	0
Ultra-Light*	1	2	0	0	0	0	0	0

Source: AirportIQ 5010 Airport Master Records and Reports (AirportIQ5010.com, Accessed 10/26/2022)
*Glider, military, and ultra-light aircraft are not included in total based aircraft counts.

---

3   FAA airportiq5010.com database (Accessed 12/26/2022)

RELEVANT STUDIES

2009 Packwood Airport Layout Plan Report

The 2009 Airport Layout Plan Report provided a detailed assessment of site-specific development needs and provided a range of facility improvement recommendations. The 2009 ALP drawing depicts the following improvements:

- **Runway:**
  » Widen Runway to 60'
  » Earthwork; grading and compaction
  » Approach Obstruction Mitigation
    » Fence removal and relocation
    » Vacate a section of Willame Street (maintain, reroute surface access)
    » Tree removal
  » Slurry seal, crack repair, and repaint visual markings
  » Runway Extension Reserve (south end)

- **Runway Lighting/Visual Aids:**
  » Replace existing lighting system with MIRL
  » Install PAPIs

- **Parallel Taxiway Reserve:** Construct partial-length east parallel taxiway (access to tiedown apron)

- **Property Acquisition:** County-owned property located north and south of the Airport was proposed for airport use

- **Surface Access Roads:**
  » New and extended vehicle access roads to provide access to existing and future apron and hangar areas
  » Vacate road north of Runway 19 to accommodate FAA defined protected area

- **Terminal Area:**
  » Aircraft apron (tiedowns and hangar access)
  » Helicopter parking pad (Medevac)
  » Hangar sites (north section)
  » Hangar sites (south development reserve)

The runway at Packwood Airport was reconstructed in 2015 as an emergency repair project. The 2009 ALP Report and ALP drawing remain the most recent FAA-approved planning for the Airport that will be replaced with this Airport Master Plan. The elements of the runway reconstruction, summarized below, effectively captured several of the recommendations contained in the 2009 ALP Report.

2015 Runway Reconstruction Project

Runway 1/19 was reconstructed in 2015 due to failures occurring in the runway base/subbase. According to available information, these sections contained substantial quantities of decomposed organic materials (tree stumps, etc.) that were buried on site following the original site clearing and airfield development in the early 1950s. The uneven decomposition created irregular surface conditions along the runway that were corrected through significant deep excavation and replacement with new aggregate. The runway surface is asphaltic concrete (AC) designed to accommodate small aircraft weighing 12,500 pounds and less.

The 2015 project included the following:

- **Reconstructed runway (2,356 x 60 feet)**. The project maintained the original length and increased width from 38 feet to the FAA-standard width of 60 feet. The runway was shifted approximately 200 feet south of its original location to increase safety areas extending beyond both ends. The southerly shift was accomplished in conjunction with covering the tailrace (concrete-walled canal), as depicted on the 2009 ALP. New runway designation numbers and centerline stripe were painted. The reconstructed runway included 10-foot wide gravel shoulders and runway safety area (RSA) improvements. **Figure 2-3** features aerial imagery of the Airport prior to and following the runway reconstruction.

Figure 2-3:Packwood Airport – Facility Changes Since 2009 Airport Layout Plan Report

2009

RUNWAY 1/19 2356' x 38'

2022

RUNWAY 1/19 2356' x 60'

Property Line

Source: Google Earth

- **New Medium Intensity Runway Edge Lights (MIRL) and threshold lights**. The new lighting systems are LED and are pilot-activated through the Airport's common traffic advisory frequency (CTAF).

Airport Property Expansion

A Lewis County-owned land parcel was added to the Airport in conjunction with the recent runway construction and extension of improvement south of the tailrace. This area was identified on the 2009 ALP for future Airport development. The parcel currently includes an industrial area with direct access to Highway 12.

WASHINGTON AVIATION SYSTEM PLAN (WASP)

In 2017, the State of Washington completed the Washington Aviation System Plan (WASP) for the state airport system which included 136 public use airports throughout the state. The statewide study area included both commercial service and general aviation airports. The WASP updated previous system plans to provide a current look at how the entire state aviation system performs and how individual airports interact to contribute to the system.

Airport classification generally reflects the type of aircraft and customers the airport serves as well as the characteristics of the airport's service area. The WASP established a new classification system of five categories for Washington airports to better capture system performance. The WASP determined that Packwood Airport best fits into the Local airport classification.

Local airports support GA activities including personal transportation, recreational flying, pilot training, and agricultural activities. Airports classified as Local are located outside of metropolitan areas and regional centers; they have paved primary runways; and 15 or fewer based aircraft.

The WASP has identified minimum standards for Local airports that are consistent with overall facility use and functional role. A review of WASP minimum standards compliance will be included in the updated facility requirements assessment (Chapter 4).

WASHINGTON AVIATION ECONOMIC IMPACT STUDY

In 2020, Washington State Department of Transportation released the Washington Aviation Economic Impact Study (AEIS). The AEIS measured the annual economic impacts that the State's 134 public-use airports and the state-wide system had on local communities, geographic regions, and the State as a whole.

According to the study, Packwood Airport contributed $773,000 in value added, and over $1.34 million in business revenue annually to the local and regional economies. Total employment impact related to the Airport accounted for 6 jobs with an estimated labor income of $517,000.

Environmental Data

PHYSICAL GEOGRAPHY

Packwood Airport has a surveyed elevation of 1,057 feet above mean sea level (MSL). Packwood is located in eastern Lewis County, on the western slopes of the Cascade Mountains, approximately 20 miles west of White Pass on U.S. Highway 12. Notable features in the area include Mount Rainier National Park to the north, Mt. St. Helens National Park to the south, and the Goat Rocks Wilderness area. The community of Packwood and the Airport are located adjacent to the Gifford Pinchot National Forest.

Maximum elevation figures (MEF) depicted on the FAA Seattle Sectional Aeronautical Chart provides pilots with information on the highest known terrain elevation (above mean sea level - MSL) within defined areas. The MEFs immediately surrounding Packwood Airport are 8,300 feet to 14,800 feet MSL. As noted earlier, the Airport was originally constructed as an emergency landing strip located along a common east-west flight route through the Cascade Mountains.

LOCAL CLIMATE ANALYSIS

The Packwood area has snowy winters and warm, moderately dry summers. Historical climate data for Packwood indicates the maximum mean temperature is 79.1 F (August) and the coldest month is typically December with a maximum mean temperature of 42.3 F[4]. Summers are hot and short, spanning from mid-June to mid-September. Packwood receives precipitation throughout the year, with the rainiest seasons being winter, followed by fall and spring. Annual precipitation averages about 55 inches, with nearly one-third occurring in December and January. Precipitation in the summer season averages 1.29 inches (June to September). Annual snowfall averages about 27.9 inches.

WIND ANALYSIS

Historical on-site wind data are not available for Packwood Airport. The FAA requires wind roses developed for use on ALP drawing sets to provide a minimum of ten years of data. In cases where on-site observation data is limited or unavailable, FAA recommends using a wind rose from a nearby airport to approximate wind coverage. The FAA recognizes that these data are approximate and may not account for unique terrain or localized weather patterns.

The nearest National Weather Service (NWS) tabulated wind data source acceptable to FAA is located at the Yakima Air Terminal (47 miles east). However, unique geography (mountain range) and distance make use of Yakima wind data less effective for evaluating wind conditions at Packwood Airport; appropriate disclaimers and notations will be added to the ALP. Applying Yakima Airport wind data to the Runway 01/19 alignment indicates that the current runway orientation meets the FAA minimum of 95% wind coverage for small aircraft. The alignment of the runway was determined during original construction based largely on the natural terrain within the valley, which provides generally favorable wind conditions.

*The following climate data charts (**Figure 2-4 and Figure 2-5**) were retrieved from weatherspark.com to illustrate the typical seasonal temperature and precipitation patterns in Morton, WA (the nearest city with available data, approximately 34 miles from the Packwood Airport). These are based on an analysis of historical weather reports and model reconstructions.*

Figure 2-4: Annual Temperatures
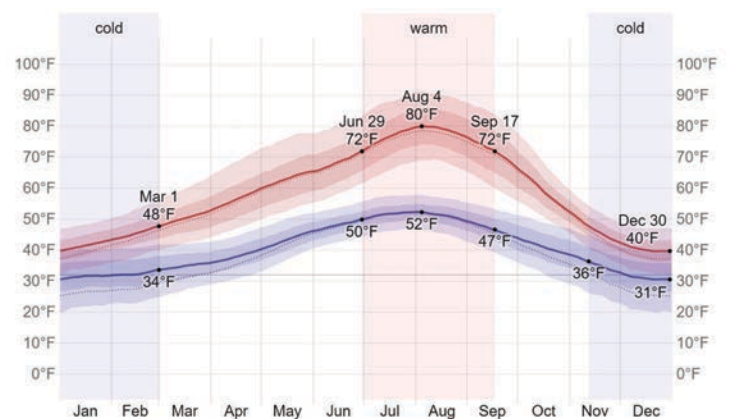
Figure 2-5: Annual Rainfall

Source: www.weatherspark.com

---
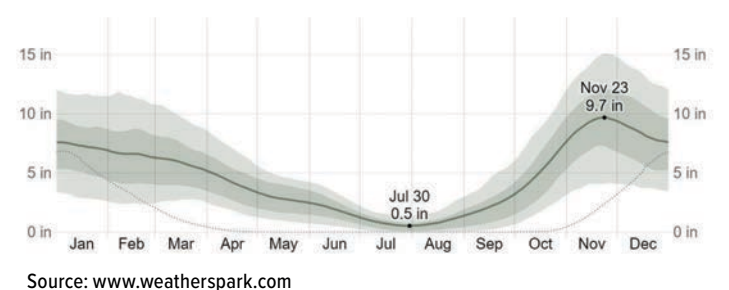
4   Western Regional Climate Center (Packwood Station 456262) 1924-2016

Environmental Conditions

The Airport Master Plan scope of work includes an overview of environmental conditions, a preliminary assessment of NEPA environmental impact categories, and a cultural resource assessment for the site. These assessments are summarized below and the full technical memorandums are provided in the listed appendices. A review of recommended improvements will be provided in Chapter 5 – Alternatives Analysis

ENVIRONMENTAL REVIEW

A preliminary environmental screening of the Airport site and surrounding areas was completed as part of the Airport Layout Plan Update. The Project Area consists of the properties owned by the Airport as well as Parcel 035179006002 to the south west of the Airport (**Figure 2-6**) The screening study examined the following environmental categories on and in vicinity of the Airport:

- Air Quality
- Biological Resources (including fish, wildlife, and plants)
- Department of Transportation Act, Section 4(f)
- Hazardous Materials, Solid Waste, and Pollution Prevention
- Natural Resources and Energy Supply
- Water Resources (including wetlands, floodplains, surface waters, groundwater, and wild and scenic rivers

A brief summary of significant findings is provided below. The complete report is available in **Appendix A**.

Air Quality

Based on both federal and state air quality standards, a specific geographic area can be classified as either an "attainment," "maintenance," or "non-attainment" area for each pollutant. The threshold for non-attainment designation varies by pollutant. The Airport is within an attainment area in Lewis County, Washington.

Biological Resources

Biological resources include sensitive plants, fish, wildlife, and their respective habitats. There are several recorded sightings of a Gray Wolf 1,000 feet north of the Airport on Combs Road, one recorded sighting in the Township of the Northern Spotted Owl, but no suitable habitat on the Airport for either of these species. There are a few more species which have the potential to be found in the area, including North American Wolverine, Marbled Murrelet, Yellow-Billed Cuckoo, Bull Trout, Chinook Salmon, Coho Salmon, and Steelhead.

It is unlikely that any federally or state protected fish species will occur on Airport property. However, Bull Trout, Chinook Salmon, Coho Salmon, and Steelhead are present in the Cowlitz River less than 1,000 feet west of the Airport. Stormwater discharge from the Airport eventually flows into the Cowlitz River through the irrigation canal on the southern border of the Airport.

Several migratory bird species covered by the *Migratory Bird Treaty Act* are known to occur in the vicinity of the Airport. Please consult the full report in **Appendix A** for the complete list and note that the ¬species listed are representative of species found in the area surrounding the Airport, not necessarily on the property.

Suitable breeding habitat occurs in the vicinity of the Packwood Airport for five species of migratory birds listed as Birds of Conservation Concern, including the Black Swift, Cassin's Finch, Evening Grosbeak, Olive-Sided Flycatcher, and Rufous Hummingbird.

The Bald Eagle and Golden Eagle are protected under the Bald and Golden Eagle Protection Act of 1940, which provides specific guidance for minimizing effects to these species. Golden eagle nesting habitat is not present on or near the Airport. Bald eagle nesting habitat is present in the Airport vicinity, but no records are present.

The nearest critical habitat for terrestrial species is marbled murrelet found approximately 2.5 miles northwest of the Airport in the Gifford Pinchot National Forest. The Cowlitz River is located approximately 1,000 feet west of the Airport and contains critical habitat for Chinook salmon, Coho salmon, and steelhead. The southern end of the Airport has an irrigation canal (tailrace) which connects to a seasonally flooded pond used for irrigation, and then enters the Cowlitz River downstream. Airport stormwater discharges into the Cowlitz River through the tailrace.

Hazardous Materials, Solid Waste, and Pollution Prevention

Federal, state, and local laws regulate the use, storage, transport, and disposal of hazardous materials. There are no sites, requiring cleanup of environmental contaminates prior to use, within 15 miles of the Airport. According to the EPA's Environmental Justice Screening and Mapping Tool (EJSCREEN), there are four EPA hazardous waste treatment, storage, and disposal facilities within the city limits of Packwood with the nearest to the Airport at Packwood Bridge 12 approximately 0.5 miles to the east. According to the EPA's Toxic Release Inventory (TRI) Search Plus Tool, the nearest TRI site is the Hampton Mills Lumber facility located approximately 13 miles south east of the Airport in the City of Randle.

Water Resources

The 1987 Corps of Engineers Wetlands Delineation Manual and Regional Supplements organizes characteristics of a potential wetland into three categories: soils, vegetation and hydrology. The manual and supplements contain criteria for each category. With this approach, an area that meets all three criteria is considered a wetland (Clean Water Act Section 404). National Wetlands Inventory (NWI) mapping within the vicinity of the Airport is shown on **Figure 2-6**.

The southern end of the Airport contains a constructed tailrace used for transporting water from an upslope holding reservoir near Packwood to the Cowlitz River. A mapped seasonally flooded pond used for irrigation is located on the southern end of the Airport. The NWI maps a seasonal forested shrub wetland approximately 0.6 miles to the east of the Airport that seasonally accumulates water near the holding reservoir and nearby creeks that flow into it and is surrounded by an additional seasonal emergent wetland.

The Airport property is within the 100-year floodplain for the Cowlitz River. Lewis County records show the Airport Property mapped in a zone where 1-3 feet of year flooding can occur.

Many of the surface waters in the vicinity of the Airport property are contaminated including Skate Creek (west) and Clear Fork of the Cowlitz River (upstream). Both are sites known to be impaired, but with no probable source of contamination has been identified by the EPA. A Total Maximum Daily Load (TMDL) describes the maximum amount of a pollutant allowed in a water body and serves as the starting point or planning tool for restoring water quality. Several TMDLs actively apply to the waters listed above:

- Water Temperature (Skate Creek)
- Mercury (Clear Fork of the Cowlitz River)

The compromised waters in the vicinity of the Airport property include critical habitat for federally listed Coho salmon and steelhead populations.

Figure 2-6: National Wetland Inventory
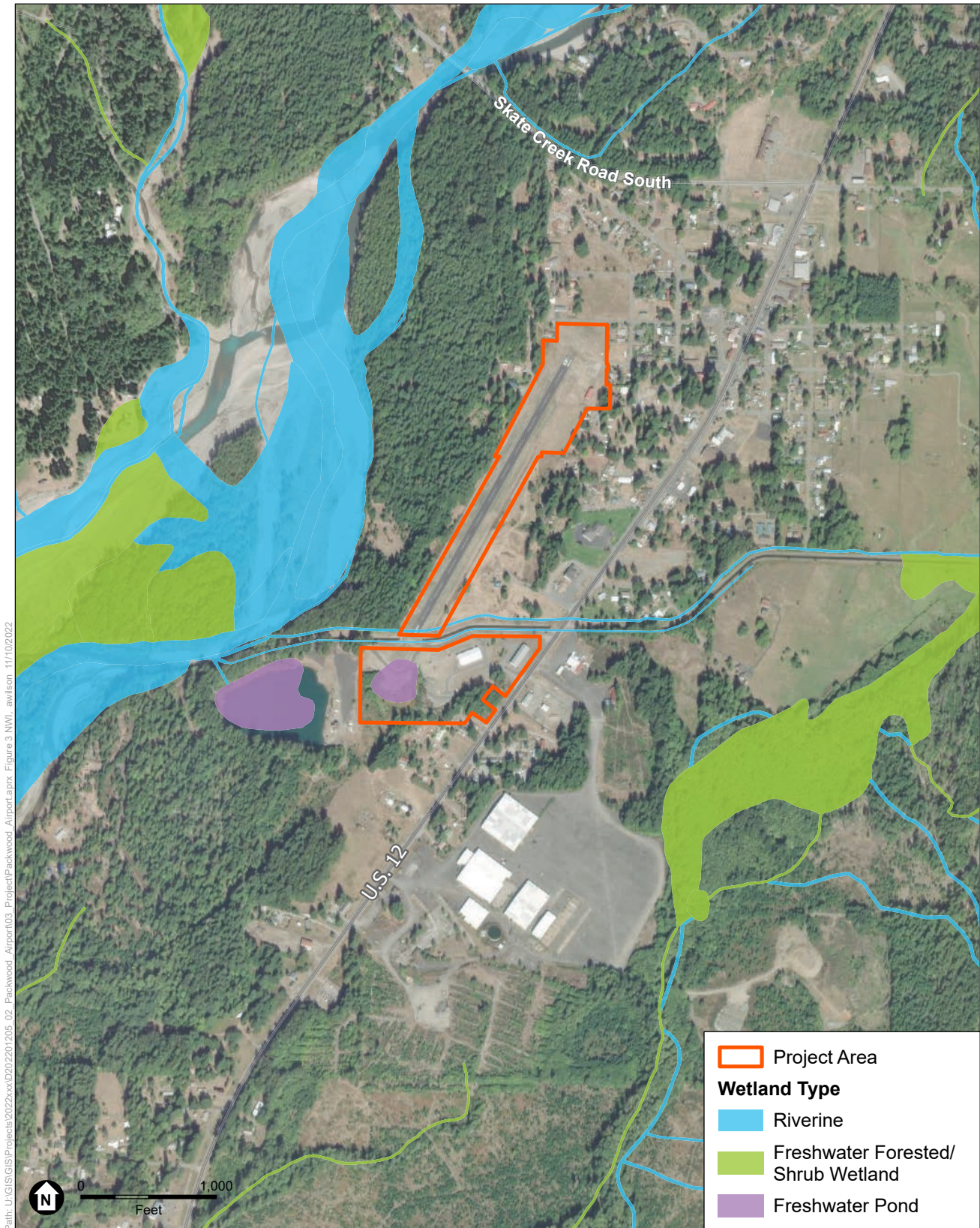
SOURCE: Imagery: Maxar, 2021; National Wetlands Inventory: 2021; ESA, 2022

Packwood Airport Layout

CULTURAL RESOURCES REVIEW

The Airport Master Plan meets the requirements of Section 106 of the National Historic Preservation Act (NHPA) and consider impacts of future airfield improvements to any potential historic properties. The Section 106 review was conducted through online research. This research included the review of known archaeological resources within a 1.0-mile radius of the Airport property using publicly available archeological resource databases maintained by the State of Washington. This database includes recorded archaeological resources, historic property inventories (HPIs), National Register of Historic Properties (NRHP) and Washington Heritage Register (WHR) properties, identified cemeteries, and previously conducted cultural resource surveys found throughout the state. The full review is available in **Appendix B**.

NOISE CONTOURS

A noise analysis is not included in the scope of work for this master planning effort due to the relatively low levels of flight activity at the Airport, which falls below the FAA threshold for analysis.

AIRSPACE AND NAVIGATIONAL AIDS

Airspace Classifications

Airspace within the United States is classified by the FAA as "controlled" or "uncontrolled" with altitudes extending from the surface upward to 60,000 feet above MSL. Controlled airspace classifications include Class A, B, C, D, and E. Class G airspace is uncontrolled. **Figure 2-7** visually depicts these airspace classifications.

Aircraft operating within controlled airspace are subject to varying levels of positive air traffic control that are unique to each airspace classification. Requirements to operate within controlled airspace vary, with the most stringent requirements associated with very large commercial airports in high traffic areas. Uncontrolled airspace is typically found in remote areas or is limited to a 700 or 1,200-foot above ground level (AGL) layer above the surface and below controlled airspace
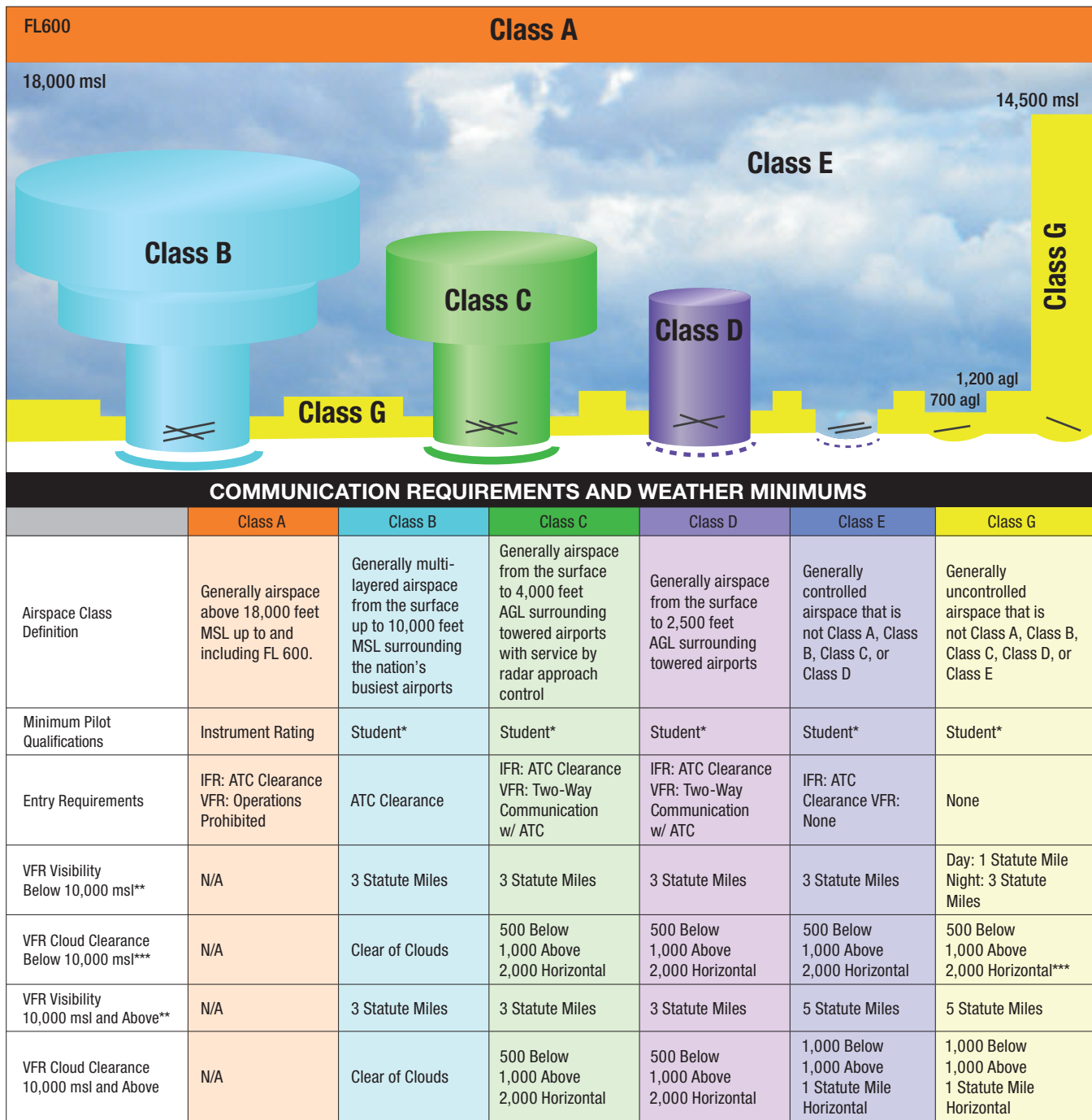
Local Area Airspace Structure

The Seattle Sectional Aeronautical Chart depicts nearby airports, notable obstructions, special airspace designations and instrument airways in the vicinity of Packwood Airport (see **Figure 2-8**).

Packwood Airport is located in an area of Class G airspace up to 1200 feet AGL, where it becomes Class E airspace. Radio communication is not required for visual flight rules (VFR) operations in Class G or E airspace, although pilots are encouraged to use the common traffic advisory frequency (CTAF) when operating at individual airports. Aircraft are required to obtain an air traffic control (ATC) clearance prior to operating in Class E airspace when operating under instrument flight rules (IFR).

Figure 2-7: Airspace Classifications

	Class A	Class B	Class C	Class D	Class E	Class G
COMMUNICATION REQUIREMENTS AND WEATHER MINIMUMS						
Airspace Class Definition	Generally airspace above 18,000 feet MSL up to and including FL 600.	Generally multi-layered airspace from the surface up to 10,000 feet MSL surrounding the nation's busiest airports	Generally airspace from the surface to 4,000 feet AGL surrounding towered airports with service by radar approach control	Generally airspace from the surface to 2,500 feet AGL surrounding towered airports	Generally controlled airspace that is not Class A, Class B, Class C, or Class D	Generally uncontrolled airspace that is not Class A, Class B, Class C, Class D, or Class E
Minimum Pilot Qualifications	Instrument Rating	Student*	Student*	Student*	Student*	Student*
Entry Requirements	IFR: ATC Clearance VFR: Operations Prohibited	ATC Clearance	IFR: ATC Clearance VFR: Two-Way Communication w/ ATC	IFR: ATC Clearance VFR: Two-Way Communication w/ ATC	IFR: ATC Clearance VFR: None	None
VFR Visibility Below 10,000 msl**	N/A	3 Statute Miles	3 Statute Miles	3 Statute Miles	3 Statute Miles	Day: 1 Statute Mile Night: 3 Statute Miles
VFR Cloud Clearance Below 10,000 msl***	N/A	Clear of Clouds	500 Below 1,000 Above 2,000 Horizontal	500 Below 1,000 Above 2,000 Horizontal	500 Below 1,000 Above 2,000 Horizontal	500 Below 1,000 Above 2,000 Horizontal***
VFR Visibility 10,000 msl and Above**	N/A	3 Statute Miles	3 Statute Miles	3 Statute Miles	5 Statute Miles	5 Statute Miles
VFR Cloud Clearance 10,000 msl and Above	N/A	Clear of Clouds	500 Below 1,000 Above 2,000 Horizontal	500 Below 1,000 Above 2,000 Horizontal	1,000 Below 1,000 Above 1 Statute Mile Horizontal	1,000 Below 1,000 Above 1 Statute Mile Horizontal

* Prior to operating within Class B, C, or D airspace (or Class E airspace with an operating control tower), student, sport, and recreational pilots must meet the applicable FAR Part 61 training and endorsement requirements. Solo student, sport, and recreational pilot operations are prohibited at those airports listed in FAR Part 91, appendix D, section 4.

** Student pilot operations require at least 3 statute miles visibility during the day and 5 statute miles visibility at night.
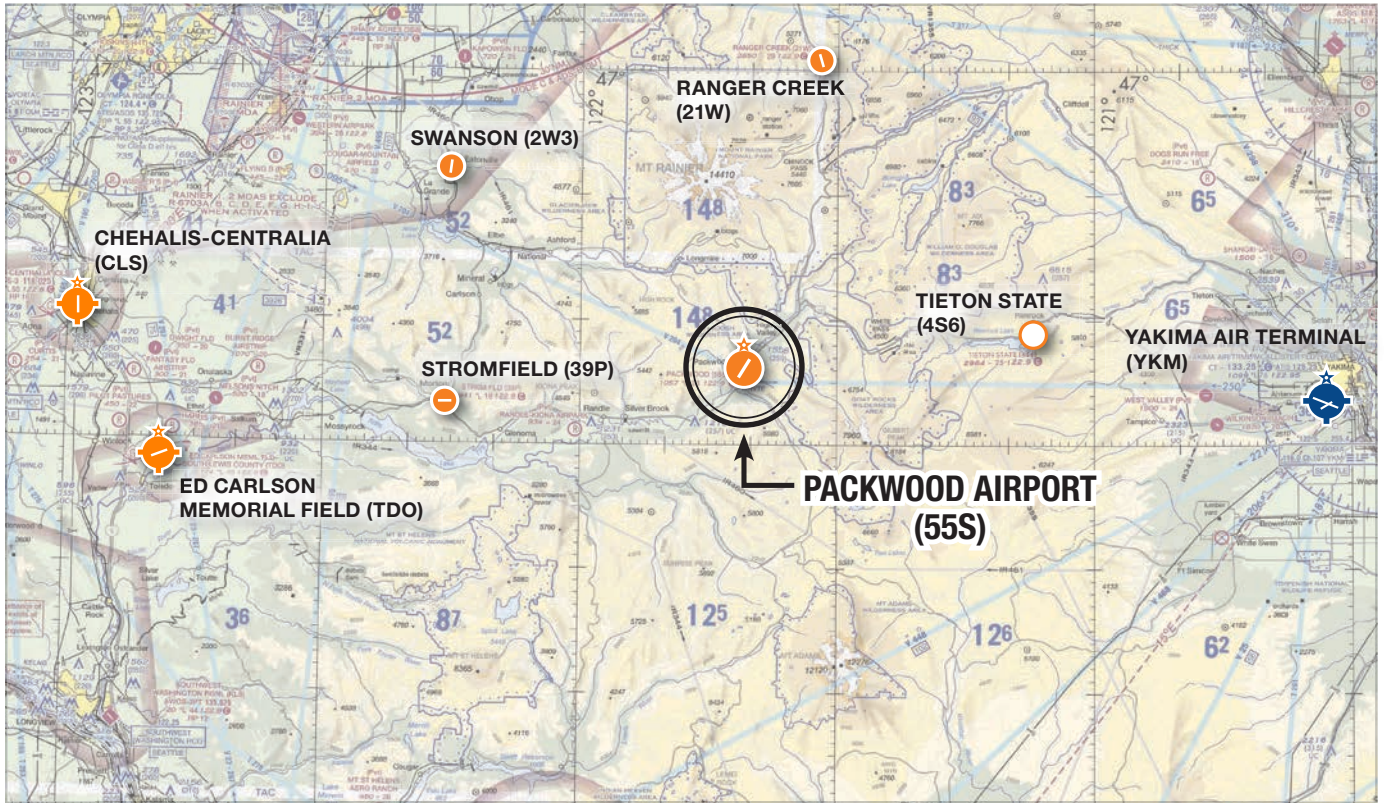
*** Class G VFR cloud clearance at 1,200 agl and below (day); clear of clouds.

Source: Federal Aviation Administration (FAA)

Figure 2-8: Area Airspace - Seattle Sectional Chart

LEGEND			
○	Airports with other than hard-surface runways	───	VOR or RNAV Airways
◈ ◈	Airports with hard-surfaced runways 1,500 ft. to 8,069 ft.	─ ─ ─	Class E Airspace (surface)
◇	VOR/ VORTAC	▬▬▬	Class E Airspace with floor 700' above surface
⏣	Compass Rose (VOR/DME or VORTAC)	• • • • •	National Wilderness Area

Special Use Airspace

There are several areas of special use airspace located in the vicinity of the Packwood Airport including Mount Rainer National Park (10 miles north) and two U.S. Forest Service Wilderness Areas (Goat Rocks Wilderness Area - 10 NM southeast; Tatoosh Wilderness Area - 7 NM northwest). Pilots are requested to maintain a minimum of 2,000 feet AGL of wildlife refuges, parks, and forest service areas. The Rainier Military Operations Area (MOA) is located 55 NM northwest of the Airport.

Controlled & Uncontrolled Airspace

Packwood Airport is an uncontrolled field and pilots use the airport Unicom/common traffic advisory frequency (CTAF) for communications on the ground and in the vicinity of the Airport.

Navigational Aids and Airways

Packwood Airport operates exclusively under visual flight rules (VFR) and has no electronic navigational aids or published instrument procedures.

The nearest electronic navigational aids are the McChord VORTAC (TCM 109.60 MHz), located 48 nautical miles (NM) northwest of Packwood Airport and the Yakima VORTAC (YKM 116.0 MHz), located 51 NM east. There is one low altitude instrument airway in the area: Victor 204 which connects to the YKM VORTAC less than 1 mile south of Packwood Airport.

Airspace - FAR Part 77 Runway Threshold Siting Surfaces

In addition to the airspace classifications and operating environment pilots are more familiar with (described in the previous section above) there are a variety of FAA rules, regulations, design standards, and policies associated with the protection of airspace, evaluation of proposed objects on and near airports, and their effects on navigable airspace. Several of these are summarized below and visually depicted in **Figure 2-9**. Additional information can be found in the *Airport Cooperative Research Program (ACRP) Report 38 - Understanding Airspace, Objects, and Their Effects on Airports.*

FAR Part 77—Objects Affecting Navigable Airspace

The Code of Federal Regulations (CFR) Part 77 is the central regulation governing airspace protection, with cross-references to many other criteria documents. It defines airport "imaginary surfaces" for civil and military airports and heliports. The surfaces are intended to be free of obstacles to the greatest extent feasible to provide for safe environment for aircraft operating in the vicinity of the landing area. For runways, Part 77 surfaces are established based on the approach type (visual, non-precision instrument, or precision instrument) and the size of aircraft. Part 77 also defines requirements for notification of FAA for proposed construction in vicinity of airports, defines obstruction criteria; and describes aeronautical studies required to assess hazard status. Existing visual Part 77 airspace surfaces for Runway 1/19 are depicted in **Figure 2-9**; generic surfaces are depicted in **Figure 2-10**.

Figure 2-9: Part 77 Visual Airspace Surfaces (Runway 1/19)
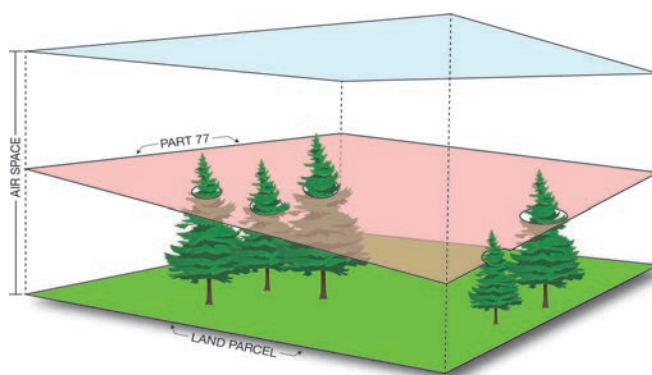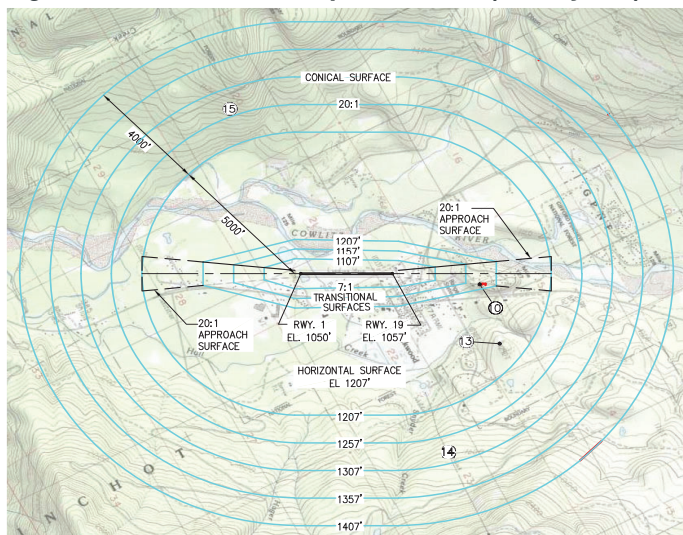
Generic relationship between ground, objects, and Part 77 airspace.

FAA AC 150/5300-13B—Airport Design

This Advisory Circular (AC) is the principal document utilized by the FAA, airport sponsors, and planning consultants when planning and designing new airports or modifications to airports. Airspace clearances for key runway end features are defined in the AC's discussion of Threshold Siting Surfaces. A comprehensive review of current FAA design standards will be provided in the facility requirements chapter of this study to identify any existing facilities that do not conform to current FAA standards.
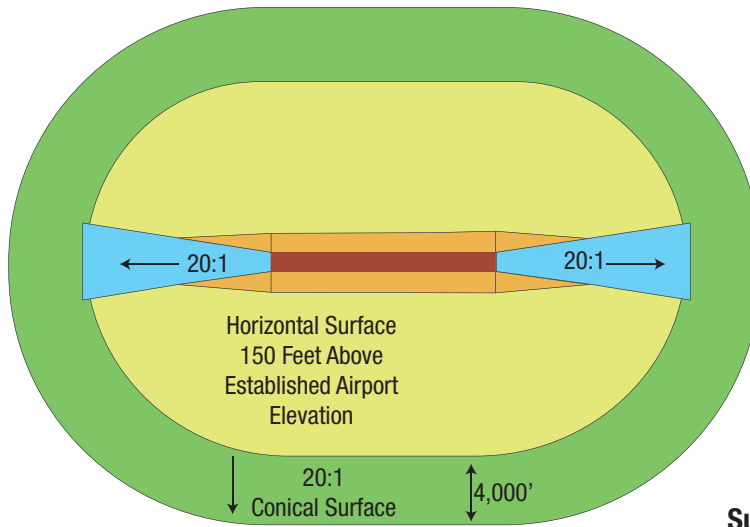
Instrument Flight Procedures

Packwood Airport currently operates exclusively under visual flight rules (VFR) is not equipped with instrument approach procedures. Previous planning for the Airport has been based on maintaining VFR airspace and capabilities, reflecting the surrounding terrain and runway length.

Figure 2-10: PART 77 Airspace

**Plan View of Part 77
Civil Airport Imaginary Surfaces**

20:1

20:1

Horizontal Surface
150 Feet Above
Established Airport
Elevation

20:1
Conical Surface

4,000'

Surface Slope Key

- Primary Surface
- Transitional Surface
- Horizontal Surface
- Conical Surface
- Approach Surface

**Isometric View of Part 77
Civil Airport Imaginary Surfaces**

Surface Approach

20:1 Conical
Surface

Horizontal Surface
150 Feet Above
Established Airport
Elevation

Primary
Surface
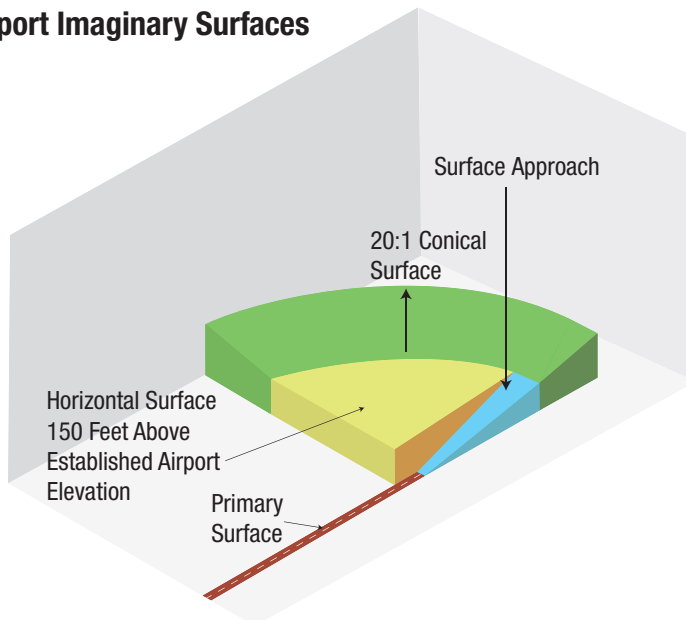
For Packwood Airport, the approach surfaces for the runway extend 5,000 feet beyond each end (beginning 200 beyond the runway end) at a 20:1 slope.

LAND USE & ZONING ANALYSIS

Packwood Airport is in unincorporated Lewis County. All land use actions related to the Airport site, and its immediate surroundings are under the County's jurisdiction. The Lewis County zoning ordinance articles (Lewis County Code, Title 17) associated with the Airport are summarized below and provided in **Appendix C**. **Figure 2-11** depicts zoning in the vicinity of Packwood Airport.

The Airport's Part 77 airspace extends over areas of Lewis County jurisdiction. The County is responsible for protection of the Part 77 airspace surfaces for the Airport that fall within their boundaries and Lewis County Code (LCC) for compliance with the State of Washington airport land use protections.

Packwood Airport

Packwood Airport is zoned as **Small Town Mixed Use (STMU)** defined under Chapter 17.45 of the municipal code. This zone intended to *"provide land areas within the small towns for the siting of commercial uses which serve the surrounding community with a broad range of retail goods and services."* Airport related uses are not listed for the STMU zone, but no known issues related to airport development or operation have been identified. The urban area of Packwood is also zoned as STMU. A Packwood Subarea Plan is currently being developed which may change zoning requirements of the Airport. This information will be incorporated into the AMP when the plan is adopted.

Airport Vicinity Zoning

Lewis County zoning in the vicinity of Packwood Airport is a mixture of low-density **Rural Development District (RDD)** designations. The designations include several "one dwelling unit" densities: per 5 acres (RDD-5), 10 acres (RDD-10), and 20 acres (RDD-20). Other designations **Rural Residential Centers (RRC)**, which designate one unit per acre (RCC-R1), Small Towns – Mixed Use/Commercial (STMU) and Small Towns – Residential, which designated four units per acre (STR-4), and Small Towns – Industrial (STI).

The RDD district is land in Lewis County not otherwise designated. There are multiple density designation based upon the number of units per acre, for instance one unit per five acres. Lewis County describes land zoned RDD as capable of providing *"a wide variety of rural residential densities, and will preserve the rural character of the county while providing reasonable opportunity for any low density development."*

Areas zoned as RRC in Lewis County have previously experienced growth greater than rural development, but geographically reside outside of urban growth areas. More specifically, RRC-R1 has a limit of one unit per gross acre.

The STMU zone provides land which may be developed commercially to benefit the community. Additionally, property within this district may *"meet the residential needs of the community in accordance with the capability of local facilities."*

Lewis County designates land as STR to preserve land which was historically residential. Land zoned as STR-4 should have a maximum density of four units per gross acre.

The purpose of the STI district is to *"assure that areas historically devoted to intensive employment activities are protected to enable communities to maintain or re-establish their economic base and to assure continuation of locations to provide services and support to maintain long-term commercially significant resource activities."*

Figure 2-11: Airport Area Zoning Map

Legend
- Property_Boundary
- Forest
- Mine
- Park
- RDD-10
- RDD-20
- RDD-5
- RRC-R1
- STI
- STMU
- STR-4
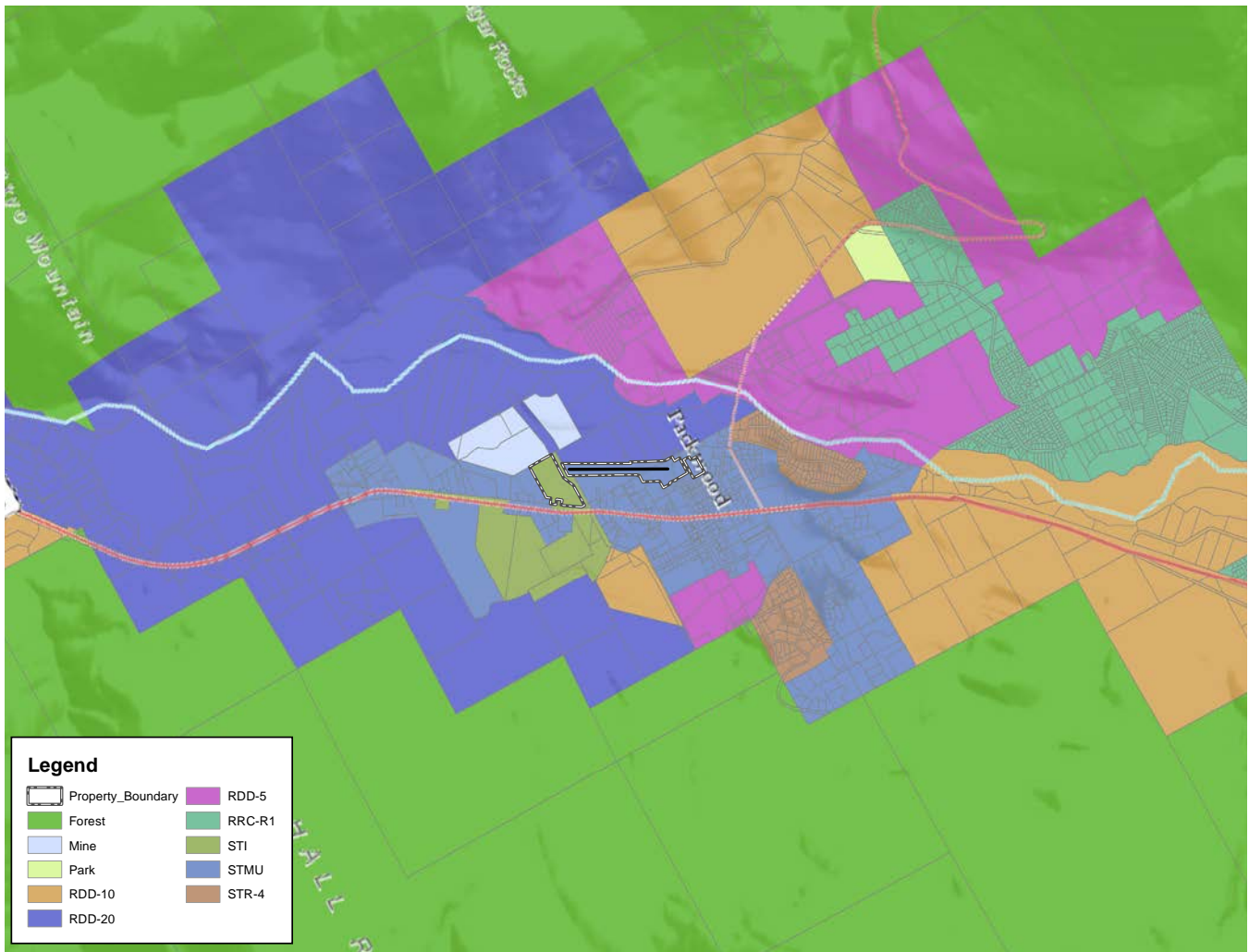
AIRPORT OVERLAY ZONING

Lewis County's Airport Obstruction Zoning (Chapter 17.80) is intended to protect the airspace around the County airports from airspace obstructions or hazards and incompatible land uses in proximity to the Packwood Airport, or other public airports within defined airspace per Federal Aviation Regulations (FAR), Part 77. In addition to regulations of the principal use district, the Airport Safety Overlay includes provisions for preserving land adjacent to the Airport for future commercial and industrial development; and assuring land uses located near the Airport are compatible with noise, height obstruction and other impacts from the Airport operation. The Packwood Airport approach, transitional, horizontal, and conical zones are defined in Chapter 17.80 of the Lewis County Code. The Official Zoning Map adopted by the County in 2000 (**Figure 2-12**) is not fully consistent with the code. A review of code language and mapping will be completed as part of the development of the ALP drawing set.

Figure 2-12: Lewis County Official Zoning Map
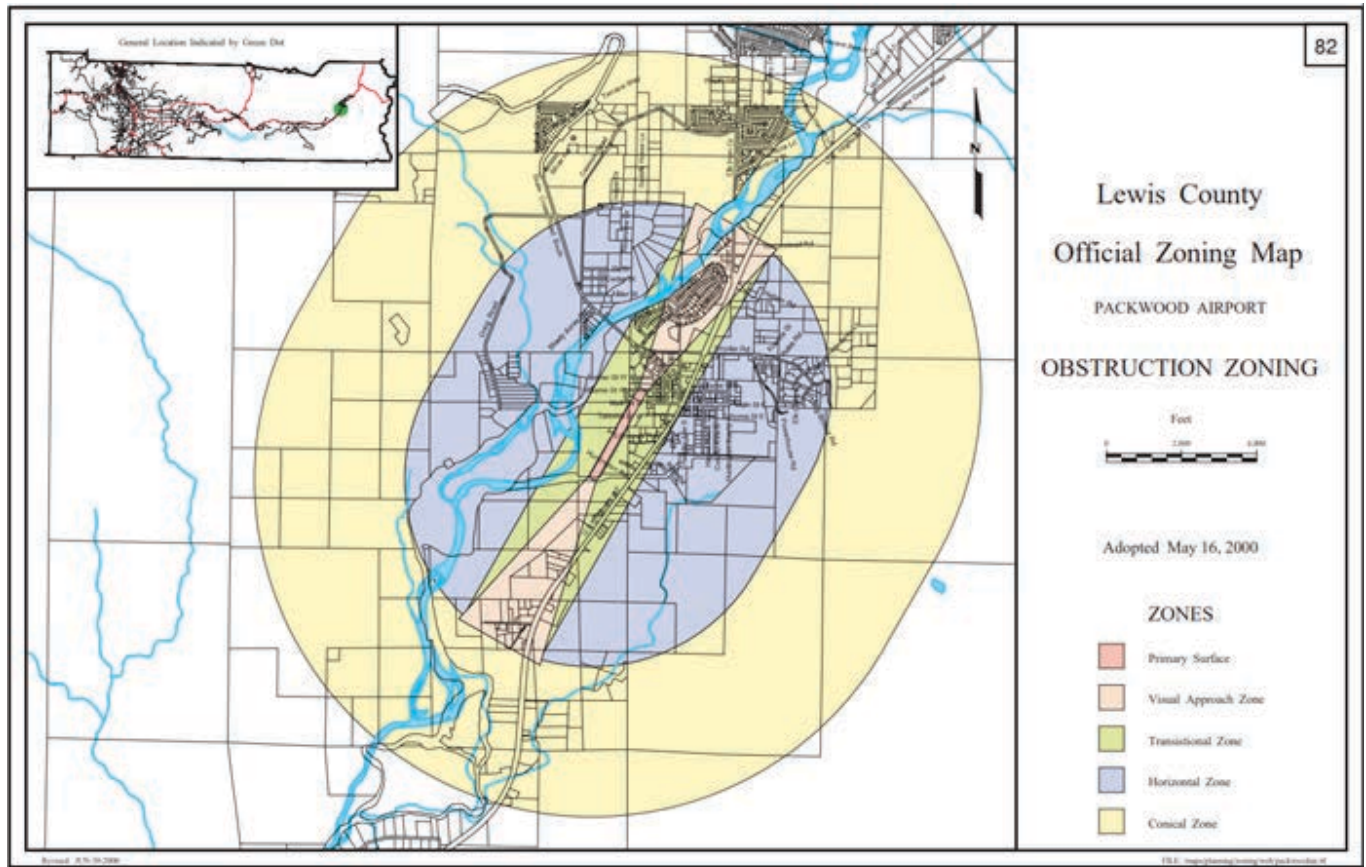
Airside Elements

Airside facilities are comprised of infrastructure that facilitate the movement and operation of aircraft on the ground and in the air. This section of the existing conditions analysis includes a discussion of the Airport's runway- taxiway system, airfield lighting and signage, airfield pavements, and support facilities. Packwood Airport operates in day and night visual flight rules (VFR) conditions.

RUNWAY

Packwood Airport has one paved Runway (01/19) that is oriented in a north-south direction (010/190 magnetic). Runway 01/19 is 2,356 x 60 feet and is equipped with lighting systems that are consistent with visual approach requirements and runway use. The runway was reconstructed in 2015.

A summary of current runway conditions is provided below and in **Table 2-7**:

- **Runway Pavement:** Hot Mix Asphalt (HMA) 2", with a 2" P-209 Crushed Aggregate Base Course (CABC), and an 18" aggregate subbase (quarry spalls). The runway has a Pavement Condition Index (PCI) score of 100 (2018 inspection) according to the WSDOT Innovations Deserving Exploratory Analysis (IDEA).

- **Runway Markings:** Runway 01/19 has visual markings, consisting of runway end numbers and a centerline stripe. The runway markings were observed to be in very good condition during recent site visits. All runway markings are consistent with FAA standards for configuration, color (white paint), and approach type.

- **Runway Gradient:** The 2009 Airport Layout Plan (ALP) identifies the end of Runway 19 as the high point with an elevation of 1,057 feet and the runway gradient as 0.30%. The runway data will be verified in the AGIS survey.

- **MIRL:** Runway 01/19 is equipped with LED Medium Intensity Runway Lighting (MIRL), which includes white edge lights and split lens (green/ red) threshold lights. The threshold lights consist of two sets of three fixtures near each corner of the runway, indicating the beginning and end of the runway. The lighting was installed in 2015 as part of the runway reconstruction.

- **Visual Guidance Indicators (VGI):** The runway is not equipped with VGI on either end.

- **Other Lighting/Marking:** Orange reflectors are mounted on the fence at the ends of the runway to identify potential approach obstructions.

Table 2-7: Runway Details

Runway 1/19	
Dimensions	2,356' x 60'
Bearing	N 29° 37' 15'' E (True)
Effective Gradient	0.30%
Surface/Condition	Asphalt/Excellent
Weight Bearing Capacity	12,500 pounds - Single Wheel Load
Markings	Visual/Basic - Runway Designation Numbers, Centerline Stripe
Lighting	Medium Intensity Runway Edge Lighting (MIRL) and Threshold Lighting (pilot activated by radio)

Source: FAA 5010 Airport Master Record (Accessed 10/26/2022)

TAXIWAYS & TAXILINES

Packwood Airport is not equipped with any designated taxiways or taxilanes.

PAVEMENT CONDITION

The WSDOT Aviation Pavement Evaluation Program systematically identifies maintenance, repair, and rehabilitation projects needed to sustain functional pavements at Washington airports. The program provides a thorough evaluation of current conditions and future projections of condition in terms of pavement condition indices (PCI) for all eligible pavements on all paved airports across the state. For NPIAS airports like Packwood Airport that receive federal money, this work assists airport sponsors in meeting their FAA grant assurances.

The most recent PCI data available for Packwood Airport is from a 2018 inspection. The survey was performed using the methodology developed by the U.S. Army Corps of Engineers, and outlined in the current edition of *ASTMD-5340, Standard Test Method for Airport Condition Index Surveys.*

The runway pavement at Packwood Airport was rated Good (100%) in the 2018 inspection survey. The current 141,360-square-foot runway was reconstructed in August of 2015. There is no recommended maintenance recorded in the IDEA database at this time. The forecasted PCI value for the runway in 2023 is 95.

A small apron located adjacent to the runway was rated Very Poor (26%). The 3,249-square-foot apron was constructed in 1985. The IDEA database shows record that in 2019 major rehabilitation of the apron was recommended. As of 2022 apron rehabilitation had not been completed. The forecasted PCI value for the runway in 2023 is 13.

Figure 2-13 shows the pavement condition report from the 2018 inspection published by WSDOT Aviation. The pavement ratings are consistent with pavement age and use. The recommended maintenance will be identified in the facility requirements chapter and included in the Capital Improvement Plan.

Figure 2-13: Pavement Conditions (2018 Inspection)
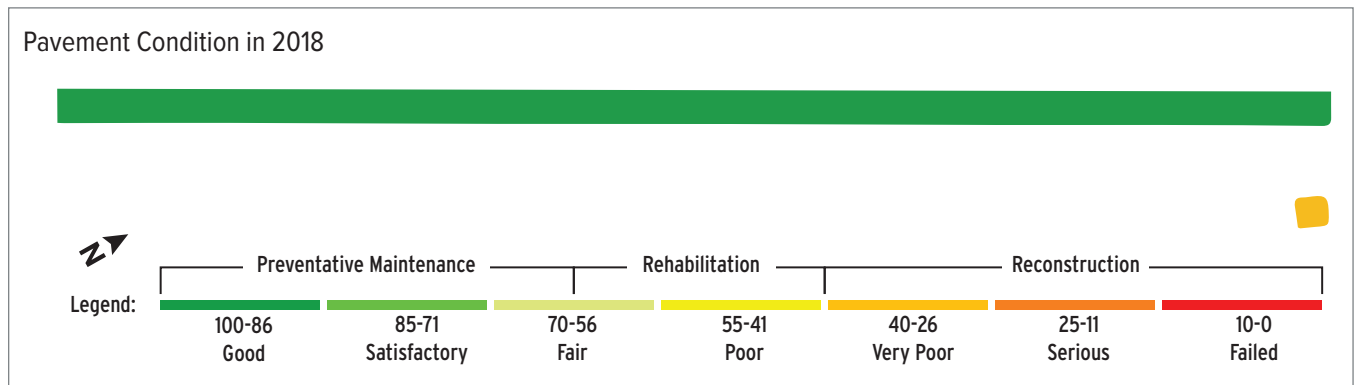
Source: WSDOT IDEA Datebase, Applied Pavement

AIRSIDE SUPPORT FACILITIES

Support facilities generally include airside support facilities such as airfield lighting, signage, weather reporting equipment and visual aids.

Airport Lighting

The Airport is equipped with a rotating beacon located on the east side of the runway.

Two lighted wind cones are located on the east side of the runway (approximately 800 feet south of the end of Runway 19) and on the roof of the north hangar.

Airfield Signage

The airfield has no signage.

Weather Reporting

Packwood Airport has no on-site weather reporting capabilities.

Airport Surveying/Airport Control Stations

There is one Primary Airport Control Station (PACS) and one Secondary Airport Control Station (SACS) installed at Packwood Airport. Both monuments were installed in 2019 to support ongoing survey requirements. Normally, one PACS and two SACS are installed on an airport. In Packwood's case, only one SACS was established at the time of installation.

DESIGNATION	PID	Type
55S A	DR2452	PACS
55S B	DR2453	SACS
Packwood Air	SB1172	CBN

There is also a Cooperative Base Network (CBN) control monument located on the Airport in the area where a second SACS would normally be located. CBN monuments are a different control network and cannot be used as airport geodetic control, but if the monument is in suitable condition and meets stability requirements it can be established as a PACS/SACS through some very vigorous survey methods.

Runway 1 Looking North

Landside Elements

The landside elements section includes the facilities designed to support airport operations. This section of the existing conditions analysis includes a discussion of aircraft aprons/ tiedown areas, hangars, utilities, fencing, surface roads, and vehicle parking. **Figure 2-14** shows the existing conditions of the Airport.

APRONS & TIEDOWN AREAS

Packwood Airport has one concrete apron (approximately 57 x 57 feet) that accommodates both fixed wing aircraft and helicopters. There are no permanent aircraft tiedowns, although aircraft parking is accommodated in the unpaved area between the runway and the hangar, adjacent to the paved apron.

AIRPORT PERIMETER FENCING

Packwood Airport is fenced with 8-foot chain link fencing. Pedestrian and vehicle swing gates are located at the northeast corner of the Airport. Orange reflective markers are installed on the fence beyond the ends of the runway.

AIRPORT SURFACE ROAD ACCESS

Surface access to Packwood Airport is provided via U.S. Highway 12 and Main Street West, a local street. Public access is provided through the vehicle and pedestrian gates at the northeast corner of the Airport.

VEHICLE PARKING

While there are no designated auto parking areas on the Airport, the area adjacent to the gate and the aircraft hangar is used for parking.

AIRCRAFT FUEL

Aviation fuel is not currently available at Packwood Airport.

HANGARS AND BUILDINGS

The Airport currently has one hangar, a CXT vault toilet, and an electrical building. The hangar faces west with an open front and space to accommodate two small aircraft. The outdoor restroom building is next to the access gates. The toilet is mounted on a concrete base with a holding tank. A small electrical building is located near the northeast corner of the apron.

UTILITIES

The Airport has electrical power and water, but no sewer service. The Airport's outdoor restroom consists of a CXT vault toilet with a waste storage tank that requires periodic pumping.

Electrical power in the area is generated by the Packwood Lake Hydroelectric facility owned by Energy Northwest. The facility is located east of Packwood at Packwood Lake. An underground pipeline carries water down the mountain to the powerhouse near Packwood. Water to the Airport is provided by the Town of Packwood water system.

PUBLIC SAFETY

The Packwood Airport is served by the Packwood Fire Department, located 1/4 mile from the Airport. Randle Fire and EMS is located approximately 15 miles west, via US Highway 12. Law enforcement is provided by the Lewis County Sheriff's Department and Washington State Patrol.

Figure 2-14: Existing Conditions

Airport Administration

The Airport Administration section provides a summary of Airport Ownership & Management, Airport Finance, Rates and Charges, Rules and Regulations, and overview of FAA Grant Assurances and Compliance.

AIRPORT OWNERSHIP & MANAGEMENT

Packwood Airport is owned and operated by Lewis County. The County is responsible for the day-to-day management of the Airport, in addition to any contractors who perform airfield maintenance and mowing as needed.

Airport tenants are responsible for managing their facilities and leased areas to meet the requirements defined in their leases.

AIRPORT FINANCE

The Airport operates within its Enterprise Fund, with all revenue generated through operations remaining in the Airport's budget. However, Airport revenues do not cover the annual operating expenses and the County has to subsidize with funding from the General Fund. Airport revenues are required by FAA to be used for Airport operations and maintenance to prevent revenue diversion. The primary revenue generating sources for the Airport include ground leases and rents from County-owned facilities. The primary expenditures for the Airport include airport administration, maintenance, and facility improvements. Packwood Airport's capital improvement projects are typically funded through FAA grants with a local match.

Table 2-8: Airport Financials (FY2022 Budget)

AIRPORT EXPENSES	
Total Airport Revenue	$31,660
Total Airport Expenses	$30,685
Net Operating Income (loss)	**($975)**

Source: Lewis County, 2022 Budget

Fiscal year 2022 operating revenue and expense budgets for Packwood Airport are summarized in **Table 2-8.**

RULES AND REGULATIONS

Lewis County operates the Airport for the use and benefit of the public in order to make it available to all types, kinds, and classes of aeronautical activity on fair and reasonable terms and without unjust discrimination.

FAA Compliance Overview

A management program based on the FAA's "Planning for Compliance" guidance and the adoption of additional airport management "Best Practices" is recommended to address FAA compliance requirements and avoid noncompliance, which could have significant consequences.

Airport management "Best Practices" are developed to provide timely information and guidance related to good management practices and safe airport operations for airport managers and sponsors. The practices outlined herein are designed for use by the Lewis County for evaluating and improving their current and future operation and management program.

Airport sponsors must comply with various federal obligations through agreements and/or property conveyances, outlined in *FAA Order 5190.6B, Airport Compliance Manual*. The contractual federal obligations a sponsor accepts when receiving federal grant funds or transfer of federal property can be found in a variety of documents including:

- Grant agreements issued under the Federal Airport Act of 1946, the Airport and Airway Development Act of 1970, and Airport Improvement Act of 1982. Included in these agreements are the requirement for airport sponsors to comply with:
  - » Grant Assurances;
  - » Advisory Circulars;

- » Application commitments;
- » FAR procedures and submittals; and
- » Special conditions.

- Surplus airport property should meet the requirements set forth in the Surplus Act of 1944;

- Deeds of conveyance;

- Commitments in environmental documents prepared in accordance with FAA requirements; and

- Separate written requirements between a sponsor and the FAA.

Airport Compliance with Grant Assurances

As a recipient of both federal and state airport improvement grant funds, the sponsor is contractually bound to various obligations referred to as "Grant Assurances," developed by the FAA and WSDOT Aviation. These obligations, presented in detail in federal and state grants and state statute and administrative codes, document the commitments made by the Airport sponsor to fulfill the intent of the grantor (FAA and State of Washington) required when accepting federal and/or state funding for Airport improvements. Failure to comply with the grant assurances may result in a finding of noncompliance and/or forfeiture of future funding. Grant assurances and their associated requirements are intended to protect the significant investment made by the FAA, State, and County to preserve and maintain the nation's airports as a valuable national transportation asset, as mandated by Congress.

FAA Grant Assurances

The FAA's Airport Compliance Program defines the interpretation, administration, and oversight of federal sponsor obligations contained in grant assurances. The Airport Compliance Manual defines policies and procedures for the Airport Compliance Program. Although it is not regulatory or controlling with regard to Airport sponsor conduct, it establishes the policies and procedures for FAA personnel to follow in carrying out the FAA's responsibilities for ensuring compliance by the sponsor.

The Airport Compliance Manual states the FAA Airport Compliance Program is: "...designed to monitor and enforce obligations agreed to by airport sponsors in exchange for valuable benefits and rights granted by the United States in return for substantial direct grants of funds and for conveyances of federal property for airport purposes. The Airport Compliance Program is designed to protect the public interest in civil aviation. Grants and property conveyances are made in exchange for binding commitments (federal obligations) designed to ensure that the public interest in civil aviation will be served. The FAA bears the important responsibility of seeing that these commitments are met. This order addresses the types of commitments, how they apply to airports, and what FAA personnel are required to do to enforce them."

According to the FAA, cooperation between the FAA, state, and local agencies should result in an airport system with the following attributes:

- Airports should be safe and efficient, located at optimum sites, and be developed and maintained to appropriate standards;

- Airports should be operated efficiently both for aeronautical users and the government, relying primarily on user fees and placing minimal burden on the general revenues of the local, state, and federal governments;

- Airports should be flexible and expandable, able to meet increased demand and accommodates new aircraft types;

- Airports should be permanent, with assurance that they will remain open for aeronautical use over the long- term;

- Airports should be compatible with surrounding communities, maintaining a balance between the needs of aviation and the requirements of residents in neighboring areas;

- Airports should be developed in convert with improvements to the air traffic control system;

- The airport system should support national objectives for defense, emergency readiness, and postal delivery;

- The airport system should be extensive, providing as many people as possible with convenient access to air transportation, typically not more than 20 miles of travel to the nearest NPIAS airport; and

- The airport system should help air transportation contribute to a productive national economy and international competitiveness.

The airport sponsor should have a clear understanding of and comply with all assurances. The following sections describe the selected assurances in more detail.

Project Planning, Design, And Contracting

Sponsor Fund Availability (Assurance #3)
Once a grant is given to the airport sponsor, the sponsor commits to providing the funding to cover their portion of the total project cost. Currently this amount is 10% of the total eligible project cost, although it may be higher depending on the particular project components or makeup. Once the project has been completed, the receiving airport also commits to having adequate funds to maintain and operate the airport in the appropriate manner to protect the investment in accordance with the terms of the assurances attached to and made a part of the grant agreement.

Consistency with Local Plans (Assurance #6)
All projects must be consistent with city and county comprehensive plans, transportation plans, zoning ordinances, development codes, and hazard mitigation plans. The airport sponsor should familiarize themselves with local planning documents before a project is considered to ensure that all projects follow local plans and ordinances.

Accounting System Audit and Record Keeping (Assurance #13)
All project accounts and records must be made available at any time. Records should include documentation of cost, how monies were actually spent, funds paid by other sources, and any other financial records associated with the project at hand. Any books, records, documents, or papers that pertain to the project should be available at all times for an audit or examination.

General Airport Assurances

Good title (Assurance #4)
The airport sponsor must have a Good Title to affected property when considering projects associated with land, building, or equipment. Good Title means the sponsor can show complete ownership of the property without any legal questions, or show it will soon be acquired.

Preserving Rights and Powers (Assurance #5)
No actions are allowed, which might take away any rights or powers from the sponsor, which are necessary for the sponsor to perform or fulfill any condition set forth by the assurance included as part of the grant agreement.

Airport Layout Plan (ALP) (Assurance #29)
Packwood Airport should maintain an up-to-date ALP, which should include current and future property boundaries, existing facilities/structures, locations of non-aviation areas, and existing and proposed improvements. FAA requires proposed improvements to be depicted on the ALP in order to be eligible for FAA funding. If changes are made to the airport without authorization from the FAA, the FAA may require the airport to change the alternation back to the original condition or jeopardize future grant funding.

Disposal of Land (Assurance #31)
Land purchased with the financial participation of an FAA Grant cannot be sold or disposed of by the airport sponsor at their sole discretion. Disposal of such lands are subject to FAA approval and a definitive process established by the FAA. If airport land is no longer considered necessary for airport purposes, and the sale is authorized by the FAA, the land must be sold at fair market value. Proceeds from the sale of the land must either be repaid to the FAA, or reinvested in another eligible airport improvement project.

Airport Operations and Land Use

Pavement Preventative Maintenance (Assurance #11)
Since January 1995, the FAA has mandated that it will only give a grant for airport pavement replacement or reconstruction projects if an effective airport pavement maintenance-management program is in place. Lewis

County prepares and updates pavement reports for Packwood Airport. These reports identify the maintenance of all pavements funded with federal financial assistance and provides a pavement condition index (PCI) rating (0 to 100) for various sections of aprons, runways, and taxiways; including, a score for overall airport pavements.

Operations and Maintenance (Assurance #19)

All federally funded airport facilities must operate at all times in a safe and serviceable manner and in accordance with the minimum standards as may be required or prescribed by applicable Federal, State, and Local agencies for maintenance and operations.

Compatible Land Use (Assurance #21)

Land uses around an airport should be planned and implemented in a manner that ensures surrounding development and activities are compatible with the airport. The Airport is located within Lewis County. The Airport sponsor should work with land use authority (Lewis County) to ensure there are zoning laws that protect the Airport from incompatible land uses. Incompatible land uses around airports represents one of the greatest threats to the future viability of airports.

Day-To-Day Airport Management

Economic Non-Discrimination (Assurance #22)

Any reasonable aeronautical activity offering service to the public should be permitted to operate at the airport as long as the activity complies with airport established standards for that activity. Any contractor agreement made with the airport will have provisions making certain the person, firm, or corporation will not be discriminatory when it comes to services rendered including rates or prices charged to customers.

Exclusive Rights (Assurance #23)

No exclusive right for the use of the airport by any person providing, or intending to provide, aeronautical services to the public. However, an exception may be made if the airport sponsor can prove that permitting a similar business would be unreasonably costly, impractical, or result in a safety concern, the sponsor may consider granting an exclusive right.

Leases and Finances

Fee and Rental Structure (Assurance #24)

An airport's fee and rental structure should be implemented with the goal of generating enough revenue from airport related fees and rents to become self-sufficient in funding the day-to-day operational needs. Airports should update their fees and rents on a regular basis to meet fair market value, often done through an appraisal or fee survey of nearby similar airports. Common fees charged by airports include fuel flowage fees, tie-down fees, landing fees, and hangar or ground lease rents.

Airport Revenue (Assurance #25)

Revenue generated by airport activities must be used to support the continued operation and maintenance of the airport. Use of airport revenue to support or subsidize non-aviation activities or to fund other County departments who are not using the funds for airport specific purposes is not allowed and is considered revenue diversion Revenue diversion is a significant compliance issue for FAA.

For additional information on FAA Grant Assurances, please go to: https://www.faa.gov/airports/aip/grant_assurances/#current-assurances.

WSDOT Aviation Division Grant Assurances

In 2013, WSDOT Aviation adopted new grant assurances (WAC Chapter 468-260) for airport sponsors that are intended to protect the public's investment in the Washington aviation system. The WSDOT grant assurances apply to both NPIAS and non-NPIAS airports that receive funding through the WSDOT Airport Aid Grant Program. The WSDOT grant assurance s are consistent and complimentary to FAA grant assurances with a significant emphasis placed on land use planning, public process, and environmental stewardship. A summary of the WSDOT grant assurances are included in **Appendix D**.